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Rotational Viscometers



Rotational viscometers have become a standard in virtually all industries. They measure viscosity by sensing the torque required to rotate a spindle at constant speed while immersed in fluid. The torque is proportional to the viscous drag on the spindle; thus the sample viscosity.

Rotational viscometer offer several advantages:

- The continuous rotation of the spindle allows measurements to be made over time, permitting analysis of time-dependent fluids
- The rate of shear is constant, so both Newtonian and non-Newtonian fluids can be tested
- By rotating the spindle at several different speeds, shear dependent behavior can be analyzed

Rotational Viscometers

Rotational Viscometers deliver repeatable viscosity readings by measuring spindle torque at controlled speeds for QC and R&D. Select range, spindle set, and temperature control to keep sample prep consistent and reduce operator variation. Use the table below to compare the best option for your lab.

Product	Best Fit / Notes	Viscosity Range	Speed Range	Accuracy	Repeatability
ViscoQT 1700/S & 1800/S	Broad viscosity coverage with programmable touch-screen platform; multiple rotor sets.	1700/S: 1-10 ⁴ M mPa·s; 1800/S: 1-320M mPa·s.	0.3-100 RPM (1700/S) or 0.1-250 RPM (1800/S).	±1.0% of full range	±0.5% of full range
RotoViscoQT Intelligent Touch-Screen	Fixed-speed, standards-oriented method for coatings/inks; three shear-rate conditions.	0-35 Pa·s (0-35,000 mPa·s).	Paddle speed 562 RPM ±2%.	±1.0% of full range	±1.0% of full range
ViscoQT 2000 Intelligent Touch-screen	General-purpose, touch-screen rotational viscometer for routine viscosity work.	10-100,000 mPa·s.	6 / 12 / 30 / 60 RPM.	±1.0% (Newtonian fluids).	±0.5% (Newtonian fluids).

Product	Best Fit / Notes	Viscosity Range	Speed Range	Accuracy	Repeatability
ViscoQT 1000-Pro/TS High Temp	For temperature-sensitive fluids and high-temp profiling with a heating device (Thermosal).	5-1M mPa·s (low) or 50-10M mPa·s (medium).	0.1-200 RPM (stepless).	±1.0% of full range	0.2% of full range
ViscoQT TS-DV Series	Programmable testing with built-in temp control; DV-II adds shear rate/stress outputs.	DV-I: 5-26.4M mPa·s; DV-II: 5-80M mPa·s.	0.3-100 RPM (DV-I) or 0.1-200 RPM (DV-II).	±1.0% of full range	±0.5% of full range
ViscoQT 1000-Pro/S Series	Wider range options across 1S/2S/3S; supports low-viscosity and small-sample accessories.	10-600K / 10-6M / 100-80M mPa·s.	1-60 or 0.1-100 RPM (infinitely variable).	±1.0% of full range	±0.5%
ViscoQT 1000 Basic	Entry-level touch-screen with fixed speed steps or step speeds.	10-100,000 mPa·s (1000/1S) or 10-2M mPa·s (1000/2S).	6/12/30/60 RPM (1S) or 0.3-60 RPM (2S).	±1.0% (Newtonian fluids).	±0.5% (Newtonian fluids).
Krebs Stormer Viscometer (KS-Series)	Paints & coatings viscosity in Krebs units (KU); ASTM D562 reference.	40.2-141.0 KU (27-5250 cP).	200 RPM ±0.1 RPM.	±1.0% of full-scale range	±0.5% of full-scale range

Application of Rotational Viscometer

Rotational viscometers are the industry standard in determining absolute viscosity of all types of liquids with viscosities as high as 320 million centipoise. Qualitest offers digital models for low- medium - high viscosity materials.

Low Viscosity (L)

Range: 20 to 2,000,000 centipoise

Adhesives (solvent); Chemicals; Cosmetics; Hot Waxes; Inks (lithographic); Latex paints; Coating systems; Polymers; Rubber solutions; Solvents

Medium Viscosity (R)

Range: 100 to 13,000,000 centipoise

Adhesives (hot melt); Ceramic slurries; Gums; Inks (screen printing); Paints; Paper coatings; Plastisols; Surface coatings; Varnishes

High Viscosity (H)

Range: 200 to 104,000,000 centipoise

Asphalt; Caulking compounds; Epoxies; Gels; Inks (ballpoint, offset); Pastes; Putty; Roofing compounds; Sealants; Sheet molding compounds

Selecting the Proper Viscometer

While various models of viscometers are recommended for high, medium, and low viscosity applications, these designations are intended only as guidelines. Multiple speeds and interchangeable spindles on each viscometer provide many viscosity ranges for flexibility in application. Selecting the correct model will ensure maximum sensitivity and accuracy in the measured viscosity range.

Some of the factors to consider in selecting a viscometer are: the viscosity range of the samples, how much sample is available, do you need to monitor the temperature, and do you need to record the viscosity values.

Special Purpose Viscometers

There are two models primarily designed for the Paint and Coatings industries. The KREBS viscosity or Stormer Viscometer that has a fixed speed motor and a paddle style spindle. The KREBS viscometer is designed to comply with ASTM method D562.

For applications that require a higher shear force viscosity measurement the Cone & Plate Viscometers (CAP models) are recommended. The sample is confined between a moving cone-shaped spindle and a platen that applies a higher shear stress and shear rate.



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Toll-Free: 1.877.884.TEST (8378) | Fax: 954.697.8211
E-mail: info@qualitest-inc.com
Address: 8201 Peters Rd., #1000,
Plantation, FL 33324, USA.

Qualitest Canada & International

Tel: +1.905.944.9825 | Fax: +1.905.944.0304
E-mail: sales@qualitest-inc.com
Address: 70 East Beaver Creek Rd., #9, Richmond Hill,
Ontario L4B 3B2, Canada.

Qualitest Latin America (Mexico and LATAM Region)

E-mail: ventas@qualitest-inc.com

Qualitest KSA (Regional Office)

Tel: +966 11 500 6659
Address: Level 7, 3.09, District 3, King Abdullah
Financial District, Riyadh, Saudi Arabia

Qualitest Singapore (ASIA PACIFIC Regional Office)

Tel: +65 6393 5480 | E-mail: singapore@qualitest-inc.com
Address: 50 Raffles Place, Singapore Land Tower,
Level 46, Singapore, 048623.

Qualitest Indonesia (Representative Office)

Tel: +62 21 2985 9522 | Fax: +62 21 2985 9889
E-mail: indonesia@qualitest-inc.com
Address: One Pacific Place Level 11, Jl. Jend. Sudirman,
Kav. 52-53, SCBD Area, Jakarta 12190, Indonesia.

Qualitest FZE (Regional GCC/ME Office)

Tel: +971 4 8819252 | Fax: +971 4 8819262
Email: gcc@qualitest-inc.com
Address: Jafza One, BB 1610, Jebel Ali Free Zone,
PO Box 261440, Dubai, UAE.

Qualitest India

E-mail: india@qualitest-inc.com
Address: 15th Floor, Dev Corpora, Pokhran Road No.1,
Eastern Express Highway, Thane, Maharashtra,
Mumbai, 400601, India

