Grace INSTRUMENT

SCIENTIFIC INNOVATIONS • INDUSTRIAL SOLUTIONS

M5600

HPHT Rheometer

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The **Grace Instrument M5600 HPHT Rheometer** is a true Couette, coaxial cylinder, rotational, high pressure and temperature rheometer (up to 1,000 psi and 500 °F). It is engineered to measure various rheological properties of fluids, including n', k' and viscosity.

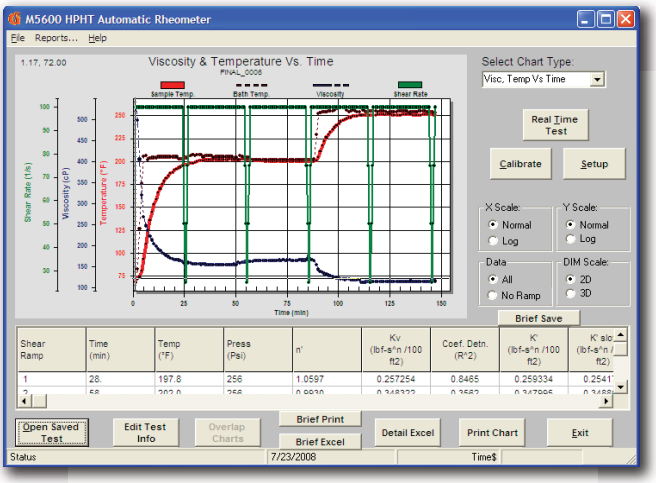
The **M5600** is also available with an optional viscoelastic module for performing oscillatory tests to derive G', G" and phase angle. This vastly increases the researcher's ability to predict the behavior of fluids, such as its capacity for carrying solids (weight material sag, drill cuttings transport, proppant transfer, etc.).

The **M5600** incorporates a direct drive between the bob shaft and the torque transducer, which eliminates momentum of inertia errors associated with magnetically coupled torque transducers. The patented design also eliminates bob shaft bearings, allowing the torque transducer to respond quickly and consistently to changing bob shaft torque.

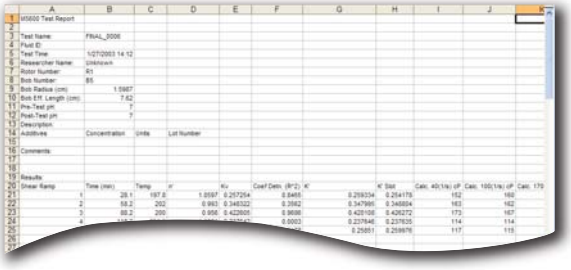
Grace M5600-PC™ Software:

- Tests are simple to set up and run with **Grace M5600-PC™ Software**
- Customizable charts and real-time data are displayed during testing
- Data can be instantly exported into Microsoft® Excel™

M5600-PC™ Software - Screen Capture



Test Report:



- example report generated by clicking on "Detail Excel" button in **M5600-PC™ Software**

The **M5600** incorporates years of research into its innovative design:

☑ sturdy ☑ compact ☑ automatic

☑ fully digital ☑ LCD Display ☑ PC interface

☑ fast test cycle: *setup - load - test - clean*

☑ direct-coupled torque transducer

☑ repeatable results ☑ oil bath or carbon block

Measurement Range (B1, B2, B5 bob)

Sample size:	32 – 78 ml
Speed:	0.0001 – 1,100 rpm continuous
Shear Rate:	0.00004 – 1870 S^{-1}
Freq. Range:	0.01 – 5 Hz (with dynamic option)
Amp. Range:	0.1% – 500% (with dynamic option)
Temperature:	Ambient (20 °F w/chiller) to 500 °F
Pressure:	Atm to 1,000 psi
Viscosity:	0.5 – 5,000,000 Centipoise
Torque:	14 µN.m to 100 mN.m
Shear Stress:	1 to 10,000 dyne/cm^2
Resolution:	.01% of full scale range or better
Repeatability:	±0.5% of full scale range or better

Mechanical Specifications:

Dimensions / Footprint:
25.5" tall x 8.5" wide x 12.5" deep
Weight: 66 lbs

Utility Requirements:

Electrical Supply Voltage: 120 VAC or 240 VAC
Coolant supply: Tap water or chiller
Compressed nitrogen: 1,000 psi