

## DATA SHEET

# 300 and 300/15 kN PILOT PRO, Automatic Compression-Flexural Cement Testers



PILOT PRO mod.65-L28P12

## General description

**PILOT PRO** is the best choice for Quality Control laboratories to carry out a high throughput of routine failure tests including compression, flexure and indirect tensile tests.

PILOT PRO 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 PILOT PRO 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.

### Frames

These machines, featuring a very rigid four columns frame, have been designed for the testing of the cement prism either in compression or in flexure.

Three versions are available:

#### 65-L27P1x

models, double testing chamber, 15/300 kN cap., inbuilt flexural jig for 40x40x160 cement prisms and compression apparatus for portions of 40x40x160 mm prisms broken in flexure.

Conforming to EN 196-1, 1015-11.

#### 65-L28P1x

models, double testing chamber, 15/300 kN cap., fitted with round platens for testing in compression and flexion cement, mortar, resins and other materials.

Conforming to EN 196-1, 1015-11, ASTM C109, C348, C349 using the suitable accessories.

#### 65-L18P1x

models, 300 kN cap., fitted with round platens for testing cement, mortar, resins and other materials and other materials. Conforming to EN 196-1, 1015-11, ASTM C109, C349 using the suitable accessories.

**All models are fitted with high accuracy load cell/s.**

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Models fitted with compression platens 165 mm dia. (L28Pxx,L18Pxx) have a vertical span of 200 mm hence can house all standard accessories for cement and mortar testing (see accessories) and furthermore can be used to test other specimens directly on the standard compression platens adjusting, if necessary, the vertical daylight, with the suitable distance pieces (see accessories). Compression platens can be supplied complete with Platen surface hardness certificate.

### PILOT PRO, Automatic power and control system

See technical specifications.

### Safety features

Includes: Max. pressure valve to avoid machine overloading; piston travel limit switch; emergency stop button; front door and rear transparent fragment guard on request.

## Main features

### Smart automatic and connected Power and Control System for standard failure testing.

PILOT PRO is the best choice for Quality Control laboratories to carry out a high throughput of routine failure tests including compressor flexure and indirect tensile tests.

- **Huge boost in efficiency and error elimination:** Link-LAB – Integrated testing station solution for seamless connection and data inputs from many ancillary devices for dimensional measurement, weight, bar code, etc.
- **Automatic – time saving:** test-cycle automation maximizes productivity and ensures tests are performed accurately according to pre-set methods, eliminating operator variables.
- **Highly accurate and energy saving:** Our DC motor technology quietly and efficiently delivers super accurate load control at both low-speed and low-loads.
- **Intuitive, quick and simple operation:** The integrated control system features an intuitive 5.1" color graphical display, which works like a tablet or smart-phone, and makes PILOT PRO quick and simple to operate.
- **Standards compliant – peace of mind:** Hardware and firmware are in total compliance with all the main international testing standards
- **Multilingual functionality:** The system is available in multiple languages and is fully compatible with non-Latin characters for Chinese, Cyrillic (and more).

## Standards

- ASTM C109
- EN 196-1
- ASTM C348
- ASTM C349

## Specifications

### PILOT PRO AUTOMATIC POWER AND CONTROL SYSTEM

#### Hydraulics

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

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### Hardware

524,000 points high-resolution/stability analog channels  
3 channels for load sensors  
Control frequency 250 Hz  
Sampling frequency 250 Hz  
5.1", 800 x 480 pixel, 16 M colors, icon-driven capacitive sensing touchscreen graphic display  
Unlimited storage capacity for test data on internal 16 GB SD card  
USB port for test data storage on external USB memory stick and for firmware upgrade  
Ethernet port for PC / Internet /network communication  
Optional integrated graphic printer including Load-Time plot  
RS 232 port for data downloading in ASCII format

### Firmware

Execution of compression, flexure, indirect tensile, ACV tests in automatic mode with load rate controlled by a closed-loop P.I.D. system  
Execution of loading ramps with the possibility to manually increase or decrease the test speed during the test  
Pause command to maintain steady load can be enabled at a pre-set value before the test or as required while testing  
Simultaneous display of load, specific load, actual load rate, load/time 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  
PC / network communication via Ethernet  
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 9 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 (e.g. cylinder with neoprene pads, low strength specimens) and test methods (e.g. ACV, flexure, indirect tensile).  
Compatible with the newly released Datamanager software, tailored for construction material testing laboratories, for real-time data acquisition, display and management  
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 of the machine to the factory settings is easy avoiding the need of any technical support.

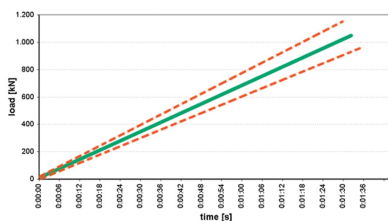
### PHYSICAL SPECIFICATION TABLE

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Model 65-	L18P12	L27P12	L28P12
Max load kN	300	15/300	15/300
Ram travel mm	50	30/50	30/50
Vertical Span, mm	200	50/50	200/200
Horizontal Span, mm	220	-/220	-/220
Platen dim., mm	Dia. 165	40x40	Dia. 165
Flexural jig 40x40x160 mm	-	Included	-
Class 1	30-300 kN	1.5-15 kN 30-300 kN	1.5-15 kN 30-300 kN
Class 1 with 50-C0050/CAL5	-	0.5-15 kN	0.5-15 kN
Class 1 with 50-C0050/CAL	3-300 kN	3-300 kN	3-300 kN
Class 1 with 50-C0050/1CAL	0.5-300 kN	-	-
Overall dim. L x d x h, mm	862x344x964	922x337x964	890x337x964
Weight approx., kg	195	265	270



PILOT PRO mod.65-L27P12



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Serial printer

## Products

### 65-L18P12

PILOT PRO automatic compression machine, 300 kN cap. for compression tests on cement, mortar, resin and other materials. Conforming to EN 196-1, 1015-11, ASTM C109, C349 using the suitable accessories. - High-stiffness 4-columns frame - High accuracy load cell for load measurement - Compression platens 165mm diameter - PILOT PRO automatic control system - PID Closed loop control of the load rate - High control and data sampling frequency: 250 Hz- Variable speed permanent magnet DC motor for superior performances at low load rates and low load values - 5.1", 800 x 480 pixels, 16 M colors, icon-driven capacitive sensing touchscreen graphic display - RS232 serial port for data transmission (including load/time values for graph plot) in ASCII format - USB port for data storage, export to PC and firmware upgrade - Ethernet port for PC / Internet /network Communication - Integrated printer available on request - 8 GB Internal permanent memory on SD card - 524000 points high-resolution/stability channels- Dayligths: horizontal 220mm, vertical 200mm - Piston travel 50 mm - Limit switch preventing piston overtravel - Load measurement accuracy: class 1 to EN 12390-4 /class A to ASTM E74 starting from 30kN. Special calibration from 3 kN available on request - Supplied complete with traceable calibration certificate for load measurement accuracy - Optional transparent rigid safety guard 230V/50-60Hz/1Ph

### 65-L18P14

PILOT PRO automatic compression machine, 300 kN cap. for compression tests on cement, mortar, resin and other materials. Conforming to EN 196-1, 1015-11, ASTM C109, C349 using the suitable accessories. - High-stiffness 4-columns frame - High accuracy load cell for load measurement - Compression platens 165mm diameter - PILOT PRO automatic control system - PID Closed loop control of the load rate - High control and data sampling frequency: 250 Hz- Variable speed permanent magnet DC motor for superior performances at low load rates and low load values - 5.1", 800 x 480 pixels, 16 M colors, icon-driven capacitive sensing touchscreen graphic display - RS232 serial port for data transmission (including load/time values for graph plot) in ASCII format - USB port for data storage, export to PC and firmware upgrade - Ethernet port for PC / Internet /network Communication - Integrated printer available on request - 8 GB Internal permanent memory on SD card - 524000 points high-resolution/stability channels- Dayligths: horizontal 220mm, vertical 200mm - Piston travel 50 mm - Limit switch preventing piston overtravel - Load measurement accuracy: class 1 to EN 12390-4 /class A to ASTM E74 starting from 30kN. Special calibration from 3 kN available on request - Supplied complete with traceable calibration certificate for load measurement accuracy - Optional transparent rigid safety guard 110V/60Hz/1Ph

### 65-L27P12

PILOT PRO automatic double chamber compression machine, 15/300 kN cap. for compression and flexure tests on cement/mortar prisms 40x40x160mm. Conforming to EN 196-1, 1015-11. - High-stiffness 4-welded-columns frame - High accuracy load cells for load measurement - Incorporating load devices: 40x40mm platens and flexural jig - PILOT PRO automatic control system - PID Closed loop control of the load rate - High control and data sampling frequency: 250 Hz- Variable speed permanent magnet DC motor for superior performances at low load rates and low load values - 5.1", 800 x 480 pixels, 16 M colors, icon-driven capacitive sensing touchscreen graphic display - RS232 serial port for data transmission (including load/time values for graph plot) in ASCII format - USB port for data storage, export to PC and firmware upgrade - Ethernet port for PC / Internet /network Communication - Integrated printer available on request - 8 GB Internal permanent memory on SD card - 524000 points high-resolution/stability channels- Dayligths: horizontal 220mm, vertical 50/50mm - Piston travel 30/50mm - Limit switch preventing piston overtravel - Load measurement accuracy: class 1 to EN 12390-4 /class A to ASTM E74 starting from 30kN for 300 kN chamber and from 1.5kN for 15kN chamber. Special calibration from 3kN for 300kN chamber and from 0.5kN for 15kN chamber available on request. - Supplied complete with traceable calibration certificate for load measurement accuracy - Optional transparent rigid safety guard 230V/50-60Hz/1Ph

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### 65-L27P14

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### 65-L28P12

PILOT PRO automatic double chamber compression machine, 15/300 kN cap. for compression and flexure tests on cement, mortar, resin and other materials. 230 V, 50-60 Hz, 1 Ph

### 65-L28P14

PILOT PRO automatic double chamber compression machine, 15/300 kN cap. for compression and flexure tests on cement, mortar, resin and other materials. 110 V, 60 Hz, 1 Ph

## Accessories and consumables

### 50-C0050/HRD5

Supply of L27xxx compression machine complete with traceable certificate of hardness of testing platens surfaces (upper and bottom platen certification included). Available only for ordering with compression machine.

### 65-L0050/HRD

Supply of the machine cement machines/frames L28xxx complete with traceable certificate of hardness of testing platens surfaces (one upper and one bottom platen certification included). Available only for ordering with machine.

### 50-C0050/CAL

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

### 50-C0050/CAL5

Special calibration of load digital readout unit assuring class 1 from 5% of testing machine full scale (maximum load)

### 50-C0050/1CAL

Special calibration of load digital readout unit assuring class 1 from 0.1% of testing machine fullscale (Class 1 accuracy from 0.5 to 500 kN). Available only for C92P1x machines.

### 50-SW/DM

DATAMANAGER PC software compatible with DIGIMAX, PILOT and AUTOMAX SMART Line. Suitable for remote control of the system (AUTOMAX only), data acquisition, processing and filing. Printout of customized test certificates. LAN cable included.

### 50-Q60P/PR

Upgrading the AUTOMAX PRO and PILOT PRO series to incorporate a serial graphic printer in the rear panel allowing load/time plot.

### 65-L1000/20

Distance piece 165 mm dia. x 20 mm height.

### 65-L1000/30

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Distance piece 165 mm dia. x 30 mm height.

**65-L1000/40**

Distance piece 165 mm dia. x 40 mm height.

**65-L1000/68**

Distance piece 165 mm dia. x 68 mm height.

**50-KLAB/E**

Link-LAB Enterprise laboratory connectivity package for machines controlled by PC via DATAMANAGER Software.

**65-L0050/P**

Safety guard opening switch for L type frames and machines

**65-L1800/P**

Transparent rigid safety guard for testing frame series 65-L18xxx and 65-L58Z10.

**65-L2701/P**

Transparent rigid safety guard for testing frame series 65-L27xxx. Suitable only for models fitted with load cells

**65-L2800/P**

Transparent rigid safety guard for testing frame series 65-L28xxx.

**50-KLAB/L**

Link-LAB Local laboratory connectivity package for PILOT and AUTOMAX PRO, PRO-M machines. Note: caliper and barcode cannot be both connected on the compression machine.