

**CONTROLS**

**CONTROLSGROUP**



CONSTRUCTION MATERIALS TESTING SOLUTIONS

**AUTOMAX PRO M**

**Smart, Automatic and Connected**  
Advanced Concrete Power and Control Unit

# AUTOMAX<sup>PRO</sup> m

## Smart, automatic and connected Compact-Line compression machines

The leading-edge high definition 7" color graphical display is easy-to-follow and works like a tablet or smart-phone. This makes it easy to perform test and access the latest international Standards resulting in more rapid training of new staff and higher testing through-put.



- **Large intuitive graphic color 7" display** similar to tablet or phone (800 x 480 pixel).
- **Dual user interface** via console display or PC with optional Datamanager software.
- **Optimum accuracy** is obtained with 19-bit effective resolution (524,000 datapoint) and extended class-1 range.

**Active control of up to 4 frames** with selection via display or PC (no manual operation or valve switching required).

**Variable speed with permanent magnet DC motor** for superior performances at low load rates and low load value. Soft platen-to-specimen contact for more accurate speed control from the very beginning of the ramp.

**High speed pump** closes the daylight above the specimen at the fastest speed for maximum sample throughput.

**Flow-sharing technology** to perform loading and unloading cycles at controlled rate.

**Automatic and seamless reporting** to all major LIMS systems via our Data Manager software.

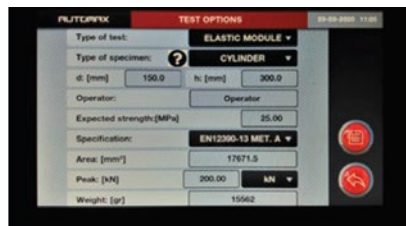
**6 channels to be factory configured:**

- 2 channels for load sensors
- 2 channels for load or displacement/strain sensors
- 2 channels for displacement/strain sensors.

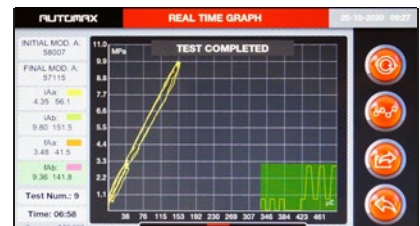
**Oversampling function** increasing the sampling rate when specimen is approaching the failure for better identification of peak value.



Compression test complete



Elastic Modulus test settings



Elastic Modulus determination

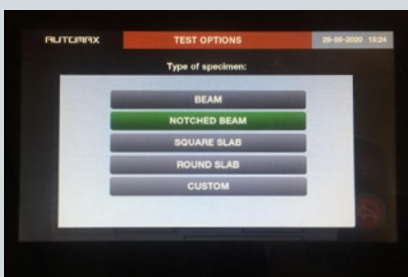
# AUTOMAX<sup>PRO</sup> M

AUTOMAX PRO-M Power Control System fitted with superior hydraulics can also perform, in addition to standard failure tests, Modulus of Elasticity Determination tests and Characterizations of Fiber Reinforced Concrete (FRC) under displacement-control.

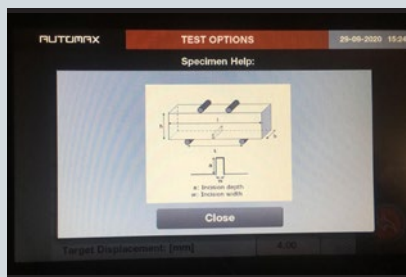


AUTOMAX PRO-M 3000kN EN compression machine for Elastic Modulus determination and control of a second flexure frame for FRC slab testing.

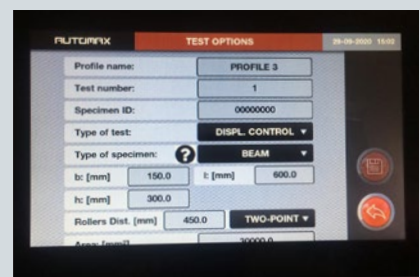
## INTUITIVE GRAPHICAL DISPLAY



Easily select your specimen type



Handy Specimen Help panel for guidance



Displacement-controlled test settings

# Smart Connectivity

AUTOMAX PRO-M introduces new features and capabilities that will revolutionize the operations of any progressive construction quality testing laboratories.



**LinkLAB** is CONTROLS' new proprietary **Laboratory Connectivity Package**. It allows your AUTOMAX Pro-M to be a connected part of your laboratory infrastructure by taking inputs from any number of ancillary measuring systems and devices increasing efficiency and eliminating transposing errors.

## Two models available



### Link-LAB Local

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



### Link-LAB Enterprise

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



## Seamless Device Integration

**Direct acquisition provides a tidier operation eliminating the possibility for data transposition errors.**

Compatible devices include but are not limited to:

- ✓ dimensional measuring stations
- ✓ calipers
- ✓ weighing systems
- ✓ ID bar-code readers





# Technical Specifications

## Hydraulics

**Dual stage HPU:** centrifugal low pressure for fast approach automatically switches to radial multi-piston high pressure for loading

**DC motor:** 720 W, 50-60 Hz

**Maximum working pressure:** 700 bar

**Load / unload electrovalve** for test execution via display / PC and automatic stop at specimen failure

**Third and fourth frame option,** control of up to 4 frames by selection via display / PC

**ES Energy Saving technology** to reduce power consumption and promote silent operation

**Flow-sharing technology** to perform loading and unloading cycles

## Hardware

**524.000 points** high-resolution / stability analogue channels

**6 channels to be factory configured:**

- 2 channels for load sensors (pressure transducers and load cells)
- 2 channels for load sensors (pressure transducers and load cells) or displacement / strain sensors
- 2 channels for displacement/strain sensors

**Control frequency:** 250 Hz

**Sampling frequency:** 250 Hz

**7", 800 x 480 px,** 16m colors, icon-driven touchscreen graphic display (like tablet or phone)

**Unlimited storage capacity** for test data on internal 16 GB SD card

**USB port** for test data storage or for firmware upgrade by external USB memory stick

**Ethernet port** for PC / Internet / network communication

**Optional integrated graphic printer** including Load-Time plot (for standard failure tests)

**RS 232 port** for data downloading in ASCII format

## Firmware

Execution of compression, flexure, indirect tensile, ACV tests, Elastic Modulus, Poisson Ratio Determination and Displacement-controlled tests (with 50-FW/DC) in automatic mode with load rate controlled by a closed-loop PID system.

**Simultaneous display of:**

- load, stress, actual load rate, load / time graph in standard failure tests
- load, stress, strain, stress / strain graph in Elastic Modulus and Poisson ratio tests
- load, displacement, load / displacement graph in displacement controlled tests (with 50-FW/DC)

**Saving of the specimen failure type**

(to EN or ASTM) in 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 avoiding the use of a second pressure transducer.

**Recording facility** for up to nine test profiles for each channel including: type of test (e.g. compression, flexural, indirect tensile, elastic modulus or displacement control), specimen size and shape, test speed 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 three different PID settings can be tuned for each channel for a variety of materials (e.g. cylinder with neoprene pads, low strength specimens) and test methods (e.g. ACV, flexure, elastic modulus, displacement control).

**Compatible with the newly released DATAMANAGER software, E-Module and D-Control software packages,** tailored for construction material testing laboratories, for remote control, real-time data acquisition and results calculation.

**Peripheral devices integration** with Link-LAB

**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 to factory settings function is easy to use and reduces the need of any technical support.

# Technical Specifications

## Upgrading options

### THIRD AND FOURTH FRAME CONNECTION



The AUTOMAX PRO-M system can control two frames as standard and it can be upgraded with a hydraulic valve for controlling (not simultaneously) a third and a fourth frame.

#### 50-C10D/3F

Electrovalve for third frame connection.

#### 50-C20E/4F

Electrovalve for fourth frame connection.  
To be used with 50-C10D/3F.

### SPECIAL CALIBRATION PROCEDURES

#### 50-C0050/CAL

Special calibration of load digital readout unit guaranteeing class 1 from 1% of testing machine full scale (maximum load).

### SERIAL PRINTER INSTALLATION

AUTOMAX PRO-M systems can be upgraded by incorporating a serial printer in the rear panel with the following specifications:

- Very quiet printing
- High speed: 50mm / sec
- High resolution: 200 dpi = 8 dots / mm
- Supports text and graphic printing
- Easy maintenance with self-diagnostics
- Paper width: 58 mm

The printer allows test results to be printed at the end of the test. Load / time plot of standard failure tests (compression, flexure and indirect tensile) can be printed as well.

#### 50-Q60P/PR

Installation of a serial printer on the AUTOMAX PRO-M control panel.



### FIRMWARE UPGRADE TO PERFORM DISPLACEMENT-CONTROLLED TESTS

#### 50-FW/DC

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

**Important note:** These tests can be performed by using suitable frame and specific accessories. Please ask our technical department for complete configurations.

# Technical Specifications

## Software packages

### 82-SW/DM

DATAMANAGER software package for compression, indirect tensile, 3 points and 4 points flexural tests on different types of specimens.

### 82-SW/EM

E-MODULE software package for Elastic modulus and Poisson ratio determination allowing:

- Free unlimited programmable load / stress cycles to fulfil any kind of test procedure
- Real time monitoring of test data, stress / time, stress / axial strain, stress / lateral strain graphs
- Automatic verification of sample positioning and sensors functionality, as per Standards requirements.
- Automatic calculation of Elastic Modulus and Poisson's Ratio values.

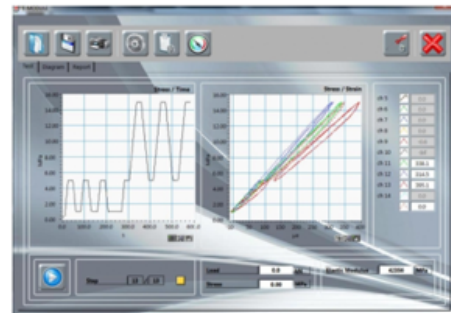
### 82-SW/DC

D-CONTROL software package for Displacement-Controlled Tests allowing:

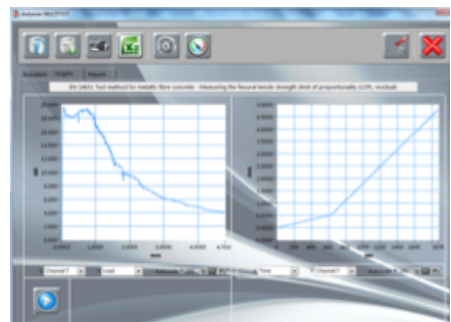
- 8 test pre-set testing procedures according to EN 14651, 14488-3, 14488-5, UNI 11039-2, ASTM C1550, C1609, C947, UNE 83515.
- Automatic calculation of test results according to the above Standards.
- Customizable test procedure allowing desired loading history.
- Possibility to change in real time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



82-SW/DM – DATA MANAGER



82-SW/EM – E-MODULE



82-SW/DC – D-CONTROL

## Models Overview

AUTOMAX <b>PRO</b> m			CAPACITY [kN]				
			1,500	2,000	3,000	4,000	5,000
STANDARD	EN	Cubes/Cylinders	-	C46F02/M	C56F02/M	C68F02/M	C78F02/M
		Blocks	-	C47F02/M	C57F02/M	-	-
	ASTM*	Cylinders	-	A42F02/M	A52F02/M	-	-
		Blocks	-	-	-	-	-

Note: For 110V, 60 Hz versions change last code number from 2 to 4. Example: 50-C46F04/M, C56F04/M, C68F04/M.

\*These machines can be calibrated in lbf unit. For the codes change second last code number from 0 to 1.

## ▶ CONTROLS Customer Care

**At CONTROLS we are proud of our products.** As one of the longest established manufacturing companies in the world of Construction Materials Testing solutions, we are dedicated to supplying high quality, accurate, affordable, easy to use systems.

As a valued customer of CONTROLS, you will receive continuous, expert support and advice for your equipment. Furthermore, we can offer full installation and training in the correct operation of your CONTROLS equipment.

- ▶ For support from our expert Customer Care Team, contact your local CONTROLS office/distributor or email [customercare@controls-group.com](mailto:customercare@controls-group.com).
- ▶ To order or upgrade your product, please contact our sales department at [sales@controls-group.com](mailto:sales@controls-group.com).

**For more information, please visit [www.controls-group.com](http://www.controls-group.com).**

## ▶ Contact Us

[www.controls-group.com](http://www.controls-group.com)



### **CONTROLS Group**

**T** +39 02 92184 1

**F** +39 02 92103 333

**E** [sales@controls-group.com](mailto:sales@controls-group.com)

**www.controls-group.com**

### **Italy** (HEAD OFFICE)

[www.controlsitalia.it](http://www.controlsitalia.it)

### **Mexico**

[www.controls.com.mx](http://www.controls.com.mx)

### **UK**

[www.controlstesting.co.uk](http://www.controlstesting.co.uk)

### **Australia**

[www.controls-group.com](http://www.controls-group.com)

### **Poland**

[www.controls.pl](http://www.controls.pl)

### **USA**

[www.controls-usa.com](http://www.controls-usa.com)

### **France**

[www.controls.fr](http://www.controls.fr)

### **Spain**

[www.controls.es](http://www.controls.es)