



ALBRPD

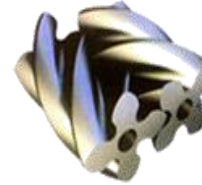
POSITIVE DISPLACEMENT FLOWMETERS

SERIES ALBRPD meters

GENERAL

Bi-Rotor Positive Displacement flowmeter (ALBRPD)

The SMC ALBRPD flowmeter features two precisely machined rotating members known as helical rotors which rotate and mesh within the meter's interior housing in order to form a measuring chamber of known volume which may be used to accurately determine volumetric flow rate as a function of the rotors' velocity. The helical rotors' motion is transmitted to the display via a sealed coupling & drive system that enables the display to provide accurate data for both flow rate and total accumulated flow. The unique helical rotor design provides a number of advantages over traditional gear-type PD meters including reduced pressure drop, the virtual elimination of down-stream pulsations, enhanced particle tolerance, and reduced maintenance. The advantages provided by the helical rotor make the ALIAPD an ideal choice for many applications including oil-in-water media and fluids with entrained solids.



FEATURES

- Superior accuracy - to 0.1% of reading over 30:1 turn-down
- Uniform rotation means low pressure loss
- No metal-to-metal contact provides for long service lifetime
- Self-lubricating
- Very low noise and vibration
- Reduced number of parts reduces maintenance requirements
- Rugged double case construction prevents loss of calibration due to changes in pressure or temperature

SPECIFICATION

ALBRPD

- Flow range: up to 8800 GPM (2000 M³/hr)
- Line size : ¼"-16" (8-400mm) ANSI or DIN Flange
- Operating pressure: max. 930 psig (64 bar)
- Process temperature: -22 ~ 480 °F (-30° ~ 250°C)
- Body Material: Stainless Steel 304 and Carbon Steel
- Viscosity: 0~20,000 cP
- Enclosure rating: NEMA 4 (IP 65)
- Working Temperature: 104 ~ 176 °F (40°~80°C)
- Working Humidity: <90% @ 75 °F
- Accuracy: ±0.1%
- Repeatability: ±0.01%
- Pulse Output: (24V_{DC}±5%, V_H≥20V,) V_L<1V and output load <200Ω)
- Current Output: 4-20mA, (two wire system w/ 600Ω max loop load)
- Digital output: RS485/RS232 communication with Modbus RTU (powered by 24V_{DC}±5% and <60mA)
- Display: rate, total, low flow cut-off, battery consumption,
- User parameters: K-factors, linear correction coefficient flowrate input signal section points, temperature and pressure compensation, set pulse output range, decimal adjustment, etc..
- communication baud rates: User selectable (1200 ,2400, 4800 or 9600)



SmartMeasurement

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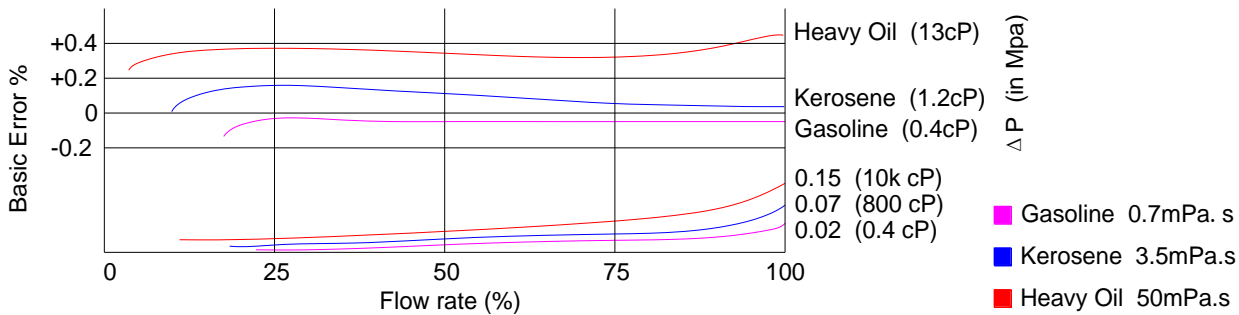
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URL : <http://www.smartmeasurement.com>
E-mail : PD@smartmeasurement.com

ALBRPD Flow range in GPM

Nominal Pipe Size	viscosity (in cP)							Pulse (gallons per pulse)
	0.32-0.8 Gasoline & liquefied gas	0.8-2 Kerosene	2-5 Light diesel	5-50 Crude oil,	500-400 heavy oil	400-2k Hi-viscosity Liquid	2k-20k High water content & super-high viscosity	
¼"	0.44 - 1.32	0.3 - 1.32	0.26 - 1.32	0.26 - 1.32	0.26 - 1.32	0.26 - 1.19	0.26 - 1.06	0.000264
½"	1.45 - 4.40	1.10 - 4.40	0.88 - 4.40	0.88 - 4.40	0.88 - 4.40	0.88 - 3.96	0.88 - 3.52	
1"	5.28 - 26.4	6.60 - 26.4	5.28 - 26.4	5.28 - 26.4	5.28 - 26.4	5.28 - 23.8	5.28 - 22	
1 ½"	48.4 - 96.9	39.6 - 96.9	33 - 96.9	33 - 96.9	33 - 96.9	17.6 - 96.9	14.5 - 44	0.00264
2"	79.3 - 158.5	63.4-158.5	52.8-158.5	52.8-158.5	52.8-158.5	33-96.9	26.4-123.3	
3"	176.1-352.2	140.9-253.2	117.6-352.2	117.6-352.2	117.6-440.3	70.4-211.3	66-198.1	0.0264
4"	220.1-440.3	176.1-440.3	149.7-440.3	149.7-440.3	149.7-440.3	105.7-317	88.1-264.2	
6"	506.3-968.6	396.3-968.6	321.4-968.6	321.4-968.6	321.4-968.6	176.1-528.3	132.1-396.3	
8"	792.5-1585	634-1585	528.3-1585	528.3-1585	528.3-1585	352.2-1057	220.1-660.4	
10"	1189-2378	951-2378	792.5-2378	792.5-2378	792.5-2378	440.3-1321	264.2-792.5	
12"	1981-3963	1585-3963	1321-3963	1321-3963	1321-3963	880.6-2642	660.4-1981	
16"	3522-7045	2819-7045	2334-7045	2334-7045	2334-7045	1761-5283	1321-3963	

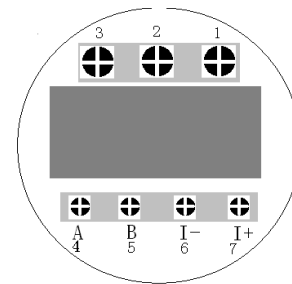
Pressure drop



Output Options



- Electronic transmitter (option D)- requiring all outputs
- Electronic Transmitter (Input/Output)
- 1 (+): +24 V_{DC}
- 2 (P): Pulse output
- 3 (-): -24 V_{DC}
- 4 (A): RS485 output A
- 5 (B): RS485 output B ;
- 6 (I-): 4~20mA output "—"
- 7 (I+): 4~20mA output "+".



Mechanical counter (option J)



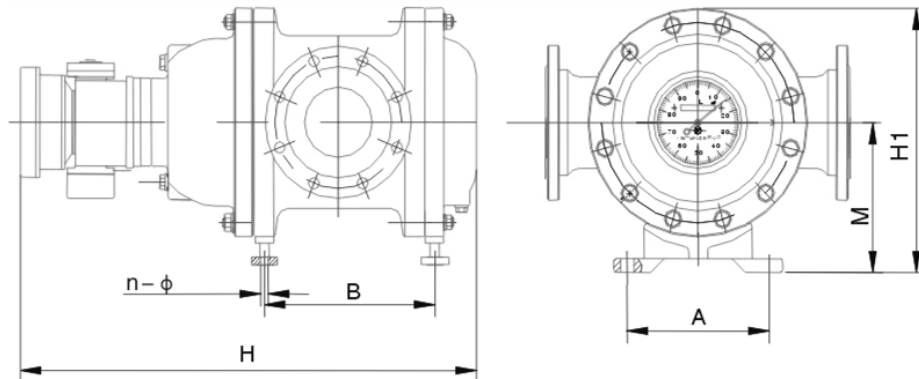
Smith meter Mechanical counter (option M)



Analog output (pulse or 4-20mA) generator (option F)



Horizontal installation dimension

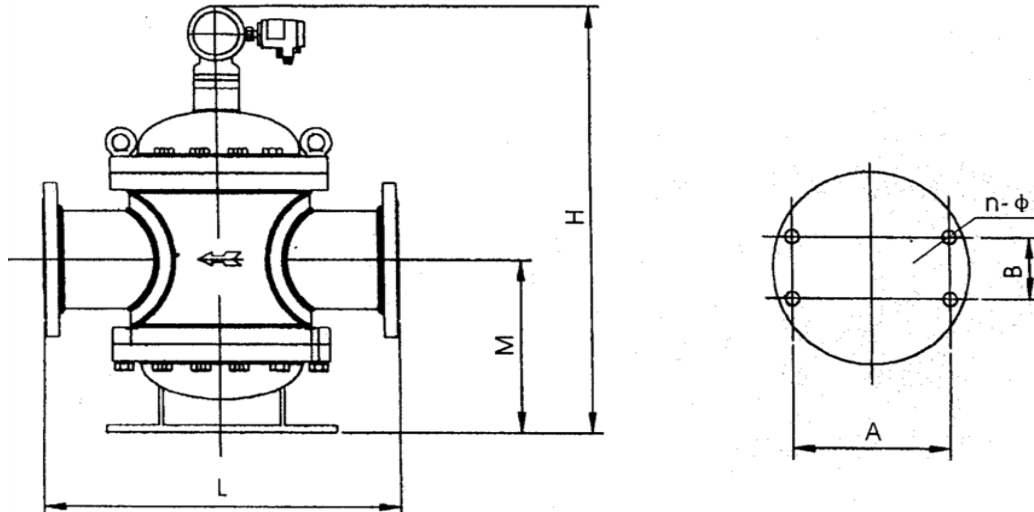


Size Dia. In.	Flange space L		Total height H	Center height M	Install hole space A x B	Bolt hole size n-φ	Mass lbs
	STD	Special					
¼	3.25*	7.08/5.90	10.25	1.38			11
½	7.08	7.87	11.81	2.17			22
1	7.87	9.84	13.78	3.15			33
1 ½	9.84	11.81	19.69	5.12			88
2	14.17	14.88	22.83	5.51			155
3	15.75	15	27.55	9.05			309
4	17.75	19.68**	27.55	10.25	9.84 x 10.62	4-φ¾	397
6	22.05	25.60**	31.5	11.42	9.84 x 10.62	4-φ¾	705.5

* Connection to be conical tube thread 1/8"

** Nominal pressure is 929 psig

Vertical installation dimension



Size Dia. In.	Flange space L		Total height H	Center height M	Install hole space Footing A x B	Bolt hole size n-φ	Mass lbs.
	STD	Special					
4	17.75	19.68	27.55	10.25(11)	13.38 x 8.46	4-φ 29/32	397
6	22	26.6	31.5	11.4(12.2)	17.7 x 9.45	4-φ 29/32	706
8	27.55		46.5	17.7	17.5 x 8.87	4-φ 29/32	1280
10	39.37		47.63	19.68	20.63 x 9.85	4-φ1	2205
12	39.37		57.5	25.2	25.39 x 11.8	4-φ1	3219
16	47.25		67	27.55	27.55 x 11.81	8-φ1	4410

**** Please contact your local Alia application engineer**

You also need to provide the following information:

Name of liquid	We need the name of your fluid media.
Density	Operating density
Viscosity	Operating viscosity
Pressure	Operating Pressure
Temperature	Operating Temperature
Full Scale Flow (Max/Min flow)	Indicate maximum and minimum flow rates, units must be Kg/hr, Lb/hr, LPM or gpm, etc..
Line Size	We need to know your pipe size as well connection type (flange, threaded, etc..)
Allowable pressure drop	Allowable pressure drop (see graph below) that your process can withstand
Type of Electronics	Indicate if you want integral, remote panel or remote wall mounted
Power Requirements	Specify your power requirements such as 24 V _{DC} or 220 V _{AC}

7 Model Selection Guide

ALBRPD										
Example ALBRPD-015-D-1.6-316S-B										
ALBRPD-	**	**	**	**	**	**	**	**	Description	
Nominal Dia: ¼"	008								Sizes and flow rates	
Nominal Dia: ½"	015									
Nominal Dia: 1"	025									
Nominal Dia: 1 ½"	040									
Nominal Dia: 2"	050									
Nominal Dia: 3"	080									
Nominal Dia: 4"	100									
Nominal Dia: 6"	150									
Nominal Dia: 8"	200									
Nominal Dia: 12"	300									
Nominal Dia: 16"	400									
Electronic transmitter (including pulse or 4-20mA)		D								Transmitter Options
Round Mechanical counter		J								
Square mechanical Counter (total flow only)		M								
Square mechanical Counter (from Smith meters)		M1								
Analog outputs Pulse or 4-20mA		T								
232 psi			1.6							Pressure
362 psi			2.5							
580 psi			4							
928 psi			6.4							
Rotator is cast. steel				G						Rotor & casing material
S.S. #304 Rotors				S304						
S.S. #316 Rotors				S316						
S.S. #304 Rotors and casing				SS304						
S.S. #316 Rotors and casing				SS316						
Working temp. -4°F ~ +176°F					A					Application temperature
Working temp 176°F ~ +302°F					B					
Working temp 302°F ~ +482°F					C					
Extra Analog output for mechanical counters - Pulse						FP				additional analog output to mechanical counters
Extra Analog output for mechanical counters - 4-20mA						FI				