TESTMAK
MATERIAL TEST EQUIPMENTS

Automatic Blaine Test Apparatus

CEMENT

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Automatic Blaine Test Apparatus

PRODUCT MODEL

M2460	Automatic Blaine Test Apparatus, 220-240V 50/60 Hz
M2460/110	Automatic Blaine Test Apparatus, 110 V 60 Hz
M2460/02	Manomater U Shaped for Blaine Apparatus

PRODUCT STANDARDS

Standards	ASTM C204 | AASHTO 153 | EN 196-6

INFORMATION

Manufacturer	TESTMAK INS.LAB.MAK.SAN.VE TİC. PAZ. ITH. IHR. LTD. STI
Country of Origin	TURKEY
Product Name	Automatic Blaine Test Apparatus

Automatic Blaine Test Apparatus

DESCRIPTION

The Automatic Blaine Test Apparatus is microprocessor-controlled analyzer for measurement of the specific surface (Blaine value) of powders. This device operates with 2 or 4 measuring cells. After entry of test-specific sample data into the controller, the test is completely automatically carried out and evaluated. The device has an interface for a generally commercially available printer.

Automatic Blaine Apparatus is supplied complete with;

- Fill oil
- Syringe with tube
- Tamper
- 10 pcs. dust filter (Ø13mm)
- 500 pcs. round filter paper (Ø 41mm)

TECHNICAL SPECIFICATIONS

P. Code	M2460
Dimensions(mm)	260x400x450 mm
Weight (kg)	11 kg

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 specific 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 specific surface.

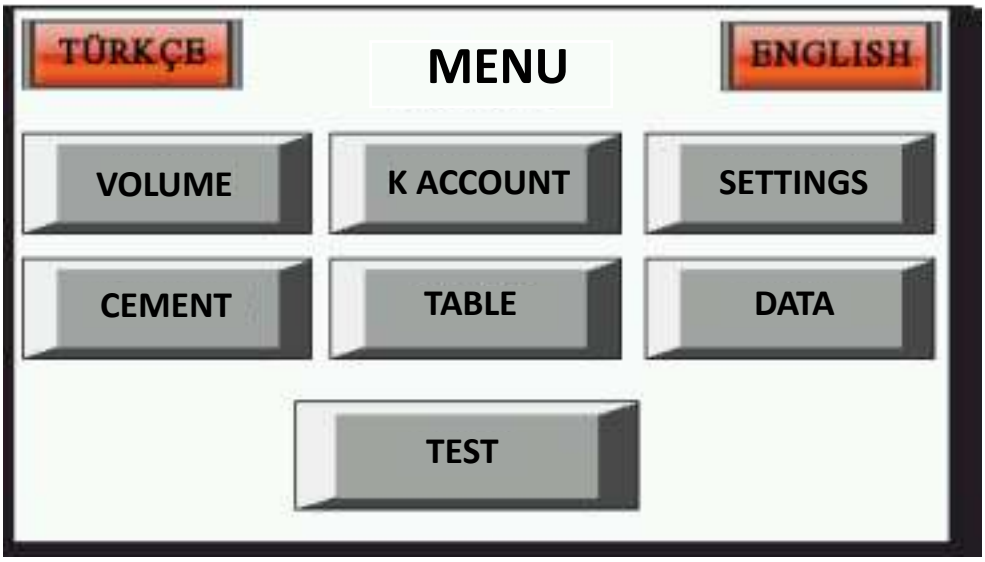
SPECIFICATIONS

- 4,3 Inch Color Touchscreen
- Device Has Mini Vacumme Pump.
- 3 No Foto Electrical Sensor
- Calculate Sample Mass On Display
- Language Turkish And English

Automatic Blaine Test Apparatus

- 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

TOUCH SCREEN DISPLAY



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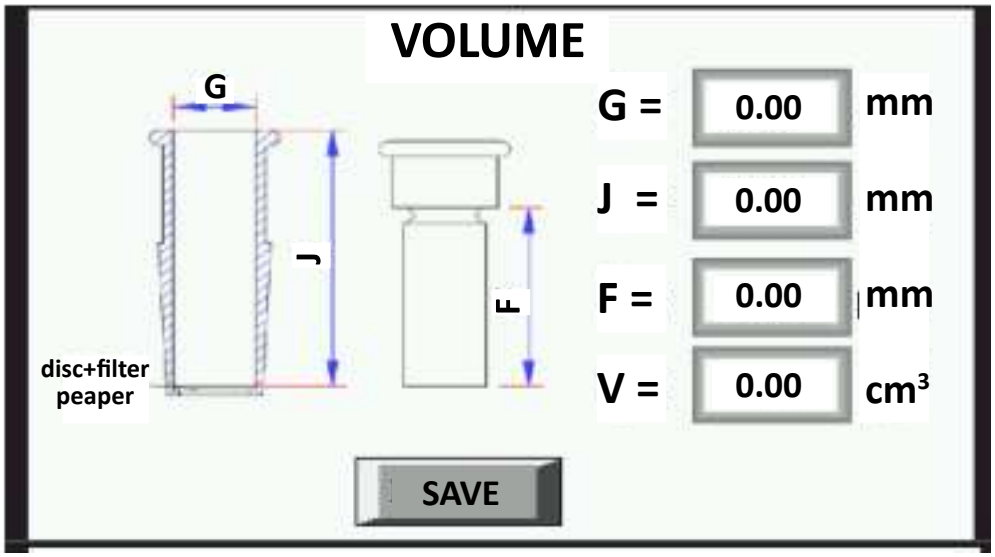
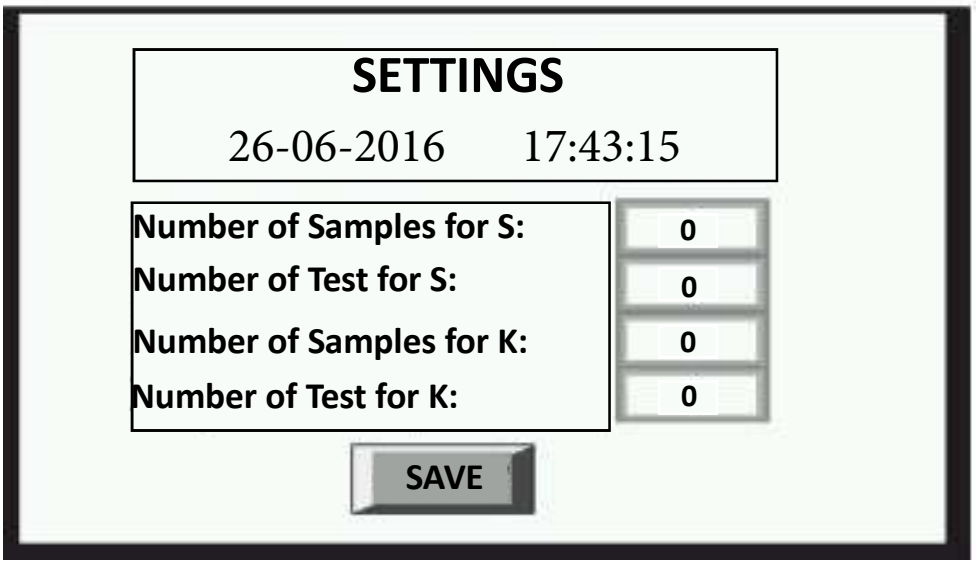


Volume Menu



Settings Menu

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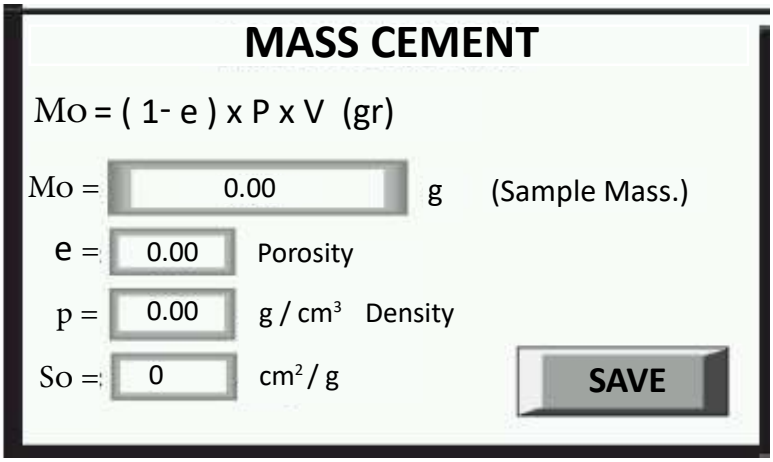
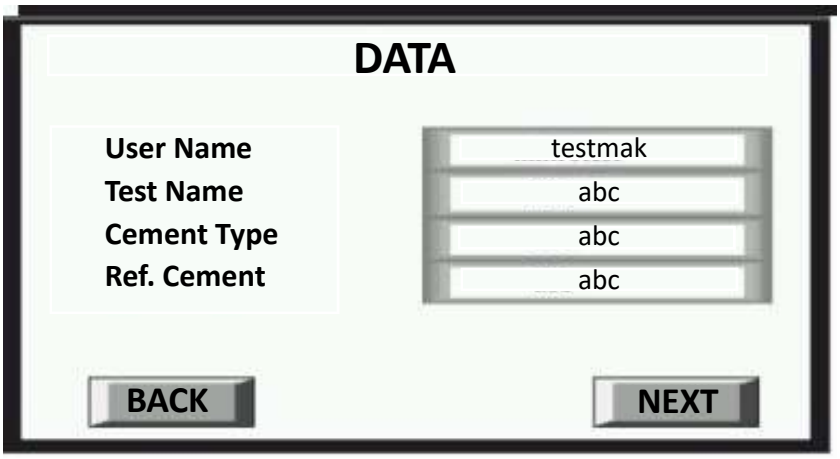
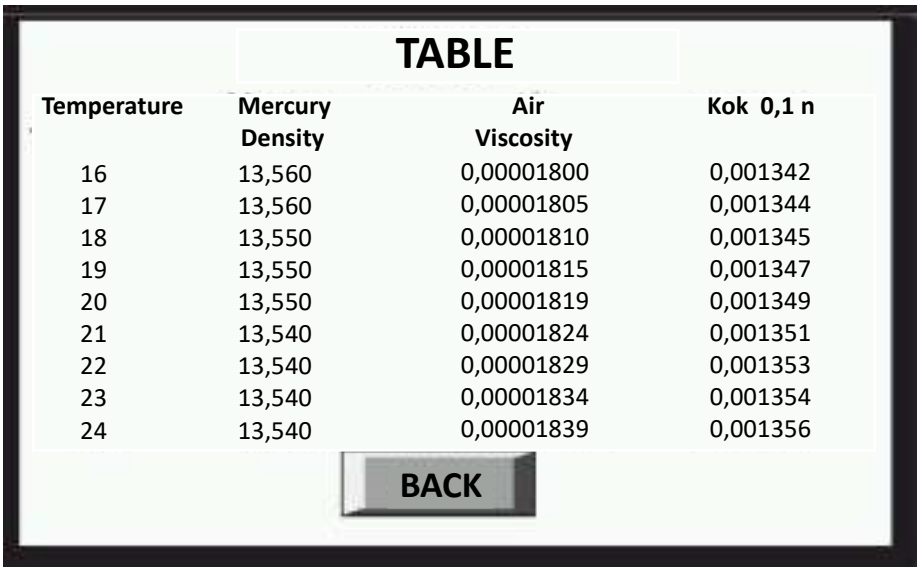


Cement Menu



Data Menu



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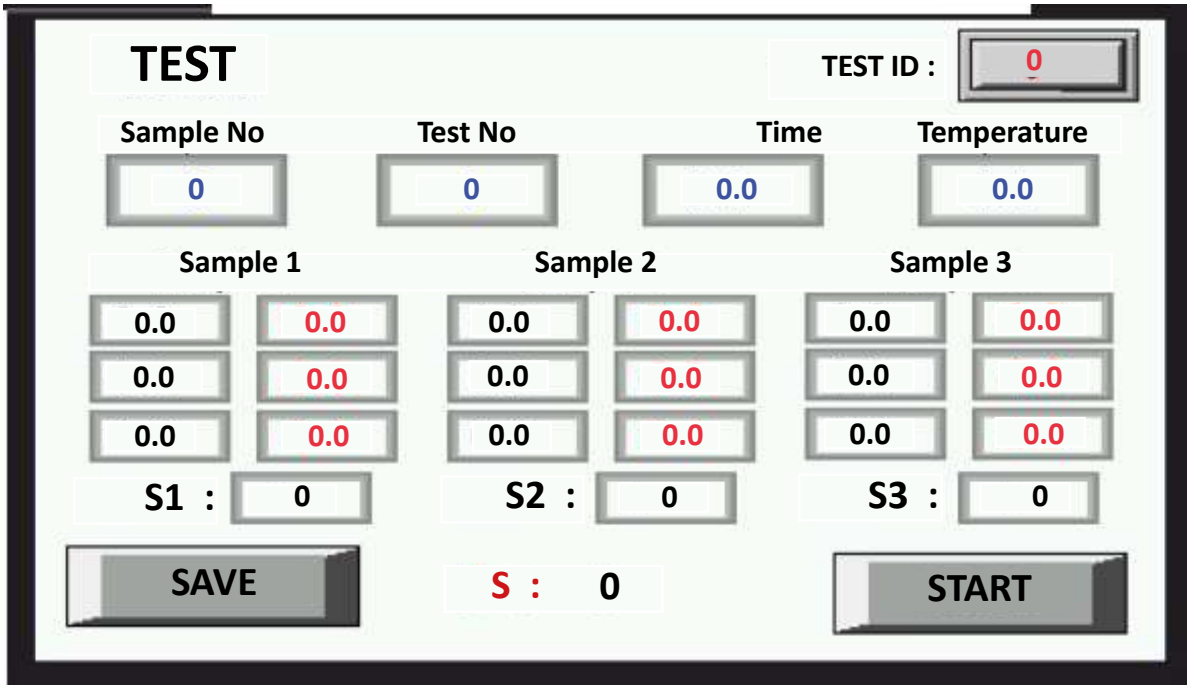
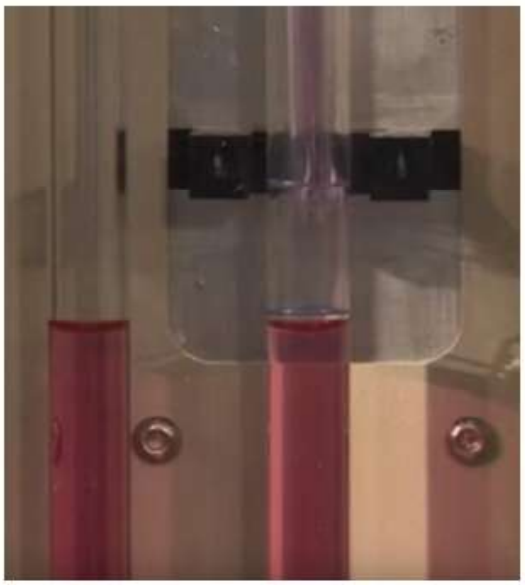


TEST PREPARATION OF THE DEVICE

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.



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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 filter paper into the cell. Piston size (F) is measured and recorded menu. And the device is calculating volume of the sample's bed.



GREASED THE CELL AND SAMPLE WEIGHT ADDING ON MACHINE

Cell surface to prevent air flow from the cell surface is lubricated with grease. Perforated disc and two pieces filter paper placed inside cells. Calculated sample weight is added into the cell. One more 1 pieces filter 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

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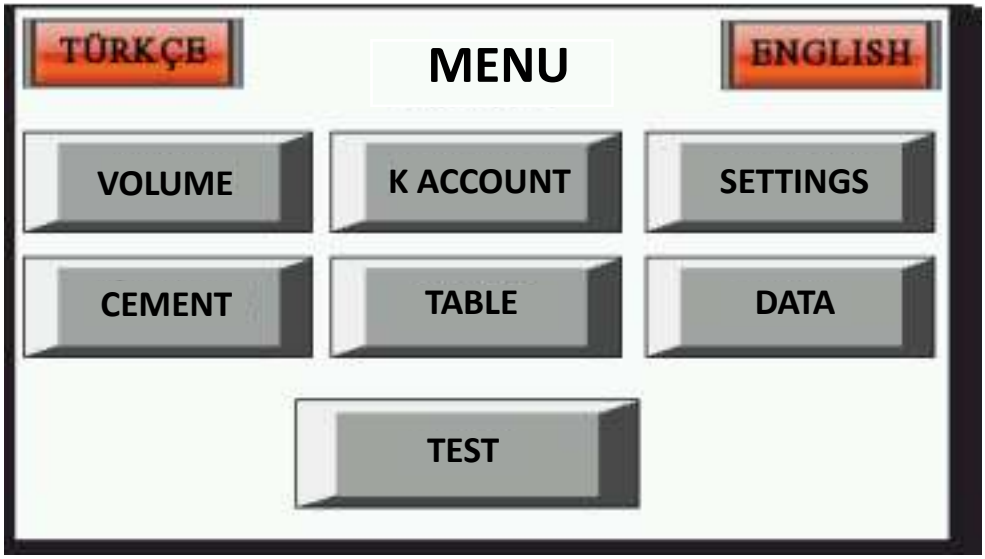
Picture 3

Picture 4

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

USE OF MENU



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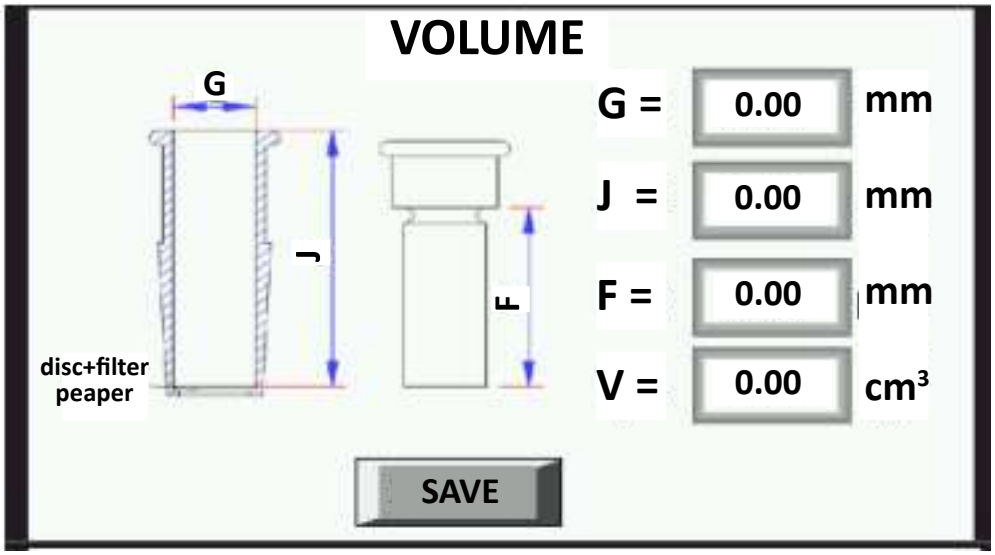
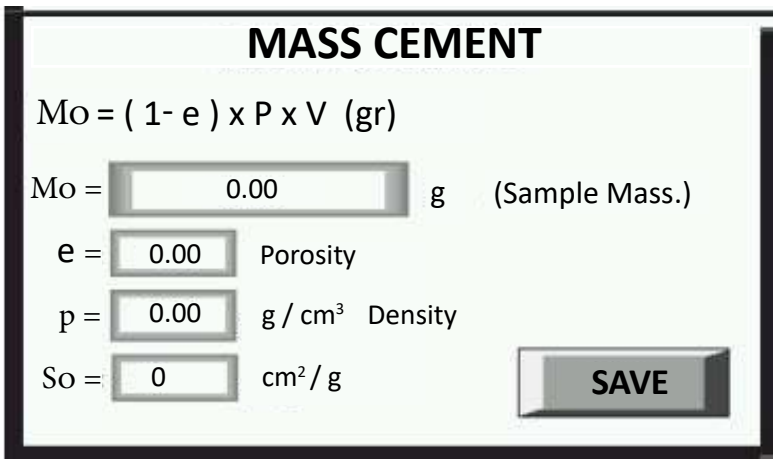
VOLUME

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



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 find the sample weight.



Cement Menu

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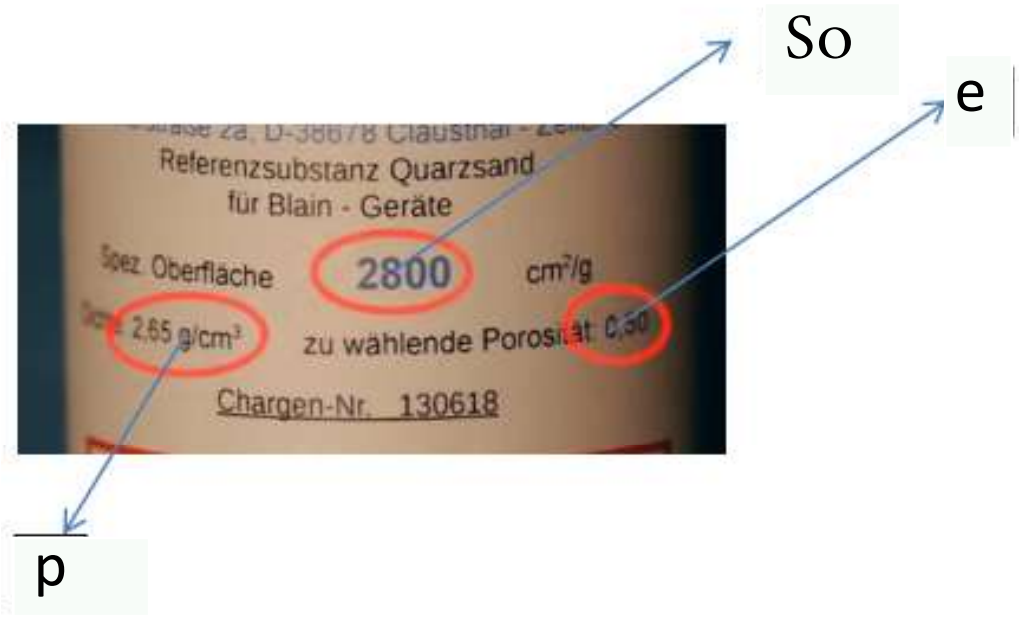
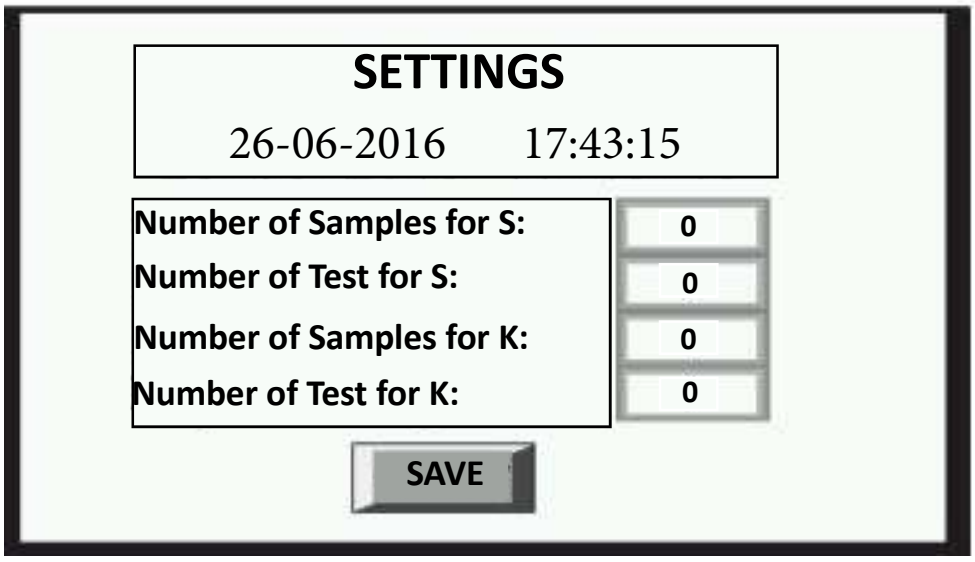
- e-p-So values are reference values are located on cement.



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

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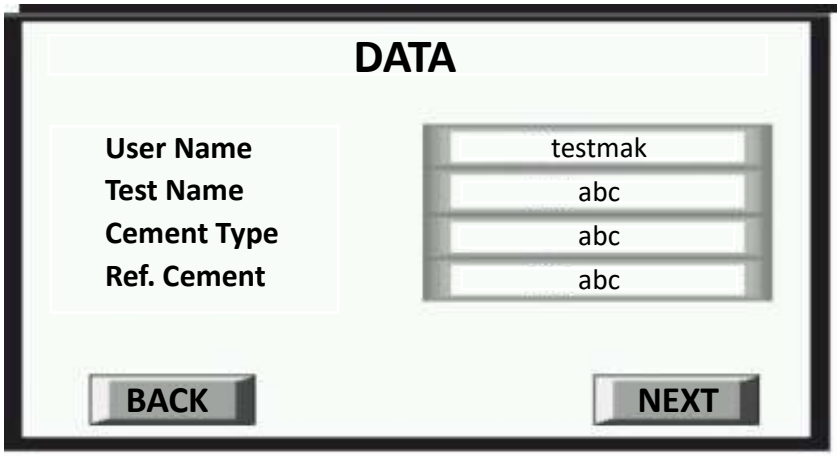
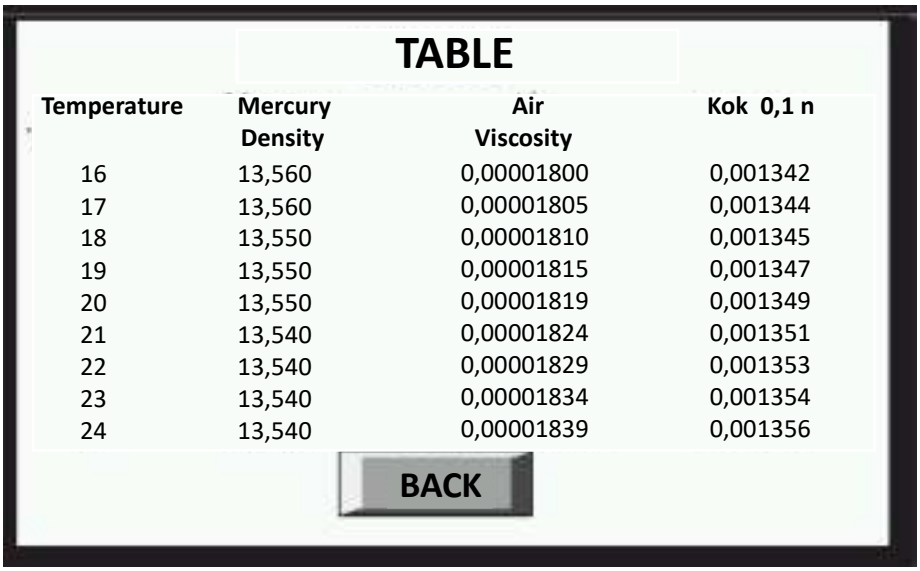
DATA

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



TABLE

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



Temperature	Mercury Density	Air Viscosity	Kok 0,1 n
16	13,560	0,00001800	0,001342
17	13,560	0,00001805	0,001344
18	13,550	0,00001810	0,001345
19	13,550	0,00001815	0,001347
20	13,550	0,00001819	0,001349
21	13,540	0,00001824	0,001351
22	13,540	0,00001829	0,001353
23	13,540	0,00001834	0,001354
24	13,540	0,00001839	0,001356

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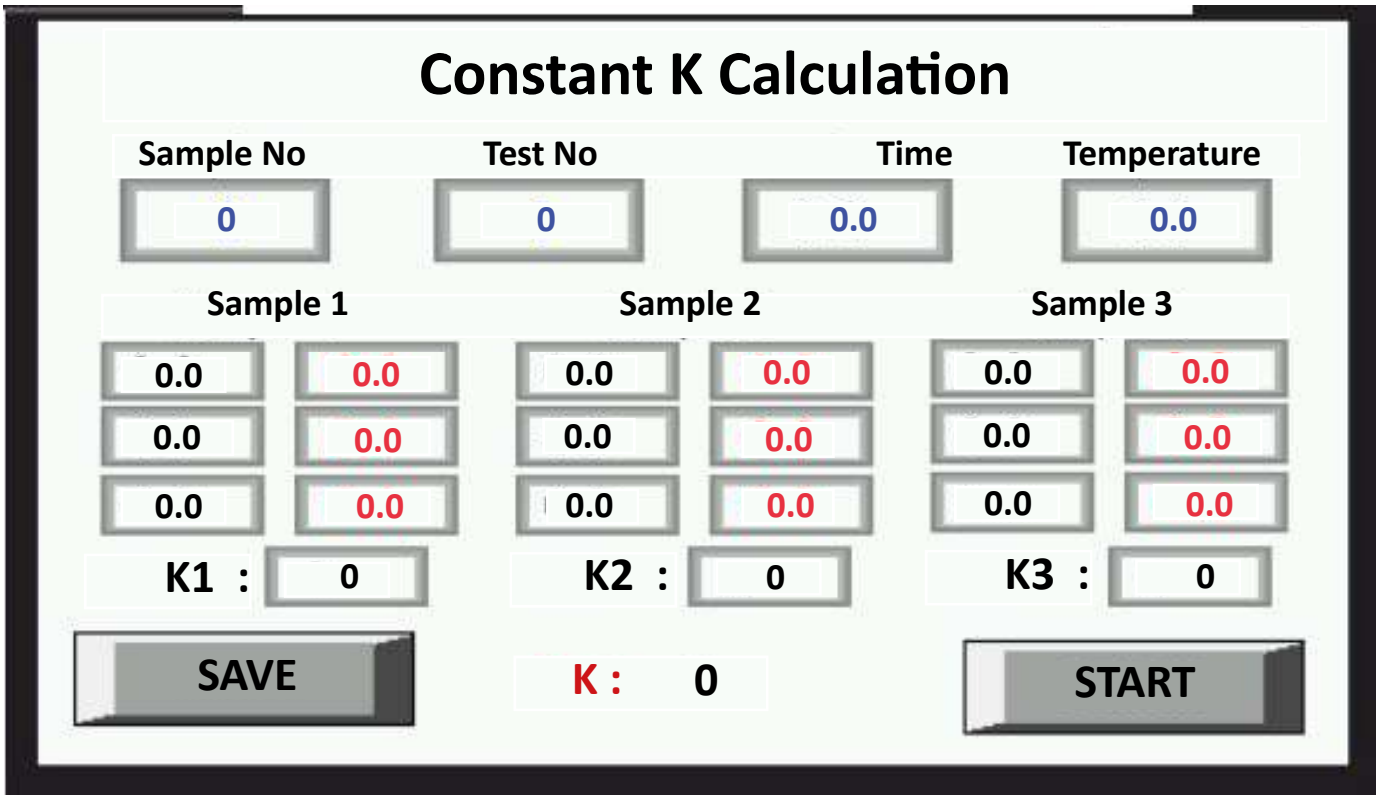
CALCULATION OF THE DEVICE K CONSTANT

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 different 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 = Specific 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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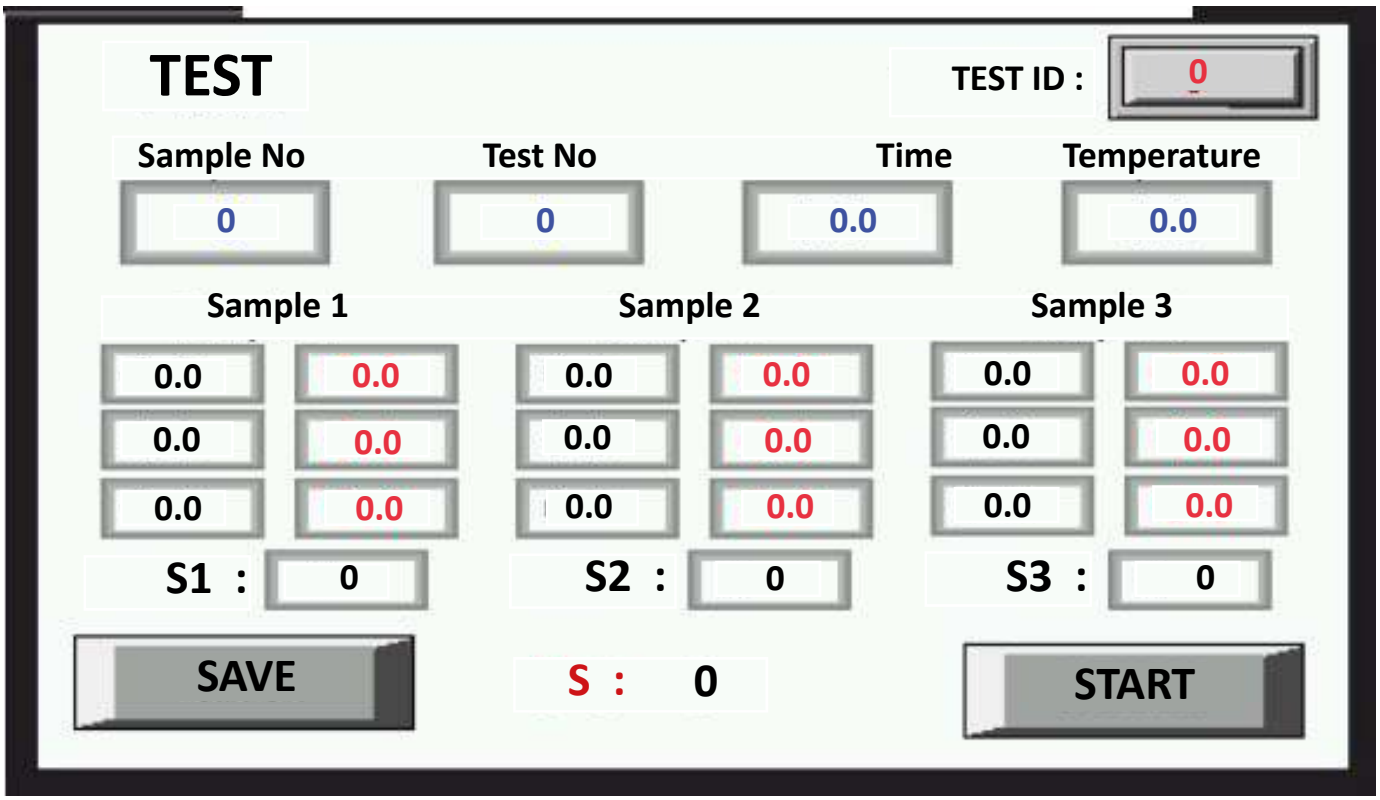
TEST

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



Assay specific 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= Specific 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 fine 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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