**Description**

The BiRotor Meter is a positive displacement meter utilized in the most demanding applications requiring accuracy, long life and ruggedness. The electronic “P” Series meter configuration features a sealed measuring chamber with one reluctance type electronic sensor. The sealed electronic sensor transmits amplified signals to local or remote instruments. A second optional sensor is available to allow dual channel pulses that are 90 degrees electrically out of phase.

**Accuracy** is attained by the unique BiRotor design which features two finely balanced rotors. An adjustor, incorporated on the meter, is used to assure maximum accuracy within the meter’s flow range.

**Long Life** is assured because the meter does not contain any oscillating, reciprocating, sliding parts or cranks to wear or disturb the balanced rotary action. In addition, the materials incorporated within the meter assembly are selected specifically for a wide range of petroleum and industrial liquid applications.

**Electrical Classification (P-Style)**

Class 1, Groups C & D, Division 1, Explosion proof; Recommended connecting cables Belden 8770, 3 Conductor Shielded, 18 gauge stranded. Maximum recommended cable length 3000 feet (914 meters).

Input power: 6-28 Vdc at 20 mA, Output Signal: TTL (0-5V) or voltage dependent.

**Principle of Operation**

Two spiral fluted rotors within the measuring unit are dynamically balanced to minimize bearing wear. (Refer to Figure 1). As the product enters the intake of the measuring unit, the two rotors divide the product into precise segments of volume momentarily and then return these segments to the outlet of the measuring unit. During this “liquid transition”, the rotation of the two rotors is directly proportional to the flow rate of the liquid throughput. A gear train located outside the measuring unit chamber conveys mechanical rotation of the rotors to a mechanical or electronic register for totalization of liquid throughput. For P-Style units, a pulse verification gear located outside the measuring unit chamber conveys mechanical rotation of the rotors to the sensor and to the electronic register for totalization of liquid throughput.

**Design Features**

- Extremely long service life
- Economical low maintenance
- Two simple rotors with no metal-to-metal contact are the only moving parts in the measuring chamber.
- No oscillating, reciprocating or sliding parts or cranks to wear or disturb the balanced rotary action.
- Conforms with International standards of flowmeter accuracy.

**Accessories (Mechanical)**

- Preset Counters
- Control Valves
- Large Numerical Registers
- Pulse Transmitters
- Ticket Printers
- Strainers

**Accessories (P-Style)**

- Electronic Register
- Preamp
- Dual Pickoffs for “B” level Pulse
- Security

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**Flow Capacity**

- 567 M³/h
- 3,571 BPH

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**WARNING**

Do NOT operate this instrument in excess of the specifications listed. Failure to heed this warning could result in serious injury and/or damage to the equipment.
Materials of Construction

Housing: Welded Steel Construction Combining Steel Castings and Drawn Steel Plate

Measuring Unit:
Rotors: Three Lobe Rotor - Cast Iron
Four Fluted Rotor - Aluminum

Rotor Shafts: E.T.D. 150

Rotor Bearings: Stainless Steel

Body and End Covers: Cast Iron

Counter Base Plate:
Body: Steel

O-Ring: Viton (Standard)

Drive Shafts, Drive Gears, and Ball Bearings: Stainless Steel

Accuracy:
Capable of +/- 0.10%; Contact Factory for viscosity corrections.

Typical Pressure Drop Curve

Ordering Information
In order to accurately process an order, such information as product to be metered, product viscosity, product temperature range, ambient temperature range, rate of flow, operating pressure, units of registration, accessories required, and optional features needed must be specified by the customer.

Flange Connections

<table>
<thead>
<tr>
<th>Model</th>
<th>Connections</th>
<th>Max Working Pressure @100°F</th>
<th>DIN Connections</th>
<th>Max Working Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>B111</td>
<td>10&quot; 150 lb. ANSI</td>
<td>285 PSI</td>
<td>DN 250 PN 16</td>
<td>16 bar</td>
</tr>
<tr>
<td>B113</td>
<td>10&quot; 300 lb. ANSI</td>
<td>300 PSI</td>
<td>DN 250 PN 25</td>
<td>19.6 Bar</td>
</tr>
<tr>
<td>B114</td>
<td>10&quot; 300 lb. ANSI</td>
<td>740 PSI</td>
<td>DN 250 PN 25</td>
<td>20.7 Bar</td>
</tr>
<tr>
<td>B115</td>
<td>10&quot; 60 lb. ANSI</td>
<td>1480 PSI</td>
<td>DN 250 PN 40</td>
<td>40 Bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DN 250 PN 64</td>
<td>51 Bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DN 250 PN 64</td>
<td>64 Bar</td>
</tr>
</tbody>
</table>

Temperature Range: -20°F to 150°F (-29°C to 66°C) Optional 325°F (163°C)

Typical Flow Rates

<table>
<thead>
<tr>
<th>Meter Models</th>
<th>10 cP</th>
<th>100 cP</th>
<th>300 cP</th>
<th>500 cP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accuracy</td>
<td>Accuracy</td>
<td>Accuracy</td>
<td>Accuracy</td>
</tr>
<tr>
<td>B111, B113, B114, B115</td>
<td>+/- 0.15%</td>
<td>+/- 0.10%</td>
<td>+/- 0.10%</td>
<td>+/- 0.10%</td>
</tr>
</tbody>
</table>

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>BPH</td>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>357</td>
<td>3,571</td>
<td>176</td>
<td>3,571</td>
</tr>
<tr>
<td>M³H</td>
<td>57</td>
<td>567</td>
<td>29</td>
<td>567</td>
</tr>
</tbody>
</table>

For Certified Dimensional Prints - Consult Factory

Shipping Weight and Volume (Approximate)

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight @ Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>B111</td>
<td>1,294 lbs. @ 24.5 Cu. Feet, 587 kgs. @ 69 Cu. Meters</td>
</tr>
<tr>
<td>B113</td>
<td>1,368 lbs. @ 24.5 Cu. Feet, 620 kgs. @ 69 Cu. Meters</td>
</tr>
<tr>
<td>B114</td>
<td>1,625 lbs. @ 27.6 Cu. Feet, 736 kgs. @ 78 Cu. Meters</td>
</tr>
<tr>
<td>B115</td>
<td>2475 lbs. @ 29.7 Cu. Feet, 1,122 kgs. @ 84 Cu. Meters</td>
</tr>
</tbody>
</table>

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