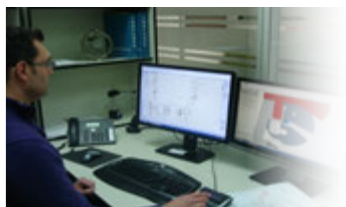


Equipments for Cement and Mortars Testing

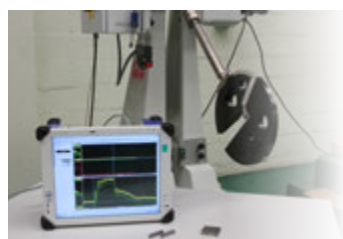
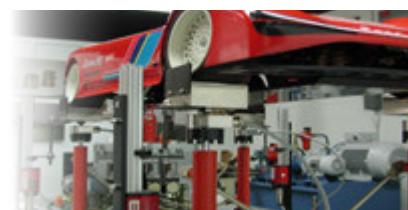


Quality engineering since 1970



■ **Tailored engineering:** technological testing solutions adapted to your requirements

■ **Reliability:** manufacturing based on the most demanding quality criteria and according to international testing standards.



■ **R+D+innovation:** compromised with the permanent improvement of our products.

■ **Post sales service:** joining and supporting our customers in their activity. Calibrations, predictive, preventive and corrective maintenance, upgrades and modernizations.



■ **Calibration Laboratory.**
Accredited by ENAC (ILAC member)



▶ **Sede Central · Headquarters**

S.A.E. IBERTEST
Ramon y Cajal, 18-20.
28814 Daganzo de Arriba
Madrid · Spain



ibertest

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SAMPLING AND HANDLING OF CEMENTS SAMPLES

Testing standards EN 196-7, ASTM C183, AASHTO T127

SAMPLING TUBE FOR PACKAGED CEMENTS

Ref. 210-100213

It consists of a brass metallic tube with a handle. Heavy-duty device, it resists corrosion and shocks. The end of the tube has a acute edge for easy penetration into the cement bags.

- › Inner diameter: Ø 32 mm
- › Length : 700 mm
- › Approx. weight: 3 kg



210-100213

SAMPLING TUBE FOR BULK CEMENT IN WAGONS, TRUCKS, SILOS, ETC.

Ref: 210-101353

It comprises two concentrically tubes, with several apertures. By means of half-turn, the sample gets into the inner tube.

- › Inner diameter: Ø 40 mm
- › Length: 1500 mm
- › Approx. weight: 6 kg
- › Approx. capacity: 3 litres



210-101353

SAMPLE LADLE FOR BULK CEMENT

Ref: 210-101352

It consists of a conical-shape large ladle, tightly attached to a long handle.

- › Dimensions of ladle: Ø 20 cm x 15 cm (h).
- › Handle length: 2100 mm
- › Approx. weight: 5 kg



210-101352

FLAT AND ROUNDED BOTTOM SCOOPS

Different shapes and capacities.



SPATULAS

Different shapes and capacities.



SAMPLE BAGS

Manufactured in transparent polyethylene, with or without closure



CONTAINERS FOR SAMPLES PRESERVATION

With screw-cap and airtight shutter.

For storing cement samples, clinker, additives and raw materials.



QUARTERING OF RAW MATERIALS

Standards EN 196-7, ASTM C 183 and AASHTO T127

RIFFLE SPLITTERS

Ref. : See table

For quartering cement, clinker, limestone, gypsum and other raw materials.

Made in epoxi-coated painted steel sheet.

Comprising 3 pans and 3 containers with handles.

210-100461



SAMPLE RIFFLE SPLITTERS					
Reference	Slots	Slot width		Dimens. (cm) W x L x H	Weight (kg)
		inches	mm		
210-100459	8	3	76,2	88 x 45 x 49	24
210-100460	10	2	50,8	76 x 42 x 49	18
210-100461	12	1 1/2	38,1	70 x 39 x 40	16
210-100462	14	1	25,4	60 x 28 x 33	11
210-100468	14	3/4	19,0	48 x 25 x 33	10
210-100469	14	1/2	12,7	29 x 23 x 26	7
210-100470	14	1/4	6,35	19 x 15 x 17	2

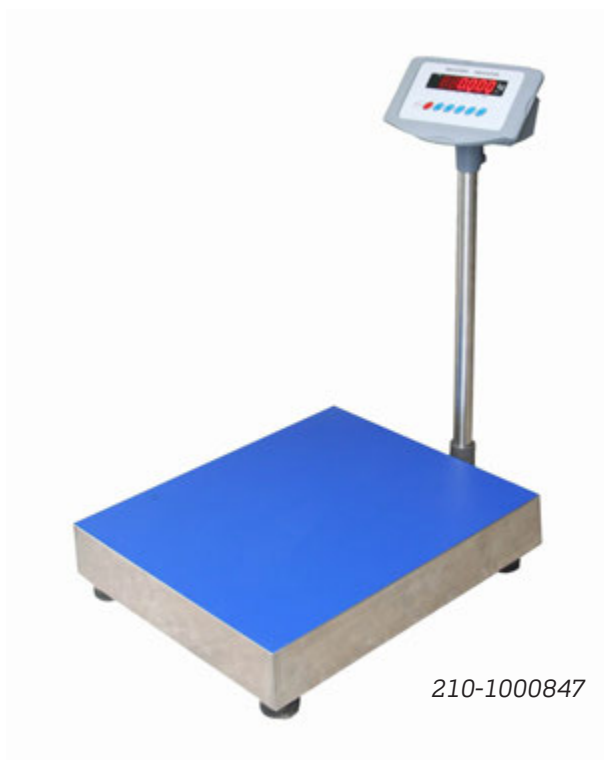
(1) References 210-100459 and 210-100460 don't include any pan. A suitable shovel should be used.

PLATFORM SCALE MOD. JPS-1050-XM

Ref. 210-100847

Suitable for weighting cement bags, clinker, raws and also for quartering.

- › Capacity: 150 kg
- › Resolution: 10/20 g
- › Weighting plate dimensions: 430 x 530 mm
- › Stainless steel weighting platform
- › Aluminium alloy construction for heavy load
- › Large easy-to-read LCD 25mm with backlight
- › Counting / percentage weighing
- › Multiple units of weighing
- › Auto calibration with external weight (not included)
- › Auto shut off function
- › Internal rechargeable battery
- › Overall dimensions: 450 x 520 x 600 (h) mm
- › Weight: 17 kg



210-1000847

CRUSHING

JAW CRUSHER

Ref. 210-101636

High performance, ideal for particle size reduction of clinker and raw materials previous to milling procedure.

Suitable for materials such as Bakelite, bauxite, concrete, dolomite, ore, feldspar, granite, graywacke, glass, limestone, gravel, coal, coke, silica, slag, silica, silicon, sintered materials, cement clinker, etc.

Maximum grain size: 50 mm. Depending on the type of material can be achieved final fineness up to 1 mm or even lower.

Specifications:

- › Breaking jaws in manganese steel.
- › Receiver container of 2000 mL, approx.
- › Power supply: Single-phase 230 V + G ~ 50 Hz (others on request)
- › Power consumption: 750 W.
- › Dimensions: 320 x 800 x 960 (h) mm.
- › Weight: 135 kg.



210-101636

MILLING

VIBRATING DISC MILL. MOD. IBRS-200

Ref. 210-103096

Specially recommended for milling samples previous to the X-Ray chemical analysis.

Allows easy and fast milling, with lossless, soil samples, ores, coal, coke, corundum, metal oxides, minerals, plants, slag, silicates, cement, clinker, and many other substances.

Graphics display for service and operating information. Up to 10 parameters combination can be stored.

Provided with a noise insulated chamber with wheels for easy displacements within your lab. Safety lock that prevents the implementation while chamber door is opened.

Specifications:

- › Input particle size < 15 mm
- › Output particle size < 40 µm
- › Engine speed continuously adjustable between 700 and 1500 rpm
- › Power supply: Single-phase 230 V + G ~ 50 Hz (others on request)
- › Nominal motor power: 1500 W
- › Dimensions: 820 x 780 x 1220 (h) mm, (h = 1930 mm with chamber door opened)
- › Net weight: 210 kg (without grinding set)



210-103096

Needed accessory:

GRINDING SET

Made of tungsten-carbide (widia).

Hardness 85-90 HRC

Comprising the following elements.

- › Grinding vessel. Capacity 100 cc *
- › Lid for vessel
- › Cylinder and milling rings

(*) Also available in 250 cc

DETERMINATION OF DENSITY

Standard: EN 196-6, ASTM C188, AASHTO T133

LE CHATELIER DENSIMETER FLASK

Ref. 210-100817

For determination of specific gravity of hydraulic cement. Also needed when determining the specific surface (Blaine).

The densimeter is also known as volumenometer or picnometer, and it consists of a glass flask of 250 mL capacity with graduated neck from 0 to 1 mL and from 18 to 24 mL in 0.1 mL and 0.5 divided respectively.

Manufactured from high quality borosilicate glass, very low coefficient of expansion, high resistance to chemical agents.

Specifications

- › Accurate (maximum error): 0.05 mL
- › Dimensions: Ø 100 x 300 (h) mm
- › Weight approx.: 300 g



THERMOSTATIC BATH DIGITERM 200

REF. 210-104123

Thermostatic bath for water, silicone oil or other fluids.

The fluid can be recirculated to pass it through viscometers, refractometers, refrigerant columns, etc.

Temperature selector and digital reader, to program temperatures from ambient + 5 to 199.9 ° C, with 0.1 ° C resolution.

Temperature control by microprocessor that, through an LCD screen, allows to configure and / or display the following parameters:

Upper and lower limit of temperature ·

Selection in ° C or ° F

Display resolution 0.1°

Overtemperature alarm limits ·

Calibrated·

Indication of low level of liquid.

Heating elements in stainless steel. Special INCOLOY, long duration, resistant to corrosion and high temperature.

Recirculation pump, with flow for agitation and external temperament (for polarimeters, refractometers, viscometers, etc.)

Cooling coil to regulate at ambient temperatures through connection to mains water.



- › Connection for external temperature probe Pt-100
- › RS-232 output for reading and printing parameters by computer.
- › External body covered in epoxy, with all the elements in contact with the liquid in stainless steel AISI 304.
- › Bucket with side handles and drain tap.
- › Includes lid with handle, made of stainless steel 18/8

Specifications:

- › Resolution: 0.1°C
- › Temperature sensor: Probe type Pt 100
- › Connection for external temperature probe Pt-100.

AUTOMATIC PLANETARY MIXER - IBERMIX

Ref. 111-100007/2

Standards: EN 196-1, EN 459-2, EN 1744, EN 1015-11, EN 13454-2, ASTM C109, ASTM C305, BS 3892-1, BS 4551-1 and similar.

NEW Planetary mixer, programmable, for the automatic execution of mixing cycles according to the standards for strength tests of cements, mortars and similar or free configuration for research works.

This new equipment has significant technical development, which makes it **one of the most advanced in the world** for this application.

New electronic control module AP-43S

Integrated at the front of the machine, with 4.3" touch screen and IP66 protection, which is intuitive, safe, resistant and easy to use.

Acoustic warning signals and messages on the screen that inform and guide the user in its operation.

- › Operation instructions
- › Test standard EN or ASTM
- › Current speed (rotation and translation)
- › Current stage of mixing cycle
- › Remaining time
- › Detected alarms

The control module includes 4 predefined mixing cycles according to the most common testing standards.

It also includes the possibility of making free configurations, which allows users to program other mixing cycles according to their particular needs, whether they are not preset mixing methods, tests for research, etc. If necessary, the AP-43S control module can be replaced by the own user without the need to contact IBERTEST Technical Service and without having to make adjustments to the machine.

Main features

The **electric motor** is equipped with a frequency variator that maintains and ensures the speeds of the paddle, without being affected by eventual changes of mains voltage or mains frequency.

Electrical speed change, without mechanical drives, eliminates failures and maintenance costs.

Automatic sand feeder. The special design according to the test standard (EN or ASTM) ensures the discharge of the sand at a regular rate in the time specified by the testing standard.

Additive dispenser of liquid or solid.

Optional automatic or manual water feeding device, for mortar viscosity research tests optionally available.



111-100007/2



Automatic sand feeder and additive dispenser



AP-43S electronic module with 4.3" touchscreen display



Sensor for automatic detection of Bowl and safety operation



IBERMIX mixing screen according to EN 196-1 standard

Bowl of about 5 litres capacity, entirely made of stainless steel, with two handles. The bowl is securely fixed on its support with a simple half-turn movement.

The **support of the bowl** has an easy leveling system that allows the user to adjust finely the gap between the bowl and the edge of the paddle.

Sensors for proximity and position of bowl to ensure operator safety.

The **mixing paddle** is made in stainless steel, with shape, size and tolerances according to the standards. The fastening system is bayonet type, for quick and easy disassembling for cleaning.

Specifications - Automatic programable planetary mixer

Reference	111-100007/2
Paddle movements	Paddle revolving about its own axis and driven in a planetary movement around the axis of the bowl, in opposite directions.
Paddle revolving speed	Adjustable from 10 to 300 min ⁻¹ (rpm)
Paddle planetary movement speed	Adjustable from 0.5 to 133 min ⁻¹ (rpm)
Sand feeder	Automatic
Gap between paddle and bowl	3 ± 1 mm (Adjustable by the user)
Preset mixing methods	For cement mortar according to EN 196-1 For cement mortar according to ASTM C305 For pure cement paste according to EN 196-3 For pure cement paste according to ASTM C305
Free configuration programs	Users can configure completely customized mixing programs, in a simple way by choosing number of stages, what to do in each one and its duration.
Available programming mixing steps.	<ol style="list-style-type: none"> 1. Mixing (with the desired speed). 2. Mixing (with the desired speed) + Sand, with an acoustic warning ¹ during the sand feeding. 3. Cleaning. The equipment remains stopped with an acoustic alarm indicating the remaining time, for cleaning the paddle according to the standard. 4. Pause. Time in which the equipment remains on hold during the set time. 5. End. Indicates the end of the mixing program with an acoustic alarm¹ for the user. <p>* The remaining time of each stage is displayed on the test screen, to know when it needs the user assistance.</p> <p>¹ All acoustic warnings can be disabled at the user's convenience.</p>
Power consumption	500 W
Power supply	Single phase at 230 V + G ~ 50/60 Hz (others on demand)
Dimensions	Width x length x height : 440 x 630 x 795 mm
Net weight (not packaged)	93 kg



Safety

Body made of steel, strong and stable, for smooth operation, without noise or vibration.

Protection screen against projections, made of transparent polycarbonate. It allows a clean and comfortable operation, while protecting the user from entrapments or strikes of the mixing paddle when operating.

Bowl detection, the mixer does not allow operation while bowl is not in the safe mixing position. Equipped with multiple sensors that prevent unsafe starts when the Bowl is not inserted or is in the lower position.

Nozzle for dust extraction system that allows the connection of an external vacuum.

Emergency stop: Security switch that immediately stops the equipment.

Spare parts and accessories

STAINLESS STEEL BOWL

- › According to EN 196-1. Ref. 111-100010
- › According to ASTM C305. Ref.111-100011

STAINLESS STEEL PADDLE

- › According to EN 196-1. Ref. 111-100008
- › According to ASTM C305. Ref. 111-1000009

RUBBER SPATULA

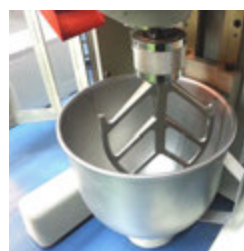
Ref. 210-100991

SET OF TOLERANCE GAUGES

Ref. 111-100271

PORTABLE DIGITAL TACHOMETER. MOD HIBOK-24

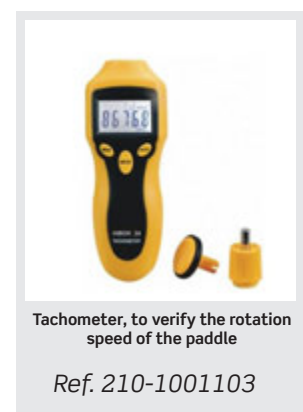
Ref. 210-101103



Bowl and paddle



Ref. 210-100991



Tachometer, to verify the rotation speed of the paddle

Ref. 210-1001103

Standard EN 196-1

THREE-GANG MOULD FOR 40 X 40 X 160 MM PRISMATIC SPECIMENS

Ref. 111-100000

The IBERTEST moulds comply with all the requirements of the EN 196-1 testing standard.

Each part of the mould is stamped with identifying marks. Each mould comprises a certificate of verification, including internal dimensions of each compartment, flatness, perpendicularity, surface texture and hardness of the whole internal side face.

The certificate is issued by the IBERTEST Metrology Laboratory. The verification of each mould is made with calibrated instruments, traceable to international standards.

FEEDING HOPPER FOR THREE GANG MOULD

Ref. 111-100032

Aluminium-cast made. To facilitate the filling of the mould.

SET OF SPREADERS AND RULE

Ref. 111-100100

For spreading and striking off the fresh mortar in the three gang mould when preparing the specimens according to EN 196-1 method.

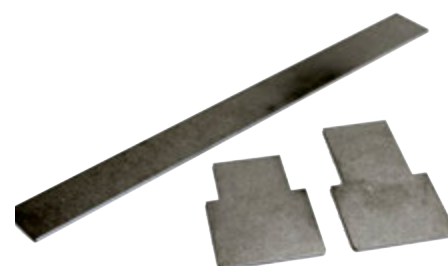
It comprises: 1 small spatula T shaped, 1 large spatula T shaped and 1 straight-edge rule.



111-100000



111-100032



111-100100

Standard ASTM C 109

THREE-GANG MOULD FOR 50 MM (2 ") CUBIC SPECIMENS

Ref. 210-104117

For preparing cubic cement specimens according to the ASTM C 109 standard method.

- › Diagonal arrangement, made of forged bronze.
- › Net weight: 8 kg

LID FOR THREE-GANG CUBE MOULD MADE OF BRONZE

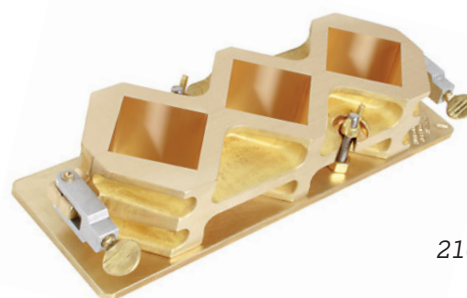
Ref. 210-104118

Made of forged bronze.

ASTM RUBBER RAMMER

Ref. 210-104119

For preparing cubic cement specimens according to the ASTM C 109 standard method.



210-104117



210-104119

AUTOMATIC HORIZONTAL JOLTING APPARATUS (JOLTING TABLE)

Standard EN 196-1. Reference apparatus.

Ref. 111-100017/1

For compacting of the fresh cement mortar in the 40 x 40.1 x 160 mm three gang moulds.

This apparatus comprises a rectangular table (jolting table) with 2 quick-action articulated clamps, for attachment the mould and the feeding hopper to upper surface of the jolting table.

The table has a plane machined upper surface and is connected to a rotating pivot by 2 light arms. The distance between the shaft and the center of the table is 800 mm. The pivot has ball type bearings, the bearings are protected against grit and dust.

The table incorporates a round-headed projecting lug at the centre of its lower face. In the rest position, the lug rests on a stop anvil with plane upper surface, and the jolting table remains horizontal.

The combined mass of the table, including arms, empty mould, hopper and clamps is 20 kg.

When operation, the jolting table is raised by a cam, and then allowed to drop freely from a height of 15,0 mm before the lug strikes the stop anvil.

The cam is driven by an electric motor through a reduction gear at a uniform speed of one revolution per second.

AP Electronic control module

The equipment is completed by a digital electronic control module which ensures the number of jolts in every period of jolting.

The module comprises an alphanumeric keyboard with function keys, an emergency stop pushbutton and a LCD digital display showing the number of jolts.

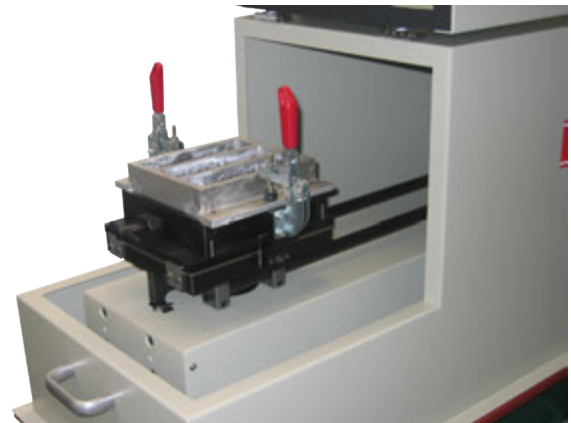
The speed is preselected at 60 jolts per minute, but the user can set a different frequency of drops according to his own needs, as test not covered by standards or for researching purposes.

The AP electronic control module comprises a magnetic fastening system, so it can be fixed to the jolting machine's metal frame or to the sound proof cabinet. Also, if desired, it can also be fixed to the concrete block by means of concrete fasteners.

If necessary, this AP new control module can be replaced by the user without the need of Technical Services IBERTEST aid, and without adjustments on the machine.



111-100017/1



Opened sound-proof cabinet showing the attachment of hopper and mould to the jolting table



Accessories for horizontal jolting table

SOUND PROOF CABINET

Ref. 111-100018

To decrease noise under 80 dB, according to health and safety regulations.

The part situated over the compactation table is foldable, for an easy assembly and disassembly of the hopper-mould set. It has a gas damper, situated in the lateral of the cabinet to ease opening and prevention damage in case of accidental drop. It also incorporates an electrical lock that prevents the operation when the cabinet is open.

ELASTIC PAD (RUBBER SHEET)

Ref. 111-101150

To be placed under the concrete block. It provides a suitable isolation that prevents external vibrations from affecting compaction. According to EN 196-1.



Specifications - AUTOMATIC HORIZONTAL JOLTING TABLE

Reference	111-100017/1
Drop height	15,0 mm
Jolting rate	Preset at 60 jolts per minute. Modifiable by the user.
Combined total mass: arms + table + empty mould + hopper + clamps	(20 ± 0,5) kg. The fulfillment of this requirement is guaranteed when using only original IBER-TEST three-gang moulds.)
Distance between pivot and the centre of the table	800 mm
Vickers hardness value of cam	Higher than HV 450 (optional hardness certificate available on request)
Vickers hardness value for stop anvil and lug	Higher than HV 500 (optional hardness certificate available on request)
Curvature of the lug	0.01 mm ⁻¹ (optional metrology certificate available on request)
Noise level	Lower than 80 dB (with sound-proof cabinet mounted and closed)
Electrical connection	1.5 m cable with host protection
Electrical requirements	Single phase 230 V + G ~ 50 Hz
Power consumption	250 W
Dimensions (width x length x height)	1000 x 400 x 500 (h) mm (jolting apparatus) 1100 x 410 x 520 (h) mm (sound-proof cabinet)
Weight	50 kg (jolting apparatus) 45 kg (sound-proof cabinet)

NOTES: The jolting apparatus, as specified by the standard EN 196-1, must be firmly fixed on a concrete block. The concrete block must be built by the user according to instructions given by the IBERTEST Technical Department.

For isolating the concrete block from the laboratory floor, the base of the block must rest on a rubber sheet of 10 mm thickness (minimum) and hardness (50 ± 5) DIDC (international grade for hardness of rubbers). The rubber sheet is also available as accessory.

The base of the apparatus comprises 4 tie-plates for leveling and anchoring the jolting apparatus to the concrete block by means of 4 leveling screws and 4 anchor bolts. The assembly must be completed by applying a thin layer of fresh self-compacting mortar between the base of the apparatus and the concrete block, ensuring a complete contact between both surfaces.

CLIMATIC CABINET CM 0/480

EN 196-1, ASTM C 109, ASTM C 511

Ref. 210-100166

After the mixing and compaction, the specimens must be stored in a moist atmosphere chamber or large cabinet for 24 hours with controlled temperature.

Designed specifically to fulfill the requirements of specimens storing: temperature of 20.0 ± 1.0 °C and relative humidity upper than 90% RH, according to standard EN 196-1 and ASTM C 511.

Features

- › Inner dimensions : 800 x 750 x 800 (h) mm. (480 L usable)
- › Independent programming for temperature and moisture inside the climatic cabinet.
- › Control via 2 digital controllers, with PID control system and dual LED displays for monitoring the current and selected values for temperature and moisture.
- › Adjustable temperature from 0 to 70 °C.
- › Temperature resolution: 0.1 °C
- › Temperature homogeneity (empty cabinet): ± 1 °C.
- › Adjustable humidity 30 to 98% RH.
- › Humidity resolution : 0.1% RH.
- › Humidity homogeneity (empty cabinet): ± 1 % RH
- › Forced ventilation.
- › Front door with triple tempered-glass inspection window
- › Dimensions of the door: 800 x 800 mm.
- › Dimensions of the inspection window: 200 x 200 mm.
- › Internal light for inspection of the chamber.
- › Side wall-trough hole, Ø 25 mm, with rubber stopper. Allows the introduction of wires, probes, thermometers, calibration instruments, etc.
- › Housing with 4 multidirectional wheels with brake, for easy displacement within the laboratory.
- › Inner walls made of high quality stainless steel. Polished satined and anti-magnetical coating, high resistance to corrosion and easy cleaning.
- › Low noise level, according to the current safety standards.

Security

- › Differential pressure safety switch, located in the compressor.
- › Thermostate with for disconnection by over-heating
- › Automatic management mode with displaying of warning messages for the user.

Specifications:

- › Electrical supply: Three-phase + N + G ~ 380 V / 50 Hz
- › Power consumption: 6300 W
- › Overall dimensions: 1310 x 1200 x 1970 (h) mm
- › Approx weight : 350 kg

Note: *Equipment requires a quality water outlet, preferably descaled, as well as a floor level drain.*



210-100166



Comprising the following elements:

- › 2 reinforced trays, made of stainless steel. (Up 11 IBERTEST three-gang moulds can be stored on each tray.)
- › Official verification certificate in temperature, made with verified instruments and traceable to international standards.
- › Internal verification certificate in relative humidity, made with verified instruments and traceable to international standards.
- › Technical instruction for setting-up and operating user manuals.
- › Wiring drawings and heating/cooling schemes.
- › CE marked and CE conformity declaration.

Accessories for CM 0/480 climatic cabinet

COMPUTERIZED SYSTEM FOR MONITORING AND DATA ACQUISITION FOR CLIMATIC CABINET

Ref. 210-100000

Designed to meet the audit requirements as to control the climatic conditions of curing of moulded cement specimens during the first 24 hours.

According to the standard, the conditions inside the climatic cabinet must be registered at least each 4 hours.

This system allows to record automatically the climatic conditions, which are stored in an electronic file.

The software installed on the PC shows in real time the parameters of temperature and humidity for monitoring.

The rate of data acquisition can be selected by the user as needed.

Stored data can be exported to a CSV file or other software for analysis and reporting.



210-100000

Comprising the following elements:

- › Last generation PC (dual-core microprocessor or higher), keyboard, mouse, TFT 20 " widescreen, Windows ® operating system manuals and licenses.
- › Interface RS-485 ,connecting cable and coverter plate RS485/RS232 for connecting the climatic chamber to a PC.
- › Software for programming, data acquisition and visualization of registers of temperature and humidity in real-time.
- › Ink-jet printer (optional)

ELECTRONIC RECORD SYSTEM AND ON-SCREEN DATA DISPLAY IN REAL TIME. **NEW SYSTEM**

Ref. 210-100938

Integrated in the frame of the machine, it allows the monitoring and filing of humidity and temperature data without the need for an external computer.

- › 3.5-inch color TFT screen and four navigation buttons (page, scroll, go up, go down)
- › 50 MB flash memory for data storage.
- › Sampling frequency and register of 8 Hz
- › Secure binary data file (UHH format) or open (CSV format)
- › Data export via USB port



RESERVOIR WATER TANK. FOR CLIMATIC CABINET

Ref. 210-100167

Using an auxiliary tank of water reserve, can greatly increase the total autonomy of the climatic chamber under high humidity demand.

Mounted in a stainless steel frame, separated from the chamber, connected by means of flexible hose.

It has electro-valve and suction pump , automatic drive as needed.

The water feed to the cabinet is regulated by the level sensor of the internal tank of the cabinet.

Especifications

- › Total capacity: 80 L
- › Dimensions: 510 x 510 x 800 (h) mm
- › Weight: 40 kg



AGING OF CEMENT SPECIMENS IN WATER

Standard EN 196-1

WATER CONTAINER FOR STORAGING OF CEMENT SPECIMENS 40 X 40 X 160 MM

Ref. 210-102259 (without heater)

Ref. 210-102473 (with heater)

Specify manufactured for the in water conservation of prismatic cement specimens during aging.

Made of high density PVC, 10 mm thick, highly resistant to shock and alkalinity of water curing.

Separator rack with 42 holes (7 x 6) in diameter Ø 60 mm to maintain the cement specimens apart and upright, as indicated by the testing standard.

The containers have no cooling control, so they must be located within a thermally conditioned room at 20 ± 1 °C

Specifications

- › Approx water capacity: 40 liters.
- › Dimensions approx: 500 x 430 x 280 (h) mm.
- › Weight: 15 kg

Comprising the following elements

- › Separation grid.
- › Perforated tray.
- › Transparent lid, with handle.
- › Side faucet for draining the water. Thread GAS 1/2 " (Ø 21 mm).



210-102259



210-102473



210-102473
Detalle

DIGITAL POCKET THERMOMETER

Ref. 210-100899

Built-in stainless steel probe.

Features:

- › With probe Ø 4 mm.
- › 120 mm in length. For reliable measurements, the probe should be introduced in the middle at least 30 mm.
- › 4-digit display, dual measuring range.
- › Resolution of 0.1 °C from -20 to +150 °C.
- › Resolution of 1 °C from -50 to -20 °C.
- › Accuracy: ± 1 °C (range -10 ... +99.9 °C).
- › Accuracy: ± 2 °C (range +100 ... +150 °C).
- › Measuring frequency: 1 second.
- › Indication of the level of battery charge.
- › Includes a pen-type sheath with clip.
- › Power supply: 1 x LR 44 (included).



210-100899

AGING OF CEMENT SPECIMENS IN WATER

Standard EN 196-1

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210-100899

MOISTURE AND TEMPERATURE MONITORING IN LAB ROOMS AND CLIMATIC CABINETS

Standard EN 196-1

DATA-LOGGER UNIT MOD. 176 H1

Ref. 210-104131

4 temperature and humidity channels for data collection of external probes: NTC and capacitive humidity sensor.

- › Large LCD screen with backlight button to see measured values even in dark environments.
- › Temperature and humidity parallel measurement and data collecting
- › Non-volatile memory for added data security.
- › Large memory, up to 2 million measurement values.
- › Comprises USB and SD card slot, for exporting the stored data to a computer.
- › Software ComSoft Basic 5 - intuitive operation, and comprehensive analysis.
- › Graphical interface that guides you step by step through each process.
- › Export functions for further processing of the data via Microsoft Excel.
- › Optional multiple plugable probes. (Ask our Sales Dpt.).



Specs. DATA-LOGGER UNIT 176 H1	
Sensors	NTC / Capacitive humidity sensor
Channels	2 probes, 4 external channels
Measurement parameters	°C, °F, % HR., td., g/m3, WB.
Measurement ranges	- 20 ... + 70 °C - 40 ... + 40 °C _{td} 0 ... 100 % HR. (without saturation)
Accuracy ± 1 digit	± 0,2 °C (- 20 ... + 70) °C ± 0,4 °C (rest of the range)
Resolution	0,1 °C ; 0,1 % HR.
Battery life (at +25 °C)	8 years (15 min. time interval)
Working temperature	- 20 ... + 70 °C
Storing temperature	- 40 ... + 85 °C
Dimensions	103 x 63 x 33 mm
Battery type	1 x Lithium (TLH-5903)
Protection class	IP 65
Time interval	1 s - 24 h (selectionable)
Memory	Up to 2 millions measurement values



MACHINES FOR FLEXURE AND COMPRESSION STRENGTH TESTS

Standards *EN 196-1, ASTM C 109*

AUTOTEST MD2 W MACHINES

Automatic, computerized, servohydraulic machine for testing flexural and compressive strength of cement specimens, with two independent testing frameworks, external microprocessed MD2 electronics and computerized management of tests.

- › Class 1, according to EN-ISO 7500-1.
- › High rigidity compression testing frame with max. force capacity of 200, 300 or 400 kN (depending on version). Base plate and upper crosshead made of steel. Columns made of chrome plated steel.
- › Flexural testing frame with max. force capacity of 10, 15 or 20 kN (depending on version).
- › Independent load cell in each test frame, for high precision and repeatability force measurement.
- › Single scale (autoscale) from 1% to 100% of the capacity of each load cell.
- › Automatic control of test procedure using last generation electronic microprocessor (133 MHz) module MD2.
- › Frequency of closed-loop control: up to 1 kHz (1000 times per second).
- › Resolution: $\pm 180,000$ real points in each channel.
- › Sampling rate: up to 1 kHz per channel.
- › Channels are simultaneous and synchronous.
- › Test programming and data collection with the IBERTEST WinTest software



AUTOTEST machine for compression and flexural testing



Using WinTest software with touch-screen PC computer

VERSION CIB MD2 W

When applying ASTM method for strength test, most laboratories perform only compression tests on cubic specimens, thus they have no need to perform bending tests.

For those users who only need a compression testing machine, IBERTEST offers a simplified AUTOTEST machine, in which the flexural workframe has been removed.

In this case, AUTOTEST machines are renamed and become into a CIB machine.



*When only compression is needed
CIB version is the wiser choice*

PLEASE ASK FOR SPECIFIC BROCHURE

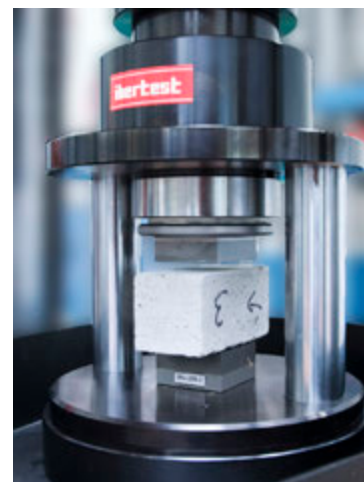
ACCESSORIES FOR FLEXURE AND COMPRESSION STRENGTH TESTS

Standards *EN 196-1, ASTM C 109*

STANDARD COMPRESION DEVICE

Ref. 111-100557

- › Built entirely in steel, with 2 lateral columns.
- › Designed to be positioned between the plates of a compression testing machine with suitable sensitivity and force capacity.
- › Body entirely made of steel, with 2 columns. Slidding assembly with spring-retrieval system for automatic return to its initial position, with no effect on the strength results.
- › Guidance system to ensure parallelism and linear approximation between the jig plates under load, without spinning.
- › The upper plate of the jig is mounted under a spherical seating ball.



111-100557

Optional accessories for compression devices

- › Centring device, with manual drive for quick and right positioning of the specimen on the plate.
- › Certificate of verified surface flatness and roughness (texture) of the tungsten carbide plates and accomplishing with all the requirements of standard EN 196-1, issued by the IBERTEST metrological laboratory with verified instruments, and traceable to international standards.

FLEXURAL DEVICE

Ref. 111-100559

With loading roller and supporting rollers for breaking the specimens in flexure of 40 x 40 x 160 mm.



111-100559

Specifications	Compression jig	Flexural device
Clearance between plates	45 mm	45 mm
Loading elements	Square compression platens made in tungsten carbide. 40 mm wide x 40 mm long Surface: 600 mm ² Platens thickness: 11 mm	Steel rollers for support and loading. Space between supporting rollers: 100 mm Length of rollers: 49 mm Diameter of rollers: 10 mm All rollers rotate freely around its axis. One supporting roller and the load roller are capable to tilt
Stroke	15 mm	15 mm
Load plate diameter	Ø 100 mm	Ø 100 mm
Base plate diameter	Ø 170 mm	Ø 170 mm
Total height	220 mm	220 mm
Net weight	11,5 kg	11,4 kg

STRENGTH TEST IN MORTARS

EUROTEST MD2 W UNIVERSAL TESTING MACHINE

EUROTEST series is a new generation of electromechanical IBERTEST Universal Testing Machines, comprising high-performance last generation MD2 microprocessed electronics, computerized test monitoring via WinTest32 software, with closed-loop control of movements in “load”, “crosshead stroke” and/or “deformation”.

This version comprises special vertical clearance and optimal distance between columns, enough to accommodate devices with special widths, (for example, the concrete slabs for testing adhesion of adhesive cement for ceramic tiles).

The EUROTEST machine is available in several capacities (50, 100, 200 and 300 kN) to perform a wide range of different tests.

Thanks to the two testing spaces, the interchangeable load cells and a wide range of different available testing fixtures, the EUROTEST machine makes a multi-task instrument, with high performance and low maintenance.

The load is measured by high precision, high repeatability strain-gauge load cells.



EUROTEST MD2 W machine
Special version for mortars testing

Examples of common tests that can be executed:

- › Cement and mortar compression, according to EN 196-1 and ASTM C 309
- › Cement and mortar flexure, according to EN 196-1
- › Adhesion of cementitious mortars and adhesives, tensile test according to EN 1346, EN 1348, EN 1015-2, etc.
- › Transverse deformation of cementitious adhesives for tiles, according to EN 12002.
- › Shear strength of resin dispersion mortars for tiles according to EN 1324.
- › Modulus of elasticity (secant modulus) in special mortars according to EN 13412.

Examples of special testings for research purposes.

- › Tensile tests on several materials (reinforcement mortars, fibers, elastic mortars, etc).
- › Specimen deflection when bending in special mortar specimens.

Also, any other static or cyclic test with the only limitation of the frame dimensions and the maximum force capacity of the machine.

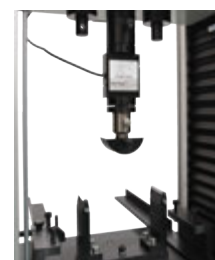
ASK FOR SPECIFIC BROCHURE



Bending and
compression testing



Testing adhesion of
cementitious mortars
and adhesives.
Standard EN-1346, EN-
1348 EN-1015-2



Determination of
transverse deformation
on cementitious
adhesives according to
EN-12002



Determination of the elasticity
modulus (secant modulus) in
special mortar according to
EN-13412

ADHERENCE OF MORTARS

TENSILE STRENGTH OF ADHESIVE CEMENTS

"PULL OFF"

ADHESION METER (TENSILE DYNAMOMETER)

Standards: EN 1015-12, EN 1348, EN 1542, EN 24624, ASTM C 4541, DIN 1048 section 2, NF P18-853, NF P98-228, NF T30-062, NF P84-404-1 / A1, etc.

The adhesion meter is a very precise and easy to use instrument. It is used for plastic, concrete, mortars and plasters, bituminous layers, paint layers, coatings, metallic, etc., both in the laboratory and in situ.

Mode of use

1. The test begins by making a circular drill with the help of a manual trepan or drill bit adapted to an electric drill. The depth of the drill should slightly penetrate the support.
2. On the circular surface obtained, a metal plate is stuck, a screw with a spherical head is threaded into the metal plate. Once the adhesive hardened (usually twice a day), a tensile strength test is carried out.
3. The tensile is carried out by a dynamometer.

The test results are read directly on the analog manometer or digital display. This test, in addition to serving to know the cohesion of the concrete support, is very useful to know the adherence of the materials that are applied to protect or repair it.

The apparatus is very useful in addition to the tests of tensile strength of adhesives, cementitious pastes and mortars for the laying of tiles. In this case, the mortar sticks to the tile and the test can determine the adhesion force that the mortar exerts between the tile and the support.

Advantage

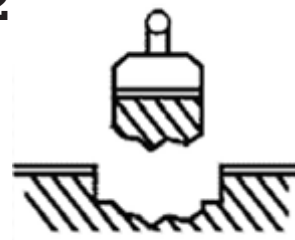
- > Its mobility allows you to use it anywhere you want.
- > It does not depend on the external power supply.
- > The smooth movement of the crank offers a constant load increase and free of jolts.



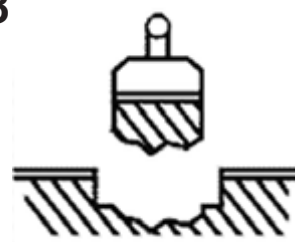
1



2



3



Adhesive tests of mortars and cements

Available models:

ANALOG MODELS. DTH SERIES

ITraction dynamometer providing information about the adhesion strength and cohesion of materials. Thanks to hydraulic transmission of axial movement, the strength is apply with a constantly increasing.

The twin hydraulic system allow to the measurement part to be independent from the movement part.



Reference	Model	Tensile strength	Unit of reading	Tensile screw	Weight of the apparatus
210-100006	DTH 500 dc	5 kN	0,05 kN	Métrica M8	3,6 kg
210-100007	DTH 1600 dc	16 kN	0,10 kN	Métrica M8	3,6 kg
210-100008	DTH 2500	25 kN	0,25 kN	Métrica M12	6,1 kg
210-100008	DTH 5000	50 kN	0,50 kN	Métrica M12	7,1 kg

LIGHT ANALOG MODEL. DTH S96 SERIES

The lightest unit in the range is the DTH-S96V. It weighs 2,2 kg and is essential for all adhesion testing on work sites.

It may be used with disc of Ø 20 mm, Ø 50 mm, 20 x 20 mm et 50 x 50 mm.

Measurements with a wheel, and reading of the results on pointer indicator with peak value.

Ease of use and quick setting up.

Packaged in a transport case with a ball head screw.



Reference	Model	Tensile strength	Unit of reading	Tensile screw	Weight of the apparatus
210-103762	DTH S96V 80	80 bar	0,5 bar	Métrica M8	2 kg
210-103763	DTH S96V 250	2.5 kN (250 daN)	2 daN	Métrica M8	2 kg
210-103764	DTH S96V 500	5 kN	0,05 kN	Métrica M8	2 kg

DIGITAL MODE. DTE PICO SERIES.

Reading on digital indicator, pressure sensor with peak value once the test has finished. The indicator operated with one 3 volt battery (type CR2430), stopping automatically after 15 min.

The twin hydraulic system allow to the measurement part to be independent from the movement part.

All models include crank lap counter, transport chest and international verification certificate of the force measuring system.



Reference	Model	Tensile strength	Unit of reading	Tensile screw	Weight of the apparatus
210-103756	DTE Pico 100 dc	1 kN	0,002 kN	Métrica M8	3,6 kg
210-103757	DTE Pico 250 dc	2.5 kN	0,002 kN	Métrica M8	3,6 kg
210-103758	DTE Pico 500 dc	5 kN	0,002 kN	Métrica M8	3,6 kg
210-103759	DTE Pico 1600 dc	16 kN	0,005 kN	Métrica M8	3,6 kg
210-103760	DTE Pico 2500	25 kN	0,05 kN	Métrica M12	6.2 kg
210-103761	DTE Pico 5000	50 kN	0,005 kN	Métrica M12	7,2 kg
210-103762	DTE Pico 10000	100 kN	0,10 kN	Métrica M16	9.5 kg

Accessories for adhesion meters:

TESTING DISCS

Made of special high strength steel, different shapes and sizes according to the characteristics of each support.

Circular plates are used in adhesion tests of plasters, plasters, concrete repair mortars, etc.

The square plates are more used in the tests of adhesiveness and tensile strength of mounting cements, cement tiles for tiles, pavements, tiling, etc.



Reference	Shape	Dimensions	Test surface (mm ²)	Tensile screw	Maximum tensile strength
PR 3 M8	Circular	Ø 20 mm	314	M8	16 kN
PR 20 M8	Circular	Ø 50 mm	1963	M8	16 kN
PR 20 M12	Circular	Ø 50 mm	1963	M12	50 kN
PR 100 M8	Circular	Ø 112 mm	9995	M8	16 kN
PR 100 M12	Circular	Ø 112 mm	9995	M12	50 kN
PC 4 M8	Cuadrada	20 x 20 mm	400	M8	16 kN
PC 25 M8	Cuadrada	50 x 50 mm	2500	M8	16 kN
PC 25 M12	Cuadrada	50 x 50 mm	2500	M12	50 kN
PC 100 M8	Cuadrada	100 x 100 mm	10000	M8	50 kN
PC 100 M12	Cuadrada	100 x 100 mm	10000	M12	50 kN

Screws, bits and adhesives

- › Ball-head screw M8. Ref. 210-100009
- › Ball-head screws M12. Ref. 210-100010
- › Manual drill bit. Internal diameter: Ø 50 mm. Ref. 210-101195
- › Carbide drill bit. Internal diameter: Ø 50 mm. Ref. 210-103839
- › Two-part epoxy adhesive. Package 1 kg. Ref. 210- 100014



EXTRACTOMETERS

EXTRACTION RESISTANCE OF FIXING ELEMENTS

"PULL OUT"

Analog extractometer.

Extractometer used to check easily the strength of fixing parts on building site.

- › Reading on a pointer indicator with peak value
- › Simple and quick setting up
- › Packaged in a transport case (with a set of optional accesories)



Tensile strength	Unit of reading	Weight of the apparatus	Four-arm wheel	Crank	Revolution counter
18 kN	0,10 kN	4,10 kg	Yes	No	No
25 kN	0,25 kN	6,2 kg	Yes	No	No
50 kN	0,50 kN	7,2 kg	Yes	No	No
16 kN	0,10 kN	4,9 kg	Yes	Yes	Yes
25 kN	0,25 kN	7,0 kg	Yes	Yes	Yes
50 kN	0,50 kN	8,0 kg	Yes	Yes	Yes

Digital extractometer.

Digital extractometer used to check easily the strength of fixing parts on building site.

- › Reading on a pointer indicator with peak value
- › Simple and quick setting up
- › Reading on a digital indicator, pressure sensor with peak value. The indicator operated with one 3 volt battery (type CR2430), stopping automatically after 15 min
- › Packed in a transport case (with a set of optional accesories)



Tensile strength	Unit of reading	Weight of the apparatus	Four-arm wheel	Crank	Revolution counter
5 kN	0,002 kN	4,1 kg	Yes	No	No
16 kN	0,005 kN	4,1 kg	Yes	No	No
25 kN	0,01 kN	6,2 kg	Yes	No	No
50 kN	0,03 kN	7,2 kg	Yes	No	No
16 kN	0,005 kN	4,9 kg	Yes	Yes	Yes
25 kN	0,01 kN	7,0 kg	Yes	Yes	Yes
50 kN	0,03 kN	8,0 kg	Yes	Yes	Yes
100 kN	0,06 kN	9,5 kg	Yes	Yes	Yes

Accessories

- › Slotted shouldered ring for shouldered end pin.



- › Retaining clamp for shouldered rings.



- › Tapped shouldered ring for male end pin.



- › Collar head pin for insulating materials.



- › Threaded shouldered ring for female end pin.



- › Turnbuckle fork.



- › Case with a set of shouldered rings.



- › Ring nut for wheel.



FINENESS - MANUAL BLAINE APPARATUS

Standards *EN 196-6, ASTM C 204, AASHTO T 153*

BLAINE FINENESS APPARATUS

Ref. 210-100799

Glassware equipment for determination of the fineness of cement, expressed by means of the specific surface, which is measured in cm^2/g

Supplied with the following elements:

- › Manometric Blaine tube, U shaped, with stopcock.
- › Stainless steel Blaine cell, with plunger and perforated disc.
- › Pump for manual aspiration.
- › Mounting support.
- › Manometer liquid. 50 ml flask.
- › Filter paper discs. Ø 12,7 mm. For Blaine. Box of 1000 pcs.
- › Glass thermometer, accurate 0,1 °C

Specifications:

- › Dimensions (mounted): 200 x 160 x 400 (h) mm
- › Weight: 9 kg

Accessories and spare parts

DIGITAL CHRONOMETER

Ref. 210-100391

STANDARD MATERIAL REFERENCE 114Q

Ref. 210-101160

Portland cement with certified specific surface. Comprising NIST certificate. Box of 20 pcs.

VERIFICATION OF BLAINE CELL VOLUME

Ref. 510-100015

Performed by the IBERTEST metrology Laboratory, with certificate according to EN 196-6.

MANOMETRIC BLAINE TUBE

Ref. 210-100018

Glass made, U shaped, with stopcock

FILTER PAPER DISCS. Ø 12,7 MM FOR BLAINE TEST. Box of 1000 units

Ref. 210-100464

PERMEABILITY CELL COMPLETE SET (BLAINE)

Ref. 210-103564

Stainless steel Blaine cell, with plunger and perforated disc.

MANOMETER LIQUID. 50 ML FLASK

Ref. 210-100154



210-100799



210-101160



210-103564

BLAINE PERMEABILITY AUTOMATIC APPARATUS

“PROBABLY THE MOST ADVANCED PERMEABILIMETER IN THE WORLD”

- › **Automatic calculation of the specific surface of cement:** the device calculates the Blaine number as a function of time of fall of manometer fluid.
- › **4 LED photodiodes** for the precise detection of the manometric liquid at all levels. **NEW**
- › **Size of specimen according to the Standard.** It is not required samples with bigger size than the standard.
- › **100% stand-alone equipment.** It is not required PC use for handling and tests storage in the memory.
- › **Can be connected to a PC** for management through WinPerm64 software, export and integration with other applications.
- › **Complete supply,** including all necessary elements and accessories to start testing from day one.



AUTOBLAINE PLUS

AUTOMATIC BLAINE APPARATUS. MODEL AUTOBLAINE PLUS

Ref. 111-100440/1

The Blaine apparatus is used to determine the fineness of cement (and other powdery products) in terms of specific surface in cm^2g^{-1} or m^2kg^{-1} .

The digital Blaine Permeability AUTOBLAINE PLUS model is manufactured according to specifications of the following standards:

- › **EN 196-6:** “Methods of testing cement - Part 6: Determination of fineness”.
- › **ASTM C204:** “Standard Test Methods for Fineness of Hydraulic Cement by Air-Permeability Apparatus”.

In this test, cement is compressed under conditions defined by standard, taking a certain amount of air through the powder compacted.

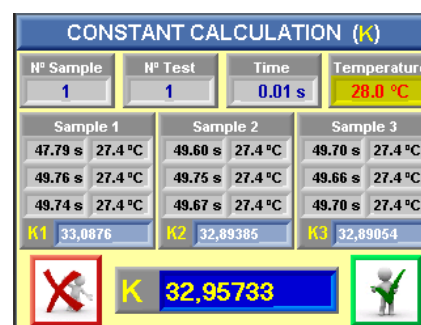
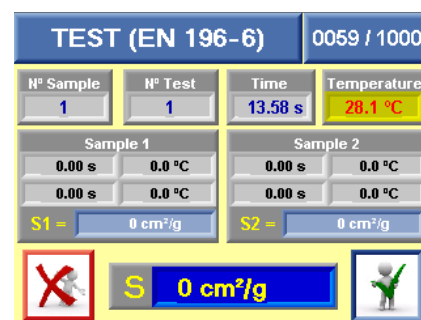
The resistance to air flow is directly proportional to the fineness of grain, as long as the same testing conditions are respected.

The determination of specific surface serves to control the uniformity of the milling process in the cement plant and others powder materials.

AUTOMATION

The operation of AUTOBLAINE PLUS is automatic in as concerns to:

- › **Automatic calibration:** with calculation of the K constant of equipment according to EN and/or ASTM.
- › **Test performing:** fluid aspiration, timing of the fall and detecting pass between the glass tube marks.
- › **Making all calculations,** showing the test results in the screen.
- › **Compressor self-adjustment:** with automatic flow regulation to operate in any atmospheric pressure conditions. **NEW**



Operating menus of touch screen

OTHER ADVANTAGES

- › **User-friendly interface** by means of large TFT touch screen.
- › **Instrument validation.** The equipment meets the validation requirements demanded by automatic methods for determining the Blaine fineness and described in standard ASTM C204.
- › **Higher accuracy and precision.** The AUTOBLAINE PLUS results have proven to outperform in accuracy and precision compared with the manual method, since errors in time measurements are much lower.
- › **Increases the repeatability** of the test results eliminating the uncertainty of measurement caused by the human factor.

COMPRISES THE FOLLOWING ELEMENTS:

- › Blaine cell, with plunger and perforated disc, with certificate.
- › Support made in stainless steel, to keep the cell in vertical position and to facilitate the introduction of the cement specimen.
- › Extractor for the permeability cell (to extract the tested cement and the perforated disc).
- › Manometric liquid. 50 mL.
- › Paper filters Ø 12,7 mm. 1000 pcs. Filtration grade medium.
- › Clamps for handling filters discs.
- › Stainless steel spatula with curved double ends.
- › Brush and paintbrush cleaning.
- › Plastic funnel for filling the cell.
- › Rubber stopper for leak testing.
- › Pasteur plastic pipette.
- › Syringe and suction tube for manometric liquid.
- › Reference Portland Cement. 3 units x 5 g.
- › Calibration certificate IBERTEST with NIST standard Portland cement.

ACCESORIES AND SPARE PARTS

- › **Standard Material Reference 114q.** Reference Portland Cement.
Box of 20 x 5 g flasks
Ref. 210-101160
- › **Permeability cell complete set.**
Ref. 210-103564
- › **Verification of Blaine cell volume.** Performed by the IBERTEST Metrology Laboratory. Certificate according to EN 196-6 and ASTM C204 included.
Ref. 510-100015
- › **Manometric tube.**
Ref. 210-100018
- › **Filter paper discs. Ø 12,7 mm.** Box of 1000 units.
Ref. 210-100464.
- › **Manometer liquid. 50 mL flask.**
Ref. 210-100154



Touch screen 5.7" control panel



AUTOBLAINE PLUS connected to PC via WinPerm64



210-103564



Elements included in the standard supply

SPECIFICATIONS

Specifications - AUTOBLAINE ^{PLUS}	
Screen	Color LCD 5,7" touch screen.
Level detectors	4 LED photodiodes for an accurate liquid detection, two for upper and lower test levels and two additional for filling level and safety.
Time resolution	0,01 s
Isolation	Detachable protective screen, made in polycarbonate, with stainless steel frame.
Temperature measurement	By means of a PT-100 probe. The computer displays a warning if the temperature measured by the probe is outside the range imposed by the testing Standard.
Temperature resolution	0,1 °C
Manometric liquid	Light mineral oil with optimal viscosity. Non-toxic (safety datasheet is comprised).
Light	LED back-light for a perfect visual monitoring of the manometric liquid level.
Fluid lift	Automatic by air compression (avoids the risk of liquid get into the air pump).
Compressor	Self-adjusting according to the atmospheric pressure. The compressor adjusts the air flow for different site conditions and performs a correct elevation of the manometric liquid.
Predefined testing methods	On-screen wizard to perform the tests, including specific protocols for conducting the test according to EN 196-6 or ASTM C204. The wizard calculates automatically the weight of cement to test according to the measured density, desired porosity and verified volume (cement bed) of the Blaine cell.
Test development	Real time displaying of temperature, constant K, passing time and other parameters.
Calibration standards	Up to 5 reference cements as standards in each testing methods EN 196-6 or ASTM C204. Certified Portland cement (Reference Material 114q) or other laboratory reference material can be used. The temperature probe is adjustable to match with an external certified thermometer (requires password).
Cement types	Up to 20 different types of cement can be memorized. (more cements on request) Independent calculation methods for each cement type.
Blaine cells	Up to 5 Blaine cells can be selected for calculations. User can change and memorize the cement bed volume of all his Blaine cells.
Test data storage	Up to 1000 complete data test can be memorized in a nonvolatile memory. When 1000 tests are performed, the equipment shows a calibration advice warning.
PC link	USB 2.0 output. Allows to export the memorized data to a Windows Excel file.
Selectable Languages	Spanish, English and French (others on request).
Weight	13,5 kg
Dimensions	270 x 400 x 410 mm (width x depth x height)
Power supply	Single-phase 110-240 V + Ground ~ 50 / 60 Hz

AUTOBLAINE PLUS - WinPerm64

Standards EN 196-6, ASTM C204

WINPERM64 SOFTWARE FOR ACQUISITION, DATA MANAGEMENT AND REPORTING OF AUTOMATED EQUIPMENT AUTOBLAINE PLUS.

This software automates the acquisition of data from tests stored in AUTOBLAINE PLUS, management of database thereof and reporting with data obtained from them.

STRONG POINTS AND ADVANTAGES

The most relevant advantages of WinPerm64 software are indicated as follows:

- Easy acquisition of results and test parameters.
- Non limited results storage.
- Friendly test management: user can filter and categorize according to user criteria.
- Automatic report generation (i.e. .pdf or printing formats).
- Possibility of communication with other commercial applications and laboratory management tools.

ACQUISITION AND PERFORMANCE MANAGEMENT

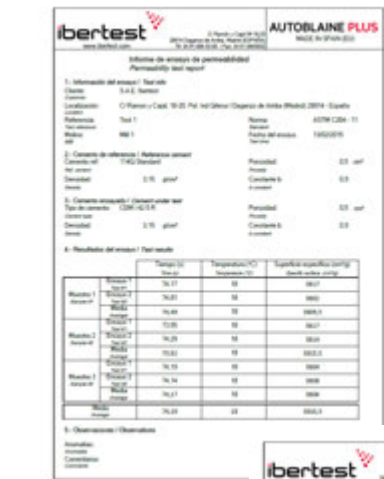
WinPerm64 software application shows clearly and simply all sample information and the results of each test.



Software WinPerm64

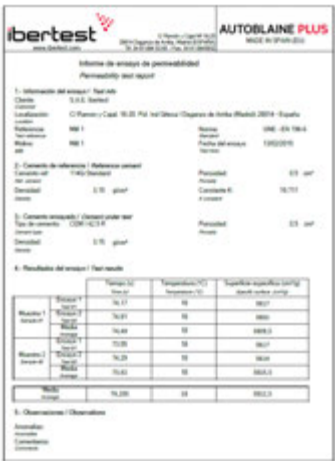
REPORT GENERATION

WinPerm64 enables the automatic generation of test reports and can be created from default templates (which vary depending on the standard) or through others that can be customized.



Report example
EN 196-6

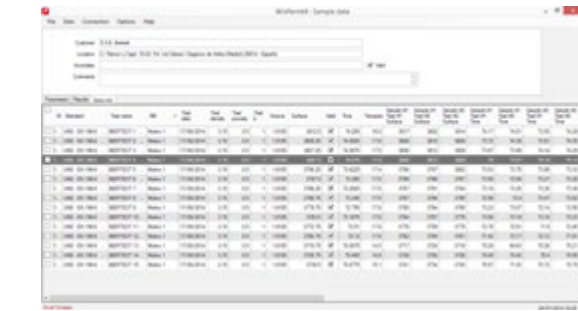
Report example
ASTM C204



Data of samples



Results



Additional information

SCREENING

MECHANICAL SIEVING METHOD

Standards EN 196-1, EN 196-6, ASTM C 109, ASTM C 184, ASTM C 230, ASTM C 340.

ELECTROMAGNETIC SIEVE SHAKER MODEL IBRP-200 N

Ref.210-103084

High-performance model, low noise, reliable and robust. Includes the latest technology in intermittent sieving for getting the greatest results.

Thanks to its excellent ability to absorb vibration, can be placed over a laboratory bench.

Specifications

- › Max. number of sieves: 8 sieves x 50 mm high, or 15 sieves x 25 mm high.
- › Max. sample: 50 to 250 g
- › Regulation control of the intensity of vibration.
- › Max. vibration amplitude: 2,00 mm
- › Digital timer.
- › Power supply: Single-phase 230 V + G ~ 50 / 60 Hz (others on request)
- › Power consumption: 400 W.
- › Dimensions (W x L x H): 445 x 335 x 150 mm (without sieves).
- › Weight: 40 kg (without sieves).

Optional accessories (sold separately)

- › **Testing Sieves**
- › **Receiver and lid for testing sieves**
- › **Wet Sieving device**

OFFICIAL CERTIFICATE OF VERIFICATION OF THE SIEVE
APERTURE



Ref. 210-103084



Testing sieves



Equipment for wet sieving

WOVEN WIRE TEST SIEVES

Standard ISO 3310-1

Sieves made entirely of high quality stainless steel AISI 304 (18 / 8).

Great strength and endurance, suitable for both manual or automatic sieving.

Each sieve includes a report for verification of the mesh aperture, issued by the manufacturer.

Features

- › Usable diameter: Ø 203 mm (8 ")
- › Usable height: 50 mm.



SIEVES Ø 203 x 50 (h) mm stainless steel woven wire

Reference	Aperture	Reference	Aperture
210-100048	3,55 mm	210-100077	300 µm
210-100049	3,35 mm	210-100078	280 µm
210-100050	3,15 mm	210-100079	250 µm
210-100051	2,80 mm	210-100080	224 µm
210-100052	2,50 mm	210-100081	212 µm
210-100053	2,36 mm	210-100082	200 µm
210-100054	2,24 mm	210-100083	180 µm
210-100055	2,00 mm	210-100084	160 µm
210-100056	1,80 mm	210-100085	150 µm
210-100057	1,70 mm	210-100086	140 µm
210-100058	1,60 mm	210-100087	125 µm
210-100059	1,40 mm	210-100088	112 µm
210-100060	1,25 mm	210-100089	106 µm
210-100061	1,18 mm	210-100090	100 µm
210-100062	1,12 mm	210-100091	90 µm
210-100063	1,00 mm	210-100092	80 µm
210-100064	900 µm	210-100093	75 µm
210-100065	850 µm	210-100094	71 µm
210-100066	800 µm	210-100095	63 µm
210-100067	710 µm	210-100096	56 µm
210-100068	630 µm	210-100097	53 µm
210-100069	600 µm	210-100098	50 µm
210-100070	560 µm	210-100099	45 µm
210-100071	500 µm	210-100100	40 µm
210-100072	450 µm	210-100101	38 µm
210-100073	425 µm	210-100102	36 µm
210-100074	400 µm	210-100103	32 µm
210-100075	355 µm	210-100104	25 µm
210-100076	315 µm	210-100105	20 µm

PERFORATED PLATE TEST SIEVES

Standard ISO 3310-2

Sieves made entirely of high quality stainless steel AISI 304 (18/8)

Great strength and endurance, suitable for both manual or automatic sieving.

Each sieve includes a report for verification of the mesh aperture, issued by the manufacturer.

Features

- › Useful diameter: Ø 203 mm (8 ")
- › Useful height: 50 mm.



SIEVES Ø 203 x 50 (h) mm PERFORATED PLATE SIEVES

Reference	Aperture	Reference	Aperture
210-100234	125,00 mm	210-100261	20,00 mm
210-100235	112,00 mm	210-100262	19,00 mm
210-100236	106,00 mm	210-100263	18,00 mm
210-100237	100,00 mm	210-100264	16,00 mm
210-100238	90,00 mm	210-100265	14,00 mm
210-100239	80,00 mm	210-100266	13,20 mm
210-100240	75,00 mm	210-100267	12,50 mm
210-100243	71,00 mm	210-100268	11,20 mm
210-100483	63,00 mm	210-100269	10,00 mm
210-100245	56,00 mm	210-100270	9,50 mm
210-100246	53,00 mm	210-100271	9,00 mm
210-100250	50,00 mm	210-100272	8,00 mm
210-100251	45,00 mm	210-100273	7,10 mm
210-100252	40,00 mm	210-100274	6,70 mm
210-100253	37,50 mm	210-100275	6,30 mm
210-100254	35,50 mm	210-100276	5,60 mm
210-100255	31,50 mm	210-100277	5,00 mm
210-100256	28,00 mm	210-100278	4,75 mm
210-100258	26,50 mm	210-100279	4,50 mm
210-100259	25,00 mm	210-100280	4,00 mm
210-100260	22,40 mm		

Standard EN 196-6

AIR-JET SIEVING APPARATUS ALPINE E200-LS.

Model Control Basic. Ref: 210-103084

The extraordinary good dispersion of the product brought about the nozzle jet permits analyses down to 20 microns (down to 10 microns with optional micro-precision sieves).

Innovative and high-resolution 6,4" TFT touch screen, intuitive operation thanks to the easily understandable menu structure.

Multi language selection.(spanish,french,english...)

Automatic identification of test sieve mesh width (only with original Ø 203 mm Alpine sieves)



The supply includes the following elements

- › Multi PSU Power Pack, multi-voltage module, with electrical connection for vacuum system.
- › RS485 Power connection, connects the Multi-PSU power pack with the e200-LS apparatus.
- › Transparent cover, made of antistatic Plexiglas.
- › Natural bristle brush for cleaning test sieve and cover.
- › Hammer with nylon heads.
- › Adapter for Ø 203 mm test sieve ALPINE series.
- › Suction filter eLS.
- › Connection cable.
- › High-performance industrial vacuum cleaner type L



Alpine e200LS Specifications

Sieving range	4 mm to 20 µm, when using standard test sieves. 2,5 mm to 10 µm, when using micro-precision test sieves.
Under pressure	1500 - 5500 Pa
Air flow rate	30 - 115 m³/h
Power supply	Single-phase 230 V + G ~ 50 / 60 Hz (others on request)
Nozzle speed	18 rpm
Protection class	IP 54
Dimensions	503 x 370 x 380 (h) mm
Approx weight	20 kg

L vacuum cleaner Specifications

Permeability	< 1% as per EN 60335-2-69
Container volume	30 L
Filters	Washable PET fleece filters reduce maintenance costs
Power	1500 W
Power supply	Single-phase 230 V + G ~ 50 / 60 Hz (others on request)
Air flow rate	3700 L/min
Underpressure	250 mbar (25 kPa)
Weight	10 kg
Dimensions	450 x 380 x 595 (h) mm
Antistatic suction hose	2 m, with special connector

Accessories (are sold separately)

- › Stainless steel woven wire. Apertures according to EN 3310-1 or ASTM E 11



- › Special for cement. For L type vacuum cleaner. Allows the reliable filtering of difficult, extremely fine, hygroscopic or adhesive dust. Specially suitable for cement powder.
- › For L Alpine vacuum cleaner. PET fleece, washable.

HIGH-PERFORMANCE CYCLONE FOR ALPINE E200 LS

For the almost complete recovery of the fine aggregates.

Stainless steel design, can be completely dismantled for cleaning and washing. No contamination caused, e.g. by filter lint. The fine aggregates are collected in 1-litre glass jar.

Dimensions: 275 x 230 x 740 (h) mm

The supply includes the following elements:

- › Stand support.



Test sieves for ALPINE e200LS

ISO 3310 (µm)	ASTM E11 #
20	635
25	500
32	450
36	--
38	400
40	--
45	325
50	--
53	270
56	--
63	230
71	--
75	200
80	--
90	170
100	--
106	140
125	120
150	100
160	--
180	60
200	--
212	70
224	--
250	60
300	50
315	--
355	45
400	--
425	40
500	35
600	30
630	--
710	25
800	--
850	20
1000	18
1180	16
1250	--
1400	14
1600	--
1700	12
1900	--
2000	10
2500	--
3150	--
4000	--

SETTING TIME DETERMINATION

VICAT APPARATUS

Standards EN 196-3, EN 480-2, ASTM C 187, ASTM C 191

VICAT APPARATUS

Ref. 210-104011 (as per ASTM C191)

Ref. 210-100146 (as per EN 196-3)

To determinate the setting time and water needed, in a neat cement paste of standard consistence.

Elements included in both models (ASTM /EN)

- › Frame and vertical stand.
- › Needles plunger, with consistence probe included in the plunger.
- › Thermometer.

Elements included in ASTM model

- › Setting needle. Ø 1,00 mm
- › Vicat mould, truncated conical form, as per ASTM
- › Base-plate. Glass made. Square shape.

Elements included in EN model

- › Needle for initial set. Ø 1,13 mm As per EN 196-3.
- › Needle with attachment for final set. As per EN 196-3.
- › Vicat mould, truncated conical form, as per EN 196-3
- › Immersion cylindrical container, with centering ring.
- › Base-plate. Glass made. Circular shape which fits into the immersion container.

Specifications

- › Dimensions approx.: 260 x 250 x 450 (h) mm
- › Weight approx.: 5 kg

ACCESSORIES AND SPARE PARTS

Ref	Spare part	Standard
210-100212	Needle for initial set. Ø 1,13 mm	EN 196-3
210-101135	Needle for final set.	EN 196-3
210-100211	Steel needle Ø 1.00 mm	ASTM C191
111-100110	Vicat mould	EN 196-3
111-100109	Vicat mould	ASTM C191
210-101169	Glass base plate. Square shape	ASTM C191
111-100311	Water container, with mould centering ring	EN 196-3
111-100348	Circular glass plate	EN 196-3
111-100397	700 g plunger overweight for obtaining a total mass of 1000 g	EN 480-2



Initial Setting
needle
210-100212
210-100211

Final setting
needle
210-101135

Consistence
probe
(Included)



111-100311



111-100110 + 111-100348

SETTING TIME DETERMINATION

AUTOMATIC APPARATUS

Standard EN 196-3, EN 480-2, EN 13279-2, ASTM C187, ASTM C191, ASTM C472, EN ISO 9917.

AUTOVICAT. AUTOMATIC VICAT APPARATUS

Ref. 111-100399

The automatic AUTOVICAT apparatus is a last generation equipment, which enables automatical execution of tests according to the following standard methods:

- › Initial and final setting time in cement¹, as per EN 196-3 and ASTM C191.
- › Normal consistency as per EN 196-3 and ASTM C187.
- › Setting times in gypsum² as per EN 13279-2 and ASTM C472.
- › Setting times in additives for concretes, mortars and pastes, as per EN 480-2.
- › And, practically, any other standard or testing procedure, by means of built-in editor of standards, easily programmable by the user himself.

IBERTEST has been manufacturing automatic Vicat apparatus for more than 40 years. The AUTOVICAT is the fourth generation equipment.

IMPROVEMENTS

All movements in each of the three axes (vertical, horizontal and rotation of the plate) are made by a combination of steppers electric motors, avoiding problems caused by other mechanical transmissions and ensuring accuracy, repeatability and unprecedented reliability in this equipments.

The user can choose the number of punches, including distance, distance to edge of mould, frequency between punches, etc.,

Thus, the apparatus can be adapted for any possible variation of the standards, implementation of special studies, research, etc..

CONNECTIVITY

Possibility of link practically an unlimited number of AUTOVICAT to a single PC, by means of the optional IBERTEST WinLect32 software pack, VICATEST version, running on Windows®.



111-100399



4 AUTOVICAT linked to PC via WinLect32 - VICATEST software

NOTE 1 .- According to standard EN 196-3 and EN 480-2, the results obtained by automatic methods should be compared with results obtained by the standard manual method. This requires having a manual Vicat apparatus and make necessary adjustments to validate the results.

NOTE 2 .- For determining the plaster setting time, it is recommended to clean the cone needle after each penetration. It is also possible to use the Ø 1.13 mm diameter needle and validate the results by comparison with the standard manual method.

Standard delivery for AUTOVICAT

- › Standard weight sliding needle-holder for setting tests as per EN 196-3 or ASTM C191.
- › Needle Ø 1,13 mm diameter according to ASTM C191 (to specify).
- › Truncoconical mould as per EN 196-3 or ASTM C191 (to specify).
- › Immersion bath with centring ring for moulds and glass plate.
- › Circular glass plate.
- › Set of 2 brushes for the needle cleaning device.
- › Thermal printer. Pack of 5 rolls of printer paper.

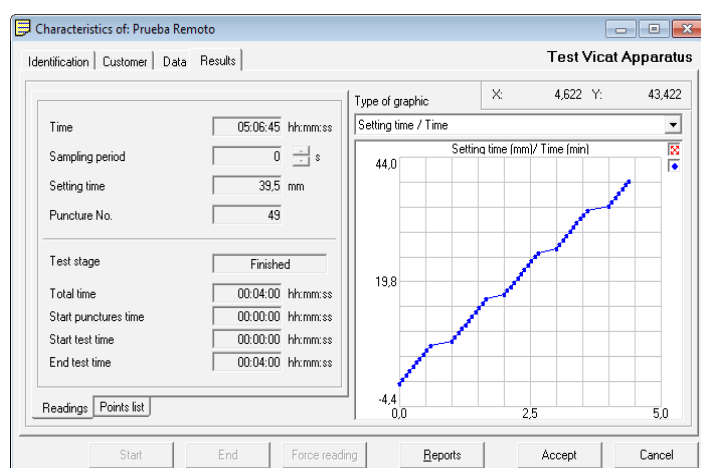
Computerized data acquisition system for AUTOVICAT

Ref. 115-100001

Possibility of forming groups of practically an unlimited number of equipment and commanded by one PC (thanks to a multiport USB 2.0 hub) and the software WinLect32 version VICATEST.



Accessories and Spare parts for AUTOVICAT



By means of this system, the equipment AUTOVICAT, can be connected to a computer, to be controlled by means of the testing software WinLec32, VICATEST version, to edit standards and configurations, execution of tests, data acquisition and statistical treatment , etc. In case of wrong operation in one of the equipments, the user can continue working with the rest of the AUTOVICATS without any difficulty.

The system is comprised by the following elements

- › Multiport USB 2.0 hub, according to the chosen number of equipments to be connected.
- › New generation ALL in ONE PC (Dual Core or higher), with keyboard, mouse, 19,5" wide-screen, Windows® operating system, with manuals and user licences.
- › 32 bits software pack WinLect32 version VICATEST, under Windows®. To schedule and management of testing, data acquisition and processing.

Ref.	Spare part / Accessories	Standard
111-100398	WinLect32 - VICATEST Software pack	--
115-100001	Data acquisition system: PC + connector + VICATEST software pack	--
111-100376	Light alloy (100 g) sliding conical needle-holder (gypsum)	EN 13279-2
111-100411	Conical needle for gypsum (fits in 111-100376)	EN 13279-2
111-100409	Sliding probe-holder for consistence probe	EN 196-3 ASTM C187 / C191
111-100412	Consistence probe (fits in 111-100409)	EN 196-3 ASTM C187 / C191
111-100410	Heavyweight (1000 g) needle-holder with Ø 1.13 mm needle	EN 480-2
111-101055	Standard needle-holder (300 g)	EN 196-3 ASTM C191
111-100258	Needle Ø 1.13 mm.	EN 196-3 EN 480-2
111-101167	Needle Ø 1.00 mm.	ASTM C191
111-100110	Vicat mould as per EN	EN 196-1 EN 480-2 EN 13279-2
111-100109	Vicat mould as per ASTM	ASTM C191
111-100311	Container for water, with centering ring	EN 196-1
111-100348	Circular glass base-plate (fits in 111-100311)	EN 196-1
111-100413	Brushes for needle cleaning device	--
210-104153	Printer paper roll (5 pcs)	--

Specifications - AUTOVICAT

Reference	111-100399
Preset methods	6 preset methods according to EN /ASTM standards procedures. 9 free methods according to user preferences.
User configurations	15 available configurations. Each configuration can be assigned to a different type of cement, according to the special features of each product.
System Intelligence	Controlled by a 32 bits last generation microprocessor.
Movements	By combination of stepper motors for positioning and rotation of the mould.
Penetration depthness measurement.	By digital encoder.
Penetration depth resolution	Better than 0,1 mm
Configuration possibilities	Standard selection. Configuration selection by the user. Free falling or assisted falling of the needle. Start-up time and delaying time before first penetration. Time between penetrations can be modified by user from 1 to 250 minutes at any time during test. Distance between concentric and successive penetrations. Distance to the edge of the mould. Selecting a second pass after completing the first series of penetrations. Selection criteria of final setting time.
Calculation of number of penetrations	An algorithm calculates the maximum number of penetrations to comply with the configuration conditions imposed by the user and applies it automatically.
Data input	Frontal membrane board, with 6-keys sensitive keyboard. It protects display and allows surfing menus, select and / or configure tests, parameters, start the test, etc.
Data visualization	High resolution (128 x 64 points) LCD graphic screen, with retro – illumination.
Printer	Yes, integrated into the side of the computer.
Printing report	Date, time and test reference. Chosen standard. Measure each penetration in mm, with graphical representation of each penetration, number, time and indication of each measure in mm. Test results: Final setting time.
Paper printing direction	Selectable.
Width of paper / printing width	58 mm / 48 mm
Needle automatic cleaning device	Yes, by roller-type brushes.
Memory	FLASH memory (non volatile) that stores user different configurations and the last 100 complete tests performed, even in those cases of electrical supply failure.
Connection to computer	Via USB, with WinLect32 - VICATEST software (see accesories).
Grouping of equipment	Commanded by one sole PC (thanks to a multiport USB 2.0 hub).
Language	Spanish, English, French and Portuguese.
Dimensions	230 x 290 x 355 mm (width x length x height)
Weight	15 kg
Power supply	Single-phase 110-240 V + Ground ~ 50 / 60 Hz (< 40 W)

SOUNDNESS TEST

Standards EN 196-3, EN 459-2, BS 6463

LE CHATELIER THERMOSTATIC WATER BATH

Ref: 111-100257

Thermostatic water bath, with precise PID temperature control by means of a precision digital module, specifically developed for the automatic perform of the test cycle, according to EN 196-3.

The test procedure starts in filling up two Le-Chatelier moulds with fresh-mixed cement paste, closing the cement surface with two glass plates and fastening the arrangement with a suitable clamp. Then the moulds are introduced into the thermostatic bath for performing the thermal cycle.

The water contained in the bath Le Chatelier is warmed up following a continuous heating ramp of temperature from 20 °C to the boiling, in 30 minutes, and maintaining a smooth boiling, during 3 hours.

The sensitivity of this equipment allows to maintain a gentle boil with very low decrease of the water level in the bath.

Once the boiling time, the samples are taken, even moulded, and measured the separation between the tips ends of the mould. This separation is compared with the measured separation between the tips once the sample allowed to cool to 20 degrees.

Features

Equipment specifically developed for the determination of the cement expansion (stability test volume) with fully **automatic** development of the test cycle, according to EN 196-3.

The bath has a stainless steel tank and lid with handles, and a double wall insulated with rockwool, inside wall made of **stainless steel** with drainage faucet located in behind lower part. Inside it has a stainless steel perforated sheet tray with handles to lift the tray out of the bath bottom and protect the heating resistor of 3000 W.



111-100257/2

The measuring and regulating system consists on a electronic module in the right side of the bath which incorporates 3 digits (two integers and one decimal) digital thermostat with 0,1° C resolution, combined with a **Pt100 probe** to measure temperature of the water in the bath. The thermostat range is 0 to 100°C.

The adjustment of the orders introduced by the user and the reading of the real temperature is controlled by means of one internal PID. The digital indication is double (continue for the order and instantaneous for the real temperature).

The thermostat is fully programmable by the user, by means of the keyboard, and so it permits to adapt the user to the specific working conditions for each test.

NEW AP-439 ELECTRONIC MODULE

4.3" touch screen which provides an **easy, intuitive and secure handling**.

Graphic display of temperature, time, test cycle section, detected alarms, etc.

If necessary, the integrated electronic module can be replaced by the user. In this operation Ibertest technical service is not necessary.

From our facility this equipment is supplied with 2 preset programs:

First program: (Complete method).

- › 24 hours in 20°C
- › Increase to boiling in 30 minutes
- › Keeping the boiling during 3 hours.

Second program: (Brief method).

- › Quick stabilization to 20° C
- › Increment of the boiling temperature in 30 minutes
- › keeping the boiling during 3 hours.



AP Electronic Module

Specifications for Le CHATELIER THERMOSTATIC WATER BATH

Inner dimensions of the tank	445 x 250 x 140 mm (length x width x depth)
Water volumen	approx. 14 liters
Electric supply	Single-phase 230 V + G, 50-60 Hz
Number of Le Chatelier moulds	For best results, we recommend testing up to 9 moulds simultaneously.
Power consumption ¹	4500 W
Dimensions	710 x 450 x 280 (h) mm
Net weight approx. (empty)	15 kg
Temperature visualitation	4 digits (3 integers and 1 decimal)
Resolution	± 0,1 °C
Screen	LCD graphic screen with retro – illumination with 2 lines capacity and 16 characters per line
Data acquisition	Touch-screen keyboard with function and alpha numerical keys.
Control	32-bit microprocessor with built-in real-time clock. Closed loop control with internal PID, Autotuning function for calculation and automatic PID tuning
Closed loop time frequency	100 Hz (100 times/second)
Language	Spanish, English and French (others under request)
Real time information	Temperature setpoint. Real temperature. Elapsed time. Time remaining to complete the test. Selected program: full cycle / short cycle. Stretch of the cycle in which ,in every moment.
Warnings reports	Disconnected probe. Probe shorted. Resistance damaged or water lack. Temperature of filling water excessively low.

(1) The high power consumption of this device requires an electrical installation that can withstand current up to 21 A

Accesories and spare parts

LE CHATELIER MOULD, AS PER EN 196-3

Manufactured in chrome-plated brass.

Ref. 210-100001

BASE AND COVER PLATE

Glass-made. For the Le Chatelier moulds.

Ref. 111-100002

ADDITIONAL MASS FOR COVER PLATE

Brass made. Set the mass of the cover plate to 75 g.

Ref. 111-100003

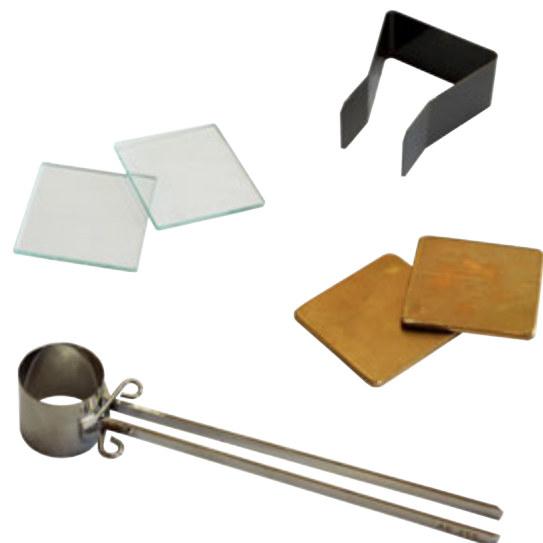
CLAMP FOR LE CHATELIER MOULD.

For easy handling of the mould when filled

Ref. 111-100001

VERIFICATION MASS, for checking resilience of the Le Chatelier moulds, of 300 ± 1 g as per EN 196-3.

Ref. 210-102364



EXPANSION TEST AUTOCLAVE METHOD

Standard: ASTM C 151, ASTM C 490, UNE 80113

AUTOCLAVE FOR EXPANSION TESTING OF CEMENT

Ref: 210-100027

Designed specifically for testing expansion in the cement. The test specimens are cured in a container with high pressure steam.

The change in the length of the specimens is determined by a retractometer (sold separately).

Comprising the following elements

- › Manometer.
- › Pressure regulator.
- › Temperature regulator.
- › Safety valve.
- › Safety test certificate for pressure vessels.
- › Protective housing against burns, adjustable on the lid of the autoclave. Manufactured in Teflon and equipped with handles. (See picture).
- › 2 O-rings Ø 181/167 mm.
- › Open-end wrench.

Specifications

- › Maximum pressure: 2,5 N/mm².
- › Tank capacity: 7,8 L. (Enables to test simultaneously up to 8 specimens measuring: 1 x 1 x 11 ¼ or 6 specimens measuring 40 x 40 x 160 mm.)
- › Maximum temperature: 250 °C.
- › Power supply: 230V / 50 Hz (Also available in 110 V. (Please specify your electrical requirements when ordering).
- › Power: 2300 W.
- › Outer dimensions: Ø 550 x 1120 mm (h).
- › Approx weight: 80 kg.

Accessories

- › Support for 8 specimens 1" x 1" x 11 ¼ ". Allows testing up to 8 samples simultaneously in the autoclave.
- › Support for 6 specimens 40 x 40 x 160 mm. Allows testing up to 6 samples simultaneously in the autoclave.



Sample holder frame



210-100027



Detail protective housing

SHRINKAGE MOULDS

Standard EN 121617-4, EN 1367-4, ASTM C151, ASTM C157, ASTM C227, ASTM C490, AASHTO T-107, ASSHTO T-160 and equivalent.

TWO GANG MOULD TO PREPARE SPECIMENS FOR THE EXPANSION TEST IN AUTOCLAVE

Ref 210-104056

As per ASTM C151 / ASTM C 490 / UNE 80113

For specimens of 1 x 1 x 11 ¼ " (25 x 25 x 285 mm).

CONTACT POINTS

Ref 210-104042

Contact points for expansion test in autoclave. Set of 10 units.



210-104056



210-104042

LENGTH CHANGE METER. DIGITAL.

Ref. 210-104085

With digital comparator Effective length: 10 " (254 mm)

To measure the change in the length of the specimen subjected to the autoclave test.

The support set and comparator clock rest on a solid triangular base.

Model with digital comparator of 12.5 mm stroke and 0.001 mm appreciation.

It includes two supports, replaceable, in which they fit with the contact tips of the specimens and with the reference bar.

Includes a 0,600-inch digital comparator relay. With resolution of 0.0001 "

It allows to measure specimens up to 4 "x 4" section (102 x 102 mm)

Weight approx. 14.5 kg

Power supply: 230 V / 50 Hz (Available in 110 V: Please specify when ordering)

REFERENCE BAR

Ref. 210-104121

Verification bar of the measurement base distance.

Base distance: 11-5 / 8 " (285 mm), for test pieces with 10" measurement base

Made of INVAR steel.



210-104085 + 210-104121

AIR ENTRAINMENT METER

Standard EN 413/2, EN 459-2, DIN 1164

Ref. 210-100934 (Manual version)

Ref. 210-103177 (Electrical version)

Very robust equipment, built in aluminum smelleder.

Mechanical valve for safe sealing between pressure chamber and test specimen, spherical keys for greater security and closures speed between lid and container.

Gauge integrated into the device for direct reading of the result as a percentage of entrained air. Measurement scale of 0 to 50%.

- › Capacity: 1 liter.
- › Dimensions: Ø 200 x 320 (h) mm.

Specifications manual model

- › Includes a manual pressure pump. This model is ideal for work laboratories and to use the equipment without electricity.
- › Weight: 4 kg.

Specifications electrical model

- › Includes an automatic electric minicompressor for the pressure inside the tank and keep it constant during the test.
- › Power: 220 V Single-phase, 50 Hz.
- › Weight: 6 kgs approx.



210-100934

CONSISTENCE OF FRESH MORTAR PROBE METHOD

CONSISTENCY PROBE

Standard EN 1015-4, EN 413-2, EN 459-2

Ref. 210-101156

To determine the consistency of the mass of masonry cement and lime construction.

- › Dimensions approx.: 260 x 250 x 450 (h) mm
- › Weight approx.: 5 kg
- › Capacity: 1 litre.
- › Dimensions: 200 x 320 mm

Includes test specimen and ram according to standard.



210-101156

CONSISTENCE OF FRESH MORTAR FLOW TABLE METHOD

Standards EN 1015-3, EN 459-2

(ASTM C 230 and BS 4551-1 also available under request),

MANUAL FLOW TABLE

Ref. 111-100312

ELECTRIC FLOW TABLE

Ref. 111-100041

Features

Steering-wheel drive grip, attached to a horizontal axis. By the end of the shaft there is a steel cam, on which rests a lift shaft attached to the circular table.

Thus, by rotating the cam rises to the table, then fall freely from the height specified by the standard.

In the electric model, the drive it's automatic and it's performed by an electric gear motor and a mechanical coupling. This motor rotates the cam, keeping the speed of rotation as specified by the standard.

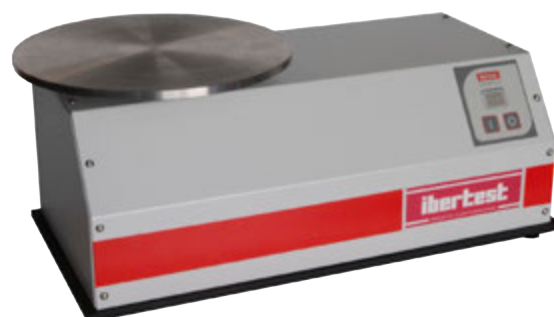
For durability, the axles have bearings seats.

Comprising the following elements

- › Conical mould, height 60 mm \pm 0.5 mm. Inside Diameter: 100 mm x 70 mm in the upper part.
- › Tamper compaction: a rigid bar, which is circular, non-absorbent, about 40 mm diameter and 200 mm in length.



111-100312



111-100041

Specifications	Manual flow table	Electric flow table
Reference	111-100312	111-100041
Operation	Hand driven	By motorised speed reducer
Features of the table	Made of stainless steel, 300 mm in diameter and 4 mm thick.. Stiffened by a metal ring Ø 300 x Ø 260 and 5 mm thick, attached to the bottom of the table. The surface has etched markings (Ø 100 mm x 0.5 mm deep) for proper centering of the mould.	
Height of fall	10 \pm 0,2 mm	10 \pm 0,2 mm
Rugosity	Lower than 0,005 mm	Lower than 0,005 mm
Total mass of mobile parts	4,35 \pm 0,15 kg	4,35 \pm 0,15 kg
Table and lift axle	Stainless steel	Stainless steel
Cam and final axle	Treated Steel, hardness > 500 kg/mm	Treated Steel, hardness > 500 kg/mm
Dimensions (W x D x H)	300 x 300 x 245 (h) mm	640 x 300 x 280 (h) mm
Approx. weight (kg)	18 kg	45 kg
Power supply	--	Single phase: 220 V +T, 50-60 Hz
Power	--	250 W

WATER RETENTION

Testing standards: ASTM C1506, ASTM C110, ASTM C207, ASTM E149

WATER RETENTION APPARATUS

Ref. 210-104072

The apparatus is used in specification tests of masonry mortars and physical testing of quicklime and hydrated lime.

Features

Incorporates a vacuum regulator and gauge system in place of the old mercury manometer and relief column.

Comprises the following items.

- › Aspirator pump, to be connected to a water tap
- › Vacuum regulator
- › Vacuum gauge
- › Brass-made funnel
- › Perforated brass-made dish
- › Three-way stopcock
- › Erlenmeyer flask (1000 mL)
- › Rubber gasket
- › Filter paper, 15 cm, Package of 100 units
- › Hardwood stand



210-104072

MEMBRANE TYPE PUMP. FOR VACUUM AND PRESSURE.

Ref. 210-104128

For laboratory applications that require vacuum (filtration, distillation, drying, etc).

Features:

- › Vacuum rate: 1,8 m³/h. Maximum vacuum: 250 bar
- › Maximum air pressure as compressor: 3 bar
- › Vacuum and pressure regulation, with analogical indication.
- › Membrane made of long lasting PTFE, high resistance to chemical reagents and vapours.
- › Desktop model, small dimensions.
- › Made of aluminium
- › Low-noise working without vibrations.
- › No maintenance or lubrication is needed.
- › Comprises a cooling system which allows continuous working during 24 hours.
- › The pump can be also used as an air compressor (up to 3 bar)
- › Power supply: Single phase 230 V ~ 60 Hz
- › Power: 200 W
- › Dimensions: 215 x 165 x 270 (h) mm
- › Weight: 8 kg



210-104128

47



Specifications - Computerized Langavant calorimeter

Reference	111-101238
Dewar flask	<p>Manufactured in borosilicate glass, hemispherical bottom.</p> <p>Inner diameter: 95 mm</p> <p>Overall diameter: 120 mm</p> <p>Depth: 280 mm</p> <p>Includes a plug insulator and a rubber disc (Ø 85 mm - 20 mm thickness), which supports the sample container and evenly distributes the load on the glass wall.</p>
Dewar housing	<p>Ready to place inside the Dewar described above.</p> <p>Made of duralumin (3 mm thickness), high rigidity and sturdy wide base ensures good stability.</p> <p>The Dewar flask is separated from the sidewalls of the housing by an air gap of about 5 mm and rests on a support of about 50 mm thick.</p> <p>The upper edge of the glass Dewar is in contact with a cap, crown-shaped, 5 mm thick, being so tied up in its accommodation. The crown locking provides a support surface of the glass stopper and ensures tightness.</p> <p>Both support the glass and the crown locking are made of a material with low thermal conductivity.</p>
Insulating cover	<p>It's inserted into the vessel and limit heat loss.</p> <p>Central part. Consists of a disc made of foam rubber, 120 mm in diameter, which ensures the tightness of the calorimeter.</p> <p>Upper part. It consists of a hard case, with locking device that compresses the foam rubber disc of the central part, ensuring the sealing of the lid and the correct positioning of the cover of the Dewar flask.</p>
Disposable Mortar tins.	<p>Intended to receive the cement mortar sample to be tested, discarded after the test.</p> <p>Manufactured standard sheet of 0.3 mm thick.</p> <p>Diameter: 80mm</p> <p>Height: 165 mm</p> <p>Approx. volume: 850 cm³</p> <p>Steam-tight at a pressure of 0.3 bar.</p> <p>In the middle of the tin lid, a tube is located to insert the measurement element (thermopar, Pt 100 probe, or thermometer). It is approximately 100 to 120 mm long, in order to reach the central inner part of the specimen.</p>
Electronic module	<p>4 measuring channels for Pt-100 probes (allowing the connection up to 3 test calorimetric bottles and 1 reference bottle, according stated in the standard).</p> <p>Up to 24 additional modules can be linked, to measuring up to 96 temperature probes.</p> <p>USB port for PC connection</p> <p>16 bits A/D converter.</p> <p>Linearity: $\pm 0,1\%$ F.E.</p> <p>Thermal drift: $\pm 0,01\%/^{\circ}\text{C}$ a F.E.</p> <p>Protocol: MODBUS RTU/ASCII</p> <p>Sampling rate: 0,5 - 2 readings/second (*)</p> <p>Isolation to 2000 VCA (3 vías)</p> <p>Influence of the R line: 0,05% Ω (50 Ω max, balanced).</p> <p>Exiting current: 0,350 mA.</p> <p>Data transfer speed: max 38,4 Kbps.</p> <p>Compliance with: EN standards: Electromagnetic (CEE/336/89). Immunity EN 61000-6-2. Emissivity EN 61000-6-4</p>
Data acquisition software WINTTEST.LANG Data acquisition under Windows®	<p>Exclusively developed by IBERTEST for the Langavant test.</p> <p>Suitable for measuring up to 8 channels at the same time.</p> <p>Allows a continuous reading of the reference heat and the amount of heat transmitted by the samples placed in the test. It calculates the hydration heat of each sample showing the test results graphics according with the standard</p> <p>Full free parameterization of tests, samples data, etc.</p> <p>Real time graphics for temperature/time.</p>
Electric supply	Single-phase 220-230 V + G ~ 50/60 Hz

(*) Depending on the number of simultaneous reading channels.

SOLUTION CALORIMETER APPARATUS

Standards EN 196-8, ASTM C186, BS 4550, BS 1370

SOLUTION CALORIMETER

Ref. 210-102068

This device is used for the determination of heat quantity, in calories/gram, during the process of cement hydration in isothermal conditions.

Comprising the following elements

- › Dewar flask.
- › Cover lid with 3 holes, for introducing the specimen, thermometer and stirrer (see accessories).
- › Double insulated box, covered with wood, which isolates and protects the Dewar flask. It has hinged opening for easy removal of the cup after finishing the test.
- › Constant speed electric stirrer, with stand and clamp for height regulation.
- › Filling funnel.
- › Two cork lids (as spare parts)

Specifications

- › Power supply: 220 V / 50 Hz (110 V / 60 Hz under request)
- › Power: 150 W
- › Dimens.: (W x D x H): 250 x 350 x 650 mm
- › Approx weight.: 15 kg

Accessories to choose:

- › Stirring rod as EN 196-8
- › Stirring rod as ASTM C186
- › Digital centesimal thermometer. With temperature probe. Resolution: 0.01 °C
- › Beckmann type mercury thermometer as EN 196-8



Beckmann thermometer and glass stirrer not included

210-102068

Digital Centesimal Thermometer

DETERMINATION OF DENSITY

Standard: EN 196-6, ASTM C188, AASHTO T133

LE CHATELIER DENSIMETER FLASK

Ref. 210-100817

For determination of specific gravity of hydraulic cement. Also needed when determining the specific surface (Blaine).

The densimeter is also known as volumenometer or picnometer, and it consists of a glass flask of 250 mL capacity with graduated neck from 0 to 1 mL and from 18 to 24 mL in 0.1 mL and 0.5 divided respectively.

Manufactured from high quality borosilicate glass, very low coefficient of expansion, high resistance to chemical agents.

Specifications

- › Accurate (maximum error): 0.05 mL
- › Dimensions: Ø 100 x 300 (h) mm
- › Weight approx.: 300 g



210-100817

GRINDABILITY

IBM BALL MILL FOR BOND TEST IN LABORATORY

Introduction:

This mill is designed to perform clinker millability tests test on a laboratory scale.

Its use is not standardised, the results have therefore to be studied according to the criteria established by the laboratory and people in charge of the plant mills.

In order to compare the results obtained in clinker different samples, you have to mill several times several samples in the same load conditions, same rotation speed, same revolutions obtained and milling time.

The data obtained can help engineers in the plant to foresee the clinker behaviour when it is submitted to the milling process, with optimisation of processes and saving operating costs.



Inside detail with covering and unload hopper in stainless steel.

Operation

Electric control panel, with speed variator and power reading, devices for control and protection, main switch circuit breaker, programmer with revolutions counting device or clock, manual and automatic devices, protection by means of power cut with door opened, for a three phase tension 380 V at 50 or 60 Hz.

Specifications:

- › **Capacity:** From 22 litres up to 100 litres.
- › **Batch capacity:** According to grain and apparent density of material.
- › **Dimensions of the tank:** Up to Ø 305 x 305 mm.
- › **Movement:** By means of 1,1 kW moto reducer, output up to 70 r.p.m.
- › **Soundproofing:** Three folding doors, a double one on the front part and a simple one on its upper part, and three fixed panels, completely removable, made of isolating double sheet panels, one pre-lacquered

with a profile to cover the outer part, high density mineral rockwool and perforated and galvanised inner sheet.

- › **Ball load:** A steel ball load for BOND type mills of approximately 20 Kg distributed in several diameters according to technical specifications.
- › **Support:** Steel axes integral with closing plates, support boxes with SN type ball race, ball bearings with double file rollers and clamping sleeves.
- › Stainless protection covering.
- › Stainless trolley of up to 35 litres capacity, with a part fixed to the mill frame.
- › Extractable register flush cover.
- › Perforated cover to unload the material.



Inside detail of the milling tank

Optional features

- › Moto reducer at a higher power
- › Inside part of the tank with steel plates in high resistance to wearing special steel, dismountable by the user, so that they can be replaced by new plates in the future.
- › Adjustable speed, control panel with power display.
- › New electric operation modified for 50 or 60 Hz tensions.



High efficiency built-in soundproof cabinet.
It enables to place the device inside the laboratory without interfering in the laboratory staff working conditions.

ALKALINITY

FLAME PHOTOMETER

As per standard EN 196-2

FLAME PHOTOMETER. MODEL IB-PFP7

Ref. 210-101915

For the chemical determination of alkali metals (Li, Na, K) in cements and raw materials.

During the test a sample solution spray it's introduced at a specific rate on the gas burner flame, ionizing the atoms that compose it.

The ions emit lights in proportion to its concentration in the sample. The filters built into the instrument detect and measure this light, showing in the instrument display the element concentration.

Features

- › Large clear digital readout, for ranges from 0 up to 199.9 ppm.
- › Electronic ignition and automatic air supply regulation.
- › Low temperature, single channel emission.
- › Flame failure safety system.
- › Fine and coarse sensitivity controls.
- › Filter selector.
- › Operates on propane, butane, natural gas or LPG supplies.

Limits of detection

- › Li 0.25 ppm
- › Na 0.2 ppm
- › K 0.2 ppm

Comprising the following elements

- › PFP7 Flame photometer unit
- › Air compressor 6 l/min (1 kg/cm²).
- › Large water separator.
- › Cleaning solution: 1 liter.
- › Propane, butane or natural gas regulator. (Please indicate in your order).



210-101915

Specifications

- › Power supply: 110-230 V / 50-60 Hz (kindly Indicate it in your purchase order).
- › Fuel: Propane, butane, natural gas or LPg.
- › Air service: Moisture and oil free 6 litre/minute at 1 kg/cm² (14 psi) (Compressor is comprised in the standard supply)
- › Dimensions: 420 x 360 x 300 mm
- › Weight: 8 kg.
- › Dust cover.
- › Calibration standard: 1000 ppm Sodium.
- › Calibration standard: 1000 ppm Potassium.
- › Calibration standard: 1000 ppm Calcium.
- › Spares kit.

DETERMINATION OF CHROME (VI)

*Spectrophotometric method as per standard
EN-196-10*

SPECTROPHOTOMETER LIBRA S11

Ref. 210-103688

Very robust and reliable tool, well suited for research laboratories and quality control.

The equipment incorporates a clear LCD graphic display and an alphanumeric keypad, which allows the following:

- › Read values of absorbance, transmittance and concentration.
- › Scans of wavelength
- › Kinetic curves (absorbance values versus time)
- › Calculation of slopes
- › Calibration curves.

The Start menu can be customized to fit the common use in the laboratory.

If wanted, It can be connected directly to a printer via parallel port ,to get a paper record immediately.

The instrument can store up to 9 different test methods.

When the computer it's connected to the PC (using optional AcquireLite software), the measured values can be downloaded directly to be treated statistically (using Microsoft Excel, for example).

AcquireLite software includes functions such as: equipment control, wavelength scanning, reaction kinetics, and quantitation.

Accessories (ask to our Sales Dept.)

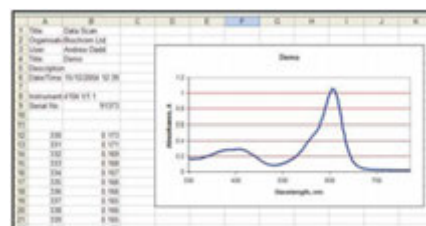
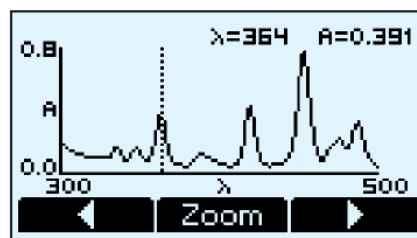
- › Specimen holder,for pathlength 1, 5, 40, 50, 100 mm.
- › Specimen holder with water heater, recirculation, etc.
- › Specimen holder for testing specimen of Ø 5 ... Ø 180 mm.
- › Specimen holder for induced flow cuvette with peristaltic pump.
- › Temperatura controller.
- › Software Acquire Lite.

Spare parts

- › Tungsten lamp.
- › Dust cover.



Libra S11



Specifications	
Wavelength Range	325 - 999 nm (visible)
Wavelength accuracy	± 2 nm
Reproducibility	± 0,5 nm
Monochromator	Holographic grating of 1200 lines
Spectral bandwidth	5 nm
Detector	Silicon photodiode
Photometric range	-3.000 ... +3000 A 0.01 ... 99999 Conc Unds. 0.1 ... 200 %T
Noise to 600 nm	± 0.001 A close to 0 A ± 0.002 A close to 2 A
Diffused light	Lower to 0,05 %T to 220 and 340 nm
Power supply	90-265 V / 50-60 Hz
Photometric reproducibility	0.5% of absorbance value
Dimensions (width x depth x height)	300 x 400 x 190 mm
Weight	6 kg

LIQUID STIRRING

RZR-2021 OVERHEAD STIRRER WITH DIGITAL READING

Ref. 210-100385

Characteristics

- › Designed for the continuous work of agitation of mixtures, homogenizations, suspensions, gasification of solutions and recirculation of substances.
- › Brushless motor, free of maintenance.
- › Mechanical agitation.
- › Encapsulated housing partially sealed against aggressive substances and vapors.
- › Thermal protection due to overheating with auto-disconnection and indicator LED.
- › Adjustable stirring rod in height.

Accessories included

- › Support in double T, to keep the equipment in vertical position, with stainless steel bar.
- › Fixing nut to the double support rod T.
- › Stirring rod



210-100385



SPECIFICATIONS	
Maximum stirring volume	25 l
Maximum viscosity	60.000 mPas
Speed # 1	40 - 400 rpm
Speed # 2	200 - 2000 rpm
Max torque	400 Ncm
Speed indicator resolution	1 rpm
Consumption	50 W
Output power	27 W
Diameters of possible rods	Up to Ø 10,5 mm
Dimensions	82 x 176 x 206 mm
Weight	3 kg

STIRRING AND HEATING

MAGNETIC STIRRER WITH HEATING.

AGIMATIC N.

Ref. 210-101441

For simultaneous stirring and heating during the chemical analysis.

Features

- › Electronic regulation of temperature on the surface of the plate between 50 and 350 °C.
- › Electronic digital control of speed range: 60 to 1600 rpm.
- › Heating upper plate Ø 145 mm, made of stainless steel 18 / 8.
- › Furniture injected with epoxy coated alloy. Control panel protected against splashes.
- › Lateral hole for attaching bar supports, which are supplied as optional accessories.
- › Indicator light for the operation of the heater and the stirrer.
- › Incorporates a temperature limiter.

Specifications

- › Stirring power: up to 10 L (relative to water).
- › Maximum temperature on plate surface: 350 °C.
- › Heating power consumption: 630 W.
- › Total power: 660 W.
- › Rear connection for optional electronic control.
- › Weight approx: 4 kg.

Comprising the following elements

- › Removable steel safety ring.
- › PTFE coated stir bar Ø 8 x 40 mm.



210-101441

ELECTRIC CIRCULAR HOT PLATE. 150 Ø MM

Ref. 210-103028

Features

- › 6 levels of heat intensity.
- › Plate temperatures up to 400 °C. to take liquids until boiling.
- › Power supply: 220 V 50 Hz.
- › Power consumption: 1600 W.
- › Dimensions: 80 x 220 x 220 mm.
- › Weight approx: 3 kg.



210-103028

ANALYTICAL AND PRECISION BALANCES

ANALYTICAL BALANCES

CRYSTAL SERIES

- › Full scale automatic calibration with internal.
- › Membrane keyboard, easy to use with TARE, ON/OFF, PRINT and MODE keys.
- › Ready to perform heavy hydrostatic under the balance.
- › Bar-graph indicator of dosage and remaining capacity of the balance.
- › Data output: RS232 I/O adjustable.
- › Power supply: Single-phase +T ~ 230 V / 50 Hz
- › Dimensions: 215 x 310 x 350 (h) mm.
- › Weight: 7 kg.



ANALYTICAL BALANCES - CRYSTAL SERIES

Model	Capacity	Resolution	Plate
CRYSTAL-100	110 g	0,0001 g (0,1 mg)	85 mm
CRYSTAL-200	210 g	0,0001 g (0,1 mg)	85 mm
CRYSTAL-300	310 g	0,0001 g (0,1 mg)	85 mm
CRYSTAL-500	510 g	0,001 g (1 mg)	110 mm

ELECTRONIC PRECISION BALANCES

CENT SERIES

Balance of great ability, with high sensitivity. Very stable. Allows measurements of density by hydrostatic method (below the heavy balance).

- › Automatic calibration by means of an external calibration weight (ask).
- › Data output RS 232 I/O adjustable.
- › Hook for heavy hydrostatic, located underneath the balance.
- › Power supply: 220 V - 50/60 Hz. (Optional to 110 V.)
- › Dimensions: 110 x 350 x 215 mm
- › Weight.: 5,2 kg.



ELECTRONIC PRECISION BALANCES - CENT SERIES

Model	Capacity	Resolution	Linearity	Repetitivity	Plate
CENT 2000	2200 g	0,01 g	± 0.01	± 0.01	160 x 160 mm
CENT 4000	4200 g	0,01 g	± 0.02	± 0.01	160 x 160 mm
CENT 6000	6300 g	0,1 g	± 0.1	± 0.05	Ø 190 mm
CENT 6000 HR	6300 g	0.01 g	± 0.02	± 0.01	Ø 150 mm
CENT 10000	10200 g	0,1 g	± 0.1	± 0.05	Ø 190 mm
CENT 10000 HR	10200 g	0.01 g	± 0.05	± 0.02	Ø 190 mm

OVENS FOR DRYING AND HUMIDITY TESTS

For drying processes

DIGITRONIC SERIES

Features

- › Regulation by means of a Pt-100 sensor probe and micro processor.
- › Adjustable temperatures from ambient + 5 °C up to 250 °C.
- › Resolution 1 °C.
- › Stability: $\pm 0,25$ °C.
- › Homogeneity: ± 2 %. Working temperature.
- › Circulation by air forced by means of a fan, the ventilation system ensures the best results when drying wet materials.
- › Inner chamber made of AISI 304 stainless steel.
- › Outdoor furniture made of steel and finished in high-strength epoxy. Optional glass window.

Safety

- › Over temperature safety cut out according to EN 61010.
- › Adjustable (not included) over temperature safety thermostat fitted according to DIN12880.2

Comprising the following elements

- › 4 guides and two shelves in stainless steel.

Optional

- › Door with tempered glass window (see additional cost)



PRECISION OVENS - DIGITRONIC SERIES				
Reference	IB2005131	IB2005151	IB2005413	IB2005161
Capacity (*)	33 L	47 L	76 L	145 L
Time to reach 100 °C	15 minutes	16 minutes	17 minutes	17 minutes
Recovery time	7 minutes	7 minutes	9 minutes	10 minutes
Air renovations per hour	16	16	14	12
Inner dimensions in mm (width x depth x height)	280 x 300 x 400	450 x 320 x 330	380 x 400 x 500	580 x 500 x 500
Overall dimensions in mm (width x depth x height)	600 x 650 x 550	530 x 810 x 580	700 x 750 x 650	700 x 950 x 720
Shelves max. n°	7	5	8	8
Power	1200	1200	1600	2000
Approx weight.	38	46	58	74
Power supply	Single-phase, 110-220 V / 50-60 Hz			

(*) All Digitronic models can be delivered with a glass window door with double chamber, to see inside the oven (ask for over-cost).

High temperature (up to 300 °C)

Characteristics

- › Regulation by microprocessor and digital reading of temperature and time.
- › For temperatures adjustable from ambient + 5 ° C to 300 ° C

Circulation of forced air by horizontal fan with a temperature gradient better than ΔT 8K.

- › Interior chamber in AISI 304 steel, very resistant and easy to clean.
- › Controller B 180, very easy to use, with PID microprocessor with self-diagnosis system, status report, self-optimization and hour meter.
- › 1 program memorizable for a heating ramp and maintenance time.
- › Introduction of program step data in degrees or minutes.

Specifications:

- › Interior Volume: 120 L
- › Electric power: 2100 W
- › Power supply: Single-phase + T. 230 V ~ 50 Hz
- › Trays included: 2
- › Maximum number of trays: up to 7 trays



210-100817



B 180



MUFFLE FURNACES

Lost in ignition tests and sample preparation prior to chemical analysis

FURNACES L/13 SERIES UP TO 1300 ° C MAXIMUM TEMPERATURE

Excellent performance and energy efficiency, through its internal construction with lightweight refractory first quality bricks and multi-layer external insulation.

Fold-down or lift door and lever to regulate cold air from outside.

Measurement and regulation of temperature by Pt thermocouple length.

Controller / P 330 digital electronic programmer with numeric keypad and sensitive function keys.

Multifunction LCD display timeout, set temperature, actual temperature, current time, working hour meter, timer power consumption, etc.

Autotuning function to automatically optimize the control parameters of the controller.



SPECIFICATIONS MUFFLE FURNACES SERIES L/13

Temperature	Up to 1300 °C
Recommended working temperature	Up to 1200 °C for continuous working
Chamber inner dimensions	230 x 240 x 170 (h) mm
Capacity	9 L
Overall dimensions (width x depth x height)	480 x 550 x 570 (h) mm
Type of programming ramps	Ramps without gradient, through time and final temperature. Ramps with gradient (in °C/hour) and final temperature.
Programming	9 different programs of 40 segments ¹
Approx weight.	45 kg
Power supply	Single-phase. 110- 220-240 V + T, 50-60 Hz
Power	3 kW

(1) Each program segment can be a target temperature, a increasing time or temperature retention time .

PLATINUM CRUCIBLES AND CAPSULES

Manufactured of high purity platinum, extreme chemical resistance and excellent conductive properties

For the complete disintegration of samples, previously to wet analysis.

Available in different shapes and sizes, please ask our sales department



PH MEASURING

Standard EN 196-2 and equivalent

LABORATORY PH-METER MOD. GLP 21.

Ref. 210-101913

For the accurate determination of acidity-basicity, pH adjustment, titrations, etc.

Features

- › Measuring Scales: pH: 2 ... 16, with selectable resolution: 0.1 - 0.01 y 0.001 pH.
- › Measuring Scales P.O.R.: ± 2000 mV, with selectable resolution: 1 / 0.1 mV.
- › Operating temperature : - 20 ... + 150 °C.
- › Automatic recognition of pH buffer solutions for calibration.
- › Frequency of calibration programmable.
- › Control of the agitation range from the display.
- › Temperature compensation for pH electrode readings with built-in sensor.
- › Data-logger function up to 400 measurements.
- › Data output to PC or printer.

Comprising the following elements

- › Instrument pH meter GLP 21.
- › Sensors support.
- › Buffer pH = 4.01. With certificate of analysis. Package of 125 mL.
- › Buffer pH = 7.00. With certificate of analysis. Package of 125 mL.
- › Buffer pH = 9.21. With certificate of analysis. Package of 125 mL.
- › Ionic solution KCl (3M), for electrodes conservation. Package of 125 mL.
- › Bottles of PP for calibration.
- › Magnetic stirrer incorporated in the bracket, with control from the display.
- › Universal pH Electrode , with temperature sensor type Pt 1000 incorporated.

Specifications

- › Power supply: Single-phase 220-240 V, 50 / 60 Hz
- › Power: 3.3 W.
- › External dimensions: 325 x 155 x 98 (h) mm
- › Weight: 800 g.



210-101913

Accessories

SOFTWARE "COMLABO EASY"

- › For the data acquisition of instruments GLP in a PC.
- › Allows to store results and graphical display of the measure.
- › Automatization of measures with automatic changer of samples (not included).
- › Connection of several instruments to a PC
- › CD, cable and adapter USB included.

Spare parts

UNIVERSAL PH ELECTRODE 5014T, WITH TEMPERATURE SENSOR

For general applications, with temperature sensor.

COMBINED ELECTRODE AG/AGCL

Electrode of redox potential. For the cement chloride determination by potentiometric determination of the end point.

WATER DISTILLERS

WATER-DISTILLER. MODEL L3.

Ref. 210-100902

Full equipment in borosilicate glass, with protective case, functional design that allows easy access to the glass elements and heating.

Automatic operation and continuous production. It produces a high purity distillation, pyrogen free and metal ions.

Equipped with quartz heating element, safety devices, safety pressure switch which is activated in case of lack of water supply to the coolant boiling pot with automatic reset when the supply is sufficient.

Includes wall-hanging device.



210-100902

DISTILLER L3	
Distillation capacity	3 L/h
Water consumption	60 L/h
Conductivity a 20 °C	3 µs/cm
Dimens. (width x depth x height)	560 x 190 x 345 mm
Power	2200 W
Power supply:	Single-phase + T ~ 230 V / 50 Hz
Approx weight : (empty)	4,5 kg

WATER-DISTILLER. MODEL AC-L8

Ref. 210-101313

- › Furniture, cooling coil and heating elements in stainless steel. Stainless steel exterior protected with epoxy enamel.
- › Easily removable for cleaning. Sealed with silicone gasket.
- › Overheating safety device or lack of water supply.
- › Control panel with main switch, signal light and thermostat reset button up.
- › Feed water hosing 10-11 Ø mm.
- › Outlet water hosing 12 Ø mm.

DISTILLER AC L8	
Distillation capacity	8 L/h
Water consumption	70 L/h
Conductivity a 20 °C	2.5 µs/cm
Dimens. (width x depth x height)	260 x 260 x 610 mm
Power	6000 W
Power supply	1 ph. 220-230 V. 50-60 Hz
Approx weight (empty)	14 kg



210-101367

DISTILLED WATER TANK.

Ref. 210-101367

Metal support with scroll wheels with locking device, and polyethylene tank capacity 50 L. with dispenser.



210-101313

CARBON AND SULFUR ANALYZER. Model IB-CS 800

Equipment according to ISO-9556, ISO-10694, ASTM E-1019, E-1587, E1915-97, UOP-703-98.

Analyzer with induction furnace for Carbon and Sulfur in cement.

EQUIPMENT CONFIGURED WITH 2 CELLS OF INFRARED DETECTION: 1xC + 1xS

The equipment consists of the following elements:

Induction furnace with self-cleaning mechanism, pneumatic tyre elevator, and cooling system.

Complete gas flow circulation system with electronic control, rotameters, pressure indicators, solenoid valves, gas purification equipment and catalytic furnace.

High-tech IR detectors with solid-state cells, interference filters and automatic range and auto-zero settings.

16-bit electronic microprocessor for control of the analysis program execution, with liquid crystal viewfinder and connections to scale and printer.

PC computer with the following minimum configuration: CEL 2.6 GHz processor, 40 GB HDD, 256 MB RAM, CD-ROM, 3.5 "drive, keyboard, mouse and 17" TFT monitor.

Windows software with multipoint calibration, automatic linearity correction, application memory, exportable to Excel and universal LIMS.

Serial interface for balance connection (optional)

Parallel interface for printer connection (optional)

Consumables set for 1000 analysis consisting of:

- › Crucibles 1000 pcs
- › Tungsten. 2500 g
- › Accelerator (iron scales). 908 g
- › Anhydrous (Magnesium Perchlorate). 454 g
- › Sodium hydroxide 500 g
- › Cellulose. 50 g
- › Glass wool. 50 g
- › Two calibration patterns (to be defined)
- › Accessories set

Chemical substances used:

- › Retention of CO₂ with Sodium Hydroxide
- › Retention of H₂O with Magnesium Perchlorate
- › Copper Oxide Catalyst



General specifications

Measurement ranges for Carbon (C): **To be defined in the order**

Measuring ranges for Sulfur (S): **To be defined in the order**

Normal sample weight: 0.5 to 1 g for steel and cast iron.

Normal analysis time: from 40 to 50 seconds

Oven type: Induction: 19.5 MHz Maximum 2.2 kVa

Oven dust cleaning: Automatic

Detection system

Controlled IR absorption with solid-state cells

Power supply: 230 VAC (± 10 V) 50-60 Hz 15 A

Power: 3450 W

Approx weight: 110 kg

Dimensions (Width x Height x Length): 550 x 800 x 600 mm (21 x 31.5 x 23.5 ")

Packaging: 2 wooden boxes, palletized, Height: 1120 mm, Width: 1070 mm, Length: 830 mm "



Auxiliary services necessary for its operation:

- › Gas required: Pure oxygen (99.5%) from 2 to 4 bar (30 - 60 psi). Flow rate: 3 L / min
- › Compressed air: Dry and free of impurities, from 4 to 6 bar (60 - 90 psi).

They must be foreseen by the client and placed at the disposal of the Technical Service prior to their arrival.

SAMPLES MILLING FOR X-RAY

MIXER MILL IBMM-400

Compact and versatile desktop equipment, specially designed for wet and dry grinding of small sample volumes.

Characteristics:

Reproducible and efficient milling, mixing and homogenisation in a few seconds.

Powerful grinding due to impact and friction, freq. of oscillation adjustable up to 30 Hz.

Screw-in containers for grinding without loss of material

Memory for 9 SOP routines

Wide selection of accessories that includes containers and balls in different sizes and materials.

Specifications:

- › Initial granulometry: <8 mm
- › Output granulometry ~ 5 µm
- › Material loading: max. 2 x 20 ml
- › Number of grinding containers: 2
- › Adjustment of vibration frequency: digital, 3 - 30 Hz (180 - 1800 min⁻¹)
- › Typical milling duration: 30 s - 2 min
- › Mains supply: 100-240 V, 50/60 Hz
- › Voltage: Single-phase
- › Consumption: 150 W
- › Dimensions (W x D x H): 371 x 461 x 266 (h) mm
- › Net weight: 26 kg

Necessary accessories: Grinding jugs (CONSULT)



SAMPLES PREPARATION FOR X-RAY

PRESSING MACHINE EQP 100

Press for the preparation of cement samples (pressed pellets) for XRF analysis.

Encapsulated cement samples preparation for X-ray analysis.

Characteristics:

Semi-automatic desktop press.

Adjustable pressure from 10 to 40 tons, for the compaction of powder samples into pellets Ø 40 mm in diameter.

It allows to program up to 5 pressing cycles.

Each cycle consists of 2 stages of compression and an intermediate resting time.

The pressure on the sample can be adjusted independently in each of the two stages.

Specifications:

Power supply: 220 V, 50-60 Hz

Power: 750 W

Dimensions: 510 x 420 x 400 (h) mm

Weight: 75 kg

It includes the following elements:

Aluminum capsules (1000 units), for pressed pellets Ø 40 mm

Compacted wax for samples. Package of 1 kg



X-RAY FLUORESCENCE ANALYSIS

X-RAY FLUORESCENCE SPECTROMETER. QUANT'X MODEL.

Fast element analysis from Na to U

Sensitivity from <1 ppm to 100%

Measuring times of 10-60 s / element

1-10 mm adjustable X-ray beam

Exclusive Si (Li) detector with electric cooling by Peltier

Different applications of X-ray fluorescence software.

UniQuant® for advanced analysis without standards

Mechanical durability for maintenance without problems

Compact size and easy portability.



X-ray generator

- › X-ray voltage selectable via software 4 - 50 kV, in increments of 1 kV
- › Cooling by air.

X-ray detector

- › Detector type: compensated crystal Si (Li)
- › Refrigeration type: Peltier or liquid nitrogen.
- › Glass area: 15 mm² PCD / 30 mm² LN
- › Glass thickness: 3.5 mm (3500 microns)
- › Power resolution: <155 eV PCD / <149 eV LN
- › Sensitivity: from fluor to uranium.
- › Temperature <190 K

Basic performance

- › Stability <0.3% standard deviation in 8 hours
- › Sensitivity <3 ppm for Fe and Pb in Conostan S12
- › Scattering lines <0.015% av. eV, <0.05% high eV
- › Repeatability <0.3% standard deviation by 1 million

Pulse processor

- › Processor type: Digital 32 bits, 3 DSP
- › Channels: 2048, 20 eV / channel
- › Shaping time: 1-40 ms, adjustable by user
- › Counting rate: Up to 100000 cps
- › Power range: 400 eV - 40960 eV
- › Dead time effect: <3.0%
- › Stacking correction: <0.3%
- › Software-controlled calibration



Chamber of samples

- › Sample size 30 x 40 x 5 cm (maximum)
- › Atmosphere: Air, vacuum and Helium options
- › Helium flow: 15-65 psig; 2.4 liters / min maximum

Security

- › Interlocks: Camera cover (double, separate circuits), detector, X-ray tube, warning light, side panels, failure prevention circuit.
- › Radiation: <0.25 mR / hr to 5.8 cm (2 inches)
- › Sound: <65 mR / hr at 1 meter of distance
- › Legal compliance.: T <V, UL, CE, GS

Computer equipment and software

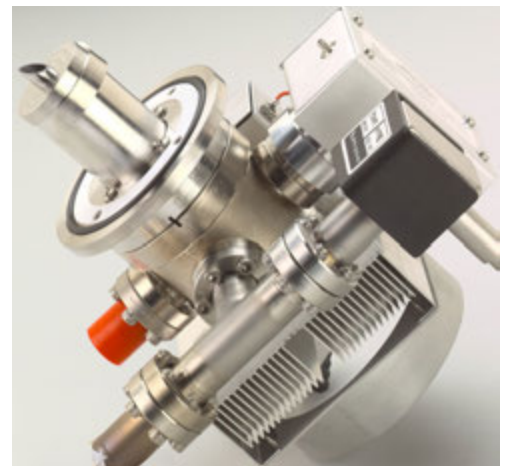
- › Minimum: Desktop or notebook computer, Pentium 4 2.8 GHz
- › Ethernet: 2 ports, USB
- › Windows operating system
- › Range elements: F-U, unlimited number of analytes
- › Up to 8 excitation conditions per sample
- › Presentation of spectra: automatic peak ID, KLM markers, conditions and status, overlays, control equipment.
- › Processing peaks: XML adjustment, peak profile, background filter.
- › Standard analysis: Linear, quadratic, quotient, correction intensity or conditions, particular fundamental parameters.

Facilities requirements

- › Line voltage: 110 - 240 V, 50/60 Hz
- › Spectrometer: 500 W PCD, 300 W LN
- › Vacuum pump: 1000 W
- › Ambient temperature: 0-30 °C (32-86 °F)
- › Conditions: Exclusive use indoors

Weight and measurements

- › Height: 42.7 cm (closed), 91.5 cm (open)
- › Width x depth: 72.4 x 59, 7 cm
- › Weight: 80-91 kg (175-200 lbs)



CEMENT GRANULOMETRY DETERMINATION

PARTICLE SIZE ANALYZER BY LASER DIFFRACTION TECHNOLOGY

Optical method by laser light diffraction.

For granulometric analysis of cements, by laser light dry diffraction, in a measuring range of 0.1 to 3500 μm

Characteristics

Mastersizer 3000 optical bench, includes He-Ne laser, with automatic laser alignment.

Dispersion unit, with automatic control of the air pressure level, speed of application and vacuum control during the measurement.

The test software takes automatic control of these parameters, and the user only has to place his sample in the sampling tray.

Dry measurement, special ceramic Venturi system for application of cement and other abrasives. Cassette sampling cell.

Noise reduction cover. (Below 82 Db)

Includes the following elements

Nilfisk industrial vacuum cleaner with antistatic hose.

Application software, with a part dedicated to cements for an estimated calculation of the Blaine, Tromp curves or degree of efficiency of the separators.

Next-generation PC computer, keyboard, mouse, TFT screen, Windows operating system with manuals and user licenses.

Installation and training course of the equipment, carried out by personnel of the Distributor Technical Service in destination.

Specifications:

Power supply: 110 - 240V, 50-60 Hz (+ Earth)

Dimensions of Optical bench: 690 (length) x 300 (depth) x 450 (height) mm

Approximate weight of Optical Bench: 30 kg

Dimensions of the dispersion unit: 260 (width) x 180 (depth) x 380 (height) mm

Weight approx. Dispersion unit: 10.5 kg



Note: The dispersion unit requires a pressurized air supply, free of moisture, oil and particles, at a minimum pressure of 6 bar (90 psi) and a minimum flow rate of 90 L / min. This supply can start from a compressed air line or a compressor with filter.

This service must be provided by the user and must be available before the arrival of the technical service to your laboratory for the start-up of the equipment.

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c/ Ramón y Cajal, 18-20
28814 Daganzo de Arriba
Madrid - Spain

Tel. +34 918 845 385
Fax. +34 918 845 002
E-mail: info@ibertest.es

www.ibertest.com