

CONCRETE TEST

50 **Testing systems
for determining the mechanical
properties of concrete**

54 **Fresh concrete testing**

55 **Hardened concrete testing**

58 **NDT Non-destructive testing**

Concrete structures are far more than a mixture of sand, gravel and cement left to harden and set to the desired shape. Considerable care and knowledge are required to produce quality concrete.

Our comprehensive range of testing equipment satisfies all EN, ASTM and other National Standards.

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CONCRETE TESTING

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Hardened concrete testing

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NDT Non-destructive testing

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Testing systems

for determining the mechanical properties of concrete

For over 50 years, our compression testing equipment has been meticulously designed to help you deliver the most accurate and reliable testing results possible.

Today, these high-quality, intuitive testing solutions play a pivotal role in the creation of safe, compliant yet cost-effective engineering infrastructure.



Our latest range of products is the outcome of our continuous innovation policy and investment in R&D. **All models are now automatic**, including the entry-level Wizard Auto, delivering total certainty of testing accuracy and strict conformity to International Standards.



Traceability and **ease of integration** in the laboratory system are also improved, as we have implemented dedicated functions and packages that raises compression machines performance up to a completely new level of provable testing accuracy and superior laboratory efficiency.





Link-LAB
LABORATORY CONNECTIVITY PACKAGE



The **vast range** of **products** offers multiple models to suit all budgets, and each model's performance always exceeds the users' expectations. The rich selection of **accessories** and **upgrading options** make the package extremely flexible and easily expandable to suit every need.



Selection Criteria

Basic components can be identified in:

POWER AND CONTROL SYSTEM (PCS)

We offer three automatic model variants which differ, dependent upon the technical level, complexity and type of test that is being performed:

WIZARD AUTO

Standard automatic Quality Control compression testers

PILOT PRO

more sophisticated and flexible automatic PCS for compression and flexure testing

AUTOMAX PRO

advanced automatic versatile testing system

These models are mainly dedicated to routine failure tests (compression, flexure and indirect tensile).

Our range is completed by Automax Pro-M and Automax Multitest models, allowing the performance of more advanced test methods beyond the classic compression tests, as:

- The determination of the Modulus of Elasticity and Poisson Ratio
- The execution of tests under displacement and strain control particularly important for FRC Fiber Reinforced Concrete characterization

AUTOMAX PRO M

Compact-Line compression machines featuring touch-screen display

AUTOMAX MULTITEST

stand-alone computerized control console

All versions feature high speed pumps that will close the daylight above the specimen at the fastest speed on the market allowing a very high throughput of samples.

In addition PILOT Pro and AUTOMAX product ranges can be completed with Link-LAB Connectivity packages, WEBCARE remote assistance service and i-Lab cloud Services. See page 178.

Link-LAB
LABORATORY CONNECTIVITY PACKAGE


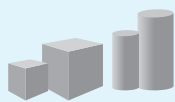


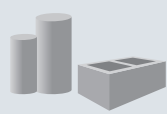
WEBCARE
REMOTE ASSISTANCE SERVICES

i-LAB
CLOUD SERVICES

FRAME

The frame of the compression testers is characterized by the:

- Testing Standards (e.g. ASTM/AASHTO or EN)
- The shape and dimensions of specimens (e.g. cylinders, cubes or blocks)
- Capacity which depend on the expected strength of the testing material

			<div> <div>Wizard Auto</div> <div>Pilot Pro</div> <div>Automax Pro</div> </div>		
			<div> <div>  </div> <div>  </div> <div>  </div> </div>		
Strict Conformance to	Sample Types	kN	Model	Model	Model
	Cubes & Cylinders 	2000	50-C46W0x	50-C46P0x	50-C46F0x
		3000	50-C56W0x	50-C56P0x	50-C56F0x
		4000	-	50-C68P0x	50-C68F0x
		5000	-	50-C78P0x	50-C78F0x
	Cubes, Cylinders & Blocks 	2000	50-C47W0x	50-C47P0x	50-C47F0x
		3000	50-C57W0x	50-C57P0x	50-C57F0x
		4000	-	50-C69P0x	50-C69F0x
		5000	-	50-C79P0x	50-C79F0x
	Cylinders 	1500	50-A12W0x	50-A12P0x	-
		2000	50-A22W0x	50-A22P0x	50-A42F0x
		3000	50-A32W0x	50-A32P0x	50-A52F0x
	Blocks 	2000	-	50-A29Px	-
		3000	-	50-A39P0x	-
	Blocks & Cylinders 	2000	-	50-A29P0x+50-A29/CYL	-
		3000	-	50-A39P0x+50-A29/CYL	-
GENERAL	Cubes & Cylinders 	1500	50-C13W0x	50-C13P0x	-
		2000	50-C23W0x	50-C23P0x	-
		3000	50-C34W0x	50-C34P0x	-
	Cubes, Cylinders & Blocks 	2000	50-C25W0x	50-C25P0x	-
		3000	50-C35W0x	50-C35P0x	-

MACHINE CLASS All models are supplied in Class 1 to EN 12390-4 (corresponding to ASTM E74 Class A) starting from the 10% of the full range as standard, but with a special calibration procedure identified by the code 50-C0050/CAL, we can grant Class 1 starting from 1% of the full range

Automatic compression testers

As already specified in the introduction, all our compression machines, even the entry level compression testers **WIZARD AUTO**, are **automatic**.

The load rate is applied and controlled automatically with a number of very important advantages synthesized below which obviously applies to all other automatic compression testers.

BENEFITS OF CONTROLS AUTOMATIC TESTERS



No human error

Extremely limited opportunity for operator errors, improving accuracy of results and repeatability



Easy to use

Easy to use, even for operators with limited expertise



Conforming to Standards

The machine automatically performs the test at correct test speed. Conformance to Standards can be easily proven



Improved performance (high speed pump)

High speed pumps that will close the daylight above the specimen at the fastest speed allowing a very high throughput of tests



Noise reduction
Operation
Comfort

Operator comfort due to remarkable noise reduction



Energy saving

Energy saving, energy consumption reduced by 50%

Power and Control Systems

WIZARD AUTO

Standard automatic Quality Control Power and Control System



Hydraulic

- Max pressure 700 bar
- Power 750 W
- Dual stage pump: low pressure/ high delivery for fast piston approach and high pressure/low delivery for loading.
- AC motor fitted with inverter device featuring high efficiency, reduction of power consumption and silent operation.
- Second frame optional facility using valve selector.

Hardware

- Two 16 bit analog channels for load sensors
- Wide graphic display 128 x 80 pixel
- Sampling rate 50 Hz
- Internal memory
- RS 232 port for data download (including load/time graph points) to PC in ASCII format
- Integrated printer as optional. See accessories

Firmware

- Real time display of load and stress
- Automatic application of the selected load rate
- Execution of loading ramps with the possibility to manually increase or decrease the test speed during the test
- Peak detection and saving
- Language selection
- Multi-coefficient linearization of the calibration curve for better accuracy at low loads
- Multiple units: Lbf / Ton / kN.

FEATURES and ADVANTAGES

- » Two analog channels for load sensors
- » Wide graphic display 128 x 80 pixel
- » Graphic printer available as option
- » AC motor fitted with VDF inverter technology: high efficiency, low consumption, silent operation
- » Dual stage pump for fast approach and automatic switch to high pressure for loading
- » Second frame optional facility



Power and Control Systems

PILOT^{PRO}

Sophisticated and flexible automatic PCS for compression and flexure testing



Hydraulic

- Dual-stage pump: centrifugal low pressure for fast approach automatically switches to radial multi-piston high pressure for loading
- DC motor, 720W, 50-60Hz
- Maximum working pressure 700 bar
- Load/unload valve
- Second/third frame selection valve available as option (see page 196)
- Load/unload electrovalve available as option with active second (included) and third/fourth (optional) frame control via display/PC. See page 196
- ES Energy Saving technology to reduce the power consumption and enable silent operation

Hardware

- 524,000 points high-resolution/stability analog channels
- 3 channels for load sensors
- Control frequency 100 Hz
- Sampling frequency 100 Hz
- 5.1", 800 x 480 pixel, 16 M colors, icon-driven touchscreen graphic display, showing data and plots
- Unlimited storage capacity for test data on internal 8 GB SD card
- USB port for test data storage on external USB Memory stick
- Ethernet port for PC / Internet / network communication
- Optional integrated graphic printer including Load-Time plot
- RS 232 port for data downloading in ASCII format
- Wi-Fi or GSM module available as option

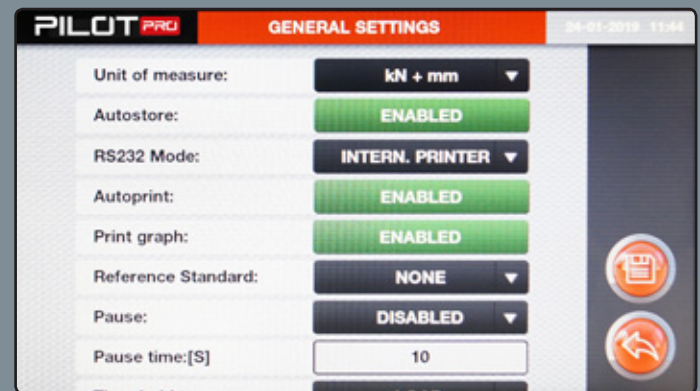
FEATURES and ADVANTAGES

- » Large graphic color 5.1" display, 800 x 480 pixel
- » Dual user interface via console display or PC with Datamanager software
- » Networkability for connection to a wide range of web services (see page 178)
- » Link-LAB integration package for connection with bar code readers, balances, calipers, etc. See page 178
- » Variable speed permanent magnet DC motor for superior performances at low load rates and low load value compared to the AC motors with inverter.
- » Soft platen-to-specimen contact for better accurate speed control from the very beginning of the ramp
- » High speed pump: will close the daylight above the specimen at the fastest speed for a very high throughput of samples
- » Second and third frame connection optional facility. See upgrading options page 196
- » ASTM C39 full conformity (initial pause for specimen alignment, double load rate option, height/diameter correction factor, final calculation of effective load rate applied, peak sensitivity in %)
- » Oversampling function increasing the sampling rate when specimen is approaching the failure for better identification of peak value
- » Graphic printer available as option. See upgrading options page 198

Firmware

- Execution of compression, flexure, indirect tensile, ACV tests in automatic mode with load rate controlled by a closed-loop PID system
- Execution of loading ramps with the possibility to manually increase or decrease the test speed during the test
- Possibility to reach at controlled speed a load target and to keep a steady loading phase
- Simultaneous display of load, specific load, actual load rate, load/time graph
- Download data to internal printer (optional) or to PC via RS 232 port or to USB memory stick
- Multi-coefficient linearization of the calibration curve for better accuracy at low loads thus avoiding the use of a second pressure transducer
- Recording facility for up to 10 test profiles for each channel including: type of test (e.g. compression, flexural, indirect tensile), specimen size and shape, load rate, test standard and other general information. Each one of the recorded test profiles can be recalled automatically to save time
- Improved PID algorithm and Multi PID selection. Up to 3 different PID settings can be tuned for a variety of materials (ACV, flexure, compression with neoprene pads, etc.)
- Compatible with the newly released Datamanager software, tailored for construction material testing laboratories, for real time data acquisition, display and management
- Peripheral devices integration and web services available as option (see page 178)
- Automatic load measurement verification procedure, by connecting suitable load cells and our digital readout unit to PC
- Language selection (including Cyrillic and Chinese)
- Unit selection (kN, ton, lbf)
- USB port for firmware upgrade and safe backup of the original configuration data (PID, calibration, etc.), in case of loss and/or data corruption. The restore of the machine to the factory settings is easy avoiding the need of any technical support.

3000 kN Pilot Pro EN automatic compression machine controlling double chamber cement frame 300/15 kN capacity.



Power and Control Systems

AUTOMAX^{PRO}

Advanced automatic versatile testing system

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Hydraulic

- Dual-stage pump: centrifugal low pressure for fast approach automatically switches to radial multi-piston high pressure for loading
- DC motor, 720W, 50-60Hz
- Maximum working pressure 700 bar
- Load/unload electrovalve for test execution via display/PC and automatic stop at specimen failure
- Active control of up to 4 frames by selection via display/PC (third and fourth frame as option). See accessories.
- ES Energy Saving technology to reduce the power consumption and enable silent operation
- Flow-sharing technology to perform loading and unloading cycles (for Automax Pro-M only)

Hardware

- 524,000 points high-resolution/stability analog channels
- 6 channels to be factory configured:
 - 2 channels for load sensors
 - 2 channels for load or displacement/strain sensors (for Automax Pro-M only)
 - 2 channels for displacement/strain sensors (for Automax Pro-M only)
- Control frequency 250 Hz
- Sampling frequency 250 Hz
- 7", 800 x 480 pixel, 16 M colors, icon-driven capacitive sensing touchscreen graphic display
- Unlimited storage capacity for test data on internal 8 GB SD card
- USB port for test data storage on external USB memory stick
- Ethernet port for PC / Internet / network communication
- Optional integrated graphic printer including Load-Time plot
- RS 232 port for data downloading in ASCII format
- Wi-Fi or GSM module available as option

FEATURES and ADVANTAGES

- » Large 7" graphic color display, 800 x 480 pixel
- » Dual user interface via console display or PC with Datamanager software
- » Networkability for connection to a wide range of web services (see page 178)
- » Link-LAB integration package for connection with bar code readers, balances, calipers, etc. See page 179
- » Variable speed permanent magnet DC motor for superior performances at low load rates and low load value
- » Soft platen-to-specimen contact for better accurate speed control from the very beginning of the ramp
- » High speed pump: will close the daylight above the specimen at the fastest speed for a very high throughput of samples
- » Active control of up to 4 frames by selection via display/PC (3rd and 4th frame as option). See upgrading options page 197
- » ASTM C39 full conformity (initial pause for specimen alignment, double load rate option, height/diameter correction factor, final calculation of effective load rate applied, peak sensitivity in %)
- » Oversampling function increasing the sampling rate when specimen is approaching the failure for better identification of peak value
- » Also suitable to perform steel tensile testing with the dedicated frame. See dedicated box in the next page.
- » **AUTOMAX PRO-M** version to perform advanced test methods:
 - loading/unloading cycles at controlled rate for the **DETERMINATION OF THE ELASTIC MODULUS**
 - **DISPLACEMENT CONTROLLED TESTS** on FRC (Fiber Reinforced Concrete), shotcrete, etc.

Firmware

- Execution of compression, flexure, indirect tensile, ACV tests in automatic mode with load rate controlled by a closed-loop PID system
- Execution of loading ramps with the possibility to manually increase or decrease the test speed during the test
- Possibility to reach at controlled speed a load target and to keep a steady loading phase
- Simultaneous display of load, specific load, actual load rate, load/time graph and load/strain graphs (for Autamax Pro-M only)
- Zoom option on the test graph
- Saving of the specimen failure type (to EN or ASTM) in the test results
- Download data to internal printer (optional) or to PC via RS 232 port or to USB memory stick
- Ethernet port for PC / network communication
- Multi-coefficient linearization of the calibration curve for better accuracy at low loads thus avoiding the use of a second pressure transducer
- Recording facility for up to 10 test profiles for each channel including: type of test (e.g. compression, flexural, indirect tensile), specimen size and shape, load rate, test standard and other general information. Each one of the recorded test profiles can be recalled automatically to save time
- Improved PID algorithm and Multi PID selection. Up to 3 different PID settings can be tuned for a variety of materials (ACV, flexure, compression with neoprene pads, etc.)
- Compatible with the newly released Datamanager software, tailored for construction material testing laboratories, for real time data acquisition, display and management
- Peripheral devices integration and web services available as option (see page 178)
- Automatic load measurement verification procedure, by connecting suitable load cells and our digital readout unit to PC
- Language selection (including Cyrillic and Chinese)
- Unit selection (kN, ton, lbf)
- USB port for firmware upgrade and safe backup of the original configuration data (PID, calibration, etc.), in case of loss and/or data corruption. The restore of the machine to the factory settings is easy avoiding the need of any technical support.

3000 kN Autamax Pro EN automatic compression machine controlling three additional frames: 15 kN for cement prisms flexure testing, 200 kN for concrete beams flexure testing and 500 kN for steel rebars tensile testing.



FIRMWARE UPGRADE TO PERFORM STEEL TENSILE TESTING

AUTAMAX PRO Power and Control System can be upgraded to perform steel tensile testing controlling the suitable frame with accessories (extensometers to be factory calibrated). The upgrade can be factory installed at time of order or subsequently with remote technical support.

50-FW/UTS

Firmware upgrade for the automatic tensile test execution under load/stress and grips separation closed loop PID control.

Software package for steel tensile testing is available for PC remote control and complete data elaboration. See **82-SW/UTS** on page 307

Power and Control Systems

AUTOMAX^{PRO} M

Advanced automatic versatile testing system with option for deformability determination

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AUTOMAX PRO-M Power Control System fitted with superior hydraulic package allows, in addition to standard failure tests, to perform advanced tests as, for example, the Determination of the Modulus of Elasticity and the Characterizations of Fiber Reinforced Concrete under displacement-controlled tests.

All AUTOMAX PRO models are also available in the higher specification Pro-M version. Once you have selected the model of your choice, just add the following item to the machine's code:

50-C50/PROM

Enhancement of Automax Pro electronic and hydraulic system to AUTOMAX PRO-M specifications.

50-C50/PROM does not include the dedicated firmware packages that must be purchased separately. Firmware packages can be ordered post-delivery. Installation can easily be carried out remotely by our technical support team.

50-FW/EM

Firmware package to perform the Modulus of Elasticity with an AUTOMAX PRO-M compression tester

Important note: This test shall be performed by using a compression frame and specific accessories. See page 208.

Software package for Elastic Modulus determination is available for PC remote control and complete data elaboration. See **82-SW/EM** on page 176



Elastic modulus determination with Automax Pro-M 3000kN EN compression machine, upgraded with 50-FW/EM.

50-FW/DC

Firmware package to perform displacement-controlled tests with an AUTOMAX PRO-M compression tester

Important note: These tests shall be performed using a flexural frame, with specific accessories. See page 210

Software package for displacement-controlled tests is available for PC remote control and complete data elaboration.

See **82-SW/DC** on page 176



Beam deflection test on FRC concrete to ASTM C1609



CMOD test performed on the 200 kN flexure frame C1511/FR controlled by the AUTOMAX PRO-M system upgraded with 50-FW/DC.

AUTOMAX **MULTITEST**

Automatic computerized control console

MODULAR. EXPANDABLE. VERSATILE.

Automax product range is at last completed by Automax Multitest stand-alone computerized control console.

Suitable for any kind of test

The system is supplied complete with the Datamanager software package for standard failure tests including compression, flexural and indirect tensile test plus three additional software packages are available for:

- Modulus of Elasticity and Poisson Ratio determinations
- Tensile test on steel rebars
- Displacement controlled tests

Suitable for any type of sample

The console can be connected up to 4 frames ranging from 15 kN up to 5000 kN in compression and 500 kN in tension.

Suitable for any budget

The system can be upgraded in step-by-step investments and, by adding suitable testing frames, accessories and dedicated software packages, the system can cover all your future testing needs, including demanding displacement-controlled tests.

Suitable for any user

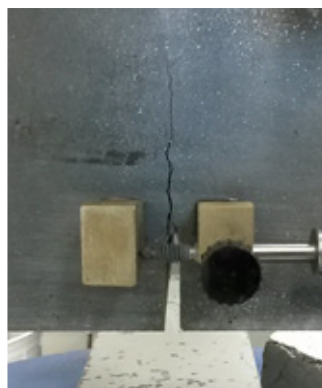
4 easy-to-use software packages available, each one tailored for a specific test method, guiding the operator through all the test phases



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FEATURES and ADVANTAGES

- » Test cycle with closed loop PID control automatically performed by pressing the start button via PC
- » DC-driven variable speed pump for silent operation, energy saving and highly accurate drop-by-drop oil flow for precise control during complex tests
- » 500 Hz high control frequency for optimum oil pressure adjustment during critical tests
- » Double frame control, expandable to four, with active frame selection via software. See upgrading options at page 197
- » Soft platen-to-specimen contact and smooth load rate control from every beginning of the ramp
- » Networkability for connection to a wide range of web services (see page 178)
- » Link-LAB integration package for connection with bar code readers, balances, calipers, etc. See page 179
- » 14 channels available to connect several types of sensors



To get more info visit
www.controls-group.com
or link directly to the QRCode

Power and Control Systems

AUTOMAX MULTITEST

Automatic computerized control console

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Ordering Information

50-C20M82

Automax Multitest stand-alone power and control console for the control of up to 2 (expandable to 4) testing frames. PC included. 230 V, 50-60 Hz, 1 ph.

50-C20M84

Same as above but 110 V, 60 Hz, 1 ph.

Hydraulics

- Dual stage pump: centrifugal low pressure for fast approach and automatic switching to radial multi-piston high pressure for loading
- DC motor 720 W, 50-60 Hz
- Maximum working pressure 700 bar
- Third and fourth frame option, active frame selection by software
- Flow-sharing technology to perform loading and unloading cycles
- ES Energy Saving technology to reduce power consumption and silent operation

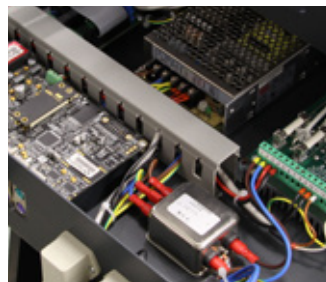
PC and Software

- Remote control of the complete system (Console and Frame) for automatic test execution
- Real time and deferred management of tests data and results, either in numeric and in graphic format
- Active frame selection via software
- Printing and saving of customized test reports both for single and batch tests in Excel format
- Multi-language software, customizable with a further local language (only Latin characters)
- The PC may be connected to the digital readout unit mod. 82-P0801/E and the suitable load cells in order to perform automatic load measurement verification procedure including data acquisition and printing of traceable calibration certificates
- Remote technical assistance/diagnostics via Internet
- **DATAMANAGER** software (included) for compression, flexural, splitting, ACV tests to EN and ASTM standards (see page 192)



Hardware

- 131.000 points effective resolution
- High frequency closed-loop PID control
- Control frequency 500 Hz
- Sampling rate 500 Hz
- 4 channels for load sensors (pressure transducers and load cells)
- 6 channels to measure strain values with transducers (LVDT, magnetostrictive, potentiometric)
- 4 channels for strain measurement with strain gauges
- Memorization of the calibration curve enables sensors to be connected and used immediately
- Digital linearization of the calibration curve (multi-coefficient)



Detail of electronics positioned in the sliding drawer of Automax Multitest Console

The following software packages are available on request:



82-SW/EM

E-Module software package for determination of young Modulus and Poisson's ratio on concrete, cement, rocks allowing:

- User-defined test cycles and step programmable sequences
- Real time display of stress/time, stress/axial strain and stress/lateral strain diagrams
- Automatic verification of sample centring and sensor functioning, as per Standards requirements
- Automatic calculation of test results as per Standards requirements

82-SW/UTS

UTS software package for steel tensile testing allowing:

- load/stress control
- crosshead separation control
- simultaneous display of: stress/elongation [mm], stress/time; stress/elongation [%] and elongation [mm]/time, with possibility to display multi diagrams
- elaboration of tension test results: ReH, ReL or Rp, final elongation, etc. in conformity to EN ISO 6892-1 (method B) and EN 15630-1 (for steel rebars)



82-SW/DC

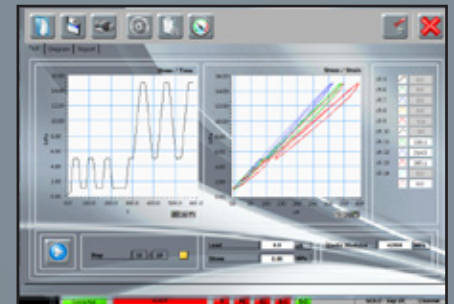
D-Control software package for displacement controlled tests allowing:

- 8 test pre-set testing procedures according to EN 14651, 14488-3, 14488-5, UNI 11039-2, ASTM C1550, C1609, C947, UNE 83515
- Automatic calculation of test results according to the above Standards
- Customizable test procedure allowing desired loading history
- Possibility to change in real time the test parameters: target load/displacement, control variable, test speed
- Data saving rate 250/sec



Automax Multitest can control up to 4 frames, in this example: double chamber 300/15kN frame for cement testing with Datamanager software package (included),

350 kN flexure frame for kerbs testing with Datamanager software (included) and a 3000kN EN compression frame for Elastic Modulus test with 82-SW/EM software package

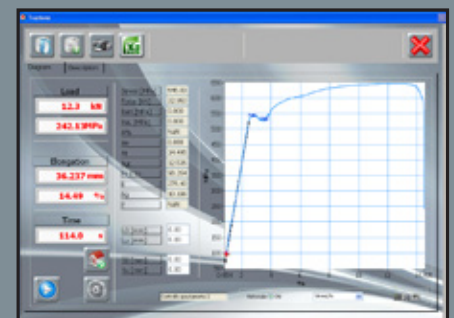


Screenshot of 82-SW/EM software showing elastic modulus test performed according to customized sequence of steps to fulfil any test procedure



AUTOMAX Multitest 50-C20M82 controlling: Flexural frame for FRC testing with 82-SW/DC software package, Compression frame for Elastic Modulus

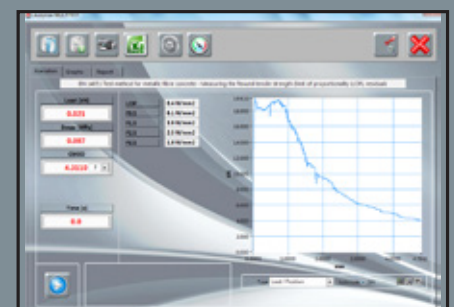
determination with 82-SW/EM software package and Tensile frame for steel rebars testing with 82-SW/UTS software package.



Screenshot of 82-SW/UTS software for tensile tests on steel rebar



AUTOMAX Multitest 50-C20M82 controlling a Duplex 350 kN flexural frame for FRC testing with 82-SW/DC software package



Screenshot of 82-SW/DC software to perform tests under displacement control for FRC characterization

Link▶LAB

LABORATORY CONNECTIVITY PACKAGE

The innovative new approach from CONTROLS now allows PILOT Pro, AUTOMAX PRO and AUTOMAX Multitest to be a fully integrated and “connected” part of your laboratory infrastructure with the ability to seamlessly take inputs from any number of ancillary measuring systems and devices to further increase efficiency and eliminate transposing errors.



DEVICE
INTEGRATION



RESULTS
EXPORT



VIDEO
RECORDING

Seamless device integration

Compatible direct-input devices include dimensional measuring stations, calipers, weighing systems, ID barcode readers and video cameras (Enterprise version only). Direct acquisition provides a tidier operation eliminating the possibility for data transposition errors.

The new K-LAB laboratory peripheral devices integration package is available in two versions:

K-LAB Local

available for systems that operate stand-alone using the controller only without a PC.

K-LAB Enterprise

is available for new and existing systems controlled by PC via Datamanager Software.

For more info please ask our technical department.

Automatic test results export

Both versions allow direct acquisition, according to the device/s connected, of sample weight, dimensions, identification number and test execution video recording (Enterprise version only).

These data, along with all the relevant test results, are collected and available for:

- Direct use in several formats such as txt, excel, pdf, access (Enterprise version) or txt (Local version)
- Raw data export to the Laboratory Information Management System (LIMS) or laboratory/ corporate ERP system
- Full data integration with Prolab.Q Laboratory Information Management System or similar

Call us to discuss your needs and a consultation with our integrations team.

WEBCARE

REMOTE ASSISTANCE SERVICES

Industry 4.0 ready, CONTROLS machines open a whole new ecosystem of connectivity, networkability, transparency and efficiency.



SYSTEM
SUPPORT



ALWAYS
UP-TO-DATE



EFFORTLESS
UPGRADES

Efficient remote assistance and support

The new systems benefit from enhanced remote assistance and support. Our product and engineering specialists can directly inspect and work on your testing system to help you with configurations and system tuning in order to provide more rapid diagnostics ensuring you experience the minimum down-time.

Always up-to-date

You can always be up-to-date with the latest firmware releases and functions. Have access to newly released test applications complying with the most recent international Standards. Thanks to remote backup and storage of machine settings, your systems can be easily restored to archived settings without fuss.

i▶LAB

CLOUD SERVICES



DATA
SHARING



SCREEN
MIRRORING

Instantaneous availability and data sharing

Cloud storage of raw test data to be viewed and consulted by 3rd party engineers, clients, head-office and branches alike.

Extreme care and protection for your data and systems is assured through the adoption of industry best practice and digital authentication.

Screen mirroring testing transparency

Screen mirroring function is available to display on any compatible device (tablet, smartphone, PC) real time plotting of load vs time graph and test results.

Customers can watch the test execution in real time and achieve genuine transparency.

ProLab.Q

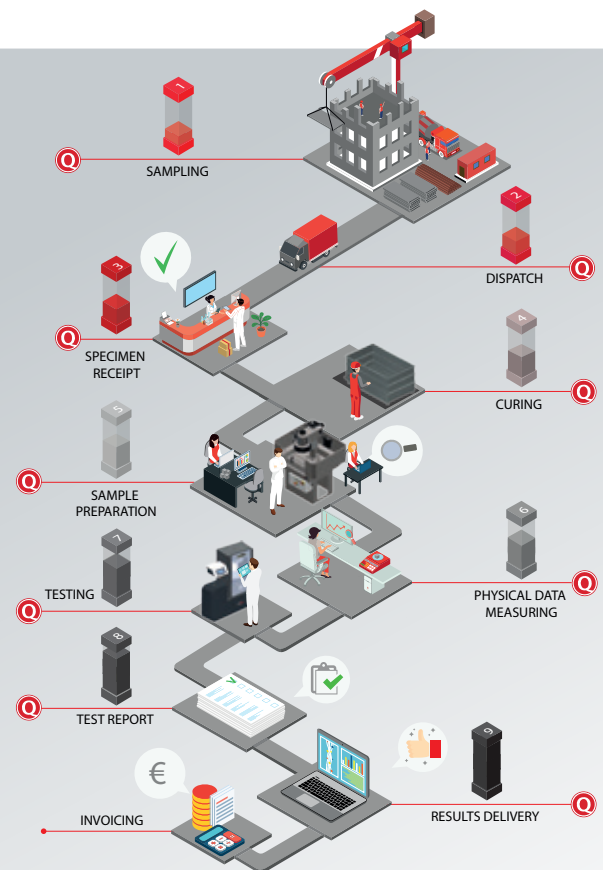
Test video recording

Record your test execution to deliver provable results to your customers.



ProLab.Q is the new-generation LIMS system (Laboratory Information Management System) providing the complete management of testing laboratories of all sizes. It allows active interface with laboratories instruments, management of processes and full traceability of the entire specimen's life – from its acceptance to the emission of the test certificate.

ProLab.Q can be used in WEB mode without any plug-in providing real-time reporting, traceability, compliance, audit trails and test certificate security, through a browser Internet.

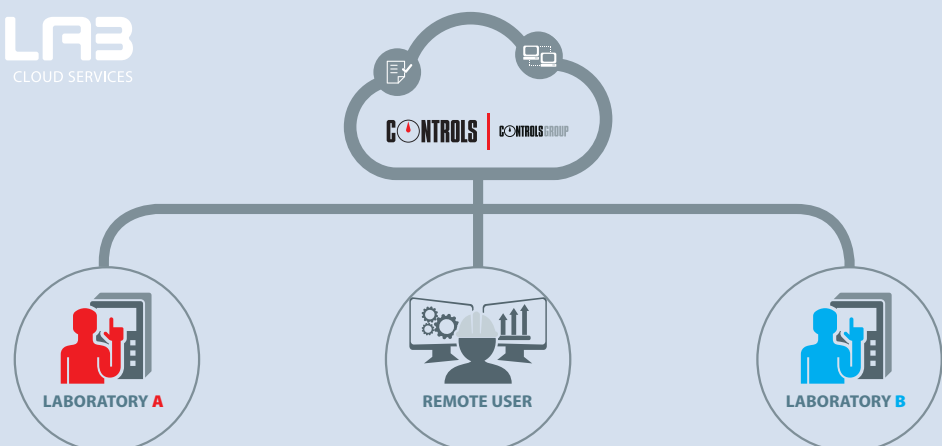


Effortless upgrades through remote connectivity

In line with the growth and demands of your laboratory, CONTROLS new compression testing systems can grow with you. Easily add new firmware packages to your Automax Pro-M system to increase testing capabilities. To make it even easier, our specialist engineers will perform the upgrades for you, online!



i>LAB CLOUD SERVICES



Compression testing frames

COMPACTline

THE INTEGRATED COMPACT-LINE DESIGN

50

Combining a single testing frame with PCS results in the integrated COMPACT-Line version of compression machine where the PCS is attached to the side of the frame.

The stand-alone frames are also available for connection to Advanced Control consoles and they are supplied complete with pressure transducer and connection kit.

The reference codes are listed in the second line of the tables.

EN COMPRESSION FRAMES FOR CUBES AND CYLINDERS TO EN 12390-4 AND BLOCKS TO EN 772-1

FEATURES

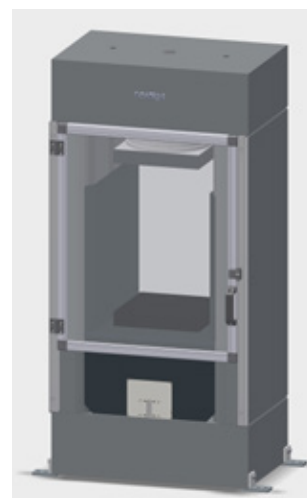
- » High stiffness, four column, rigid welded steel construction
- » EN heavy duty spherical seat in oil bath which allows free alignment at the initial contact with the specimen.
- » Tested for stability with traceable certificate for load transfer verification.



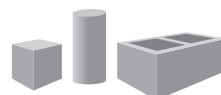
50-C46xxx, C56xxx



50-C47xxx, C57xxx



50-C68xxx, C78xxx



Frames physical specifications

Machine series 50-	C46xxx	C47xxx	C56xxx	C57xxx	C68xxx	C69xxx	C78xxx	C79xxx
Frame only 50-	C46Z00	C47Z00	C56Z00	C57Z00	C68Z00	C69Z00	C78Z00	C79Z00
Cap. kN	2000		3000		4000		5000	
For cubes up to mm	200	200	200	200	300	300	300	300
Cylinders up to mm	160x320	160x320	160x320	160x320	250x500	150x300	250x500	150x300
Blocks std.	-	Std	-	Std	-	Std	-	Std
Ram travel mm	50							
Max vertical daylight mm ⁽¹⁾	350				520	310	520	310
Horizontal daylight mm	350		370		425		425	
Platen dim. mm	Dia. 300	310 x 510 X 50 ⁽²⁾	Dia. 300	310 x 510 X 50 ⁽²⁾	305 x 305	310x510 X90	305 x 305	310x510 X90
Platen hardness HRC	53	55.5	53	55.5	53	55.5	53	55.5
Platen flatness mm	0.03	0.05	0.03	0.05	0.03	0.05	0.03	0.05

(1) To be adjusted with distance pieces conforming to the specimen size.

(2) Models fitted with 310 x 510 x 90 mm also available on request.

All stand-alone frames are fitted with front door, rear fragment guard and pedestal. The pedestal is not included in the relevant Compact-Line compression machines and have to be ordered separately. See machine accessories page 194

Models 50-C69xxx and C79xxx, also include the Explosion proof test kit comprising: safety cable securing the upper platen to the frame, metallic perforated fragment guard and bottom platen anti-fall safety system. See page 198

The relevant compression testers are shown on page 182 to 185

ASTM COMPRESSION FRAMES FOR CYLINDERS TO ASTM C39, AASHTO T22 AND BLOCKS TO ASTM C140

FEATURES

- » Rigid welded steel construction.
- » Spherical seat allows free alignment at the initial contact with the specimen.



50-A22xxx, A32xxx 50-A29xxx, A39xxx

Frames physical specifications

Machine series 50-	A12xxx	A22xxx	A32xxx	A29xxx	A39xxx	A29xxx+ A29/CYL	A39xxx+ A29/CYL	A42xxx	A52xxx
Frame only 50-	A22Z00 A22Z10	A22Z00 A22Z10	A32Z00 A32Z10	A29Z00 A29Z10	A39Z00 A39Z10	A29Z00 A29Z10+	A39Z00 A39Z10+	A42Z00 A42Z10	A52Z00 A52Z10
						A29/CYL	A29/CYL		
Cap. kN klbf	1500 330	2000 450	3000 660	2000 450	3000 660	2000 450	3000 660	2000 450	3000 660
For Cyl up to mm Cyl up to in Blocks	160x320 6"x12" -			- - Std.		160x320 6"x12" Std.		160x320 6"x12" -	
Ram travel mm	50								
Max. vertical daylight ⁽¹⁾ , mm in	380 15"	380 15"		300 11.8"		410 16.14"		405 15.94"	
Horizontal daylight, mm in	265 10.4"	340 13.4"	370 14.6"	370 14.6"	370 14.6"	370 14.6"	370 14.6"	350 13.8"	370 14.6"
Platen dim mm in	Dia. 165 6.5"			310x410x90		Dia. 165 6.5"			
Platen hard- ness HRC	55								
Platen flatness mm	0.02			0.05		0.02			

(1) To be adjusted with distance pieces (or slotted distance pieces for A39xxx frame) conforming to the specimen size. See page 194
The relevant compression testers are shown on page 186 to 189

GENERAL UTILITY COMPRESSION FRAMES FOR CUBES, CYLINDERS AND BLOCKS.

FEATURES

- » Rigid welded steel construction.
- » Spherical seat allows free alignment at the initial contact with the specimen.



50-C13xxx

50-C23xxx, C34xxx

50-C25xxx, C35xxx

Frames physical specifications

Machine series 50-	C13xxx	C23xxx	C34xxx	C25xxx	C35xxx
Frame only 50-	C13Z00	C23Z00	C34Z00	C25Z00	C35Z00
Cap. kN	1500	2000	3000	2000	3000
For Cubes up to mm Cyl. up to Blocks	150 160x320 -	150 160x320 -	200 160x320 -	200 160x320 Std.	200 160x320 Std.
Ram travel mm	50				
Max. vertical daylight ⁽¹⁾ , mm	350*	350*	350*	350*	350*
Horizontal daylight, mm	265	340	370	340	370
Platen dim mm	Dia. 220	Dia. 220	Dia. 300	310 x 510 x 50	
Platen hardness HRC	55			55	
Platen flatness mm	0.03			0.05	

(1) To be adjusted with distance pieces conforming to the specimen size. See page 194

*The vertical daylight can be increased of 20 mm by the accessory 50-C50/CYL for testing cylinders with capping. See test accessories

The relevant compression testers are shown on page 190 to 191

▶ **EN COMPACTline** Compression testers for cubes and cylinders

▶ **EN 12390-4** ▶ 2000 ▶ 3000 ▶ 4000 ▶ 5000 kN



WIZARD AUTO

Standard automatic Quality Control compression testers

STANDARD

▶ EN 12390-4

▶ 2000 ▶ 3000 kN



50-C46W02

Wizard Auto Automatic Compact Line EN Compression tester, 2000 kN cap. For cubes up to 200 mm and cylinders up to 160 x 320 mm.

230 V, 50-60 Hz, 1ph

50-C56W02

Wizard Auto Automatic Compact Line EN Compression tester, 3000 kN cap. For cubes up to 200 mm and cylinders up to 160 x 320 mm.

230 V, 50-60 Hz, 1ph

PILOT PRO

Sophisticated and flexible automatic compression testers

STANDARD

▶ EN 12390-4

▶ 2000 ▶ 3000 kN



50-C46P02

Pilot Pro Automatic Compact Line EN compression tester, 2000 kN cap. For cubes up to 200 mm and cylinders up to 160 x 320 mm.

230 V, 50-60 Hz, 1 ph.

50-C56P02

Pilot Pro Automatic Compact Line EN compression tester, 3000 kN cap. For cubes up to 200 mm and cylinders up to 160 x 320 mm.

230 V, 50-60 Hz, 1 ph.

PILOT PRO

Sophisticated and flexible automatic compression testers

STANDARD

▶ EN 12390-4

▶ 4000 ▶ 5000 kN



50-C68P02

Pilot Pro Automatic Compact Line EN compression tester, 4000 kN cap. For cubes up to 300 mm and cylinders up to 250 x 500 mm.

230 V, 50-60 Hz, 1 ph.

50-C78P02

Pilot Pro Automatic Compact Line EN compression tester, 5000 kN cap. For cubes up to 300 mm and cylinders up to 250 x 500 mm.

230 V, 50-60 Hz, 1 ph.

AUTOMAX PRO

Advanced automatic versatile testing system

STANDARD

▶ EN 12390-4

▶ 2000 ▶ 3000 kN



50-C46F02

Automax Pro Automatic Compact Line EN compression tester, 2000 kN cap. For cubes up to 200 mm and cylinders up to 160 x 320 mm.

230 V, 50-60 Hz, 1 ph.

50-C56F02

Automax Pro Automatic Compact Line EN compression tester, 3000 kN cap. For cubes up to 200 mm and cylinders up to 160 x 320 mm.

230 V, 50-60 Hz, 1 ph.

WIZARD AUTO
PILOT PRO
AUTOMAX PRO
AUTOMAX PRO M

AUTOMAX PRO

Advanced automatic versatile testing system

STANDARD

► EN 12390-4

► 4000 ► 5000 kN


50-C68F02

Automax Pro Automatic Compact Line EN compression tester, 4000 kN cap. For cubes up to 300 mm and cylinders up to 250 x 500 mm. 230 V, 50-60 Hz, 1 ph.

50-C78F02

Automax Pro Automatic Compact Line EN compression tester, 5000 kN cap. For cubes up to 300 mm and cylinders up to 250 x 500 mm. 230 V, 50-60 Hz, 1 ph.

Frame and Compression Platens

See physical specifications table on page 180

WIZARD Auto Power and Control System

Full specifications on page 169

PILOT Pro Power and Control System

Full specifications on page 170

AUTOMAX Pro Power and Control System

Full specifications on page 172

AUTOMAX Pro-M Power and Control System

50-C50/PROM
Enhancement of Automax Pro electronic and hydraulic system to AUTOMAX PRO-M specifications.

Full specifications on page 174

Safety Features

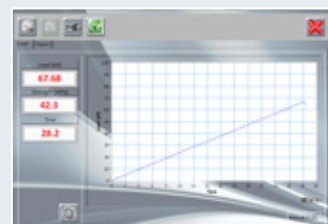
Max. pressure valve to avoid machine overloading, piston travel limit switch, emergency stop button, front door and rear flexible fragment guard.

Machine accessories and special performances for all models

- Distance pieces to reduce the vertical daylight. See page 194
- Frame pedestal. See page 194



- DATAMANAGER PC software. See page 192 (Not compatible with WIZARD Auto)


Test accessories

- Splitting tensile test device. See page 200



- Compression device on cement samples. See page 201
- Flexural test device on concrete beams. See page 201

Connectivity packages. For PILOT Pro and AUTOMAX Pro only. See page 178

- Link-LAB laboratory peripheral integration package
- Web services

Upgrading options

- Additional testing frame/s connection. See page 196
- Printer installation. See page 198
- Special calibration procedure. See page 199
- Certified platen hardness. See page 199
- Fragment guard lock switch. See page 199

Explosion proof test kit.
See page 198

Upgrading kit comprising: safety cables securing the upper platen to the frame, metallic perforated fragment guard and bottom platen anti-fall safety system.

50-C59/EK Explosion proof test kit for C56xxx series

50-C69/EK Explosion proof test kit for C68xxx and C78xxx

50-C59/EK2 Explosion proof test kit for C56Fxx series



Note: for testing high strength / explosive failure specimens we strongly recommend the use of distance pieces complete with threaded centring pin. See page 194


Dimensions (mm, lxdxh) and weights (50-)

C46Wxx_895x450x1115, 680 kg
C46Pxxx_895x450x1115, 680 kg
C46Fxx_930x420x1530, 740 kg
C56Wxx_985x605x1115, 740 kg
C56Pxx_985x605x1190, 1040 kg
C56Fxx_1020x475x1550, 1105 kg
C68Pxx_1090x570x1555, 2000 kg
C68Fxx_1090x570x1555, 2000 kg
C78Pxx_1090x570x1555, 2000 kg
C78Fxx_1090x570x1555, 2000 kg

Other voltages

For 110V, 60 Hz versions change last code number from 2 to 4.
Example: 50-C46W04, C56P04, C68F04

- **EN COMPACTline** Compression testers for cubes, cylinders and blocks
 ► **EN 12390-4 ► EN 772-1 ► 2000 ► 3000 ► 4000 ► 5000 kN**

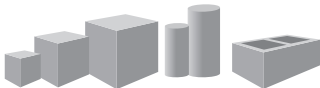


WIZARD AUTO

Standard automatic Quality Control compression testers

STANDARD

- EN 12390-4 ► EN 772-1
 ► 2000 ► 3000 kN



50-C47W02

Wizard Auto Automatic Compact Line EN compression tester, 2000 kN cap. For cubes up to 300 mm, cylinders up to 160 x 320 mm and blocks.
 230 V, 50-60 Hz, 1 ph.

50-C57W02

Wizard Auto Automatic Compact Line EN compression tester, 3000 kN cap. For cubes up to 300 mm, cylinders up to 160 x 320 mm and blocks.
 230 V, 50-60 Hz, 1 ph.

PILOT PRO

Sophisticated and flexible automatic compression testers

STANDARD

- EN 12390-4 ► EN 772-1
 ► 2000 ► 3000 kN



50-C47P02

Pilot Pro Automatic Compact Line EN compression tester, 2000 kN cap. For cubes up to 300 mm, cylinders up to 160 x 320 mm and blocks.
 230 V, 50-60 Hz, 1 ph.

50-C57P02

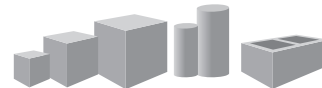
Pilot Pro Automatic Compact Line EN compression tester, 3000 kN cap. For cubes up to 300 mm, cylinders up to 160 x 320 mm and blocks.
 230 V, 50-60 Hz, 1 ph.

PILOT PRO

Sophisticated and flexible automatic compression testers

STANDARD

- EN 12390-4 ► EN 772-1
 ► 4000 ► 5000 kN



50-C69P02

Pilot Pro Automatic Compact Line EN compression tester, 4000 kN cap. For cubes up to 300 mm, cylinders up to 150 x 300 mm and blocks.
 230 V, 50-60 Hz, 1 ph.

50-C79P02

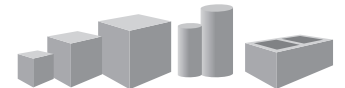
Pilot Pro Automatic Compact Line EN compression tester, 5000 kN cap. For cubes up to 300 mm, cylinders up to 150 x 300 mm and blocks.
 230 V, 50-60 Hz, 1 ph.

AUTOMAX PRO

Advanced automatic versatile testing system

STANDARD

- EN 12390-4 ► EN 772-1
 ► 2000 ► 3000 kN



50-C47F02

Automax Pro Automatic Compact Line EN compression tester, 2000 kN cap. For cubes up to 300 mm, cylinders up to 160 x 320 mm and blocks.
 230 V, 50-60 Hz, 1 ph.

50-C57F02

Automax Pro Automatic Compact Line EN compression tester, 3000 kN cap. For cubes up to 300 mm, cylinders up to 160 x 320 mm and blocks.
 230 V, 50-60 Hz, 1 ph.

N.B. 4000 kN and 5000 kN machines for blocks testing feature Premium Heavy-Duty spherical seat with increased bearing area and rectangular platens with 90 mm thickness in order to minimize platens deflection during the test.