

## Technical Data

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### BiRotor Plus Low Temperature

LB27X 3" ANSI(DN80)  
LB28X 4" ANSI(DN100)  
LB29X 6" ANSI(DN150)



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#### General

The BiRotor Plus is an extremely accurate dual cased flow measuring device. It produces, via the use of non wetted pickoffs, a high resolution signal which is directly proportional to the rate of liquid flow through the meter. These signals are shaped by a simple internal pre-amplifier for transmission to ancillary equipment.

The BiRotor Plus Meter utilizes the exclusive BiRotor principle. There are no sliding, oscillating, or reciprocating parts.

#### Accuracy

The BiRotor Plus meter is the most accurate PD meter in the market. Outperforming any other meter in the industry, this meter is capable of a linearity of +/- 0.075% with a repeatability of 0.01%.

#### 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 competitive price.

#### Flexibility

The BiRotor plus meter can be installed both vertically or horizontally and offers direct pulse output. Field proven in thousands of installations.

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#### Linearity

B27X Standard Rotors  
+/- 0.1% Over Standard Flow Range  
+/- 0.15% Over Extended Flow Range

B28X and B29X Standard Rotors  
+/- 0.075% Over Standard Flow Range  
+/- 0.15% Over Extended Flow Range

#### Repeatability

(All Sizes):  
+/- 0.01% std. Rotors

#### Viscosity Range

Standard: 0.2 - 1000 cSt

#### Operating Temperature

STD: -40°F to 167°F (-40°C to 75°C)

## Flow Ranges

MODEL		GPM		BPH		l/min		m3/h		Nominal K-Factor +/-10%
		min	max	min	max	min	max	min	max	
LB27X	standard	43	425	61	607	163	1609	10	97	160 PUL/GAL 42 PUL/L
	extended	30	500	43	714	114	1893	7	114	
LB28X	standard	70	700	100	1000	265	2650	16	159	96 PUL/GAL 25 PUL/L
	extended	33	900	47	1429	125	3785	7	227	
LB29X	standard	100	1000	143	1429	379	3785	23	227	96 PUL/GAL 25 PUL/L

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

Flange Ratings	PSI	bar
ANSI 150#	285	19.5
ANSI 300#	740	51
DIN PN 16	232	16
DIN PN 40	580	40

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

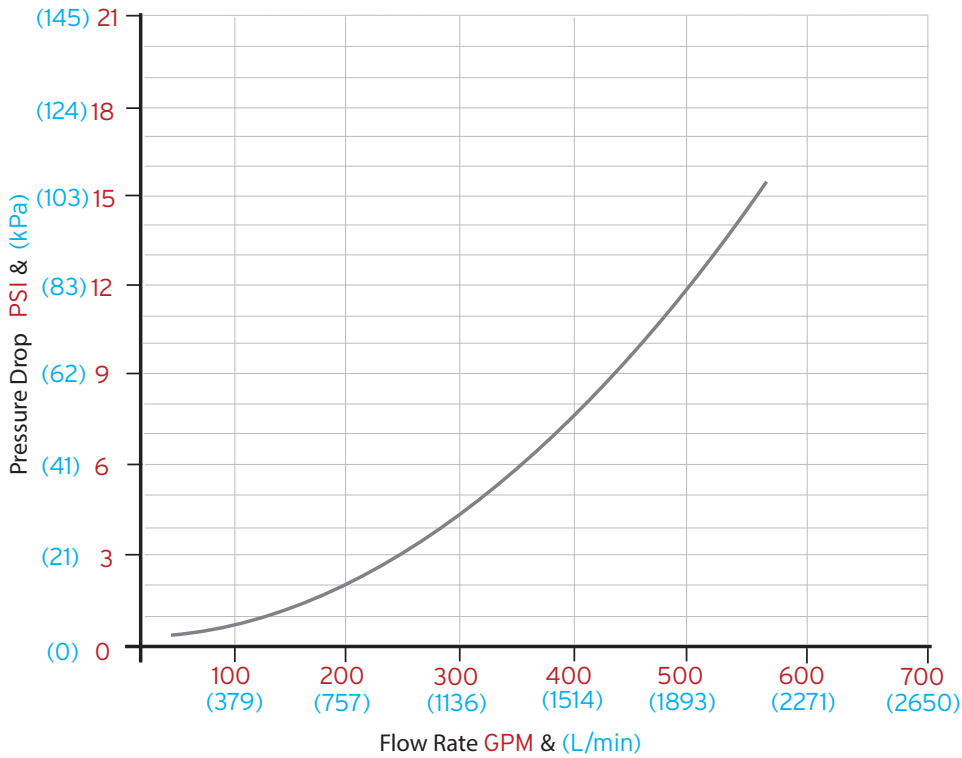
SGA = Density of Actual Fluid in SG

Delta Pm = Pressure Drop on Mineral Spirits

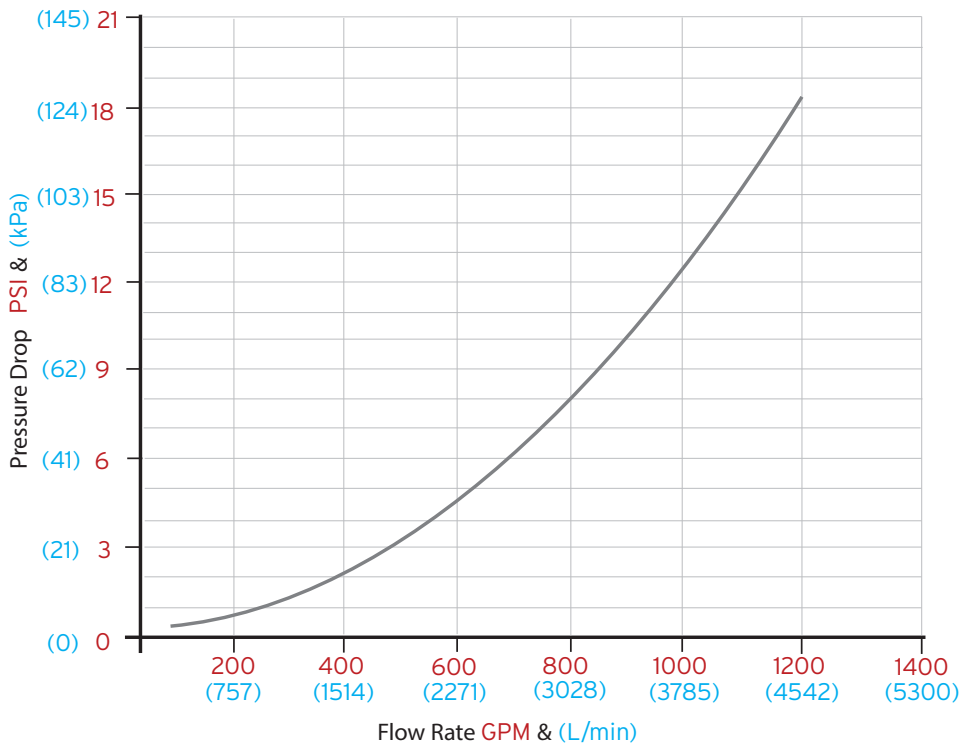
(See Graphs below for Reference)

## Pressure Drop

Model B27X



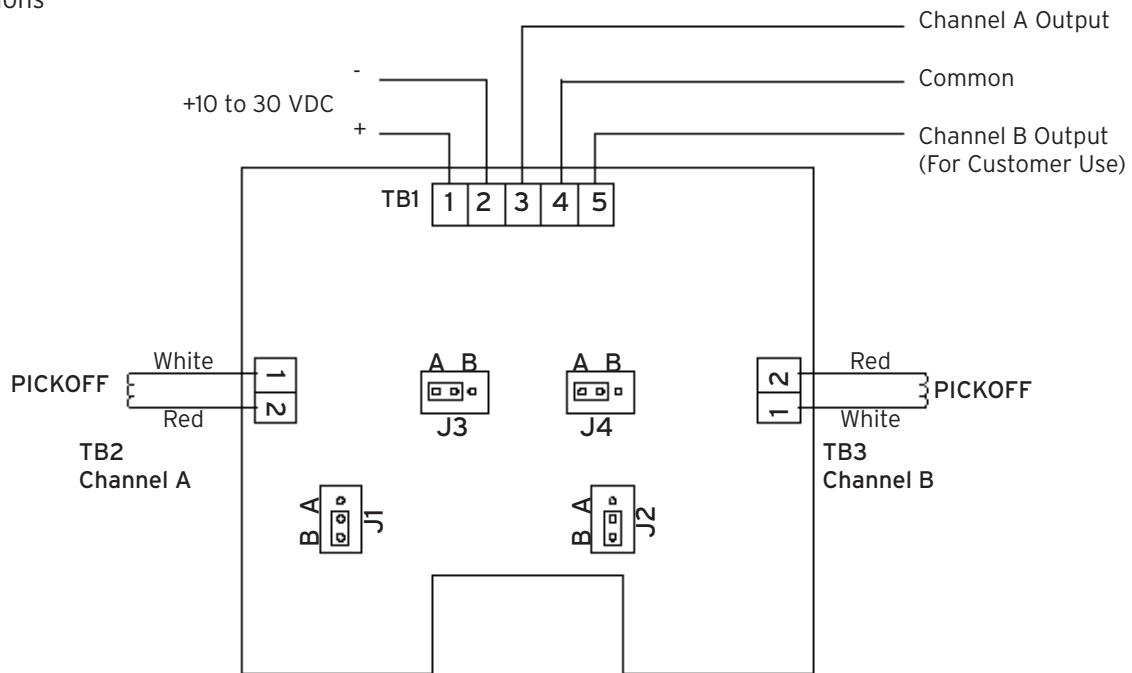
Models B28X & B29X



## Preamplifier

<b>Supply voltage:</b>	9 to 28 VDC	<b>Variable voltage pulses:</b>	0 to supply voltage less 5%
<b>Outputs (jumper selectable):</b>	square wave 0 to 5 KHz		70 mA max
<b>5 V powered pulse:</b>	0 - 5 VDC, 20 mA max	<b>Open Collector:</b>	Max voltage: 30 VDC
			Max current: 125 mA
			Max power: 0.5 W

### Wiring Connections



## Approvals

### Environmental

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

### Electromagnetic Emissions & Immunity

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

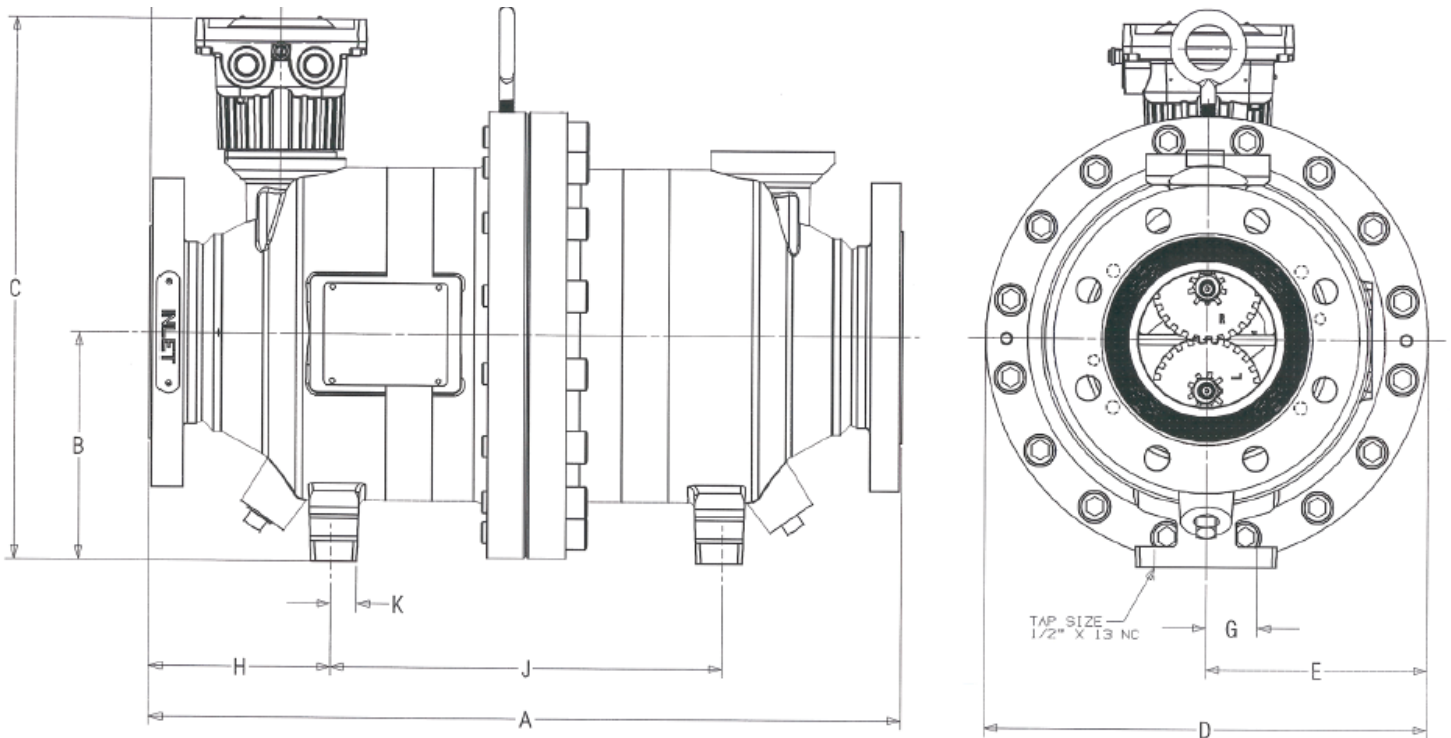
### Weights and Measures

The Peoples Republic of China (Pending)

### Hazardous Area

Temp Ambient. -40 to 60°C, -40 to 140°F  
 CSA (United States and Canada)  
 Class 1, Division 1, Group C, and D Certificate:  
 2142875 221162  
 ATEX  
 CE 0359 II 2 G Ex d IIB T6...T4  
 Certificate: ITS 08 ATEX 15842X  
 IEC Ex  
 Ex d IIB T6 - T4 Gb  
 Certificate: IEC Ex ITS 08.0021X

## Dimensions



### Standard BiRotor Plus Dimensions

Model	Size	Unit	A	B	C	D	E	G	H	J
LB27X	3" ANSI 150#	inch	18	6 1/6	14 13/16	11 1/2	5 3/4	1 3/8	4 3/16	9 5/8
		mm	457	154	376	292	146	35	107	244
	DN80 PN 16	inch	18	6 1/16	14 13/16	11 1/2	5 3/4	1 3/8	4 3/16	9 5/8
		mm	457	154	376	292	146	35	107	244
	3" ANSI 300#	inch	19	6 1/16	14 13/16	11 1/2	5 3/4	1 3/8	4 11/16	9 5/8
		mm	483	154	376	292	146	35	119	244
	DN80 PN 40	inch	19	6 1/16	14 13/16	11 1/2	5 3/4	1 3/8	4 11/16	9 5/8
		mm	483	154	376	292	146	35	119	244
LB28X	4" ANSI 150#	inch	22	6 5/8	16	13	6 1/2	1 1/2	5 1/4	11 1/2
		mm	559	168	406	330	165	38	133	292
	DN100 PN 16	inch	22	6 5/8	16	13	6 1/2	1 1/2	5 1/4	11 1/2
		mm	559	168	406	330	165	38	133	292
	4" ANSI 300#	inch	23 1/8	6 5/8	16	13	6 1/2	1 1/2	5 15/16	11 1/2
		mm	587	168	406	330	165	38	150	292
	DN100 PN 40	inch	23 1/8	6 5/8	16	13	6 1/2	1 1/2	5 15/16	11 1/2
		mm	587	168	406	330	165	38	150	292
LB29X	6" ANSI 150#	inch	24	6 5/8	16	13	6 1/2	1 1/2	6 1/4	11 1/2
		mm	610	168	406	330	165	38	150	292
	DN 150 PN 16	inch	24	6 5/8	16	13	6 1/2	1 1/2	6 1/4	11 1/2
		mm	610	168	406	330	165	38	150	292

### Materials Housing

Meter Housing: ASTM A352 LCB  
 ASTM A 516 GR 70  
 Connection Flanges: ASTM A 105 Carbon Steel or  
 ASTM A 350 LF2  
 Sensor Housing: ASTM A 479  
 304 Stainless Steel

### Materials Measuring Unit

End plates and body: A 356 T6 Cast Aluminium  
 Rotors: ALCO 319 Cast Aluminium Hard Coat  
 anodized  
 Rotor shafts: 17-4 PH Stainless Steel  
 Timing gears: 416 Stainless Steel  
 Bearings: Stainless Steel/Ceramic  
 Elastomers: Fluorocarbon (Viton 1289) and  
 Fluorosilicon are standard  
 (other options available)  
 UMB Housing: A356 T6 Cast Aluminium [non wetted  
 component]

### Shipping weights

Model	Size	Unit	Weight
B 27 X	3" ANSI 150# DN80 PN16	lb	193
		kg	88
	3" ANSI 300# DN80 PN 40	lb	200
		kg	91
B 28 X	4" ANSI 150# DN100 PN16	lb	293
		kg	133
	4" ANSI 300# DN100 PN40	lb	300
		kg	136
B 29 X	6" ANSI 150# DN150 PN 16	lb	350
		kg	159

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