



## BiRotor Plus, Single Case Model SB25X

### Description

The Single Case BiRotor Plus is an extremely accurate single cased flow measuring device designed primarily for, but not limited to, ethanol blending. It produces a high resolution signal which is directly proportional to the rate of liquid flow through the meter utilizing non-wetted pick-offs. These signals can be shaped by a simple internal pre-amplifier for transmission to ancillary equipment.



### Materials of Construction

Meter Housing: A 351 GR CF8M  
(316 Stainless Steel)

Measuring Unit:

End Plates and Body: A 351 GR CF8M  
(316 Stainless Steel)

Rotors/Rotor Shafts: Aluminum Rotor, Anodized  
17-4 PH Stainless Steel Shaft

Timing Gears: 416 Stainless Steel

Bearings: Ceramic/Stainless Steel

Elastomers: Viton A®, Viton F®, or  
Fluoro Silicon are standard  
(other options available)

UMB Housing\*: A356 T6 Cast Aluminum

\* This part is not wetted.

### Electrical Details

Pick off:  
Non Wetted Reluctance Type  
Sine Wave Amplitude: 40 mV P-P, min.

Preamplifier:

Supply Voltage: 9 to 28 VDC

Outputs (Jumper selectable):  
Square wave: 0 to 5 KHz

5 V Powered Pulse: 0 – 5 VDC, 20 mA Max

Variable Voltage Pulses:  
0 to Supply Voltage Less 5%  
70 mA max

Open Collector:  
Max voltage: 30 VDC  
Max current: 125 mA  
Max power: 0.5 W

### Performance

SB25X Linearity Standard Rotors

+/- 0.15% Over Standard Flow Range  
+/- 0.30% Over Extended Flow Range

Repeatability: +/- 0.02%

Viscosity Range: 0.2 - 5 cSt

Operating Temperatures Limits:  
Dependant on pick off type and O-Ring  
seals used, see Table 1.

**Table 1: Operating Temperature Limits**

Pick Off Type	Seal Material	Minimum Operating Temp		Maximum Operating Temp	
		Degree F	Degree C	Degree F	Degree C
Standard	Viton A	-15	-25	167	75
Standard	Viton F	-15	-25	167	75
Standard	Fluoro Silicon	-40	-40	167	75
High Temp	Viton A	14	-10	230	110
High Temp	Viton F	14	-10	230	110
High Temp	Fluoro Silicon	14	-10	230	110

**Table 2: Maximum Working Pressure at 100 deg F, 38 deg C**

Flange Ratings	PSI	Bar
ANSI 150#	275	19
DIN PN 16	196	13.5
ANSI 300#	720	50
DIN PN 40	490	33.8

**Table 4: Shipping Weights and Volume**

Model	Size	Unit	Weight
SB251	2" ANSI 150# DN50 PN 16	Lb	75
		Kg	34
SB254	2" ANSI 300# DN50 PN 40	Lb	76
		Kg	36

**Table 3: Flow Ranges, 0.2-5 cSt  
(Greater than 5 cSt, Consult Facotry)**

Meter Size	Flow Rate				Nominal K-Factor
	GPM	BPH	M <sup>3</sup> /HR	L/MIN	
DN50 and 2"	150	214	34	568	950 PUL/ GAL +/- 10% (250 PUL/ Liter)
	30*	43*	6.8*	114*	
	7.9**	11.3**	1.8**	30**	

\*Minimum Standard Flow Ranges

\*\* Minimum Extended Range Flow Ranges

**BiRotor Plus Approvals Environmental**

- NEMA 4X
- Type 4X
- IP 65
- OIML R117-1 Class H3

**Electromagnetic Emissions & Immunity**

- EMC Industrial ( EN 61326) CE, European Union
- OIML R117-1 Class E2
- FCC 47 CFR Part 15
- ICES-003, Issue 4

**Hazardous Area Approvals**

- Temp Ambient. -40 to 60°C, -40 to 140°F
- Class 1, Division 1, Group C, and D (Listed for United States and Canada) CSA 221162
- ATEX



- CE 0359 II 2 G Ex d IIB T6...T4
- Certificate: ITS 08 ATEX 15842X
- IEC Ex
- Ex d IIB T6 – T4
- Certificate: IECEx ITS 08.0021X

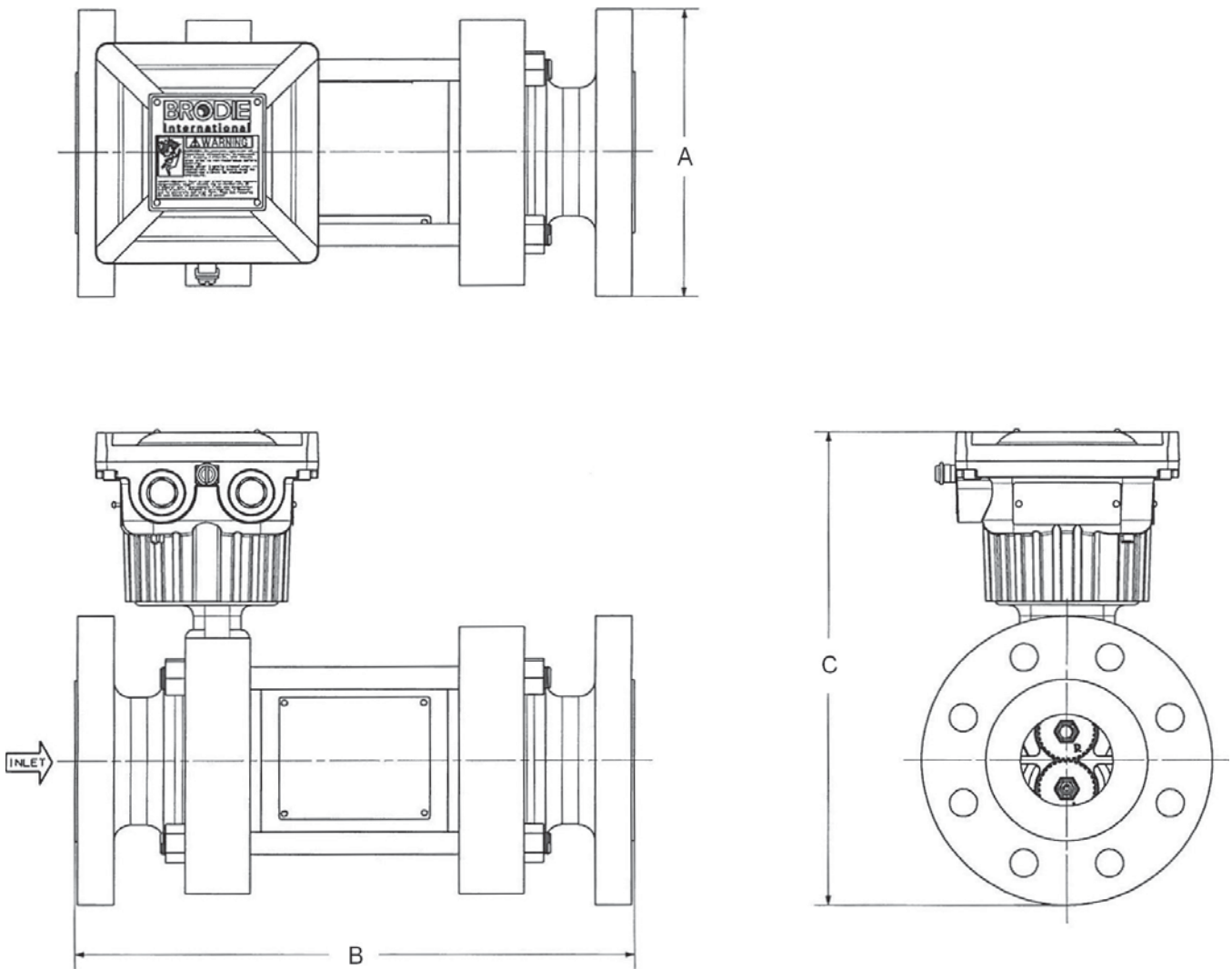
**Weights and Measure**

NTEP  
 OIML R117-1 (Pending)  
 The Peoples Republic of China  
 Measurement Canada  
 MID Certified as a component for use with in a  
 measuring system as agreed within WELMEC

**Pressure Equipment**

Under the EU Pressure Equipment Directive 97/23/EC  
 Rated as SEP for all ANSI and DIN versions  
 Canadian Registration: All Provinces (150# Only)

**Figure 1: Dimensions (For Certified Dimensions, Consult Factory)**



		Dimension A	Dimension B	Dimension C
SB251	in	6	12 9/16	10 3/8
	mm	152	319	264
SB254	in	6 1/2	12 9/16	10 5/8
	mm	165	319	270

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