



ALOVPD

POSITIVE DISPLACEMENT FLOWMETERS

SERIES ALOVPD meters

GENERAL

Oval Gear Positive Displacement Flowmeter (ALOVPD)

The SMC ALOVPD Oval gear flowmeter features two precisely machined rotating elliptical (oval) gears 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 gears' velocity. The design of the oval gear meter makes it an ideal choice data for high viscosity and high pressure applications as it provides superior accuracy while offering reduced pressure drop versus traditional circular-gear type PD meters. The ALOVPD meter comes with a rugged battery-powered display module that indicates flow rate and totalized flows in user-configurable engineering units.



FEATURES

- Superior accuracy - to 0.5% of reading with $\pm 0.03\%$ repeatability
- Elliptical gear design provides low pressure loss
- Meter body is available in CS (Std), 304SS or 316SS
- Bearings are available in CS (Std), 304SS or 316SS as well as Inico
- Will accommodate pressures of up to 870 psig (60 bar)
- Will accommodate viscosities of up to 1000 cP



SPECIFICATIONS

- Flow range: up to 2300 GPM (530 m³/hr)
- Line size : 1/4"-10" (8-250mm)
- Operating pressure: up to 870 psig (60 bar)
- Process temperature: up to 750 °F (400 °C)
- Body Material: CS (Std), 304SS or 316SS (Opt)
- Viscosity: up to 1,000 cP
- Enclosure rating: NEMA 4X (IP 65)
- Accuracy: $\pm 0.5\%$ (Std), $\pm 0.2\%$ (Opt) of reading
- Repeatability: $\pm 0.03\%$ of reading
- Frequency range : 1 up to 30,000 Hz
- Working Humidity: <90% @ 75 °F
- Ambient temperature : -22 to 158 °F (-30 to +70 °C)
- Supply Voltage UB : +24 V_{DC}, regulated
- Output: pulse, 4-20 mA or RS485
- Display: rate, total, low flow cut-off, battery consumption,
- User parameters: K-factors, linear correction coefficient
flowrate input signal section points, temperature
- Housing : IP 68, aluminum AlMgSiPb, blue anodized
- Ex-protection : II 2 G EEx ia IIC T4, BVS 03 ATEX E 205

SmartMeasurement

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ALOVPD Flow range in GPM

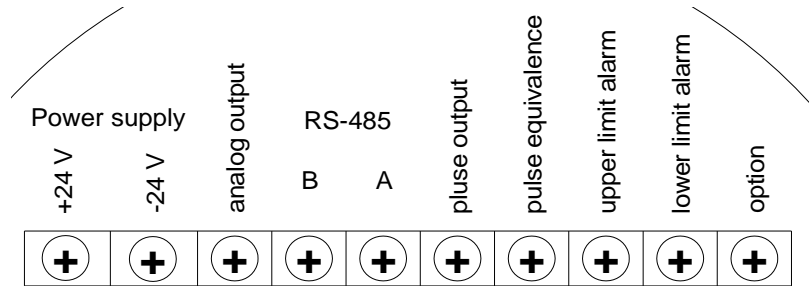
Pipe Size	viscosity (in cP)										Pluse (Gallons per Pluse)
	0.1-0.6		0.6-2		2-8		8-200		200-1000		
	Gasoline		Kerosene		Light diesel		Crude oil		Heavy oil		
Accuracy	0.50%	0.20%	0.50%	0.20%	0.50%	0.20%	0.50%	0.20%	0.50%	0.20%	
¼"	0.04-0.44	0.13-0.44	0.22-0.44	0.13-0.44	0.08-0.8	0.3-0.8	0.04-0.8	0.16-0.8	0.04-0.8	0.16-0.8	0.00007
⅜"	0.88-2.6	0.88-2.6	0.44-1.8	0.6-1.8	0.18-1.8	0.6-1.8	0.45-1.8	0.36-1.8	0.09-1.8	0.36-1.8	0.00026
½"	1.8-8.8	2.9-8.8	1.7-6.6	2.2-6.6	0.66-6.6	2.2-6.6	0.44-6.6	1.32-6.6	0.44-6.6	1.32-6.6	0.00203
¾"	3.5-13.2	4.4-13.2	3.3-13.2	4.4-13.2	1.3-13.2	4.4-13.2	0.88-13.2	2.64-13.2	0.66-13.2	2.64-13.2	0.00269
1"	8.8-26.4	8.8-26.4	6.6-26.4	8.8-26.4	2.6-26.4	8.8-26.4	1.8-26.4	5.3-26.4	0.88-26.4	5.3-26.4	0.00449
1¼"	13.2-44	13.2-44	8.8-44	14.5-44	8.8-44	13.2-44	2.2-44	8.8-44	1.32-44	8.8-44	0.00687
1½"	22-66	22-66	13.2-66	22-66	6.6-66	22-66	4.4-66	13.2-66	2.2-66	13.2-66	0.00740
2"	35-105	35-105	21-105	35-105	10.5-105	35-105	7-105	21-105	3.5-105	21-105	0.0182
3"	66-264	275-264	53-264	275-264	26.4-264	88-264	18-264	53-264	9-264	53-264	0.0259
4"	88-440	130-440	88-440	145-440	44-440	147-440	29-440	88-440	13.2-440	88-440	0.0262
6"	176-836	277-836	167-836	277-836	83-836	277-836	55-836	167-836	44-836	167-836	0.0343
8"	350-1500	484-1500	300-1500	484-1500	150-1500	484-1500	100-1500	300-1500	66-1500	300-1500	0.0819
10"	475-1540	506-1540	475-1540	510-1540	233-2333	778-2333	154-2333	466-1540	132-1540	466-1540	0.0819

* For special flow range requirements, please contact the SMC factory

Output Options



Electronic transmitter (option D)- required for all outputs
 Electronic Transmitter (Input/Output)



Mechanical counter (option J)



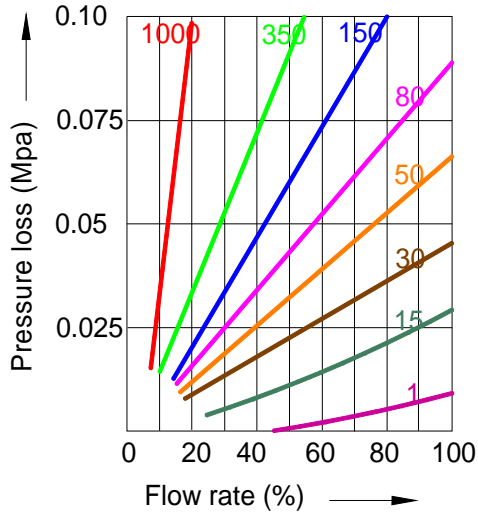
Smith meter Mechanical counter (option M)



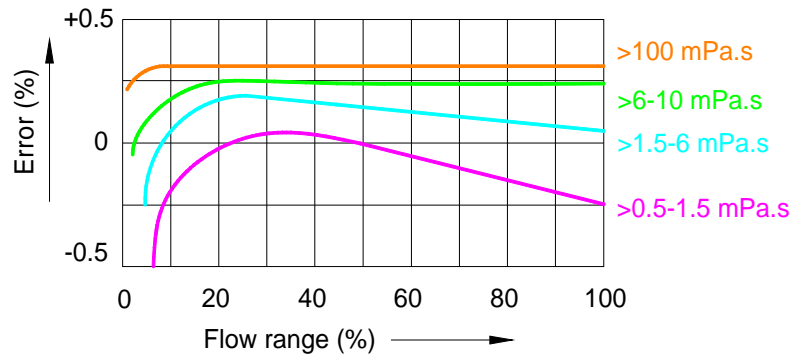
Analog output (pulse or 4-20mA) generator



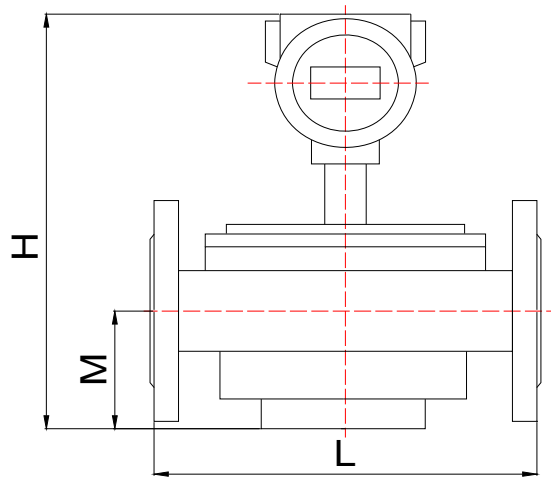
Pressure Drop



Accuracy Error



Installation Dimension



Size Dia. In.	Flange space L		Total height H	Center height M	Mass lbs
	STD	Special			
½"	3.26	7.08/5.90	10.32	1.39	11
¾"	7.15	7.94	11.12	2.78	22
1"	9.50	9.93	13.90	3.18	33
1¼"	9.93	11.91	19.85	3.18	88
2"	9.93	15.00	19.85	3.18	154
3"	15.09	15.88	27.79	6.11	308
4"	15.09	17.87	29.38	7.54	396
6"	22.25	25.81	33.35	8.73	704
6"	27.80		46.85	17.87	1232
8"	39.70		48.04	19.85	2200

* DN8mm is thread connection type,

* Nominal pressure is <6.4MPa.

* For DIN flange. Special dimension inquiry, please contact factory.

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

You also need to provide the following information:

Fluid informations	We need the name of your fluid media, operating density, viscosity, pressure and 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}

Model Selection Guide

ALOVPD												
Example ALBRPD-015-D-1.6-316S-B												
ALOVPD-T-	**	**	**	**	**	**	**	Description				
Nominal Dia: ¼"	008							Line size				
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: 10"	250											
Electronic transmitter with display and output	D							Transmitter type				
Round mechanical counter	J											
Square mechanical counter	M											
Analog outputs Pulse or 4-20mA	T											
1.6 Mpa	1.6								Operating Pressure			
2.5 Mpa	2.5											
4.0 Mpa	4.0											
6.4 Mpa	6.4											
Alnico gear & CS housing ≤ 1¼", CS gear and housing ≥ 1½"				G						Gear & casing material		
304SS gear and 304SS housing				S304								
316SS gear and 316SS housing				S316								
Working temperature: -4 ~ +175 °F						A				Application temperature		
Working temperature up to +300 °F						B						
Working temperature up to +480 °F						C						
Exd proof							EX				Options	
Extra Analog output for mechanical counters - Pulse							FP					
Extra Analog output for mechanical counters - 4-20 mA							FI					
Special fluid: gasoline or liquid gas							SF					
warmer jacket for heat preservation (steam or oil)							HJ					
Filter							FT					
Other Options							**					