

Viscometer-on-a-Chip (VSS)

A MEMS Device for Newtonian and Non-Newtonian Viscosities



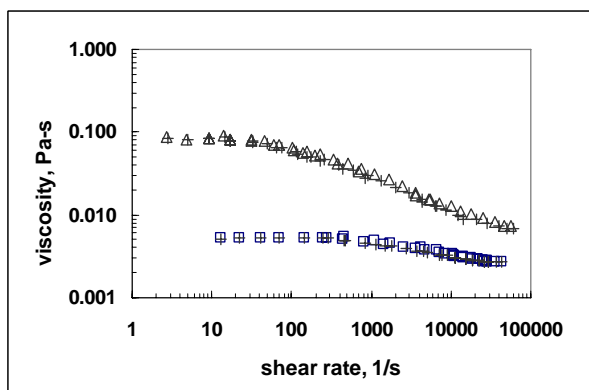
True Viscosity Characterization of Complex Liquids

VSS is a proprietary micro-fluidic MEMS chip for precise and repeatable viscosity characterization of liquids.

Incorporated in an accurate, cost-effective and portable system, VSS provides real-time measurement, which can be performed in the laboratory for analysis or at the point of manufacturing for quality control. The measurements are *true value*, a necessary property for precise quality control

Measurement properties:

- *True viscosity* for Non-Newtonian liquids
- Wide shear rate range, 10^{-1} to 10^6 (s^{-1}) with selected chips
- Various liquids, 0.4 – 10^3 Poise. Higher viscosity can be measured with stiffer chips
- Small sample volume, 50 μ l and more: The swept volume of the sensor, approximately 5 μ l



The graph above shows the viscosity curve of polyethylene oxide in water solutions measured with two VSS chips of distinct range specifications.

VSS Systems

The Viscometer-on-a-Chip is available for various ranges of viscosities and shear rates.

Please consult with our sales engineer for the right selection for your applications. Syringe pumps, precision glass syringes, and controlling valves are available for laboratory applications. Custom configurations can be provided for specific applications.

Email: sales@rheosense.com.



Syringe Pump

The following table lists the specifications for standard VSS chips.

VSS Chip Specifications

VSS	Full scale pressure	Flow channel depth	Measurable shear strength (Pa)	
			min	max
A-5	12,000	50	0.17	34.09
A-1	12,000	100	0.34	68.18
A-2	12,000	20	0.07	13.64
B-5	40,000	50	0.63	113.64
B-1	40,000	100	1.27	227.27
B-2	40,000	20	0.25	45.45
C-5	200,000	50	4.22	568.18
C-1	200,000	100	8.44	1136.36
C-2	200,000	20	1.69	227.27