

Fig. 1 F VA Trogflux variable area meter

### Application

The F VA Trogflux variable area meters are used to measure the volume of transparent liquids and gases passing through closed piping. The variable area meters can also be used for flow monitoring if they are equipped with one or more switching contacts. Standard scales are available for liquids with a density of 1 kg/l (62.43 lb/cu.ft). The scales must be recalculated for all other media depending on the physical characteristics.

### Design and operation

The main components of the F VA Trogflux variable area meters are the plastic variable-area flow tube with float and the connection parts. The flow is displayed directly on the scale present on the flow tube (e.g. in l/h) and is read at the position of the float's widest diameter.

### Special features

- Product scales for liquids and gases
- Simple assembly and handling
- Low-price plastic design
- Short delivery times for standard versions.

### Connection and mode of operation

For certain variable area meter sizes, the float is packed in a plastic net for transport purposes. Prior to fitting, this must be removed out of the variable area meter from the top. Free movement of the float in the flow tube should then be rechecked.

The variable area meter must be fitted vertically and without tension. Control elements or reductions/extensions in the pipe diameter upstream or downstream of the variable area meter have no influence on the accuracy when measuring liquids. However, when measuring gases, the variable area meter should be installed upstream of valves to prevent pulsations resulting from compression. Since variable area meter respond extremely sensitively to changes in flow, control elements should always be adjusted slowly.

The calibration has been carried out for defined media conditions. Deviations in the density, pressure or temperature of gases, or in the density or viscosity of liquids, result in measurement errors. It is essential to observe the calibration conditions.

When ordering, it is therefore essential to provide data on the medium, density and viscosity at the operating temperature and pressure. With gases, it is additionally necessary to specify the exact reference point for the pressure (pressure above atmospheric, or absolute pressure).

Retrofitting of switching contacts is only possible if variable area meters with magnets are used. When using for the first time, move the float completely past the contact to permit polarization.

### Technical specifications

<b>Application</b>	See left
<b>Mode of operation</b>	See left
<b>Measuring principle</b>	Float
<b>Input</b>	
Flow	Vertically upwards
Pressure limit	Max. 10 bar (145 psi) see page 3
<b>Rated operating conditions</b>	
<b>Ambient conditions</b>	
Temperature limits	
• For Trogamid flow tube	Max. 60°C (140°F) (with water 50°C (122 °F))
• For polysulfone flow tube	Max. 90°C (194F)
• Pressure- & temperature limits	see table on page 3
<b>Medium conditions</b>	
• Accuracy	Class 2,5 (according to VDE/VDI 3513, sheet 2)
• Measuring range	
- For liquids	12,5 l/h to 25 m <sup>3</sup> /h / 0,055 to 110 USgpm
- For gases	200 l/h to 430 m <sup>3</sup> /h / 0,118 to 253 scfm
• Dim. for measured variable	A special scale must be provided for liquids with a density other than 1 kg/l (62,43 lb/cu.ft) and all gases l/h (up to flow tube D2500) m <sup>3</sup> /h (flow tube E4000 and above)
<b>Design</b>	
Connections	PVC-adhesive bushing, female thread, cast iron
Material	Trogamid, polysulfone
• Flow tube	
• Connection	
- Union nut	PVC, cast iron
- Insert	PVC, cast iron, steel, stainless steel
• Float	Stainl. steel mat.No. 1.4305 / 303, mat.No. 1.4571 / 316 Ti, PVC, aluminium
• Float guide rod	Stainl. steel mat.No. 1.4571 / 316 Ti (option with flow tubes C 125 to D 2.500)
• Gasket	Buna N (with Trogamid flow tube), Viton (with polysulfone flow tube), EPDM (for potable water plants)
• Limit	Polysulfone
<b>Certificates and approvals</b>	
Classification according to PED 97/23/EC	For gases of fluid group 2 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice SEP)

### Technical specification of contacts

Designation	K18 A, K18 B
Housing/plug	PP/PA 6
Contact material	Rhodium
Degree of protection	IP65
Ambient temperature	-20 to +80 °C (-4 to 176 °F)
Max. switching frequency	5/min
Max. rating (rating data apply to resistive loads; a suppressor circuit is required for inductive loads)	AC 250 V/0,5 A/10 VA DC 250 V/0,5 A/5 W

## Variable area meter F VA Troglux

### Measuring ranges for liquids

Standard measuring range for liquid:  $\rho = 1 \text{ kg/l}$  (62,43 lb/cu.ft), viscosity 1 mPa·s (1 cp)

Connection	Flow tube	Dynamics	max. measuring range for the selected floats										
			Stainless steel mat.No.		Stainless steel with magnet, mat.No.		PVC weighted		PVC with magnet weighted		Viscosity-compensated stainless steel mat.No.		
PVC adhesive bushing [mm]	Female thread		1.4305	1.4303	1.4571	316Ti					1.4571	316Ti	
			l/h	(USgpm)	l/h	(USgpm)	l/h	(USgpm)	l/h	(USgpm)	l/h	(USgpm)	
20	(G1/4), (G3/8), G1/2	C 125	1:10	125	(0,55)	120	(0,53)	65	(0,29)	65	(0,29)	100*	(0,44)*
		C 315	1:10	315	(1,39)	300	(1,32)	175	(0,77)	175	(0,77)	240*	(1,06)*
32	(G1/2), (G3/4), G1	D 650 <sup>1)</sup>	1:10	TS 650	TS (2,86)	TS 600	(TS 2,64)	TS 500	(TS 2,20)	TS 450	(TS 1,98)	TS 400*	(TS 1,76)*
			1:10	PS 600	PS (2,64)	PS 550	(PS 2,42)	PS 450	(PS 1,98)	PS 400	(PS 1,76)	PS 350*	(PS 1,54)*
		D 1000	1:10	1.000	(4,4)	950	(4,18)	750	(3,30)	700	(3,08)	600*	(2,64)*
		D 1600	1:10	1.600	(7,04)	1.500	(6,6)	1.250	(5,50)	1.100	(4,84)	1.000*	(4,4)*
		D 2500	1:10	2.500	(11,0)	2.400	(10,6)	2.000	(8,81)	1.750	(7,7)	1.400*	(6,16)*
63	(G1 1/4), (G1 1/2), G2	E 4000	1:10	4.000*	(17,6)*	3.800*	(16,7)*	3.200	(14,1)	3.200	(14,1)	2.500*	(11,0)*
		E 6500	1:10	6.500*	(28,6)*	6.400*	(28,2)*	5.000	(22,0)	5.000	(22,0)	4.000*	(17,6)*
		F 10000	1:10	10.000*	(44,0)*	9.500*	(41,8)*	7.500	(33,0)	7.500	(33,0)	5.500*	(24,2)*
		G 16000	1:4	16.000 <sup>3)</sup> *	(70,4) <sup>3)</sup> *	16.000*	(70,4)*	12.500	(55,0)	12.500	(55,0)	-	-
		H 20000	1:3	20.000 <sup>3)</sup> *	(88,0) <sup>3)</sup> *	19.000*	(83,6)*	-	-	-	-	-	-
		J 25000	1:3	25.000 <sup>3)</sup> *	(110,0) <sup>3)</sup> *	24000*	(106,0)*	-	-	-	-	-	-

(connections in brackets are non-standard)

\* Guided float.  
<sup>1)</sup> With Troglamid flow tube  
<sup>2)</sup> With polysulfone flow tube  
<sup>3)</sup> Float, flow tube G, H and J: mat.No.. 1.4571/316Ti

### Measuring ranges for air

Standard measuring range for air:  $p_{abs} = 1,013 \text{ bar}$  (14,69 psi), at  $T = 20^\circ\text{C}$  (68°F),  $\rho = 1,293 \text{ kg/m}^3$ ,  $v = 0,0181 \text{ mPa}\cdot\text{s}$

Connection	Flow tube	Dynamics	Max. measuring range for the selected floats								
			Aluminium mat.No. 3.1645		Aluminium with magnet mat.No. 3.1645		PVC non-weighted		PVC with magnet weighted		
PVC adhesive bushing [mm]	Female thread		l/h	(scfm)	l/h	(scfm)	l/h	(scfm)	l/h	(scfm)	
			20	(G1/4), (G3/8), G1/2	C 125	1:10	2.000	(1.18)	2.500	(1.47)	1.400
C 315	1:10	5.000			(2.94)	6.400	(3.77)	3.400	(2.00)	6.000	(3.53)
32	(G1/2), (G3/4), G1	D 650 <sup>1)</sup>	1:10	TS 10.000	TS (5.89)	TS 12.000	TS (7.06)	TS 7000	TS (4.12)	TS 10.000	TS (5.89)
			1:10	PS 9000	PS (5.3)	PS 10.500	PS (6.18)	PS 6.500	PS (3.83)	PS 9.000	PS (5.30)
		D 1000	1:10	16.000	(9.42)	20.000	(11.77)	11.000	(6.47)	16.000	(9.42)
		D 1600	1:10	28.000	(16.48)	32.000	(18.83)	18.000	(10.59)	25.000	(14.71)
		D 2500	1:10	40.000	(23.54)	50.000	(29.43)	28.000	(16.48)	40.000	(23.54)
63	(G1 1/4), (G1 1/2), G2	E 4000	1:10	64.000*	(37.67)*	75.000*	(44.14)*	45.000	(26.49)*	60.000	(35.51)*
		E 6500	1:10	100.000*	(58.86)*	125.000*	(73.57)*	75.000	(44.14)*	100.000	(58.86)*
		F 10000	1:10	160.000*	(94.17)*	180.000*	(105.9)*	120.000	(70.63)*	160.000	(94.17)*
		G 16000	1:4	280.000*	(164.8)*	300.000*	(176.6)*	190.000*	(111.8)*	-	-
		H 20000	1:3	350.000*	(206.0)*	400.000*	(235.4)*	240.000*	(141.3)*	-	-
		J 25000	1:3	430.000*	(253.1)*	480.000*	(282.5)*	300.000*	(176.6)*	-	-

(connections in brackets are non-standard)

### Pressure losses

Pressure loss				
Flow tube	Liquid		Air	
	Mat.No. 1.4305	Float Mat.No. 303	Aluminium float Mat.No.3.1645	
	mbar	(psi)	mbar	(psi)
C 125	11	(0,16)	4	(0,058)
C 315	13	(0,189)	5	(0,073)
D 650	17	(0,247)	7	(0,102)
D 1000	17	(0,247)	7	(0,102)
D 1600	20	(0,291)	7	(0,102)
D 2500	24	(0,349)	8	(0,116)
E 4000	25	(0,364)	9	(0,131)
E 6500	27	(0,393)	10	(0,145)
F 10000	32	(0,465)	13	(0,189)
G 16000	51	(0,740)	23	(0,334)
H 20000	65	(0,943)	31	(0,451)
J 25000	91	(1,320)	43	(0,625)

Pressure losses of variable area meters

### Contact assembly

The bistable contact assembly K18 consists of a contact spring set sealed in a glass tube filled with protective gas. The contact springs are polarized by a fixed magnet such that they exhibit a bistable response.

Two contacts can be selected:

- K 18 A: contact closes when the limit is fallen below
- K 18 B: contact closes when the limit is exceeded.

### Dimensions

PVC adhesive bushing mm (inch)	Connection	Dimensions of inserts			Weight approx. kg (lb)
		with female thread	With PVC adhesive bushing		
d		A±4 mm (A±0,16inch)	A±4[mm] (A±0,16inch)	B±4[mm] (B±0,16inch)	
20 (0,79)	G1/2	344 (13,54)	340 (13,39)	306 (12,05)	0,4 (0,88)
32 (1,26)	G1	353 (13,90)	352 (13,86)	306 (12,05)	0,7 (1,54)
63 (2,49)	G2	372 (14,65)	382 (15,04)	306 (12,05)	2,2 (4,85)

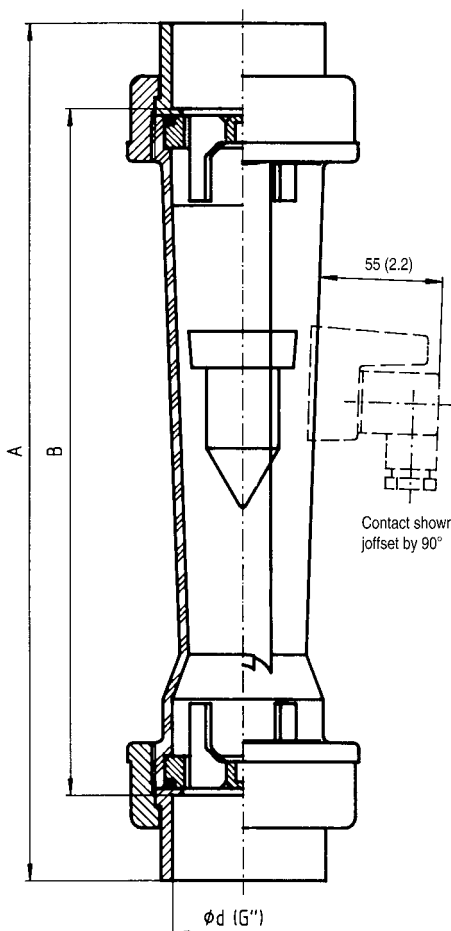


Fig. 2 F VA Trogflux, dimensions in mm (inch)

### Selection of float

There are three versions of floats:

- Non-guided float
- Guided float
- Viscosity-compensated float.

Use of the viscosity-compensated float is necessary above the following viscosities:

Flow tube	mPa·s (cp)
C 125 to 315	≥ 3
D 650 to D 2500	≥ 5
E 4000 to F 10000	≥ 8

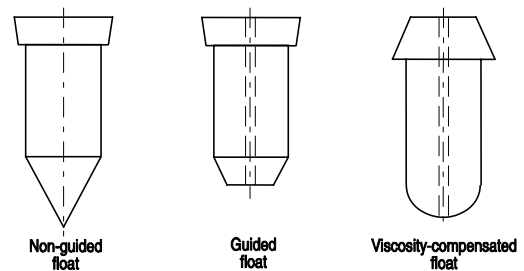


Fig. 3 Float versions

### Pressure and temperature limits

t[°C (°F)]	Trogamid	Polysulfone
	P <sub>e</sub> [bar (psi)]	P <sub>e</sub> [bar (psi)]
-10 to +60 (14 to 140)*	10,0 (145)	10,0 (145)
80 (176)	-	10,0 (145)
90 (194)	-	8,5 (123)

\* Only up to 50 °C(122°F) with water

Connection parts PVC DIN 8062		
Media	t[°C(°F)]	P <sub>e</sub> [bar (psi)]
With water and non-corrosive liquids	20 (68)	10,0 (145)
	40 (104)	10,0 (145)
	60 (140)	2,5 (36)
With corrosive liquids	20 (68)	10,0 (145)
	40 (104)	4,0 (58)
	60 (140)	1,0 (15)

P<sub>e</sub> = effective pressure = pressure above atmospheric

### Note of application

The operator of these measuring instruments is responsible for suitability, proper use and corrosion resistance of the used materials with regard to the measuring material. It must be ensured that the materials selected for the meter parts in contact with the medium are suitable for the used process media. The meter may only be used within the pressure and voltage limits specified in the operating instructions. Provide a touch guard for surface temperatures of > 70°C. This touch guard must be designed in a way that the max. allowable ambient temperature on the unit is not exceeded. Before replacing the measuring tubes, check that the unit is free of hazardous media and pressures. The flowmeter meets the requirements of the PED 97/23/EG, article 3, paragraph 3. The most hazardous allowable media are gases of fluid group 2.

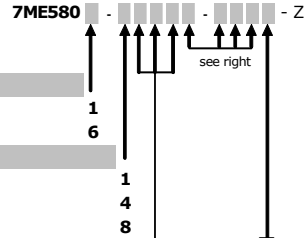
## Variable area meter F VA Troglux

### Ordering data (C125-C315)

Connection G 1/4-G 1/2 / DN 20 / NPT 1/4"- 1/2"

F VA Troglux

Variable area meter, Plastic flow tube



#### Flow tube material

Trogamid

1

Polysulfone

6

#### Gasket material

Buna N

1

Viton

4

EPDM

8

for liquids ( $\rho = 1 \text{ kg/l}$ ,  $v = 1 \text{ mPa.s}$ )

#### measuring range $Q_v$ l/h

Size flow tube	Float material				
C	125	mat.No. 1.4305/303	12,5 - 125	AC 1	0
		mat.No. 1.4571/316Ti	12,5 - 125	AC 2	0
		mat.No. 1.4571/316Ti, guided	12,5 - 125	AC 2	2
		mat.No. 1.4571/316Ti, with magnet	12,0 - 120	AC 2	1
		PVC, weighted	6,5 - 65	AC 3	0
		PVC, weighted, with magnet	6,5 - 65	AC 3	1
		mat.No. 1.4571/SV/316Ti, guided	10,0 - 100	AC 4	2
C	315	mat.No. 1.4305/303	31,5 - 315	BC 1	0
		mat.No. 1.4571/316Ti	31,5 - 315	BC 2	0
		mat.No. 1.4571/316Ti, with magnet	30,0 - 300	BC 2	1
		mat.No. 1.4571/316Ti, guided	31,5 - 315	BC 2	2
		PVC, weighted	17,5 - 175	BC 3	0
		PVC, weighted, with magnet	17,5 - 175	BC 3	1
		mat.No. 1.4571/SV/316Ti, guided	24,0 - 240	BC 4	2

for air ( $p_{abs} = 1,013 \text{ bar}$ ,  $T = 20^\circ\text{C}$ ,  $\rho = 1,293 \text{ kg/m}^3$ ,  $v = 0,0181 \text{ mPa.s}$ )

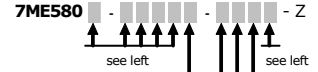
#### measuring range $Q_n$ l/h

Size flow tube	Float material				
C	125	Aluminium 3.1645	200 - 2000	AC 5	0
		Aluminium 3.1645, with magnet	250 - 2500	AC 5	1
		PVC, non weighted	140 - 1400	AC 6	0
		PVC, non weighted, with magnet	220 - 2200	AC 6	1
C	315	Aluminium 3.1645	500 - 5000	BC 5	0
		Aluminium 3.1645, with magnet	640 - 6400	BC 5	1
		PVC, non weighted	340 - 3400	BC 6	0
		PVC, non weighted, with magnet	600 - 6000	BC 6	1

### Ordering data (C125-C315)

F VA Troglux

Variable area meter, Plastic flow tube



Connection	Material	Type	Size		
<b>Float</b>					
C - C	PVC	adhesive bushing	20 (DN 15)	1	1 A
C - C	PVC	female thread	G 1/4	1	2 B
			DIN ISO 228 G 3/8	1	2 C
			G 1/2	1	2 D
C - C	PVC	female thread	1/4"	1	3 B
			NPT 3/8"	1	3 C
			1/2"	1	3 D
C - C	cast iron	DIN ISO 228	G 1/2	2	2 D
C - C	steel	female thread	G 1/4	3	2 B
			mat.No. 1.0254 DIN ISO 228 G 3/8	3	2 C
C - C	steel	female thread	1/4"	3	3 B
			mat.No. 1.0254 NPT 3/8"	3	3 C
			1/2"	3	3 D
C - C	stainless steel	female thread	G 1/4	4	2 B
			mat.No. 1.4571 DIN ISO 228 G 3/8	4	2 C
C - C	stainless steel	female thread	G 1/2	4	2 D
			1/4"	4	3 B
			mat.No. 1.4571 NPT 3/8"	4	3 C
			1/2"	4	3 D

#### Contacts (only with magnetic float)

- without contact **A**
- contact K18/A (closes when limit is fallen below) **C**
- contact K18/B (closes when limit is exceeded) **D**
- 2 contacts K18/A **E**
- 2 contacts K18/B **F**
- 1 per contact K18/A and K18/B **G**

#### Further designs

Please add "-Z" to Order No. and specify Order codes

**B06** with calibration certificate

**Y01** measured medium: specify in plain text: medium, always required, measuring range with dimension, density with dimension, viscosity with dimension operating temperature, operating pressure

**Y04** Silicone-free version

**Y99** Specify special version in plain text

### Ordering data (D650-D2500)

Connection G 1/2 - G 1 / DN 32 / NPT 1/2"-1"

F VA Troglux  
Variable area meter, Plastic flow tube



#### Flow tube material

Trogamid

Polysulfone

#### Gasket material

Buna N

Viton

EPDM

for liquids ( $\rho = 1 \text{ kg/l}$ ,  $v = 1 \text{ mPa.s}$ );

#### measuring range $Q_v$ , l/h

Size flow tube	Float material				
D	650	mat.No. 1.4305/303	TS 65 - 650	<b>CD 1</b> 0	
			PS 60 - 600	..... 0	
		mat.No. 1.4571/316Ti	TS 65 - 650	<b>CD 2</b> 0	
			PS 60 - 600	..... 2	
		mat.No. 1.4571/316Ti, guided	PS 55 - 550	<b>CD 2</b> 2	
			TS 60 - 600	..... 1	
	1000	mat.No. 1.4305/303	100 - 1000	<b>DD 1</b> 0	
				100 - 1000	<b>DD 2</b> 0
			mat.No. 1.4571/316Ti, with magnet	95 - 950	<b>DD 2</b> 1
		mat.No. 1.4571/316Ti, guided	100 - 1000	<b>DD 2</b> 2	
			PVC, weighted	75 - 750	<b>DD 3</b> 0
			PVC, weighted, with magnet	70 - 700	<b>DD 3</b> 1
1600	mat.No. 1.4305/303	160 - 1600	<b>ED 1</b> 0		
			160 - 1600	<b>ED 2</b> 0	
		mat.No. 1.4571/316Ti, with magnet	150 - 1500	<b>ED 2</b> 1	
	mat.No. 1.4571/316Ti, guided	160 - 1600	<b>ED 2</b> 2		
		PVC, weighted	125 - 1250	<b>ED 3</b> 0	
		PVC, weighted, with magnet	110 - 1100	<b>ED 3</b> 1	
2500	mat.No. 1.4305/303	250 - 2500	<b>FD 1</b> 0		
			250 - 2500	<b>FD 2</b> 0	
		mat.No. 1.4571/316Ti, with magnet	240 - 2400	<b>FD 2</b> 1	
	mat.No. 1.4571/316Ti, guided	250 - 2500	<b>FD 2</b> 2		
		PVC, weighted	200 - 2000	<b>FD 3</b> 0	
		PVC, weighted, with magnet	175 - 1750	<b>FD 3</b> 1	
	mat.No. 1.4571/SV/316Ti, guided	140 - 1400	<b>FD 4</b> 2		

for air ( $\rho_{\text{abs}}=1,013 \text{ bar}$ ,  $T=20^\circ\text{C}$ ,  $\rho=1,293 \text{ kg/m}^3$ ,  $v=0,0181 \text{ mPa.s}$ )

#### measuring range $Q_v$ , m<sup>3</sup>/h

Size flow tube	Float material			
D	650	Aluminium 3.1645	TS 1,0 - 10,0	<b>CD 5</b> 0
			PS 0,9 - 9,0	..... 1
		Aluminium 3.1645, with magnet	TS 1,2 - 12,0	<b>CD 5</b> 1
	PS 1,05 - 10,5		..... 0	
	PVC, non weighted	TS 0,7 - 7,0	<b>CD 6</b> 0	
		PS 0,65 - 6,5	..... 1	
D	1000	Aluminium 3.1645	TS 1,0 - 10,0	<b>CD 6</b> 1
			PS 0,9 - 9,0	..... 0
		Aluminium 3.1645, with magnet	1,6 - 16,0	<b>DD 5</b> 0
	2,0 - 20,0		<b>DD 5</b> 1	
	PVC, non weighted		1,1 - 11,0	<b>DD 6</b> 0
	1600	Aluminium 3.1645	1,6 - 16,0	<b>DD 6</b> 1
2,8 - 28,0			<b>ED 5</b> 0	
Aluminium 3.1645, with magnet		3,2 - 32,0	<b>ED 5</b> 1	
	PVC, non weighted	1,8 - 18,0	<b>ED 6</b> 0	
2500	Aluminium 3.1645	2,5 - 25,0	<b>ED 6</b> 1	
		4,0 - 40,0	<b>FD 5</b> 0	
	Aluminium 3.1645, with magnet	5,0 - 50,0	<b>FD 5</b> 1	
PVC, non weighted		2,8 - 28,0	<b>FD 6</b> 0	
	PVC, non weighted, with magnet	4,0 - 40,0	<b>FD 6</b> 1	

### Ordering data (D650-D2500)

F VA Troglux  
Variable area meter, Plastic flow tube



Connection	Material	Type	Size		
D - D	PVC	adhesive bushing	32 (DN 25)	1	1 A
				2 D	
D - D	PVC	female thread	G 1/2	1	2 D
			G 3/4	1	2 E
			G 1	1	2 F
D - D	PVC	female thread	1/2"	1	3 D
			3/4"	1	3 E
			1"	1	3 F
D - D	cast iron	DIN ISO 228	G 1	2	2 F
				3	2 D
D - D	steel	female thread	G 1/2	3	2 D
				3	2 E
D - D	steel	female thread	1/2"	3	3 D
				3	3 E
				3	3 F
D - D	stainless steel	female thread	G 1/2	4	2 D
				4	2 E
				4	2 F
D - D	stainless steel	female thread	1/2"	4	3 D
				4	3 E
				4	3 F

#### Contacts (only with magnetic float)

- without contact **A**
- contact K18/A (closes when limit is fallen below) **C**
- contact K18/B (closes when limit is exceeded) **D**
- 2 contacts K18/A **E**
- 2 contacts K18/B **F**
- 1 per contact K18/A and K18/B **G**

#### Further designs

Please add "-Z" to Order No. and specify Order codes

- B06** with calibration certificate
- Y01** measured medium: specify in plain text: medium, always required, measuring range with dimension, density with dimension, viscosity with dimension operating temperature, operating pressure
- Y04** Silicone-free version
- Y99** Specify special version in plain text

## Variable area meter F VA Troglux

### Ordering data (E4000-J25000) Connection G 1-G 2 / DN 63 / NPT 1"- 2"

F VA Troglux  
Variable area meter, Plastic flow tube

Flow tube material	
Trogamid	1
Polysulfone	6
Gasket material	
Buna N	1
Viton	4
EPDM	8

for liquids ( $\rho = 1 \text{ kg/l}$ ,  $v = 1 \text{ mPa.s}$ )

measuring range  $Q_v$ , m<sup>3</sup>/h

Size flow tube	Float material				
E	4000	mat.No. 1.4305/303, guided	0,4 - 4,0	<b>GE 1</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided	0,4 - 4,0	<b>GE 2</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided+magnet	0,38 - 3,8	<b>GE 2</b>	<b>1</b>
		PVC, weighted	0,32 - 3,2	<b>GE 3</b>	<b>0</b>
		PVC, weighted, with magnet	0,32 - 3,2	<b>GE 3</b>	<b>1</b>
		mat.No. 1.4571/SV/316Ti, guided	0,25 - 2,5	<b>GE 4</b>	<b>0</b>
E	6500	mat.No. 1.4305/303, guided	0,65 - 6,5	<b>HE 1</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided	0,65 - 6,5	<b>HE 2</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided+magnet	0,64 - 6,4	<b>HE 2</b>	<b>1</b>
		PVC, weighted	0,5 - 5,0	<b>HE 3</b>	<b>0</b>
		PVC, weighted, with magnet	0,5 - 5,0	<b>HE 3</b>	<b>1</b>
		mat.No. 1.4571/SV/316Ti, guided	0,4 - 4,0	<b>HE 4</b>	<b>0</b>
F	10000	mat.No. 1.4305/303, guided	1,0 - 10,0	<b>JE 1</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided	1,0 - 10,0	<b>JE 2</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided+magnet	0,95 - 9,5	<b>JE 2</b>	<b>1</b>
		PVC, weighted	0,75 - 7,5	<b>JE 3</b>	<b>0</b>
		PVC, weighted, with magnet	0,75 - 7,5	<b>JE 3</b>	<b>1</b>
		mat.No. 1.4571/SV/316Ti, guided	0,55 - 5,5	<b>JE 4</b>	<b>0</b>
G	16000	mat.No. 1.4571/316Ti, guided	4,0 - 16,0	<b>KE 2</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided+magnet	4,0 - 16,0	<b>KE 2</b>	<b>1</b>
		PVC, weighted	3,1 - 12,5	<b>KE 3</b>	<b>0</b>
		PVC, weighted, with magnet	3,1 - 12,5	<b>KE 3</b>	<b>1</b>
H	20000	mat.No. 1.4571/316Ti, guided	6,6 - 20,0	<b>LE 2</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided+magnet	6,3 - 19,0	<b>LE 2</b>	<b>1</b>
J	25000	mat.No. 1.4571/316Ti, guided	8,3 - 25,0	<b>ME 2</b>	<b>0</b>
		mat.No. 1.4571/316Ti, guided+magnet	8,0 - 24,0	<b>ME 2</b>	<b>1</b>

for air ( $\rho_{abs}=1.013 \text{ bar}$ ,  $T=20^\circ\text{C}$ ,  $\rho = 1,293 \text{ kg/m}^3$ ,  $v = 0,0181 \text{ mPa.s}$ )

measuring range  $Q_v$ , m<sup>3</sup>/h

Size flow tube	Float material				
E	4000	Aluminium 3.1645, guided	6,4 - 64,0	<b>GE 5</b>	<b>0</b>
		Aluminium 3.1645, guided+magnet	7,5 - 75,0	<b>GE 5</b>	<b>1</b>
		PVC, non weighted	4,5 - 45,0	<b>GE 6</b>	<b>0</b>
		PVC, non weighted, with magnet	6,0 - 60,0	<b>GE 6</b>	<b>1</b>
E	6500	Aluminium 3.1645, guided	10,0 - 100,0	<b>HE 5</b>	<b>0</b>
		Aluminium 3.1645, guided+magnet	12,5 - 125,0	<b>HE 5</b>	<b>1</b>
		PVC, non weighted	7,5 - 75,0	<b>HE 6</b>	<b>0</b>
		PVC, non weighted, with magnet	10,0 - 100,0	<b>HE 6</b>	<b>1</b>
F	10000	Aluminium 3.1645, guided	16,0 - 160,0	<b>JE 5</b>	<b>0</b>
		Aluminium 3.1645, guided+magnet	18,0 - 180,0	<b>JE 5</b>	<b>1</b>
		PVC, non weighted	12,0 - 120,0	<b>JE 6</b>	<b>0</b>
		PVC, non weighted, with magnet	16,0 - 160,0	<b>JE 6</b>	<b>1</b>
G	16000	Aluminium 3.1645, guided	70,0 - 280,0	<b>KE 5</b>	<b>0</b>
		Aluminium 3.1645, guided+magnet	75,0 - 300,0	<b>KE 5</b>	<b>1</b>
		PVC, non weighted, guided	47,5 - 190,0	<b>KE 7</b>	<b>0</b>
H	20000	Aluminium 3.1645, guided	117,0 - 350,0	<b>LE 5</b>	<b>0</b>
		Aluminium 3.1645, guided+magnet	134,0 - 400,0	<b>LE 5</b>	<b>1</b>
		PVC, not weighted, guided	80,0 - 240,0	<b>LE 7</b>	<b>0</b>
J	25000	Aluminium 3.1645, guided	143,0 - 430,0	<b>ME 5</b>	<b>0</b>
		Aluminium 3.1645, guided+magnet	160,0 - 480,0	<b>ME 5</b>	<b>1</b>
		PVC, non weighted, guided	100,0 - 300,0	<b>ME 7</b>	<b>0</b>

### Ordering data (E4000-J25000)

F VA Troglux  
Variable area meter, Plastic flow tube

Connection	Material	Type	Size			
E - J	PVC	adhesive bushing	63 (DN 50)	<b>1</b>	<b>1 A</b>	
				<b>1</b>	<b>2 F</b>	
E - J	PVC	female thread	DIN ISO 228	G 1	<b>1</b> <b>2 G</b>	
				G 1 1/4	<b>1</b> <b>2 H</b>	
				G 1 1/2	<b>1</b> <b>2 J</b>	
				G 2	<b>1</b> <b>2 J</b>	
E - J	PVC	female thread	NPT	1"	<b>1</b> <b>3 F</b>	
				1 1/4"	<b>1</b> <b>3 G</b>	
				1 1/2"	<b>1</b> <b>3 H</b>	
				2"	<b>1</b> <b>3 J</b>	
				G 2	<b>2</b> <b>2 J</b>	
				G 2	<b>2</b> <b>2 J</b>	
E - J	cast iron	DIN ISO 228	G 2	<b>2</b>	<b>2 J</b>	
				<b>2</b>	<b>2 J</b>	
	steel	female thread	DIN ISO 228	mat.No. 1.0254	G 1	<b>3</b> <b>2 F</b>
					G 1 1/4	<b>3</b> <b>2 G</b>
E - J	steel	female thread	NPT	mat.No. 1.0254	G 1 1/2	<b>3</b> <b>2 H</b>
					G 1 1/4	<b>3</b> <b>2 G</b>
					G 1 1/2	<b>3</b> <b>2 H</b>
					G 2	<b>3</b> <b>2 J</b>
					G 1	<b>4</b> <b>2 F</b>
					G 1 1/4	<b>4</b> <b>2 G</b>
E - J	stainless steel	female thread	DIN ISO 228	mat.No. 1.4571	G 1	<b>4</b> <b>2 F</b>
					G 1 1/4	<b>4</b> <b>2 G</b>
					G 1 1/2	<b>4</b> <b>2 H</b>
					G 2	<b>4</b> <b>2 J</b>
E - J	stainless steel	female thread	NPT	mat.No. 1.4571	1"	<b>4</b> <b>3 F</b>
					1 1/4"	<b>4</b> <b>3 G</b>
					1 1/2"	<b>4</b> <b>3 H</b>
					2"	<b>4</b> <b>3 J</b>

#### Contacts (only with magnetic float)

- without contact **A**
- contact K18/A (closes when limit is fallen below) **C**
- contact K18/B (closes when limit is exceeded) **D**
- 2 contacts K18/A **E**
- 2 contacts K18/B **F**
- 1 per contact K18/A and K18/B **G**

#### Further designs

Please add "-Z" to Order No. and specify Order codes

**B06** with calibration certificate

**Y01** measured medium: specify in plain text: medium, always required, measuring range with dimension, density with dimension, viscosity with dimension operating temperature, operating pressure

**Y04** Silicone-free version

**Y99** Specify special version in plain text