

Silver Instruments Publishes High Viscosity Oil Flow Meter Selection Guide

The guide covers Coriolis and PD meter selection for oils up to 15,000 cP, with notes on temperature, pipe size and wetted materials.

NANJING, JIANGSU PROVINCE, CHINA, October 13, 2026 /EINPresswire.com/ -- Measuring the flow of heavy fuel oil, residual oil, crude oil or lubricant or other high viscosity oil is harder than measuring water. Viscosity slows the oil, raises pressure drop and changes with temperature. Turbine flow meters (TUF) and orifice plate meters often fail on these viscous oils. [Silver Automation Instruments](#) has set out how buyers can choose between the two flowmeter types that work best: Coriolis flowmeter and oval gear flowmeter.



Silver Instruments Coriolis flow meter installed on process piping

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Grace, Silver Automation Instruments

Why is viscous oil difficult to measure flow?

Thick oil flows slowly and unevenly. A flow sensor that works well on thin liquids can drift, clog or lose accuracy as viscosity rises, such as TUF flow meter. The right choice depends on pipeline size, viscosity, flow range, operation temperature and pressure, accuracy, pressure drop and the cleanliness of the oil.

[Coriolis mass flow meters](#) for high viscosity oil

A Coriolis meter measures mass flow directly. One sensor also reports volume flow, density and temperature. Accuracy is often within $\pm 0.2\%$. The mass meter can handle viscosity up to 500,000 cP and beyond. It needs no straight pipe run before or after the flow sensor.

There is custody transfer. Coriolis meters cost more. Pressure drop rises as viscosity rises, so the pump must be checked. Strong vibration near the mass flow sensor can affect the reading. The range includes bent tube sensors up to 12 inches and high-pressure models rated for 1000 bar.

Oval gear flow meters for viscous oil
An oval gear meter is a positive displacement (PD flow meter) design. Two oval gears turn as the liquid passes, and each turn moves a fixed volume. Typical accuracy is $\pm 0.5\%$. Clean liquids below about 2,000 cP are the usual range. Mechanical versions need no external power.

Small oval gear meters suit low-flow viscous oil. Many units measure below 1 L/min. The LC-M micro series small PD flow meter measures as low as 0.5 ml/min. Oval gear meters are not suited to liquids with solids or slurries.

Selecting a high viscosity oil flow metre

Silver Automation Instruments gives buyers a simple order of checks:

1. Viscosity at the lowest operating temperature, not at room temperature.
2. Whether the oil is clean or carries solids.
3. The real flow range, including the low end.
4. The accuracy needed for dosing, transfer or custody control.
5. Available pump pressure and acceptable pressure drop.
6. Budget for the first purchase and for maintenance.

Where the high viscosity flow meters are used

The comparison covers oil and gas, chemical processing, food and beverage, power generation, pulp and paper, and high temperature processes. Typical liquids include heavy fuel oil, crude oil, lubricants, asphalt, bitumen, tar, resins and polymers.

"Most buyers ask for a meter by pipe size," said Grace, a sales engineer, Silver Automation Instruments. "We ask for viscosity, temperature and flow range first. Those three numbers decide the meter type."

The full comparison table and application notes are available at [\[https://www.silverinstruments.com/high-viscosity-fluid-flow-meters.html\]](https://www.silverinstruments.com/high-viscosity-fluid-flow-meters.html). Buyers can send the liquid type, viscosity range, temperature, flow range and line size to the company for a recommendation.



Technician is configuring a large oval gear flow meter in the workshop

About Silver Automation Instruments

Silver Automation Instruments Ltd. is based in Nanjing, China. The company supplies flow meters, pressure transmitters, level sensors and paperless recorders to industrial customers worldwide.

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