

## Technical Data

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### BiRotor, APL

Model B171	[3"]
Model B173	[3"]
Model B174	[3"]
Model B175	[3"]



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#### General

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.

#### Principle of Operation

The two spiral fluted rotors within the measuring chamber are dynamically balanced, but hydraulically unbalanced. (Refer to Figure 1). As the product enters the intake of the measuring unit chamber, the two rotors divide the product into precise segments of volume momentarily and then return these segments to the outlet of the measuring unit chamber. During this "liquid transition", the rotation of the two rotors is directly proportional to the flow rate of liquid thruput. 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 thruput.

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#### Design Features

- Double case design
- Extremely long service life
- Economical Low maintenance
- Two simple rotors with no metal-to-metal contact
- No oscillating, reciprocating or sliding parts or cranks to wear or disturb the balanced rotary action
- Sustained Measurement Accuracy
- Conforms with International standards of flowmeter accuracy

#### Accuracy

The accuracy is attained by the unique BiRotor design which features two finely balanced rotors. An adjuster, incorporated on the meter, is used to assure maximum accuracy within the meter's flow range (Mechanical only).

#### Long Life

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 the 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.

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#### 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

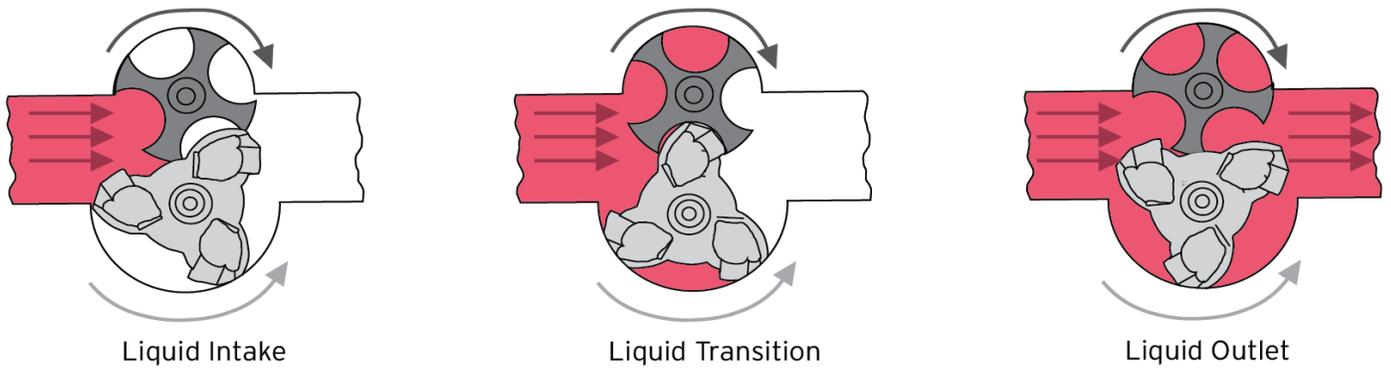


Figure 1 - BiRotor Meter Principle of Operation Diagram

### 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 +/- 0.15%; Contact Factory for viscosity corrections.

### Flow Capacity

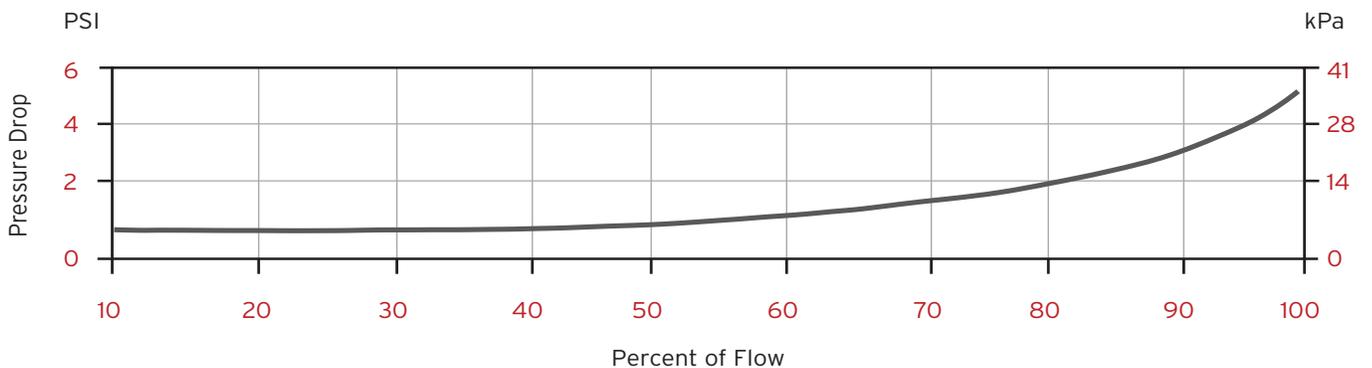
Meter Models B171, B173, B174, B175		
	Max. Flow	Min. Flow
GPM	525	105
LPM	1987	397
BPH	750	150

### 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.

### Typical Pressure Drop Curve

Test Solution: Mineral Spirits



**Shipping Weight And Volume (Approximate)**

B171	297 lbs. @ 11 Cu. Feet
	135 kgs. @ 0.31 Cu. Meters
B173	305 lbs. @ 11 Cu. Feet
	138 kgs. @ 0.31 Cu. Meters
B174	455 lbs. @ 12 Cu. Feet
	206 kgs. @ 0.34 Cu. Meters
B175	565 lbs. @ 13 Cu. Feet
	256 kgs. @ 0.37 Cu. Meters

Electronic Pulses (K-Factor)	Gallons	Liters	BBL
	100	26.4	4,200

**Flange Connections**

Models	Connections	Max Working Pressures @100F	DIN Connections	Max working pressure
B171	3" 150 lb. ANSI	285 psi	DN 80 PN 16	16 Bar
			DN 80 PN 40	19.6 Bar
B173	3" 300 lb. ANSI	300 psi	DN 80 PN 40	20.7 Bar
B174	3" 300 lb. ANSI	740 psi	DN 80 PN 40	40 Bar
			DN 80 PN 64	51 Bar
B175	3" 600 lb. ANSI	1480 psi	DN 80 PN 64	64 Bar
			DN 80 PN 100	100 Bar

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

**NOTE:**

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.

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