TESTMAK
MATERIAL TEST EQUIPMENTS

AUTOMATIC BLAINE TEST MACHINE

This automatic microprocessor controlled automatic Blaine Air Permeability Apparatus is equipped with an automatic airproof device.
The apparatus consists of a at enclosure with a manometer column and with 4 components stainless steel measuring cell.
Depending to the cement porosity and its density, the equipment automatically calculates the mass that to be tested and determines the constant K according to standard cement, records the test results with the possibility to elaborate an average value of di erent tests.

- RS 232 port.
- The de ning of nal Blaine value is automatically given by the apparatus.
- Supplied complete with accessories & Software

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Koca Sinan Ind. Sites 1183 Street No: 40 Ostim - Ankara / TURKEY
www.testmak.com - info@testmak.com
Tel : +90 312 395 36 42 - Fax: +90 312 395 36 43

GENERAL INFORMATION

The purpose of this experiment, the time that the constant amount of air from a compressed cement bed by monitoring now is the presence of speci c surface of the cement. The bigger the cement ground cement surface means so thin. This test method is a method of comparison rather than absolute. Therefore, the device must be calibrated with a sample of known speci c surface.

SPECIFICATIONS

- 4,3 Inch Color Touchscreen
- Device Has Mini Vacumme Pump.
- 3 No Foto Electrical Sensor
- Calculate Sample Mass On Display
- Language Turkish And English
- 100 No Test Save On Data
- Automatic Push A Start Button
- Device Have a Ptc Sensor And Saving Temperature On The Test
- User Can Select Sample And Test Not On The Machine.
- Device Power 220 Volt 50 Hz
- Weight 15 Kg
- With Device inculude
- Sample Cell 1 No
- Disk 1 mm Thicknes And 31 Hole 1 Qty
- Piston 1 Qty
- Thin Rule Brush
- Manometre Liquid 100 ml
- Small Funnel
- Filter Peaper

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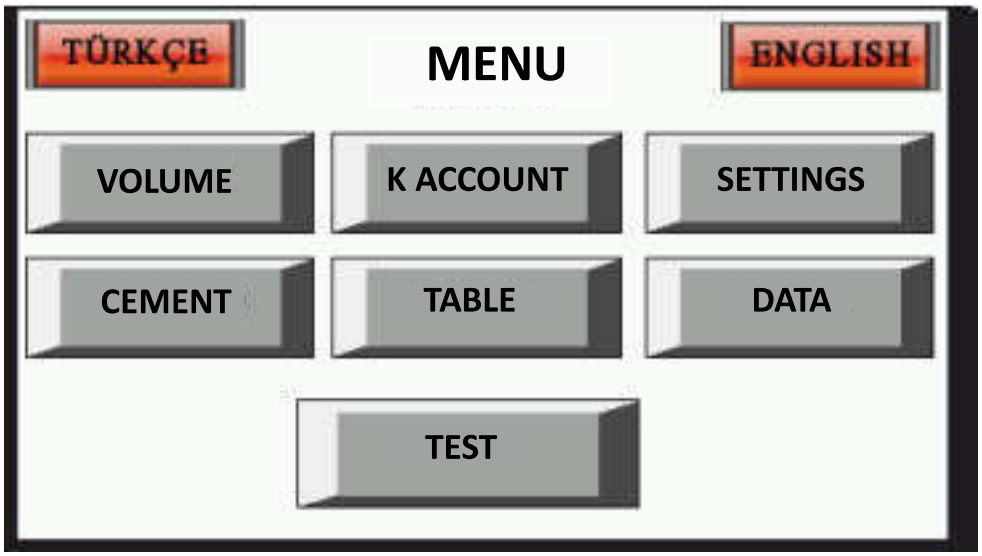
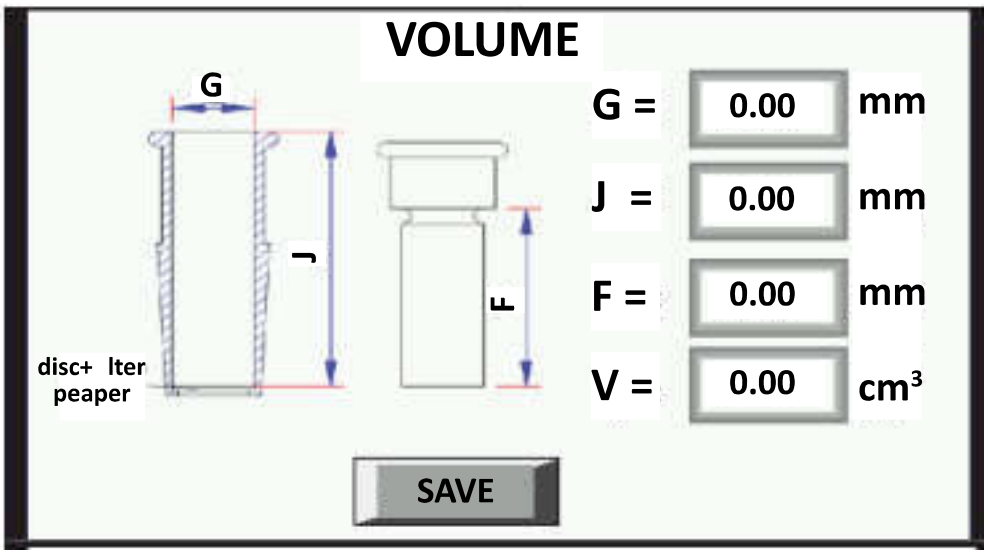
DIGITAL TOUCH SCREEN DISPLAY



Main Scren



Volume Menu

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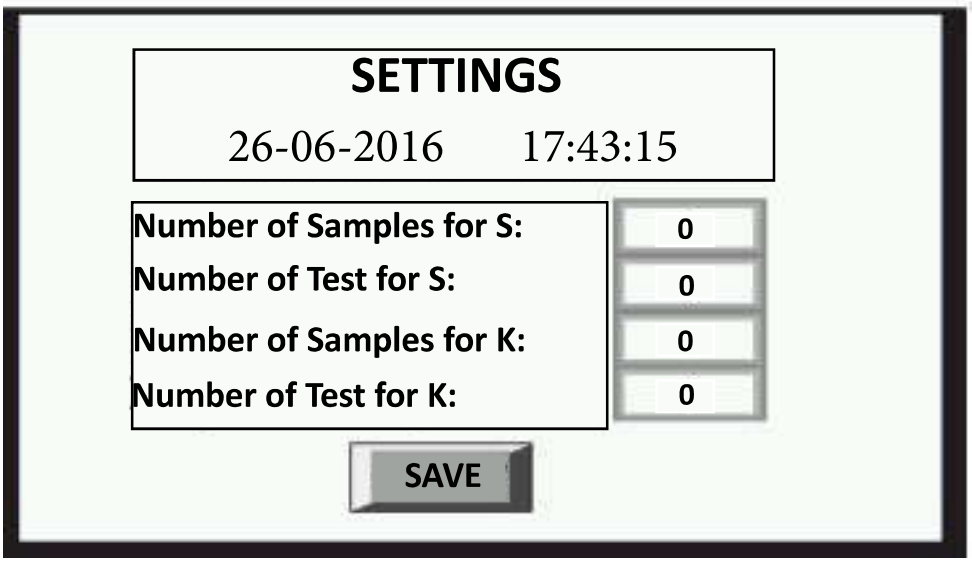
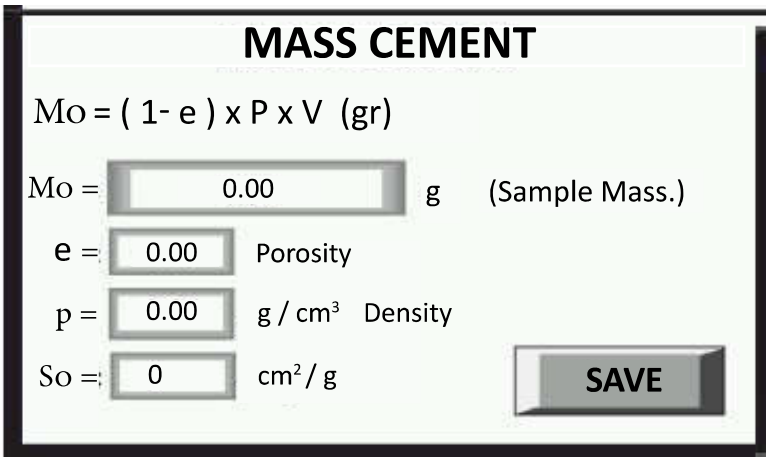


Settings Menu



Cement Menu

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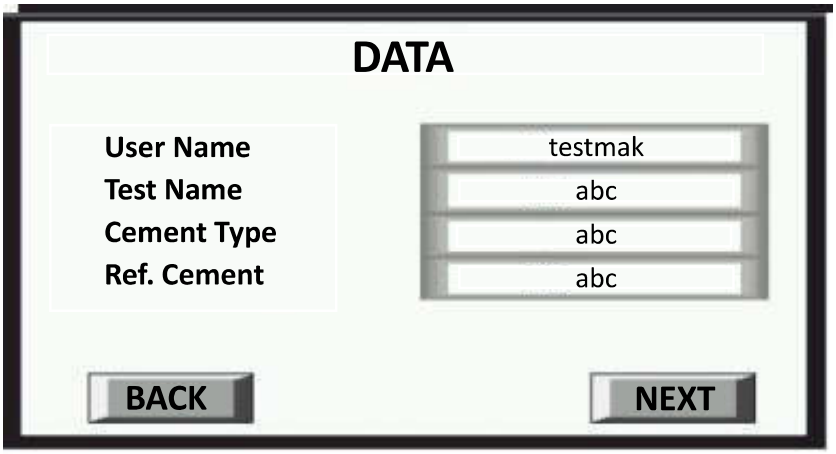

Data Menu

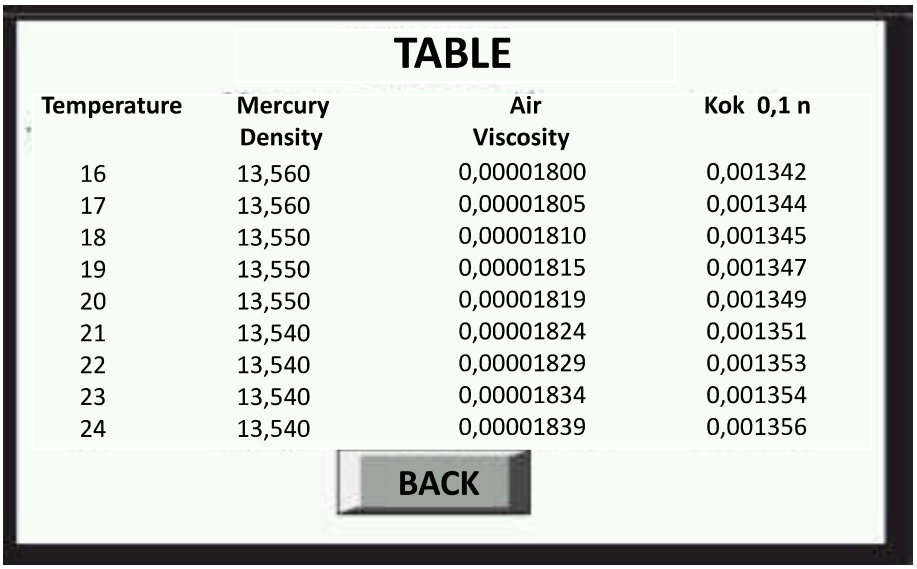

Table Menu

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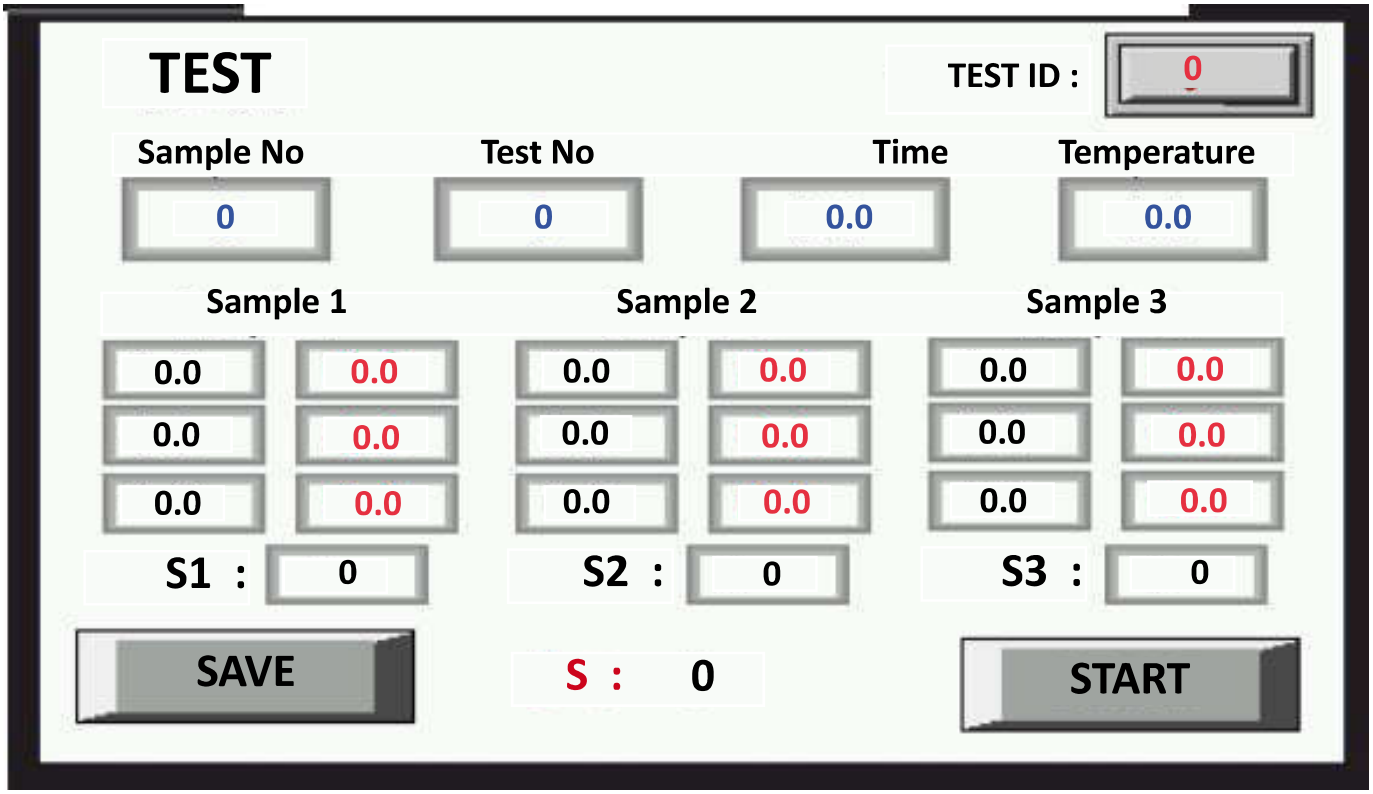

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TEST PREPARATION OF THE DEVICE

Buyer should check after receiving the product. If There are missing or broken part, should contact with supplier. The device is working with a 220 Volt city mains.

GAUGE FILLING FLUID.

PREPARATION AND MEASURING CELL

Cell diameter (S) and Cell size (J) is measured with a digital caliper and recorded. When calculating the length should be placed perforated discs and 2 lter paper into the cell. Piston size (F) is measured and recorded menu. And the device is calculating volume of the sample's bed.

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GREASED THE CELL AND SAMPLE WEIGHT ADDING ON MACHINE

Cell surface to prevent air ow from the cell surface is lubricated with grease. Perforated disc and two pieces lter paper placed inside cells. Calculated sample weight is added into the cell. One more 1 pieces lter paper placed on and then pressure is done onto sample with by piston . And again pressure is done rotated 90 degrees.

Picture 1

Picture 2

Picture 3

Picture 4

NOTE: Above all transactions reference cement and cement sample repeat the same way.

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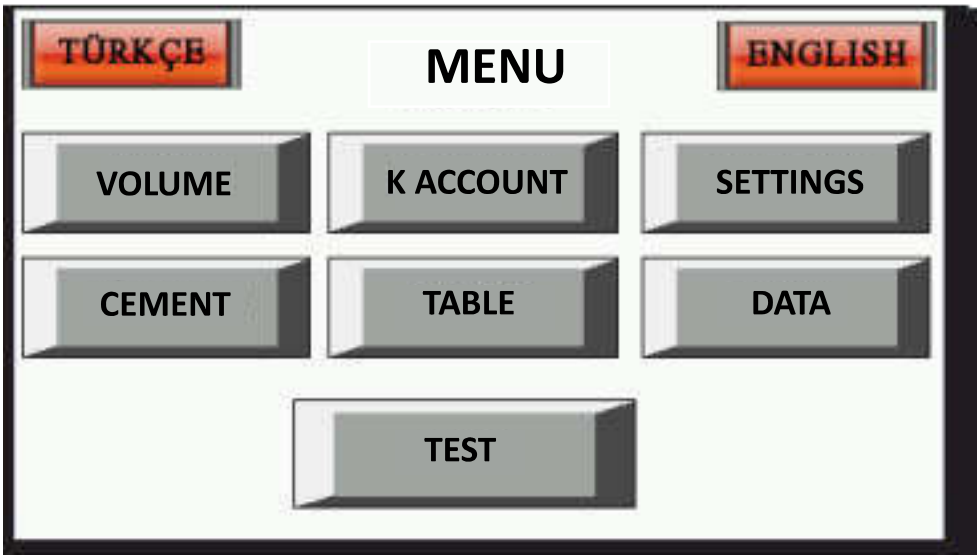
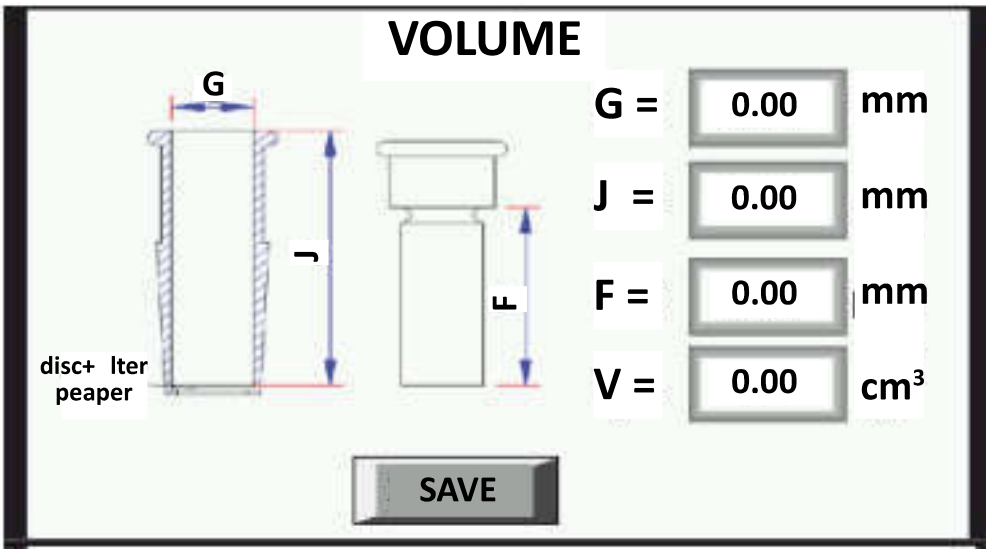
USE OF MENU



VOLUME

After entering dimensions into this section, calculating the volume of the sample bed.



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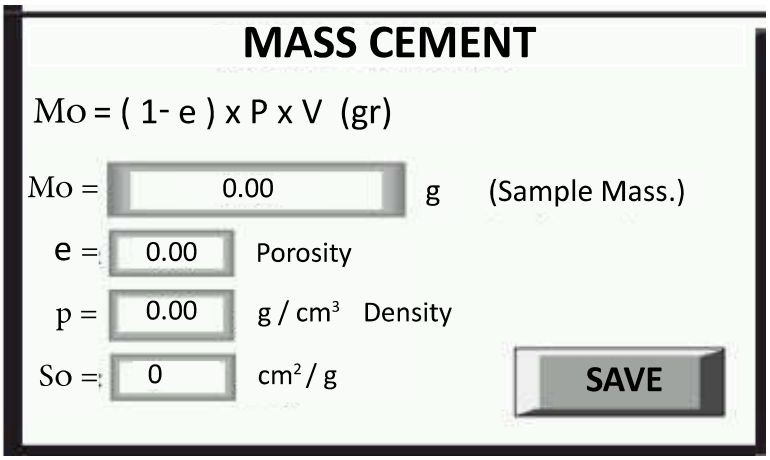
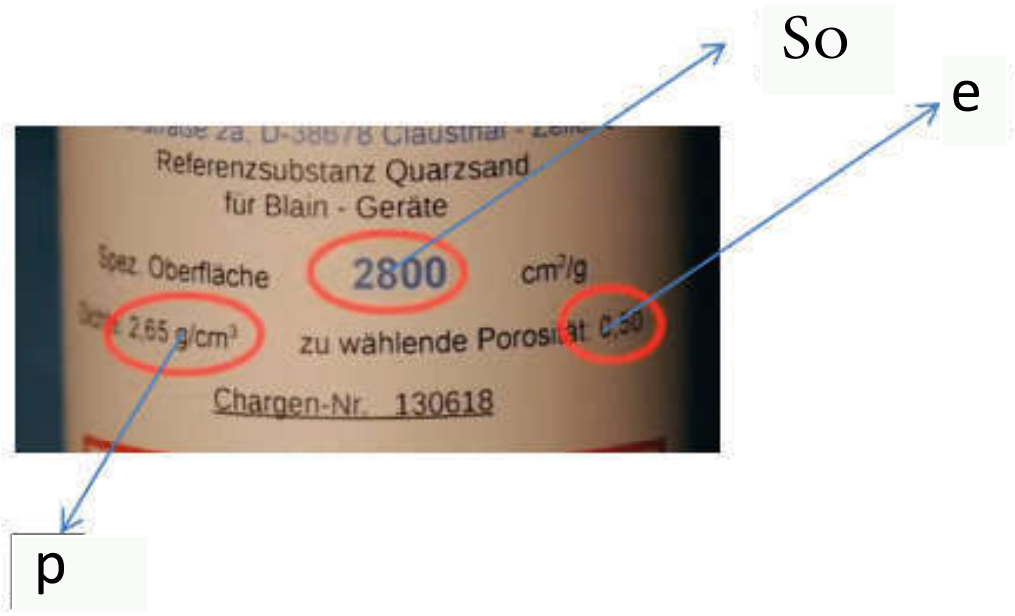
WEIGHT

The sample to be tested is used for calculating the weight. This part is of the entered porosity of sample (e) and density of cement (p) to for nd the sample weight.



Cement Menu

- e-p-So values are reference values are located on cement.



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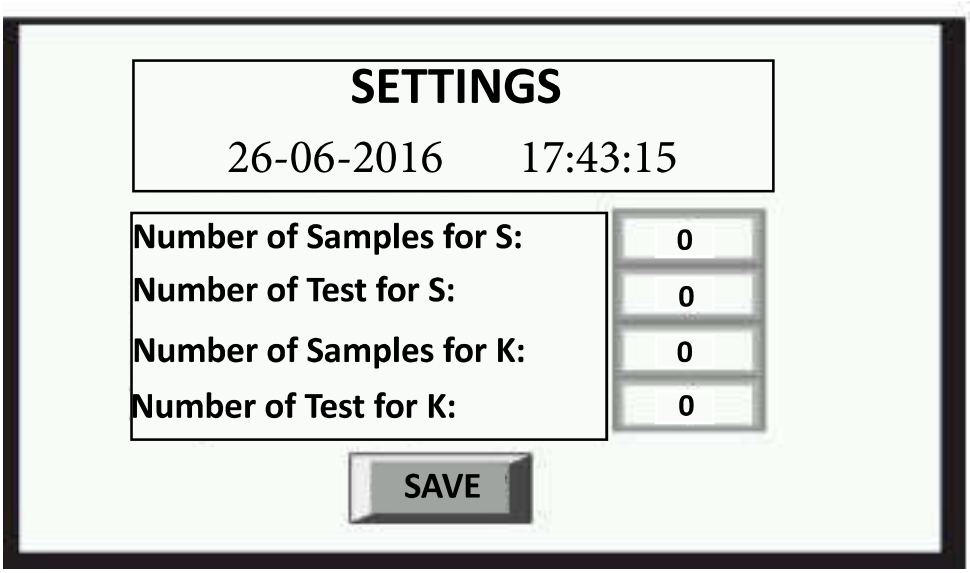
SETTINGS

This section is determines device constant k of the of the, number of test and number of test for surface permeability.
Test is do the 3 test before sample deformation and take the average of three test for best results.



Settings Menu

DATA

In this section, the user name, test number, type of cement and cement reference information will be entered into.

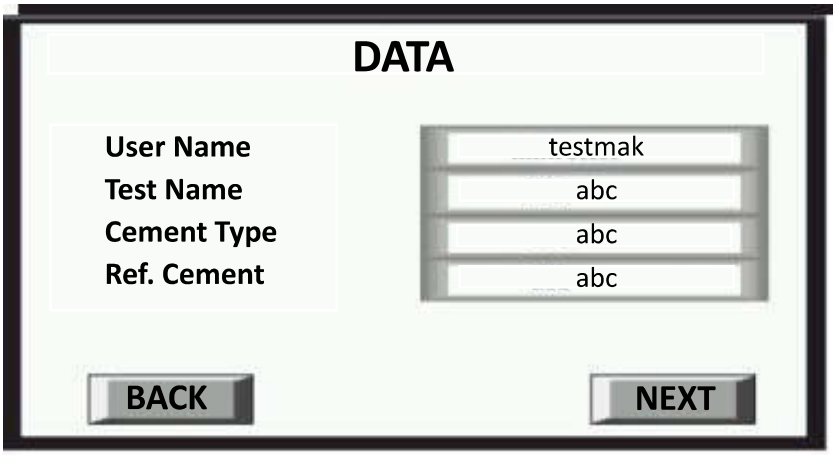


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TABLE

The following values are taken from temperature sensor inside the device. And assigned to the value of formula. Tables are for informational purposes.

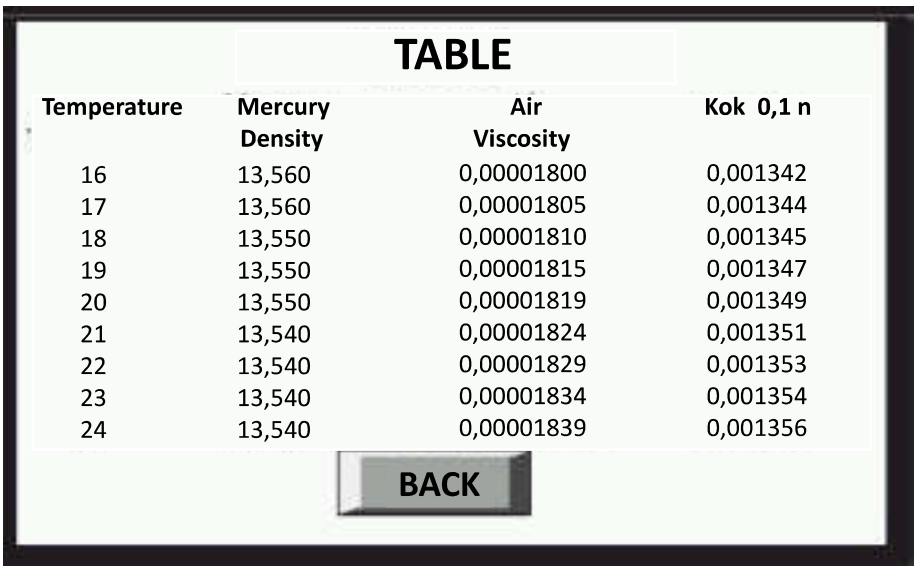

Table Menu

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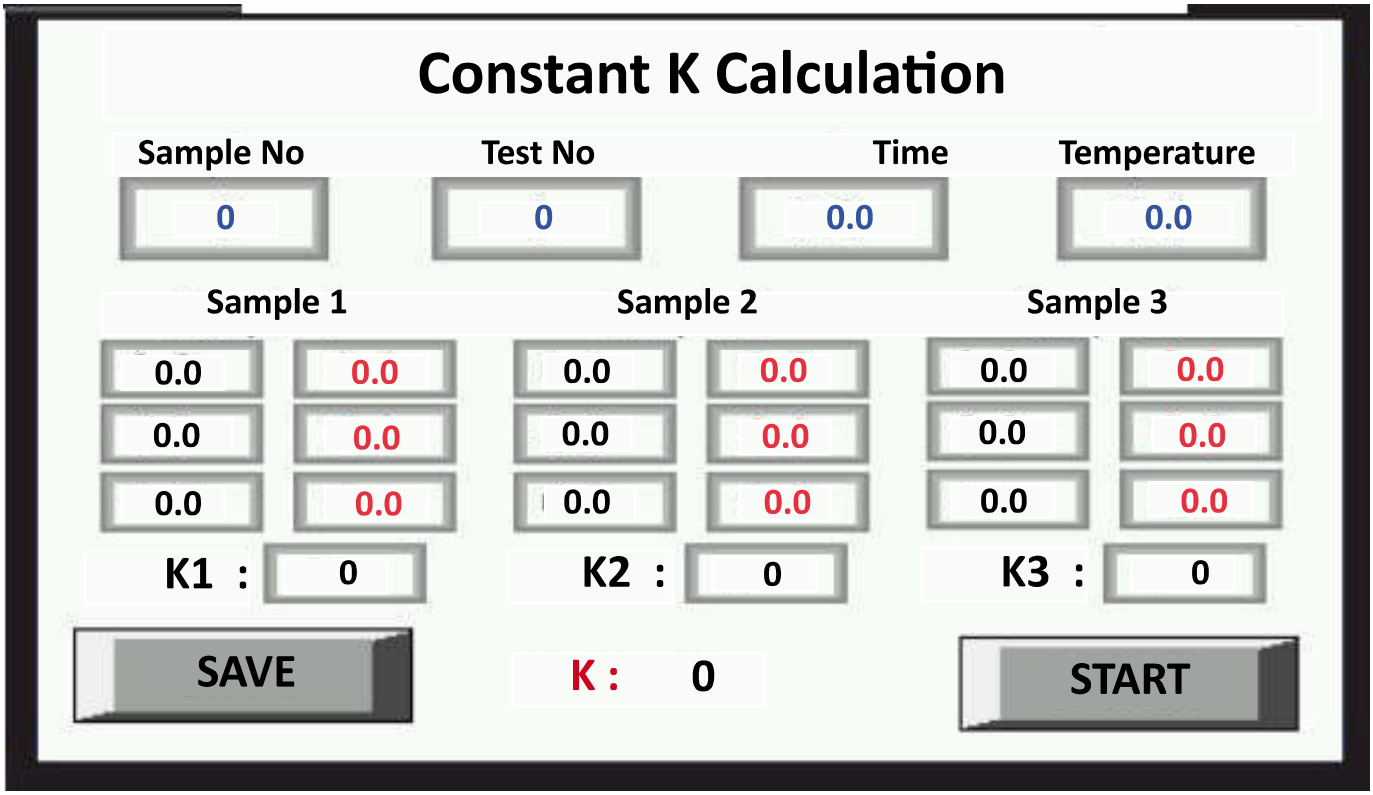
CALCULATION OF THE DEVICE K CONSTANT

K constant is will be constant for which is used reference cement.

1- When a new gauge connect to the device.
2- After changed hydraulic oil in manometer.

K constant must be recalculated when a di erent reference cement used. Otherwise, In the tests to be performed recently k constant is used.



$$K = \frac{S_o \rho_o (1-e)\sqrt{0,1\eta_o}}{\sqrt{e^3}\sqrt{t_o}}$$

S_o = Speci c surface of the reference cement. (cm^2 / g)
ρ_o = The density of the reference cement. (g / cm^3)
t_o = The average of the three measured time. (s)
η_o = Air vizikosite in three average temperature. (Pa.s) (Table 1)

If Porosity e = 0,500

$$K = 1,414\, S_o \rho_o \frac{\sqrt{0,1\ \eta_o}}{\sqrt{t_o}}$$

The average of three K values is taken as K constant of the device.

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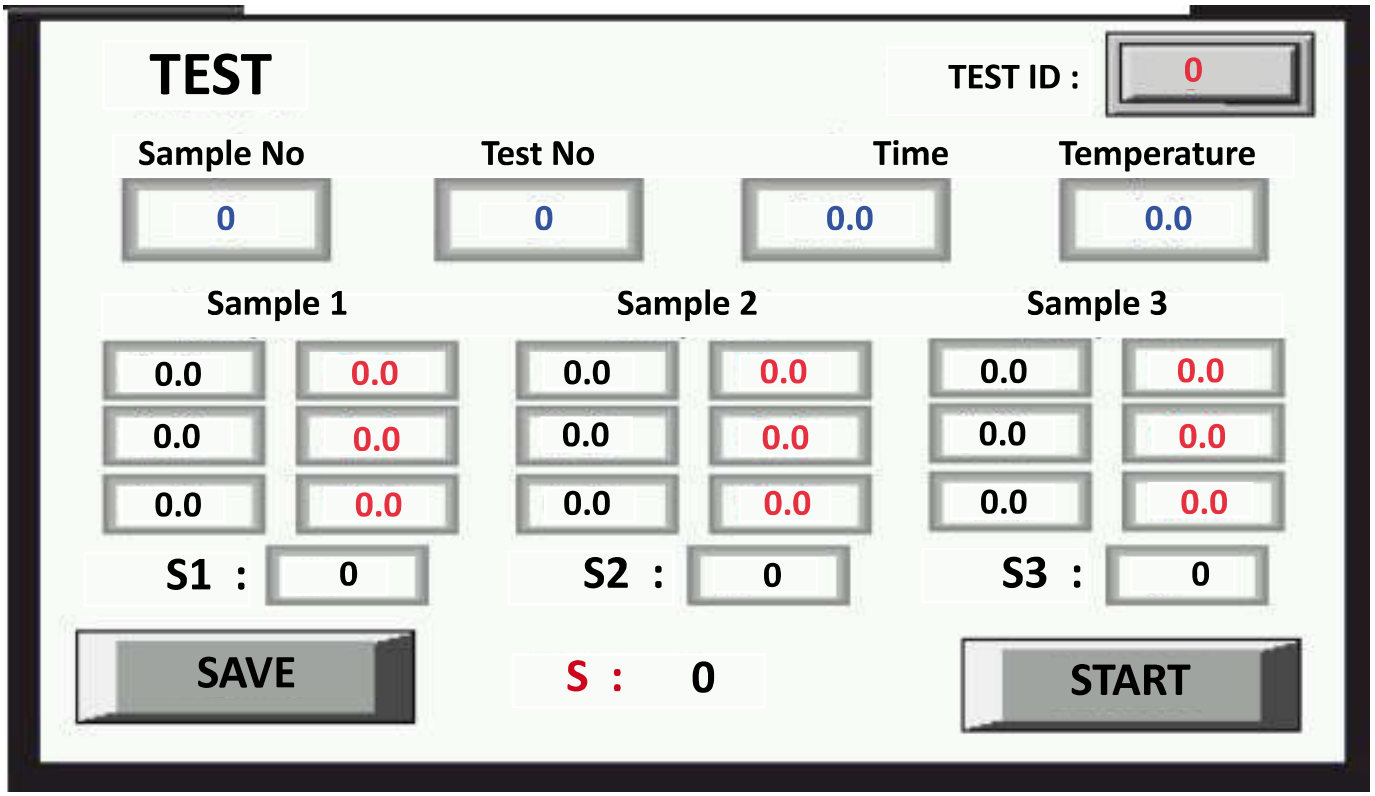
SZUTEST

TEST

As in reference cement, surface permeability is calculated from by device with following formula. And s is automatically calculated.



Assay speci c surface and S of the cement made is calculated by the following formula.

$$S = \frac{\rho_o}{\rho} \times \frac{(1 - e_o)}{(1-e)} \times \frac{\sqrt{e^3}}{\sqrt{e_o^3}} \times \frac{\sqrt{0,1\,\eta_o}}{\sqrt{0,1\,\eta}} \times \frac{\sqrt{t}}{\sqrt{t_o}} \times S_o \qquad (cm^2 / g)$$

So= Speci c surface of the reference cement. (cm^2 / g)
e = Porosity of to be made of the testing cement.
e_o = Porosity of the reference cement.
t = Measured when testing for ne cement. (s)
t_o = The average of the three measured time of the reference cement. (s)
p = Three times the average of the measured reference cement.
p_o = The density of to be made of the testing cement. (g / cm^3)
n = The density of the reference cement. (g / cm^3)
n_o = Air vizikosite in three average temperature. (Pa.s) (Table 1)
= The average of the three measured time. (s)

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