Rheometer

Make: Anton Paar, GmbH
Model: MCR 302e
Key Specifications:

	Modular Compact Rheometer
Measurement Types	Rotational, Oscillatory & Transient
Bearing Design	Air, fine-pored carbon
Motor design	Electronically Commutated (EC) - Permanent Magnet Synchronous Motor
Displacement transducer design	High-resolution optical encoder Normal force measurement
Mass Resolution	35000 (FWHM) at m/z 956 using 10ms acquisition time
Working modes	Combined Motor Transducer (CMT)
Minimum torque (rotation)	1 nanoNm
Minimum torque (oscillation)	0.5 nano Nm
Maximum torque	230milli Nm
Minimum angular deflection	0.05 µrad
Speed Range	10e-8 to 300 rad/s or better
Frequency Range	10e-7 to 600 rad/s or better
Strain Sensor	High Resolution Optical Encoder
Normal Force	0.005 To 50 N or better
Gap Control	Automatic Gap Control
Step Rate, Time Constant	5 ms
Step Strain, Time Constant	10 ms
Temperature	Electrical Temperature control from 0 to 400 ◦C

Shear Viscometry/Rheology	• **Measuring Plate with diameter 8 mm, 25 mm and 50mm** • **Measuring Cone with diameter-40 mm & angle 1 deg, 25 mm & angle 2 deg.**
Tribology attachment	• **Contact Type : Point Contact** • **Working Principle : Ball-On-Three-Plates** • **Normal Load Range: up to 50 N** • **Speed Range : 10^{-6} to 2000 rpm** • **Sliding Speed Range : 10^{-8} to 3.3 m/s** • **Resolution: 10e-6 M/S or better** • **Maximum Torque: 200 milli Nm** • **Oscillation Frequency :10^{-7} to 100 Hz** • **Temperature Range: -10 to 200 ◦C**
Magneto-rheology attachment	• **Magnetic Field :up to 1.0 Tesla or better** • **Temperature Range :10 to 70 ◦C** • **Measuring Geometries : Titanium parallel plate 20 mm diameter**