



VA 570 - Inline flow meter



Flange version

Version for pipe with R thread or NPT thread

VA 570 is supplied with an integrated measuring section. A special feature is the removable measuring head. The measuring unit can be removed easily and quickly for calibration or cleaning purposes without having to dismantle the measuring section. During this period the measuring section is sealed with a closing cap (accessory).

The device is designed so that the sensor is positioned precisely at the center when it is screwed into the measuring section. Additionally, it allows for precise alignment in the flow direction, effectively preventing unnecessary measurement errors.

Approvals:

- II 2G Ex db IIC T4 Gb
- II 2D Ex tb IIIC T90°C Db

Special measurement technology features:

- 4 values on the display: Flow, total consumption, velocity. Units freely adjustable
- All measured values, settings such as gas type, inner diameter, serial number, etc. can be accessed via Modbus-RTU
- Comprehensive diagnostic functions accessible 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. \pm 0.3% of f.s.
- Precision version accuracy 1.0% of m.v. \pm 0.3% of f.s.
- Measuring span of 1 : 1000 (0.33 ft/s up to 735 ft/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 freely adjustable
- Zero-point adjustment, leak flow volume suppression (In-situ calibration)
- Pressure loss negligible



The sensor can be removed and cleaned

Special mechanical features:

- Robust impact-proof aluminum 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 232 psi)
- Pressure range up to 232 psi, special version up to 580 psi
- Media temperature range up to 356 °F (ATEX version up to 248 °F)
- No moveable parts, no wear
- Sensor tip very robust, easy to clean
- Housing rotatable, display rotatable by 356 °



Measuring range - Flow VA 570

	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	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: 68 °F, 14 psi								
Air	Low-Speed (164 ft/s)	20 (14)	45 (25)	75 (45)	140 (80)	195 (115)	320 (190)	550 (325)
	Standard (304 ft/s)	45 (25)	85 (50)	145 (85)	265 (155)	365 (215)	600 (350)	1025 (600)
	Max (607 ft/s)	90 (50)	175 (100)	290 (170)	530 (310)	730 (430)	1195 (700)	2050 (1205)
	High-Speed (735 ft/s)	110 (60)	215 (125)	355 (210)	640 (375)	885 (520)	1450 (850)	2480 (1460)
Setting to DIN 1343: 32 °F, 14.7 psi								
Argon (Ar)	Low-Speed (164 ft/s)	35 (20)	75 (40)	120 (70)	220 (130)	305 (180)	505 (295)	865 (510)
	Standard (304 ft/s)	70 (40)	135 (80)	230 (135)	415 (245)	570 (335)	935 (550)	1605 (945)
	Max (607 ft/s)	140 (80)	275 (160)	460 (270)	830 (485)	1140 (670)	1870 (1100)	3205 (1885)
	High-Speed (735 ft/s)	170 (100)	335 (195)	555 (325)	1005 (590)	1385 (815)	2265 (1330)	3880 (2285)
Carbon dioxide (CO ₂)	Low-Speed (164 ft/s)	20 (14)	45 (25)	75 (45)	140 (80)	195 (115)	320 (185)	545 (320)
	Standard (304 ft/s)	45 (25)	85 (50)	145 (85)	260 (155)	360 (210)	590 (345)	1015 (595)
	Max (607 ft/s)	90 (50)	175 (100)	290 (170)	525 (305)	720 (425)	1185 (695)	2030 (1190)
	High-Speed (735 ft/s)	105 (60)	210 (125)	350 (205)	635 (370)	875 (515)	1430 (840)	2455 (1445)
Nitrogen (N ₂)	Low-Speed (164 ft/s)	20 (13)	40 (25)	70 (40)	130 (75)	180 (105)	295 (175)	505 (300)
	Standard (304 ft/s)	40 (20)	80 (45)	135 (75)	240 (140)	335 (195)	550 (320)	945 (555)
	Max (607 ft/s)	80 (45)	160 (95)	270 (155)	485 (285)	670 (395)	1100 (645)	1885 (1110)
	High-Speed (735 ft/s)	100 (55)	195 (115)	325 (190)	590 (345)	815 (475)	1330 (780)	2280 (1340)
Oxygen (O ₂)	Low-Speed (164 ft/s)	20 (13)	45 (25)	75 (40)	135 (80)	185 (110)	305 (180)	525 (310)
	Standard (304 ft/s)	40 (25)	80 (45)	140 (80)	250 (145)	345 (205)	570 (335)	980 (575)
	Max (607 ft/s)	85 (50)	165 (95)	280 (165)	505 (295)	695 (410)	1140 (670)	1955 (1150)
	High-Speed (735 ft/s)	105 (60)	205 (120)	340 (200)	610 (360)	845 (495)	1380 (810)	2365 (1390)
Nitrous oxide (N ₂ O)	Low-Speed (164 ft/s)	20 (14)	45 (25)	75 (45)	140 (80)	190 (110)	315 (185)	540 (320)
	Standard (304 ft/s)	40 (25)	85 (50)	140 (85)	260 (150)	355 (210)	585 (345)	1005 (590)
	Max (607 ft/s)	85 (50)	170 (100)	285 (170)	520 (305)	715 (420)	1170 (690)	2010 (1180)
	High-Speed (735 ft/s)	105 (60)	210 (120)	345 (205)	630 (370)	865 (510)	1420 (835)	2435 (1430)
Natural gas (NG)	Low-Speed (164 ft/s)	14,4 (8)	25 (15)	45 (25)	85 (50)	115 (65)	190 (110)	325 (190)
	Standard (304 ft/s)	25 (15)	50 (30)	85 (50)	155 (90)	215 (125)	355 (205)	605 (355)
	Max (607 ft/s)	50 (30)	105 (60)	170 (100)	310 (185)	430 (250)	705 (415)	1210 (710)
	High-Speed (735 ft/s)	65 (35)	125 (70)	210 (120)	380 (220)	520 (305)	855 (500)	1465 (865)

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
- Profinet interface
- HART



Ethernet Modbus TCP

M12 Ethernet port, x-coded

For further accessories refer to pages 116 to 120

HART



M-Bus



Flow [Thermal Mass]

VA 570 - Inline flow meter

Example order code VA 570:

0695 0570_A1_B1_C1_D1_E1_F1_G1_H1_I1_J1_K1_L1_M1_R1

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 analog output (electrically isolated), pulse output, RS 485 (Modbus-RTU)
C4	1 x 4...20 mA analog output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
C5	Ethernet interface (Modbus / TCP), 1 x 4...20 mA analog output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
C8	M-Bus, 1 x 4...20 mA analog output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
C9	Ethernet interface PoE (Power over Ethernet) (Modbus/TCP), 1 x 4...20 mA analog output (not electrically 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 (232 psi)
G2	40 bar (580 psi)

Surface condition

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 248 °F gas temperature (only for ATEX version)
J2	up to 356 °F gas temperature (standard)

Approvals

K1	Non-explosive area - no approval
K2	ATEX II 2G Ex d IIC T4 Gb
K3	ATEX II 2D Ex tb IIIC T90°C Db
K3	DVGW approval for natural gas (max. pressure 232 psi)

Measuring range (see table)

M1	Max version (607 ft/s)
M2	Low-speed version (164 ft/s)
M3	Standard version (304 ft/s)
M4	High-speed version (735 ft/s)

Special measuring range

R1	Special measuring range (please specify when placing order)
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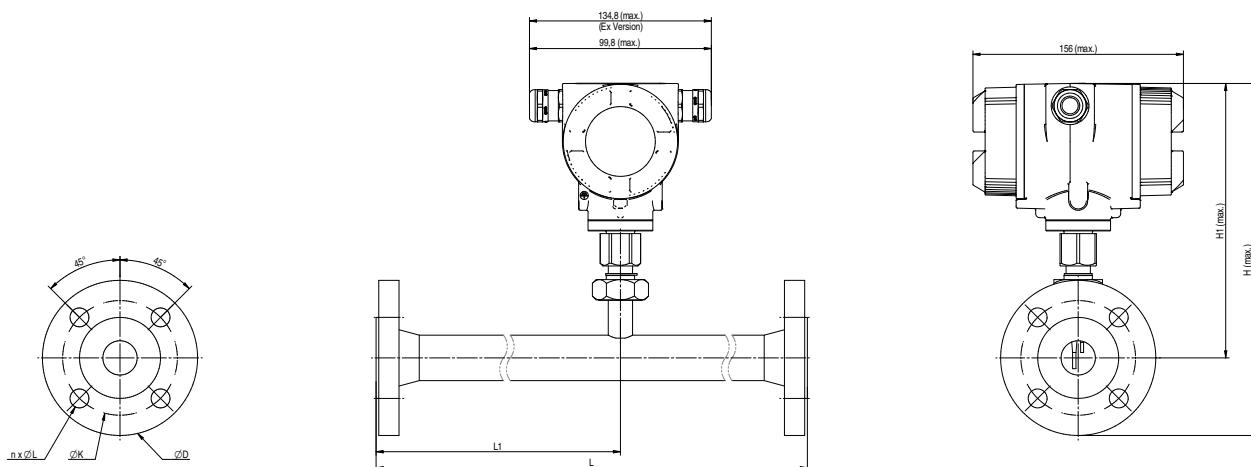


Order no. VA 570

DESCRIPTION	ORDER NO.	TECHNICAL DATA VA 570	
VA 570 flow meter with integrated 1/2" measuring section	0695 0570 + order code A_...R_	Measuring range VA 570:	up to 164 SCFM, low-speed version* up to 304 SCFM, standard version* up to 607 SCFM, max. version* up to 735 SCFM, high-speed version*
VA 570 flow meter with integrated 3/4" measuring section	0695 0571		* Measuring range Nm ³ /h for different pipe diameters and gases, see table measuring ranges flow
VA 570 flow meter with integrated 1" measuring section	0695 0572		* All measured values related to DIN 1343 standard conditions 32 °F and 14.7 psi ex works
VA 570 flow meter with integrated 1 1/4" measuring section	0695 0573		± 1.5% of m.v. ± 0.3 % of f.s. on request: ± 1.0% of m.v. ± 0.3 % of f.s.
VA 570 flow meter with integrated 1 1/2" measuring section	0695 0574		
VA 570 flow meter with integrated 2" measuring section	0695 0575	Accuracy: Accuracy class (o. M. V. = of measured value) (o. F. S. = of full scale)	
VA 570 flow meter with integrated 1/2" measuring section with flange	0695 2570	Accuracy indications:	relative to ambient temperature 71.6 °F ± 2 °F, system pressure 87 psi
VA 570 flow meter with integrated 3/4" measuring section with flange	0695 2571		0.25% of m.v. in case of correct mounting (mounting aid, position, inlet section)
VA 570 flow meter with integrated 1" measuring section with flange	0695 2572	Repeatability:	Thermal mass flow sensor
VA 570 flow meter with integrated 1 1/4" measuring section with flange	0695 2573		t90 < 3 s
VA 570 flow meter with integrated 1 1/2" measuring section with flange	0695 2574	Measuring principle:	-4...158 °F
VA 570 flow meter with integrated 2" measuring section with flange	0695 2575	Response time:	-4 °F 356 °F (ATEX version: -4 °F ... 248 F)
VA 570 flow meter with integrated 2 1/2" measuring section with flange	0695 2576	Operating / ambient temperature range:	Nm ³ /h, Nm ³ /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 analog output 4...20 mA, pulse/alarm, error codes etc.
VA 570 flow meter with integrated 3" measuring section with flange	0695 2577	Media temperature range: Adjustment possibilities via display, external handheld device PI 500, PC Service Software, remote diagnosis:	
Further accessories:		Outputs:	Standard: 1 x 4...20 mA analog 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
Closing cap for measuring section in aluminum	0190 0001		< 500 Ohm
Closing cap for measuring section stainless steel 1.4404	0190 0002		for all parameters freely adjustable from 1 minute up to 1 day, e. g. 1/2 hours average value, average day value
Connection cable for probes 16 ft with open ends	0553 0108	Burden:	IP 67
Connection cable for probes 32 ft with open ends	0553 0109	Additional average value calculation:	IP 64 for ATEX II 2D Ex tb IIIC T90°C Db
Ethernet connection cable length 16 ft, M12 plug x-coded (8 pin) to RJ 45 plug	0553 2503		Die-cast aluminum housing, sensor tube stainless steel 1.4404
Ethernet connection cable length 32 ft, M12 plug x-coded (8 pin) to RJ 45 plug	0553 2504	Protection class:	232 psi, in special version 580 psi
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	Material:	18...36 VDC, 5 W
ISO calibration certificate at 5 measuring points for VA sensors	3200 0001	Operating pressure:	ATEX II 2G Ex db IIC T4 Gb
Additional calibration point (point freely selectable) Volume flow	0700 7720	Power supply:	ATEX II 2D Ex tb IIIC T90°C Db
CS Service Software VA 550 incl. interface cable to PC (USB) and power supply - for configuration / parametrisation of VA 550	0554 2007	Approval:	DVGW
PNG cable screwing - standard VA 550/570	0553 0552		
PNG cable screwing - for ATEX version VA 550/570	0553 0551		



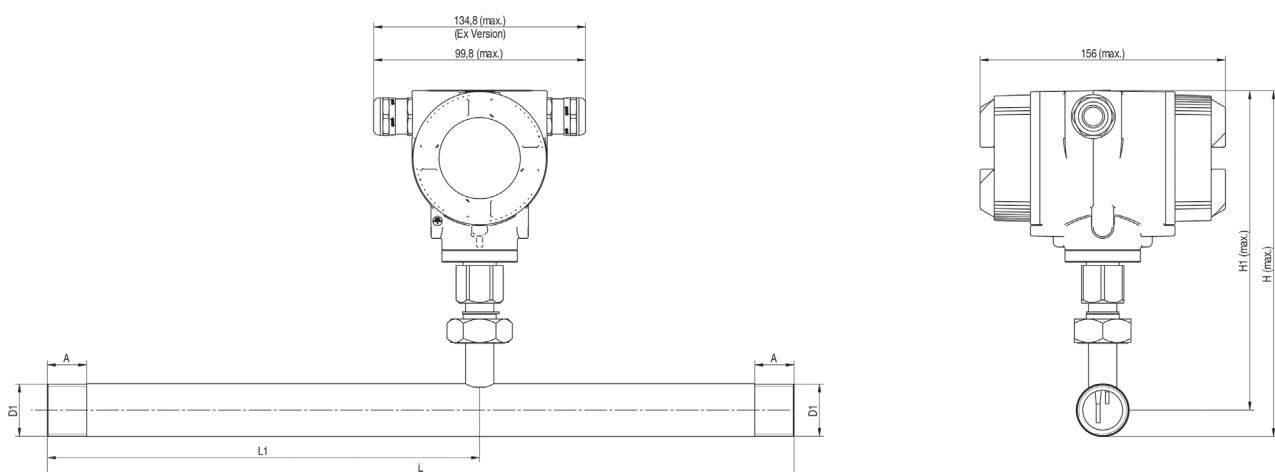
Flow [Thermal Mass]



VA 570 - with flange

Pipe size	AD pipe - mm	ID pipe - mm	L - Inch	L1 - Inch	H - Inch	H1 - Inch	Flange DIN EN 1092-1		
							Ø D mm	Ø K mm	n x Ø L mm
1/2"	21.3	16.1	11.80*	8.27	10.51	8.58	95	65	4 x 14
3/4"	26.9	21.7	18.70*	10.83	10.63	8.58	105	75	4 x 14
1"	33.7	27.3	18.70*	10.83	10.83	8.58	115	85	4 x 14
1 1/4"	42.4	36.0	18.70*	10.83	11.34	8.58	140	100	4 x 18
1 1/2"	48.3	41.9	18.70*	10.83	11.55	8.58	150	110	4 x 18
2"	60.3	53.1	18.70*	10.83	11.81	8.58	165	125	4 x 18
2 1/2"	76.1	68.9	18.70*	10.83	12.60	8.98	185	145	8 x 18
3"	88.9	80.9	18.70*	10.83	12.91	8.98	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 - Inch	L1 - Inch	H - Inch	H1 - Inch	A - Inch
R 1/2"	21.3	16.1	11.80*	8.27	8.98	8.58	0.79
R 3/4"	26.9	21.7	18.70*	10.83	9.09	8.58	0.79
R 1"	33.7	27.3	18.70*	10.83	9.25	8.58	0.98
R 1 1/4"	42.4	36.0	18.70*	10.83	9.41	8.58	0.98
R 1 1/2"	48.3	41.9	18.70*	10.83	9.53	8.58	0.98
R 2"	60.3	53.1	18.70*	10.83	9.76	8.58	1.18

*Attention: Shortened inlet section. Please observe the recommended minimum inlet section (length = 15 x inner diameter) on site!