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PIONEER
Moving Die Rheometer

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ALPHA TECHNOLOGIES
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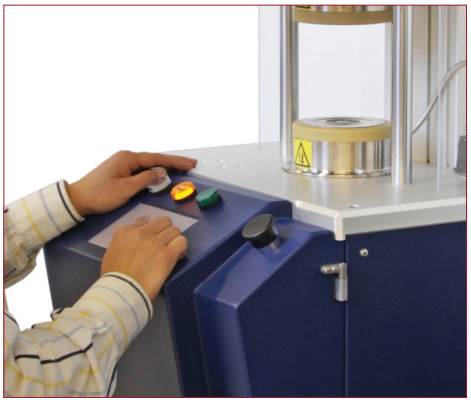
Pioneer MDR by Alpha Technologies is a new rheometer designed for simplicity and value. Pioneer MDR is backed by Alpha Technologies' proven expertise and global service network, and is ideally suited to small and medium manufacturers in the general rubber goods sector.

Benefits of the Pioneer MDR

- Cost-effective cure testing for general rubber applications
- Designed by Alpha Technologies and supported by its unparalleled global service network
- Smaller instrument footprint for effective use of bench space
- Stand-alone convenience with LCD touchscreen and user interface, available in many languages
- Pressure measurement option for sponge rubber compounds
- Optional software with enhanced data selection
- Technical support from Alpha Technologies' rubber specialist team

Pioneer MDR – A New Curemeter for General Rubber Applications

Cure testing is the most important batch release test in the rubber industry. It serves to confirm that filler, oil and curatives have been correctly incorporated and that the curing properties of the compound meet the required specification. Pioneer MDR utilizes Alpha Technologies' expertise in rheometer technology in a compact and simplified design directed at general rubber goods applications. Pioneer MDR is effective in production batch control, cure setting and compound development, and will support quality improvement initiatives in both testing and manufacturing.



Design

Pioneer MDR has sealed bi-conical dies and reaction torque measurement on the upper die. The torque signal is calibrated using a traceable torque standard, ensuring torque accuracy at all times. Pioneer MDR is designed with the needs of the operator in mind. It has an LCD touch-screen for testing without a PC. Results and curves are displayed during the test and they can be printed out on a PCL3-compatible USB printer or saved to a USB flash drive on completion. Optional software is available for users who prefer more comprehensive data management.

Effective Cure Testing with Pioneer MDR

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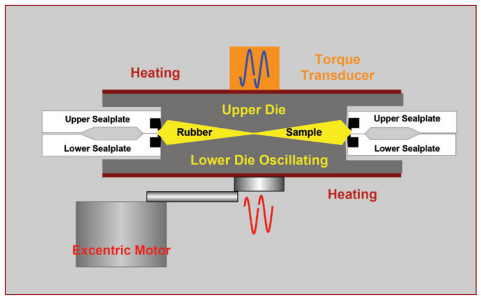

C

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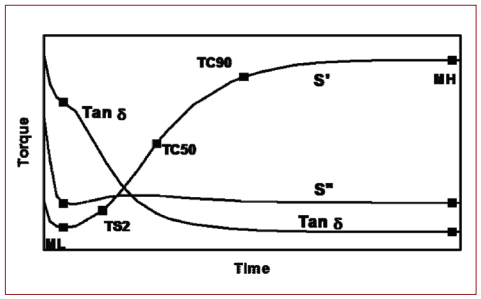

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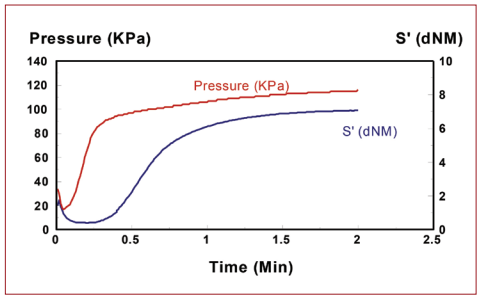


A

Simple Sample Loading and Unloading

The rotor-less MDR design facilitates easy loading and unloading of samples, especially when using PET film between the test sample and dies. Film prevents compound sticking to the dies and reduces the need for die cleaning. We recommend the use of Pioneer PET films for optimum performance. Pioneer MDR has indicator lights for Ready, Testing and Standby, and a safety shield with single button Open/Close operation for user efficiency.

B

Increased Sample Throughput compared with ODR Rheometers

The MDR rotor-less design provides faster temperature recovery after sample loading than can be achieved with Oscillating Disc Rheometers (ODR's). This reduces the test time and improves data significance. Sample throughput is faster than with ODR, thereby improving laboratory efficiency.

C

Versatile LCD Touchscreen and User Interface

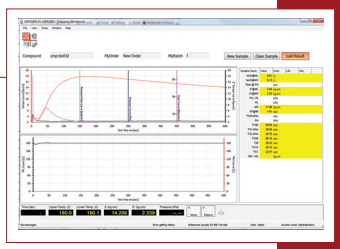
Pioneer MDR can be operated efficiently without a PC. The LCD touchscreen allows test configurations and charts to be set up quickly and easily. The user interface includes all essential datapoints to characterize the curing properties of rubber compounds. Results and curves are shown on the screen during a test, and an automatic pass/fail indication confirms batch quality on completion. Results can be printed out or saved to a USB memory stick. Optional software is available for users who prefer to operate with a PC.

D

Pressure Measurement Option

A pressure transducer is available for the testing of sponge compounds. Cure and pressure curves can be collected simultaneously, allowing better assessment of sponge-blowing reactions for optimal performance.

Simplicity & Value



Pioneer Software Option

- Compatible with Windows XP and Windows 7
- Convenient data storage, management and reporting capabilities
- Test Set-Up, Test Run, Test Review and Maintenance functions
  - Test Set-Up allows Compound names, Test conditions, Datapoints, Limits and Graphs to be configured
  - The Test Run screen has a continuous display of S', S" and platen temperatures, as well as a choice of graphs for S', S", Tan delta, Pressure and Temperature.
  - Test Review allows results to be sorted and selected for reporting, with inclusion of curve overtrace, results, limits and statistics. Reports can be printed, or exported in csv format
  - Maintenance gives access to user set-up, language, database maintenance and calibration
- Compatible with Enterprise software

Specifications

International Standards	Complies with ASTM D5289, ISO6502
Dies	Biconical cruciform dies
Oscillation Frequency	100cpm (1.67Hz)
Oscillation Amplitude	+/- 0.5° Arc (standard); options +/- 0.2°, +/- 1.0° . +/- 3.0°
Temperature	Useable temperature range 90-410°F (30-210°C) Calibration range 200-410°F (100-210°C) +/- 0.3°C
Units	Torque inf.lb, dNm, kg.cm; Temperature °F, °C; Time m.m, sec; Cure Rate units per min; Pressure (option) psi, kPa, kg/cm2; Pressure Rate units per min
LCD Touchscreen	155mm x 85mm; Resolution 800 x 480 Languages: English, Italian, Spanish, Portuguese, Turkish, Polish, Romanian, Czech, French, Hungarian and Russian on request
Sample Volume	Approx 4.5 cm3
Electrical	110-120VAC/60Hz (10Amp) Single phase 220-240VAC/50Hz (5Amp) Single phase
Air Pressure	70psi (483Kpa, 5.0 Kg/cm2) minimum
Dimensions	20"W x 20"D x 47"H (508mm W x 507mm D x 1194mm H)
Weight	260 lb (118 kg) approx

LCD Touchscreen & Interface

- *User Privileges*	Operator, Configure, Calibrate, Service and Maintenance				
- *Datapoints*	Torque S' @:	ML	MH	Final	MH-ML
	Torque S" @:	ML	MH		
	Tan Delta @:	ML	MH		
	Scorch time:	ts1	ts2		
	Cure time:	tc10	tc50	tc90	
	Max Cure Rate				
	Time@ Max Cure Rate				

Pressure Option

Pressure:	PL	PH	Final	PH-PL
Max Pressure Rate:	MPR			
Torque S' @:	MPR			
Time @:	MPR	PH		

Pioneer Software Option

Operates one MDR; saves results and graphs to a database
USB connection to PC

- *Datapoints*

Includes datapoints shown under LCD Touchscreen and Pressure Option (where applicable) plus flexible selections for:

Scorch time:	unlimited user-definable ts scorch times
Cure time:	unlimited user-definable tc cure times
Torque @ time:	unlimited user-definable torque@time