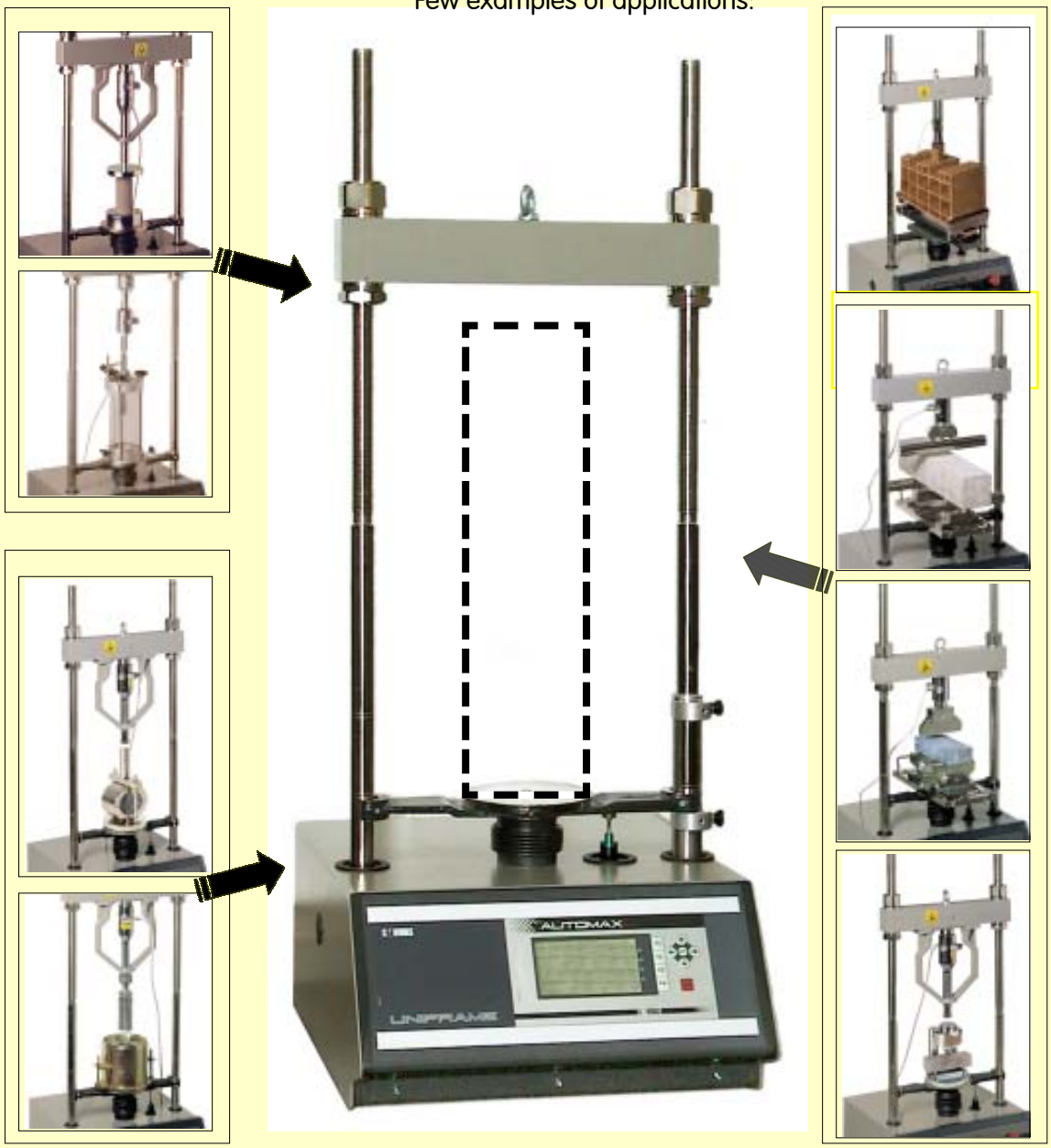
New

UNIFRAME 70-T0108/E

Load and/or displacement controlled

Few examples of applications:



Soil and road testing.

Concrete, cement and similar construction material testing.

Main features

- Automatic test execution with P.I.D. closed loop system.
- Load pace and displacement control:
  - selectable test speed from 0.1 up to 51 mm/min;
  - selectable test load rate from 1 up to 9999 N/s.
- Channels: 2 for load cell and 2 for displacement transducers (contemporaneous use of up to 1 load + 1 displacement).
- Large graphic display 240 x 128 pixel.
- Real-time display for load/displacement diagram.
- Store memory for several tests, data re-call on display and download to PC.
- Language selection: English, Spanish, Italian.
- Selectable units: kN, kg.
- Calibration via software: linear or automatic interpolation.
- Two RS 232 C serial port for PC and printer.
- Automatic safety devices for travel and load limits.

Universal Automatic flexural and compression testing machine 50 kN cap.

General Description

The **Uniframe 70-T0108/E** is a robust 50 kN Universal Automatic flexural and compression testing machine which can be used for various tests under load and/or displacement control including CBR, Marshall, triaxial, flexural and unconfined compression.

The two column frame is fitted with an upper cross beam which can be set at various heights depending on the accessories to be fitted. The jack is driven by a DC motor controlled by microprocessor.

The front panel has a touch membrane keyboard and large graphic display ergonomically positioned. The firmware is user friendly and easy to follow. Two RS 232 C port are fitted as standard to down loading readings to PC in real time (except for Marshall test where results are down loaded at the end of the test) and to serial printer. The machine is supplied complete with displacement transducer. The load measurement device has to be ordered separetely (see accessories).

Technical Data

Max. capacity	kN	50
Displacement rate	mm/min	0.01 to 51 infinitely variable
Load rate	N/sec	1 to 10000 N/s
Rapid approach speed	mm/min	40
Power rating	Watt	1100
Power consumption	**W**	**720**
Horizontal span	mm	380
Ram travel	mm	100
Max. vertical span	**mm**	**800**
Net weight	kg	110
Dimensions (h x w x d)	mm	130 x 500 x 570

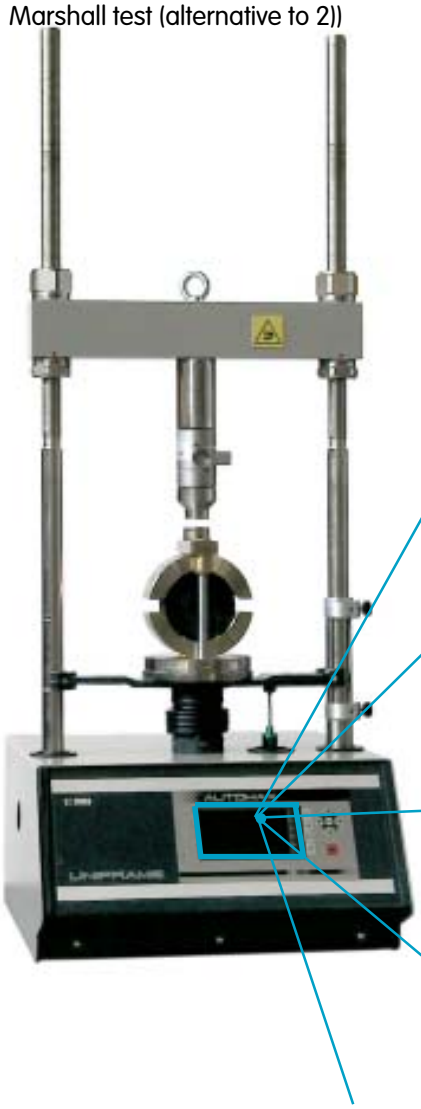
General hardware specifications

- PID digital controller.
- 10 keys membrane keyboard with 4 main function keys.
- Multilayer boards based on the latest SMD technology.
- Large 240x128 pixel graphic display.
- 16 bit CPU.
- Permanent memory for storing data.
- Real time clock/date.
- 2 analogue channels A/D res. 130.000 div. for potentiometric linear transducer (not for contemporaneous use).
- 2 analogue channels A/D res. 130.000 div. for load cells (not for contemporaneous use).
- Sampling rate: 15 samples/s.
- Serial outputs for real time and delayed data downloading:
  - 9600 baud for printer connection
  - 38400 baud for PC connection.

Software specifications

- Languages: English, Spanish, Italian.
- Unit selection: kN, kgf.
- Input of operator name.
- Dedicated software for the automatic performance of CBR, Marshall or other tests under load and displacement control introducing the test parameters as peak sensitivity, preload value, test speed, safety limits, graph display option, peak hold, serial output protocol, etc.
- Fully automatic test execution as for example load acquisition starting after the preload and simultaneous display of load/displacement.
- Automatic test performance with PID closed loop system.
- Option for simultaneous display of load/displacement graph, actual test speed and load pacer graph function.
- Real time graphic display of test data, load/time curve and actual load rate
- Real time clock and date.
- Real time download to PC by RS 232 C at 38400 baud for PC connection, max sample rate 15 x sec. ASCII or 34-S0110/C (CBR) and 76-S0100/C (Marshall) format option.
- Memory storage of about 100 tests; each test identified by date, time, test number, operator name, type of test, peak load and displacement, final load and displacement, failure and displacement cursor position and load/displacement single data of the graph.
- File management with the possibility to display all tests, to download to serial printer and PC, to cancel single test etc. (two separate RS 232 C ports available).
- Machine calibration by software password protected.
- Linearisation/interpolation feature, allowing the segmentation of load/displacement sensor curve (from 1 to 6 segments) and automatic interpolation for high accuracy of the system from the beginning of the range.
- PID parameters MENU set up to optimize the algorithm of the closed loop system.

UNIFRAME 70-T0108/E equipped for Marshall test (alternative to 2))

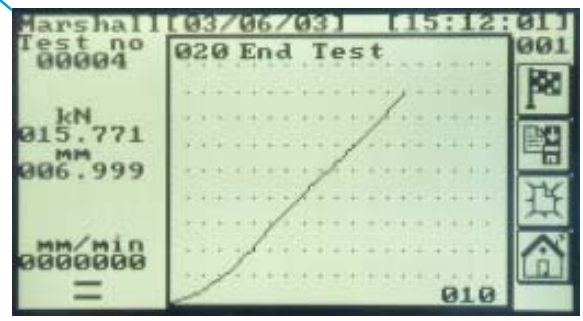


TEST MENU: Test selection.

TEST PARAMETERS: It is possible to introduce peak sensitivity and preload, to enable peak and graph during the test, to choose data transmission format.

FILE MANAGER: It is possible to save the test or to recall a test previously saved. The tests can be printed or downloaded to a PC.

CALIBRATION MENU: The software allows to check and calibrate the 4 available channels.



PERFORM TEST MENU: Marshall test final screen with graph enabled. The display shows load/displacement in real time.

MAIN MENU: Perform test.

PERFORM TEST MENU: Marshall test final screen with graph disabled.

UNIFRAME 70-T0108/E
for
ROAD TESTING

The list of required accessories follows each single test. As many items are in common with other test we recommend to select accessories on table I to avoid duplications.

1) CBR: California bearing ratio

Standards
ASTM D1883, AASHTO T193, BS 1377:4,
NF P94-078, UNE 103-502, UNI 10009, prEN 13286-47

1) 70-T0108/E equipped for CBR test

Accessories requested
82-P0375/C Connecting adapter
34-T0103/10 Ball seating and guide bracket assembly
82-P0375 Strain gauge load cell 50 kN cap.
53-T0108/2 Connecting extension
34-T0103/1 Adjustable CCBR penetration piston

2) Marshall stability

Standards
ASTM D1559, BS 598, NF P98-251-2, CNR No. 30, prEN 12697-34

2) 70-T0108/E equipped for Marshall test

Accessories requested
82-P0375/C Connecting adapter
34-T0103/10 Ball seating and guide bracket assembly
82-P0375 Strain gauge load cell 50 kN cap.
53-T0108/2 Connecting extension
34-T0104/10 Compression device
76-B0033[1] Stability mould ASTM/CNR

[1] *Or 76-B0031/21 BS stability mould as alternative*

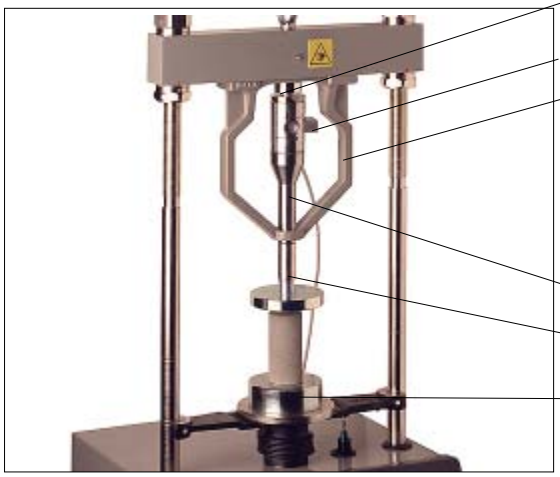
UNIFRAME 70-T0108/E
for
SOIL TESTING

The list of required accessories follows each single test. As many items are in common with other test we recommend to select accessories on table I to avoid duplications.

3) Unconfined compression

Standards
ASTM D1559, BS 598, NF P98-251-2, CNR No. 30

Accessories requested
82-P0375/C Connecting adapter
34-T0103/10 Ball seating and guide bracket assembly
82-P0370 Strain gauge load cell 2.5 kN cap. (or 10-50 kN as alternative)
53-T0108/2 Connecting extension
34-T0104/9 Extension cylinder
34-T0104/4 Lower and upper platen



3) 70-T0108/E equipped for unconfined compression test

11) Flexural stength of soil-cement specimens

Standards
ASTM D1635

11) 70-T0108/E equipped for testing the flexural strength of soil cement specimens

Specific accessories
53-T0108/7
Flexure testing device for soil-cement specimens

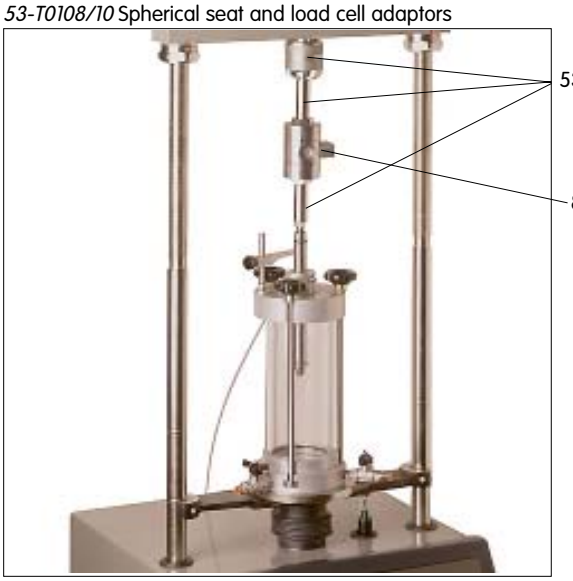
Specifications
Block length: 85 mm / Distance between upper blocks: 76 mm
Distance between lower blocks (span length): 228 mm
Weight: 10 kg approx.

Other accessories
82-P0370 Strain gauge load cell 2.5 kN cap. (or 10-50 kN as alternative)
53-T0108/5 Load cell extension

12) Quick triaxial

Standards
BS 1377, ASTM D2850

Accessories requested
82-P0370 Strain gauge load cell 2.5 kN cap.
53-T0108/10 Spherical seat and load cell adaptors



12) 70-T0108/E equipped for quick triaxial test

4) Uniaxial compression test

Standards ASTM D1633

4) 70-T108/E equipped for general uniaxial compression tests

Accessories requested
82-P0375/C Connecting adapter
34-T0103/10 Ball seating and guide bracket assembly
82-P0370 Strain gauge load cell 2.5 kN cap. (or 10-50 kN as alternative)
53-T0108/2 Connecting extension
34-T0104/9 Extension cylinder
34-T0104/3 Lower and upper spherically seated platen

UNIFRAME 70-T0108/E
for
ROCK AND BUILDING STONES TESTING

The list of required accessories follows each single test. As many items are in common with other test we recommend to select accessories on table I to avoid duplications.

7) Modulus of rupture of natural building stones

Standards
ASTM C99

7) 70-T0108/E equipped for the determination of the modulus of ropture of natural building stones

Specific accessories
53-T0108/3
Flexure testing device for the determination of the modulus of rupture of natural building stones

Specifications
Knife edges dimensions: 11 mm dia. x 150 mm
Distance between lower edges: adjustable from 110 to 310 mm
Weight: 18 kg approx.

Other accessories requested
82-P0375/C Connecting adapter
82-P0370 Strain gauge load cell 2.5 kN cap. (or as alternative 82-P0373, 10 kN or 82-P0375, 50 kN cap.)

8) Flexural strength of natural building stones

Standards
ASTM C880

8) 70-T0108/E equipped for testing the flexural strenght of natural building stones

Specific accessories
53-T0108/4
Flexure testing device for natural building stone specimens.Consisting of a lower beam with the two bearing blocks and of an upper beam, with the other two load applying blocks, which has to be connected to the load cell. One of the two upper blocks can be removed and the other placed in the middle for centre point loading which may be needed for other applications.

Specifications
Block length: 51 mm
Distance between upper blocks: 127 mm
Distance between lower blocks (span length): 254 mm
Weight: 6 kg approx.

Other accessories requested
53-T0108/5 Load cell extension
82-P0370 Strain gauge load cell 2.5 kN cap. (or as alternative 82-P0373, 10 kN or 82-P0375, 50 kN cap.)

UNIFRAME 70-T0108/E
for
CLAY BLOCK TESTING

Specific accessories
53-T0108/6
Punching test device for clay block for flooring

Consisting of a lower beam with two bearer 20 mm dia., 300 mm long and of an upper wood member with support that has to be connected to the load cell of the machine.

Weight: 20 kg approx.

Other accessories requested
82-P0373 Strain gauge load cell 10 kN cap.
82-P0375/C Connecting adapter

9) Punching test on clay block for flooring

Standards
UNI 9730-3

9) 70-T0108/E Equipped for punching test on clay block

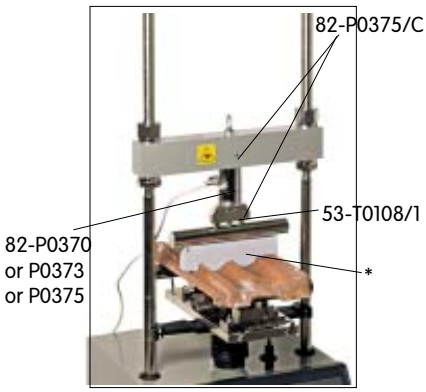
UNIFRAME 70-T0108/E
for
CONCRETE, CEMENT AND MORTAR TESTING

The list of required accessories follows each single test. As many items are in common with other test we recommend to select accessories on table I to avoid duplications.

6) Flexural test on: concrete beams, concrete and clay tiles

Standards
pr EN 12390-5, BS 1881:118, ASTM C78, C293,
NF P18-407, UNE 83-305, UNI 6133, EN 491-538

6) 70-T0108/E equipped for flexural tests on concrete beams (centre point loading only)



6) 70-T0108/E equipped for flexural tests on concrete and clay tiles

*: Wooden bearers to be provided by the users conforming to the shape of tiles.

Specific accessories
53-T0108/1
Flexure testing device for centre point loading of concrete beams, concrete and clay tiles

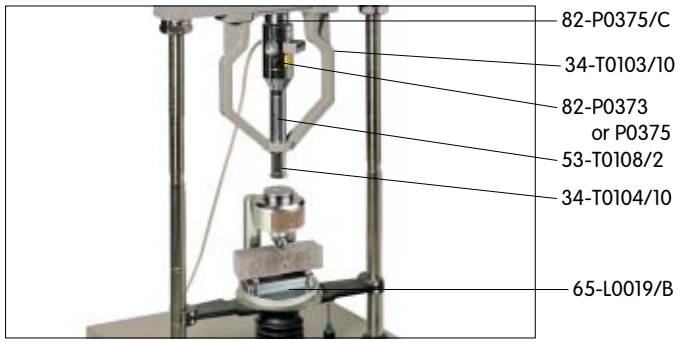
Consisting of a lower beam with the two bearers and an upper bearer which has to be connected to the load cell.

Specifications
Bearer dimensions: 38 mm dia. x 300 mm
Distance between bearers: adjustable from 110 to 310 mm
Weight: 23 kg approx.

Other accessories requested
82-P0370 Strain gauge load cell 2.5 kN cap. (or 10-50 kN as alternative)
53-T0108/5 Load cell extension

5) Flexural test on mortar prisms 40x40.1x160 mm

Standards
EN 196, ASTM C348



5) 70-T0108/E equipped for flexural tests on mortar prisms

Accessories requested
82-P0375/C Connecting adapter
34-T0103/10 Ball seating and guide bracket assembly
82-P0373 Strain gauge load cell 10 kN cap.
53-T0108/2 Connecting extension
34-T0104/10 Compression device
65-L0019/B Flexure device to test 40 x 40 x 160 mm mortar prisms

13) Compression on low strength mortar mixes

Standards
ASTM C109

This test is performed using the 50-C9032 compression device which is suitable to receive cube or cylindrical specimens up to 50 mm side (or dia.), and 50 mm high.

13) 70-T0108/E equipped for compression test on mortar

Accessories requested
82-P0375/C Connecting adapter
34-T0103/10 Ball seating and guide bracket assembly
82-P0375 Strain gauge load cell 50 kN cap.
53-T0108/2 Connecting extension
34-T0104/10 Compression device
50-C9032 Compression device to test 50 mm (2") mortar cubes or cylinder

70 Universal Automatic flexural and compression testing machine 50 kN cap.

Ordering information

Code	Description
70-T0108/E	UNIFRAME - Automatic electromechanical compression machine 50 kN capacity. 230 V/50 Hz/1Ph
70-T0108/EZ	UNIFRAME - Automatic electromechanical compression machine 50 kN capacity. 110V/60 Hz/1Ph

TABLE I

Accessories		Applications												
■ Code	Description	1	2	3	4	5	6	7	8	9	11	12	13	
82-P370	Strain gauge load cell 2.5 kN cap.			●	●(1)		●(2)	●(1)	●(2)		●(1)	●		
82-P373	Strain gauge load cell 10 kN cap.				●(1)	●(2)	●(2)	●(1)	●(2)	●(1)	●(1)			
82-P375	Strain gauge load cell 50 kN cap.	●	●		●(1)	●(2)	●(2)	●(1)					●	
53-T108/2	Connecting extension load load cell/accessory	●	●	●	●	●							●	
82-P375/C	Connecting adapter load cell/crosshead	●	●	●	●	●	●(4)	●		●(4)			●	
34-T103/10	Assembly comprising ball seating, guide bracket, connecting cylinder and screws	●	●	●		●							●	
34-T103/1	Adjustable CBR penetratio piston	●												
34-T104/10	Compression device		●		●	●							●	
76-B33	Stability mould ASTM/CNR		●											
76-B31/21(1)	Stability mould BS/DIN		●											
34-T104/4	Upper and lower compression platen			●										
34-T104/9	Extension cylinder			●										
34-T104/3	Lower and upper compression platen with spherical seat for uniaxial compression tests				●									
65-L19/B	Flexure testing device for 40.1x40x160 mm mortar prisms (EN)					●								
65-L19/C(1)	Flexure testing device for 40x40x160 mm mortar prisms (ASTM)					●								
50-C9032	Compr. device to test 50 mm (2") cubes or cyl.												●	
53-T108/1	Flexure testing device for centre point loading on concrete beams, concrete and clay tiles						●							
53-T108/3	Flexure testing device for the determination of the modulus of rupture of natural building stones. ASTM C99							●						
53-T108/4	Flexure testing device for natural building stone specimens. ASTM C880								●					
53-T108/5	Load cell extension								●		●			
53-T108/6	Punching test device for clay block for flooring									●				
53-T108/7	Flexure testing device for soil-cement specimen										●			
53-T108/10	Spherical seat and load cell adaptors											●		

KEY

1 CBR
ASTM D1883, AASHTO T193, BS 1337:4, NF P98-78, UNE 103-502

2 MARSHALL
ASTM D1559,BS 598, NF P98-251-2

3 UNCONFINED
ASTM D2166, 8S1337:7

4 UNIAXIAL COMPRESSION
ASTM D2163

5 CEMENT FLEXURE
EN 196

6 FLEXURE ON BEAMS AND TILES
PrEN 12390-5, BS 1881, ASTM C78 - C293, NF P18-407, UNE U305, EN 491-538

7 MODULUS OF RUPTURE OF STONE
ASTM C 99

8 FLEXURE OF STONE
ASTM C 880

9 PUNCHING TEST
UNI 9730-3

11 FLEXURE STRENGTH SOIL/CEMENT SAMPLES
ASTM D1635

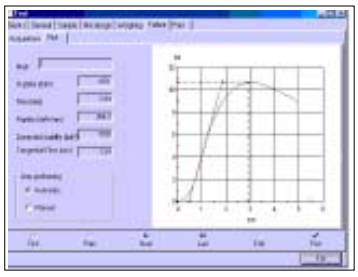
12 QUICK TRIAXIAL TEST
BS 1377, ASTM D2850

13 COMPRESSION ON LOW STRENGHT MORTAR MIXES
ASTM C109

Note
(1) As alternative to model 76-B33
(2) To be selected depending on the expected strength of specimens
(3) As alternative to model 65-L19/B
(4) Two pieces required

Software packages

As specified the machine has the in built firmware for CBR, Marshall and general load and displacement control testing. Specific softwares are also available for data acquisition and downloading to PC for processing and print the test certificates.



Code	Description
82-S0100/C	Marshall
82-S0100/KEY	Protection key for 82-S100
82-S0110/C	CBR

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