

TE-BBR SD

Thermoelectric Bending Beam Rheometer

For Low Temperature Flexural Creep Testing of Asphalt Binders
ASTM D6648; AASHTO T 313, SHRP Binder Provisions

CANNON TE-BBR SD is a thermoelectrically cooled bending beam rheometer for testing flexural creep of asphalt binders from ambient to -40°C ($\pm 0.03^{\circ}\text{C}$). A crack seal option provides for low temperature characterization of crack seal "creep" under load for 0.5 inch thick specimens.

TE-BBR SD meets or exceeds ASTM, AASHTO and SHRP provisions for flexural creep testing of asphalt binders.

Common Applications

- Flexural creep of asphalt binders
- Low temperature characterization of crack seal under load

Product Features & Benefits

Precise, Repeatable Results

- Meets or exceeds ASTM, AASHTO and SHRP requirements for low temperature flexural creep testing of asphalt binders including ASTM D6648 and AASHTO T 313
- Instrument sample supports feature specimen support strips $3\text{ mm} \pm 0.30\text{ mm}$ in top radius
- Temperature range: ambient to -40°C . Temperature stability: $\pm 0.03^{\circ}\text{C}$ with resolution of $\pm 0.01^{\circ}\text{C}$.
- Resolves specimen beam deflection to $0.155\text{ }\mu\text{m}$ ($1,550\text{ \AA}$)
- Resolves force to within 0.147 mN (0.015 g)

Reliable and Versatile Performance

- Installed instruments in operation in asphalt testing labs throughout the world
- Performance verified through ASTM round-robin testing
- Pneumatic pressure regulators allow operator to adjust pressure on main input line, air bearing and load shaft support
- Capable of measuring specimen beam loads from 0 g to 450 g
- Instrument provided with factory-calibration in an ISO 9001-registered laboratory
- Digital thermometer and probe included with instrument purchase, along with a one year warranty

Simple, Automated Testing

- Easy to use Windows-based operational software (included) controls the entire testing process and provides a visual display of stress and strain
- Simple data transfer via USB
- Reports and graphs can be printed on any Windows® compatible printer

Compact, Self-Contained Unit

- TE-cooled with solid-state Peltier elements. Requires no pressurized coolants (a separate air-water heat exchanger is included) and is environmentally friendly.
- An integrated, self-contained bath cools using methanol or ethanol as the bath medium.



TE-BBR SD Thermoelectric Bending Beam Rheometer

Ordering Information

TE-BBR SD Thermoelectric Bending Beam Rheometer consists of the bending beam rheometer with load unit, air/water heat exchanger, a complete precision calibration kit, a set of 6 aluminum molds with mylar separators, a digital thermometer with probe and data storage/management software. Computer sold separately.

Description	Part #
100 VAC, 50/60 Hz	9728-V31
120 VAC, 50/60 Hz	9728-V30
240 VAC, 50/60 Hz	9728-V35

Accessories & Consumables

Description	Part #
TE-BBR SD precision calibration kit (D6648 update): rugged carrying case containing a high precision gage block, precision-cut stainless steel thin beam and NIST-traceable calibration certificates	9728-V63
Complete TE-BBR SD precision calibration kit: rugged carrying case containing a high precision gage block, precision-cut stainless steel thin beam, ¼" compliance beam, four 100 g weights and NIST-traceable calibration certificates	9728-V60
Silicone rubber mold for TE-BBR SD: simplifies the procedure for making asphalt beams	9728-V40
Aluminum mold for TE-BBR SD: simplifies the procedure for making asphalt beams	44.6200
Aluminum molds (6) for TE-BBR SD: simplifies the procedure for making asphalt beams	44.6205
Crack seal kit: includes set of 6 modified beam supports, thin and thick beam (for calibration), installation hardware and documentation	44.0675
Crack seal mold for TE-BBR SD	44.6262
Crack seal molds (set of 6) for BBR	44.6263
Plastic strip set: 12 each ¾" strips and 24 each ½" strips	44.6250
Strip, ½" x 7" Plastic	44.6250.2
Strip ¾" x 6 ½" Plastic	44.6250.3
Strip 1" x 7" Plastic	44.6260

Product Specifications

Dimensions (W x D x H)	Control Unit 73.7 cm x 71.1 cm x 55.9 cm (29 in x 28 in x 22 in) Load Unit 58.4 cm x 48.3 cm x 68.6 cm (23 in x 19 in x 27 in) Air/Water Heat Exchanger 49.5 cm x 40.6 cm x 48.3 cm (19.5 in x 16 in x 19 in) *add 15 cm (6 in) to front and rear dimensions for connection and airflow allowance
Weight	Control Unit: 49.9 kg (110 lb) Load Unit: 15.9 kg (35 lb) Air/Water Heat Exchanger: 68.0 kg (150 lb)
Shipping dimensions (W x D x H)	Control & Load Units 101.6 cm x 81.3 cm x 121.9 cm (40 in x 32 in x 48 in) Air/Water Heat Exchanger 61.0 cm x 53.3 cm x 66.0 cm (24 in x 21 in x 26 in)
Shipping weight (with all items)	136.4 kg (300 lb)
Max. throughput	6 results per hour
Sample capacity	1
Flexural creep stiffness range	20 MPa to 1 GPa
Sample supports	Specimen support strips 3 mm ± 0.30 mm in top radius
Bath volume	5 L (1.33 gal)
Temperature range	Ambient to -40 °C (± 0.03 °C stability; ± 0.01 °C resolution)
Sample dimensions	12.7 mm x 6.35 mm x 127 mm (0.5 in x 0.25 in x 5 in)
Operating conditions	15 °C to 30 °C, 10% to 75% relative humidity (non-condensing), Installation Category II; Pollution Degree 2
Electrical specifications	120 VAC, 50/60 Hz; 240 VAC, 50/60 Hz; 1,800 watts power consumption
Compliance	CE Mark; EMC directive (2004/108/EC); Low voltage directive (2006/95/EC); HI-POT (1900 VDC, 60 sec.); ROHS
Data output	USB

CANNON Instrument Company* provides a variety of physical property testing equipment and consumables (vials, bath fluids, and reference materials) for your testing needs. To learn more, contact sales@cannoninstrument.com.



2139 High Tech Road | State College | PA | 16803
800-676-6232 | 814-353-8000 | Fax 814-353-8007

sales@cannoninstrument.com | cannoninstrument.com