

Blaine Permeability - Automatic Apparatus

“PROBABLY THE MOST ADVANCED PERMEABILIMETER IN THE WORLD”

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



AUTOBLAINE PLUS

AUTOMATIC BLAINE APPARATUS. MODEL AUTOBLAINE PLUS

Ref. 111-100440/1

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

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

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

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

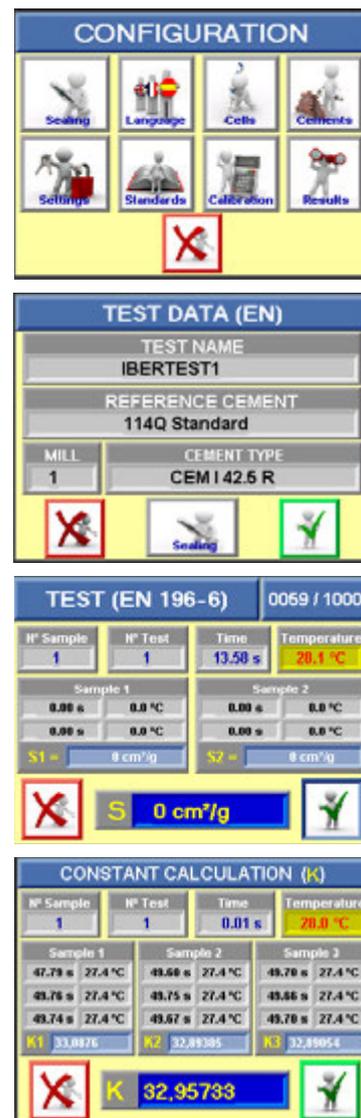
The resistance to air flow is directly proportional to the fineness of grain, as long as the same testing conditions are respected.

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

AUTOMATION

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

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



Operating menus of touch screen

OTHER ADVANTAGES

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



Touch screen 5.7" control panel

COMPRISES THE FOLLOWING ELEMENTS:

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



AUTOBLAINE PLUS connected to PC via WinPerm64

ACCESORIES AND SPARE PARTS

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



210-103564



Elements included in the standard supply

Specifications - AUTOBLAINE PLUS

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

AUTOBLAINE PLUS - Winperm64

Standards EN 196-6, ASTM C204

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

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

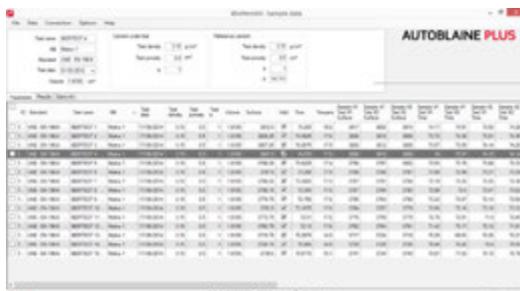
STRONG POINTS AND ADVANTAGES

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

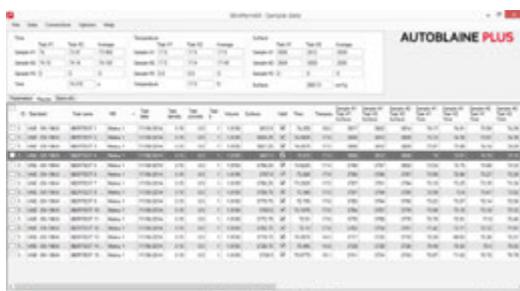
- Easy acquisition of results and test parameters.
- Non limited results storage.
- Friendly test management: user can filter and categorize according to user criteria.
- Automatic report generation (i.e. .pdf or printing formats).
- Possibility of communication with other commercial applications and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

ACQUISITION AND PERFORMANCE MANAGEMENT

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



Data of samples



Results



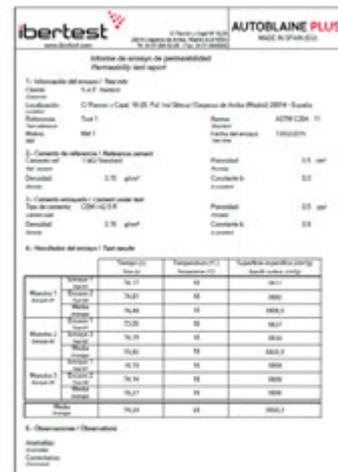
Additional information



Software WinPerm64

REPORT GENERATION

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



Report example ASTM C204



Report example EN 196-6