

Thermoelectric Bending-Beam Rheometer

CANNON® Asphalt Industry Test Equipment

- Meets or Exceeds ASTM D6648, AASHTO T313, and SHRP Provisions for Flexural Creep Testing of Asphalt Binders
- Precise, Repeatable Data
- Environmentally-Friendly Thermoelectric Cooling (No External Refrigeration or Refrigerants Required)
- Graphical Software for Windows® XP®
- Cooling to -36° Celsius in most Laboratory Environments



CANNON
INSTRUMENT COMPANY®

CANNON®



Thermo-Electric Bending-Beam Rheometer

ASTM D6648

The CANNON® Thermolectric Bending-Beam Rheometer performs low-temperature flexural creep stiffness measurements on asphalt binders as specified in current ASTM, AASHTO and SHRP methodology.

The TE-BBR achieves temperatures from ambient to -36 degrees Celsius using the latest in Peltier technology. Bath fluid, which does not circulate outside the TE-BBR, is cooled by solid-state cooling modules surrounding the bath. Heat is dissipated from the hot side of the thermoelectric modules by circulating a mixture of water and antifreeze through an Air/Water Heat Exchanger. This arrangement facilitates rapid cooling and eliminates costly and potentially hazardous refrigerants.

The TE-BBR is capable of controlling temperature within 0.03 degrees Celsius, a precision far exceeding the requirements of current flexural creep test methodology for asphalt binders. The instrument measures specimen beam deflection to within 0.155 microns (1550 Angstroms) and force to within 0.147 milliNewtons (0.015 grams). The TE-BBR will measure specimen beam loads from 0 to 450 grams.

Data acquisition is accomplished internally with information transferred to a host computer via a standard RS-232 interface. The Windows XP software allows computer control and viewing of parameters through a graphical interface. Reports and graphs can be printed on any Windows-compatible printer. The operational firmware is upgradeable – updates or changes may be downloaded via computer.

The TE-BBR controls air pressure with four pneumatic pressure regulators, permitting the operator to adjust main input line pressure, air bearing pressure, and pressure supporting the loading shaft for a “zero” condition and a “load” condition. A magnetic stirring bar at the bottom of the bath vessel circulates bath fluid to ensure uniform temperature distribution throughout the bath. The speed of the stirring bar rotation is adjustable.

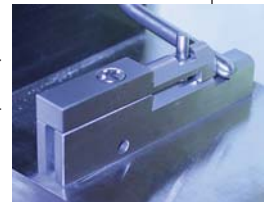
To use the Windows software, the TE-BBR requires an IBM®-compatible computer running Windows XP, 16 MB of memory (RAM), 10 MB of available hard disk space, a high density 1.44 MB 3.5” floppy drive, and one available RS-232 serial interface port. Software for DOS operation of the TE-BBR is also available.



CANNON® Thermolectric Bending-Beam Rheometer

New Crack Seal Option!

Allows for flexural creep testing of 0.5” thick specimens. Excellent for characterizing crack seal “creep” under load at cold temperatures. Kit includes modified beam support, thin and thick beam for calibration, and all necessary installation hardware and documentation. Support adapter design permits testing of both 0.25” and 0.5” beams.



TE-BBR Specifications

Size:	610 mm wide x 540 mm deep x 610 mm high (24 x 21.3 x 24 inches) including Load Unit [add at least six inches to rear measurements to allow for air flow and rear cable/tubing connections]
Bath Volume:	5 liters (1.33 gallons)
Weight:	54.5 kg (120 lbs)
Shipping Weight:	61.4 kg (135 lbs)

Air/Water Heat Exchanger Specifications

Size:	420 mm wide x 540 mm deep x 470 mm high (16.5 x 21.3 x 18.5 inches) [add at least six inches to front and rear measurements to allow for air flow and rear cable/tubing connections]
Weight:	52.7 kg (116 lbs)
Shipping Weight:	59 kg (130 lbs)
Electrical:	100V, 50/60 Hz, 1700 watts; 120V, 50/60 Hz, 1700 watts; 220V, 50/60 Hz, 1700 watts; 240V, 50/60 Hz, 1700 watts
Computer Requirements	Computer not included. Please contact CANNON for specifications.

Order Information*

Catalog #	Item Description
9728-V30	TE-BBR, 120V, 50/60 Hz
9728-V35	TE-BBR-F, 240V, 50/60 Hz
P44.0675	Crack Seal Option

* Licensed from the Pennsylvania State University
[Specify exact line voltage when ordering]



2139 High Tech Road • State College • PA • 16803 • USA
800 676 6232 • 814 353 8000 • Fax 814 353 8007
e-mail: cannon@cannoninstrument.com • www.cannoninstrument.com