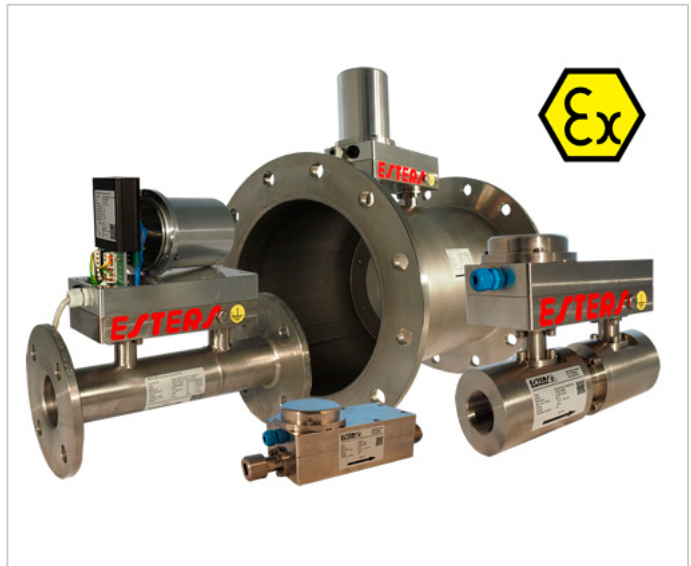
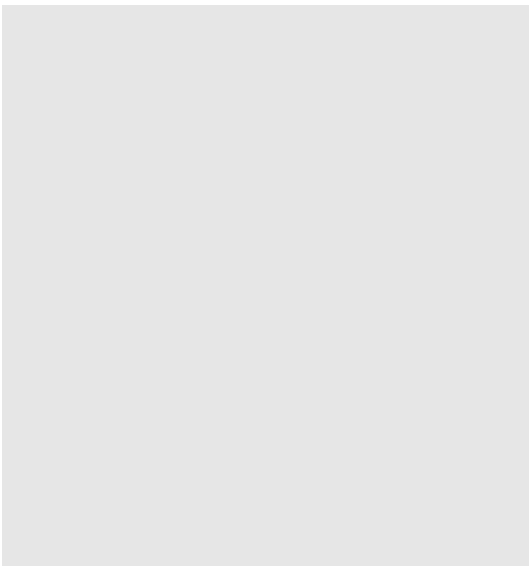
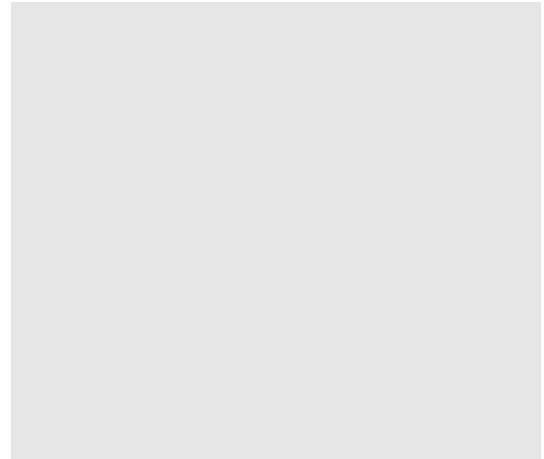
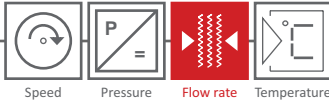


GAS FLOWMETER GD 300/GD 500 Ex

for measuring all technical and medical gases from DN 15 to DN 400



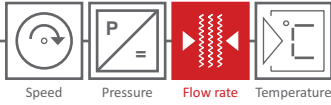
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Speed Pressure Flow rate Temperature

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Speed Pressure **Flow rate** Temperature

Overview




GD 300 Ex-05017SIR1000-POR0



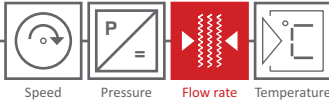
GD 500-PA100-V4-AL-POR0

GD 500-PA200-V4-AL-POR0

- oscillating measurement principle, without moving parts
- measuring housing, orifice and measuring labyrinth made of stainless steel, also available as heavy duty construction
- resistant to dirt, e.g. oil, rust, sulphur
- excellent results measuring wet gases with condensate
- mounting in falling direction into gas lines even for 100 % wet biogas due to integrated condensate drain
- integrated calculator HB 300 in the measuring head with mA-output (normalization optional) or pulse output
- optional redundant measuring method with two independent platinum wire sensors and two separate evaluation electronics
- short response time $T_{90} = 50 \text{ ms}$
- high accuracy ($\pm 1,5 \%$ of true value)
- high reproducibility (0,1 % of true value)
- low loss of pressure
- each flowmeter with calibration report
-  II 1 / 2 G Ex ia / e mb IIC T4 Ga / Gb (certificate no. EX5 13 07 14689 003)

NEW!

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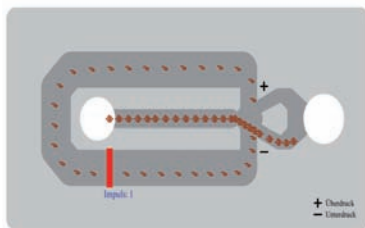
Principle of Measurement

The flowmeter GD 300/GD 500 operates according to the principle of a „Fluidistor oscillator“. The gas passes the Fluidistor measuring head either directly or via an orifice in the main pipe.

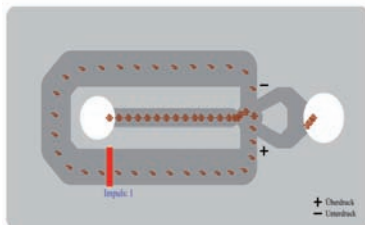
The gas is discharged through the orifice into the Fluidistor measuring chamber. Directly behind the inlet there is a triangular energy dissipator, which, due to the unstable middle position, forces the gas either to flow past on the right or left. At the height of the energy dissipator in the right and left wall of the Fluidistor measuring chamber there are two openings which are connected to each other by a channel. If the gas flows to the left from the energy dissipator, a negative pressure is created on the left side wall or at the opening of the connecting channel. This negative pressure is balanced through the right opening of the connecting channel. The pressure equalization of the negative pressure causes a change of flow direction from the left to the right side. The entire process is then repeated on the right side.

The period of time required for pressure equalization corresponds to a special amount of gas (litre/pulse), which has passed through the GD 300/GD 500. The frequency of the pressure equalization is proportional to the flow velocity.

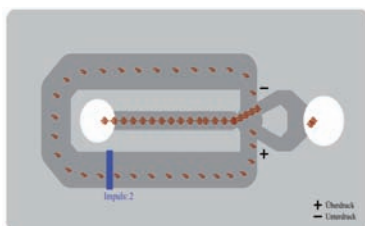
The changing flow through the connecting channel is detected by a platinum wire (diameter 15 μ) in the connecting channel. A constant voltage is applied to the wire, which is permanently monitored. At the moment when the pressure equalization has occurred in the connecting channel, the wire is not circulated around by gas for a short time and heats up due to the current flowing through the wire. This causes a temporary rise of the resistance in the platinum wire (like a Pt100 sensor) and the voltage drop ($V=R \cdot I$) increases. This increase in voltage is detected by the signal conditioner SC 300/HB 300 and transmitted to connected volume correctors (e.g. GDR 1403, GDR 1404, GDR 1408, PAC 1201 or PAC 1204).



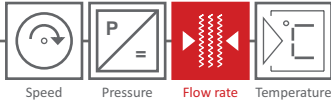
- outflow of the gas through the right outlet
- active pressure equalization in the connecting channel from right to left



- pressure compensation in the connecting channel with an incipient change of direction from left to right



- short-term nonoperating of the gas flow in the connection channel
- heating of the platinum wire

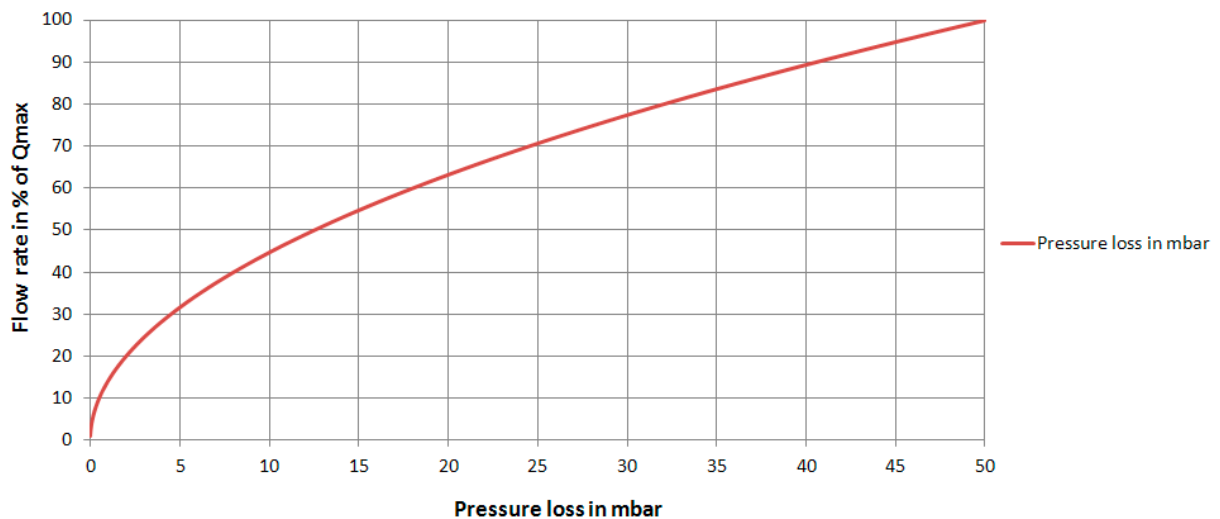


Pressure Loss / Pressure Flow

The diagram applies to gases with a density of air at NTP (0°C and 1013 mbar). The decrease of pressure is always proportional to the gas density. If e.g. the

operating pressure rises by 100% the pressure drop is double.

Flow rate vs. pressure loss



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Accuracy of Measurement

At low flow rates the density (or actually the high toughness) of the gas influences the accuracy.

Above the limit value (Q_t), the accuracy is 1,5 % of measuring value. Below Q_t the accuracy is 5 % of the measuring value.

Example measurement range:

Q_{min}^1 with 1,5% accuracy

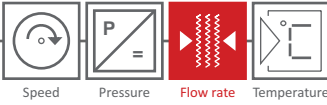
DN (mm)	inches	m ³ /h		kg/Nm ³	m ³ /h	
		Q_{min}	Q_{min}^1	density	%	Q_{max}
15	1/2"	0,06	0,96	0,5	10	22
80	3"	8,00	64	1,0	8	800
80	3"	8,00	48	1,2	6	800
150	10"	30,0	240	1,0	8	3.000
150	10"	30,0	180	1,2	6	3.000

Example:

At a density of $x \text{ kg/m}^3$ the limit value is $Q_t = x \% \text{ of } Q_{max}$.

density kg/m ³	=	limit value Q_t
0,5	=	16%
1,0	=	8%
1,2	=	6%
2,0	=	4%
4,0	=	2%
8,0	=	1%

For natural gas with a methan component of 85 % a density of 0,85 kg/m³ is assumed.



Speed Pressure Flow rate Temperature

Application Range

The product family GD 300/GD 500 is used in a variety of applications that require measurements of technical and medical gases.

Digester and mine gas

The insensitivity to particles and wetness is one of the strengths of this gas measurement method. Especially in the areas of biogas and sewage gas outstanding measurement results are achieved with the GD 300/GD 500 in respect to formation of condensate. The occurring sulphur pollution of more than 100 ppm in these gases do not influence the measurement process.



Medical gases

The devices in stainless steel are excellently suited for the measurement of oxygen, nitrous oxide, compressed air, nitrogen, carbon dioxide, argon and helium in medical applications. Especially the GD 500 with a resolution of 1 litre/min is ideal for the billing of small units (licensed beds) in hospitals and contributes to more transparency in billing.

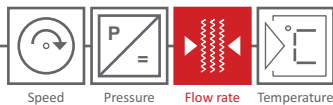


Technical gases

In addition to the gas flowmeter in stainless steel there is an economic solution made of aluminium for consumption measuring in industrial production. The devices are suitable for technical gases, e.g. compressed air, carbon dioxide, argon, nitrogen, oxygen and natural gas.

In the industrial sector the devices are designed for the gas flow measurement of technical gases, e.g. compressed air, carbon dioxide (fermentation and cooling), argon (steel production), nitrogen, oxygen and natural gas (burner control, intake screening of boilers). In respect to the very fast response of the GD 300/GD 500 ($T_{90} = 50$ ms) the gas flowmeters are especially suited for monitoring and logging of product cycles based on pneumatic.





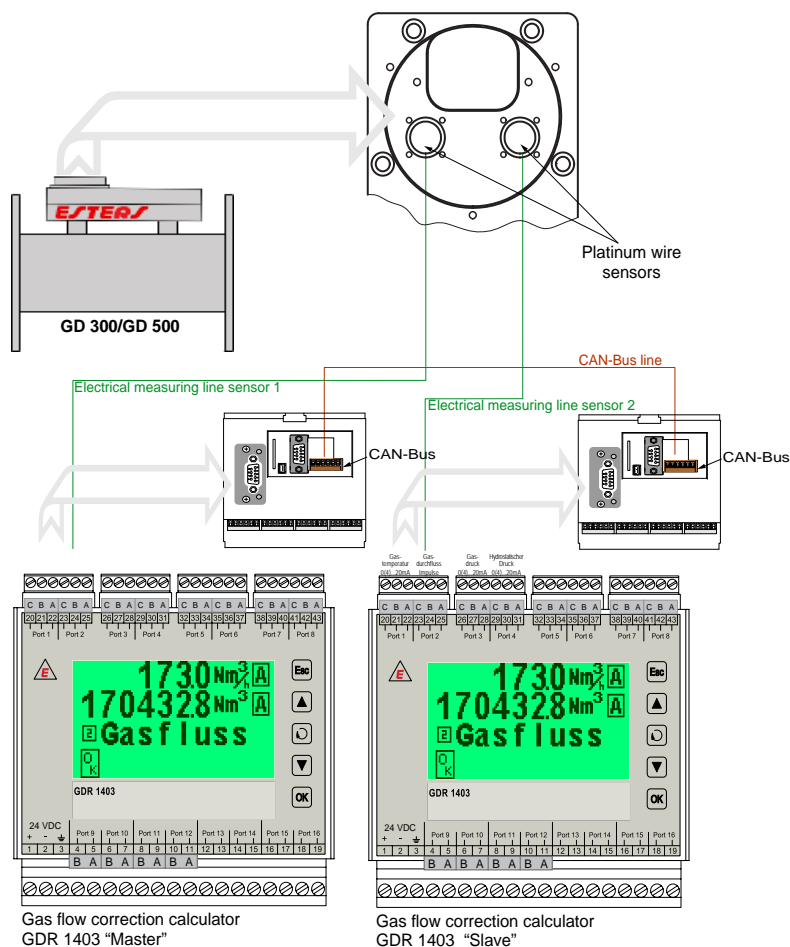
Redundant Measurement Method (optional)

The redundant measurement method is based on two separate platinum wire sensors which are integrated in the measuring head of the GD 300/GD 500 (only devices without ATEX certification). The sensors are connected with two separate cables to two separate monitors.

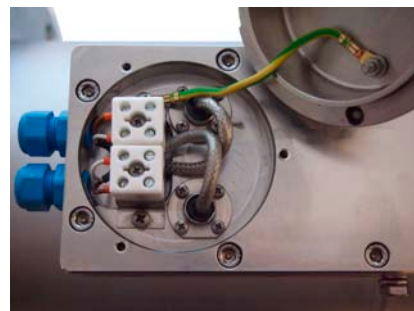
The evaluation devices operate in hot stand-by mode. In trouble-free operation the secondary unit takes over the current counter reading of the primary device via CAN-bus in a 100 ms cycle.

In case of an incident of the primary system (platinum wire sensor break damage, loss of pressure and temperature measurement, failure of the primary volume corrector) the secondary system takes over all functions within 100 ms. After repair of the primary system it automatically resumes the current counters from the secondary system. In the event of a failure of the secondary system, it can be changed without affecting the primary system.

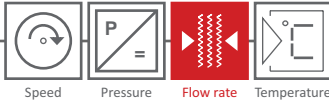
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measuring head with two sensors



connections redundant system in the measuring head



Speed

Pressure

Flow rate

Temperature

Installation Instructions / Maintenance

Planning the project it has to be ensured that the pipe size is not increased by the gas meter to avoid measurement errors. The defined ranges for individual nominal sizes must not be exceeded. A straight inlet zone of 10 x DN and an outlet zone of 5 x DN is required.

In the pipe network in front of the flowmeter, the gas velocity may not exceed supersonic speed. Supercritical pressure drops and pulsating flows must be avoided.

When installing the GD 300/GD 500 under the ceiling, a distance of at least 25 cm must be complied with from the lid to the ceiling, so that the lid can be removed for connecting the sensor cable.

In case of falling below the Q_{\min} (measuring range) measured values are not possible.



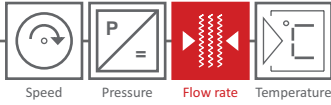
The flowmeter GD 300/GD 500 can be installed in horizontal or vertical position. A condensation outlet is integrated into the measuring head, which guarantees the outflow of condensate of 100 % wet gas without storage possibilities.

The inclined measuring head ensures the drainage of condensation in horizontal pipes.

The oscillating measuring method of the Fluidistor principle requires no moving parts or sensitive sensor materials, creating a virtually maintenance-free operation of the GD 300/GD 500. The platinum wire sensor integrated in the head may be exchanged without removing the device from the pipe. A sensor change has no effect on the calibration of the flowmeter.



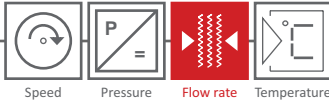
Installation of the GD 300 in a vertically falling line at the fermenter



Technical Details

	GD 500 WITH EXTERNAL PIPE THREAD	GD 300 WITH INTERNAL PIPE THREAD	GD 300 WITH FLANGE
NOMINAL SIZE	DN 15	DN 25 BIS DN 50	DN 50 to DN 400
PROCESS CONNECTION	external pipe thread R 1/2" G 1"	internal pipe thread Rp 1", Rp 1 1/4", Rp 1 1/2", Rp 2"	flange acc. to DIN EN-1092-2 or DIN 2576 depending on availability flange acc. to ASME B 16.5
PRESSURE RANGE	0,5 bar, 10 bar, 16 bar, 40 bar	0,5 bar, 10 bar, 16 bar, 40 bar	0,5 bar, 10 bar, 16 bar, 40 bar (ISO flange) class 150, class 300 (ASME-flange)
TEMPERATURE	-20 bis +120°C; gas as well as environment, max. 80°C for the Ex version		
MEASURING HEAD	material stainless steel 1.4571 (V4A), stainless steel 1.4301 (V2A), aluminum		
MEASURING LABYRINTH	material stainless steel 1.4571 (V4A), stainless steel 1.4301 (V2A), aluminum		
TUBE BODY	-	material stainless steel 1.4571 (V4A), stainless steel 1.4301 (V2A), aluminum	material stainless steel 1.4571 (V4A)
SENSOR	material platinum		
PROTECTION CLASS	IP 65		
OUTPUT (STANDARD)	pulse output: pulse 24 V, DC = x - 30 l/pulse, max. 200 Hz (pulse width 1 - 2 ms) status output for sensor break detection: 24 V, DC (pollution monitoring with redundant platinum wire sensor)		
OUTPUT WITH INTEGRATED CALCULATOR	pulse output: pulse 24 V, DC, 1 Pulse=0.01, 0. 1, 1, 10 or 100 m ³ current interface: (0)4 - 20 mA = 0 - x Nm ³ /h , status output for sensor break detection: 24 V, DC (pollution monitoring with redundant platinum wire sensor) standard: DIN 1343, DIN 6358, DIN ISO 2533, DIN 102/ISO 1-1975 fixed value temperature: -50 °C to 200°C fixed value absolute pressure: -0,8 bar to 100 bar		
ATEX-ZULASSUNG	II 1 / 2 G Ex ia / e mb IIC T4 Ga / Gb, EG certificate no: TPS 13 ATEX 14689 003 X (certificate no. EX5 13 07 14689 003)		
ADDITIONAL SENSOR (OPTIONAL)	integrated pressure and temperature sensors (only devices without ATEX certification): P1: pressure: -50 ... 200 mbar, temperature: -50 to +150°C P2: pressure: -0 ... 30 bar, temperature: -50 to +150°C		
REDUNDANT VERSION (OPTIONAL)	redundant sensors in measuring head (only devices without ATEX certification): R1: redundant platinum sensor R2: redundant platinum sensor, pressure and temperature sensor		

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Measuring Range

GD 500 with external pipe thread

DN (mm)	inches	m ³ /h	
		Q _{min}	Q _{max}
15	1/2"	0,06	22
25	1"	0,06	22

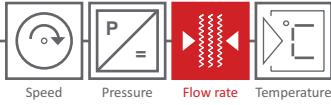
GD 300 with internal pipe thread

DN (mm)	m ³ /h					
	orifice 13		orifice 15		orifice 17	
	Q _{min}	Q _{max}	Q _{min}	Q _{max}	Q _{min}	Q _{max}
25	0,20	20	0,35	35	0,7	70
32	0,20	20	0,60	60	1,00	100
40	0,20	20	0,90	90	2,00	200
50	0,20	20	1,10	110	2,50	250

GD 300 with flange

DN (mm)	m ³ /h					
	orifice 13		orifice 15		orifice 17	
	Q _{min}	Q _{max}	Q _{min}	Q _{max}	Q _{min}	Q _{max}
50	0,20	20	1,10	110	2,50	250
65	0,90	90	1,70	170	4,50	450
80	1,40	140	4,50	450	8,00	800
100	2,70	270	6,50	650	10,00	1.000
125	4,00	400	8,00	800	15,00	1.500

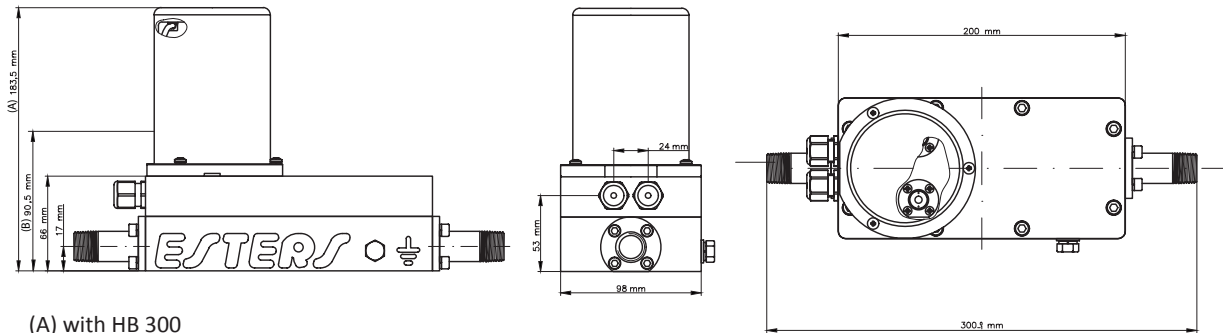
DN (mm)	m ³ /h					
	orifice 13		orifice 15		orifice 17	
	Q _{min}	Q _{max}	Q _{min}	Q _{max}	Q _{min}	Q _{max}
150	6,00	600	12,00	1.200	30,00	3.000
200	12,00	1.200	25,00	2.500	60,00	6.000
250	20,00	2.000	40,00	4.000	75,00	7.500
300	30,00	3.000	50,00	5.000	113,00	13.000
350	40,00	4.000	70,00	7.000	140,00	14.000
400	50,00	5.000	100,00	10.000	160,00	16.000



Dimensions and Weight

GD 500 with external pipe thread

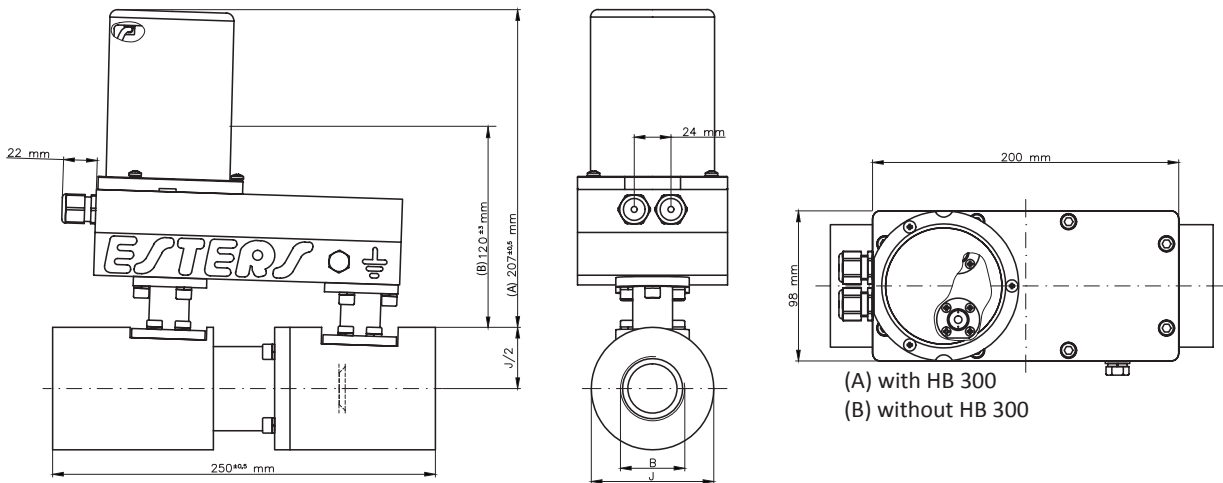
inches	weight (kg) ^{+ - 5%}
1/2"	8
1"	8



(A) with HB 300
(B) without HB 300

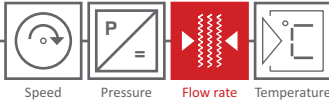
GD 300 with internal pipe thread

mm ⁺⁰⁻¹ DN (nominal size)	inches thread	mm ⁺⁰⁻¹ J	weight (kg) ^{+ - 5%}
25	Rp 1"	80	16
32	Rp 1 1/4"	80	12
40	Rp 1 1/2"	100	18
50	Rp 2"	100	14



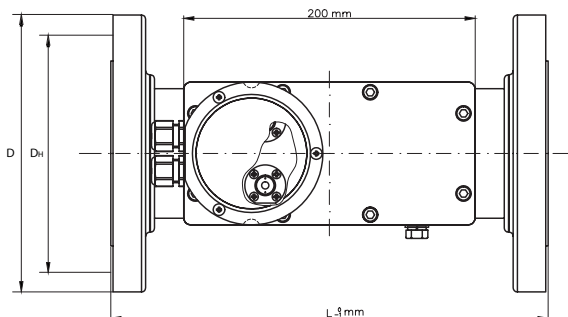
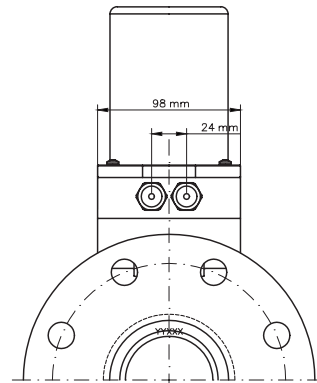
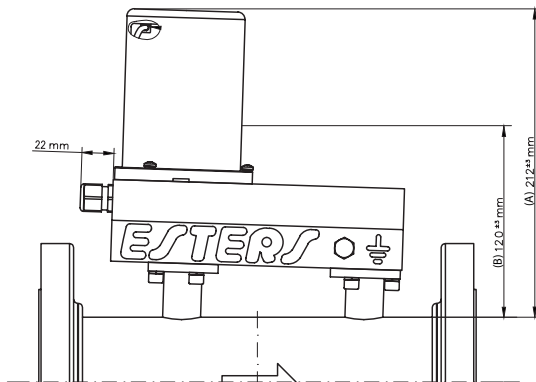
(A) with HB 300
(B) without HB 300

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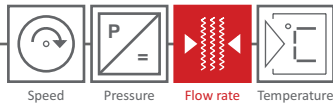


GD 300 with flange

mm ⁺⁰⁻¹ DN (nominal size)	mm ⁺⁰⁻¹ L (S/L)	mm ⁺⁰⁻¹ D	mm ⁺⁰⁻¹ D _H	weight (kg) ^{+ -5} reduced flange	weight (kg) ^{+ -5%} solid flange
50	300	165	125	11	13
65	300	185	145	14	16
80	300	200	160	14	16
100	300/360	220	180	16/18	17/18
125	300	250	210	17	19
150	350/500	285	240	21/24	29/31
200	350	340	295	25	35
250	450	405	355	35	49
300	500	460	410	41	51
350	500	520	470	55	68
400	500	580	525	70	91



(A) with HB 300
(B) without HB 300



Speed Pressure **Flow rate** Temperature

Ordering Information

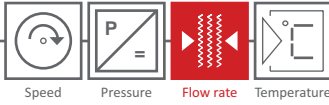
GD 500 with external pipe thread



GD 500							DESCRIPTION
EX-VERSION	Ex						with ATEX certification
PROCESS CONNECTION		-PA1					R 1/2"
		-PA2					G 1"
PRESSURE RANGE			00				0,5 bar
			10				10 bar
			16				16 bar
			40				40 bar
MATERIAL CONNECTION				-V2			V2A stainless steel
				-V4			V4A stainless steel
MATERIAL MEASURING HEAD					AL		aluminum
					V2		V2A stainless steel
					V4		V4A stainless steel
INTEGRATED PRESSURE AND TEMPERATURE SENSORS						P0	without
						P1	press.: -50 ... +200 mbar, temp.: -50 to +150 °C *
						P2	press.: 0 ... 30 bar, temp.: -50 to +150 °C *
REDUNDANT VERSION						R0	without
						R1	redundant platinum sensor *
						R2	redundant platinum sensor, pressure and temperature sensor *

* only devices without ATEX certification

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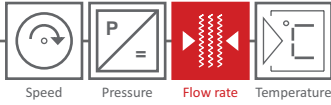


GD 300 - DN 25 to DN 50 with internal pipe thread



GD 300				DESCRIPTION
EX-VERSION	Ex			with ATEX certification
PRESSURE RANGE	-025			DN 25 (thread Rp 1")
	-032			DN 32 (thread Rp 1 1/4")
	-040			DN 40 (thread Rp 1 1/2")
	-050			DN 50 (thread Rp 2")
ORIFICE		13		measurement range see table page 10
		15		
		17		
PROCESS CONNECTION		RP		internal pipe thread (Rp)
PRESSURE RANGE			00	0,5 bar
			10	10 bar
			16	16 bar
			40	40 bar
MATERIAL			-AL	aluminum
			-V2	V2A stainless steel
			-V4	V4A stainless steel
INTEGRATED PRESSURE AND TEMPERATURE SENSORS			P0	without
			P1	press.: -50 ... +200 mbar, temp.: -50 to +150 °C *
			P2	press.: 0 ... 30 bar, temp.: -50 to +150 °C *
REDUNDANT VERSION			R0	without
			R1	redundant platinum sensor *
			R2	redundant platinum sensor, pressure and temperature sensor *

* only devices without ATEX certification



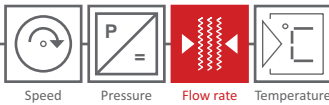
GD 300 - DN 50 to DN 125 with flange



GD 300		DESCRIPTION		
EX-VERSION	Ex		with ATEX certification	
NOMINAL SIZE	-050		DN 50	
	-065		DN 65	
	-080		DN 80	
	-100		DN 100	
	-125		DN 125	
ORIFICE	13		measurement range see table page 10	
	15			
	17			
PIPE LENGTH		S	standard pipe length	
		L	version with extra length, see dimensions	
PROCESS CONNECTION		I	flange acc. to DIN EN-192-2/DIN2576	
		A	flange acc. to ASME B 16.5	
FLANGE VERSION		R	reduced flange (only ISO flange with a pressure range up to PN 10, bolt circle diameter PN 10)	
		F	solid flange	
BOLT CIRCLE DIAMETER			10	standard (ISO flange)
			16	(ISO flange)
			20	class 150 (ASME flange)
			50	class 300 (ASME flange)
PRESSURE RANGE			00	0,5 bar
			10	10 bar
			16	16 bar
			40	40 bar
			50	class 150 (ASME-Flansch) class 300 (ASME-Flansch)
MATERIAL			-AL	aluminum
			-V2	V2A stainless steel
			-V4	V4A stainless steel
INTEGRATED PRESSURE AND TEMPERATURE SENSORS			P0	without
			P1	press.: -50 ... +200 mbar, temp.: -50 to +150 °C *
			P2	press.: 0 ... 30 bar, temp.: -50 to +150 °C *
REDUNDANT VERSION			R0	without
			R1	redundant platinum sensor *
			R2	redundant platinum sensor, pressure and temperature sensor *

* only devices without ATEX certification

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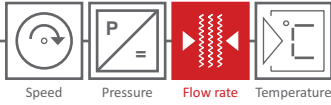
GD 300 - DN 150 to DN 400 with flange



GD 300																				DESCRIPTION	
EX-VERSION	Ex																			with ATEX certification	
NOMINAL SIZE		-150																		DN 150	
		-200																		DN 200	
		-250																		DN 250	
		-300																		DN 300	
		-350																		DN 350	
		-400																		DN 400	
ORIFICE			25																	measurement range see table page 10	
			27																		
			30																		
PIPE LENGTH				S																standard pipe length	
				L																version with extra length, see dimensions	
PROCESS CONNECTION					I															flange acc. to DIN EN-192-2/DIN2576	
					A															flange acc. to ASME B 16.5	
FLANGE VERSION						R														reduced flange (only ISO flange with a pressure range up to PN 10, bolt circle diameter PN 10)	
						F														solid flange	
BOLT CIRCEL DIAMETER							10													standard (ISO flange)	
							16													(ISO flange)	
							20													class 150 (ASME flange)	
							50													class 300 (ASME flange)	
PRESSURE RANGE								00												0,5 bar	
								10												10 bar	
								16												16 bar	
								40												40 bar	
								20												class 150 (ASME-Flansch)	
								50												class 300 (ASME-Flansch)	
MATERIAL									-AL											aluminum	
									-V2											V2A stainless steel	
									-V4											V4A stainless steel	
INTEGRATED PRESSURE AND TEMPERATURE SENSORS										P0										without	
										P1										press.: -50 ... +200 mbar, temp.: -50 to +150 °C *	
										P2										press.: 0 ... 30 bar, temp.: -50 to +150 °C *	
REDUNDANT VERSION											R0									without	
											R1									redundant platinum sensor *	
											R2									redundant platinum sensor, pressure and temperature sensor *	

* only devices without ATEX certification

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Speed Pressure Flow rate Temperature

HB 300 - integrated calculator in the measuring head of the GD 300/GD 500

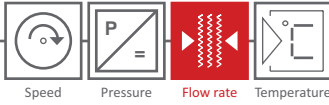
The gas flow meter can be equipped with an integrated calculator in the measuring head. This calculator converts the m^3/h to Nm^3/h in connection with pressure (fixed value) and temperature (fixed value).

Using the current output the measured values are directly transferred to a superior PLC system. Using the pulse output the signals are transferred to an external volume corrector of the Esters series for application specific operations.



HB 300					DESCRIPTION
EX-VERSION	Ex				with ATEX certification
VERSION		-R0			standard
		-R1			redundant sensor *
STANDARDISATION			0		without standardisation
			1		DIN 1343
			2		DIN 6358
			3		DIN ISO 2533
			4		DIN 102/ISO 1-1975
CURRENT OUTPUT			0		without current output
			1		0 - 20 mA, load resistance 500 Ohm
			2		4 - 20 mA, load resistance 500 Ohm
OUTPUT RANGE				00	without current output
CURRENT OUTPUT				01	0 - 5 Bm^3/h or Nm^3/h
0 (4) - 20 mA				02	0 - 10 Bm^3/h or Nm^3/h
				03	0 - 20 Bm^3/h or Nm^3/h
				04	0 - 50 Bm^3/h or Nm^3/h
				05	0 - 100 Bm^3/h or Nm^3/h
				06	0 - 200 Bm^3/h or Nm^3/h
				07	0 - 400 Bm^3/h or Nm^3/h
				08	0 - 800 Bm^3/h or Nm^3/h
				09	0 - 1.000 Bm^3/h or Nm^3/h
				10	0 - 1.500 Bm^3/h or Nm^3/h
				11	0 - 2.000 Bm^3/h or Nm^3/h
				12	0 - 3.000 Bm^3/h or Nm^3/h
				13	0 - 5.000 Bm^3/h or Nm^3/h
				14	0 - 7.000 Bm^3/h or Nm^3/h
				15	0 - 10.000 Bm^3/h or Nm^3/h
	PULSE WEIGHTING				0
				1	0,001 Bm^3 or Nm^3
				2	0,01 Bm^3 or Nm^3
				3	0,1 Bm^3 or Nm^3
				4	1 Bm^3 or Nm^3
				5	10 Bm^3 or Nm^3
				6	100 Bm^3 or Nm^3
				7	1.000 Bm^3 or Nm^3

* only devices without ATEX certification



External volume corrector of the Esters series with application specific operations

The connection of an external volume corrector of the Esters series allows an extended use of the measured values due to additional functions:

- connection of pressure and temperature sensors for standardisation of the measured values
- integrated recorder to log measured values in a ring buffer for fast identification of faults during operation
- storage of logged data in an external SQL-database using the Energy Management and Configuration Software E3DM
- visualisation of data in time series using the Energy Management and Configuration Software E3DM
- daily status report via E-Mail using the Esters Infoserver
- integration into IT-networks via Ethernet TCP/IP
- data transfer via PROFIBUS DP, Modbus RTU, Modbus TCP, Ethernet TCP/IP

The external correction calculators have further specific application functions, which are described in the following.



Flow Rate Correction Calculator GDR 1403 for all technical and medical gases

The Flow Rate Correction Calculator detects the impulse signals of up to two fluidistor gas flow meters GD 300/GD 500 using 1 or 2 channels. According to the assignment it converts the impulse signals into m^3/h , Nm^3/h , l/h or NI/h . The actual flow rate is displayed in m^3/h (l/h) resp. Nm^3/h (NI/h) and the quantity in m^3 (l) resp. Nm^3 (NI) on the LCD display.

For further information see datasheet DS 303 E.

Compressed Air Controller PAC 1201

The Compressed Air Controller detects the pulse signals of up to two gas flow-meters GD 300/GD 500 with 1 or 2 channels. This allows the precise measurement of the quantity of consumed litres of compressed air on the plant or machine level (level 4). The device monitors single production cycles regarding consumed quantity in a production cell.

For further information see datasheet DS 315 E.

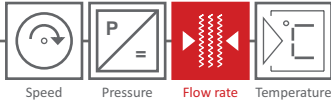


PAC 1201 with Ethernet TCP/IP

Compressed Air Efficiency Calculator PAC 1204

The Compressed Air Efficiency Calculator PAC 1204 detects the volume flow rate of compressed air at compressor stations with the gas flowmeter GD 300. Based on the additional data collected regarding power consumption it determines the efficiency of compressed air generation.

For further information see datasheet DS 319 E.



The following devices are specially designed for the requirements of measuring biogas.



CHP Gas Monitor GDR 1404

The GDR 1404 calculates the flow and integrates various gas analysis devices

For further information see datasheet DS 307 E.

CHP Efficiency Calculator GDR 1407

In addition to the calculation of flow the GDR 1407 offers the following functions:

- calculation of efficiency of the CHP
- integration of ripple control systems to record the energy supplier's energy release
- integration of various gas analysis devices

For further information see datasheet DS 318 E.



Gas subcontracting of two biogas stations to an entry station with integration of gas analysis and accounting of the gas based on thermal input.

Firing Thermal Capacity Calculator GDR 1408 for the sector biogas

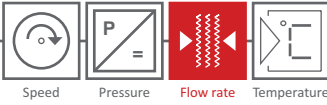
Besides the calculation of the flow rate the GDR 1408 provides the following functions:

- continuous determination of the firing thermal capacity out of gas quantity (gas flow measurement) and gas quality (gas analysis)
- display of the current heat value in kJ/Nm^3 , display of the current firing thermal capacity in MW, quantity counter of firing thermal capacity in MW/h, detection of the gas composition (CH_4 , H_2S , CO_2 , O_2)
- calculation of the primary energy of the flowing medium

For further information see datasheet DS 311 E.



GDR 1408 with option Ethernet TCP/IP, Profibus DP and CAN-Bus



Compressed Air Controller PAC 1201

precise compressed air consumption on the plant or machine level with integrated monitoring of production cycles

Compressed Air Efficiency Calculator PAC 1204

efficiency detection of compressed air generation concerning power consumption and produced gas



External volume correctors for the sector biogas

CHP Gas Monitor GDR 1404 for direct calculation of the gas consumption in Nm³

CHP Efficiency Calculator GDR 1407 continuous monitoring and control of energy generation

Firing Thermal Capacity Calculator GDR 1408 for direct calculation of thermal capacity in MWh

Flow Rate Correction Calculator GDR 1403

exact gas consumption per litre for billing purpose the medical field

