

MOVING DIE RHEOMETER (MDR)
MODEL MDR-01 CGM TECHNOLOGIES



The CGM Rheometer MDR-01 is a moving die rheometer for testing cure properties according to the standards ISO6502 and ASTM D5289. The testing die is a completely closed, rotor-less, sealed, biconical test chamber system. The lower die oscillates with the frequency 1.667 Hz (100 cpm), the reaction torque on the upper die measures torque values and allows for determination of vulcanization and cure time.

Specification Sheet

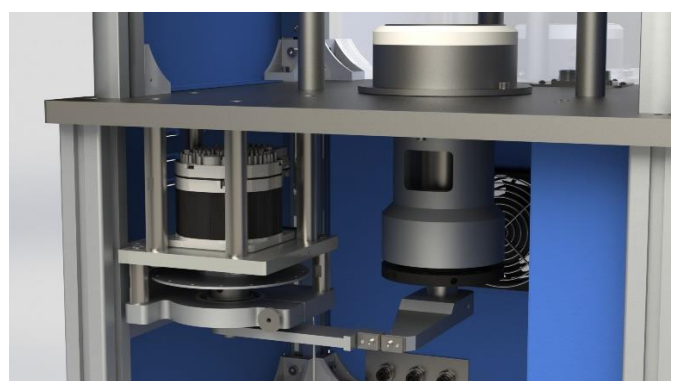
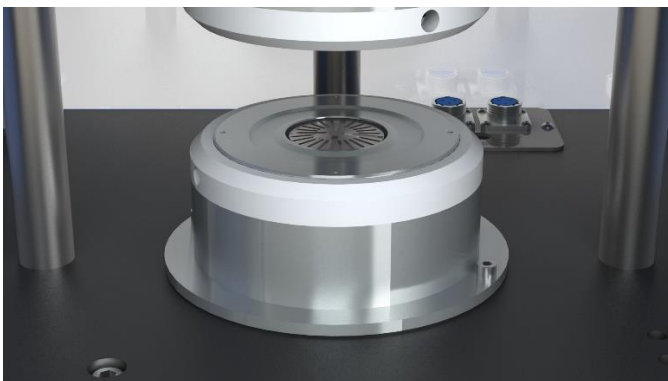
Reference Standard	ISO 6502, ASTM D5289
Test Report	ML, MH, MH-ML, Ts1, Ts2, T10, T50, T90
Measured Time	1/60 sec, 1/100 sec Unit (min-min/ min-sec/sec)
Die configuration	Biconical Die, close die system, sealed
Temperature System	PID Microprocessor Controlled Probe RTD Pt 100 Ω (Class A)
Temperature range	Room Temp. + 25 $^{\circ}$ C to 230 $^{\circ}$ C Accuracy 0.1 $^{\circ}$ C Resolution 0.1 $^{\circ}$ C (Option 0.01 $^{\circ}$ C) Units $^{\circ}$ C/ $^{\circ}$ F
Oscillation frequency	100 cpm (1.667 Hz) Other frequencies available as specified
Oscillation angle	0.5 $^{\circ}$ \pm 0.03 $^{\circ}$, 1 $^{\circ}$ \pm 0.03 $^{\circ}$
Drive Motor	Servo Motor
Torque Measurement	Torque Transducer (Direct Torque Measurement)
Torque Range	0 – 225 dNm
Torque Calibration	Standard Torque Reference value
Operation Panel	Capacitive Touch Screen, 5 Inches (Standalone)
Data Communication	RS-232
Associated program	CGM Software
Power Supply	220 VAC \pm 10 VAC, 50/60 Hz, 6A
Air Pressure	4.0 bar to 5.0 bar
Dimension	Width 50.0 cm., Depth 57 cm., Height 117 cm.
Weight	175 kg

Highest Precision and Best Temperature Control

- The reading is by in-line direct torque measurement from a high-quality torque transducer attached on the upper die, which is specifically designed to measure torque value at precision level of Milli-Newton Meter.
The torque transducer is covered with an insulator to minimize damage from heat to prolong lifespan.
- Servo Motor with feedback control is used to accurately control oscillation.
- Film Heaters are directly placed in direct contact with the dies, with a direct heating design, to speed up heat, minimize heat dissipation, and provide for good heat distribution.
- The probe is RTD-PT100 premium grade for most accuracy.
- Automatic air cooling to quickly reduce temperature for faster test.
- (Optional) Pressure measurement system of the chamber can be added to test blowing or sponging reaction

Strong and Long-lasting Exterior Structure

- The structure is made from strong and anti-rust materials
- The dies are made from hard grade steel to prevent scratches and prolong lifespan.



Designed for Easy Use and Easy Maintenance

- The machine is made for easy re-assembling for easy clean-up and maintenance.
- The machine comes with 5-inches touchscreen where users can fully operate, configure and calibrate the machine.

The test graph and results are also displayed here with 40 values history record.

This allows for basic stand-alone operation.



- Torque calibration can be done with both compression torque and mounting torque.

Autocalibration function helps to automatically calibrate with a torque reference.

- A compression torque standard is provided with the machine.



Safety Feature

- Safety Door Feature – the door will not close with any obstruction
- Emergency Switch Stop Button
- Breaker to prevent electrical leak
- Thermostat to prevent overheat that will damage the heater, in case the temperature exceeds 250 degree Celsius.
- Torque over-limit automatic stop prevention

Intuitive software

- Real Time test display on screen.
- Test data, results and reports are stored in the database for easy access and can be exported to Excel File.
- Pass-fail auto judgement function.
- Re-assessment of existing data with new parameters

Warranty, Maintenance and Calibration Service

- **1 Year Warranty**
- **Machine delivered with ISO 17025 Calibration Certificate**
- In-house 17025 accredited laboratory ready for after-service
- Calibration methods are designed specifically for MDR on parameters such as temperature, torque, test time, oscillation speed.
- Preventive Maintenance Service
- Online or onsite support

Automation Option

- Sample input can be automated with options ranging from 5, 50 and 100 samples. Samples are fed automatically to the machine and tests repeat without human intervention allowing continuous non-stop multiple samples tests.

