

Technical Data

Non-Ferrous BiRotor Plus

(Models AB270, AB280, AB290)



General

The Non-Ferrous BiRotor Plus meter is a volumetric flow measuring device designed for the accurate measurement of petroleum liquids in aircraft refueling. This double case meter combines the rugged durability and long service life of the traditional BiRotor meter with the improved accuracy and pulse output associated with today's most sophisticated devices.

Utilizing single or dual outputs, with two non-wetted pick-offs mounted 90° out of phase, the Non-Ferrous BiRotor Plus complies with API Level B pulse output standards. Output signals are amplified and shaped by a preamplifier mounted directly on the meter for transmission to accessories such as totalizing counters, digital readout devices, provers and other control equipment and instrumentation.

The typical application is for aviation fuel measurement where the meter must be of non-ferrous material. This includes fueling and defueling where the meter comes in direct contact with the airplane or helicopter. The meter is designed for use on refueling trucks and hydrant trucks/carts. With a maximum operating pressure of 200 psig, the meter meets the SAE specifications for hydrant refuelers.

Design Features

- Total Quality, High Performance, Completely Non-Ferrous
- Highest accuracy of any positive displacement meter
- +/-0.10% accuracy meeting ATA-103 specification
- Electronic output eliminates high maintenance mechanical registers
- Double case construction improves meter factor stability
- No metal-to-metal contact
- Light weight - small footprint
- Victaulic connections
- Capable of operating @ 400 cst. max viscosity
- Capable of Bi-Directional Flow (Consult Factory)

Performance

Repeatability: +/- 0.02%

Linearity: +/- 0.1% or better over 20:1 flow range

- *Premium Linearity of Less than 0.1% Available (Consult Factory)*
- AB270: +/- 0.1% over std. flow range
- AB280: +/- 0.075% over std. flow range
- AB290: +/- 0.075% over std. flow range

Materials of Construction

Housing: Cast Aluminum

Measuring Unit

- End Plates: Cast Aluminum
- Rotors: Cast Aluminum, Hard Anodized
- Rotor Shafts: 17-4 ph Stainless Steel
- Rotor Bearings: Hybrid Ceramic

O-Rings: Viton Standard (Other elastomers available)

Specifications - Electrical

Dual channel preamplifier

Single or dual, non-wetted, reluctance pick-offs

Preamplifier Performance

Inputs

- Supply Voltage: 9 to 28 Vdc
- Sensor Type: Reluctance
- Type: Sine Wave
- Amplitude: 40 mV peak to peak minimum

Outputs

- Powered Pulse Output
 - Type: Square Wave
 - Frequency Range: 0 to 5 kHz
 - Amplitude : 0 to 5 V
 - 1 kOhm in pull-ups, 20 mA max.

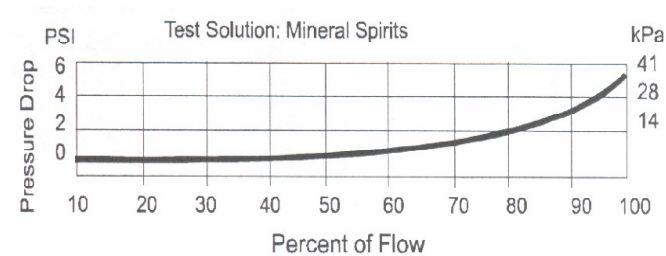
Variable Voltage Output

- Type: Square Wave
- Frequency Range: 0 to 5 kHz.
- Amplitude: 0 to Supply Voltage
- 1 kOhm in pull-ups, 70 mA max.
- Max. Voltage: 28 Vdc
- Max. Current: 125 mA
- Max. Power: 0.5 watts

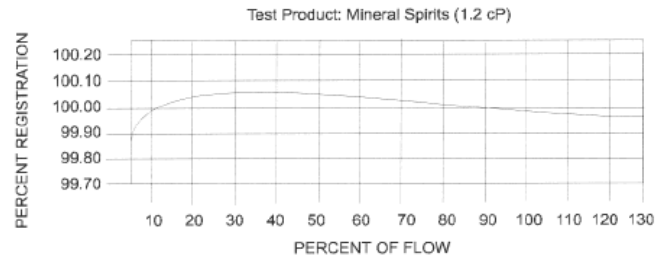
Temperature: -20 to 180°F (-29 to 82°C)

Pick-off Temperature: -20 to 180°F (-29 to 82°C)

Typical Pressure Drop Curve



Typical Accuracy Curve



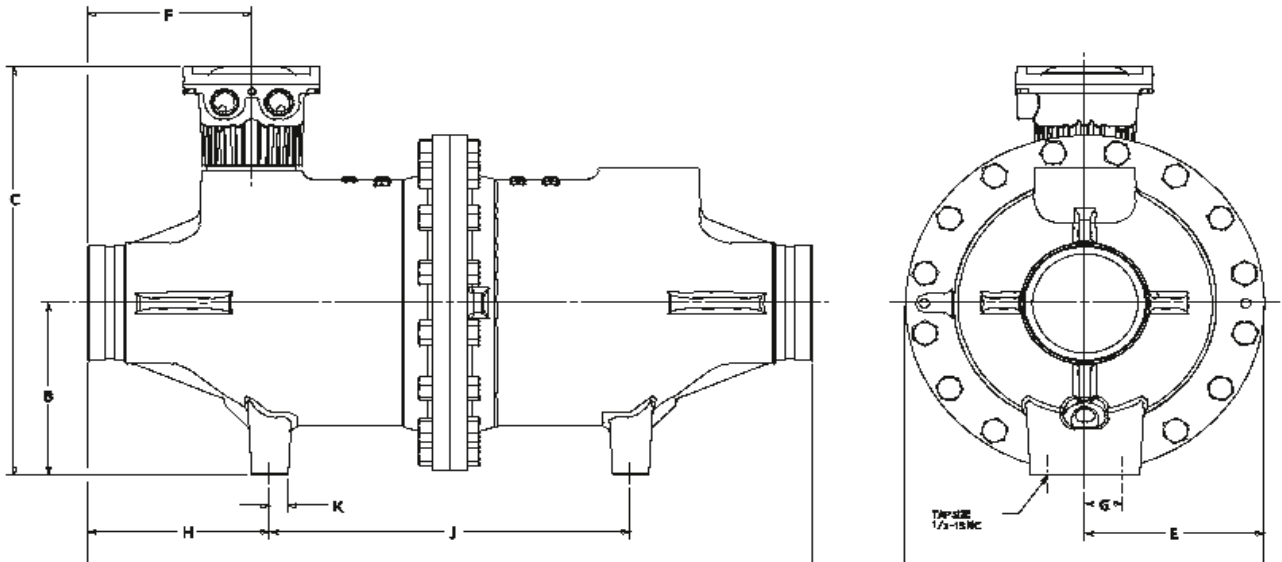
Specifications - Meter

Model Number	Connections	Maximum Safe Working Pressure	Maximum Safe Working Temp	Standard Flow	Extended Flow Range		Nominal K Factor +/- 10%
					Minimum*	Intermittent Maximum	
AB270	3" Victaulic	200 PSI	-20 to 180 F	43 - 425 GPM	30 GPM	550 GPM	160 PUL/GAL 42 PUL/L
AB270	76.20 mm Victaulic	1378 Kpa	-29 to 82 C	163 - 1609 LPM	114 LPM	2082 LPM	
AB280	4" Victaulic	200 PSI	-20 to 180 F	70 - 700 GPM	33 GPM	1000 GPM	96 PUL/GAL 25 PUL/L
AB280	101.60 mm Victaulic	1378 Kpa	-29 to 82 C	265 - 2650 LPM	125 LPM	3785 LPM	
AB290	6" Victaulic	200 PSI	-20 to 180 F	100 - 1000 GPM	40 GPM	1200 GPM	
AB290	152.40 mm Victaulic	1378 Kpa	-29 to 82 C	379 - 3785 LPM	151 LPM	4542 LPM	

ANSI Flange (optional) - 200 PSI Rating

* Linearity +/- 0.15 for conditions between extended maximum flow and standard minimum flow.

Dimensions



Model	A	B	C	D	E	F	G	H	J
AB270	18-15/16 (481)	6 (152)	14-9/16 (370)	11-1/2 (292)	5-3/4 (146)	3-11/16 (94)	1-3/8 (35)	4-3/4 (121)	9-1/2 (241)
AB280	26-1/2 (673)	6-11/16 (170)	15-7/8 (403)	13-1/8 (333)	6-9/16 (167)	6 (167)	1-3/8 (35)	6-11/16 (170)	13-1/8 (333)
AB290	25-5/8 (651)	6-11/16 (170)	15-15/16 (405)	13-1/8 (333)	6-9/16 (167)	5-9/16 (141)	1-3/8 (35)	6-1/4 (159)	13-1/8 (333)

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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