

Viscometers

Consistometer

Verify consistency, viscosity, and flow rate of viscous material

- Meets military specification R-81294B for paint manufacturing

Use this consistometer to determine the consistency of viscous materials by measuring the distance that the material flows under its own weight in a given time interval. Consistometer checks against consistency, viscosity, and flow rate standards. Ideal for pre-determining product formulas to standardize production lots.



Consistometer requires only 75 mL of sample for measurement. Engraved graduations in 0.5-cm divisions ensure accurate results; spring-loaded gate prevents premature sample flow. Leveling screws and built-in spirit level help achieve repeatable results. Stainless steel construction prevents corrosion.

Sample size	Graduations	Dimensions	Catalog number	Price
75 mL	0.5 cm	14"L x 3 1/2"W x 5 1/2"H (35.6 x 8.9 x 14.0 cm)	GY-59950-00	

Ford Viscosity Cups

Take easy, accurate readings

- ±2% production tolerance

Simply pour your sample into the cup and measure the time it takes for the liquid to flow through the orifice until the first break in the liquid stream. Use the included table to convert the elapsed time to centistokes (cSt).



The cups are made from solid aluminum; the orifice is made from brass. All the cups are calibrated to NIST-traceable oils. NIST-traceable cups are available with an NIST-traceable calibration report supplied by the manufacturer. Cups conform to ASTM D333, D365, and D1200.

Cup number	Range (cSt)	Catalog number	Price
Standard models			
2	25 to 120	GY-08711-00	
3	37 to 231	GY-08711-10	
4	70 to 370	GY-08711-20	
NIST-traceable models			
2	25 to 120	GY-08711-05	
3	37 to 231	GY-08711-15	
4	70 to 370	GY-08711-25	

[GY-08711-50](#) Ford cup accessory kit includes cover glass for removing excess sample from cup, bubble level for leveling cup and stand, stainless steel beaker, and package of cleaning swabs

[GY-08711-60](#) Ford cup stand

Cole-Parmer® Gilmont® Falling Ball Viscometers

No need for power—check viscosity anywhere

- Get readings and quality control checks in food or other production lines easily
- Easy-to-read design features red reference lines against white background
- Reliable, reproducible results from ±0.2 to ±1.0%
- Conforms to ASTM D1343-93



Easily determine viscosity with these falling ball viscometers—simply release the ball and measure descent time. Viscometers are made of precision-bore glass tubing with stabilizing beads, Viton® O-ring, and Delrin® acetal parts. Require a 7-mL sample volume.

What's included: One glass and one 316 stainless steel high-precision ball. For higher viscosity ranges, use the optional tantalum ball (sold separately).

Model	Ball	Viscosity range	Catalog number	Price
GV-2100	Glass	0.2 to 2	GY-08701-00	
	SS	1 to 10		
	Tantalum†	2 to 20		
GV-2200	Glass	2 to 20	GY-08702-00	
	SS	10 to 100		
	Tantalum†	20 to 200		
GV-2300	Glass	20 to 200	GY-08702-10	
	SS	100 to 1000		
	Tantalum†	200 to 2000		

†Tantalum ball not included; order separately below.

[GY-08702-50](#) Tantalum ball, 0.25" dia

Viscosity Cups

Get precise measurements affordably

- Stainless steel cup and handle
- Orifice is machined to ensure the length of the orifice and a symmetrical efflux stream
- Cups conform to ASTM 816, D1084, and D4212
- ±3% production tolerance
- Optional aluminum carousel stand holds up to five cups for easy storage

To take a measurement, simply scoop the test liquid into the cup; the liquid will stream out of the opening on the bottom. Measure the time until the first break in the flow of liquid. A conversion table supplied with each cup will tell you viscosity in centistokes from the elapsed time.



Model	Cup number	Range	Catalog number	Price
EZ1	1	10 to 36 cSt	GY-08700-00	
EZ2	2	19 to 156 cSt	GY-08700-10	
EZ3	3	64 to 596 cSt	GY-08700-20	
EZ4	4	79 to 784 cSt	GY-08700-30	
EZ5	5	161 to 1401 cSt	GY-08700-40	

Cole-Parmer® Zahn-Style Viscosity Cups

No complicated training needed

- Measures viscosity of paint, lacquer, oil, syrups, and more
- Stainless steel construction
- Requires only 44 mL of sample
- Supplied with conversion sheet to translate Zahn time to centistokes



Cup number	Range (cSt)	Standard cups		Cups with NIST-traceable calibration report	
		Catalog number	Price	Catalog number	Price
1	18 to 56	GY-08700-60		GY-08700-65	
2	40 to 230	GY-08700-61		GY-08700-66	
3	150 to 790	GY-08700-62		GY-08700-67	
4	220 to 1100	GY-08700-63		GY-08700-68	
5	460 to 1725	GY-08700-64		GY-08700-69	

Calibrated Glass Capillary Viscometers

Meet ASTM testing methods

- Each viscometer is calibrated in accordance with ASTM D446

All glass capillary viscometers conform to ASTM D445, ASTM D446, ISO 3104, and ISO 3105 standards; Zeitfuchs cross-arm and Cannon-Fenske opaque viscometers also conform to ASTM D2170.

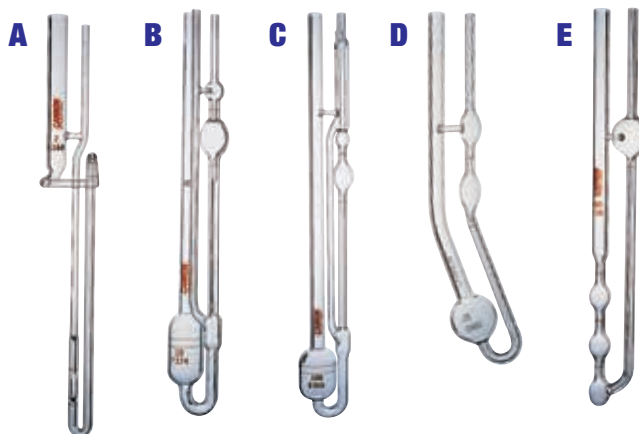
A. Zeitfuchs® Cross-Arm Viscometers. Use to determine kinematic viscosities of transparent and opaque Newtonian liquids. Require a 1- to 3-mL minimum sample volume.

B. Ubbelohde Viscometers. Use to determine kinematic viscosities of transparent Newtonian liquids. Require an 11-mL sample volume.

C. Cannon-Ubbelohde Viscometers. Use to determine kinematic viscosities of transparent Newtonian liquids such as jet and hydraulic lubricants. Especially well suited for temperatures above 200°F. Require an 11-mL sample volume.

D. Cannon-Fenske Routine Viscometers. Quickly and easily measure the viscosities of transparent Newtonian liquids in the chemical and petroleum industries. Require a 7-mL sample volume.

E. Cannon-Fenske Opaque Viscometers (reverse flow type). Use for dark Newtonian liquids; especially suited for liquids so dark in color that the meniscus cannot be seen in a Cannon-Fenske routine viscometer. Require a 12-mL sample volume.



Universal size no.	Approx constant (cSt/sec)	Range (cSt)	Catalog number	Price
A. Zeitfuchs cross-arm viscometers				
1	0.003	0.6 to 3	GY-98934-00	
2	0.01	2 to 10	GY-98934-01	
3	0.03	6 to 30	GY-98934-02	
4	0.10	20 to 100	GY-98934-03	
5	0.3	60 to 300	GY-98934-04	
6	1.0	200 to 1000	GY-98934-05	

Universal size no.	Approx constant (cSt/sec)	Range (cSt)	Catalog number	Price
B. Ubbelohde viscometers				
0	0.001	0.3 to 1	GY-98934-10	
0C	0.003	0.6 to 3	GY-98934-11	
0B	0.005	1 to 5	GY-98934-12	
1	0.01	2 to 10	GY-98934-13	
1C	0.03	6 to 30	GY-98934-14	
1B	0.05	10 to 50	GY-98934-15	
2	0.1	20 to 100	GY-98934-16	
2C	0.3	60 to 300	GY-98934-17	
2B	0.5	100 to 500	GY-98934-18	
3	1.0	200 to 1000	GY-98934-19	
3C	3.0	600 to 3000	GY-98934-20	
3B	5.0	1000 to 5000	GY-98934-21	
4	10	2000 to 10,000	GY-98934-22	
4C	30	6000 to 30,000	GY-98934-23	
4B	50	10,000 to 50,000	GY-98934-24	
5	100	20,000 to 100,000	GY-98934-25	

Universal size no.	Approx constant (cSt/sec)	Range (cSt)	C. Cannon-Ubbelohde		D. Cannon-Fenske routine		E. Cannon-Fenske opaque	
			Catalog number	Price	Catalog number	Price	Catalog number	Price
25	0.002	0.5 to 2	GY-98934-30		GY-98934-50		GY-98934-70	
50	0.004	0.8 to 4	GY-98934-31		GY-98934-51		GY-98934-71	
75	0.008	1.6 to 8	GY-98934-32		GY-98934-52		GY-98934-72	
100	0.015	3 to 15	GY-98934-33		GY-98934-53		GY-98934-73	
150	0.035	7 to 35	GY-98934-34		GY-98934-54		GY-98934-74	
200	0.1	20 to 100	GY-98934-35		GY-98934-55		GY-98934-75	
300	0.25	50 to 250	GY-98934-36		GY-98934-56		GY-98934-76	
350	0.5	100 to 500	GY-98934-37		GY-98934-57		GY-98934-77	
400	1.2	240 to 1200	GY-98934-38		GY-98934-58		GY-98934-78	
450	2.5	500 to 2500	GY-98934-39		GY-98934-59		GY-98934-79	

Viscometers

Falling Ball Viscometer

Ensure accurate viscosity measurements

- Ideal for polymers, inks, solvents, oils, and raw materials
- Borosilicate glass measuring tube provides excellent visibility of the ball
- Includes a thermometer with a range of –1 to 26°C with 0.1°C divisions
- Meets the requirements of DIN 53015 and ISO 12058

Combine the viscometer with a circulating bath (not included, see our “Baths & Circulators” section on pages 53-70) for superior precision. The measuring tube pivots to return the ball to the starting point for repeated trials. Results are given as dynamic viscosity in the units of millipascal seconds (mPas). To measure the viscosity of gases, purchase the optional glass ball.

What's included: six balls, thermometer, cleaning tools, and case.

Ball number	Viscosity range (mPas)	Catalog number	Price
1	0.6 to 10	GY-08708-30	
2	9 to 140		
3	40 to 700		
4	150 to 5000		
5	5,000 to 50,000		
6	>7,500		

[GY-08708-51](#) Gas ball for gas measurements



Specifications

Temperature range: –4 to 302°F (–20 to 150°C)
Reproducibility: better than 0.5%
Comparability: better than 1%
Sample volume: 45 mL

Constant-Temperature Viscosity Baths

Save time—take multiple measurements simultaneously

- Uniform temperature control, thorough circulation without turbulence
- High-accuracy timers display in 0.01-second resolution
- Models with RS-232 port also allow you to enter the viscosity constant of each viscometer on the controller panel
- Power shuts off for overtemperature status or if the primary probe is disconnected

Bath chamber is a clear Pyrex® tank enclosed in a polyester-epoxy finished steel housing. Top plate holds the viscometers and is made of stainless steel for easy cleaning. Front viewing window reduces distortion. Glare-free fluorescent lights in the bath and a background baffle enhance the view of the viscometers. Baths rest on adjustable leveling feet.

What's included: circulator, controller, cooling coil, bath chamber, top plate, thermometer holder, seven plastic holder covers, and 6-ft cord with plug (US standard for 115 VAC, European for 230 VAC). Order viscosity standards separately on page 1075.



Specifications

Temperature resolution: 0.1°F/°C	Wetted materials: stainless steel, glass	Bath depth	Dimensions (L x W x H)
Temperature sensor: 100 W Pt RTD	Bath medium: deionized water, white mineral oil, or silicon fluid	22-L models: 12"	22-L models: 20" x 15" x 24" (50.8 x 38.1 x 61 cm)
Viscometer ports: seven, 2" dia		34-L models: 18"	34-L models: 20" x 15" x 31" (50.8 x 38.1 x 78.7 cm)

Bath capacity	Temperature range	Accuracy	Output	Power (VAC, Hz)	Catalog number	Price
22 L (5.8 gal.)	Ambient to 302°F (150°C) –4 to ambient with external chiller (not included)	Exceeds ASTM standards	—	115, 60 230, 50	GY-98944-00 GY-98944-05	
			RS-232	115, 60 230, 50	GY-98944-10 GY-98944-15	
34 L (8.9 gal.)	Ambient to 302°F (150°C) –4 to ambient with external chiller (not included)	Exceeds ASTM standards	—	115, 60 230, 50	GY-98944-20 GY-98944-25	
			RS-232	115, 60 230, 50	GY-98944-30 GY-98944-35	

Constant-Temperature Viscosity Baths

Stop temperature fluctuations—respond to changes quickly

These kinematic viscosity baths meet ASTM D-445 specifications for measuring petroleum, lubricants, polymer coatings, food, paint, and other liquids. Advanced PID controls maintain precise temperatures and quick responsiveness under changing heat load conditions. The integral recirculating pump ensures uniform temperature. Large, backlit digital display shows both set and actual values. Other features include Celsius/Fahrenheit selection, high/low temperature limits, chemical- and thermal-resistant top plate, and transparent tank for excellent visibility. Accommodates six viscometers.

What's included: tempered glass tank, top plate, circulator, covers for holes, and power cord.



Bath capacity	Temperature range	Temperature stability	Power (VAC, Hz)	Catalog number	Price
17 L (4.5 gal.)	Ambient +10 to 135°C (ambient +50 to 275°F)	±0.07°C	120, 60	GY-98935-22	
			240, 50	GY-98935-24	
27 L (7.1 gal.)			120, 60	GY-98935-26	
			240, 50	GY-98935-28	



Cole-Parmer® Viscosity Standards

Don't sacrifice accurate readings

– Calibrated to a precision of ±0.2% of viscosity

Calibrate both automatic and manual kinematic and Saybolt viscosity equipment. Standards are NIST-traceable and certified to ASTM D2162 under ISO/IEC 17025 guidelines. Standards are supplied in 500-mL bottles and include an NIST-traceable calibration report supplied by the manufacturer and a Material Safety Data Sheet.



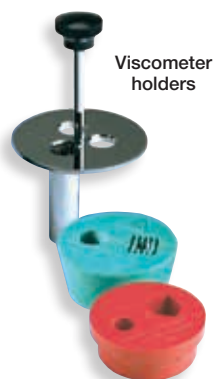
Viscosity standard	Kinematic viscosity in cSt								Saybolt viscosity			Catalog number	Price
	68°F (20°C)	77°F (25°C)	100°F (38.8°C)	104°F (40°C)	122°F (50°C)	140°F (60°C)	210°F (98.9°C)	212°F (100°C)	100°F SUS†	210°F SUS†	122°F SFS†		
N1.0	1.3	1.2	1.0	0.97	—	—	—	—	—	—	—	GY-98944-64	
S3	4.6	4.0	3.0	2.9	2.4	—	1.2	1.2	—	—	—	GY-98944-66	
S6	10	8.7	6.0	5.7	4.5	—	1.9	1.9	—	—	—	GY-98944-68	
N10	21	17	11	10	7.3	—	2.7	2.7	—	—	—	GY-98944-70	
S20	43	34	20	18	13	—	4.0	3.9	96.6	—	—	GY-98944-72	
N35	77	59	35	29	20	—	5.3	5.2	152.1	—	—	GY-98944-74	
S60	165	121	60	54	35	—	7.7	7.5	281	—	—	GY-98944-76	
N100	372	268	128	114	70	—	13	13	592	—	—	GY-98944-78	
S200	672	468	200	181	107	—	18	17	955	88.2	—	GY-98944-80	
N350	1255	865	371	324	186	—	28	27	—	131.5	—	GY-98944-82	
S600	2184	1472	600	518	286	—	37	37	—	174	135.2	GY-98944-84	
N1000	4678	3089	—	1020	542	350	—	57	—	—	—	GY-98944-86	
S2000	8323	5422	2000	1719	889	—	87	83.3	—	405	—	GY-98944-88	
N4000	17,889	11,470	—	3448	1720	850	—	137	—	—	—	GY-98944-90	
S8000	34,931	22,383	8000	6710	3317	—	—	242	—	—	—	GY-98944-92	

†SUS is Saybolt Universal Seconds; SFS is Saybolt Furol Seconds.

Accessories for Viscosity Baths

Viscometer Holders

For use with constant-temperature baths on pages 1074-1075, and viscometers on page 1073. All brass holders include a handle.



Bath Oil

Use bath oil for high-temperature baths. Viscosity is 36 cSt at 104°F (40°C); 5.6 cSt at 212°F (100°C). Use below 275°F (135°C).

[GY-98935-52](#) Bath oil, six gallons

Viscometer type	Material	Catalog number	Price
Zeitfuchs® cross-arm	Neoprene	GY-98934-96	
	Brass	GY-98934-97	
Ubbelohde	Brass	GY-98934-95	
	Plastic	GY-98934-92	
Cannon Ubbelohde	Neoprene	GY-98934-93	
	Brass	GY-98934-94	
Cannon-Fenske routine/opaque	Plastic	GY-98934-90	
	Neoprene	GY-98934-91	
	Brass	GY-98934-98	

Tuning Fork Vibration Viscometers

Read viscosity with superior accuracy



- Measure changing viscosity and temperature without replacing the sensor plates
- Accurate low-viscosity measurement
- Excellent solution for difficult measurements such as foaming, flowing, and low viscosity fluids

These unique viscometers are ideal for ink, paint, food, pharmaceutical, chemical processing, rubber, oil, paper, or any viscometry application that requires high accuracy and fast response time. The tuning fork vibration method ensures excellent accuracy and repeatability with a wide range of continuous and real time measurements. The thin, small size of the sensor plate allows even minute changes of viscosity and temperature to be tracked on a real-time basis. Design of the sensor plates allows minimal deformation of the sample texture, and thus enables measurement of non-Newtonian fluids.

Viscosity is measured by detecting the driving electric current necessary to resonate the two sensor plates at constant frequency of 30Hz and amplitude of less than 1 mm. The low drive frequency allows measurement of foam without breaking or scattering the samples. This tuning fork vibration technique also allows the measurement of flowing samples, including liquid turbulent flow, which enables the exact comparison of field and laboratory samples. Sol-gel sample fluid, like starch, can also be measured during the change of material characteristics.

Included software lets you collect, store, and graph data for analysis. It allows you to monitor any change in sample temperature or viscosity.

What's included: AC adapter, software on viscosity, sample cups, and RS-232 cable (25 pins–9 pins).

Specifications

Accuracy: $\pm 1.0\%$ of reading (full range)

Minimum sample: 35 mL

Temperature measurement: 32 to 212°F (0 to 100°C)

Vibration frequency: 30 Hz

Viscosity measurement units: mPas, Pa s/cp, P

Interface: RS-232 (included)

Viscosity range	Power	Catalog number	Price
0.3 to 10,000 cp	120 VAC, 60 Hz	GY-98946-10	
	240 VAC, 50 Hz	GY-98946-12	
1000 to 100,000 cp	120 VAC, 60 Hz	GY-98946-14	
	240 VAC, 50 Hz	GY-98946-16	

Gel Time Meters

Get precise determination of gel time

- Determine precise gelation point for thermosetting compounds in accordance with ASTM D3056-85
- Simple, intuitive operation with audible and visual indication at gel point
- Don't miss the gel point—automatic shutoff at gel point for error-free testing
- Get accurate readings—reproducible within $\pm 1\%$
- Take anywhere—portable, compact design
- Self-indicating to nearest second
- Order optional starter kit for running multiple tests

What's included: stand, glass jar, heater, twelve torsion wires, Allen wrenches, neoprene stopper, test tube, tubing, glass stirrer, and power cord.



Model number	Timing range	Reproducibility	Power (VAC, Hz)	Catalog number	Price
22A	0 to 999,999 seconds	$\pm 1\%$	120, 60	GY-98930-16	
22A/50			120, 50	GY-98930-17	
22A-240			240, 60	GY-98930-18	
22A-240/50			240, 50	GY-98930-19	

[GY-08516-65](#) Type K thermocouple, 5-ft (1.5-m) coiled cable

[GY-98933-20](#) Optional starter kit includes 12 test tubes, 12 stirring rods, 12 plastic sleeves, large and small

Teky's Tips



Gel Time Meter Process

The determination of the gelation point for thermosetting compounds is critical in evaluating the rate of polymerization and is usually characterized by a sudden, pronounced increase in material viscosity (thickness). The gelation point can help determine shelf life of a substance by plotting the log of gel time vs. $1/t$ (absolute temperature).

Simply determine gel times at two or more elevated temperatures and extrapolate to ambient. A gel time meter provides a highly reliable means for measuring the gel time, defined as the time for the material under test to reach the incipient gelled state at a constantly controlled temperature. A typical process used to measure gel point:

1. The test sample is placed into a test tube and immersed within a constant temperature bath.
2. A rotating glass rod spindle is placed into the sample.
3. The glass rod is attached to a torsion wire being driven by a synchronous motor rotating at 1 rpm.
4. Timing commences, and the gel time meter monitors the test until the gel point has been reached.
5. Gel time is displayed, and an audible and visual alarm indicates the gel time being reached.

Gelation Timers

Maintain stricter quality control

- Ideal for adhesives and resins
- Requires only 100 mL of sample
- Audible and visual alarms confirm transition from liquid to solid

What's included: stainless steel paddle and power cord with stripped ends. Stand and clamp are sold separately.

NEW



Gelation Timers / Portable Viscometers

Timing range	Resolution	Accuracy	Power		Catalog number	Price
			VAC	Hz		
0.1 to 999.9 minutes	0.1 minute	±2%	120	60	GY-98930-40	
			230	50	GY-98930-41	
1 to 9999 minutes	1 minute	±2%	120	60	GY-98930-42	
			230	50	GY-98930-43	

[GY-98930-44](#) Replacement stainless steel plunger, 22 mm

[GY-98930-47](#) Sample cups. Pack of 240

[GY-04546-00](#) Stand, 29"H x 5/8" diameter (73.7 x 1.6 cm)

[GY-04340-50](#) Clamp

Portable Viscometers

No clumsy cords—battery powered for quick tests anywhere

- No more difficult setup—simple, one-button operation for quicker testing
- Get more accurate readings with digital display

Lightweight, digital, rotational viscometers can be operated handheld or on optional stand for your convenience. Use for quick viscosity tests for process optimization, machine adjustment, or to ensure your product is within specification. Possible handling errors as well as service information are shown on the display.

What's included: Three rotors, carrying case, and four AA batteries. Model VT01 includes two 150-mL sample cups; model VT02 includes one 150-mL sample cup.



Model number	VT01	VT02
Catalog number	GY-08705-01	GY-08705-02
Range	1.5 to 330 cP	30 to 400,000 cP
Temperature	Up to 302°F (150°C)	
Rotor speed	62.5 rpm	
Reproducibility	±1% full scale	
Accuracy	±5% full scale	
Power	Four AA batteries	
Price		

Accessories

[GY-04546-00](#) Stand, 29"H x 5/8" dia

[GY-09376-01](#) Replacement batteries, AA. Pack of 4



Don't Forget...

Viscosity Standards

Calibrate your viscosity equipment to ensure compliance with regulatory guidelines. Standards are calibrated to a precision of ±0.2% of viscosity.

See page 1075



Viscometers

Cole-Parmer® Rotational Viscometers

Included 316 stainless steel spindles are ideal for food applications!

- Select from 10 language options
- Ensure accurate readings by calibrating your viscometer to a known standard

Determine the dynamic viscosity of samples in applications such as food (sauces, juices, and syrups), adhesives, petroleum products, biofuels, paints, pharmaceuticals, chemicals, and more! Over/under range alarm sounds when your sample is too high/low for the spindle selected. All models feature 10 language options (English, French, German, Italian, Japanese, Spanish, Portuguese, Dutch, Polish, and Catalan), push-button control with easy-to-use menu system, motor self-test, user calibration to a known standard, and universal power supply.

Basic Viscometers are an economical choice for fast, accurate viscosity readings. Feature a 4-line display that shows selected speed, selected spindle, viscosity, and % of full scale.

Basic Viscometers with USB Output include software to download data through the USB output to your PC for analysis. Store up to 10 user programs for repeated tests. Display selected speed, selected spindle, viscosity, % torque, shear rate, and shear stress on the 5-line display. Enter the sample density, and the unit calculates and displays kinematic viscosity (cSt) as well.

Advanced Viscometers with Temperature Probe have three times the speed selections and double the speed range of the basic models. Monitor and display temperature with the included RTD temperature probe. Program features include time to torque, time to stop, ramp, and multistep.

Programmable Viscometers feature 2600 speed selections and the highest speed range, up to 250 rpm. Monitor and display temperature with the included RTD temperature probe. Control the viscometer through a PC using the included software; also includes curves, graphs, and database references.

Optional low viscosity adapters allow measurement down to 1 cp when used with low range viscometers and 3.2 cp when used with medium range viscometers. Model 98965-54 includes a water jacket for attachments to an external circulating bath (not included; see your local representative for our full selection).

What's included: 316 stainless steel spindles (four spindles for the low range and six for the other ranges), spindle protector, stand, carrying case, and universal power supply. Models 98965-43 through -48 also include data logging software; USB cable. Models 98965-49 through -51 also include control software, data logging software, and USB cable.



Cole-Parmer®



Viscosity range	Rotational speed range	Number of selectable speeds	Output	Catalog number	Price
Basic viscometers					
20 to 2,000,000 cp (low)	0.3 to 100 rpm	18	None	GY-98965-40	
100 to 13,000,000 cp (medium)				GY-98965-41	
200 to 106,000,000 cp (high)				GY-98965-42	
Basic viscometers with data logging software and USB cable					
20 to 2,000,000 cp (low)	0.3 to 100 rpm	18	USB	GY-98965-43	
100 to 13,000,000 cp (medium)				GY-98965-44	
200 to 106,000,000 cp (high)				GY-98965-45	
Advanced viscometers with temperature probe, data logging software, and USB cable					
20 to 6,000,000 cp (low)	0.01 to 200 rpm	54	USB	GY-98965-46	
100 to 40,000,000 cp (medium)				GY-98965-47	
200 to 106,000,000 cp (high)				GY-98965-48	
Programmable viscometers with temperature probe, control software, data logging software, and USB cable					
20 to 6,000,000 cp (low)	0.01 to 250 rpm	2600	USB	GY-98965-49	
100 to 40,000,000 cp (medium)				GY-98965-50	
200 to 106,000,000 cp (high)				GY-98965-51	

[GY-98965-54](#) Low-viscosity adapter with water jacket

[GY-98965-55](#) Low-viscosity adapter

[GY-17107-01](#) NIST-traceable calibration with data for viscometers

Specifications

Accuracy: ±1% full-scale

Resolution

<10,000 cp: 0.1 cp

≥10,000 cp: 1 cp

Reproducibility: ±0.2%

Temperature probe (indicated models):

100 Ω Pt RTD; 32 to 212°F (0 to 100°C)

Power: 100 to 240 VAC, 50/60 Hz

Rotational Viscometers

Read viscosity directly and affordably

- 18 speeds provide wide measuring capability
- Just flip a switch and turn a dial to set the speed and spindle code

Measure viscosity in a wide range of centipoise (cp) for a variety of industrial and laboratory applications. The four-digit LCD ensures easy reading of both centipoise (cp) or millipascal seconds (mPaS), as well as percent torque, and speed. Display also shows spindle number.

Choose the low-range models (15 to 2,000,000 cp) to measure low-viscosity materials such as oils, solvents, paints, and coatings. Choose the medium-range models (100 to 13,000,000 cp) to measure medium-viscosity materials such as sauces, adhesives, creams, and varnishes. Choose high-range models (800 to 104,000,000 cp) to measure high-viscosity materials such as epoxies, gels, and tars.

These rotational viscometers conform to ASTM D115, D1076, D1084, D4300, D1417, D1439, D1824, D2196, D2364, D2393, D2556, and D2669.

What's included: viscometer stand, 5-ft power cord, and storage case. Models 98945-00 and -05 also include four standard spindles and spindle guard. Models 98945-10 and -15 include six standard spindles and a spindle guard. Models 98945-20 and -25 include six standard spindles. Order replacement spindles separately below.

Specifications

- Accuracy:** ±1% full scale in use
- Repeatability:** ±0.2% full scale in use
- Response time:** 4 times per revolution
- Spindle speeds in rpm:** 0.3, 0.5, 0.6, 1, 1.5, 2, 2.5, 3, 4, 5, 6, 10, 12, 20, 30, 50, 60, 100



Description	Centipoise range†	Power (50/60 Hz)	Catalog number	Price
Low-range viscometer	15 to 2,000,000 cp	115 VAC	GY-98945-00	
		230 VAC	GY-98945-05	
Medium-range viscometer	100 to 13,000,000 cp	115 VAC	GY-98945-10	
		230 VAC	GY-98945-15	
High-range viscometer	800 to 104,000,000 cp	115 VAC	GY-98945-20	
		230 VAC	GY-98945-25	

†Ranges apply to Newtonian materials.

- [GY-98945-95](#) Replacement stand for viscometers
- [GY-98945-96](#) Spindle rack holds seven spindles
- [GY-17107-01](#) NIST-traceable calibration with data for viscometers



Viscometer 98945-00; spindle guard leg available only with low- and medium-range models.



Spindle rack 98945-96; spindles not included

Wait! There's More...

For optional accessories see page 1080.

Replacement Spindles

Order replacement spindles according to your viscometer model and desired centipoise range. Use spindles 98945-70 through -73 for the low-range viscometers. Use spindles 98945-74 through -80 for the medium- and high-range viscometer models.

Viscosity ranges in centipoise (cp)			Catalog number	Price
Low-range models 98945-00, -05	Medium-range models 98945-10, -15	High-range models 98945-20, -25		
15 to 20,000	—	—	GY-98945-70	
50 to 100,000	—	—	GY-98945-71	
200 to 400,000	—	—	GY-98945-72	
1000 to 2,000,000	—	—	GY-98945-73	
—	100 to 20,000	800 to 160,000	GY-98945-74‡	
—	100 to 80,000	800 to 640,000	GY-98945-75	
—	100 to 200,000	800 to 1,600,000	GY-98945-76	
—	200 to 400,000	1600 to 3,200,000	GY-98945-77	
—	400 to 800,000	3200 to 6,400,000	GY-98945-78	
—	1000 to 2,000,000	8000 to 16,000,000	GY-98945-79	
—	4000 to 8,000,000	32,000 to 64,000,000	GY-98945-80	

‡Not included with medium- and high-range viscometers.

Teky's Tips



How it works:

The spindle is immersed into the test fluid. The viscometer measures the additional torque required for the spindle to overcome viscous resistance and regain constant speed. This value is then converted to centipoise and displayed on the LCD readout.

Accessories for Rotational Viscometers (on page 1079)

Measure hot melts, asphalt, wax, and polymers



A. Temperature Control Unit

This programmable unit elevates and controls the temperature of liquid samples. The solid-state proportional temperature controller and RTD probe maintain the stable temperatures required for reproducible measuring of low-volume samples.

Use with small sample volumes from 8 to 13 mL. Viscosity range is 5 to 8,000,000 centipoise, depending on the spindle you install. Set one to ten temperature point programs. The thermo container reaches the set temperature in 30 minutes.

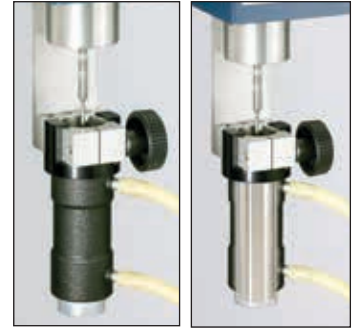
What's included: control box, thermo container, RTD temperature probe with 3-ft (0.9-m) connection cord, sample chamber cooling rack, alignment bracket, extracting tool, pliers, and a 6-ft (1.8-m) power cord.

C. Ultra-Low Viscosity Adapter

– Accurately measure viscosities down to 1 cp

What's included: one sample chamber, one spindle, flow jacket, attachment hardware, and storage case.

Note: Spindle is designed to work only with the ultra-low adapter.



Spindles fit snugly into ultra-low viscosity adapter.

Specifications

Viscosity range
 With 98945-00, -05: 1 to 2000 cp
 With 98945-10, -15: 6.4 to 2000 cp
 With 98945-20, -25: 51.2 to 2000 cp

Chamber volume: 16 mL
Operating range: 5 to 212°F
 (–15 to 100°C)

Description	Catalog number	Price
Ultra-low viscosity adapter	GY-98945-50	



Specifications

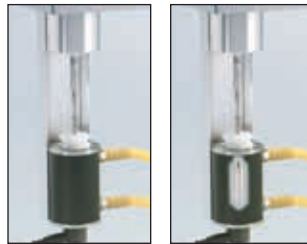
Accuracy: ±1.0°C up to 150°C, and ±2°C above 150°C
Resolution: 0.1°F/°C

Temperature range	Power	Catalog number	Price
104 to 572°F (40 to 300°C)	115 VAC, 60 Hz	GY-98945-52	
	230 VAC, 50 Hz	GY-98945-54	

B. Small Sample Adapters

– Install without disturbing operation

Use the small sample adapters when measuring low fluid volumes of 8 to 13 mL. Adapters include a water jacket for attachment to an external circulating bath. Adapters operate from 5 to 212°F (–15 to 100°C).



Adapters include spindles that fit into sample chambers.

What's included: one sample chamber, one spindle, water jacket, attachment hardware, and storage case. Order replacement sample chambers and spindles separately at right.

For viscometer models (in centipoise ranges) [†]			Catalog number	Price
Low-range 98945-00, -05	Medium-range 98945-10, -15	High-range 98945-20, -25		
3 to 10 K	—	—	GY-98945-56	
30 to 100 K	—	—	GY-98945-58	
60 to 200 K	—	—	GY-98945-60	
—	50 to 170 K	400 to 1.3 M	GY-98945-62	
—	250 to 830 K	2 K to 6.7 M	GY-98945-64	
—	500 to 1.7 M	4 K to 13.3 M	GY-98945-66	
—	1 M to 3.3 M	8 K to 26.7 M	GY-98945-68	

[†] K = 1000; M = 1,000,000.

D. Sample Chambers

Use with spindles	Catalog number	Price
98945-81, -82, -83, -84, -85, -86	GY-98945-94	
98945-90 only	GY-98945-93	
98945-89 only	GY-98945-92	
98945-88 only	GY-98945-91	

E. Spindles for Temperature Control Unit and Small Sample Adapters

– Maximize your reading potential

Select spindles according to your viscometer model and desired viscosity range.

For viscometer models (in centipoise ranges) [†]			Catalog number	Price
Low-range 98945-00, -05	Medium-range 98945-10, -15	High-range 98945-20, -25		
3 to 10 K	—	—	GY-98945-81	
30 to 100 K	—	—	GY-98945-82	
60 to 200 K	—	—	GY-98945-83	
120 to 400 K	—	—	GY-98945-80	
—	50 to 170 K	400 to 1.3 M	GY-98945-84	
—	250 to 830 K	2 K to 6.7 M	GY-98945-85	
—	500 to 1.7 M	4 K to 13.3 M	GY-98945-89	
—	500 to 1.7 M	4 K to 13.3 M	GY-98945-86	
—	1.25 K to 4.2 M	10 K to 33.3 M	GY-98945-88	

[†] K = 1000; M = 1,000,000.



Wait! There's More...

For a full selection of viscosity calibration standards, see page 1075.