

16" BiRotor Models B131, B133, B134, B135

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)

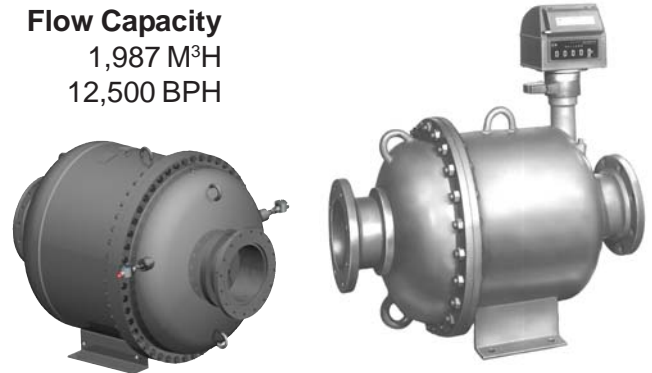
Class 1, Groups C & D, Division 1, Explosion proof; Recommended connecting cables Belden 8770, 3 Conductor Shielded, 18 gauge stranded. Maximum recommended cable length 3000 feet (914 meters). Input power: 6-28 Vdc at 20 mA, Output Signal: TTL (0-5V) or voltage dependent.

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. 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

Flow Capacity

1,987 M³H
12,500 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.

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

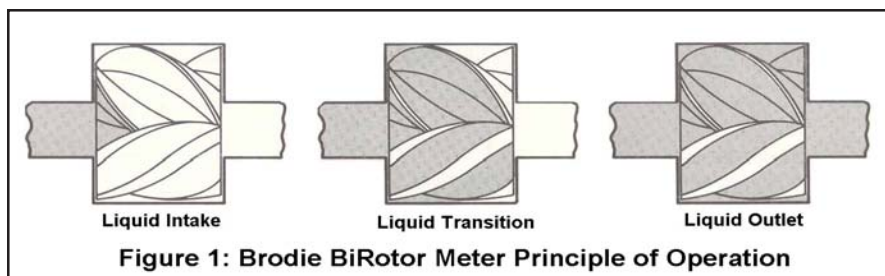
- Extremely long service life
- Economical low maintenance
- Two simple rotors with no metal-to-metal contact are the only moving parts in the measuring chamber.
- No oscillating, reciprocating or sliding parts or cranks to wear or disturb the balanced rotary action.
- Conforms with International standards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

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.

Flange Connections

Model	Connections	Max Working Pressure @100F	DIN Connections	Max Working Pressure
B131	16" 150 lb. ANSI	285 PSI	DN 400 PN 16	16 Bar
			DN 400 PN 25	19.6 Bar
B133	16" 300 lb. ANSI	300 PSI	DN 400 PN 25	20.7 Bar
			DN 400 PN 25	25 Bar
B134	16" 300 lb. ANSI	740 PSI	DN 400 PN 40	40 Bar
			DN 400 PN 64	51 Bar
B135	16" 600 lb. ANSI	1480 PSI	DN 400 PN 64	62 Bar
			DN 400 PN 100	62 Bar

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

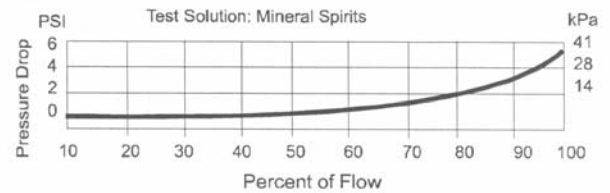
Typical Flow Rates

Meter Models B131, B133, B134, B135	10 cP		100 cP		300 cP		500 cP	
	Accuracy		Accuracy		Accuracy		Accuracy	
	+/- 0.15%		+/- 0.10%		+/- 0.10%		+/- 0.10%	
	Min	Max	Min	Max	Min	Max	Min	Max
BPH	2,500	12,500	625	12,500	250	12,500	125	10,000
M³H	391	1,987	100	1,987	40	1,987	20	1,590

For Certified Dimensional Prints - Consult Factory

Shipping Weight and Volume (Approximate)	
B131	8,500 lbs. @ 136 Cu. Feet 3,855 kgs. @ 3.85 Cu. Meters
B133	8,550 lbs. @ 136 Cu. Feet 3,878 kgs. @ 3.85 Cu. Meters
B134	8,800 lbs. @ 136 Cu. Feet 3,991 kgs. @ 3.85 Cu. Meters
B135	8,900 lbs. @ 136 Cu. Feet 4,036 kgs. @ 3.85Cu. Meters

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.

K-Factor/Pulses (P-Style)

Electronic Pulses (K-Factor)	M ³	BBL
	1,101	175

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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 adjustor, 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. 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

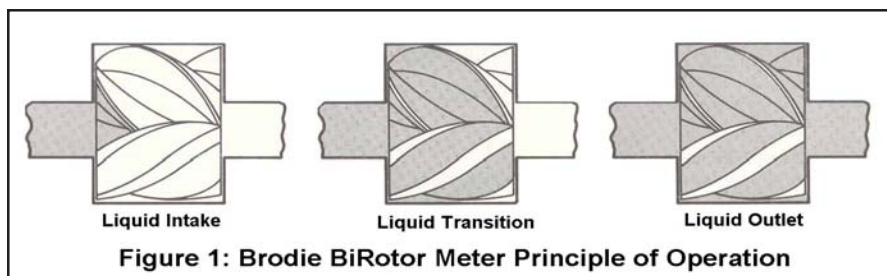
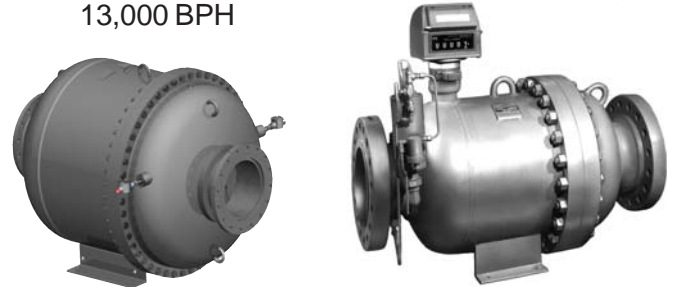


Figure 1: Brodie BiRotor Meter Principle of Operation

Flow Capacity

2,066 M³H
13,000 BPH



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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

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.

Flange Connections

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			DN 400 PN 40	40 Bar
			DN 400 PN 64	51 Bar
B235	16" 600 lb. ANSI	1480 PSI	DN 400 PN 64	62 Bar
			DN 400 PN 100	62 Bar

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

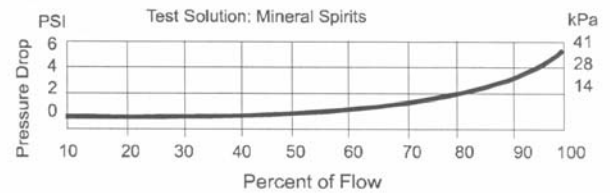
Typical Flow Rates

Meter Models B231, B233, B234, B235	10 cP		100 cP		300 cP		500 cP	
	Accuracy +/- 0.15%		Accuracy +/- 0.10%		Accuracy +/- 0.10%		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

For Certified Dimensional Prints - Consult Factory

Shipping Weight and Volume (Approximate)	
B231	8,500 lbs. @ 136 Cu. Feet 3,855 kgs. @ 3.85 Cu. Meters
B233	8,650 lbs. @ 136 Cu. Feet 3,923 kgs. @ 3.84 Cu. Meters
B234	8,900 lbs. @ 136 Cu. Feet 4,036 kgs. @ 3.84 Cu. Meters
B235	9,000 lbs. @ 136 Cu. Feet 4,090 kgs. @ 3.84 Cu. Meters

Typical Pressure Drop Curve



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