

B059M
SMARTIP
FULLY AUTOMATIC PENETROMETER


STANDARDS: EN 1426 | ASTM D5 | AASHTO T49 | ASTM D217 | BS 1377-2 | NF T66-004 | DIN 52210 | IP 49 | JIS K 2207

SMARTIP is an automatic apparatus for the determination of the needle penetration value, avoiding any possible operator lack of concentration and ensuring a reliable repeatability of the results. It is a smart instrument thanks to the latest technologies adopted, the integrated microprocessor control and the user-friendly interface.

The instrument automatically reaches the contact point before starting the test and the penetration result is measured thanks to a high performance contactless displacement transducer. SMARTIP can be implemented with the device for an automatic measurement of electrically conductive samples (model B059M-01), in order to improve the material tested range. An ultra-bright LED lamp helps the operator in checking the touching point of the needle while a stepper motor controls the vertical movement to reach exactly the desired point without any manual movement of the plunger. The needle probe is automatically released for each penetration thanks to an electromagnetic system and automatically blocked at the end of the test.

The plunger comes back at the initial position at the end of each test by a simple recall command in order to re-positioning the needle before the new measurement.

A 7" touch screen display is included in the SMARTIP frame, easy to use. It shows in real time the penetration/time graph, the test temperature and the average result according to the number of tests done. Unlimited results can be saved on USB device for preparing a laboratory report and for further analysis.

SMARTIP is supplied complete with the accessories for determination of the needle penetration according to EN 1426, ASTM D5 and AASHTO T49 standards, and USB flash drive for saving data. Thermostatically controlled water bath, chiller, temperature probe PT100, device for an automatic measurement of electrically conductive samples and mirror can be ordered separately as accessories.

MAIN FEATURES

- Fully automatic test, simply pressing the START button: approach, touch point, penetration.
- Automatic identification of the needle contact point and needle positioning, avoiding any possible operator lack of concentration and ensuring a reliable repeatability of the results.
- Electro-magnetic needle probe release to perform the test.
- Automatic zero at the contact before starting penetration.
- Penetration measurement thanks to a high-tech contactless displacement transducer with 0.01 mm resolution, in a range of 0 - 50 mm.
- 7" touch screen display equipped with an user-friendly software and clear interface.
- Real time display of penetration/time curve, average result and test temperature.


B059M-01
SMARTIP

Same as B059M but implemented with device for testing electrically conductive samples.

B059M

TECHNICAL SPECIFICATION

- Measuring range: 0 – 50 mm;
- Resolution: 0,01 mm;
- 7" touch screen display;
- Test time 5 s (adjustable from 0 to 9999 s);
- Programmable delay time: from 0 to 999 s;
- Programmable reference positions for holder assembly: 8;
- Test simultaneously displayed: up to 10;
- Connection: USB port and LAN port for PC connection;

Power supply: 110-230V 50-60Hz 1ph

Overall dimensions: 325x400x730 mm

Weight approx.: 25 Kg approx.



B058M



B058

B058-01



B058-01

ACCESSORY

B058 THERMOSTATICALLY controlled water bath.
Technical details: see p. 142

B058-01 WATER BATH DISH with incorporated thermostatic coil, to be connected to the bath mod. B058. It keeps the temperature of the bitumen sample directly on the penetrometer, by avoiding to transfer it.
Dimensions Ø 151x90 mm

B058M WATER CHILLER: 7.5 l capacity, with electronic temperature controller with ± 0.1 °C accuracy and fluid temperature range between 5 and 30°C. Suitable for chilling penetrometer water baths or temperature controlled setting time tests

- 230 V 50-60Hz 1ph
- Power consumption: 350 W
- Overall dimensions: 415x300x420 mm
- Weight: 15 kg approx.

B059M-11 TEMPERATURE PROBE, PT100: Measurement of the sample temperature in real time. It's connected with the monitor in order to show the temperature during each test, to collect the data at the end of penetration and to include the temperature data in the final reading

B057-08 THERMOMETER, IP 38C

B057-06 PENETRATION NEEDLE conforming to EN 1426 and ASTM D5, supplied with official UKAS certificate

B057-07L LONG NEEDLE hardened

B057-03 GLASS TRANSFER DISH

B056-09 PENETRATION BALL

B057-09 STANDARD PENETRATION CONE conforming to ASTM D217 and EN 13880-2



SPARES for B059M

V122-05 Sample cup 55x35 mm

V122-06 Sample cup 70x45 mm

B057-07 PENETRATION NEEDLE, individually verified

B057-04N 50 g weight

B057-05N 100 g weight

B056 KIT STANDARD DIAL PENETROMETER

STANDARDS: EN 1426 | ASTM D5 | BS 1377-2 | NF T66-004
AASHTO T49

Used to determine the consistency of a bituminous sample under fixed conditions of load, time and temperature. The penetration is expressed in distance of tenths of millimeters vertically penetrated by a standard needle. The standard penetrometer has a sturdy aluminium base table with levelling screws, plated vertical rod, **micrometric vertical adjustment device**.

The slider is brass made with free fall. The dial, graduated in 360° (division 0.1 mm), has a diameter of 150 mm.

The penetrometer is supplied with stop and release push button, automatic zero set, micrometer adjustment, set of weights 50 and 100 g penetration needle, brass sample cups Ø 55x35 mm and 70x45 mm.

Dimensions: 220x170x410 mm.

Weight: 11 kg approx.



ACCESSORIES

for B056 KIT, B057 KIT, B056-01 KIT, B056-02 KIT

V122-08 SAMPLE CUP Ø 55x40 mm, aluminium made to BS 1377-2.

B057-02 MIRROR, for an easier setting of the needle.

B057-03 TRANSFER DISH, made of glass, with support.

B057-06 PENETRATION NEEDLE HARDENED STEEL, 42.5 ± 2.5 mm long supplied with UKAS Verification Certificate.
Weight: 2.5 ± 0.05 g

B057-07 PENETRATION NEEDLE HARDENED STEEL, 42.5 ± 2.5 mm long. Each needle is individually verified with engraved serial number, and perfectly meets EN 1426 Specification. Weight: 2.5 ± 0.05 g

B057-01L LONG PENETRATION NEEDLE, not hardened, **NEW** 52.5 ± 2.5 mm. Comparable to EN, to test specimens where the penetration is expected to exceed 35 mm

B057-07L LONG PENETRATION NEEDLE HARDENED, **NEW** 52.5 ± 2.5 mm to EN 1426, to test specimens where the penetration is expected to exceed 35 mm

B057-08 THERMOMETER, IP 38C Range: +23 °C to +26 °C.
Grad. 0.1 °C

B089 THERMOMETER, EN, Range: +19 °C to +27 °C.
Grad. 0.1 °C - ASTM 17C

B057 KIT AUTOMATIC DIAL PENETROMETER

Basically structured as mod. B056 KIT but having a magnetic controller device with electronic digital programmable timer that automatically releases the plunger head and ensures free falling of the needle during the 5-seconds test.

Power supply: 230V 1ph 50-60Hz 200W

Dimensions: 220x280x410 mm

Weight: 15 kg approx.

SPARES for B056 KIT, B057 KIT, B056-01 KIT, B056-02 KIT

B057-01 Penetration needle, not hardened, 42.5 ± 2.5 mm long. Comparable to EN Spec. Weight: 2.5 ± 0.05 g

B057-04 50 g weight.

B057-05 100 g weight.

V122-05 Sample cup, brass made, Ø 55x35 mm

V122-06 Sample cup, brass made, Ø 70x45 mm



B056-01 KIT STANDARD DIGITAL PENETROMETER

STANDARDS: EN 1426 | ASTM D5 | BS 1377-2 | NF T66-004
AASHTO T49

Used to determine the consistency of a bituminous sample under fixed conditions of load, time and temperature. The penetration is expressed in distance of tenths of millimeters vertically penetrated by a standard needle. The standard penetrometer is ruggedly constructed, with an aluminium base table with levelling screws, plated vertical rod, **micrometric vertical adjustment device**.

The slider is brass made with free fall.

The digital readout of the penetration values has readings in mm and inch, with 0.01 mm resolution, LCD 5 digits display, with zero set in any position.

Power: 1.5V battery.

The penetrometer is supplied with stop and release push button, automatic zero set, micrometer adjustment, set of weights 50 and 100 g penetration needle, brass sample cups \varnothing 55x35 mm and 70x45 mm.

Dimensions: 220x170x410 mm

Weight: 11 kg approx.

B056-02 KIT AUTOMATIC DIGITAL PENETROMETER

Basically structured as mod. B056-01 KIT but having a magnetic controller device with electronic digital programmable timer that automatically releases the plunger head and ensures free falling of the needle during the 5-seconds test.


Power supply: 230V 1ph 50-60Hz 200W


Dimensions: 220x280x410 mm

Weight: 15 kg approx.

ACCESSORIES

for B056 KIT, B057 KIT, B056-01 KIT, B056-02 KIT

B056-09 PENETRATION BALL. Hot applied joint sealants.
 **NEW** Test method for the determination of penetration and recovery (resilience).
 STANDARD: EN 13880-3

B057-09 STANDARD PENETRATION CONE \varnothing 65 mm for measuring the consistency of lubricating grease.
 **NEW** Brass body and steel point made. Weight: 102.5 g
 STANDARDS: EN 13880-2 | ASTM D217 | IP 179
 ISO 2137 | DIN 51804



B016 AIR BATH

Used for softening bitumen before performing a range of tests including ductility, flash point, penetration, loss on heating. Inner vessel, stainless steel made, has 600 g capacity. Complete with thermoregulator, pilot lamp.

Power supply: 230V 1ph 50-60Hz 500W

Dimensions: 140x140x350 mm

Weight: 5 kg approx.



B058 THERMOSTATICALLY CONTROLLED WATER BATH FOR PENETROMETER

Provides water at the required temperature of 25 ± 0.1 °C. The unit consists of a stainless steel water bath 10 litres capacity with wool insulation, immersion heater with digital thermostat, motor pump with connections, cooling coil device, current water operated, to maintain a constant temperature of the bath when room temperature is slightly higher.

The bituminous sample is immersed into the water bath, and placed on the penetrometer only at the time of the test, by eventually using the transfer dish (accessory mod. B057-03).

Power supply: 230V 1ph 50-60Hz 350W

Dimensions: 375x335x420 mm

Weight: 12 kg approx.



B058 detail

ACCESSORY

B058-01

WATER BATH DISH with incorporated thermostatic coil, to be connected to the bath mod. B058. It keeps the temperature of the bitumen sample directly on the penetrometer, by avoiding to transfer it. Dimensions \varnothing 151x90 mm

B060 BACON SAMPLER

STANDARDS: EN 58 | CNR N° 81, N° 98
ASTM D140 | AASHTO T40

Used to obtain asphalt or oil samples from various levels within a storage tank by the "thief" method. Made from brass. Capacity 237 ml

Dimensions: \varnothing 50x250 mm

Weight: 2 kg approx.



B060

B090 BREAKING VALUE OF CATIONIC BITUMEN EMULSIONS: MINERAL FILLER METHOD

STANDARDS: EN 13075-1 | IP 494

Equipment for the determination of the breaking value of cationic emulsions, (manual version) comprising: Filler feeding pan, complete with support base and clamp, nickel spatula, two round porcelain dishes.

Weight: 2 kg approx.



ACCESSORIES for Automatic Version

B090-10 ELECTRIC STIRRER having 260 rpm, 230V 50-60Hz 1ph

S157-06 SUPPORT BASE for stirrer.

B090-11 PROPELLER for electric stirrer.

B090-12 METALLIC CONTAINER, 500 ml capacity.

B090-19 REFERENCE FILLER, original Forshammar, recommended by EN Spec. Bucket of 10 kg

B090-20N REFERENCE FILLER, 25 kg where SiO_2 content and Volumetric Mass conform to EN 13075-1; while grading composition does not conform.