Designed for the handling of New Age Extraction

Brodie BiRotor Plus for Crude Oil
High accuracy meeting utmost reliability

Brodie’s Birotor Plus and its unique twin helical rotor design allows the meter to *chew through paraffin™* in an application where other metering technologies have failed to produce long-term stability.

The requirement for high-accuracy, multi-viscosity, low maintenance metering, in both ACT/LACT and Transloader applications, realized quantifiable benefits when utilizing our best-in-class positive displacement meter technology.
The measurement of crude oil and viscous liquids requires durable, reliable metering equipment. High viscosity flow measurement has proven to be challenging for most technologies. Brodie's BiRotor Plus positive displacement meter provides a stable industry solution for modern oil extraction processes.

Brodie International's uniquely designed positive displacement (PD) meters use twin helical rotors as the heart of its measurement chamber to provide the most accurate, lowest pressure-drop metering technology to use for high-paraffin applications.

Inference meters can allow a build up of wax in paraffin-rich processes, making PD meters more suitable for these types of installations. Twin helical rotors eliminate the build-up of wax from the walls of the measuring chamber with each rotation, which makes Brodie's BiRotor Plus the best solution in high paraffin applications.

The BiRotor Plus meter is field proven in crude oil applications worldwide.

Design Features

- **Universal Mounting Box (UMB)**
  - The UMB houses the pickoffs and amplifier circuitry, providing access for field terminations. The UMB is compliant with standards for hazardous area operation.

- **Double Case Design [3”-10”]**
  - The BiRotor Plus is immune to pressure and temperature changes. The meter complies with API MPMS Chapter 5.2.5.2.4.
  - The measurement chamber is in contact with the measured liquid both on the inside and outside of the inner case.

- **Dual Non-Wetted Pickoffs**
  - With toothed wheel pulse initialization for direct and instantaneous pulse output [no mechanical shaft]. Available with high temperature pick offs up to 230 °F [110 °C].

- **Hardened Timing Gears**
  - The only metal to metal contact point in the meter, the timing gears are made of 17-4 PH heat treated Stainless Steel.

- **Ceramic Bearings**
  - Hardened shielded ceramic bearings provide increased protection from sediment to minimize bearing wear and maintenance.

- **Twin Helical Rotors**
  - The heart of the BiRotor Plus is the measurement chamber containing twin helical rotors. With no metal to metal contact between the rotors and measurement housing, both wear and maintenance are at a minimum. Mid clearance rotors are available for applications where either high viscosity liquids or sediment is present.
Best Performance in the Industry

Linearity
The linearity of the BiRotor Plus under normal operating conditions is unsurpassed in the industry: linearity better than +/- 0.075% (4” - 6”) and repeatability of better than 0.02%.

Viscosity
Viscosities from 0.2 - 1000 cSt have little effect on the accuracy of the BiRotor Plus. This is why the BiRotor plus is the master meter of choice—preferred by test labs and worldwide approval authorities.

Dependable, Easy to Operate, Flexible

No metal to metal contact of the rotors
Machined to precise specifications, the BiRotor Plus rotors make no metal-to-metal contact with each other, nor the measuring chamber. A special mid-clearance cut provides just enough space for sediment and other small particulates found in crude oil to pass through the meter. The BiRotor Plus is self-cleaning, with the rotors removing paraffin build-up during normal operation. The result is an extremely durable, low maintenance, and highly accurate positive displacement flowmeter suited for crude oil measurement.

Meter Factor Stability
Due to the rugged design, the BR+ rarely requires recalibration. The hardened timing gears, shielded rotor bearings, and tight tolerances provide a reliable and consistent measurement each rotation, barrel after barrel.

Direct pulse output
Non-wetted high temperature pickoffs and dual-channel pre-amp circuitry are housed in the Universal Mounting Box, which allows ease of access to electronics for service or modification without the need to drain the line.

Ease of operation
The BiRotor Plus design allows for very simple operation and maintenance. The BiRotor technology is field proven over many decades, in the harshest operating conditions. Ease of operation does not require highly skilled operators, let alone IT experts, to handle.
## Technical Specifications

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<tr>
<th>Model Code</th>
<th>B27X</th>
<th>B28X</th>
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<tbody>
<tr>
<td>Line Size and End Connections</td>
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<td>Maximum Working Pressure</td>
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<td>285 PSI, 19.5 bar</td>
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<td>Carbon Steel Carbon Steel Stainless Steel</td>
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