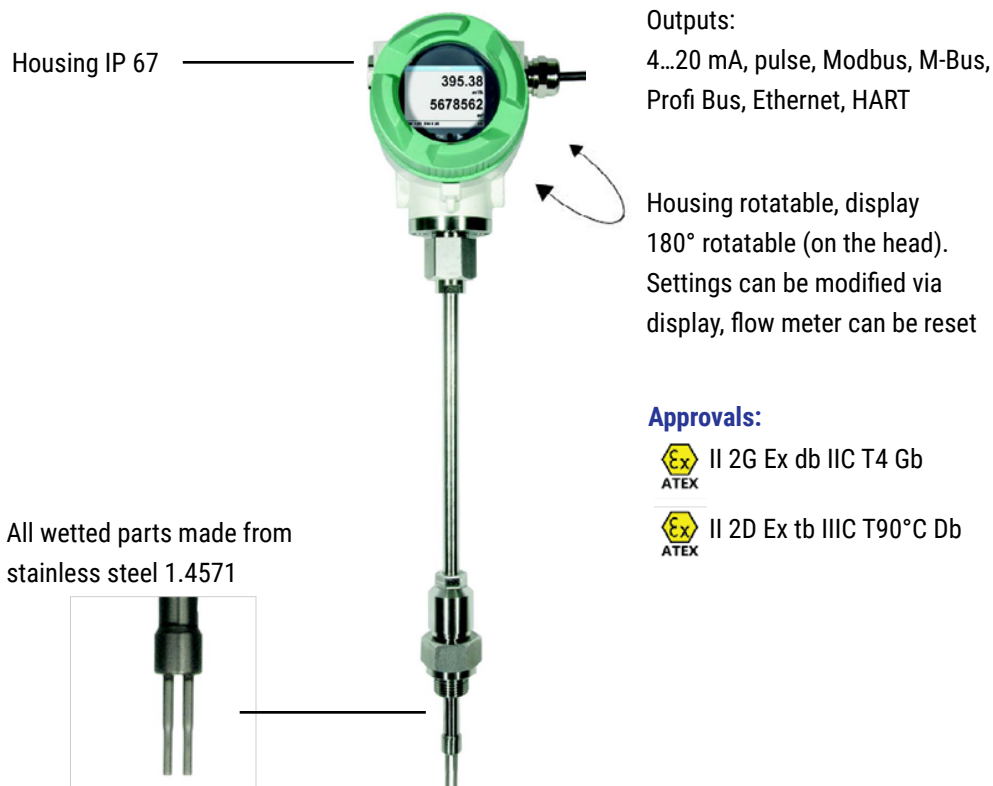


## VA 550 - Flow meter insertion type

Flow sensor for installation in existing compressed air or gas line of 3/4" to 40"



### Advantages of optical keys:

The sensor can also be configured in the ATEX area, without the housing needing to be opened.



The sensor  
can be  
removed and  
cleaned

### 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.  $\pm$  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 °F and mbar/hPa freely adjustable
- In-Situ 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 wetted parts made from stainless steel 1.4571
- Suitable as an insertion version for 3/4" to 40"
- On request with DVGW approval for natural gas (up to 232 psi)
- Pressure range up to 725 psi, special version up to 1450 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
- Easy installation and removal under pressure via 1/2" ball valve
- Housing rotatable, display rotatable 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

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

**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 pipe. The drilling chips are collected in a filter. Then the probe can be mounted.



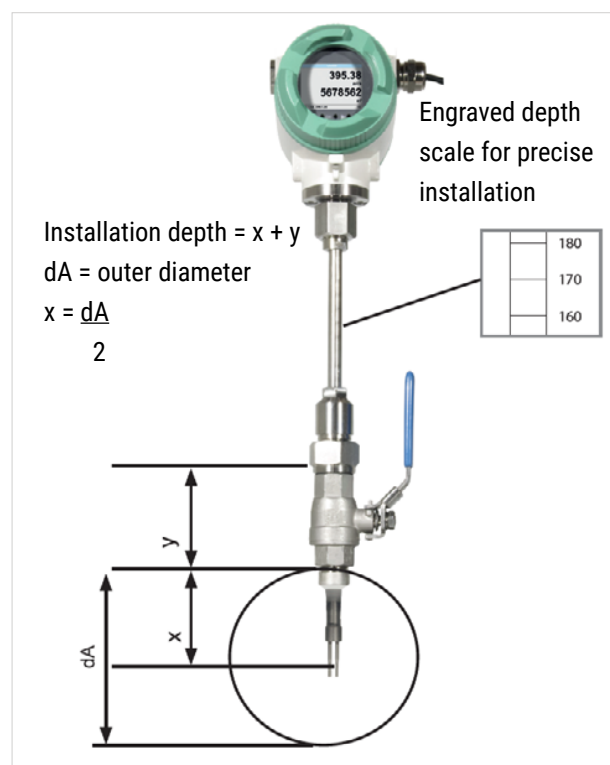
**A** Screw neck  
Order no.: 3300 0006



**B** Spot drilling collars  
Order no.: see page 120



Drill under pressure  
with the CS drilling jig  
Order no.: 0530 1108





## 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 (in process)



Ethernet Modbus TCP

M12 Ethernet port, x-coded

**HART**



**M-Bus**

For further accessories refer to pages 116 to 120

## VA 550 - Flow meter insertion meter

**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 page 124 to 127)	
<b>A1</b>	Standard version (304 ft/s)
<b>A2</b>	Max version (607 ft/s)
<b>A3</b>	High-speed version (735 ft/s)
<b>A4</b>	Low-speed version (164 ft/s)

Screw-in thread	
<b>B1</b>	G 1/2" male thread
<b>B2</b>	1/2" NPT male thread

Installation length / shaft length	
<b>C1</b>	220 mm
<b>C2</b>	300 mm
<b>C3</b>	400 mm
<b>C4</b>	500 mm
<b>C5</b>	600 mm
<b>C6</b>	700 mm (not with ATEX)
<b>C7</b>	160 mm

Installation length / shaft length	
<b>C8</b>	1000 mm (not with ATEX)
<b>C9</b>	1500 mm (not with ATEX)

Display option	
<b>D1</b>	with integrated display
<b>D2</b>	without display

Signal outputs / bus connection option	
<b>E1</b>	2 units 4...20 mA analog output (electrically isolated), pulse output, RS 485 (Modbus-RTU)
<b>E4</b>	1 x 4...20 mA analog output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
<b>E5</b>	Ethernet interface (Modbus / TCP), 1 x 4...20 mA analog output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
<b>E8</b>	M-Bus, 1 x 4...20 mA analog output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
<b>E9</b>	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	
<b>F1</b>	No real gas adjustment - gas type configuration per gas constant
<b>F2</b>	Real gas adjustment in the gas type selected below

Gas type	
<b>G1</b>	Compressed air
<b>G2</b>	Nitrogen (N2)
<b>G3</b>	Argon (Ar)
<b>G4</b>	Carbon dioxide (CO2)
<b>G5</b>	Oxygen (O2) (max. 248 °F)
<b>G6</b>	Nitrous oxide (N2O)
<b>G7</b>	Natural gas (NG)
<b>G8</b>	Helium (He) (real gas adjustment F2 required)
<b>G9</b>	Propane (C3H8) (real gas adjustment F2 required)
<b>G10</b>	Methane (CH4)
<b>G11</b>	Biogas (methane 50% : CO2 50%)
<b>G12</b>	Hydrogen (H2) (real gas adjustment F2 required)
<b>G90</b>	Further gas / please indicate gas type (on request)
<b>G91</b>	Gas mixture / please indicate mixture ratio (on request)

Maximum pressure (more than 10 bar high-pressure protection required!)	
<b>H1</b>	725 psi
<b>H2</b>	1450 psi
<b>H3</b>	232 psi

Surface condition	
<b>I1</b>	standard version
<b>I2</b>	special cleaning - oil and grease free (e.g. for oxygen applications and so on)
<b>I3</b>	Silicone-free version including special cleaning oil- and grease-free

Accuracy class	
<b>J1</b>	± 1.5% of the measured value ± 0.3% f.s. (standard)
<b>J2</b>	± 1% of the measured value ± 0.3% f.s. (precision)

Maximum gas temperature on the sensor tip	
<b>K1</b>	up to 248 °F gas temperature (only for ATEX version)
<b>K2</b>	up to -356 °F gas temperature (standard)

Approvals	
<b>L1</b>	Non-explosive area - no approval
<b>L2</b>	ATEX II 2G Ex db IIC T4 Gb ATEX II 2D Ex tb IIIC T90 °C Db
<b>L3</b>	DVGW approval for natural gas (max. pressure 232 psi)

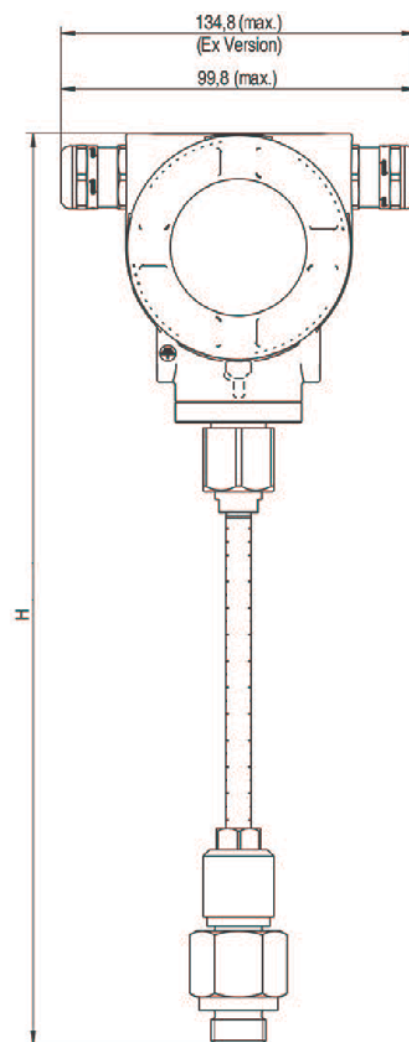
Reference standard	
<b>M1</b>	68 °F, 14.5 psi
<b>M2</b>	32 °F, 14.7 psi
<b>M3</b>	59 °F, 14.2 psi
<b>M4</b>	59 °F, 14.7 psi

Special measuring range	
<b>R1</b>	Special measuring range (please specify when placing order)

Installation/shaft length	L	H
<b>C1</b>	220	441
<b>C2</b>	300	521
<b>C3</b>	400	621
<b>C4</b>	500	721
<b>C5</b>	600	821
<b>C7</b>	160	381
<b>C8</b>	1000	1221
<b>C9</b>	1500	1721

## Further accessories:

DESCRIPTION	ORDER NO.
Connection cable for probes 16 ft with open ends	0553 0108
Connection cable for probes 32.81 ft with open ends	0553 0109
Ethernet connection cable length 16 ft, M12 plug x-coded (8 pin) to RJ 45 plug	0553 2503
Ethernet connection cable length 32.81 ft, 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 16 ft 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 recommended for installation from 145 to 1450 psi (for VA 550)	0530 2205
High-pressure protection recommended for installation from 145 to 232 psi DVGW (for VA 550)	0530 2205
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 aluminum die casting housing	0695 0550 + Order code A...R_



## TECHNICAL DATA VA 550

<b>Measuring range VA 550:</b>	up to 164 ft/s, low-speed version* up to 304 ft/s, standard version* up to 607 ft/s, max. version* up to 735 ft/s, high-speed version* * Measuring range SCFM 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
<b>Accuracy:</b> 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.
<b>Accuracy indications:</b>	relative to ambient temperature 71.6 °F +2 °F, system pressure 87 psi
<b>Repeatability:</b>	0.25% of m.v. in case of correct mounting (mounting aid, position, inlet section)
<b>Measuring principle:</b>	Thermal mass flow sensor
<b>Response time:</b>	t 90 <3 s
<b>Operating / ambient temperature range:</b>	-4...158 °F
<b>Media temperature range:</b>	-4 °F .... 356 °F (ATEX version: -4 °F ... 248 °C)
<b>Adjustment possibilities via display, external hand- held device PI 500, PC Service Software, remote diagnosis:</b>	Nm <sup>3</sup> /h, Nm <sup>3</sup> /min, NI/min, l/s, ft/min, cfm, kg/h, kg/min, inner diameter, reference conditions °F / °C, psi/hPa, zero point correction, leak flow volume suppression, scaling analog output 4...20 mA, pulse/alarm, error codes etc.
<b>Outputs:</b>	<b>Standard:</b> 1 x 4...20 mA analog output (electrically not isolated), pulse output, RS 485 (Modbus-RTU) <b>Optional:</b> 2 x 4...20 mA active, Modbus TCP, HART, Profibus DP, Profinet, M-Bus
<b>Burden:</b>	< 500 ohm
<b>Additional average value calculation:</b>	for all parameters freely adjustable from 1 minute up to 1 day, e. g. 1/2 hours average value, average day value
<b>Protection class:</b>	IP 67 IP 64 for ATEX II 2D Ex tb IIIC T90°C Db
<b>Material:</b>	Die-cast aluminum housing, sensor tube stainless steel 1.4571
<b>Screw-in thread:</b>	G 1/2" ISO 228, NPT 1/2", R 1/2", PT 1/2"
<b>Operating pressure VA 550:</b>	50 bar, in special version 1450 psi (with DVGW approval max. 232 psi)
<b>Power supply:</b>	18...36 VDC, 5 W
<b>Approval:</b>	ATEX II 2G Ex db IIC T4 Gb ATEX II 2D Ex tb IIIC T90°C Db DVGW