For more information, please, visit LEMIS process web site!

www. lemis-process.com

The role of efficient control of the processes is highly important. Continuous monitoring optimizes, controls and manages the processes. Laboratory measurements, which previously have been considered as the most accurate, have many disadvantages in process industries.
Nowadays the variety of in line instruments provides high accurate results in process, allowing making direct measurements of different critical parameters.
With laboratory measurements process has to be interrupted while sample is being taken. Using the laboratory equipment you will never get the same values of such critical parameters, as Viscosity and Density, which are influenced by Temperature and Time. That is why there are always difficulty comparing laboratory results to the actual process conditions.

ISO 9001
DNV
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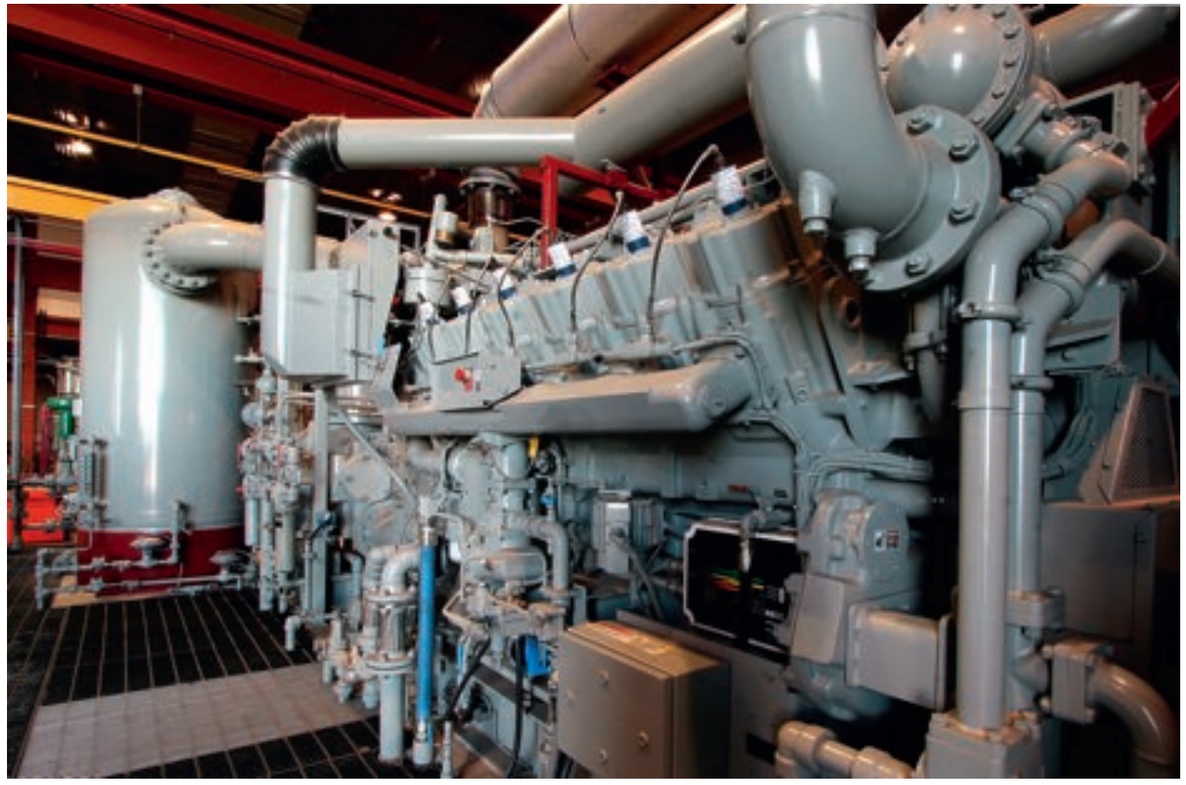
LEMIS® process

MFM-50 SERIES



PROCESS IN-FLOW

MASS, FLOW, DENSITY, VISCOSITY & TEMPERATURE METERS

IN PROCESS TO EXCELLENCE

PROCESS IN-TANK

Mass, Flow, Density, Viscosity & Temperature Meters

Rotor-type & Resonant tube technologies

In process measurements directly in pipelines with accuracy: flow (±0.1% of span), density (±0.00025 g/cm³), viscosity (±1% of span)

LEMIS process engineers has developed a new Mass Flowmeter MFM-50 which measures Mass, Flow, Density, Viscosity, and Temperature in single instrument. The uniqueness of the instrument allows achieving high accuracy in measurements of both critical parameters Viscosity and Density. Automatic viscosity correction improves a process control and increases the accuracy of the instrument.

Viscosity is absolutely critical in many processes as it allows determining the product's characteristics and quality. Density allows to control product quality and concentration. Multi-variable measurement technology used in MFM-50 can optimize input material costs.

The operating principle of MFM-50 is rotor-type technology for flow measurements. It ensures long-term stability and reliability of the device. Proven resonant technology has been implemented to measure density and viscosity.

ADVANTAGES

Combined Mass, Flow, Density, Viscosity and Temperature measurements in single instrument

Highly accurate results

Real in situ measurements

Robust field instrument

Long-term stability

Insensitivity to vibration

Maintanence free

Hazardous area approvals

APPLICATIONS

Crude oil

Petrol, Diesel, Kerosene

Oil fuel

Liquefied Petroleum Gases

Chemical solutions

Quality control in paint thickness

Chocolate manufacturing

Other applications

MFM-50 SERIES www. lemis-process.com

Specifications

Mass Flow Operating Range	0 …40000 kg/h
Mass Flow Accuracy	±0,2 % of span
Flow Rate	0…40 m³/h
Flow Accuracy	±0.1% of span
Nominal Pressure	0…6.4 MPa
Nominal Diameter	DN 8, 15, 25, 40, 50
Density Operating Range	0…2 g/cm³ (0…2000 kg/m³)
Density Accuracy	±0.00025 g/cm³ (±0.25 kg/m³)
Repeatability	±0.0001 g/cm³ (±0.1 kg/m³)
Calibration Stability (per year)	< ±0.0001 g/cm³ (< ±0.1 kg/m³)
Viscosity Operating Range	0…1200 cSt
Viscosity Accuracy	±1% of span
Viscosity Effect	Automatically compensated
Temperature Effect	0.005 kg/m³/°C automatically compensated
Pressure Effect	Negligible
Max liquid viscosity, cSt	Up to 1200 cSt
Temperature Measurement	Built-in high accuracy PT-1000 DIN 43760 Class A
Process Temperature Range	-40°C to +85°C (-40°F to +185°F)
Ambient Temperature Range	-40°C to +85°C (-40°F to +185°F)
Weather Rating	IP68 for sensor and IP55 for Terminal box
Sensor	Stainless steel 316L; Ni-Span C; Hastelloy C22
Other Wetted Parts	Stainless steel 316L or Hastelloy C22
Case finish	Stainless steel 316L
Electrical Connections	Screw terminals; Cable entry: 2 x 3/4 " NPT
Sensor Power Supply	6 - 12 VDC 30 mA (60 mA pick)
Sensor output	Mass flow, Volume flow, Corrected volume flow, Density, Reference density, Viscosity and Temperature
Analog output	Up to 3 x isolated 4 - 20 mA, direct or reverse-acting, configurable, customized
Digital output	User choice of signals and protocols: RS485; RS232; Modbus; etc…
Quality Assurance	ISO 9001:2000
Factory Calibration	Calibration certificates supplied as standard
CE mark	Compliant EN 61326 ; EN5011 ; EN 50082-2
Hazardous area	ATEX II 1/2G Ex ia IIB T4 ; IEC Ex ia IIB T4 Ga /Gb ; CCE certificate
Material Traceability	Optional certification available

Calibration of **LEMIS process** density meters is performed in-house according ISO 9001:2000 quality assurance program and by using calibration materials that are traceable to national standards. In-house calibration and testing is performed with rigorous quality protocol for every standard model of the sensor. **LEMIS process** installation packs allow simple, switch-and-go field installation with minimal pipeline disturbance or process downtime. When ordered with **LEMIS process** installation pack, the sensor has mounted at factory, tested and calibrated already fitted assuring best performance and eliminating the need for in-situ calibration for most of applications. The sensors has no moving parts and virtually maintenance-free.