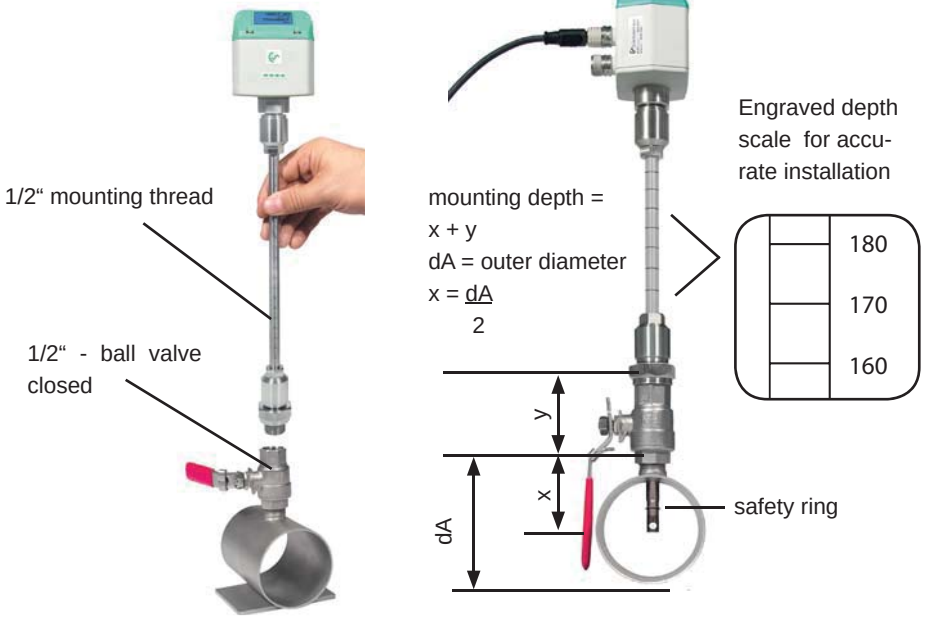
What are the advantages of **the flow measuring technology** of CS Instruments **?**

1) Even under pressure, the flow sensor VA 500 is mounted by means of a standard 1/2“ ball valve. During mounting and dismounting the safety ring avoids an uncontrolled ejection of the probe which may be caused by the operating pressure.

For the mounting into different pipe diameters VA 500 is available in the following probe lengths: 120, 160, 220, 300, 400 mm.

So the flow sensors are being mounted into existing pipelines with inner diameters of 1/2“ upwards.

The exact positioning of the sensor in the middle of the pipe is granted by means of the engraved depth scale. The maximum mounting depth corresponds with the respective probe length. Example: VA 500 with probe length 220 mm has a maximum mounting depth of 220 mm.



2) If there is no suitable measuring site with a 1/2“ ball valve present 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 incl. ball valve (see accessories)

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 probe can be mounted as described under point A.

A Screw neck

B Spot drilling collar

Drilling under pressure

3) Due to the large measuring range of the probe even extreme requirements to the consumption measurement (high volume flow in small pipe diameters) can be met. The measuring range is depending on the pipe diameter - see table on the right hand side.

Flow measuring ranges VA 500 for compressed air (ISO 1217:1000 mbar, 20 °C)

Inner diameter of pipe			**VA 500 Standard** (92.7 m/s)	**VA 500 Max.** (185.0 m/s)	**VA 500 High-Speed** (224.0 m/s)
Inch	mm		Measuring range from to	Measuring range from to	Measuring range from to
1/2“	16.1	DN 15	2.5...760 l/min	3.5...1516 l/min	6.0...1836 l/min
3/4“	21.7	DN 20	0.3...89 m³/h	0.4...178 m³/h	0.7...215 m³/h
1“	27.3	DN 25	0.5...148 m³/h	0.6...295 m³/h	1.1...357 m³/h
1 1/4“	36.0	DN 32	0.9...280 m³/h	1.2...531 m³/h	2.5...644 m³/h
1 1/2“	41.9	DN 40	1.2...366 m³/h	1.5...732 m³/h	3.0...886 m³/h
2“	53.1	DN 50	2...600 m³/h	2.5...1198 m³/h	4.6...1450 m³/h
2 1/2“	71.1	DN 65	3.5...1096 m³/h	5...2187 m³/h	7...2648 m³/h
3“	84.9	DN 80	5...1570 m³/h	7...3133 m³/h	12...3794 m³/h
4“	110.0	DN 100	9...2645 m³/h	12...5279 m³/h	16...6391 m³/h
5“	133.7	DN 125	13...3912 m³/h	18...7808 m³/h	24...9453 m³/h
6“	159.3	DN 150	18...5560 m³/h	25...11097 m³/h	43...13436 m³/h
8“	200.0	DN 200	26...8786 m³/h	33...17533 m³/h	50...21230 m³/h
10“	250.0	DN 250	40...13744 m³/h	52...27429 m³/h	80...33211 m³/h
12“	300.0	DN 300	60...19815 m³/h	80...39544 m³/h	100...47881 m³/h

VA 500 - Flow sensor for compressed air and gases

The new VA 500 for flow measurement of compressed air and gases, optionally with display for flow in m³/h and total flow in m³. Contrary to the previously used bridge circuit the newly developed evaluation electronics records all measured values digitally. This leads to a better accuracy also in case of large measuring spans of 1:1000.

Inner diameter adjustable via keypad

Special features:

- RS 485 interface, Modbus-RTU as a standard
- Integrated display for m³/h and m³
- Usable from 1/2“ to 12“ (DN 300)
- Easy installation under pressure
- 4...20 mA analogue output for m³/h resp. m³/min
- Pulse output for m³
- Inner diameter adjustable via keypad
- Consumption counter resettable
- Adjustable via keys at the display: Gas type, reference conditions, °C and mbar, 4...20 mA scaling, pulse weight

Describtion	Order No.
VA 500 flow sensor in basic version: Standard (92.7 m/s), probe length 220 mm, without display	0695 5001
Options for VA 500:	
Display	Z695 5000
Max. version (185 m/s)	Z695 5003
HighSpeed version (224 m/s)	Z695 5002
1 % Accuracy of m.v. ± 0,3 % of f.s.	Z695 5005
Probe length120 mm	ZSL 0120
Probe length 160 mm	ZSL 0160
Probe length 300 mm	ZSL 0300
Probe length 400 mm	ZSL 0400
Connection cables:	
Connection cable, 5 m (power supply, analogue output, pulse output)	0553 0104
Connection cable, 10 m (power supply, analogue output, pulse output)	0553 0105
Further accessories:	
CS Service Software for FA/VA 500 sensors incl. PC connection set, USB interface and interface adapter to the sensor	0554 2007
Mains unit in wall housing 100-240 V, 10 VA, 50-60 Hz/24 VDC, 0.35 A	0554 0108
AC adapter plug 100-240 V AC/ 24 V for VA/FA 500/520	0554 0109
External wall display chart recorder DS 400	0500 4000
5 point precision calibration with ISO certificate	3200 0001

Technical data VA 500

Parameters:	m³/h, l/min (1000 mbar, 20°C) in case of compressed air resp. Nm³/h, Nl/min (1013 mbar, 0°C) in case of gases
Units adjustable via keys at display:	m³/h, m³/min, l/min, l/s, ft/min, cfm, m/s, kg/h, kg/min
Adjustable via keypad:	diameter for volume flow calculation, counter resettable
Meas. principle:	calorimetric measurement
Sensor:	Thermal mass flow sensor
Meas. medium:	air, gases
Gas types adjustable via keys at display:	air, nitrogen, argon, nitrous oxide, CO2, oxygen
Meas. range:	see table measuring ranges page 80
Accuracy: accuracy class L1* (m.v.: of meas. value) (f.s.: of full scale)	± 1.5 % of m.v. ± 0.3 % of f.s.
Operating temp.:	-30...110 °C probe tube -30...80 °C housing
Operating pressure:	up to 50 bar
Digital output:	RS 458 interface, Modbus RTU
Analogue output:	4...20 mA for m³/h resp. l/min; on request: scaling for cfm,m³/min, l/min, l/s, ft/min, m/s
Pulse output:	1 pulse per m³ resp. per liter galvanically separated
Power supply:	24 VDC
Burden:	< 500 Ω
Housing:	polycarbonate
Probe tube:	stainless steel, 1.4301 mounting length 220 mm, Ø 10 mm
Mounting thread:	G 1/2“
Ø housing:	65 mm