

The Game Changers

Rotational viscometer - product selection guide



Boost up your quality control with Anton Paar's rotational viscometers

Do your batches differ in quality? Is it difficult to pump or fill your product? Do you face problems with the quality of raw materials? Performing quick single point or multiple point viscosity measurements with a rotational viscometer ensures proper processability and quality of your raw materials and/or final products.

Avoid user errors with Anton Paar's intelligent rotational viscometers: Built-in digital leveling, magnetic coupling, automatic spindle detection by Toolmaster™ and unique TruMode™ make your test results traceable, reliable and accurate.

Worldwide qualified support, innovation and modularity made Anton Paar the unique supplier from entry level viscometers to high end rheometers.

All rotational viscometers of Anton Paar are easy to use, and deliver accuracy of $\pm 1.0\%$ of the range in use and a reproducibility of $\pm 0.2\%$.

Your measurement results are comparable anywhere in the world, when the same instrument setup (e.g. torque model, spindle) and settings (e.g. speed, temperature) are used.

Price level



This chart gives you a quick overview of Anton Paar's rotational viscometers and rheometers for quality control (QC) purpose. It helps you to find an instrument with the required features. If you look from left to the right, the more features an instrument has. The price of the instrument increases from the bottom to the top.

Need an even more powerful instrument for your high-end R&D tasks? Anton Paar rheometers are best in class, suitable for all kinds of rheological investigations. We also cover the option to measure viscosity inline in our portfolio.

Hint: You can purchase your instrument directly on the webshop: <https://shop.anton-paar.com>



RheolabQC

- Controlled shear stress (CSS) or shear rate (CSR)
- Yield stress
- Cylindrical systems
- EC motor
- Programmable
- Optional temperature control
- Pharma Qualification Package (PQP)
- Stand-alone or PC control
- Determines viscosity
- Measures torque



MCR 72 and 92

- Plate-Plate and Cone-Plate
- Oscillatory tests
- Controlled shear stress (CSS) or shear rate (CSR)
- Yield stress
- Cylindrical systems
- EC motor
- Programmable
- Optional temperature control
- PC control
- Pharma Qualification Package (PQP)
- Determines viscosity
- Measures torque



ViscoQC 100

- PQP-S
- Optional Peltier Temp. Device
- Optional temperature sensor
- Stand-alone
- Determines viscosity
- Measures torque



ViscoQC 300

- Speed scan
- Temperature scan
- 7" Touch screen interface
- User management
- Optional Peltier Temp. Device
- Optional temperature sensor
- Stand-alone
- Determines viscosity
- Measures torque



ViscoQC 300 + V-Curve

- Live graph
- Yield stress
- Gelation time
- Step programming
- Speed scan
- Temperature scan
- 7" Touch screen interface
- User management
- Optional Peltier Temp. Device
- Optional temperature sensor
- Stand-alone
- Determines viscosity
- Measures torque



ViscoQC 300 + V-Comply

- 21 CFR Part 11 compliance
- GMP & GAMP compliance
- Audit trail, electronic signature
- PQP
- Speed scan
- Temperature scan
- 7" Touch screen interface
- User management
- Optional Peltier Temp. Device
- Optional temperature sensor
- Stand-alone
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Single point

Multi point

Features

OTHER MEMBERS OF GAME CHANGERS' FAMILY

Kinematic Viscometer – SVM



- For oils, lubricants, additives, fuels and crude oil
- Kinematic viscosity
- Dynamic viscosity
- Viscosity index
- Density
- API grades
- Saybolt viscosity

The 4-in-1 Viscometer – SVM 3001 Cold Properties



- For jet fuel, diesel fuel, biodiesel blends and fuel oils
- Cloud point
- Freeze point
- Kinematic viscosity
- Dynamic viscosity
- Density

Rolling Ball Viscometer – Lovis 2000 M/ME



- For polymer solutions, chemicals, pharma, beer and wort
- For volatile, poisonous or aggressive substances
- For precious samples when only few μL are available
- Optional density
- Intrinsic viscosity
- Molecular mass
- Relative viscosity

How to select an instrument

Which instrument to select depends on the **viscosity** of your sample, the required **speed range** and **test method**.

Depending on the viscosity of your sample, you may either choose the **L-model** for low-viscosity samples, **R-model** for medium- (regular) viscosity samples or **H-model** for high-viscosity samples.

Select **ViscoQC 100** for quick **single-point** checks within a speed range of **0.1 to 200 rpm**. Select **ViscoQC 300** for **multi-point** checks within a speed range of **0.01 to 250 rpm**.

If you need a **graph** and/or want to **analyze your data**, we offer the ViscoQC 300 with the software package "**V-Curve**". If you need to be compliant with **21 CFR Part 11**, GMP and GAMP5, we offer the ViscoQC 300 with the software package "**V-Comply**" that automatically includes a pharma qualification document (PQP).

Please have a look at the "Product selection table" and "Sample types".

Select a spindle

Which spindle to choose depends on **available volume** and **viscosity** of the sample. Most routine measurements are performed in a 500 mL beaker using relative spindles. If sample volume is limited, a concentric cylinder, double-gap, UL, small sample adapter or a small vane spindle can be used.

All spindles are equipped with a magnetic coupling for easy one-handed exchange and Toolmaster™ for automatic spindle recognition and configuration. The spindles are made of AISI 316L stainless steel for increased chemical resistance.

We offer the following spindles:

- **Relative L/RH spindles:** Included in the standard delivery.
- **Concentric cylinders:** Well defined gap for accurate shear rate/stress calculations according to ISO 3219.
- **Double-gap and UL spindles:** Measure ultra-low viscosities.
- **Small sample adapter spindles:** Defined gap with small sample volume.
- **Vanes and T-bar:** Measure paste-like, non-flowing samples.
- **Gel time kit:** Determine the gel time of thermosetting compounds.
- **ASTM spindles:** Measure the low-temperature viscosity of lubricants according to ASTM D2983/8210, ASTM D5133 and ASTM D7110.

Temperature control/sensing

An optional temperature sensor can be used to monitor the temperature of your sample during measurement. If you want to control the temperature, compact and accurate air-cooled Peltier temperature devices (PTD) are available for concentric cylinders, double-gap and small sample adapter spindles:

- **PTD 80:** +15 °C to +80 °C
- **PTD 175:** -45 °C to +175 °C (Only for ViscoQC 300)

Space and maintenance is saved with these chiller-free options. The intelligent temperature devices automatically indicate when the sample reaches the required measuring temperature (T-Ready™).

Data handling

For printout and export of measurement results from ViscoQC 100, a DYMO® LabelWriter™ or data collection software (V-Collect) can be used.

ViscoQC 300 has an internal data memory for up to 999 measurements. Printout and export of data during or after measurement are simply possible via LIMS, FTP server, USB flash drive (pdf or csv table) or Page printer (USB or Network).

Product selection table

	Model	Min. viscosity cP (mPa·s)	Max. viscosity cP (mPa·s)	Speed range rpm	Number of speeds	No. of supplied spindles
Low Viscosity	ViscoQC 100 – L	1*	6 M	0.1 to 200	25 (editable)	4
	ViscoQC 300 – L	1*	6 M	0.01 to 250	freely selectable	4
	ViscoQC 300 – L + V-Curve	1*	6 M	0.01 to 250	freely selectable	4
	ViscoQC 300 – L + V-Comply	1*	6 M	0.01 to 250	freely selectable	4
	ViscoQC 300 – L + V-Curve + V-Comply	1*	6 M	0.01 to 250	freely selectable	4
Medium Viscosity	ViscoQC 100 – R	6.4**	40 M	0.1 to 200	25 (editable)	6
	ViscoQC 300 – R	3**	40 M	0.01 to 250	freely selectable	6
	ViscoQC 300 – R + V-Curve	3**	40 M	0.01 to 250	freely selectable	6
	ViscoQC 300 – R + V-Comply	3**	40 M	0.01 to 250	freely selectable	6
	ViscoQC 300 – R + V-Curve + V-Comply	3**	40 M	0.01 to 250	freely selectable	6
High Viscosity	ViscoQC 100 – H	51.2***	320 M	0.1 to 200	25 (editable)	6
	ViscoQC 300 – H	24***	320 M	0.01 to 250	freely selectable	6
	ViscoQC 300 – H + V-Curve	24***	320 M	0.01 to 250	freely selectable	6
	ViscoQC 300 – H + V-Comply	24***	320 M	0.01 to 250	freely selectable	6
	ViscoQC 300 – H + V-Curve + V-Comply	24***	320 M	0.01 to 250	freely selectable	6

M = 1 million
 *With optional ultra low viscosity adapter system UL26, with L1 spindle 15 mPa·s
 **With optional ultra low viscosity adapter system UL26, with RH1 spindle 100 mPa·s
 ***With optional ultra low viscosity adapter system UL26, with RH1 spindle 800 mPa·s

Sample types

	Chemicals and petroleum products	Food and beverages	Cosmetics and pharmaceuticals	
L-model - Low Viscosity	Adhesives (solvent base)			
	Chemicals			
	Hot waxes			
	Hydraulic fluids	Dairy products	Cosmetics	
	Inks	Fruit concentrate	Mouthwash	
	Latex	Juice	Pharmaceuticals	
	Oils	Syrup	Shower liquids	
	Paints and coatings	Smoothies	Hand disinfection fluid	
	Photoresist	Gum Arabic	Methylcellulose	
	Isocyanate			
	Polymer solutions			
	Rubber solutions			
	Solvents			
	R-model - Medium Viscosity	Adhesives (hot melt)		
		Asphalt	Chocolate	Creams
Ceramic slurries		Dairy products	Detergents	
Engine oil		Yoghurt	Lotions	
Epoxy resins		Dressings	Shampoo	
Gums		Food products	Toothpaste	
Inks (screen printing)		Pudding	Liquid make-up	
Organisols		Starches	Eye make-up remover	
Paints		Sauces	Nail polish	
Pater coatings & pulp		Ketchup	Cough suppressant	
Plastisols				
Surface coatings				
Varnish				
H-model - High Viscosity		Adhesives (highly viscous)		
		Asphalt	Chocolate	
	Caulking compounds	Mayonnaise		
	Epoxies	Molasses	Gels	
	Inks (ballpoint, offset, lithographic)	Peanut butter	Ointments	
	Pastes	Jam		
	Putty (Wall)			
	Roofing compounds			
	Sealants			
	Sheet molding compounds			