



Oscillating / Automatic Disc Rheometer (ODR)

Standards: [ASTM D2084](#), [ASTM D5289](#), [ISO 6502](#)



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Description

This machine is designed to get the characteristic curve and characteristic parameters of rubber vulcanization by measuring the applied moment of rubber to the oscillating dye body. NG-ODR rotor-free vulcameter has an excellent stability of results. The data and diagrams can be used as a reference for development, research and production quality.

NG-ODR describes precisely and quickly the curing and processing characteristics of vulcanized rubber compounds. It works on a very simple principle. A test piece of rubber compound is contained in a sealed test cavity under positive pressure and maintained at a specified elevated temperature. A Rotor (oscillating disc) is embedded in the test piece and is oscillated through a small specified rotary amplitude. This action exerts a shear strain on the test piece and the torque (force) required to oscillate the disc depending on stiffness (shear modulus) of the rubber compound.



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Functionality

- Database functionality can store your curves, drawings and results for printing at any time.
- Allows you to export your testing results in Excel format.
- It has multiple analysis functions like statistics, deviation setting, standard curve setting, and CPK statistical calculations
- Interface allows for local zoom and curve comparison
- It has such functions as selection of any vulcanization time, range selection and screen capture.
- It can reanalyze your previous test data, and increase or modify the reports according to the users requirements
- Multiple data sequences provide convenient ways for data retrieval



Watch Video



Watch the Oscillating / Automatic Disc Rheometer (ODR) product video.

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Testing Curve and Results

- ML - Minimum torque (dNm) - Measures value of the vulcanization characteristic (viscosity) of the unvulcanised test sample
- MH - Maximum torque (dNm) - Measures value of the shear modulus or rigidity of the fully vulcanized test sample. This includes the maximum torque of the flat curve and titration curve as well as the maximum torque when the flat and titration curves don't appear within the given time.
- Ts1 (Minimum) - Time in which the torque is increased to $ML + 1dNm$ when the swing angle is 0.5° or 1°
- Ts2 (Minimum) - Time in which the torque is increased to $ML + 2dNm$ when the swing angle is 3°
- Ts10 (Minimum) - Time in which the torque is increased to $ML + 10(MH-ML)/100dNm$
- Ts30 (Minimum) - Time in which the torque is increased to $ML + 30(MH-ML)/100dNm$
- Ts60 (Minimum) - Time in which the torque is increased to $ML + 60(MH-ML)/100dNm$
- Ts90 (Minimum) - Time in which the torque is increased to $ML + 90(MH-ML)/100dNm$, reflecting the optimum vulcanization of your testing specimen

Standard Configurations

Sealing rings: 10pcs Heating plate: 2pcs High temperature paper: 3 copies Desktop (PC): 1 set
Printer: 1 set Hexagonal wrench: 1 set

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Technical Specifications

Temperature Range	Room Temperature to 22°C - 200°C
Temperature Accuracy	Within $\pm 0.3^{\circ}\text{C}$
Temperature Display Resolution	0.01°C
Oscillation Frequency	1.6Hz, (100r/min)
Heating Rate	120 °C / min
Torque Range	0 - 20nm
Minimum Torque Reading	0.001nm
# of Swing Angles	$\pm 0.5^{\circ}\text{C} \pm 1^{\circ}\text{C} \pm 2^{\circ}\text{C}$ (standard matching angle 1 degree)
Swing Angle	100r / min (1.66hz)
Control	Computer Controlled
Communication Mode	COM Port
Air Pressure	65psi (4.6 bar) - Not including air compressor
Specimen Dimensions	5cm
Display	NextGen Software
Dimension (W x D x H)	51.5x22x24.4" 131x56x62cm
Weight	498lbs / 226kg
Power	110V/60Hz or 220V/50Hz 1000 W