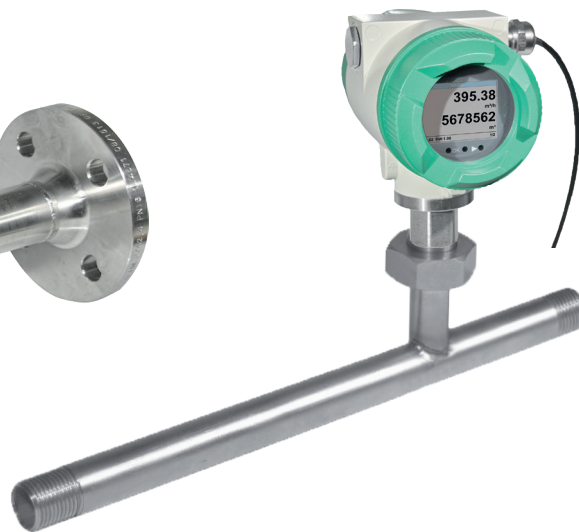




VA 570 - Inline flow meter



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:

 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, 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 (0.1 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 version up to 120 °C)
- No moveable parts, no wear
- Sensor tip very robust, easy to clean
- Housing rotatable, display rotatable by 180°



Measuring range - Flow VA 570

| | | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" |
|---|----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | m ³ /h (cfm) | m ³ /h (cfm) | m ³ /h (cfm) | m ³ /h (cfm) | m ³ /h (cfm) | m ³ /h (cfm) | m ³ /h (cfm) | m ³ /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 (in process)



Ethernet Modbus TCP

M12 Ethernet port, x-coded

HART

P R O F I B U S

P R O F I N E T

M-Bus

For further accessories refer to pages 116 to 120



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 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) |
| 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) |

| 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 |

| 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 120 °C gas temperature (only for ATEX version) |
| J2 | up to 180 °C gas temperature (standard) |

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

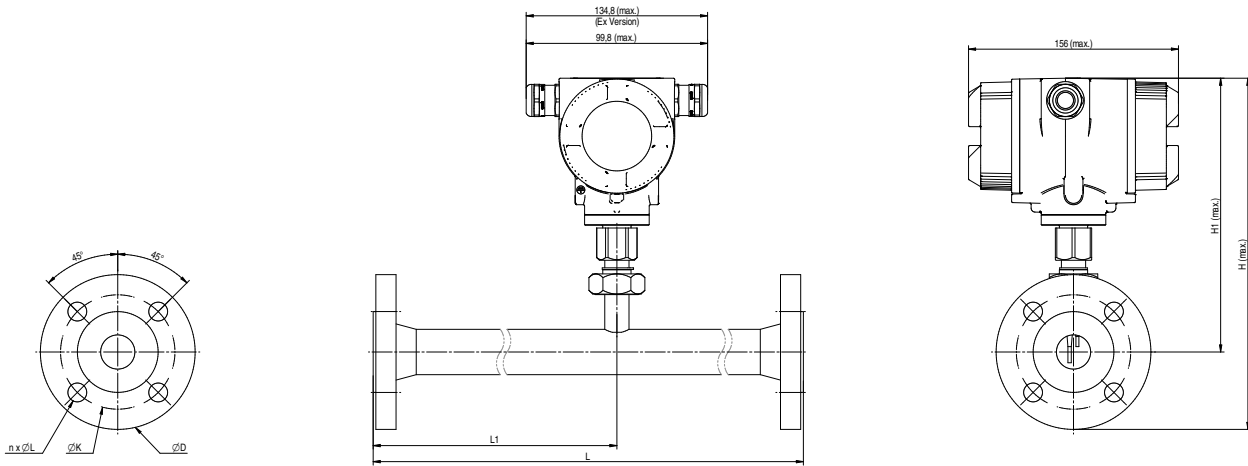
| Measuring range (see table) | |
|-----------------------------|------------------------------|
| M1 | Max version (185 m/s) |
| M2 | Low-speed version (50 m/s) |
| M3 | Standard version (92,7 m/s) |
| M4 | High-speed version (224 m/s) |

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



Order no. VA 570

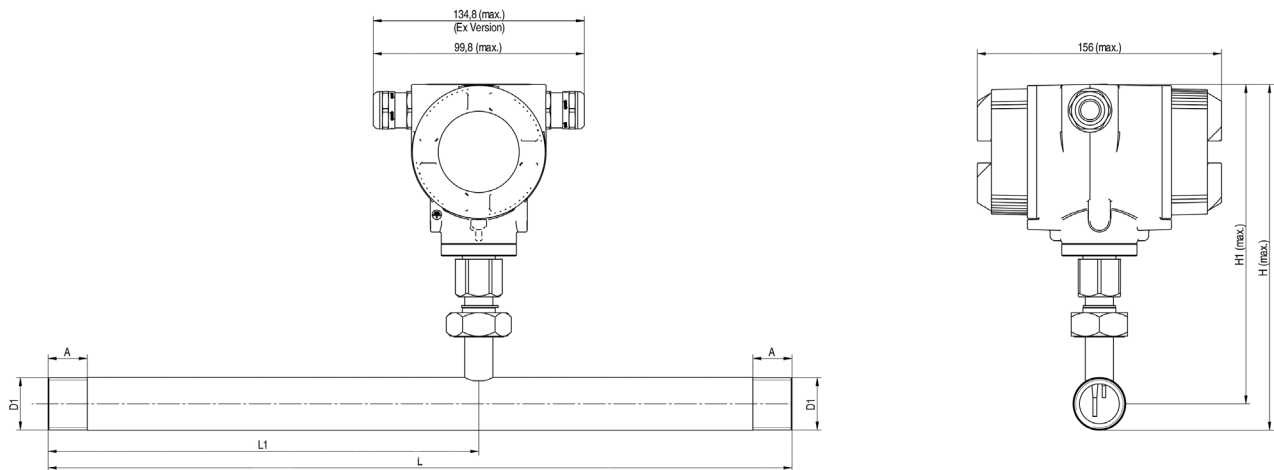
| DESCRIPTION | ORDER NO. | TECHNICAL DATA VA 570 |
|---|-------------------------------------|---|
| VA 570 flow meter with integrated 1/2" measuring section | 0695 0570 + order code A...R_ | Measuring range VA 570: up to 50 Nm/s, low-speed version* up to 92.7 Nm/s, standard version* up to 185 Nm/s, 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 measured values 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 (o. M. V. = of measured value) (o. F. S. = of full scale) Accuracy indications: on request: ± 1.0% of m.v. ± 0.3 % of f.s. Repeatability: relative to ambient temperature 22 °C ± 2 °C, system pressure 6 bar 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 version: -20°C ... 120 °C) Adjustment possibilities via display, external hand-held device PI 500, PC Service Software, remote diagnosis: Nm ³ /h, Nm ³ /min, NI/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 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 64 for ATEX II 2D Ex tb IIIC T90°C Db 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 ATEX II 2D Ex tb IIIC T90°C Db DVGW |
| 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 version VA 550/570 | 0553 0551 | |



VA 570 - with flange

| Pipe size | AD pipe - mm | ID pipe - mm | L - mm | L1 - mm | H - mm | H1 - mm | Flange DIN EN 1092-1 | | |
|-----------|--------------|--------------|--------|---------|--------|---------|----------------------|-----|---------|
| | | | | | | | 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!