

hts-VROC

High Temperature, High Shear Viscosity Measurement

When you need to measure high temperature and high shear viscosities in your complex industrial process, hts-VROC is the ideal solution for precise, reliable measurement.

hts-VROC™ provides extensional viscosity data by monitoring the sample flow through a microfluidic channel. The system measures the change in pressure using the MEMS pressure sensors, and it registers changes in the flow.

The advantage of this approach is that shear-rate and temperature dependent viscosity can be accurately measured.

hts-VROC™ is ideal for polymer applications, or for fluids with certain extensional viscosity properties similar to those that are used as additives to prevent mists from forming in volatile fluids like jet fuel or for turbulent drag reduction in oil pipelines and sewer systems.

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Technical Specifications

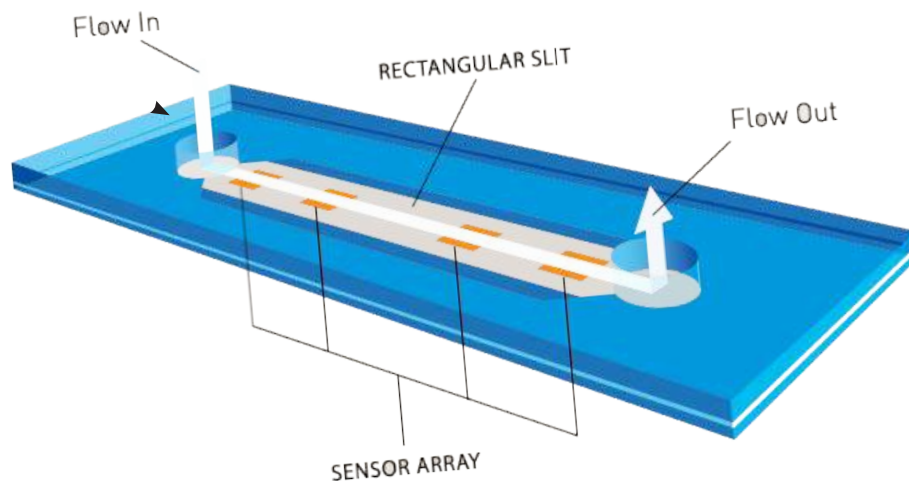
Minimum Sample	500 μL
Viscosity Range	1.0-2,000mPas
Shear Rate Range	0.1-1000 s^{-1}
Temperature Range	4-105°C
Temperature Stability	$\sim\pm 0.07^\circ\text{C}$
Extensional Viscosity	Yes
Accuracy	$\sim\pm 2\%$ reading
Repeatability	$\sim\pm 0.5\%$ reading
Shear Sweeps	Yes
Temperature Sweeps	Yes
Typical Test Time	<1min

Other Applications Include:

- Fiber extrusion spinnerets
- Paint rolling
- Blow molding
- Ink jet printer nozzles
- Sheet or film drawing
- Flow through a porous media

 **RheoSense**
Simply Precise™

RheoSense VROC™ Technology



Technology

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

VROC solution:

- Requires as little as 50 μL 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

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. The result was a new technology that allows the measurement of extensional viscosity at high extensional rates, compared to other methods.

Scientific Principle

The VROC chip is engineered with a microfluidic channel of uniform width and depth

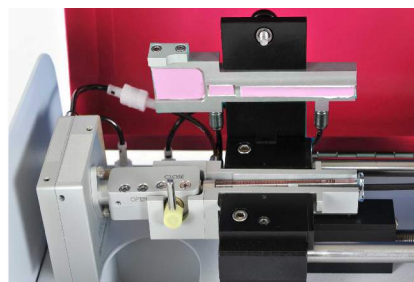
Compared to other methods of viscosity measurements, VROC solutions allow accurate and quick results.

Step 1



Load the syringe with sample.

Step 2



Thread the syringe into the measuring cell and close the thermal jacket

Step 3



Press start and begin the measurement