

# SpectroVISC Q310

## DUAL BATH AUTOMATIC VISCOMETER

Viscosity & Viscosity Index Measurement of Used Oil



The SpectroVISC Q310 is a self-contained, bench-top automatic kinematic temperature dual bath viscosity measuring system that is ideal for in-service oil analysis laboratories that need to test a wide range of lubricant viscosities in a relatively short analysis cycle. The system conforms to the precise requirements of ASTM D445, D446, D7279, IP 71, ISO 3104 and ASTM D2270 for calculating viscosity index.

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

The SpectroVISC Q310 is a dual-bath system that performs measurements at two temperatures with the ability to calculate the Viscosity Index, based on the results from the two individual baths. Controlled through an advanced central touch screen display, all parameters can be easily accessed. The system is so compact that it only takes 60% of the space of two single systems, saving valuable laboratory space.

The SpectroVISC Q310 consists of two thermostatic baths with circular heaters and a control column. The two baths each contain four patented viscometer tubes and optical sensors to detect the flow of oil through the tubes. All measuring tubes function independently of each other. The control column has a touch-screen display that provides the user with information about system 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.

#### Features

- Compliant with requirements for ASTM D 445, D 2270 and related specifications.
- High throughput – up to 120 samples per hour to ASTM precision.
- Small sample volume – 0.3 to 0.6 ml.
- Low solvent consumption – 2.5 ml per sample.
- 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.

## SpectroVISC Q310 System Operation

The SpectroVISC Q310 dual bath viscometer system is semi-automatic and very easy to operate. The analysis procedure starts with the user injecting less than one ml of sample into the measuring tube. Before it travels to the capillary measuring section, 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 four to eight 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.

SYSTEM ID S\_flow40 UNIT NR 4 TUBE ID 254 Tube details Measurement details

Measurement Details Measurement 5 of 5

SAMPLE ID R1S147 16-02-2005 14:20:33

Meas. time	Viscosity	temp.	Constant
54.8800	22.57	40.00 °C	0.4113

Comments

The data you see below are the measurements that are from the same run. The calculations in the yellow calculation box are based upon these data. Click on one of the calculations to see its details.

Nr.	Meas. time	Viscosity	Spread	Include
1	54.8900	22.5763	0.0018%	X
2	54.8700	22.5680	0.0383%	X
3	54.9150	22.5865	0.0437%	X
4	54.9000	22.5804	0.0184%	X
> 5	54.8800	22.5721	0.0200%	X

CALCULATIONS	
Average time	54.8910
Average vsc.	22.58
Max Spread	0.0437%
Standard Dev.	0.0156

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

SPECIFICATIONS	
Standard Methods	ASTM D445, D446, D7279, D2270, IP 71, ISO 3104
Measuring Range	0.6 - 3,000 mm <sup>2</sup> /s (cSt)
Meniscus Detection	Optical (new and used oils)
Sample Injection	Manual
Solvent Injection	Automatic (optional dual solvent)
Tube Drying	Automatic
Viscometer Tube	8 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), each bath
PC Software	Included
External PC	Optional
Dimensions	70 x 47.5 x 62.0 cm. (28 x 46 x 24.5in.)
Weight	62 Kg (136 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

Viscometer tubes can be easily replaced without the need to drain the bath.

