



TOV viscometer system focus

Comparison:
Mansco Products TOV Viscometer System
Vs.
Other In-Line Models

Description	Mansco	Other In-Line Models
Method	Torsional	Torsional
Temperature Range	-40°C to 350°C	-40°C to 450°C Usually requires cooling for temperatures above 270°C
Sensor Dimensions	Sensor lgth = 3 in. Overall lgth =14 in.	Typical Length = 5 in. to 7.5" Overall lgth varies
Viscosity Range:	0.01 cP to 100,000 cP (TOV customized to operate in narrow band within this broad range.)	Typical Ranges 10.0 cPs to 100,000 cPs 100 cPs to 1,000,000 cPs. .10 cPs. To 1,000 cPs. 1.0 cPs. To 10,000 cPs.
Accuracy	+/- 1% of reading	Typical: +/- 2% of reading
Repeatability	+/- 0.2% of reading	Typical: +/- 0.25% of reading (Some competitors do not list this data)
Reproducibility	+/- .50% of reading	Typical: +/- 1% reading
Vibration Influence error:	Negligible	N/A Often not listed since vibration is a large error source often requiring flexible pipe mounting
Sensor Material	316SS, Alloys	316SS
Outputs	4 to 20 ma. Isolated (1-5 Volts)	4-20 mA DC, 0-10 V DC, RS232C, RS485
Temperature Compensation	Adjustable compensation to meet process needs	ASTM D34

Description	Mansco	Other In-Line Model
Electronics	Front panel access to all settings. Factory calibrated. Includes on-line probe checks, direct temperature readings, 2 temperature outputs, and built in simulator for electronic checks.	Some require calibration by customer. Some require back panel access for certain settings. Most do not offer on-line checks of the instruments functions.
Shear Rate	Approx. 700 sec ⁻¹	Typical: 3,450 to 4400 sec ⁻¹
Frequency	Approx. 115 Hz	Approx. 550 Hz or higher
Miscellaneous	- Flange mounted in Mansco designed Adaptor - No recalibration of Probe required	- Some require unit removal regularly to recalibrate - ALL are Very susceptible to pipeline vibration problems
Instrument History	TOV was designed by DuPont & co-developed with Mansco Products over 40 years ago. Mansco has continued to improve upon the TOV to increase its performance. It has remained the Viscometer of choice for DuPont since its inception.	All designs are based on the original DuPont design, however they do not match the TOV's critical design areas.
Operation	Operating at a lower frequency means a lower shear rate. This means much greater sensitivity. See Intrinsic Viscosity, Shear Rate, & the TOV Viscometer System sheet.	Operating at higher frequency means a higher shear rate. This means a decreased sensitivity. See Intrinsic Viscosity, Shear Rate, & the TOV Viscometer System sheet.
TOV Advantage	<p>Mansco has advantages over ALL other in-line models.</p> <ul style="list-style-type: none"> - Higher temps and pressures without special installation (other in-line models require cooling at higher temperatures). - Other models measures viscosity over a broad range. The Mansco TOV Probe is designed for each installation to measure over a smaller range according to the specifications required. - Other Models operate at higher shear rates while the Mansco TOV Probe operates at a low shear rate. By Physics definitions, a higher shear rate means less sensitivity to changes in the molecular structure - In a DuPont head-to-head comparative test, they found other in-line models to be not sensitive to viscosity changes and deemed the device not useful. 	
Design	Custom designed and manufactured to meet customers needs.	Limited ability to customize design.

For more information, please contact::



MANSKO PRODUCTS

34 Richard Road
Ivyland, Pennsylvania 18974
United States
Telephone: +215.674.4395
Fax: +215.674.4396
<http://www.ManscoProducts.com>