


Testing of cements, mortar & similars

Flexural and compression testing machines for cement **AUTOTEST and CIB Series**

 Force: up to 400 kN



Since 1970
Made in Spain (EU)

www.ibertest.com



AUTOTEST Series Compression and flexure tests

The key element for cement laboratories

Specially designed for serial test on cement factories and quality control laboratories.

Automatic computerized machines, servohydraulic, Intended to perform compression and flexure tests on specimens of cement mortar, adhesive cement, plaster, ceramics, refractories and similar materials.

AUTOTEST machines fulfill all requirements and demands imposed by the main international standards: EN 196-1, EN 1015-11, ISO 679, ASTM C 109, ASTM C 349, etc.

With AUTOTEST machines, several strength tests can be performed, depending on the maximum capacity of the testing frame and the optional test fixtures that can be incorporated to the machine:

- › Compression and flexure of prismatic specimens of 40 x 40 x 160 mm, according to EN 196-1, ASTM C 348, ASTM C 349, etc.
- › Compression of cubic specimens of side 50 mm or 2" , according to ASTM C 109.
- › Compression of cylindrical specimens, 50 mm diam. x 50 mm height, (eg. cold compression test of refractory bricks).



Working area designed for comfort of operator

Two independent testing frames, external microprocessed MD2 electronics and computerized management of tests with WinTest32 software.

Precision Class 1, according to EN-ISO 7500-1

- › Precision class 1, according to EN-ISO 7500-1
- › High rigidity compression testing frame with 200, 300 or 400 kN maximum capacity (depending on version). Base plate and crosshead are steel made.
- › Machined and rectified columns made of chrome plated steel.
- › Flexure testing frame with 10, 15 or 20 kN maximum capacity (depending on version).
- › Independent force measurement on each test frame, high precision and repeatability by strain gauge load cell



IBERTEST machine AUTOTEST series

- › Single scale (autoscale) from 2% to 100% of the capacity of each load cell.
- › Automatic control test by means last generation electronic microprocessor (133 MHz) module MD2.
- › Closed loop control frequency: Up to 1 kHz
- › Resolution: $\pm 180,000$ real steps (in each channel.)
- › Sampling Rate: up to 1 kHz per channel
- › Simultaneous and synchronous channels.
- › Test programming and data acquisition by 32 bits WinTest32 software.



Top view of the working surface



Flexure test frame

CIB Series

Compression testing machine

The CIB Series has been specially designed for the performing of compression tests.

For example, test of cubic specimens of 2" (50 mm) side, as per ASTM, or when the user has a specific machine for the performing of bending tests. So that, the AUTOTEST model is simplified, removing the bending test area. Nevertheless, flexure tests can be performed in the CIB series by changing the testing device.



IBERTEST machine CIB Series

Elements included in the supply

- › 2 columns testing frame, variable capacity. Admits interchangeable testing devices for compression and flexure tests.
- › Safety screen against projections and entrapments, made of high density polycarbonate.
- › Tray and hopper for the fast evacuation of debris from tested specimens.
- › Waste wagon for the quick extraction of broken specimens. Frontally removable.
- › Testing speed control system by means of a microprocessed electronic module MD2.
- › New generation "All In One" PC: Touchable screen and Microsoft Windows operating system.
- › Testing software licence Wintest32 (Request specific information).
- › Factory calibration certificate.

Necessary accessories

- › Compression testing device, according to: EN 169-1 or ASTM C109 (to be selected by customer)

Optional accessories

- › Bending testing device as per EN 196-1
- › Telediagnosis: Remote maintenance system via INTERNET



CIB-C

Compact version of the CIB

Compact version of the CIB available. Possibility of performing same tests with a considerable reduction of space compared to standard CIB version.

The compact design of the working desk leads to cost savings and space optimization.

When only compression tests are needed, the CIB version is the optimum choice

Tecnical advantages

Comfort

Wide and sturdy work-surface, made of high quality stainless steel. It has plenty of surface space for placing samples and the work items.

Total frontal accessibility to all inner elements, (hydraulics, mains panel, etc.) to facilitate maintenance (oil changes, settings, etc.)



Robust and precise

High stiffness steel testing frame, 300 kN capacity which consist of a baseplate and two columns (Chromed and grinded) and a upper closing crosshead.

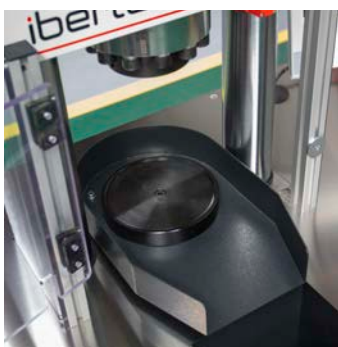
Very sturdy supporting structure in aluminum. Compact size and light weight.

Force measuring by means of a low perfil load cell and high precision situated below the upper crosshead.

Versatility

Interchangeable devices, no tools needed, for the performing of compression and flexure tests according to EN and/or ASTM standards. (to be selected)

Totally free sides to place it between furniture or other machines. It enables the user to make better use of available space in his lab.



Cleanliness

Quick extraction system of broken specimens by means of a collection tray with slide-ramp, located in compression area, with direct fall to a waste wagon placed inside the machine.

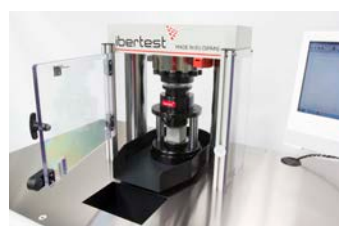
This wagon has wheels and can be extracted through a door integrated in the frontal panel.

Security

Transparent safety protections in both testing frames, made of shockproof transparent polycarbonate.

Front door with electrical safety interlock, which prevents operation with the door open.

Mushroom type pushbutton for emergency stop, located in front of frame of the machine.



Set of actuator and Hydraulic unit

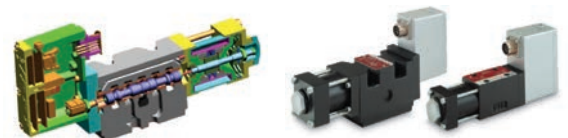
Load application is performed by means of an hydraulic piston, situated and aligned under the lower plate

An hydraulic group generates the required pressure:

- › Servocontrolled
- › High pressure
- › Waterproff and antipollution assembly
- › Low noise generation.

Regulation of the hydraulic fluid flow (hence the charge speed) in AUTOTEST and CIB series is carried out by means of a control servovalve, high performance, assembled on a manifold (Distribution block)

The hydraulic group, manifold and servovalve set is situated inside the working desk frame and lies on a set of 4 shock absorbers which prevent vibrations transmission to the working frame.



Hydraulic group - piston set specifications

Actuator	Chromed and grinded
Actuator Stroke	60 mm
Max. pressure	250 bar
Flow group	1,5 l/min
Engine power supply	1 kW
Tank	20 liters capacity, oil level indicator, filler cap and drain wrench
Refrigeration	By an air-oil heat exchanger
Oil filtering	By means of interchangeable cartridges, 10 microns, easy change by the user
Security	Alarms for the Clogging of the oil filter cartridge
Regulation system of the actuator	By means of a high performance Moog Servovalve, electronics integrated for a rigorous and high precision control of the flow and charge speed
Nominal flow of servovalve	5 l/min

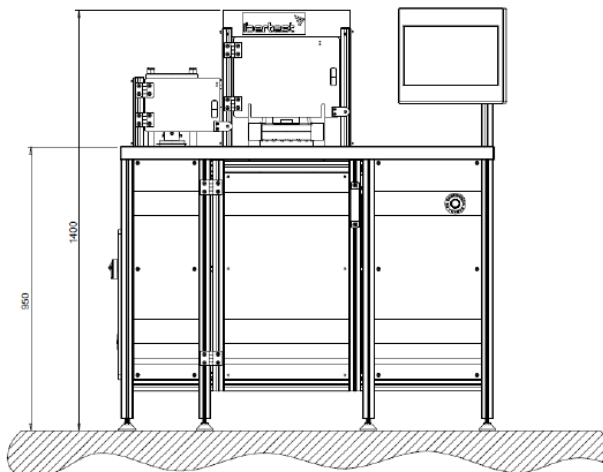
Estas especificaciones no se aplican a la CIB-C

TABLE OF AUTOTEST MODELS AND FEATURES

MODEL	AUTOTEST 200	AUTOTEST 300	AUTOTEST 400
Max. capacity in compression	200 kN	300 kN	400 kN
Maximum capacity in flexure	10 kN (15, 20 or 30 kN in option, under request)		
Precision	Class 1, according to EN-ISO 7500-1		
Scales	Single scale (autoscale) from 2% to 100% of the max capacity of each testing frame		
Force measurement system	Load cell in each testing frame		
Resolution	5 digit floating point		
Accuracy of measured load	Better than $\pm 1\%$ within measuring range		
Calibrated measuring range	2 % to 100 % of the capacity of each installed cell		
Measuring range (compression)	4 to 200 kN	6 to 300 kN	8 to 400 kN
Measuring range (flexure)	0,2 to 10 kN		
Load speed	Freely programmable by user, with minimum and maximum tolerances. User can program any standard test procedure, by software.		
Accuracy of load speed	Speed rate is checked in real time, displaying on screen the graphic F(t), verifying the real drift over the maximum and minimum established in the test standard.		
Vertical clearance between compression plates	230 mm		
Piston stroke	60 mm		
Overall dimensions (width x depth x height)	1250 x 780 x 1400 mm	1250 x 780 x 1400 mm	1250 x 780 x 1400 mm
Net weight	475 kg	540 kg	540 kg
Compression plates	Upper plate \varnothing 110 mm Lower plate(\varnothing 180 mm) with centering ring for compression fixture.		
Electrical power supply	Three-phase 380 V + N + G, 50/60 Hz (to be specified)		
Power consumption	Approx. 1 kW		

Special versions with compression frames of 100,250 and 600 kN and flexure frames of 15, 20 and 30 kN on demand, please consult

S.A.E. IBERTEST reserves the right to modify the technical characteristics described without notice.



Machine AUTOTEST, front view

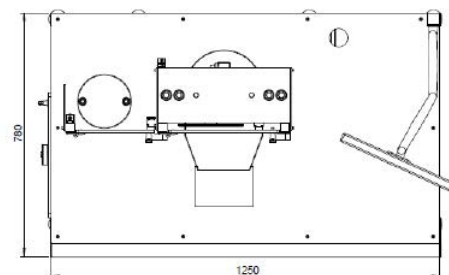
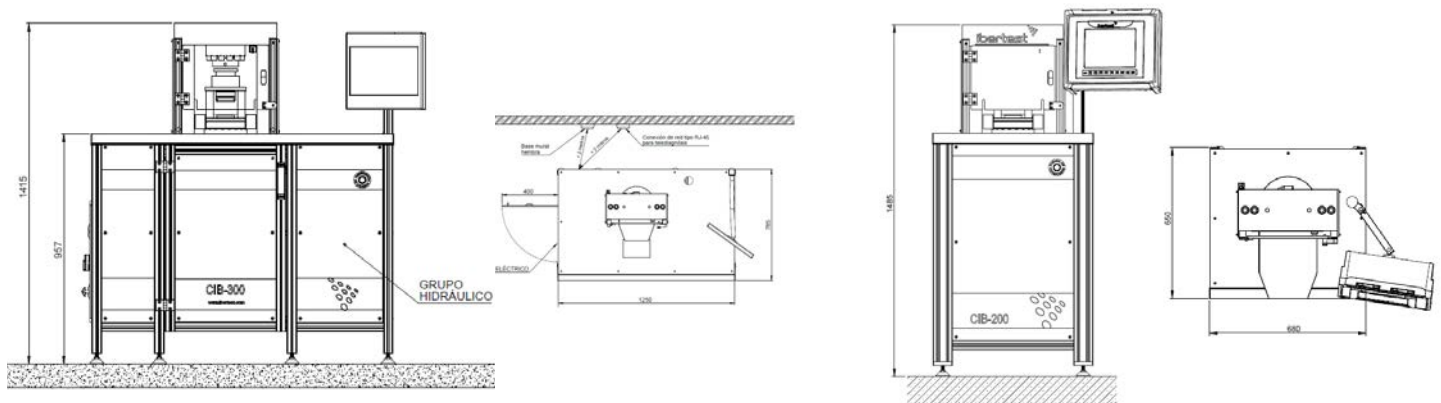


TABLE OF CIB MODELS AND FEATURES

MODEL	CIB 200	CIB 300	CIB 400
Maximum capacity	200 kN	300 kN	400 kN
Precision	Class 1, according to EN-ISO 7500-1		
Scales	Single scale (autoscale) from 2% to 100% of the maximum capacity		
Force measurement system	Load cell		
Resolution	5 digit floating point		
Accuracy of measured load	Better than $\pm 1\%$ within measuring range		
Calibrated measuring range	2% to 100% of the capacity		
Measuring range	4 to 200 kN	6 to 300 kN	8 to 400 kN
Load speed	Freely programmable by user, with minimum and maximum tolerances.		
Accuracy of load speed	User can program any standard test procedure, by software. Speed rate is checked in real time, displaying on screen the graphic F(t), verifying real drift over the maximum and minimum established in the standard.		
Vertical clearance between compression plates	250 mm		
Piston stroke	60 mm		
Overall dimensions (width x depth x height)	1300 x 790 x 1400 mm	1300 x 790 x 1430 mm	1300 x 790 x 1490 mm
Net weight (kg)	508	570	650
Compression plates	Upper plate \varnothing 110 mm Lower plate with centering ring for compression fixture.		
Electrical power supply	Three-phase 380 V + N + G, 50/60 Hz (to be specified). Power consumption: Approx. 1 kW		

Special versions with compression frames of 100,250 and 600 kN and flexure frames of 15, 20 and 30 kN on demand, please consult

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TESTING DEVICES FOR STRENGTH TESTS

EN 196-1, ASTM C 109

COMPRESSION TESTING DEVICE

Ref. 111-100557

- › Built completely in stainless steel, with 2 lateral columns. Designed to be positioned between compression plates of a testing press with suitable sensibility and capacity.
- › Loading plate with spring recovery system, no incidence on the compression test results.
- › Guiding system designed to guarantee plate parallelism and approaching with no plate rotation.
- › Upper plate spherically seated

Optional accessories for compression testing device

- › Mechanical device for centering of specimens, manually operated.
- › Internal dimensional certificate of flatness and rugosity of the compression device plates, according to EN 196-1. This certificate is issued at IBERTEST facilities and carried out with apparatus with traceability to international patterns.

FLEXURE TESTING DEVICE

Ref. 111-100559

Equipped with the loading milled fin and the support rod for the flexure test of 40 x 40 x 160 mm specimens.



111-100557



111-100559

Specifications	Compression device	Flexure device
Testing vertical clearance	45 mm	45 mm
Loading elements	Compression plates made of Tungsten carbide Surface: 1600 mm ² (40 x 40 mm) Plate thickness: 11 mm	Steel rods : 2 for support and 1 for loading, of Ø 10 x 49 mm length The loading rod and one of the support rods have tilting system. All rods rotate freely around their own axis Distance between support rods: 100 mm
Max. stroke	15 mm	15 mm
Loading plate diameter	100 mm	100 mm
Support plate diameter	170 mm	170 mm
Total height	220 mm	220 mm
Net weight	11,5 kg	11,4 kg

Control System

Close loop control of testing loading speed, controlled by an electronic microprocessed module MD2 (see table below)

The IBERTEST software WinTest32 makes data collection and shows real-time for drawing graphs and test results calculation. The module is installed on the electric switchboard of the machine. Measuring transducers are plugged to the MD module and the measurement is exported to the computer via USB or Ethernet.

Due to the external module configuration, the computer can be fast and easily changed by any other suitable PC or laptop, without need to make adjustments or calibrations.

This is very useful in case of eventual breakdown of the computer, or when obsolete computer needs to be changed.



CIB machine - front view

ELECTRONIC MODULE MD2 SPECIFICATIONS

Type of electronic	Extern, independent of the computer
Microprocessor	New generation, integrated inside the module
Microprocessor frequency	800 MHz
Channels	Up to 4 channels, depending on configuration. For CIB machines, one occupied channel and 3 free channels: <ul style="list-style-type: none"> • 1 occupied channel, for data acquisition of loading cell • 3 free channels, for data acquisition of additional transducers (Optional purchase)
Automatic transducers recognition	The electric module automatically recognises the loading cell or any traditional transducer and reads parameters (calibration, linearization, measuring range, units, outlet signal (mV/V)). Those data are stored in an EEPROM memory incorporated into the transducer connector, which allows to change cells or other transducers with no losing of calibration data.
Resolution	± 180.000 real points per channel. This resolution enables AUTOSCALE, there is no need of preselect measuring scale of the force rating system of the machine.
Max sampling frequency	Up to 1 kHz (1000 samples per second) per channel.
Cloosing loop frequency	Up to 1 kHz (1000 cycles per second). Cloosing loop can be established with respect to any readin channel (Force, displacement or deformation)
Control interface	Analogue signal (± 10 V) for the operation of servovalve
PC Connection	USB 2.0 or Ethernet

WinTest32 Testing Software Win-CEM Version

Computer program, Windows compatible, for programming and executing tests on cements, mortars and similars.

Real time results:

- Applied load (N)
- Strength (MPa)
- Time (s)

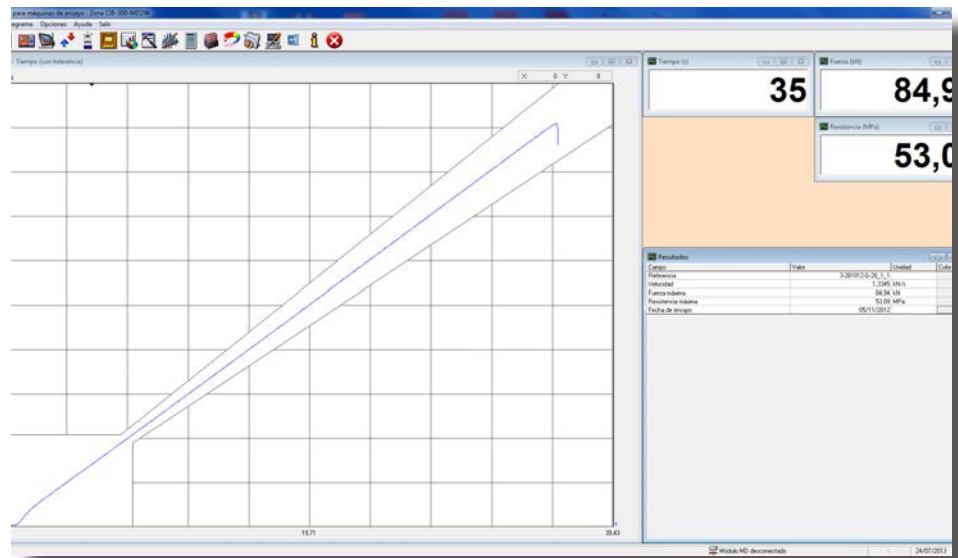
In the breaking moment, the machine stops automatically and the following information is displayed on the screen:

- Maximum load (breaking force)
- Equivalent strength

Test results are stored as ASCII or CSV files, for the use in different programs (Statistics management, data treatment, etc.)

During test performing, the program shows a $F(t)$ diagram with an indication of the real derivate of testing speed with respect to the maximum and minimum values established in the test standards.

This feature enables to check load application speed accuracy. IBERTEST is the only manufacturer in the world which offers this feature incorporated in the compression testing machines.



AUTOTEST workspace with "All in One" PC

New: User interface "All in One" PC

New user interface via PC "All in One" with integrated CPU and touch screen.

The new system replaces advantageously PC desktop based systems. It affords all features of a desktop PC with the versatility of a touch pad.

PC "All in One" is attached directly to test frame, offering a unique position to handle WinTest32 software.



Using WinTest32 testing software with an "All in One" touch screen computer

"TECHNICAL SUPPORT HAS NEVER BEEN EASIER"

TELEDIAGNOSIS is a remote diagnostic service and maintenance support, available for all IBERTEST equipment and testing machines equipped with data acquisition system by computer.

The immediate attention of TELEDIAGNOSIS service for customers located worldwide, minimizes downtimes and avoids delays in the work of laboratory, while reducing or eliminating the overhead of moving the IBERTEST technicians.

To run TELEDIAGNOSIS a link program is used which establishes a remote connection to control the computer of the machine, quick and safe, ensuring IBERTEST services even at facilities with distant locations.

Thereby, an easy and effective intervention from our Technical Service is possible regardless of the location of the machine, as long as an access to INTERNET is available.

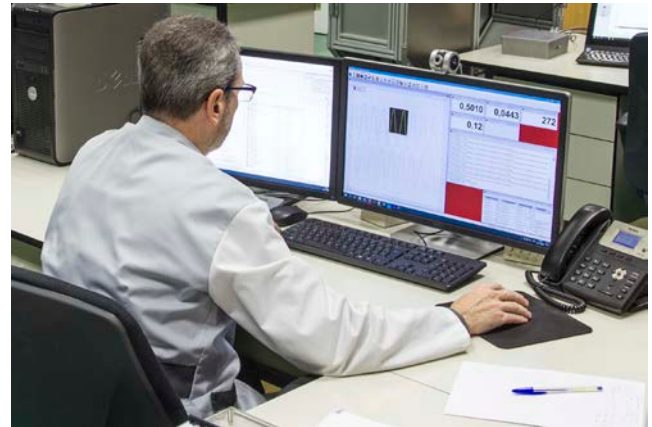
Even on those occasions when the Technical Service must act "in situ", the TELEDIAGNOSIS is helpful to clearly identify the problem in advance and improve first-visit resolution rates.

During a TELEDIAGNOSIS session, the following actions can be performed:

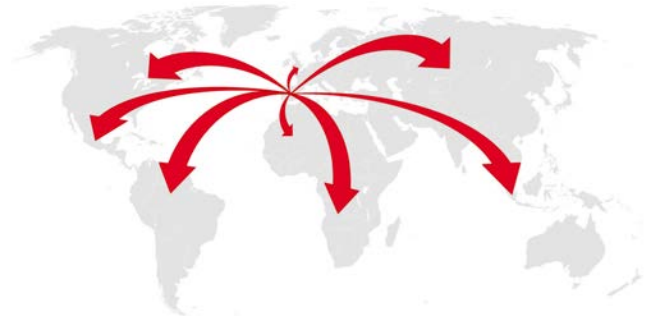
- › **Software revision and correction.** IBERTEST technicians can inspect the software file system, looking for wrong configurations, lost files and directories, corrupted files, viruses or others. Once the errors are detected, only the appropriate libraries and changes are transferred, without reinstalling complete programs.
- › **Remote handling.** IBERTEST technicians can operate the remote machine in real time to perform maneuvers, tests of mechanical movement, installation of testing transducers and accessories, verification of electrical and electronic systems, on/off alarm and security systems, etc.
- › **Videoconference.** Through webcam a videoconference between client and our technicians can be maintained, thus we can get visual-information about the correct operation of the machine's mechanical and hydraulic systems. Also, by written or voice messages, it is possible to exchange views and comments, and give appropriate instructions to the user, when necessary, to perform some physical action in the machine.
- › **Updates.** The software can be easily updated to its latest version, which allows enjoying the advantages resulting from the continuing work of review and program development.
- › **Factory reset.** All machines have a backup, stored in our servers in Madrid, which allows you to restore the original configurations when necessary.

TELEDIAGNOSIS

REMOTE DIAGNOSIS SERVICE



IBERTEST Spain - Madrid Technical Services



Real time TELEDIAGNOSIS link



End-user laboratory (anywhere in the world)

Remote diagnostic service by TELEDIAGNOSIS is free during the first year and during the warranty period.

After the guarantee period, many of our customers require the Annual Telediagnosis Pass, which covers interventions of up to 5 hours a year.

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ibertest



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