

## Technical Data

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### BiRotor Plus Single Case

SB25X 2" ANSI(DN50)

#### A Series Meters



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#### General

The Single Case BiRotor Plus is an extremely accurate 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 preamplifier for transmission to ancillary equipment.

#### Accuracy

PD meters are widely regarded as the most accurate meters on the market today. With a linearity of +/-0.15% and a repeatability of 0.02%, the A Series BiRotor Plus is ideal for liquid custody transfer applications.

#### Dependability

There is no metal to metal contact between the rotors and the measurement chamber. The meter is therefore extremely durable. The rotors, bearings and timing gears are the only moving parts. Maintenance requirements are the lowest in the industry.

#### Affordability

No premium for superior performance. Brodie offers the BiRotor Plus at a very competitive price.

#### Flexibility

The BiRotor plus meter can be installed either vertically or horizontally. It offers direct pulse output and it is field proven in thousands of installations.

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#### Linearity

SB25X Standard Rotors  
+/- 0.15% Over Standard Flow Range  
+/- 0.30% Over Extended Flow Range

#### Repeatability

0.02% std. Rotors

#### Viscosity Range

Standard: 0.2 - 5 cP (For OIML Approval Only)

#### Operating Temperature

STD: -40°F to 167°F (-40°C to 75°C)  
Extended Range: 14°F to 230°F (-10°C to 110°C)

## Flow Ranges

MODEL		GPM		BPH		l/min		m3/h		Nominal K-Factor +/-10%
		min	max	min	max	min	max	min	max	
SB25X	standard	15	150	21.4	214	56.8	568	3.4	34	950 PUL/GAL 250 PUL/L
	extended	7.9	150	11.3	214	30	568	1.8	34	

## Max Working Pressure [at 100 F, 38 C]

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

## Shipping weights

Model	Size	Unit	Weight
SB25X	2" ANSI 150# DN50 PN16	lb	75
		kg	34
	2" ANSI 300# DN50 PN 40	lb	76
		kg	36

## Approvals

### Environmental

NEMA 4X  
Type 4X  
IP 65

### Electromagnetic Emissions & Immunity

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

### Weights and Measures

NTEP  
OIML  
China  
Measurement Canada  
Singapore  
Malaysia NMIM  
India  
INMETRO

### Hazardous Area

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 2164769, 221162

### ATEX

CE 0359 II 2 G Ex db IIB T6...T4  
Certificate: ITS08ATEX15842X

### IECEx

Ex db IIB T6 - T4  
Certificate: IECEx ITS 08.0021X

### Pressure Equipment

Under the EU Pressure Equipment Directive 2014/68/EU  
Rated as SEP for all ANSI and DIN versions  
Canadian Registration: All Provinces (150# Only)

## Pressure Drop

To convert pressure drop value to the actual process fluid, use the following equation:

$$\Delta PA = (cPA)^{0.25} * (SGA)^{0.75} * \Delta Pm$$

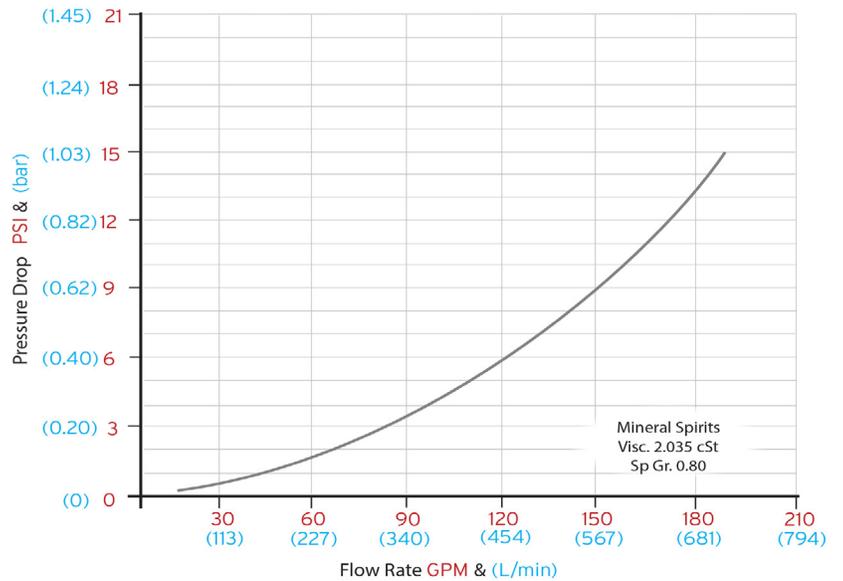
$\Delta PA$  = Pressure Drop on Actual Fluid in PSI

$cPA$  = Viscosity of Actual Fluid in cP

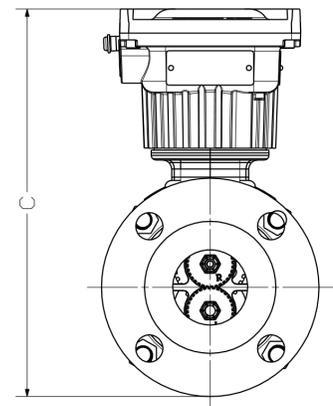
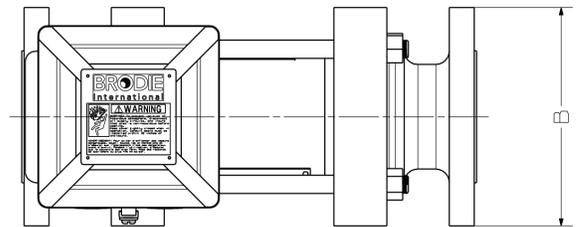
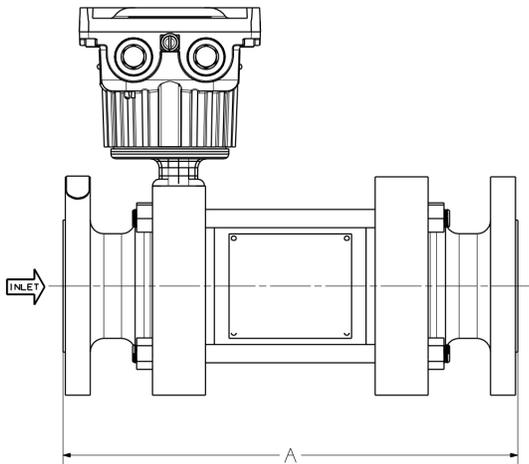
$SGA$  = Density of Actual Fluid in SG

$\Delta Pm$  = Pressure Drop on Mineral Spirits

(See graphs below for reference)



## Dimensions



Model	Unit	A	B	C
SB251	inch	12 9/16	6	10 5/8
	mm	319	152	270
SB254	inch	12 9/16	6 1/2	10 7/8
	mm	319	165	276

## Materials Housing

Meter Housing: ASTM A351 GR CF8M  
(316 Stainless Steel)

## Materials Measuring Unit

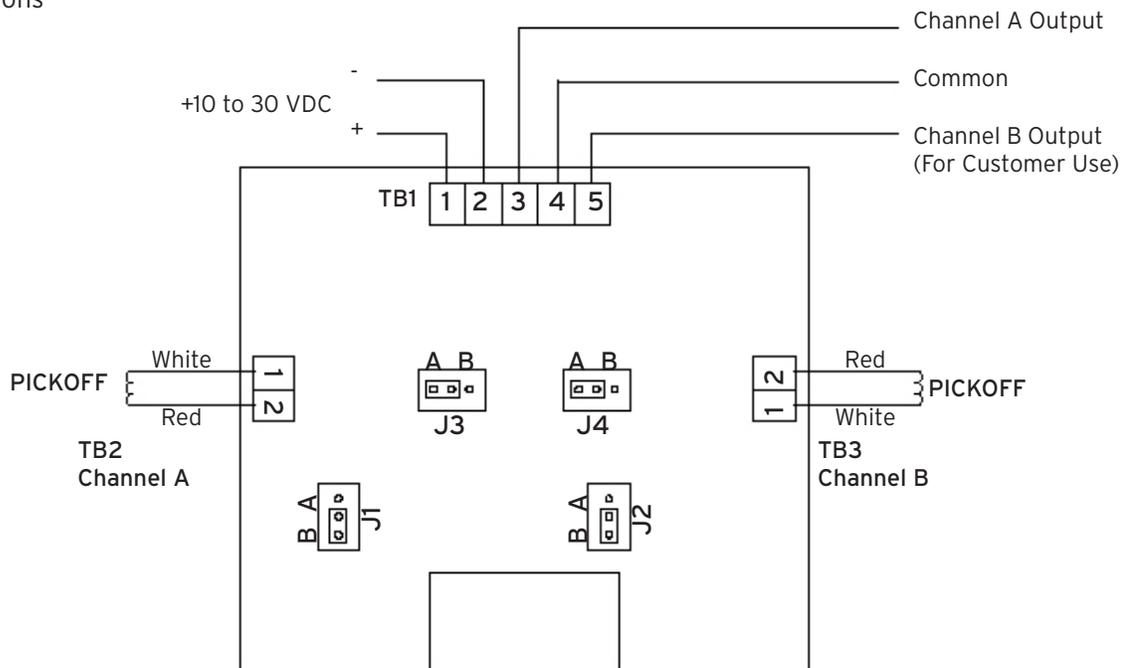
End plates and body: A 351 GR CF8M (316 Stainless Steel)  
 Rotors/ Rotor shafts: Aluminum Rotor, Anodized  
 17-4 PH Stainless Steel Shaft  
 Timing gears: 416 Stainless Steel  
 Bearings: Stainless Steel/Ceramic  
 Elastomers: Low Swell Nitrile, Viton F®, or  
 Fluoro Silicon are standard  
 (other options available)  
 UMB Housing: A356 T6 Cast Aluminum [non wetted  
 component]

## 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

## Wiring Connections



### 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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