

microVISC-m

Portable Viscosity Measurement for Oil Analysis in the Lab or Field

Rapid, accurate, & reliable viscometer for determining oil health and extending lubricant changeover cycles

It's widely recognized in the industry that viscosity analysis is the fastest, easiest, and most cost effective way to assess the overall health of lubricating oil.

Early detection of problems in the lube oil is essential for machinery, bearings, generators, or any rotating equipment. Lube oil can be affected in many ways – oxidation can occur, it can become contaminated from fuel, water, or refrigerant leakage, or it can mix with exhaust from the pistons introducing soot. Additives in the oil also breakdown over time. When lubricating oil quality declines, costly equipment failures will occur.

It is also important to consider the costs associated with prematurely changing a lubricant that is still good. It is common practice to change lubricating oils in a pump, shaft, or any rotating machinery, at a set interval, whether they need it or not. Significant operating costs can be saved by quickly and easily verifying the oil's quality, allowing operators to extend the useful service life of a lube that is still within the manufacturer's specifications.

microVISC-m™ from RheoSense measures the viscosity of an oil and uses ASTM methods to report the kinematic and absolute viscosity of the sample at the desired reference temperature(s), typically 40°, 50°, or 100° C, allowing for easy determination of oil health. The rectangular-slit method employed in the measurement is incredibly fast and easy to use with little to no training. Data generated with the microVISC-m is also stored with date and time stamps for traceability.

microVISC-m™ is a handheld, battery-operated analyzer that is ideal for lab or remote field measurements. The

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Technical Specifications

Minimum Sample	100 μ L
Viscosity Range	1-3500 cSt
Operating Range	18° - 40° C
Output Range	20° - 100° C
Humidity Range	0~90 %, non-condensing
Accuracy	~+/- 2% reading
Repeatability	~+/- 0.5% reading
Typical Test Time	<1min
Standards	Correlates to ASTM D445

re-chargeable battery can perform up to 100 measurements in between charges, giving the unit true portability. Up to eight different types of oil can be pre-programmed into microVISC-m at a time, which allows operators to recall setups at the push of a button. Disposable pipettes reduce the risk of sample contamination, and an automated cleaning capability means no clean up between samples.

Applications

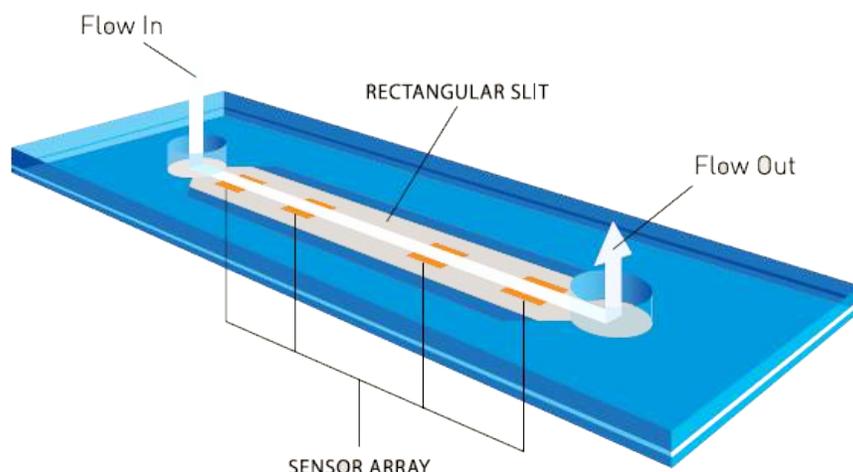
- Remote mining machinery and equipment
- Naval vessels with aviation and marine lubricants
- Compressors, bearings, and rotating equipment on ships
- Fleet maintenance services for trucks, tanks, buses, and other vehicles
- Transformer oils for power companies
- Small- and medium-sized diesel engines
- Offshore wind turbines where visits are expensive and infrequent
- Preventative maintenance in stationary factories and installations



RheoSense

Simply Precise™

RheoSense *microVISC-m*TM Technology



Technology

The breakthrough *microVISC-m*TM (Viscometer/Rheometer-On-a-Chip) technology offers powerful advantages over conventional viscometers and rheometers.

The *microVISC-m*TM solution:

- Requires as little as 100 μ L of sample
- Offers a remarkably wide dynamic viscosity range
- Achieves exceptionally high and low shear rates
- Automated testing for rapid results
- Prevents film forming, evaporation, and contamination
- Measures both Newtonian and non-Newtonian fluids easily
- Has a very small footprint
- Delivers extraordinary precision and accuracy

With *microVISC-m*TM, RheoSense took the standard principles of rheometry and created a dynamic micro-sample viscometer by adding microfluidics while reducing the size of the device with MEMS (micro-electrical mechanical systems) manufacturing.

This new technology, housed within a rugged, portable case and powered with a rechargeable, long-life battery, is ideal for remote field measurements where space may be limited and conditions may be difficult.

It's designed to use disposable pipettes, which reduce the risk of sample contamination, and it is highly user friendly. Users can operate it within one minute with almost no training.

Scientific Principle

The measurement method, also known as the rectangular slit method, provides highly accurate dynamic viscosity data and kinematic viscosity in order to compare with industry standards like ASTM, ISO, SAE, etc. This is accomplished using the innovative *microVISC-m*TM firmware which utilizes ASTM D341 temperature compensation principles to provide viscosity data at reference temperatures that are different from the actual measurement temperature. This gives the user the ability to compare a sample viscosity at 40° C, 50° C and 100° C in a single measurement.

Step 1

Load the sample into the disposable pipette.



Step 2

Mount the pipette.



Step 3

Push run.

