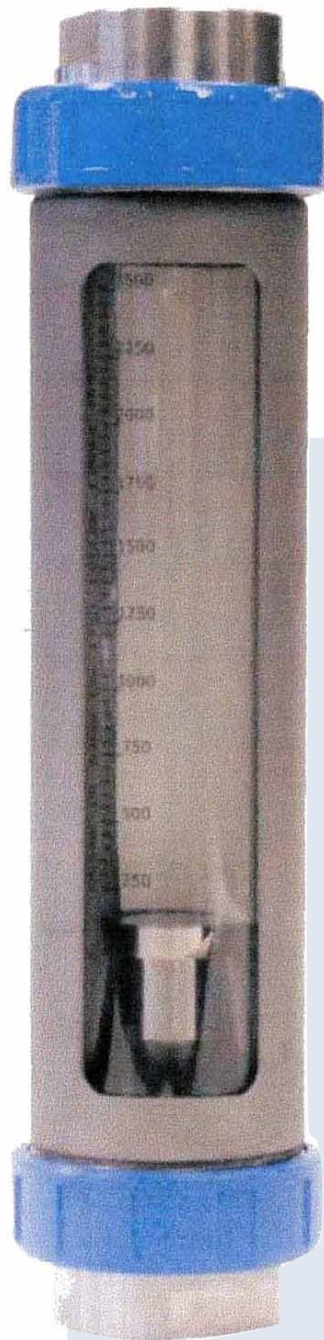


# V400

**Variable-area flowmeter  
with built-in glass measuring cone**



## Variable-area flowmeter V400

### Measuring device with built-in glass measuring cone and choice of connections for universal application.

The V400 devices are flowmeters with tapered glass tubes designed for the measurement of liquids and gases. The devices are of uniform construction but available with various connections all conforming to standards.

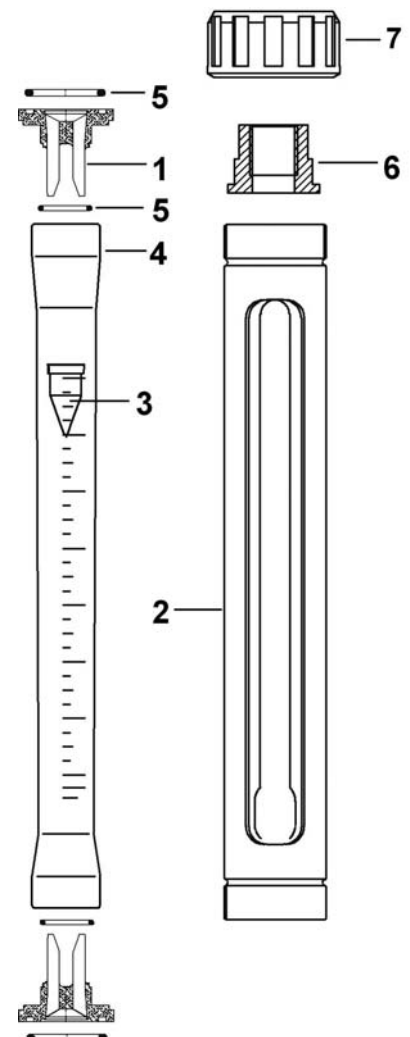
The flowmeters are designed for installation in a vertical pipe run with flow from bottom to top. A customized scale is provided on the measuring glass. The glass cone allows direct indication of the flow value.

### Technical features

- Large inspection window for visual monitoring of the liquid product
- Rugged stainless steel housing with built-in viewing window of shatterproof glass
- Customized scale with flow units on the glass measuring cone
- Scale calculated on the basis of the calculating method to VDE/VDI 3513
- Direct reading of flow values
- Flowmeters can be equipped with a maximum of two adjustable limit switches
- An intrinsically safe power supply is required for use in hazardous areas

### Device components

- 1 Float stop
- 2 Housing with viewing window
- 3 Float
- 4 Measuring cone
- 5 Gasket
- 6 Screw connection with female thread
- 7 Union nut



### Installation

Please note the following mounting advices:

- Flow direction bottom-up
- Avoid pressure surge
- Only use gentle opening valves
- Place valve always at the outlet

## Technical data

<b>Device type</b>	V400
<b>Measuring Range</b> (100% flow values) Water 20 °C Air 1.013 bar abs., 20 °C Select measuring cones according to the flow table	see flow table
<b>Turn-down ratio</b>	10 : 1
<b>Scale</b>	flow units or millimetres division
<b>Accuracy class</b> to VDI/VDE Code 3513, Sh. 2	1.0
<b>Connections</b> Screwed connection with female thread	G 1/2" + G 1"
<b>Glass measuring cone</b>	length 300 mm
<b>Materials</b>	
Device connections	
Fittings	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L) sandblasted
Union nut	aluminium / powder coated optionally: stainless steel
Measuring cone	borosilicate glass
Float	stainless steel 1.4571 (316 Ti)
Float stop and inset	PVDF (conforming to FDA standards)
Gaskets	NBR (buna N) or FPM (Viton)
Special version	on request
<b>Max. process pressure</b> Ts = 120 °C	DN 15, DN 25 / 10 bar
<b>Max. process temperature</b>	- 40 to + 100 °C
<b>Ambient temperature</b>	- 25 °C to + 100 °C (Standard; others on request)

## Flow table

**Reference conditions:** Air at 20°C, 1.013 bar abs. / Water at 20°C  
100% flow values, turndown ratio 10:1

Product		Water [l/h]	Air [Nm <sup>3</sup> /h]	Max. pressure loss [mbar]
	Cone No.			
<b>DN15</b>	N 18.07	4 - 40	0,15 - 1,5	9
	N 18.09	6,3 - 63	0,22 - 2,2	9
	N 18.13	10 - 100	0,3 - 3,0	9
	N 19.09	16 - 160	0,5 - 5	13
	N 19.13	25 - 250	0,8 - 8	16
	N 19.19	40 - 400	–	21
	N 19.26	63 - 630	–	27
<b>DN25</b>	N 21.09	63 - 630	1,8 - 18	22
	N 21.13	100 - 1000	2,5 - 28*	23
	N 21.18	160 - 1600	–	26
	N 21.25	250 - 2500	–	33

\* only possible with guided float

For liquids, the operating pressure should be at least twice, for gases 5 times the pressure loss.

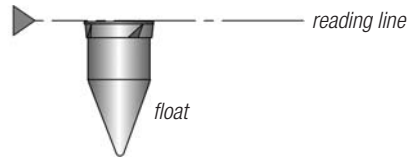
The specified pressure losses apply to water and air at max. flow.

Conversion to other products or operating data (pressure, temperature, density, viscosity) is carried out using the calculation method defined in VDE/VDI Code 3513.



### Glass measuring cones

The glass measuring tubes are made of heat-resistant stress-free borosilicate glass. A floats feature three notches on the rim of the upper guide which cause the float to rotate and maintain a stable position in the flow..



### Limit switches Vö40/MS14

The Vö40/MS14 is fastened with a mount to the housing and is adjustable over the whole measuring range. The Vö40/MS14 is a floating, bistable reed contact and can be operated either as NO or NC contact (factorysupplied as NO).

It is suitable for meter sizes DN15 (cone N 18.07 and higher) to DN 50, provided a float with built-in magnet is used.

#### Technical data Vö40/MS14

Contact type	bistable reed contact, suitable as NO or NC contact
Repeatability	< 2% of Full Scale
Contact rating	12 V A
Max. voltage switched	30 Vdc
Max. current switched	0,5 A
Ambient temperature	- 25 °C to + 60 °C
Protection class	to EN 60529 / IEC 529 IP 44

### Needle Valve

Alu-coated or SS at the outlet.

Nominal Diameter	Cv-Value
G 1/2"	0.65
G 1"	1.7



### Dimensions and weights

Meter size DN mm	Connection Female thread to ISO228	Dimensions Window size a x b (mm)	Weight approx. kgs
15	G 1/2"	27 x 239	0.5
25	G 1"	37 x 239	1.3

