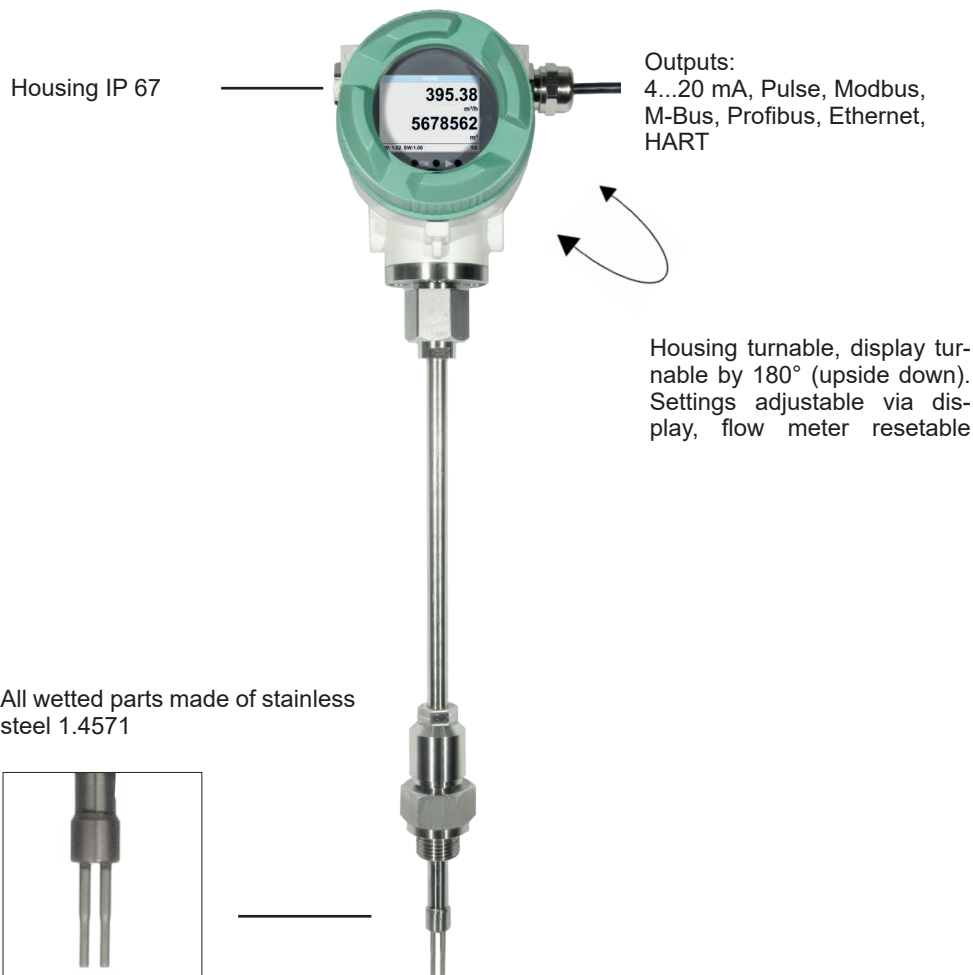


VA 550 - Flow meter insertion type



Flow meter for installation in existing compressed air or gas pipes from 3/4" up to DN 1000



Advantages optical buttons:

The sensor can also be configured in the ATEX area without need to open the housing

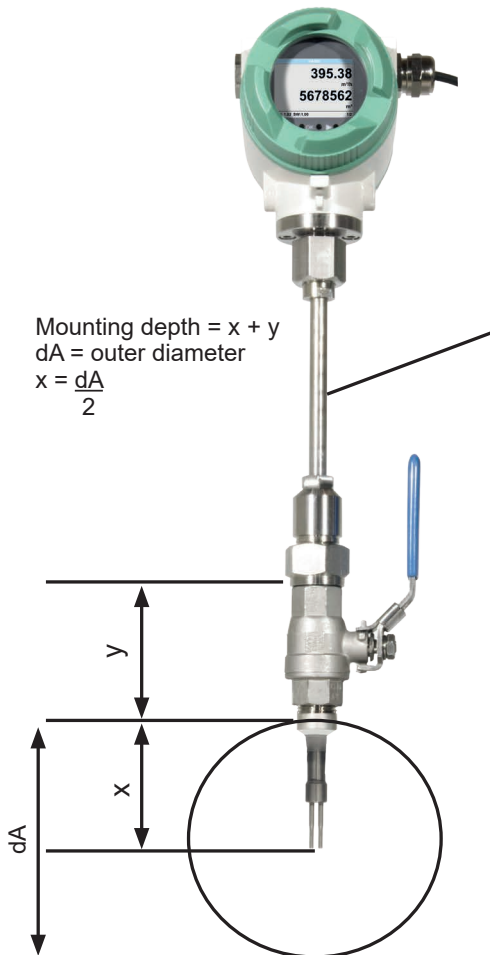
Special measurement technology features:

- 4 values in the display: Flow, total consumption, velocity, temperature. Units freely adjustable
- All measured values, settings like gas type, inner diameter, serial number and so on retrievable via Modbus RTU
- Comprehensive diagnosis functions readable at the display or remote access via Modbus like e. g. exceeding of max/min values °C, calibration cycle, error codes, serial number
- Notification in case of exceeding of 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 instrument 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

Special mechanical features:

- Robust impact-proof aluminum die cast housing for the outdoor area IP 67
- All medium-touching parts made from stainless steel 1,4571
- Suitable as a insertion version for 3/4" to DN 1000
- On request with ATEX approval ATEX II 2G Ex d IIC T4 (up to 120 °C)
- On request with DVGW approval for natural gas (up to 16 bar)
- Pressure range up to 50 bar, special version up to 100 bar
- Temperature range up to 180 °C
- No moving parts, no wear out
- Sensor tip very robust, easy to clean
- Easy installation and removal under pressure via 1/2" ball valve
- Housing turnable, display turnable by 180°
- Safety ring for installation and removal under pressure
- Depth scale for precise installation

Easy mounting/dismounting of VA 550 under pressure - without disconnection of the line - without emptying the line



Mounting depth = x + y
 dA = outer diameter
 $x = \frac{dA}{2}$

Engraved depth scale for precise installation

	180
	170
	160

If there is no suitable measuring site with 1/2" ball valve there are two simple possibilities to set up a measuring point:

A Weld on a 1/2" screw neck and screw on a 1/2" ball valve

B Mount spot drilling collar including ball valve

By means of the drilling jig it is possible to drill under pressure through the 1/2" ball valve into the existing pipeline. The drilling chips are collected in a filter. Then the sensor can be mounted.



A Screw neck

Order no.: 3300 0006



B Spot drilling collars

Order no.: see page 86



Drilling under pressure with CS drilling jig

Order no.: 0530 1108

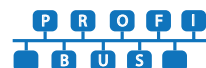


Ethernet Modbus-TCP
 M12 Ethernet Port, x-coded

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 processing)
- Profinet interface (in processing)
- HART (in processing)



Further accessories see pages 82 to 86

VA 550 - Flow meter insertion type

Example order code VA 550:

0695 0550_A1_B1_C1_D1_E1_F1_G1_H1_I1_J1_K1_L1_M1_R1

Measuring range (see table side 90 to 93)	
A1	Standard version (92,7 m/s)
A2	Max version (185 m/s)
A3	High Speed version (224 m/s)
A4	Low Speed version (50 m/s)

Screw-in thread	
B1	G 1/2" outer thread
B2	1/2" NPT outer thread
B3	PT 1/2" outer thread

Mounting length / shaft length	
C1	220 mm
C2	300 mm
C3	400 mm
C4	500 mm
C5	600 mm
C7	160 mm
C8	1000 mm

Option Display	
D1	with integrated display
D2	without display

Option signal outputs / bus connection	
E1	2 x 4...20 mA analog output galv. isolated, pulse output RS 485 (Modbus-RTU)
E2	Profibus DP, 2 x 4...20 mA analogue output galv. isolated, pulse output RS 485 (Modbus RTU)
E4	1 x 4...20mA analog output not galvanically isolated, pulse output, RS485 (Modbus RTU)
E5	Ethernet-Interface (Modbus/TCP), 1 x 4...20 mA analog output (not galvanically isolated), pulse output, RS 485 (Modbus-RTU)
E7	2 x 4...20 mA analog output passive, pulse output RS 485 (Modbus-RTU)
E8	M-Bus, 1 x 4...20 mA analog output passive, pulse output RS 485 (Modbus-RTU)
E9	Ethernet-Interface PoE (Power over Ethernet) (Modbus/TCP), 1 x 4...20 mA analog output (not galvanically isolated), pulse output, RS 485 (Modbus-RTU)

Calibration	
F1	no real gas calibration - gas adjustment via gas constant
F2	real gas calibration in the gas type as selected below

Gas typ	
G1	Compressed air
G2	Nitrogen (N2)
G3	Argon (Ar)
G4	Carbon dioxide (CO2)
G5	Oxygen (O2)
G6	Nitrous oxide (N2O)
G7	Natural gas (NG)
G8	Helium (He)
G9	Propane (C3H8)
G10	Methane (CH4)
G11	Biogas (Methan 50% : CO2 50%)
G12	Hydrogen (H2)
G90	Further gas / please indicate gas type (on request)
G91	Gas mixture / please indicate mixture ratio (on request)

Maximum pressure (above 10 bar, please use high-pressure protection!)	
H1	50 bar
H2	100 bar
H3	16 bar

Surface condition	
I1	Standard version
I2	Special cleaning - oil and grease free (e.g. for oxygen applications and so on)
I3	Silicone free version including special cleaning oil and grease free

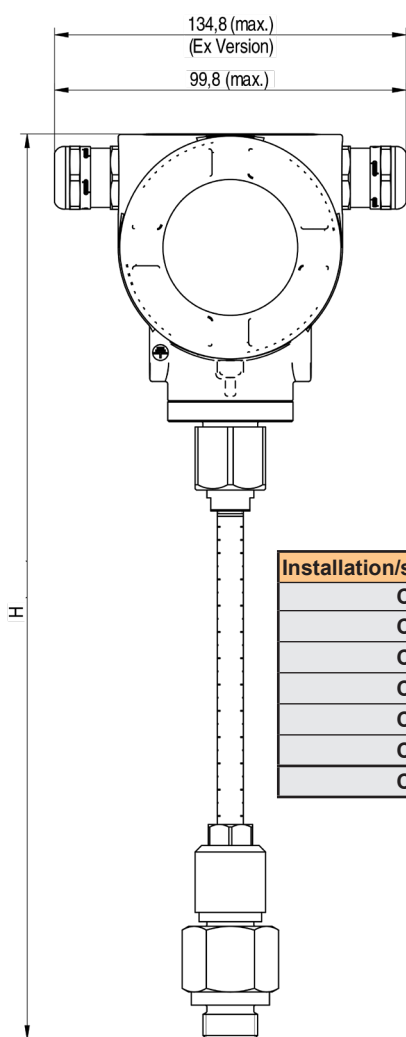
Accuracy class	
J1	± 1,5% of measured value (standard)
J2	± 1% of measured value (precision)

Maximum gas temperature at the sensor tip	
K1	up to 120 °C gas temperature (only for ATEX version)
K2	up to 180 °C gas temperature (standard version)

Approvals	
L1	Non-explosive area - no approval
L2	ATEX II 2G Ex d IIC T4
L3	DVGW approval for natural gas (maximum pressure 16 bar)

Reference conditions	
M1	20°C, 1000 hPa
M2	0°C, 1013,25 hPa
M3	15°C, 981 hPa
M4	15°C, 1013,25 hPa

Special measuring range	
R1	Special measuring range (Please indicate in case of order)



Installation/shaft length	L (mm)	H (mm)
C1	220	441
C2	300	521
C3	400	621
C4	500	721
C5	600	821
C7	160	381
C8	1000	1221

Further accessories:

DESCRIPTION	ORDER-NO.
Connection cable for sensors 5 m with open ends	0553 0108
Connection cable for sensors 10 m with open ends	0553 0109
Ethernet connection cable length 5 m, M12 plug x-coded (8 poles) to RJ 45 plug	0553 2503
Ethernet connection cable length 10 m, M12 plug x-coded (8 poles) 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 500/550	3200 0001
Additional calibration point for volume flow (point freely selectable)	0700 7720
CS Service Software VA 550 incl. interface cable to PC (USB) and power supply - for configuration / parametrization of VA 550	0554 2007
High pressure protection for installation from 10 to 100 bar (for VA 550)	0530 1115
High pressure protection for installation from 10 to 16 bar DVGW (for VA 550)	0530 1116
PNG cable screwing - standard VA 550/570	0553 0552
PNG cable screwing - for ATEX version VA 550/570	0553 0551

Order-no. VA 550

DESCRIPTION	ORDER-NO.
VA 550 flow meter, measuring head in robust die-cast aluminum housing	0695 0550 + order code A...R_

TECHNICAL DATA VA 550

Measuring range VA 550:	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 Nm ³ / h for different pipe diameters and gases, see table measuring ranges flow * All measurements related to DIN 1343 standard conditions 0 ° and 1013 mbar ex works
Accuracy:	± 1.5 % of m.v. ± 0.3 % of f.s.
accuracy class (m.v.: of meas. value) (f.s.: of full scale)	<u>on request</u> ± 1.0 % of m.v. ± 0.3 % of f.s.
Accuracy indications:	referred 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 temperature range probe tube/display unit:	-40...180 °C probe tube -40...70 °C display unit -40...120 °C for ATEX version
Adjustment possibilities via display, external hand-held meter PI 500, PC Service Software, remote diagnosis:	Nm ³ /h, Nm ³ /min, Nl/min, l/s, ft/min, cfm, kg/h, kg/min, inside diameter, reference conditions °C/°F, mbar/hPa, zero point correction, low flow cut off, scaling Analog output 4 ... 20 mA, pulse/alarm, error codes etc.
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
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
Material:	Housing aluminium die cast, probe tube stainless steel 1,4571
Operating pressure VA 550:	50 bar; in special version 100 bar (with DVGW approval a maximum of 16 bar)
Power supply:	18...36 VDC, 5 W
Approval:	ATEX II 2G Ex d IIC T4, DVGW