

**E044N**

**VICATRONIC**

## **AUTOMATIC COMPUTERISED TROPICALIZED VICAT RECORDING APPARATUS**

STANDARDS: EN 196-3:2005 / EN 13279-2 (gypsum) / EN 480-2 / ASTM C187, C191 / DIN 1168, 1196 / BS 4550 / UNE 80102  
NF P15-414, P15-431 / AASHTO T129, T131

The Vicatronic apparatus, that is designed and manufactured using the most recent and sophisticated technology, is used for the initial and final setting time determination of cements or mortar pastes.

The unit is manufactured with “**anticorrosion and tropicalised**” components to be used in places with humidity not below 90% and 20°C. controlled temperature as required by EN Specifications.

The entire test is made in a fully automatic way and gives a very precise and repeatable result. The results are printed on the incorporated printer and this eliminates the manual operations of installing and zeroing the paper graph on the drum.

The use of the appliance is extremely simplified by the guiding menu that is available in english, french, spanish, german, polish, italian language.

section E



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### DISPLAY

The large high contrast LCD display (negative blue) has a high resolution and shows the test data together with the general functions of the appliance. It visualises for the first time in real time the graph of the test (see picture) replacing and simulating what the old fashioned pen tracing on the paper. The appliance has a clock calendar that is used to program the test cycles.

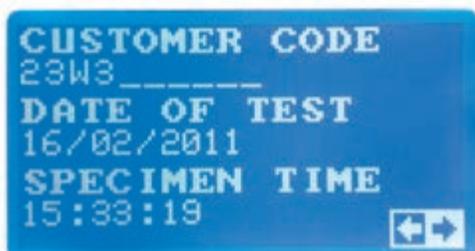


### FIRMWARE

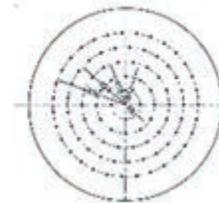
The Vicatronic is supplied with the standard programs to make automatically, all the tests according to the following Standards:

**EN 196-3:2005 / EN 13279-2 gypsum / EN 480-2 / ASTM C191**  
DIN 1164 / DIN 1168 gypsum / NF P15/431 / BS 4550 / AASHTO T131

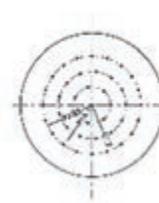
Further programs can be developed by the operator using the specific menu “free tests” available on the base firmware; the user has the possibility to set 5 totally free test profiles defining the number of penetrations and the coordinates of each penetration (ray in mm of the circle where the number of penetrations have to be distributed) and number of circles. This possibility is particularly useful when testing new mortars, additives and to make research tests that requires sophisticated and flexible applications.



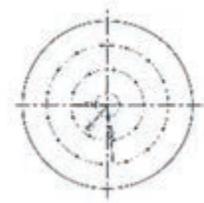
90 penetrations program



ASTM



EN



**MATEST**



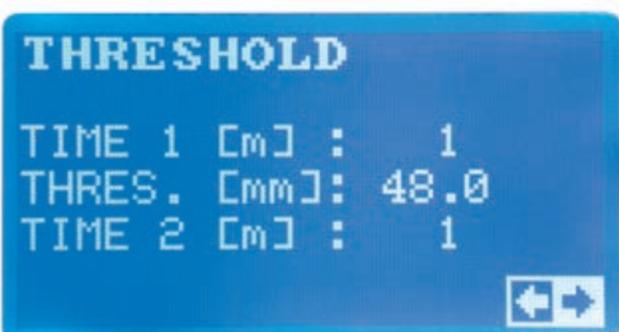
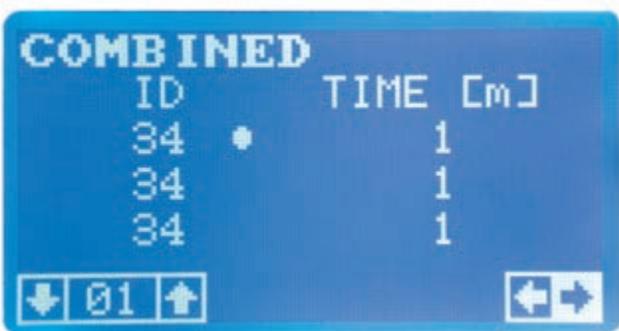
PROBES

The mobile probe weighs 300 g (1000 g following the EN, NF Standards), the penetration needle has 1,13 mm diameter (1 mm following ASTM Standard) and its fall can be programmed in free fall or in guided fall. Totally flexible as far as the time is concerned, the penetrations time can be selected between 0,5 minutes and 999 minutes (fix interval between two penetrations of a test) or can change during the test up to 5 different phases with different interval time; it can even change automatically during the setting time fixing a penetration depth. The two options described here above can be combined together.

The penetration measure is read by a very accurate encoder having a resolution of 0,1 mm.

The Vicatronic also calculates, visualises and prints:

- The time from the moment of the sample preparation (set by the operator).
- The time the test starts.
- The residual time to the next penetration.
- The residual time to the end of the test
- The number of penetrations made and the residual penetrations to be made.



TIMER 0 – 999 MINUTES

The firmware allows activating a delay on the appliance to the beginning of the test. This program is particularly useful when the approximate setting time of the mortar is known and the operator wants to start the working of the Vicatronic after a certain time in order to concentrate the penetrations with a short interval of time between them and have better measuring values.

TEST RESULTS

The Vicatronic can memorise all the test parameters and results and keeps a file with a capacity of more than 50 complete tests.

In case of a power cut, even a short one, during the test execution, the test will be invalidated and the appliance will be automatically stop keeping the set data.

At the end of the test the appliance will print automatically by the incorporated printer a report with all the data concerning the last test made including a graph tracing each single penetration with its values of time and penetration number (see example printed).

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TEST NUMBER : 0996
KIND OF TEST : BS4558
POINTS MOVE (mm)
 17  0.00
 11 10.00
  5 10.00
  1 10.00
OPERATOR CODE : F
CUSTOMER CODE : 2343
DATE OF TEST : 15/08/2011
SPECIMEN TIME : 14:36:18
START DELAY(m) : 1
1ST PEN TIME : 
SPECIMEN TYPE : X5
WATER CONT.(%) : 89.0
TEMPERATURE(C) : 22.3
HUMIDITY(%) : 69.1
FALL TYPE : DRIVEN
TIME TYPE : FIXED
FINAL SETTING : NO
TIME (m) : 1/2
ID PEN.(mm)
ID PEN.(mm) P (m.s) I (m.s)
 1  0.0
 2  0.0
 3  0.0
 4  0.0
 5  0.0
 6  0.0
 7  0.1
 8  5.4
 9  6.6
10  7.9
11  9.3
12 11.1
13 12.6
14 13.6
15 14.9
16 15.8
17 16.5
18 19.3
19 20.3
20 21.6
21 23.1
22 24.0
23 26.7
24 28.3
25 29.6
26 31.1
27 35.0
28 37.2
29 39.0
30 40.5
31 42.6
32 42.5
33 42.9
34 42.9
    
```



PRINTING EXAMPLE

## PC CONNECTION AND NET OPTIONS

Despite the totally independent working of the machine that includes an incorporated printer, the Vicatronic has been designed for a PC connection (RS232) with the possibility to download the test data using a common program (Microsoft Hyper Terminal) that is normally incorporated with the Windows package of the PC. In this case the data processing will have to be made by the operator:

The "Vicat-Win" software (accessory mod. E044-11) allows receiving, managing, processing and completing the test dates; it will trace automatically the graph, personalise and print the test report.

The Vicatronic offers the possibility, buying the kit "Vicat-Net" (accessory mod. E044-12), to connect up to 20 appliances on a net managed by a PC through two pins RJ45 with RS485 protocol. This allows obtaining a complete remote control from the PC of each single Vicatronic.

The details of the performances are following:

- Transfer each single control or function of the Vicatronic on the PC
- Verify in real time each phase of the test being made.

- Automatically download the final results at the end of the test on all the connected Vicatronic.
  - Process and file at the same time all the tests without obliging the operator to move from his working place.
- Additionally the firmware has many other functions detailed in the technical chart that will be transmitted to the user interested to know more about it.

The Vicatronic is supplied complete with the incorporated printer; two hardened needles (one with 1 mm diameter and one with 1,13 mm. diameter), two conical moulds EN and ASTM, a glass plate to hold the conical mould.

Power supply: 230 V I Ph 50/60 Hz. 50W

Dimensions: 400 x 200 xh 470 mm. h.

Weight: 13 kg.

### E044-03 N

VICATRONIC, identical to mod. E044 N, but with possibility of continuous penetrations each 15 seconds..

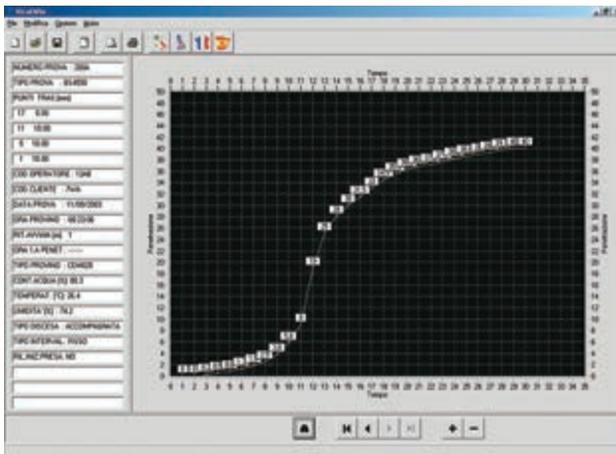


### ACCESSORIES:

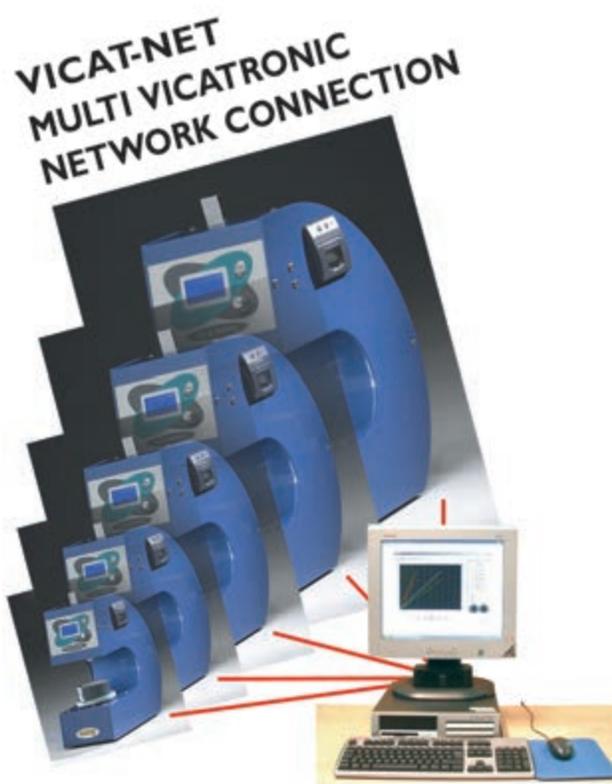
**E044-11** Software "VICAT-WIN" complete with connection cable of 3 metres that allows by the RS232 port downloading, processing, printing and managing all the data directly from the PC.



**E044-12** Kit "VICAT-NET" to connect up to 20 Vicatronic on a net by means of two connectors RS485 managed by a PC. The kit includes: the software, the RS232/485 converter and the cable for the connection of "one appliance". For net connection of additional Vicatronics (up to max. 20) see the below accessory mod. E044-13



TEST NO.	DATE	TIME	TEMPERATURE	MOULD	NEEDLE	RESULTS
1	01	01	20	EN	1	10
2	01	02	20	EN	1	12
3	01	03	20	EN	1	15
4	01	04	20	EN	1	18
5	01	05	20	EN	1	20
6	01	06	20	EN	1	22
7	01	07	20	EN	1	25
8	01	08	20	EN	1	28
9	01	09	20	EN	1	30
10	01	10	20	EN	1	32
11	01	11	20	EN	1	35
12	01	12	20	EN	1	38
13	01	13	20	EN	1	40
14	01	14	20	EN	1	42
15	01	15	20	EN	1	45
16	01	16	20	EN	1	48
17	01	17	20	EN	1	50
18	01	18	20	EN	1	52
19	01	19	20	EN	1	55
20	01	20	20	EN	1	58
21	01	21	20	EN	1	60
22	01	22	20	EN	1	62
23	01	23	20	EN	1	65
24	01	24	20	EN	1	68
25	01	25	20	EN	1	70
26	01	26	20	EN	1	72
27	01	27	20	EN	1	75
28	01	28	20	EN	1	78
29	01	29	20	EN	1	80
30	01	30	20	EN	1	82



**E044-13** Complete kit with cable for serial connection RS485, 5 metres long for the connection of one Vicatronic to the PC or to a net (cables with different length are available on demand).



**E043**  
 MOULD TANK to test the specimen immersed in water. The test must be performed in room having a controlled temperature of 20° C. ± 1° C. The saturated humidity is obtained by the immersion in water of the specimen as required by the standard EN196-3.

with temperature range from room to 35°C. +/- 1°C.  
 Power supply: 230V 1ph 50Hz 1050W  
 Dimensions: 375x335x420 mm  
 Weight: 12 kg



E044-20 + E044N + E043



E044-25 + E044 N + E043

**E044-20**  
 THERMOSTATICALLY CONTROLLED HEATING/COOLING SYSTEM  
 The device produces water at a controlled temperature of 20° C. ± 1° C. that is circulated into the tank E043 to perform the test at controlled temperature and humidity as required by the Standard EN196-3. Can be used only with one single Vicatronic.  
 Power supply: 230V 1F 50Hz 1300W  
 Dimensions: 300x440x650 mm. Weight: 31 kg

**E044-21**  
 THERMOSTATICALLY CONTROLLED HEATING/COOLING SYSTEM  
 Same as the mod. E044-20 but can be used simultaneously for "TWO" Vicatronic.

**E044-30**  
 NEEDLE CLEANING DEVICE  
 It removes the residual cement particles from the needle keeping it constantly lubricated.



**E044-25**  
 THERMOSTATICALLY CONTROLLED HEATING SYSTEM WITH COOLING COIL.  
 The apparatus heats water from room temperature to 20 +/- 0,1°C. The unit consists of a stainless steel water bath 10 litres capacity with wool insulation, immersion heater with digital thermostat, motor pump, inlet/outlet system to circulate the water into the E043 tank, cooling coil device current water operated, to maintain a constant temperature of the bath when room temperature is slightly higher.  
 The E044-25 unit is also a general purpose laboratory water bath

**Gypsum test: EN 13279-2 / DIN 1168**

**E044-40 N**  
 CONICAL PENETRATION NEEDLE, having 8 mm. diameter and 50 mm. long, to make gypsum tests following EN, DIN Specifications.



**E044-41 N**  
 PROBE 100 g, to make test on gypsum following EN, DIN Specifications.

- E042-02N** Consistency plunger dia. 10x50 mm
- E042N** Needle for final setting 1,13 mm. diameter, BS, EN 196-3:2005
- E042-01N** Needle for final setting ASTM 1 mm. diameter.
- E044-45** Additional 700 g weight (EN, NF)
- E055-04** Plastic mould Ø 80/90 x 40 mm. high following UNI
- E055-11** Brass mould Ø 80/90 x 40 mm. high following BS
- E055-13** Plastic mould Ø 65/75 x 40 mm. high following DIN



- SPARE PARTS:
- E046N** 1,13 mm. Ø hardened needle (EN 196-3:2005)
  - E046-01N** 1 mm. Ø hardened needle (ASTM)
  - E055-05** Plastic mould Ø 60/70 x 40 mm. high following ASTM
  - E055-07** Glass base plate
  - E055-10** Plastic mould Ø 70/80 x 40 mm. high following EN, NF
  - E042-06N** Probe 300 g to EN 196-3:2005
  - E044-48N** Tang to fix the needle to the probe
  - C127-11** Thermo-paper roll for printer (pack of 10 rolls)