



ALOVPD

Positive Displacement Flowmeters

Series ALOVPD Meters



GENERAL

Oval Gear Positive Displacement Flowmeter ALOVPD The SmartMeasurement 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. The ALOVPD may be used to accurately determine volumetric flow rate as a function of the gears' velocities. The design of the oval gear meter makes it an ideal choice for applications where a higher priced PD meters maybe too expensive for certain non critical applications. The low cost ALOVPD provides good 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 - up to 0.5% of reading with $\pm 0.03\%$ repeatability
- Elliptical gear design provides for low pressure loss
- Meter body is available in Cast Iron (Std), CS, SS#304 or SS#316
- Bearings are available in Cast Iron (Std), CS, SS#304 or SS#316
- Will accommodate pressures of up to 915 psi (63 bar)
- Will accommodate viscosities of up to 2000 cP

SPECIFICATIONS

- | | | | |
|------------------------|---|------------------------|---|
| • Flow range: | up to 1500 GPM (340 m ³ /hr) | • Working Humidity: | <90% @ 75 °F |
| • Line size : | 1/4" ~ 8" (8 ~ 200mm) | • Ambient temperature: | -22 ~ +158°F (-30 ~ 70°C) |
| • Operating pressure: | up to 915 psi (63 bar) | • Supply Voltage UB: | +24 V _{DC} , controlled |
| • Process temperature: | up to 390°F (200°C) | • Output: | Pulse, 4-20 mA or RS485 |
| • Body Material: | Cast Iron (Std), CS, SS#304 or SS#316 (Opt) | • Display: | Rate, total, low flow cut-off, battery consumption |
| • Viscosity: | up to 2,000 cP | • User parameters: | K-factors, linear correction coefficient flow rate input signal section points, temperature |
| • Enclosure rating: | NEMA 4X (IP66) | • Housing: | IP 67, blue anodized |
| • Accuracy: | $\pm 0.5\%$ (Std), $\pm 0.2\%$ (Opt) of reading | • Ex-protection: | II 2 G EEx ia IIC T4 |
| • Repeatability: | $\pm 0.03\%$ of reading | | |
| • Frequency range : | 1 to 30,000 Hz | | |

■ ALOVPD Flow range in m³/hr

Pipe Size (nom.)	viscosity (in cP)								Pulse (Liters per Pulse)
	0.3-0.8	0.8-2		2-200		200-1000		1000-2000	
	Gasoline	Kerosene		Light diesel		Crude oil		Heavy oil	
Accuracy	0.50%	0.50%	0.20%	0.50%	0.20%	0.50%	0.20%	0.50%	
3/8" (10)	0.2~0.5	0.08~0.5	0.12~0.5	0.05~0.5	0.08~0.5	0.03~0.3	0.06~0.3	0.03~0.2	0.00171
1/2" (15)	0.75~1.0	0.3~1.5	0.5~1.5	0.15~1.5	0.3~1.5	0.1~1.05	0.2~1.0	0.07~0.75	0.00598
3/4" (20)	1.5~3	0.5~3	1~3	0.3~3	0.5~3	0.2~2.1	0.4~2.1	0.15~1.5	0.01218
1" (25)	3~6	1~6	2~6	0.6~6	1~6	0.4~4.2	0.8~4.2	0.3~3	0.011936
1 1/2" (40)	7.5~15	2.5~15	5~15	1.5~15	2.5~15	1.0~10.5	2.1~10.5	0.7~7.5	0.03306
2" (50)	8~24	4.8~24	8~24	2.4~24	4.8~24	1.6~16.8	2.4~16.8	1.2~12	0.024
2 1/2" (65)	20~40	8~40	15~40	4~40	8~40	2.8~28	5.6~28	2~20	0.0547
3 (80)	30~60	12~60	20~60	6~60	12~60	4.2~42	8.4~42	3~30	0.1224
4 (100)	50~100	20~100	34~100	10~100	20~100	6~70	14~70	5~50	0.26178
6 (150)	95~190	38~190	64~190	19~190	38~190	13.3~133	26.6~133	9.5~95	0.31476
8 (200)	170~340	56~340	114~340	34~340	56~340	23.8~238	47.6~238	17~170	0.31538

* For special flow range inquiries, please contact factory

■ Electronic Counter



Standard: pulse
4-20mA
Optional: HART

■ Mechanical counter (option J)



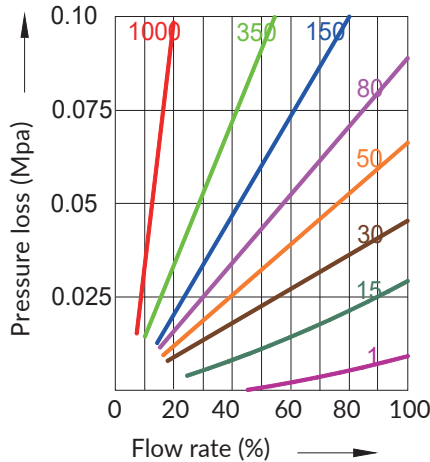
Standard: pulse
Optional: 4-20mA



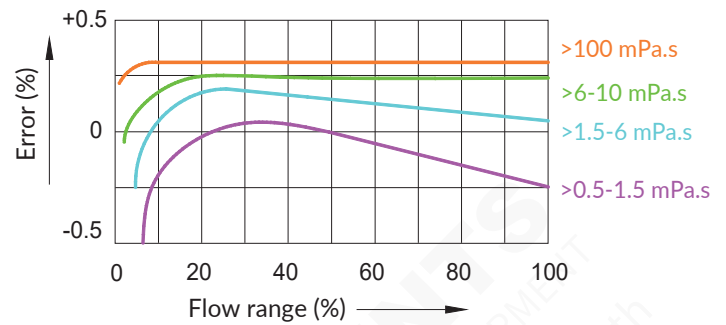
■ Blind analog output (pulse or 4-20mA) generator



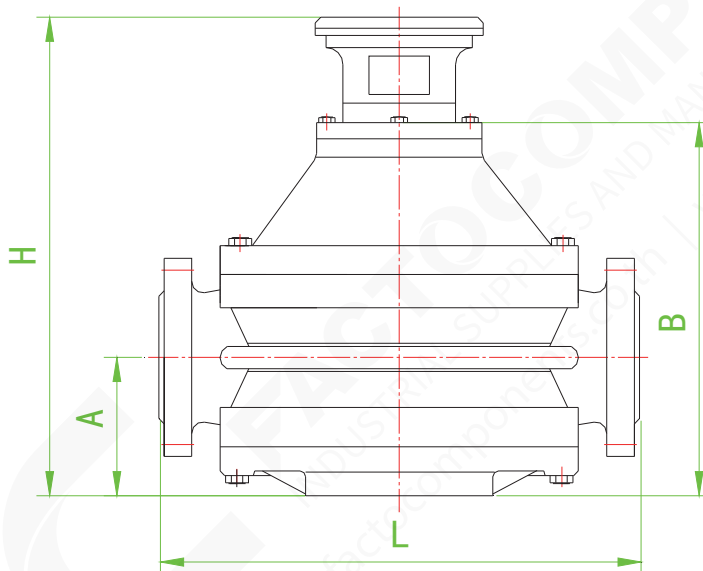
■ Pressure Drop



■ Accuracy Error



■ ALOVPD dimensions with the mechanical counter



Accuracy	Flanges Distance L (mm)			Total Height H (mm)			Flow body Height B (mm)			Center Height A (mm)			Weight (kg)		
Material	Iron	CS	304	Iron	CS	304	Iron	CS	304	Iron	CS	304	Iron	CS	304
¼" (DN8)	150	/	170	213	/	216	135	/	133	45	/	45	6	/	7
½" (DN15)	170	200	200	226	220	226	147	145	142	48	53	48	8	12	11
1" (DN25)	260	300	280	246	255	249	164	175	171	60	68	64	18	22	21
1½" (DN40)	245	310	265	271	285	350	199	205	183	77	83	92	20	27	24
2" (DN50)	340	384	270	379	400	350	249	270	183	88	88	92	46	66	24
3" (DN80)	420	450	420	441	460	500	311	330	370	118	118	153	87	118	82
4" (DN100)	515	505	515	467	485	554	337	355	405	131	131	181	160	210	127
5" (DN150)	540	540	540	565	565	607	435	435	455	210	210	210	245	260	280
6" (DN200)	650	650	650	624	625	646	494	495	494	247	247	247	400	430	435

* DN8mm is threaded connection type, * Nominal pressure is <6.4MPa.

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

Please contact your local SmartMeasurement application engineer
You also need to provide the following information:

FLUID INFORMATION	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 that your process can withstand
TYPE OF ELECTRONICS	Indicate integral, remote panel or remote wall mounted
POWER REQUIREMENTS	Specify your power requirements such as 12 V _{DC} or 24 V _{DC}

ALOVPD SERIES

EXAMPLE ALOVPD-50-J-1.6-G-A-NN

ALOVPD		**	**	**	**	**	**	**	**	DESCRIPTION
Nominal Dia: ¼" (8 mm)	008	Line size								Line size
Nominal Dia: ½" (15 mm)	015									
Nominal Dia: 1" (25 mm)	025									
Nominal Dia: 1 ½" (40 mm)	040									
Nominal Dia: 2" (50 mm)	050									
Nominal Dia: 3" (80 mm)	080									
Nominal Dia: 4" (100 mm)	100									
Nominal Dia: 6" (150 mm)	150									
Nominal Dia: 8" (200 mm)	200									
Nominal Dia: 10" (250 mm)	250									
Electronic transmitter with display and output	D	Line size								Transmitter type
Round mechanical counter	J									
Round Mechanical counter with Zero reset	J1									
Blind transmitter Pulse or 4-20mA	T									
232 psi (1.6 Mpa)	1.6	Operating Pressure								Operating Pressure
300 psi (2.5 Mpa)	2.5									
580 psi (4.0 Mpa)	4.0									
928 psi (6.4 Mpa)	6.4									
Cast Iron gears & housing. Up to 16 bar, only for DIN PN16	G	Gear & casing material								Gear & casing material
Cast steel gears & housing	CS									
SS# 304 gears and SS# 304 housing	304									
SS# 316 gears and SS# 316 housing	316									
Other options	**									
Working temperature: -4°F ~ +140°F (-20°C ~ +60°C)	A	Application temperature								Application temperature
Working temperature up to +248°F (+120°C)	A1									
Working temperature up to +392°C (+200°C)	B									
Normal viscosity < 200 cP	N	Fluid viscosity								Fluid viscosity
High viscosity >200 cP	H									
Exd proof	EX	Options								Options
Extra output for mechanical counters - Pulse	FP									
Extra Analog output for mechanical counters - 4-20mA	FI									
Special fluid: gasoline or liquid gas	SF									
Heat Jacket (steam or oil)	HJ									
Filter	FT									
Other Options	**									

