Rheology Solutions

Rheology Solutions is the sole Australian distributor of this product range and we welcome the opportunity of discussing your application requirements.

We hope the information you are seeking is contained within this file. If you have any questions, or require further information please contact us. We look forward to being of further service.

Regards from the Team at Rheology Solutions.

RHEOLOGY SOLUTIONS PTY LTD. ACN 082 479 632
HEAD OFFICE: 15-19 Hillside Street, Bacchus Marsh, Victoria 3340 Australia. PO Box 754, Bacchus Marsh, Victoria 3340 Australia.
Telephone: +61 3 5367 7477 **Facsimile:** +61 3 5367 6477 **Email:** info@rheologysolutions.com **Website:** www.rheologysolutions.com

ViscoScope **VP-300**

Our Marimex ViscoScope VA-300 transducer reinvented

Your process viscosity measurement solution

- Rugged, virtually no maintenance
- Torsionally vibrating sensor, no wearing parts
- Fast real time in-line viscosity measurement
- Shear wave viscosity measurement
- Proven in many applications and installations

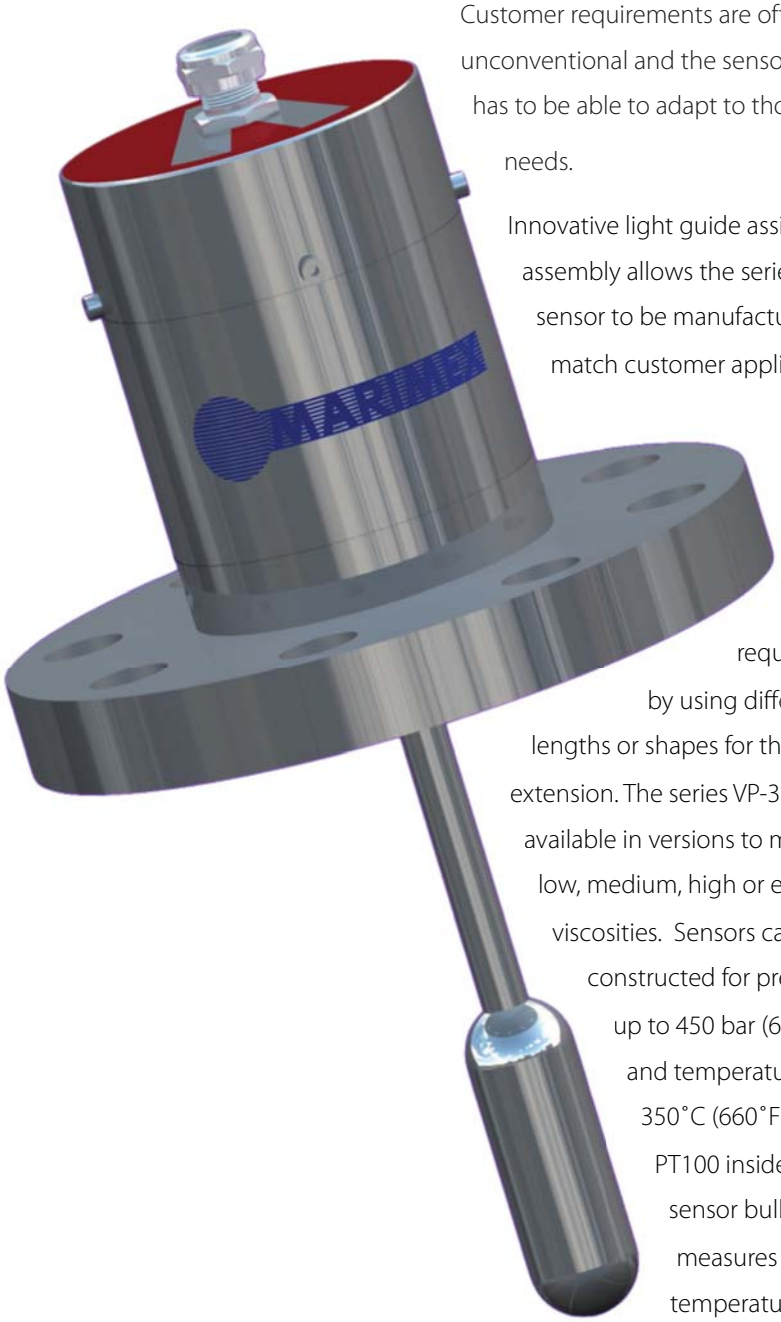
viscotronics

MARIMEX

Viscotronics Co., Ltd. info@viscotronics.com www.viscotronics.com

Marimex Industries Corp. info@marimex.com www.marimex.com

ViscoScope **VP-300**



The ViscoScope series VA-300 has been reinvented and is now called the ViscoScope VP-300 sensor series. Customer requirements are often unconventional and the sensor design has to be able to adapt to those needs.

Innovative light guide assisted assembly allows the series VP-300 sensor to be manufactured to match customer application requirements by using different lengths or shapes for the extension. The series VP-300 is available in versions to measure low, medium, high or extra high viscosities. Sensors can be constructed for pressures up to 450 bar (6,500 psi) and temperatures up to 350˚C (660˚F). A PT100 inside the sensor bulb measures the temperature of the process. Calibration with Newtonian ASTM traceable fluids over 3 decades is standard with 4 decades optional.

These new generation sensors incorporate features, which have been transferred from other ViscoTron transducers. The sensor is gravity independent and therefore can be mounted in any direction.

The viscometer measures the drag of a fluid at the surface of the torsionally resonating sensor. The constant amplitude twisting motion creates a constant shear wave . Speed, direction and turbulence of flow have no influence on the measurement. The resonant frequency is dependent on the mechanical construction of the sensor. The microscopic motion is fast enough not to be influenced by outside mechanical vibrations, yet low enough to provide excellent sensitivity and resolution even for non-newtonian fluids.

The sensor shown in the picture on the front page has been designed for medium viscosities and low pressures. The neck can be up to 300 mm long. This sensor uses a traditional air cooling method for applications with high process temperatures.

The sensor is compatible both with the traditional ViscoScope VS-4450 transmitter and the direct digital drive ViscoTron VT-G144 transmitter.

Specifications

Description	VP-300L	VP-300M	VP-300H	VP-300X
Viscosity range (mPa·s x g/cm^3)	0.00 to 2,500.00	0.0 to 25,000.0	0 to 250,000	0 to 2,500,000
Sensor length	185 mm	155 mm	125 mm	120 mm
Maximum process temperatures	LTN LTR STR	< 130°C / 265°F < 175°C / 350°F < 350°C / 660°F		no air / no riser no air / riser air cooling / riser
Resonance frequency **Shear rate**	200 to 600 Hz depending on construction 1,250 - 3,750 sec^{-1} depending on construction			
Calibration	Computer assisted calibration with NIST traceable standards 3 decades standard 4 decades optional Calibration is independent of cable length with the Viscotron VT-G144 transmitter Calibration is dependent on cable length with the ViscoScope VS-4450 transmitter			
Repeatability	0.3% or ±1 digit			
Reproducibility	0.5% or ±1 digit			
Accuracy	1% or ±1 digit (factory calibrated with NIST standards)			
Process temperature	Measured with PT100 located inside the sensor bulb			
Hazardous area approval (optional)	ATEX: II 1/2 G EEx ia IIC T3 – T6 CSA International Class I, Div I, Group C and D			
Cable length	300 meters / 1000 feet max. between sensor and transmitter			
Housing	IP65			
Wetted parts	SUS316L (1.4571) standard optionally Hastelloy C, Duplex, Monel Low friction, corrosion resistant coatings up to 300°C Other coatings available based on the application			
Process connection	3" 300# and DN80 PN40 standard Other process connections optional (maximum pressure capability of sensor: 450 bar / 6,500 psig)			
NAE (Non-active extension)	Eliminates no flow areas in a pipe connection, a reactor or T-piece. Can also be used to bridge gaps in low level applications. Standard Ø 38 to 48 mm / 1.5 to 1.875" Length = up to 1,000 mm / 40.0" NAE available in other diameters, lengths and special shapes			

VP-300	ViscoScope sensor for ASME Flanges			
VP-300	Code	Sensor type		
	L	Low viscosity	0.10 to 2,500.00	Calibrated range:
	M	Medium viscosity	1.0 to 25,000.0	Calibrated range:
	H	High viscosity	10 to 250,000	Calibrated range:
	X	Extra high viscosity	100 to 2,500,000	Calibrated range:

Code	Process temperature	
LTN	< 130°C / 265°F (no air cooling and no riser)	use with external transmitter
LTR	< 175°C / 350°F (no air cooling but includes 50 mm riser)	use with external transmitter
STR	< 350°C / 660°F (includes 50 mm riser and air cooling)	use with external transmitter

Code	Process connection	
1	3" 300#	ASME Flange
2	3" 150#	ASME Flange
3	3" 600#	ASME Flange
4	4" 300#	ASME Flange
5	2" 150#	ASME Flange
6	Tri-Clamp 3"	
7	4" 600#	ASME Flange
9	Others on request	

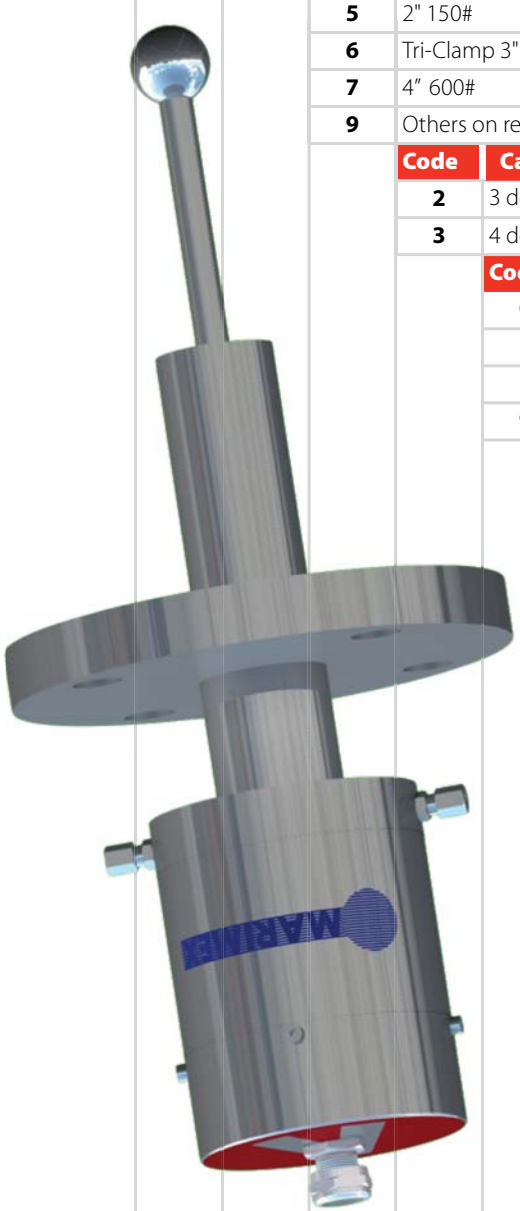
Code	Calibration
2	3 decade range (using all available calibration oils in desired range)
3	4 decade range (using all available calibration oils in desired range)

Code	Non-Active-Extension (NAE)	
0	None	
1	Ø 38 to 48 mm x 300 mm max	Length in mm
2	Ø > 48 mm x 300 mm max	Length in mm
9	Special shapes, lengths and sizes on request	

Code	Installation type (Approvals include Stahl barriers)	
0	General purpose areas	(no barriers)
2	ATEX II 1/2G EEx ia IIC T3 – T6 (code LTN and LTR only)	
3	ATEX II 1/2G EEx ia IIC T3 – T6 (code STR only)	
5	CSA Class I, Div I, Group C and D (code LTN and LTR only)	
6	CSA Class I, Div I, Group C and D (code STR only)	
9	Specials like secondary seal or other approvals	

Code	Coating and materials for wetted parts
0	SUS316L
1	Teflon coating
2	Hastelloy C22
3	Duplex SAF 2205
6	SUS316L mirror polishing
7	Hastelloy C22 mirror polishing
8	Duplex SAF 2205 mirror polishing
9	Special sensor coating or material on request

Code	Process temperature measurement
0	No temperature measurement
1	PT100 internal to sensor



^	^	^	^	^	^	^	^	^	
VP-300	L	LTN	1	2	0	0	1	1	EXAMPLE ORDERING INFORMATION

VP-300	ViscoScope sensor for DIN Flanges			
VP-300	Code	Sensor type		
	L	Low viscosity	0.10 to 2,500.00	Calibrated range:
	M	Medium viscosity	1.0 to 25,000.0	Calibrated range:
	H	High viscosity	10 to 250,000	Calibrated range:
	X	Extra high viscosity	100 to 2,500,000	Calibrated range:

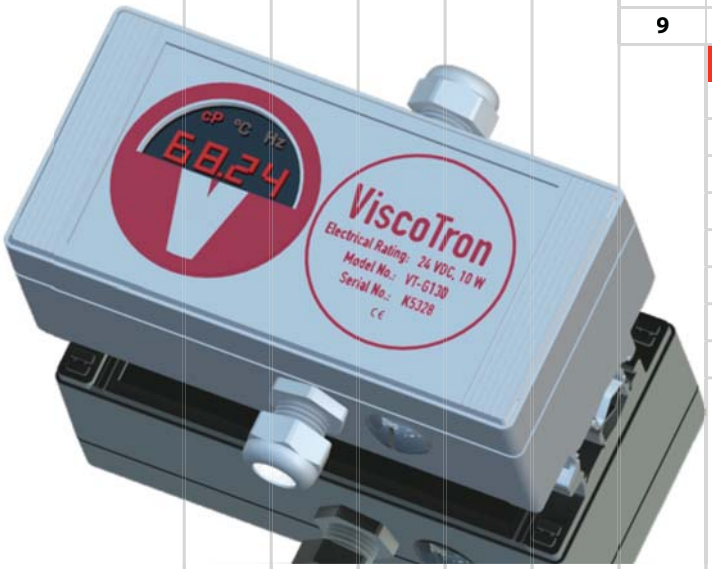
Code	Process temperature	
LTN	< 130°C / 265°F (no air cooling and no riser)	use with external transmitter
LTR	< 175°C / 350°F (no air cooling but includes 50 mm riser)	use with external transmitter
STR	< 350°C / 660°F (includes 50 mm riser and air cooling)	use with external transmitter

Code	Process connection	
1	DN80 PN25/40	DIN Flange
2	DN80 PN16	DIN Flange
3	DN80 PN64	DIN Flange
4	DN100 PN40	DIN Flange
5	DN50 PN16	DIN Flange
6	Varivent Flange	
7	DN100 PN64	DIN Flange
9	Others on request	

Code	Calibration
2	3 decade range (using all available calibration oils in desired range)
3	4 decade range (using all available calibration oils in desired range)

Code	Non-Active-Extension (NAE)	
0	None	
1	Ø 38 to 48 mm x 300 mm max	Length in mm
2	Ø > 48 mm x 300 mm max	Length in mm
9	Special shapes, lengths and sizes on request	

Code	Installation type (Approvals include Stahl barriers)	
0	General purpose areas	(no barriers)
2	ATEX II 1/2G EEx ia IIC T3 – T6 (code LTN and LTR only)	
3	ATEX II 1/2G EEx ia IIC T3 – T6 (code STR only)	
5	CSA Class I, Div I, Group C and D (code LTN and LTR only)	
6	CSA Class I, Div I, Group C and D (code STR only)	
9	Specials like secondary seal or other approvals	



Code	Coating and materials for wetted parts
0	SUS316L
1	Teflon coating
2	Hastelloy C22
3	Duplex SAF 2205
6	SUS316L mirror polishing
7	Hastelloy C22 mirror polishing
8	Duplex SAF 2205 mirror polishing
9	Special sensor coating or material on request

Code	Process temperature measurement
0	No temperature measurement
1	PT100 internal to sensor

^	^	^	^	^	^	^	^	^	
VP-300	X	STR	9	2	1	2	2	1	EXAMPLE ORDERING INFORMATION

Application Examples

< Batch resin reactor installation

Large pipe installation
v

Polymers
Batch Resins
Silicone
Emulsions
Crude Oil
Blending
Black Liquor
Ceramics
Additives
Slurries
Coatings
Spray Driers
Food Industry
Sauces
Creams
Cheese
Milk Powder

Compatible Transmitters

For more info see the transmitter brochure

ViscoTron VT-G144 transmitter (wall mount)

ViscoScope VS-4450 transmitter (panel mount)

exclusively represented in Australia by:

Viscotronics Co., Ltd.
171/109 Moo7, T. Chaichatan
A. Saraphi, Chiang Mai 50140
Thailand

Tel: +66-53-128410
Fax: +66-53-128409
email: info@viscotronics.com

Marimex Industries Corp.
#22-2475 Dobbin Road, Suite 227
West Kelowna, BC V4T 2E9
Canada

Tel: +1-201-467 5530
Fax: +1-888-844 1667
email: info@marimex.com

Rheology Solutions Pty Ltd
15-19 Hillside Street
Bacchus Marsh Victoria 3340
AUSTRALIA

Phone: +61 3 5367 7477
Fax: +61 3 5367 6477
Email: info@rheologysolutions.com

V01/07