

Inline
Viscometer



Revolutionary: Reliable Viscosity Determination Directly in the Production Line

Temperature and viscosity measured inline

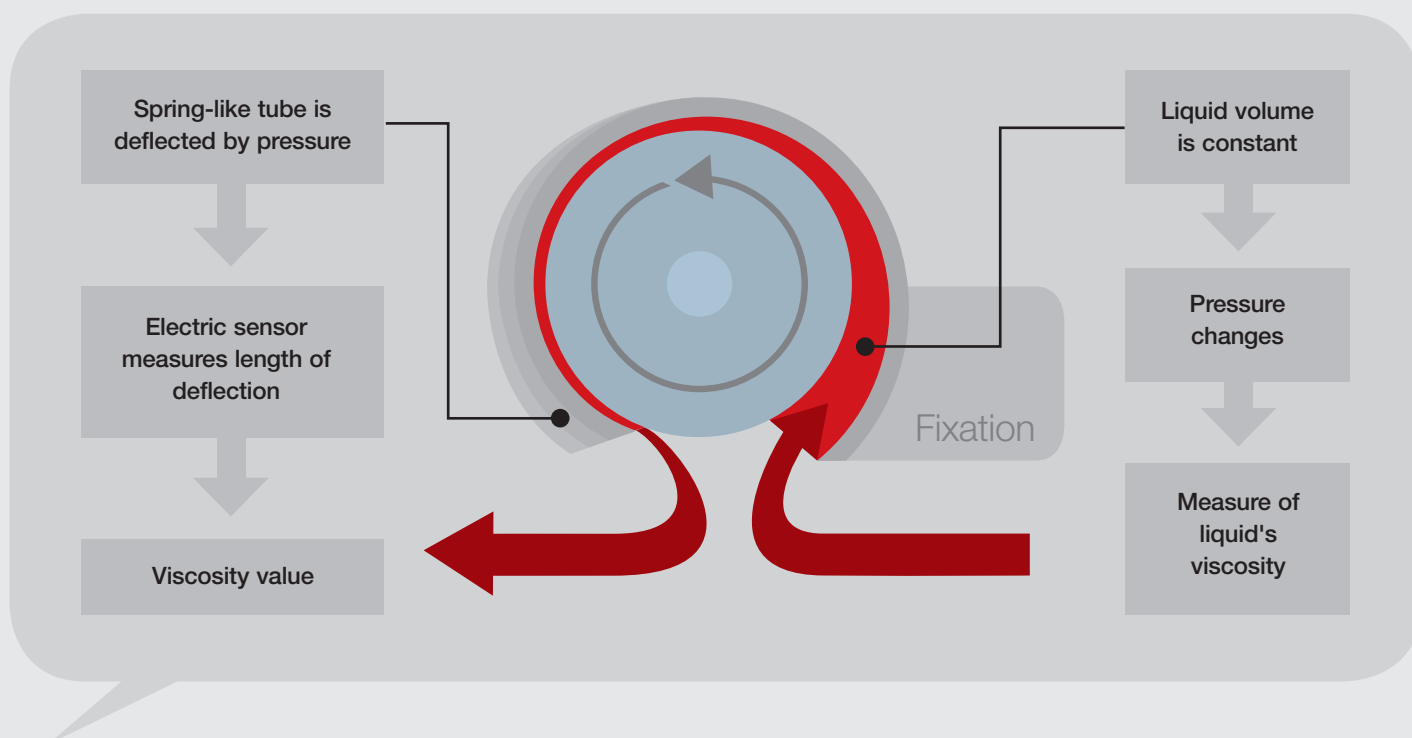
L-Vis 510/L-Vis 520 Ex is an inline viscometer from Anton Paar which can be immersed directly in the production liquid. It continuously displays the viscosity at the process temperature and reference temperature, allowing 24-hour monitoring of petrochemicals, lubricants, detergents, coatings, starch adhesives, ceramic slips, viscose and many more process liquids. L-Vis 510/L-Vis 520 Ex can be used to achieve consistent product quality and reduce reject product. Data exported to a controller can be used to keep the production process in a defined viscosity range.

In position for production monitoring

L-Vis 510/L-Vis 520 Ex is installed directly in the pipe or stirring tank. No bypass is required. It is simple to retrofit the inline viscometer into existing plants. The process liquid flows through the sensor, the viscosity and temperature are measured simultaneously and both are displayed on the screen.

Maintenance intervals greatly depend on the production liquid: L-Vis 510/L-Vis 520 Ex is maintenance-free when measuring lubricants and oils; measurement of suspensions requires regular maintenance. Due to Anton Paar's worldwide network of subsidiaries and sales partners, a certified Anton Paar service engineer is on call wherever you are.

New measuring principle: Only available from Anton Paar



L-Vis 510/L-Vis 520 Ex uses a completely new measuring principle based on the measurement of dynamic fluid pressure, which is proportional to a fluid's viscosity. The inline viscometer consists of a partially open tube with a rotating cylindrical shaft inside. The process liquid is drawn into the system and flows through the gap between the tube and shaft. This gap becomes increasingly smaller, causing the tube wall to be deflected by the pressure of the liquid flowing through it. An electric sensor measures the length of deflection and uses this to calculate the viscosity value.

Drops in pressure or flow rate do not affect L-Vis 510/L-Vis 520 Ex. The new measuring principle delivers stable results, even under adverse flow conditions.



Optimized Production

Insight into product properties

L-Vis 510/L-Vis 520 Ex enables 24-hour monitoring of the real-time rheological behavior of both Newtonian and non-Newtonian liquids. Results can be compared with laboratory values to give you more insight into your production processes. Experts from Anton Paar are available for application support.

The results will allow you to, for example:

- ▶ optimize your use of rheology modifiers
- ▶ reduce product loss
- ▶ ensure repeatability
- ▶ increase profitability and
- ▶ improve product quality.

Due to its unique construction, L-Vis 510/L-Vis 520 Ex is ideally suited to measuring suspensions and emulsions. It is successfully used to monitor the following liquids:

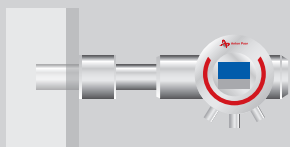


Specifications

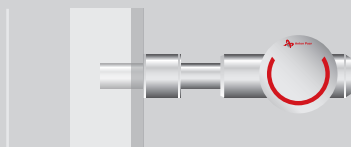
Characteristics	L-Vis 510	L-Vis 520 Ex
Measurement principle	Dynamic fluid pressure	Dynamic fluid pressure
Viscosity		
Measuring range	1 mPa.s to 50.000 mPa.s	1 mPa.s to 50.000 mPa.s
Typical accuracy	1 %	1 %
Typical repeatability	0.5 %	0.5 %
Conditions		
Process temperature range	-5 °C to +200 °C	-5 °C to +195 °C
Ambient temperature	-20 °C to +40 °C	-20 °C to +40 °C
Process pressure range	0 bara to 25 bara	0 bara to 25 bara
Housing		
Material	Stainless Steel, anodized aluminum	Stainless Steel, anodized aluminum
Dimensions (L x W x H)	400 mm x 200 mm x 180 mm	400 mm x 200 mm x 240 mm
Weight	approx. 12 kg	approx. 13 kg
Flange type	L-Vis process flange DN60 with welding set (25 bar@200 °C); L-Vis process flange DN60 with adapter (25 bar@100 °C, 20 bar@200 °C); EN 1092-1/05/DN80/PN16, EN 1092-1/05/DN100/PN16 ANSI flange 3", 4" CL 150 VARIVENT® Type N (10 bar@135 °C)	L-Vis process flange DN60 with welding set (25 bar@200 °C); L-Vis process flange DN60 with adapter (25 bar@100 °C, 20 bar@200 °C); EN 1092-1/05/DN80/PN16, EN 1092-1/05/DN100/PN16 ANSI flange 3", 4" CL 150 VARIVENT® Type N (10 bar@135 °C)
Sensor		
Wetted parts	Stainless Steel No. 1.4542, diamond-coated SiC seal, Viton O-ring seal	Stainless Steel No. 1.4542, diamond-coated SiC seal, Viton O-ring seal
Installation dimensions (L x Ø)	min. 130 mm x min. 100 mm	min. 130 mm x min. 100 mm
Installation	Inline, bypass, tank	Inline, bypass, tank
Installation orientation	Horizontal and vertical	Horizontal
Sealing	Single mechanical seal	Double mechanical seal with a buffer fluid
Operating terminal		
Display	35 mm x 60 mm display incl. optical pushbuttons	35 mm x 60 mm display incl. optical pushbuttons
Analog/digital communication		
Analog output	2 x 4 to 20 mA	2 x 4 to 20 mA
Digital output	1 x	1 x
Digital input	1 x	1 x
Fieldbus communication	PROFIBUS DP, PROFINET, Modbus TCP, EtherNet/IP, DeviceNet	PROFIBUS DP, PROFINET, Modbus TCP, EtherNet/IP, DeviceNet
Power supply	DC 24 V 3.75 A	DC 24 V 3.75 A
Degree of protection	IP 65	IP 65
Hazardous area	No	ATEX/IECEx: II 2 G Ex d IIB T6 Gb Class I, DIV 1, Groups C and D, T6 (USA) Class I, DIV 1, Groups C and D, T6 (Canada)

Installation and operating terminal position

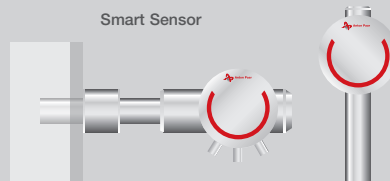
Integrated operating terminal



Remote operating terminal



Smart Sensor



Hazardous area

Safe area



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