

Single Case PD Meters

Proven Smith Meter® positive displacement technologies for sandy crude applications



Lower CAPEX and OPEX with field-proven positive displacement meter technologies

TechnipFMC's Smith Meter® single case PD technology was successfully trialed on LACT unit installations. This test proved that the single case, rotary vane PD meter design, with a horizontal shaft, can measure crude oil with sand content without significant wear.

Our single case PD meters installed on LACT units, were proved regularly and displayed a constant level of performance compliant to the requirements of custody transfer. Over the span of several years, the meters did not need exchanging of parts.

Positive displacement meter technology is the only direct and dynamic method to measure volume, separating the flow into equal portions and counting them. The single case PD meter sets a permanent (yet dynamic) physical separation between the measured and the non-measured liquid. This means that the custody transfer of liquid cannot happen without measurement when using a Positive Displacement meter.

Our PD meters have a horizontal shaft and rotor that prevents particulates accumulating around the bearings on the bottom of the metering chamber.

The Genesis design features shielded ceramic hybrid ball bearings. This reduces exposure to particulates and the ceramic hybrids are designed for higher speeds, reduced friction and lower maintenance.

The Prime4 has a combination of journal bearings (rotor) and cam followers (PEEK) blades, rather than standard ball bearings, helping reduce wear on the blade and rotor. PEEK is an engineered plastic material proven to reduce wear and maintenance requirements.



3" Genesis PD Meter



4" Prime4 PD Meter

Excels in high paraffin applications

- ▶ The single case PD meter can accurately measure crude oils that contain paraffin. Unlike inference meters that often have problems with the measurement's stability due to paraffin buildup, the PD excels in measuring product containing paraffin
- ▶ The minimal buildup will stabilize the measuring chamber's volumetric displacement and, therefore, stabilize the meter factor. That's because the PD meter rotary vane's sliding action acts as a constant self-cleaning operation
- ▶ The blades control the buildup as they rotate, passing all but a thin layer of paraffin on the chamber wall out of the meter

Lower CAPEX and OPEX compared to Coriolis

- ▶ Lower purchase cost
- ▶ No heat tracing or chemicals are needed to measure crude oils with paraffin content
- ▶ Simple installation - no need for additional, unnecessary elbows or complex piping arrangements that increase costs
- ▶ Simpler proving process because the pulses are generated directly
- ▶ Significantly lower pressure drop
- ▶ A back-pressure valve is not required for PD technology
- ▶ Only basic technical skills are required to service a PD meter on site and without taking the meter out of the installation

Maximize volume measurement performance

- ▶ The PD meter measures volume directly
 - transactions with crude oil are made in units of volume, not mass
- ▶ Measuring density and mass and transforming later to volume leads to additional measurement uncertainty for Coriolis meters
- ▶ PD meters are best fitted for applications where the flow rate changes often and significantly, including starting and stopping. This unique advantage is given by the physical barrier set by a PD between the measured and the non-measured product



An example of paraffin from crude oil

Contact your local sales representative today for more information and to discover how we can help you plan your new installation.

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