

# Technical Data

## BiRotor

Model B080	[4"]
Model B081	[4"]
Model B083	[4"]
Model B084	[4"]
Model B085	[4"]
Model B086	[4"]



### 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.

### 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.

### 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

### 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

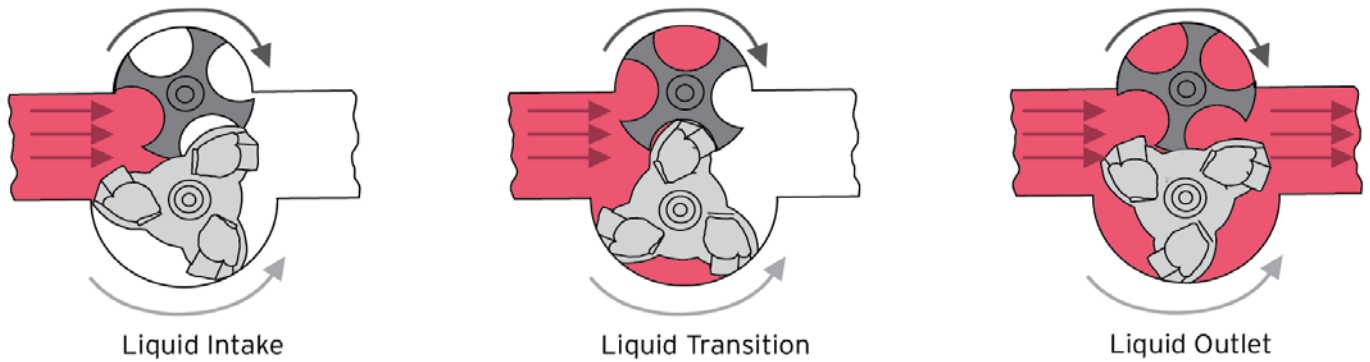


Figure 1 - BiRotor Meter Principle of Operation Diagram

### Materials of Construction

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

**Measuring Unit:**

**Rotors:** Three Lobe Rotor - Aluminum

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 B080, B081, B083, B084, B085, B086		
	Max. Flow	Min. Flow
GPM	600	60
LPM	2271	227
BPH	857	86

### 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 Weight And Volume (Approximate)

B080, B088	323 lbs. @ 7.0 Cu. Feet
	146 kgs. @ 0.20 Cu. Meters
B081, B083	450 lbs. @ 9.8 Cu. Feet
	204 kgs. @ 0.28 Cu. Meters
B084	739 lbs. @ 14.1 Cu. Feet
	335 kgs. @ 0.4 Cu. Meters
B085	960 lbs. @ 15 Cu. Feet
	435 kgs. @ 0.42 Cu. Meters

### K-Factor/Pulses (P-Style)

Electronic Pulses (K-Factor)	Gallons	Liters	BBL
	50	13.2	2,100

## Flange Connections

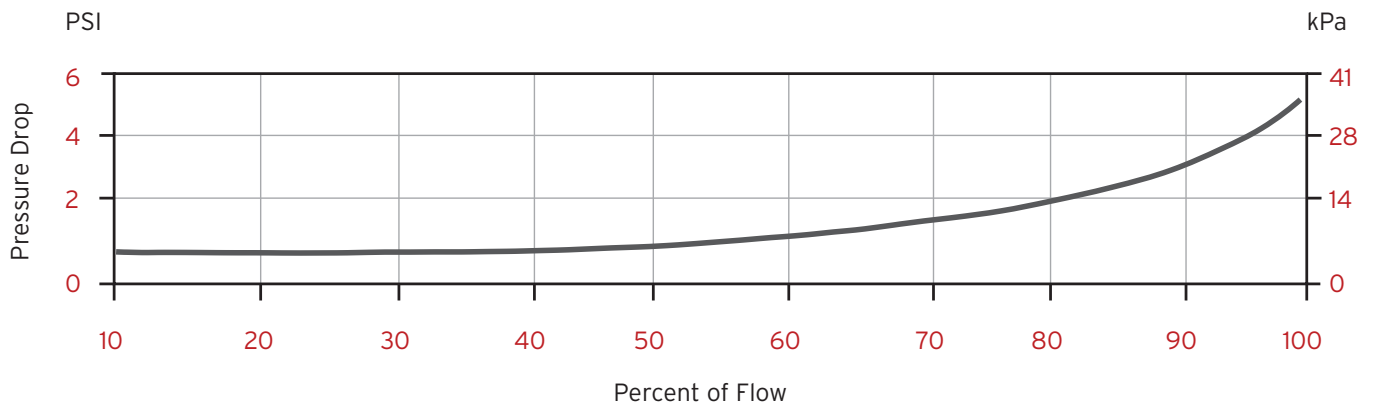
Models	Connections	Max Working Pressures @100F	DIN Connections	Max working pressure
B080	4" 150 lb. ANSI	150 psi	DN 80 PN 16	10.3 Bar
B081	4" 150 lb. ANSI	285 psi	DN 80 PN 16	16 Bar
			DN 80 PN 40	19.6 Bar
B083	4" 300 lb. ANSI	300 psi	DN 80 PN 40	20.7 Bar
B084	4" 300 lb. ANSI	740 psi	DN 80 PN 40	40 Bar
			DN 80 PN 64	51 Bar
B085	4" 600 lb. ANSI	1480 psi	DN 80 PN 64	64 Bar
			DN 80 PN 100	100 Bar
B088	4" 150 LB. ANSI	10 BAR	DN 80 PN 16	10 Bar

Temperature Range: -20°F to 150°F (-29°C to 66°C) Optional 450°F (232°C)

\*150# meters Classified as SOUNd Engineering Practice under Pressure Equipment Directive

## Typical Pressure Drop Curve

Test Solution: Mineral Spirits



### 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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