



DYNAMIC SHEAR RHEOMETER

ASTM D7175, D7405; AASHTO MP 1, MP 19, R 29, T 315, TP 70

The Dynamic Shear Rheometer (DSR) determines viscoelastic properties of performance-graded asphalt binders at specified temperatures from 5°–85°C (41°–185°F). A disc of asphalt binder is confined between parallel plates, and one of the plates is oscillated at a known torque. Dynamic shear modulus and phase angle properties are measured.

The Bohlin DSR-II Air-Bearing DSR can be operated in strain control or stress control modes. The device includes a torque-measuring drive for determining strain and a circulator system to immerse the sample in constant temperature fluid (usually water). The lower plate holds the specimen, while the upper plate oscillates to produce strain. Stainless steel upper and lower plates for 8mm and 25mm specimens are provided, as well as a RTD temperature device. A special “no-gap” feature, eliminates the need to re-zero the instrument gap when upper or lower plates are removed or replaced, or for temperature changes. The two SHRP testing positions are marked for easy selection. The latest ASTM and AASHTO protocols are built into software and PG Grading determinations are automatic. The DSR requires an air supply of 1 SCFM at 60psi.

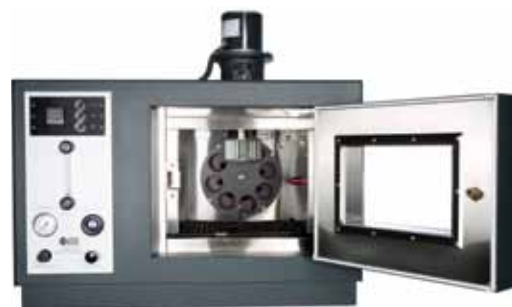
A Windows® compatible PC with printer is required. The HMA-353 Reference Thermal Detector Probe is a thermistor calibrated to 0.1°C and mounted in a silicone wafer. This recommended device allows direct, in-place calibration of the RTD temperature detector. Silicone Rubber Specimen Molds are purchased separately. Molds for 8mm and 25mm diameter specimens have actual dimensions of 9mm and 19mm, respectively, to allow for proper placement and trimming between the plates. Flexible, tear-resistant silicon molds are manufactured by the Asphalt Institute and available individually or as a set containing one of each size. HMA-355 2.7 million centipoise Viscosity Standard fluid in 55ml bottles is NIST traceable and designed specifically for the DSR. System price includes one-year warranty, installation and training in continental U.S.A., one year of software updates, and a technical support hotline.

DYNAMIC SHEAR RHEOMETER

Bohlin DSR-II, 115V/60Hz.....	HM-86
220V/50Hz.....	HM-86F

Accessories

Silicon Rubber Specimen Molds	
For 25mm Diameter Specimens	HMA-356A
For 8mm Diameter Specimens	HMA-356B
Set of 1 each for 25 and 8mm Specimens.....	HMA-356
Viscosity Standard Fluid	HMA-355
Reference Thermal Detector Probe	HMA-353



MO-30

COX AND SONS ROLLING THIN FILM OVENS

ASTM D2872; AASHTO T 240; CALIFORNIA 346; EN 12591

James Cox and Sons Rolling Thin Film Ovens have a PID controller paired with a precision resistance temperature detector (RTD) sensor to provide accurate chamber temperatures with minimal overshoot. Actual and set point temperatures can be viewed simultaneously on the dual four-digit displays.

The MO-30 is supplied with a mechanical flow meter, moisture indicator, and air pressure gauge with regulator. The MO-32 model is a version featuring a digital flowmeter accurate to $\pm 1.0\%$ at a rate of 4,000mL per minute. Both ovens include a solid-state digital temperature controller with built-in over-temperature protection and 200 Watt heating element to control temperature to $\pm 1^\circ\text{F}$ at 325°F ($\pm 0.5^\circ\text{C}$ at 163°C). MOA-12 or Data Logging MOA-14 electronic platinum resistance thermometers (PRT) are acceptable alternatives to mercury thermometers and avoid regulatory restrictions. They are not included, but can be specified when ordering a new oven, or ordered separately. These precision digital thermometers are accurate to $\pm 0.05^\circ\text{C}$ ($\pm 0.09^\circ\text{F}$).

The RTFO features a baked enameled steel exterior, and double-wall construction. The circular test rack holds eight serial-numbered RTFO Bottles (included). Special stainless steel tongs with synthetic gripper pads are included for easy handling of hot bottles. Additional RTFO specimen bottles are ordered as MOA-6. Other accessories include the stainless steel MOA-10 Cooling Rack, designed to ASTM requirements to hold nine specimen bottles, and the MOA-5 Bottle Scraper, shaped to exactly fit RTFO bottles for removing the interior film. RTFO units are supplied without a power cord. Connection to a suitable power supply must be performed by a qualified electrician. A supply of clean, dry compressed air, not exceeding 125psi (8.6bar), is also required. Older MO-30 units can be upgraded with a Digital Flowmeter. Inquire for details. **Product Dimensions:** 40x26x36in (1016x660x915mm) WxDxH.

COX AND SONS ROLLING THIN FILM OVEN

Rolling Thin Film Oven, 230V/60Hz	MO-30
230V/50Hz	MO-30F

Accessories

ASTM 13C Thermometer	MA-223C
RTFO Specimen Bottle, Serial-Numbered.....	MOA-6
RTFO Bottle Cooling Rack.....	MOA-10
RTFO Bottle Scraper.....	MOA-5
RTFO Oven Tongs.....	MOA-3



MA-523C ASTM Equivalent S13C Thermometer is glass with identical range and graduations to the ASTM 13C Mercury Thermometer. Blue spirit indicating liquid is non-toxic with similar performance characteristics. Total immersion thermometer is 7in (178mm) long.

