Lab, Research & QC Equipment

INSTRUCTION MANUAL

AUTOMATIC DIGITAL PENETROMETER

MANUAL CODE

02.059

Do not attempt to operate this equipment before reading

and comprehending the manual in all its parts

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GENERAL INDEX

In order to increase product quality, machine technical specifications may be changed without telling beforehand. The photos in the user manual are representative photos. So, they may not be as completely same as with your machine.

CHAPTER 1	DESCRIPTION

The 02.059 Automatic Digital Bitumen Penetrometer is used to determine the penetration of bituminous samples under constant load, time and temperature. The Penetrometer consists of a cast iron base with coarse and fine levelling screws, a digital penetration measurement gauge 0.001 mm readability and a penetration timer unit Start button of the penetration timer unit is used to release the plunger fitted with the needle to start the 5 seconds test.

A water bath (25±0,10C) and a thermometer (IP38, ASTM 17C or 63C) required for the test are ordered separately.

The instrument measures the penetration of bitumen according to EN 1426; AASHTO T49; ASTM D5;

MAIN FEATURES:

- Automatic test.
- Electro-magnetic needle probe release to perform the test.
- Automatic zero set in any position (Zero button)
- Penetration measurement thanks to a high-tech contactless displacement transducer with 0.001 mm resolution, in a range of 0 - 50 mm.
- Touch screen display equipped with an user friendly software and clear interface.
- Motorized approach of the needle. (with 2 speeds, Slow and Fast)
- Test temperature control by PT-100 sensor with 0.1°C resolution.
- Display of penetration value, real time and test temperature.
- Motorized return of the needle.
- LAN port for PC connection.
- Supplied complete with PENETRATION NEEDLE, TRANSFER DISH, LED, MAGNIFYING GLASS, PT-100 SENSOR, WEIGHT, SAMPLE CUP, CABLE and MANUAL.
- Electric supply: 220V-50/60Hz-1Ph

The destination of use of this machine must be strictly adhered to, any other use must be considered improper. The manufacturer will not be held responsible for damage caused by incorrect use of the machine. The machine must not be tampered with for any reason. In case of tampering the manufacturer declines any responsibility on the functioning and safety of the machine. The model equipped with touch screen unit control device is protected by a safety fuse. However, it is necessary to connect the apparatus to a suitable power supply having safety protection according to the related standards.

CHAPTER 2	THECNICAL SPECIFICATIONS

Power supply. 230V 1 ph 50 Hz
Dimensions: 340 x 400 x 600 mm
Temperature : 5˚C - 40˚C
Weight : 25 kg

CHAPTER 3	OPERATION

- Gently heat the bitumen to be tested, stirring to prevent local overheating. Do not heat to a temperature higher than 90°C above its softening point for bitumen, or 60°C above for tar pitch. Do not heat for more than 30 minutes.
- Pour the sample into a clean, dry sample container until it is full.
- Protect the sample from dust, e.g. by up-ending a beaker over it, and allow to cool for approx. 1 to 1½ hours.
- Place the sample container in the "transfer dish" and place into a water bath (with the water completely covering it and the sample) at 25°C. Leave for approx. 1½ hours.
- As an alternative to an ordinary water bath, a precision device which circulates water at 25°C through the transfer dish is recommended.
- Loosen the bottom screw from the spindle and mount the penetration needle
- Level the base using the level screws.
- Turn on the machine.
- Clean the needle with solvent; dry with a clean cloth.
- Place the transfer dish from the water bath and place it on the penetrometer base.
- Connect the PT-100 to the transfer dish to control the test temperature
- Using the DOWN button on the control panel, lower the penetration group until the penetration needle is 2- 3 mm. above the specimen surface. Use the fine adjustment (SLOW button) to place the needle just in contact with the specimen (without penetrating the surface).
- You can use a magnifying glass and lights for easy adjustment of the needle.
- Before starting the test, touch ZERO key to reset.
- Press START button on the control panel. The needle piston is released electromagnetically for exactly 5 seconds.
- Finally, you can see the result of the penetration test automatically
- Repeat the test described above and obtains three values (at least) keeping the needle more than 10 mm from the sides of the container or from other test points. Return the transfer dish to the water bath between each penetration, (unless the water is supplied to the transfer dish by the recirculation device). Report, to the nearest whole number, the average of three penetrations, whose values do not differ by more than the following table.

CHAPTER 4	MAINTENANCE

Keep the apparatus clean and very lightly lubricated. Check the weight of piston and of the supplementary weights from time to time.

CHAPTER 5	ACCESSORIES

PENETRATION NEEDLE, TRANSFER DISH, LED, MAGNIFYING GLASS, PT-100 SENSOR, WEIGHT, SAMPLE CUP, CABLE and MANUAL.

CHAPTER 6	SPARE PART

PENETRATION NEEDLE, TRANSFER DISH, WEIGHT, SAMPLE CUP.

CHAPTER 7	CUSTOMER SUPPORT

ATP technical services group is available for your technical questions. The technical service engineers are well-trained and experienced on ATP material testing equipment and should be able to answer your questions.
It is recommended to reread the related test standard such as EN, ASTM etc. if your questions are related with test procedures.