

Stiffness - Bending Beam Rheometer - BBR (automatic)

ASTM D 6648, EN 14771, NF T66-062 (obs.), AASHTO T313, AASHTO TP1 (obs.), SHRP 1002, SHRP B-002, Superpave®

Product group(s): Bitumen

User group(s): Asphalt, Bitumen, Road Research

Scope: To determine the flexural creep stiffness of asphalt binders at low temperatures like ambient to -36°C.

The flexural strength is determined in order to evaluate the behaviour of asphalt binder and similar products at low temperatures.

During testing, a constant load (0 to 450 g) is applied to an asphalt beam for a selected duration.

The deflection of the beam is measured and monitored continuously by PC. Further the test parameters are set by the PC, which displays & prints a plot of load vs. deflection and calculates the stiffness at the lowest temperature anticipated.

For tests acc. ASTM D 6648 an auxiliary cooler is required to cool down the molds, so that the sample is stiff enough to be demolded without distortion.

The deflection of the specimen is measured for this purpose with a resolution of 1µm.

The test force is regulated with an accuracy of 1 mN. This makes determination of the flexural strength possible with reproducibility of 1% independent of the operator.

The specimen unit is moved by an electromotor and makes fitting and removing the specimens uncomplicated and simple.

Automatic, software-controlled operating and standardised evaluation and representation of the findings.

The automatic system monitoring contains various diagnosis functions and prepares the required diagnosis records.

- **Software included**
- **Own layout of test records**



Automatic Bending Beam Rheometer Test Equipment

to be composed of:

- Automatic **Bending Beam Rheometer - BBR**
- Test Beam **Molds**

Technical Data

Load range:	0 to 1500 mN (accuracy class 0.1)
Loading unit:	max. lift 10 mm, max. force 2000 mN
Temperature range:	-40 to +200 °C : ±0.01 K
Bath volume:	Tempering unit: approx. 4.9 l Test bath: approx. 11 l
Dimensions:	95 x 48 x 75 cm (W x D x H)
Weight:	approx. 80 kg

Main Unit

10-0700 **BBR - Automatic Bending Beam Rheometer**

ASTM D 6648 - AASHTO T313
Superpave®: SHRP 1002, SHRP B-002

Consisting of:

Integrated programmable controller for controls and recording measured data.

Linear-electromagnetic loading unit and incremental transducer.

Compact tempering unit with heater and compressor cooling and powerful pressure/suction pump.

Separate test bath with constant level maintenance. Freely selectable test temperatures.

Own layout of test records.

Note: Requires molds, sample pre-tempering unit and PC (no Laptop).

Power supply: 230/240 V, 50/60 Hz

10-0701 **BBR - Automatic Bending Beam Rheometer**

Like 10-0700 but:

Power supply: 115 V, 60 Hz

10-0702	BBR - Automatic Bending Beam Rheometer Like 10-0700 but: EN 14 771 - (NF T66-062) Power supply: 230/240 V, 50/60 Hz
10-0703	BBR - Automatic Bending Beam Rheometer Like 10-0700 but: EN 14 771 - (NF T66-062) Power supply: 115 V, 60 Hz
10-0706	Beam Casting Molds, aluminum (acc. AASHTO, ASTM, EN), pack of 5
10-0709	Beam Casting Mold, silicone, triple

Options & Accessories

10-0707	Calibration Kit - BBR Force (with works certificate)
10-0716	Calibration Kit - BBR Force (with DKD certificate)
10-0708	Calibration Kit - BBR Temperature (with works certificate)
10-0717	Calibration Kit - BBR Temperature (with DKD certificate)

25-0240	Circulator (-28/+200)
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For heating & cooling of instruments without circulation pump and / or for tempering applications directly in the bath.

Consisting of:

Cooler with stainless steel bath. Thermostat with digital display, splash-proof keypad, integrated heater, pump, RS232-interface, over/under-temperature & low-level protection, adjustable pump-pressure, cooling control.

Supplied with: 1 bath cover, 1 drain tap

Note: Insulated hose-set is recommended.

Technical Data:

Working range: -28 to +200 °C (at +5 to +40 °C ambient temp.)
 Display / Resolution: LED / 0.01 or 0.1 °C
 Heater capacity: 2000 W
 Cooling capacity: 260 W at +20 °C
 Pump-Pressure capacity: 11-16 l/min, 0.23-0.45 bar (3.3-6.5 psi)
 Bath opening: 12 x 14 x 14 cm (WxDxH)
 Safety class / Bath fluid: 3 / FL (Flammable Liquids possible)
 Volume: 4.5 l
 Sockets for: hose (Ø 8 / 10 mm), solenoid valve
 Dimensions / Weight: 23 x 42 x 61 cm (WxDxH), 31 kg
 Power supply: 230 V, 50/60 Hz, 12 A, EU-plug

25-0241	Circulator (-28/+200)
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Like 25-0240 but:
 Heater capacity: 1000 W
 Power supply: 115 V, 60 Hz, US-plug

Order Guideline

Minimum equipment: 1x 10-0700 + 10-0706
 Additional requirements: Coolingbath for sample pre-tempering (ASTM D 6648), Computer