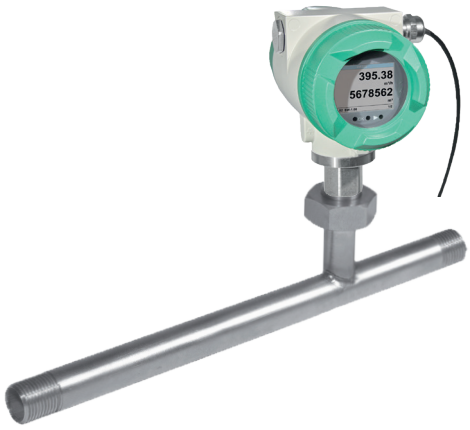
VA 570 - Inline flow meter



Flange version



Version with pipe thread R thread or NPT thread

VA 570 is supplied with an integrated measuring section. The measuring sections are available in flanged version or with R resp. NPT thread.

A special feature is the removable measuring head. So the measuring unit can be removed easily and quickly for calibration or cleaning purposes without having to dismount the measuring section intricately. During this period the measuring section is sealed by a closing cap (accessory).

The screwing with a centring device is designed such that the sensor is positioned accurately in the centre when screwing it into the measuring section; furthermore, it enables an exact positioning in the flow direction. This eliminates unnecessary measuring faults.

Approvals:

ATEX II 2G Ex db IIC T4 Gb

ATEX II 2D Ex tb IIIC T90°C Db

IECEx Ex db IIC T4 Gb

IECEx Ex tb IIIC T90°C Db

Special measurement technology features:

- 4 values on the display: Flow, total consumption, velocity, temperature. Units freely adjustable
- All measured values, settings such as gas type, inner diameter, serial number and so on can be accessed via Modbus-RTU
- Comprehensive diagnostic functions readable on the display or remote access via Modbus such as calibration cycle, error codes, serial number
- Notification in case of exceeding the calibration cycle
- Standard version accuracy 1.5% of m.v. ± 0.3% of f.s.
- Precision version accuracy 1.0% of m.v. ± 0.3% of f.s
- Measuring span of 1 : 1000 (0.1 up to 224 m/s)
- Configuration and diagnosis via display, hand-held device PI 500, PC service software on-site
- Gas type (air, nitrogen, oxygen, argon and so on) freely adjustable via PC service software or external device DS 400, DS 500, PI 500
- Reference conditions °C and mbar/hPa freely adjustable
- Zero-point adjustment, leak flow volume suppression
- Pressure loss negligible



The sensor can be removed and cleaned

Special mechanical features:

- Robust impact-proof aluminium die cast housing for the outdoor area IP 67
- All wetted parts made from stainless steel 1.4404
- On request with DVGW approval for natural gas (up to 16 bar)
- Pressure range up to 16 bar, special version up to 40 bar
- Media temperature range up to 180 °C (ATEX + IECEx version up to 120 °C)
- No moveable parts, no wear
- Sensor tip very robust, easy to clean
- Housing rotatable, display rotatable by 180°

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Measuring range - Flow VA 570

		1/2"	3/4"	1"	1 ¼"	1 ½"	2"	2 ½"	3"
		m³/h (cfm)	m³/h (cfm)	m³/h (cfm)	m³/h (cfm)	m³/h (cfm)	m³/h (cfm)	m³/h (cfm)	m³/h (cfm)
Reference conditions DIN 1945 / ISO 1217: 20 °C, 1000 mbar									
Air	Low-Speed (50 m/s)	20 (14)	45 (25)	75 (45)	140 (80)	195 (115)	320 (190)	550 (325)	765 (450)
	Standard (92.7 m/s)	45 (25)	85 (50)	145 (85)	265 (155)	365 (215)	600 (350)	1025 (600)	1420 (835)
	Max (185 m/s)	90 (50)	175 (100)	290 (170)	530 (310)	730 (430)	1195 (700)	2050 (1205)	2840 (1670)
	High-Speed (224 m/s)	110(60)	215 (125)	355 (210)	640 (375)	885 (520)	1450 (850)	2480 (1460)	3440 (2025)
Setting to DIN 1343: 0 °C, 1013.25 mbar									
Argon (Ar)	Low-Speed (50 m/s)	35 (20)	75 (40)	120 (70)	220 (130)	305 (180)	505 (295)	865 (510)	1200 (705)
	Standard (92.7 m/s)	70 (40)	135 (80)	230 (135)	415 (245)	570 (335)	935 (550)	1605 (945)	2225 (1310)
	Max (185 m/s)	140 (80)	275 (160)	460 (270)	830 (485)	1140 (670)	1870 (1100)	3205 (1885)	4440 (2615)
	High-Speed (224 m/s)	170 (100)	335 (195)	555 (325)	1005 (590)	1385 (815)	2265 (1330)	3880 (2285)	5380 (3165)
Carbondi-oxide (CO2)	Low-Speed (50 m/s)	20 (14)	45 (25)	75 (45)	140 (80)	195 (115)	320 (185)	545 (320)	760 (445)
	Standard (92.7 m/s)	45 (25)	85 (50)	145 (85)	260 (155)	360 (210)	590 (345)	1015 (595)	1405 (825)
	Max (185 m/s)	90 (50)	175 (100)	290 (170)	525 (305)	720 (425)	1185 (695)	2030 (1190)	2810 (1655)
	High-Speed (224 m/s)	105 (60)	210 (125)	350 (205)	635 (370)	875 (515)	1430 (840)	2455 (1445)	3405 (2000)
Nitrogen (N2)	Low-Speed (50 m/s)	20 (13)	40 (25)	70 (40)	130 (75)	180 (105)	295 (175)	505 (300)	705 (415)
	Standard (92.7 m/s)	40 (20)	80 (45)	135 (75)	240 (140)	335 (195)	550 (320)	945 (555)	1305 (770)
	Max (185 m/s)	80 (45)	160 (95)	270 (155)	485 (285)	670 (395)	1100 (645)	1885 (1110)	2610 (1535)
	High-Speed (224 m/s)	100 (55)	195 (115)	325 (190)	590 (345)	815 (475)	1330 (780)	2280 (1340)	3165 (1860)
Oxygen (O2)	Low-Speed (50 m/s)	20 (13)	45 (25)	75 (40)	135 (80)	185 (110)	305 (180)	525 (310)	730 (430)
	Standard (92.7 m/s)	40 (25)	80 (45)	140 (80)	250 (145)	345 (205)	570 (335)	980 (575)	1355 (795)
	Max (185 m/s)	85 (50)	165 (95)	280 (165)	505 (295)	695 (410)	1140 (670)	1955 (1150)	2710 (1590)
	High-Speed (224 m/s)	105 (60)	205 (120)	340 (200)	610 (360)	845 (495)	1380 (810)	2365 (1390)	3280 (1930)
Nitrous oxide (N2O)	Low-Speed (50 m/s)	20 (14)	45 (25)	75 (45)	140 (80)	190 (110)	315 (185)	540 (320)	750 (440)
	Standard (92.7 m/s)	40 (25)	85 (50)	140 (85)	260 (150)	355 (210)	585 (345)	1005 (590)	1395 (820)
	Max (185 m/s)	85 (50)	170 (100)	285 (170)	520 (305)	715 (420)	1170 (690)	2010 (1180)	2785 (1640)
	High-Speed (224 m/s)	105 (60)	210 (120)	345 (205)	630 (370)	865 (510)	1420 (835)	2435 (1430)	3375 (1985)
Natural gas (NG)	Low-Speed (50 m/s)	14,4 (8)	25 (15)	45 (25)	85 (50)	115 (65)	190 (110)	325 (190)	450 (265)
	Standard (92.7 m/s)	25 (15)	50 (30)	85 (50)	155 (90)	215 (125)	355 (205)	605 (355)	840 (495)
	Max (185 m/s)	50 (30)	105 (60)	170 (100)	310 (185)	430 (250)	705 (415)	1210 (710)	1680 (985)
	High-Speed (224 m/s)	65 (35)	125 (70)	210 (120)	380 (220)	520 (305)	855 (500)	1465 (865)	2035 (1195)



Optional: Connection to different Bus systems

There are different options available for connection to modern Bus systems:

- Ethernet interface (Modbus-TCP) / PoE
- M-BUS
- Modbus-RTU
- Profibus DP interface (in process)
- Profinet interface (in process)
- HART
- IO-Link

Ethernet Modbus TCP

M12 Ethernet port, x-coded

For further accessories refer to pages 126 to 130

IO-Link HART PROFIBUS PROFINET M-Bus

VA 570_ATEX_V.05

VA 570 - Inline flow meter

Example order code VA 570:

0695 0570_A1_B1_C1_D1_E1_F1_G1_H1_I1_J1_K1_M1_R1_Y1

Process connection	
A1	R male thread
A2	NPT male thread
A3	Flange DIN EN 1092-1
A4	Flange ANSI 16.5 Class 150 lbs
A5	Flange ANSI 16.5 Class 300 lbs

Display option	
B1	with integrated display
B2	without display

Option signal outputs / bus connection	
C1	2 units 4...20 mA analogue output (electrically isolated), pulse output, RS 485 (Modbus-RTU)
C4	1 x 4…20 mA analogue output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
C5	Ethernet interface (Modbus / TCP), 1 x 4...20 mA analogue output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
C6	HART protocol, 1 x 4…20 mA output (not galvanically isolated), pulse output, without RS 485 (Modbus RTU)
C8	M-Bus, 1 x 4…20 mA analogue output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
C9	Ethernet interface PoE (Power over Ethernet) (Modbus/TCP), 1 x 4…20 mA analogue output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
C10	IO-Link, 1 x 4…20 mA output (not galvanically isolated), pulse output, RS 485 (Modbus RTU)

Adjustment/calibration	
D1	No real gas adjustment - gas type configuration per gas constant
D2	Real gas adjustment in the gas type selected below

Gas type	
E1	Compressed air
E2	Nitrogen (N2)
E3	Argon (Ar)
E4	Carbon dioxide (CO2)
E5	Oxygen (O2)
E6	Nitrous oxide (N2O)
E7	Natural gas (NG)
E8	Helium (He) (real gas adjustment **D2** required)
E9	Propane (C3H8) (real gas adjustment **D2** required)
E10	Methane (CH4)
E11	Biogas (methane 50% : CO2 50%)
E12	Hydrogen (H2) (real gas adjustment **D2** required)
E90	Further gas / please indicate gas type (on request)
E91	Gas mixture / please indicate mixture ratio (on request)

Reference standard	
F1	20 °C, 1000 mbar
F2	0 °C, 1013.25 mbar
F3	15 °C, 981 mbar
F4	15 °C, 1013.25 mbar

Maximum pressure	
G1	16 bar
G2	40 bar
G3	2 bar

Surface conditon	
H1	standard version
H2	Special cleaning - oil and grease free (e. g. for oxygen applications and so on)
H3	Silicone-free version including special cleaning oil- and grease-free

Accuracy class	
I1	± 1.5% of the measured value ± 0.3% f.s. (standard)
I2	± 1% of the measured value ± 0.3% f.s. (precision)

Maximum gas temperature on the sensor tip	
J1	up to 120 °C gas temperature (only for ATEX + IECEx version)
J2	up to 180 °C gas temperature (standard)

Approvals	
K1	Non-explosive area - no approval
K2	ATEX: II 2G Ex db IIC T4 Gb II 2D Ex tb IIIC T90°C Db IECEx: Ex db IIC T4 Gb Ex tb IIIC T90°C Db
K3	DVGW approval for natural gas (max. pressure 16 bar)

Measuring range (see table)	
M1	Max version (185 m/s)
M2	Low-speed version (50 m/s)
M3	Standard version (92,7 m/s)
M4	High-speed version (224 m/s)

Special measuring range	
R1	Special measuring range (please specify when placing order)

Option pressure measurement (only with K1 and J1), E1 - E4 + E6	
Y1	without pressure sensor
Y2	with integrated pressure sensor -1...0 bar(g)
Y3	with integrated pressure sensor 10...2000 mbar(abs)
Y4	with integrated pressure sensor 0...1,6 bar(g)
Y5	with integrated pressure sensor 0...16 bar(g)
Y6	with integrated pressure sensor 0...40 bar(g)

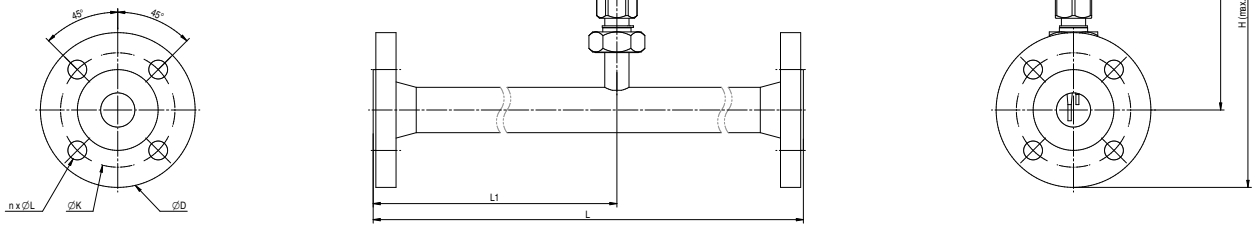
VA 570_ATEX_V.05

Order no. VA 570

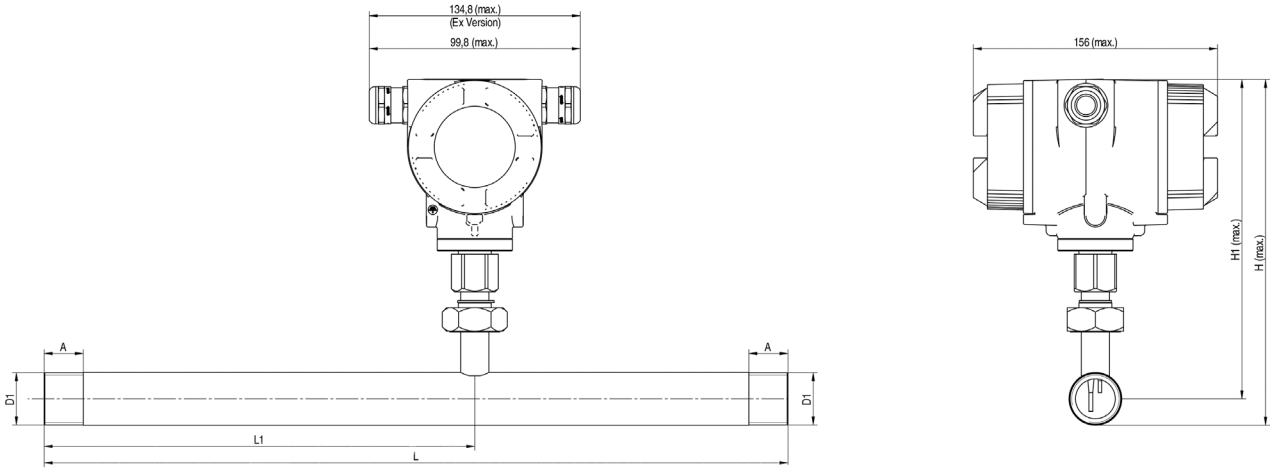
DESCRIPTION	ORDER NO.
VA 570 flow meter with integrated 1/2" measuring section	0695 0570 + order code A_…R_
VA 570 flow meter with integrated 3/4" measuring section	0695 0571
VA 570 flow meter with integrated 1" measuring section	0695 0572
VA 570 flow meter with integrated 1 1/4" measuring section	0695 0573
VA 570 flow meter with integrated 1 1/2" measuring section	0695 0574
VA 570 flow meter with integrated 2" measuring section	0695 0575
VA 570 flow meter with integrated DN 15 measuring section with flange	0695 2570
VA 570 flow meter with integrated DN 20 measuring section with flange	0695 2571
VA 570 flow meter with integrated DN 25 measuring section with flange	0695 2572
VA 570 flow meter with integrated DN 32 measuring section with flange	0695 2573
VA 570 flow meter with integrated DN 40 measuring section with flange	0695 2574
VA 570 flow meter with integrated DN 50 measuring section with flange	0695 2575
VA 570 flow meter with integrated DN 65 measuring section with flange	0695 2576
VA 570 flow meter with integrated DN 80 measuring section with flange	0695 2577
Further accessories:	
Closing cap for measuring section in aluminium	0190 0001
Closing cap for measuring section stainless steel 1.4404	0190 0002
Connection cable for probes 5 m with open ends	0553 0108
Connection cable for probes 10 m with open ends	0553 0109
Ethernet connection cable length 5 m, M12 plug x-coded (8 pin) to RJ 45 plug	0553 2503
Ethernet connection cable length 10 m, M12 plug x-coded (8 pin) to RJ 45 plug	0553 2504
Mains unit in wall housing for maximum 2 sensors of the series VA/FA 5xx, 100-240 V, 23 VA, 50-60 Hz / 24 VDC, 0.35 A	0554 0110
ISO calibration certificate at 5 measuring points for VA sensors	3200 0001
Additional calibration point (point freely selectable) Volume flow	0700 7720
CS Service Software VA 550 incl. interface cable to PC (USB) and power supply - for configuration / parametrisation of VA 550	0554 2007
PNG cable screwing - standard VA 550/570	0553 0552
PNG cable screwing - for ATEX + IECEx version VA 550/570	0553 0551

TECHNICAL DATA VA 570	
Measuring range VA 570:	up to 50 Nm/s, low-speed version* up to 92.7 Nm/s, standard version* up to 185 Nm/s, max. version* up to 224 Nm/s, high-speed version* * Measuring range Nm³/h for different pipe diameters and gases, see table measuring ranges flow * All measured values related to DIN 1343 standard conditions 0° and 1013 mbar ex works
Accuracy: **Accuracy class** **(o. M. V. = of measured value)** **(o. F. S. = of full scale)**	± 1.5% of m.v. ± 0.3 % of f.s. on request: ± 1.0% of m.v. ± 0.3 % of f.s.
Accuracy indications:	relative to ambient temperature 22 °C ± 2 °C, system pressure 6 bar
Repeatability:	0.25% of m.v. in case of correct mounting (mounting aid, position, inlet section)
Measuring principle:	Thermal mass flow sensor
Response time:	t90 < 3 s
Operating / ambient temperature range:	-20…70 °C
Media temperature range:	-20 °C …. 180 °C (ATEX + IECEx version: -20°C ... 120 °C)
Adjustment possibilities via display, external hand-held device PI 500, PC Service Software, remote diagnosis:	Nm³/h, Nm³/min, Nl/min, l/s, ft/min, cfm, kg/h, kg/min, inner diameter, reference conditions ° C/° F, mbar/ hPa, zero point correction, leak flow volume suppression, scaling analogue output 4...20 mA, pulse/alarm, error codes etc.
Outputs:	Standard: 1 x 4…20 mA analogue output (not electrically isolated), pulse output, RS 485 (Modbus-RTU) **Optional:** 2 x 4 ... 20 mA active, Modbus TCP, HART, Profibus DP, Profinet, M-Bus, IO-Link
Burden:	< 500 Ohm
Additional average value calculation:	for all parameters freely adjustable from 1 minute up to 1 day, e. g. 1/2 hours average value, average day value
Protection class:	IP 67 IP 65 for ATEX + IECEx
Material:	Die-cast aluminum housing, sensor tube stainless steel 1.4404
Operating pressure:	16 bar, in special version 40 bar
Power supply:	18…36 VDC, 5 W
Approval:	ATEX: II 2G Ex db IIC T4 Gb II 2D Ex tb IIIC T90°C Db IECEx: Ex db IIC T4 Gb Ex tb IIIC T90°C Db DVGW

VA 570_ATEX_V.05



VA 570 - with flange									
							Flange DIN EN 1092-1		
Pipe size	**AD pipe - mm**	**ID pipe - mm**	**L - mm**	**L1 - mm**	**H - mm**	**H1 - mm**	**Ø D**	**Ø K**	**n x Ø L**
DN 15	21.3	16.1	300*	210	267	218	95	65	4 x 14
DN 20	26.9	21.7	475*	275	270	218	105	75	4 x 14
DN 25	33.7	27.3	475*	275	275	218	115	85	4 x 14
DN 32	42.4	36.0	475*	275	288	218	140	100	4 x 18
DN 40	48.3	41.9	475*	275	293	218	150	110	4 x 18
DN 50	60.3	53.1	475*	275	300	218	165	125	4 x 18
DN 65	76.1	68.9	475*	275	320	228	185	145	8 x 18
DN 80	88.9	80.9	475*	275	328	228	200	160	8 x 18
*Attention: Shortened inlet section. Please observe the recommended minimum inlet section (length = 15 x inner diameter)!									



VA 570 - Threaded version							
Connection thread	**AD pipe - mm**	**ID pipe - mm**	**L - mm**	**L1 - mm**	**H - mm**	**H1 - mm**	**A - mm**
R 1/2″	21.3	16.1	300*	210	228	218	20
R 3/4″	26.9	21.7	475*	275	231	218	20
R 1″	33.7	27.3	475*	275	235	218	25
R 1 1/4″	42.4	36.0	475*	275	239	218	25
R 1 1/2″	48.3	41.9	475*	275	242	218	25
R 2″	60.3	53.1	475*	275	248	218	30
*Attention: Shortened inlet section. Please observe the recommended minimum inlet section (length = 15 x inner diameter) on site!							

VA 570_ATEX_V.54