

16" BiRotor, APL Models B231, B233, B234, B235

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 adjuster, incorporated on the meter, is used to assure maximum accuracy within the meter's flow range (Mechanical Only).

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.

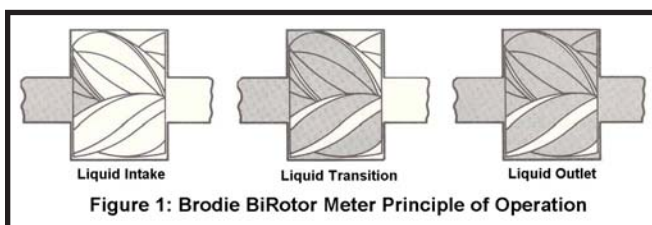


Figure 1: Brodie BiRotor Meter Principle of Operation



Flow Capacity
2,066 M³H, 13,000 BPH



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.

During this "liquid transition", the rotation of the two rotors is directly proportional to the flow rate of the 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. 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 thruput.

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

Materials of Construction

Meter Housing: Welded Steel Construction
Combining Steel Casings
and Drawn Steel Plate

Measuring Unit

End Plates and Body: Cast Iron
Rotors: Three Lobe Rotor - Cast Iron
Four Fluted Rotor - Aluminum
Rotor Shafts: E.T.D. 150
Bearings: Carbon Steel

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 Flow Rates

Models B231, B233, B234, B235	10 cP Accuracy +/-0.15%		100 cP Accuracy +/-0.10%		300 cP Accuracy +/-0.10%		500 cP Accuracy +/-0.10%	
	Min	Max	Min	Max	Min	Max	Min	Max
BPH	3,857	13,000	2,214	13,000	1,714	13,000	1,300	10,400
M3H	613	2,066	352	2,066	272	2,066	206	1,653

Flange Connections

Model	Connections	Max Working Pressure @ 100F	DIN Connections	Max Working Pressure
B231	16" 150 # ANSI	285 PSI	DN 300 PN 16	16 Bar
			DN 300 PN 25	19.6 Bar
B233	16" 300# ANSI	300 PSI	DN 300 PN 25	20.7 Bar
			DN 300 PN 25	25 Bar
B234	16" 300# ANSI	740 PSI	DN 300 PN 40	40 Bar
			DN 300 PN 64	51 Bar
			DN 300 PN 64	62 Bar
B235	16" 600# ANSI	1480 PSI	DN 300 PN 100	102 Bar

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

**For Certified Dimensional Prints -
Consult Factory**

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.

Shipping Weights and Volume

Model	Approximate Weight & Volume
B231	8,500 lbs. @ 136 Cu. Feet 3,855 kgs. @ 3.85 Cu. Meters
B233	8,550 lbs. @ 136 Cu. Feet 3,878 kgs. @ 3.85 Cu. Meters
B234	8,800 lbs. @ 136 Cu. Feet 3,991 kgs. @ 3.85 Cu. Meters
B235	8,900 lbs. @ 136 Cu. Feet 4,036 kgs. @ 3.85Cu. Meters

K-Factor/Pulses (P-Style)

Electronic Pulses (K-Factor)	M ³	BBL
		1,101

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