Viscosity Measurement of Used Oil

SpectroVISC Q³⁰⁰ Automatic Viscometer

Features

- Compliant with requirements for ASTM D 445, D 7279 and related specifications.
- High throughput up to 60 samples per hour to ASTM precision.
- Small sample volume 0.3 to 0.6 ml.
- Low solvent consumption 2.5 ml per sample.
- Extremely easy to use.
- Automatic flow time measurement.
- Fully automatic cleaning and drying.
- Fast, easy tube replacement, no need to drain bath.
- Single or dual solvent injection system.
- Ultra-precise meniscus detection.
- No PC required for system to operate.
- System is chemically resistant.
- Optional dual measurement capability.

www.SpectroInc.com



"A fast, accurate, and cost effective instrument for the determination of kinematic viscosity in used oils and other fluids."

The SpectroVISC Q³⁰⁰ Viscometer

The SpectroVISC Q³⁰⁰ is a bench-top semi-automatic kinematic temperature bath viscometer optimized for the analysis of used and new lubricants. It conforms to the requirements in ASTM D445, D446, D7279, IP 71 and ISO 3104. It is also the ideal system for used oil analysis laboratories that need to test a wide range of lubricant viscosities.

The SpectroVISC Q³⁰⁰ is a self-contained viscometer system that consists of a thermostatic bath with circular heater and a control column. The bath contains 4 patented viscometer tubes together with optical sensors to detect the flow of oil through the tubes. All measuring tubes function independently of each other. The control column has an LCD display that provides the user with information about the system's status and an array of LED's indicate the current status of each measuring tube. An optional external computer can also be used to control the system for applications where more extensive data handling requirements are necessary.

The user of the SpectroVISC Q^{300} has the option to operate in two modes, standard viscosity determinations or measuring tube calibration. In both modes, the user chooses how many determinations have to be made for an average result. Additional parameters such as tube constants, and

cleaning cycle are also controlled by the operator.



SpectroVISC Q³⁰⁰ System Operation



The SpectroVISC Q³⁰⁰ can be operated from the builtin control panel or from an optional external PC.

	remen	t Details					Measuremen	# 5 of	5	MENU
										Details
SN	MPLE ID									measurement do
R	TS147				14:	20.33				View list
Mea	s, time	Viscos	ay.	terrp.	40,00	1-0				Create Bener
54	1200	22.5	7	Constant	0,4113	7				Deuterania
Corre	nerts					- 1				Backtonsa
				-	edit					
					search	5				
				- U D	delete	_				
					- 10	_				
_					<u> </u>	2				
	-					2				
De	tata war	son below	are the meaning	errerds that ar	e from 1	2) nun Un cakufa	ficers in the		
The yello	data yen w calcul	see below a	are the measur re based upon t	ernents that an bese data. Cli	e from t	the same of the	e run. The calcula calculations to se	tions in the re its detail		
The yello	data yen w calcul	see below a	are the measur rebased upon t	ements that at	e from t	De sar	se run. The calcula e calculations to se	tions in the re its detail		
The yello	data yee w calcul Nr. 1	see below a lation box at	are the meaning to based upon t Viscosity	ements that an bese data. Cli Spread	e from t ik en on Inche	the starr re of the	e run. The calcula e calculations to se	tions in the re its detail		
The yello	fatayon w calcul Nr. 1 1	see below a lation box at liteas, time 54,9900	are the meaning to based upon t Viscosity 22,5763	ements that an bese data. Cli Spread 0,0018%	e from t ik en on Inche	the same of the set	e run. The calcula e calculations to se CALCULE	tions in the re its detail ATIONS		
The yello	fata you w cafcul Nr. 1 1 2	see below a lation box at likess, time 54,9900 54,9700	are the meaning to based upon t Viscosity 22,5763 22,5763 23,5005	ements that an heise data, Cli Spread 0,0215%	e from 1 ik en on Incha	De sarre of the	e run. The calcula calculations to se CALCULA Recape time	tions in the re its detail ATIONS 54,0210		
The yello	lata yee w calcul Nr. 1 1 2 3 2	see below ; lation box at 64,0900 54,0700 54,0700 54,0150 54,0150	are the measure to based upon t Viscosity 22,5763 22,5600 22,5605 23,5605		e from 1 ik en on	the star e of the fe X	e run. The calcula calculations to se CALCUL Average time Average visc.	tions in the re its detail VIIONS 54,0210 22,50		

Analytical results can be viewed on the built-in LCD display or with the included data management software on an optional external PC.

Spectro Incorporated is the only company dedicated exclusively to provide instrumentation, software and applications support for machine condition monitoring through oil analysis.

Contact us for your instrumentation needs and complete turnkey systems for oil analysis.



v.1.5 /9 March 2010

The SpectroVISC Q³⁰⁰ viscometer system is semi-automatic and very easy to operate. The analysis procedure starts with the user injecting less than 1 ml of sample into the measuring tube. Before it travels to the capillary, the sample warms up to bath temperature as it travels down the tube and collects in its horizontal arm. The measurement time is initiated when the bottom of the oil column reaches the first optical sensor. The "Busy" LED for the tube will light up denoting that the measurement has started. The oil sample will continue to travel down the capillary and the system will terminate the measuring time as soon as the second optical sensor has been reached. At this time, the kinematic viscosity result for the tube will be shown on the LCD screen or on an optional computer or printer.

Immediately upon completion of the measurement, the system automatically starts the cleaning cycle by first draining the tube, performing the user specified number of cleaning solvent injections and finally drying the tube. An optional dual cleaning solvent system is also available for difficult and heavily contaminated samples. The entire cycle time from sample injection to data readout ranges from 4 to 8 minutes per tube when ASTM D445 precision is required. Sample throughput can be increased considerably by reducing cycle times for used oil analysis applications based on trending.

Specifications

Standard Methods:	ASTM D445, D446, D7279, IP 71, ISO 3104					
Measuring Range:	0.6 - 3,000 mm ² /s (cSt)					
Meniscus Detection:	Optical (new and used oils)					
Sample Injection:	Manual					
Solvent Injection:	Automatic (optional dual solvent)					
Tube Drying	Automatic					
Viscometer Tube:	4 Glass capillary, modified Zeitfuchs Crossarm					
Display:	Clear LCD					
Temperature Range:	20 - 110°C					
Temperature Stability:	± 0.01°C @ 40°C, ± 0.03°C @ 100°C					
Bath Volume:	7.5 liters (2 gallons)					
PC Software:	Included					
External PC:	Optional					
Dimensions:	43.5 x 47.5 x 62.0 cm. ($17^{1/8}$ x $18^{11/16}$ x $24^{7/16}$ in.)					
Weight:	33 Kg (72.6 lbs), without tubes and bath oil					
Electrical Requirements:	System: 110-230 VAC, 50-60 Hz., 170 W. Thermostat: 1.2 kW@110 VAC; 2.3 kW@230VAC					
External Requirements:	Compressed air: 5-6 Bar					



160 Ayer Road • Littleton, MA 01460 USA Tel: (978) 486-0123 • Fax: (978) 486-0030 E-mail: sales@spectroinc.com • World Wide Web: www.spectroinc.com

Spectro Incorporated is an ISO 9001 certified company.