Smart Measurement

PD Gear Flow Meters
Series ALGPD

GENERAL

ALPD Positive Displacement GEAR Flow Meters

The SMC series ALGPD Gear flow meter is suitable for the precise flow measurement of various fluids of viscosities from 5 up to 25k mm²/s. Providing sufficient lubricity of the fluid, the small gear flow meters type ALGPD 01/1 and 02 as well as ball bearing versions may also be used for fluids below 5 mm²/s. Gear flow meters are positive displacement meters,similar in design to a gear pump. The measuring medium rotates two gears, which are engaged with minimum play. The medium is forced along through closed measuring chambers between gears and housing. The gears, which run idle,lose no power. The RPM of the gears is in proportion with the instantaneous flow rate and precisely detected by integral pickups through the body of the meter without contacting the fluid. Flow signal can be displayed using our ALVTM or our various other electronics. We calibrate our flow meters to match the customer's operating viscosities to determine their Kfactors.

ALVTM Display with Frequency and Analog Output

The ALVTM is a programmable local display with integral carrier frequency pickup and amplifier for SMC mechanical flow meter.Flow rate is indicated in an 8 digit LCD display with 14 segments. A 10 point linearization is included to optimize the accuracy. The pulse output provides a flow proportional frequency signal or scaled volume pulse in accordance with programming. For electrical connection a 6-pin plug or a junction box with 6 internal terminals is provided

FEATURES

- High output frequencies resulting in good resolution and suitable for pulsating flows.
- Reverse-flow detection and pulse multiplication functions
- Ex-protection EExiaIICT6/T4
- Resistance to high voltage from 50 kV up to 120 kV
- Special meters with high-pressure connectors up to 690 bar.
- Heated versions are available on request.

SPECIFICATION

Gear Flowmeters ALGPD - series

- Connections : Female for,Ermeto-fittings GE 6-PSM,GE 14-PSM or GE 25-PSM, bores for SAE flanges 1¼
- Operating pressure : small size up to 690 bar,larger to 400 bar
- Process temperature : +180 °C
- Flow rates : 0.005 to 1000 LPM
- Viscosities : 5 up to 25,000 mm²/s.
- Material :
  Housing : SS per DIN 1.4305/AISI 303 or 1.4571/AISI 316 Ti
  Gears : SS as per DIN 1.4122/AISI 303 or 1.4460/AISI 329
  Shafts, bearing bushes, tungsten carbide, ball bearings
  Seals : O-rings: viton, teflon, NBR or EPDM (for brake fluid)
- Linearity : ±0.5% of value @ 1:20 for viscosity 15 -50 mm²/s.
  ±0.25% of value for viscosities 50 to 25,000 mm²/s.
- Weight : 400 to 4000 g

ALVTE Carrier Frequency Pulse Amplifier

- Supply Voltage UB : +8.5 up to 29 VDC, controlled.
  (incl. reverse-battery protection)
- Quiescent current : < 5 mA
- Frequency range : 2 up to 4,000 Hz
- Process temperature : 120 °C with a distance of at least 25 mm between flow meter and electronic housing 150 C at least 65 mm

ALVTM Electronics

- LCD display : 8 digits (14 segments),digit height 7mm for real-time value, totals and programmable
- Linearization : with 10 points
- Process temperature : - 40 to + 120 ℃ with a distance of at least 25 mm between flow meter and electronic housing
- Ambient temperature : -40 up to +70 °C
- Weight : 700 g
- Frequency output/divider :
  3-wire, 8-30 VDC controlled, Ex-versions : 12-30 VDC, < 25 mA，signal output,push/pull,Imax:20mA,frequency output,fmax:3,000Hz, duty cycle: approx.1:1，2.divider，pulse width: 1 ms, 20 ms, 50 ms, fmax : 500 Hz
- Analog output : 2-wire (4-20mA)
- Supply voltage : 14-30VDC controlled,UB=(Rload x 20 mA)+ 14V
- Load : < 800 ohms
- Time constant : < 0.2-3 s (programmable)
- Resolution : 1
- Housing : IP 65, aluminum AlMgSiPb, blue anodised
- Ex-protection : II 2 G EEx ia IIC T4, BVS 03 ATEX E 205

Also See SMC flow computer

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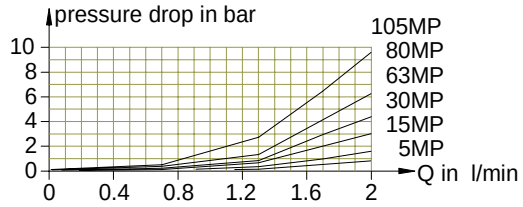
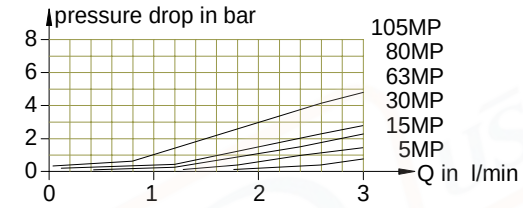
Pressure Drop

GPD01/1

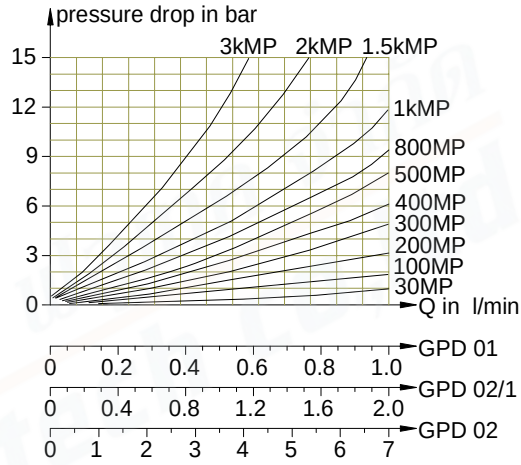


GPD01/2



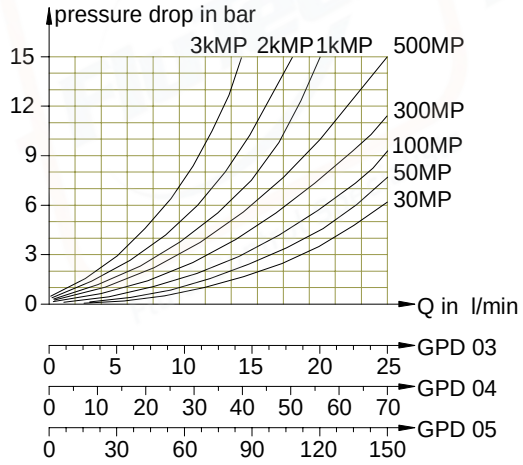
Pressure Drop

GPD01 to GPD02



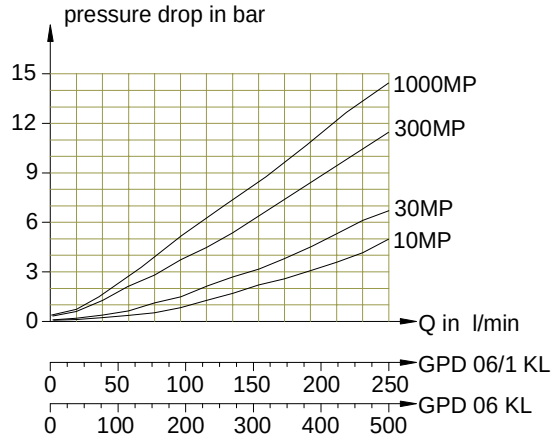
Pressure Drop

GPD03 to GPD05



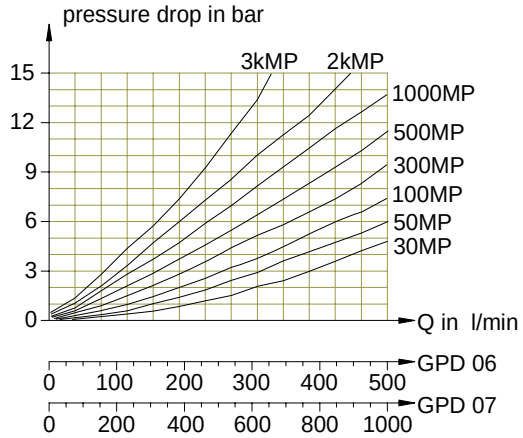
Pressure Drop

GPD06/1KL, GPD06KL

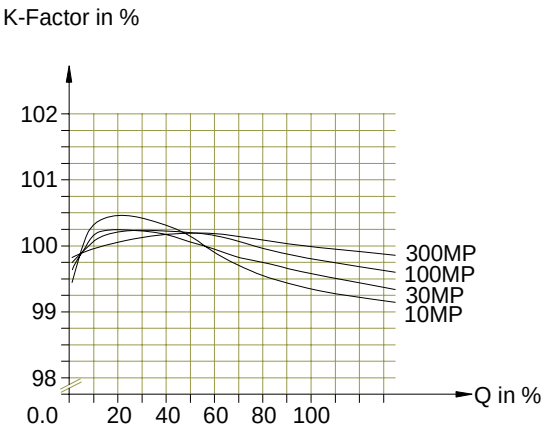


Pressure Drop

GPD06, GPD07



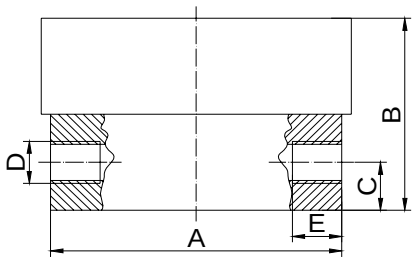
K-Factors at different viscosities



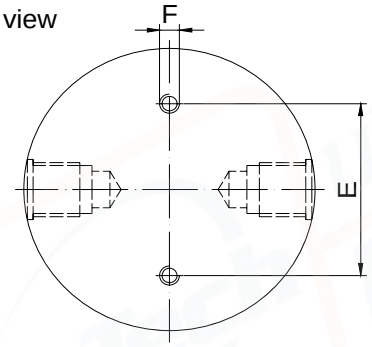
Dimensional drawings（mm）

GPD01 to GPD05

Side view



Botton view



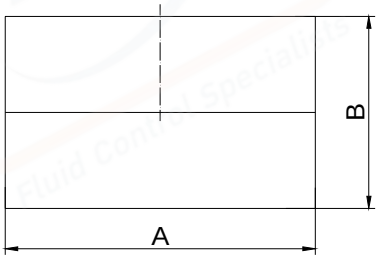
metric threads

Type	AΦ	B	C	D	E
GPD01	72	21	10.5	M12×1.5	14
GPD01/1	72	21	10.5	M12×1.5	14
GPD01/2	72	30	10.5	M12×1.5	14
GPD02/1	80.5	26	12	M12×1.5	14
GPD02	80.5	30	12	M12×1.5	14
GPD03	80.5	42	12	M12×1.5	14
GPD04	121	34	17	M20×1.5	18
GPD05	170	45	22.5	M33×2	18

Type	E	F
GPD01	44	M6
GPD01/1	44	M6
GPD01/2	44	M6
GPD02/1	44	M6
GPD02	44	M6
GPD03	44	M6
GPD04	60	M6
GPD05	100	M8

GPD06 to GPD07

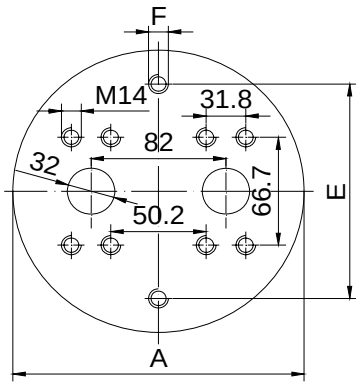
Side view



metric threads

Type	A	B
GPD06/1 KL	188	138
GPD06 KL	188	180
GPD06	188	180
GPD07 KL	232	200
GPD07	232	220

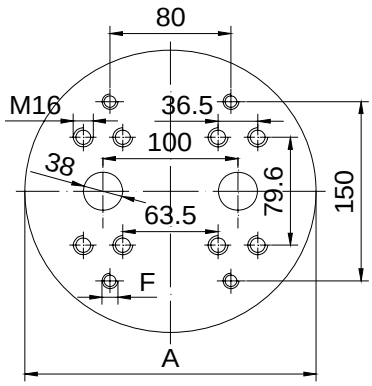
Bottom view GPD06



Type	A	E	F
GPD06/1 KL	188	142	M12
GPD06 KL	188	142	M12
GPD06	188	142	M12

Connecttions only for bottom entry.

Bottom view GPD07



Type	A	F
GPD07	232	M12

Connecttions only for bottom entry.

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Type of liquid	We need the name of your liquid, including operating density and viscosity
Full Scale Flow	Note the flow ranges below
Line Size	we need to know your pipe size as well connection type (flange, threaded, etc..)
Process Pressure and Temperature	Please note our P and T limits
Density and Viscosity	You can subsitude Specific Gravity (SG) for density
Type of Electronics	Indicate if you want integral, remote panel or remote wall mounted
Power Requirements	Specify your power requirements such as 24 VDC or 115 VAC or 230 VAC

Model Selection Guide

ALGPD Series

Example ALGPD-02/1-ST-ALVTMB-F-EX

ALGPD Series	XXX					**Description**
female threads for Ermeto-fittings GE 6-PSM	01	0.005 to 1				Sizes and Flow rates (LPM)
female threads for Ermeto-fittings GE 6-PSM	01/1	0.005 to 2				
female threads for Ermeto-fittings GE 6-PSM	01/2	0.02 to 3				
female threads for Ermeto-fittings GE 6-PSM	02/1	0.05 to 2				
female threads for Ermeto-fittings GE 6-PSM	02	0.1 to 7				
female threads for Ermeto-fittings GE 6-PSM	03	0.5 to 25				
female threads for Ermeto-fittings GE 14-PSM	04	0.5 to 70				
female threads for Ermeto-fittings GE 25-PSM	05	5 to 150				
bores for SAE flanges 1¼"	06/1	5 to 250				
bores for SAE flanges 1¼"	06	20 to 500				
bores for SAE flanges 1¼"	07	50 to 1000				
Hard metal bearing	ST					Bearings, construction
ball bearing	KL					
Ball bearing & Aluminum body	KLA					
Cartridge Desing only 01 size	STCT					
Light Weight-stainless steel only 02 size	STLW					
Electronic Options - IF no electronics leave parts below blank (part number for electronics depends on ALVTMB,ALVTE or ALIF)						
Electronics - ALVTM (programable display) series						
Frequency/divider and analog	ALVTMB					Analog outpus
Top View		D				display arrangement
Standard with window			NX			Protection
Ex proof with window			EX			
Electronics - ALVTE Carrier Frequency Pulse Amplifier						
Carrier-Frequency pickup	ALVTE					frequency range 2-4000 Hz
Starndard			NX			Protection
Ex proof			EX			
Short thread 110 mm		EK				Thread size
Long thread 149 mm		EL				
Electronics - ALIF-Inductive Pickups and Pulse Amplifiers (for -12 to 180C)						
Frequency pulse amplifier	ALIF					
Starndard			NX			Protection (II 2 G EEx ia IIC T6)
Ex proof			EX			

Meter specification and K factor

Type	Flow (LPM)	K-factor* pulses/ltr.		Frequency range 0 to max (in Hz)	
01	0.005 to 1	41000	82000	3.4	683
01/1	0.005 to 2	26500	53000	2.2	883
01/2	0.02 to 3	14000	28000	4.6	700
02/1	0.05 to 2	8200	16400	6.8	273
02	0.1 to 7	4200	8400	7	490
03	0.5 to 25	1740	3480	14	725
04	0.5 to 70	475	950	4	554
05	5 to 150	134	268	11	335
06/1	5 to 250	106	212	8.8	442
06	20 to 500	53	106	18	442
07	50 to 1000	24	48	20	400