



## Flow meter M123

Flow indicator / flow meter according to the float principle for liquids and gases



- Fracture-proof and corrosion-resistant
- Radially removable
- Adhesive special scales, for liquid and gaseous media
- Holder for accessories (limit value contacts)
- Measuring tube carries the DN label, and also the measuring range and material
- PVDF floats and stops as standard
- Measuring ranges 1.5-1,000 l/h
- Less space required thanks to short overall length
- Operating pressure PN 10 at 20 °C



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### Function

The M123 flow meter works on the float principle and is used to measure the flow rate in closed pipelines. The medium flows through the vertically installed flow meter from bottom to top. This raises the float and shows the current flow rate on the scale on the measuring device. The read-off edge corresponds to the largest diameter of the float.

The M 123 flow meters have a water scale and 2 setpoint indicators as standard.

Materials			
Measuring tube	Float	Top and bottom inserts	O-Ring
PA	PVDF	PVDF	EPDM (standard), FPM (optional)
PSU	PVDF	PVDF	EPDM (standard), FPM (optional)
PVDF	PVDF	PVDF	FPM (standard)

Connection possibilities			
Socket	Spigot	Plastic female thread	Metal female thread
PVC adhesive socket (standard)	PP fusion socket	PVC	Stainless steel V <sub>4</sub> A
PP fusion spigot	PVDF fusion spigot	PP	Malleable cast iron
PVDF fusion socket	PE sudion spigot	PVDF	

Pressure loss											
Measuring range l/h	1.5–15	2.5–25	5–50	10–100	8–80	15–150	20–200	15–150	30–300	50–500	100–1,000
Pressure loss mm WS	46.0	46.0	46.0	46.0	44.7	44.7	44.7	82.8	82.8	82.8	82.8
Measuring range l/h	1.5–15	2.5–25	5–50	10–100	8–80	15–150	20–200	15–150	30–300	50–500	100–1,000
Pressure loss mbar	4.6	4.6	4.6	4.6	4.47	4.47	4.47	8.28	8.28	8.28	8.28

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Measuring accuracy										
Accuracy Class 4 as defined by VDE/DIN 3513 page 2										
Flow in %	10	20	30	40	50	60	70	80	90	100
Total measured value error in %	13.00	8.00	6.33	5.50	5.00	4.67	4.43	4.25	4.11	4.00
Total limit value error in %	1.3	1.6	1.9	2.2	2.5	2.9	3.1	3.4	3.7	4.0

Float type flow meter			
d	DN	Measuring range H <sub>2</sub> O	M123
16	10	1.5-15	■ ●
16	10	2.5-25	▲ ■ ●
16	10	5-50	▲ ■ ●
16	10	10-100	▲ ■ ●
20	15	8-80	▲ ■ ●
20	15	15-150	▲ ■ ●
20	15	20-200	▲ ■ ●
32	25	15-150	▲ ■ ●
32	25	30-300	▲ ■ ●
32	25	50-500	▲ ■ ●
32	25	100-1,000	▲ ■ ●

▲ PVDF, ■ PSU (polysulphone), ● PVC

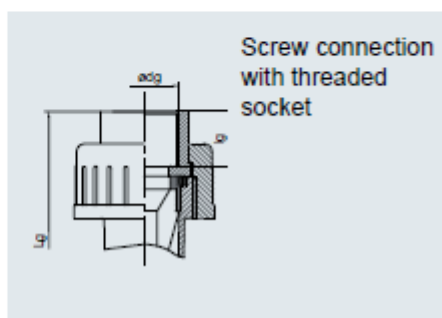
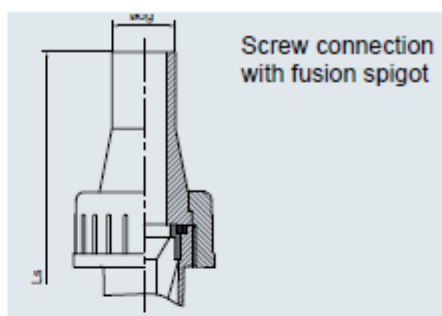
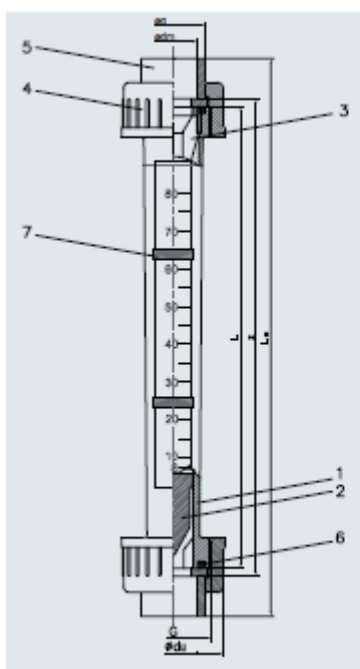
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Temperature range		
Measuring tube	Screw connection	Max. temperature at 1 bar
PVC-U	PVC-U	0 – 60°C
PA	PVC-U	0 – 60°C
PSU	PVC-U	0 – 60°C
PSU	PVDF	0 – 90°C
PVDF	PVDF	0 – 100°C



Individual parts		
Pos.	Designation	Material
1	Measuring tube	PSU, PVC, PVDF
2	Float	PVDF
3	Insert, top	PVDF
4	Union nut	PVC, PP, PVDF
5	Insertion part	PVC, PP, PVDF
6	O-ring	EPDM, FPM
7	Setpoint indicator	PS

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### Dimensions (in mm)

Measuring range $\dot{V}/\text{hH}_2\text{O}$	Adhesive socket					Fusion socket			Spigot PP			Threaded socket					
	d	DN	G	$d_0$	L	$d_m$	z	$L_m$	$d_m$	z	$L_m$	d	$L_g$	S	d	$L_g$	$l_g$
1.5-15 2.5-25 5-50 10-100	16	10	3/4"	35	165	16	171	199	15.5	175	201				3/8"	199	11
8-80 15-150 20-200	20	15	1"	20	191	20	191	223	19.5	195	223	20	293	1.9	1/2"	223	13
15-150 30-300 50-500 100-1,000	32	25	1 1/2"	60	200	36	206	250	31.5	210	246	32	320	3.0	1"	250	17

### Article numbers

d	DN	Measuring tube Measuring range $\dot{V}/\text{h}$	PVC		PSU		PVDF	
			Float PVDF Art.-No.	Float PVDF/Magnet Art.-No.	Float PVDF Art.-No.	Float PVDF/Magnet Art.-No.	Float PVDF Art.-No.	Float PVDF/Magnet Art.-No.
16	10	1.5-15	17.003.700	17.003.711	17.000.862	17.001.459		
16	10	2.5-25	17.003.701	17.003.712	17.000.864	17.001.461	17.003.611	17.003.622
16	10	5-50	17.003.702	17.003.713	17.000.866	17.001.463	17.003.612	17.003.623
16	10	10-100	17.003.703	17.003.714	17.000.868	17.001.465	17.003.613	17.003.624
20	15	8-80	17.003.704	17.003.715	17.000.895	17.001.467	17.003.614	17.003.625
20	15	15-150	17.003.705	17.003.716	17.000.897	17.001.469	17.003.615	17.003.626
20	15	20-200	17.003.706	17.003.717	17.000.899	17.001.471	17.003.616	17.003.627
32	25	15-150	17.003.707	17.003.718	17.000.901	17.001.473	17.003.617	17.003.628
32	25	30-300	17.003.708	17.003.719	17.000.903	17.001.475	17.003.618	17.003.629
32	25	50-500	17.003.709	17.003.720	17.000.905	17.001.477	17.003.619	17.003.630
32	25	100-1,000	17.003.710	17.003.721	17.000.907	17.001.479	17.003.620	17.003.631

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### Special scales

Measuring range	Air 0 bar		Air 1 bar		Air 2 bar		Air 3 bar	
	Art.-No.	N m³/h	Art.-No.	N m³/h	Art.-No.	N m³/h	Art.-No.	N m³/h
H <sub>2</sub> O l/h								
1.5 - 15	00.000.998	0.10 - 0.55	00.001.050	0.15 - 0.80	00.001.051	0.17 - 0.9	00.001.052	0.20 - 1.1
2.5 - 25	00.001.059	0.2 - 0.95	00.001.060	0.25 - 1.3	00.001.061	0.3 - 1.6	00.001.062	0.4 - 1.9
5 - 50	00.001.070	0.5 - 1.9	00.001.071	0.7 - 2.7	00.001.072	0.8 - 3.4	00.001.073	1.0 - 3.8
10 - 100	00.001.081	0.8 - 3.0	00.001.082	1.0 - 4.2	00.001.083	1.2 - 5.4	00.001.084	1.4 - 6.4
8 - 80	00.001.092	0.6 - 2.8	00.001.093	0.8 - 4	00.001.094	1.0 - 5.0	00.001.095	1.2 - 5.6
15 - 150	00.001.103	1.4 - 5.6	00.001.104	2 - 8	00.001.105	2 - 10	00.001.106	3 - 12
20 - 200	00.001.114	1.5 - 7.0	00.001.115	2 - 10	00.001.116	3 - 13	00.001.117	3 - 15
15 - 150	00.001.125	1.0 - 6.5	00.001.126	1 - 90	00.001.127	1.5 - 11	00.001.128	2 - 13
30 - 300	00.001.136	1.5 - 11	00.001.137	2 - 15	00.001.138	2.5 - 18	00.001.139	3 - 22
50 - 500	00.001.147	3 - 18	00.001.148	4 - 25	00.001.149	5 - 30	00.001.150	5 - 35
100 - 1,000	00.001.158	6 - 30	00.001.159	8 - 44	00.001.160	10 - 54	00.001.161	12 - 62

Measuring range	Air 4 bar		Air 5 bar		Air 6 bar		Air 7 bar	
	Art.-No.	N m³/h	Art.-No.	N m³/h	Art.-No.	N m³/h	Art.-No.	N m³/h
H <sub>2</sub> O l/h								
1.5 - 15	00.001.053	0.25 - 1.20	00.001.054	0.25 - 1.3	00.000.999	0.26 - 1.45	00.001.055	0.30 - 1.5
2.5 - 25	00.001.063	0.4 - 2.1	00.001.064	0.5 - 2.4	00.001.065	0.5 - 2.5	00.001.066	0.5 - 2.7
5 - 50	00.001.074	1.2 - 4.2	00.001.075	1.2 - 4.6	00.001.076	1.2 - 5.0	00.001.077	1.4 - 5.4
10 - 100	00.001.085	1.6 - 7.0	00.001.086	1.6 - 7.4	00.001.087	2.0 - 8.0	00.001.088	2 - 8.8
8 - 80	00.001.096	1.4 - 6.4	00.001.097	1.4 - 7.0	00.001.098	1.5 - 7.5	00.001.099	1.5 - 8.0
15 - 150	00.001.107	3 - 13	00.001.108	3 - 14	00.001.109	3.5 - 15	00.001.110	3.5 - 16.5
20 - 200	00.001.118	4 - 17	00.001.119	4 - 18	00.001.120	4 - 20	00.001.121	5 - 21
15 - 150	00.001.129	2 - 14.5	00.001.130	2 - 16	00.001.131	2 - 17	00.001.132	2.5 - 18
30 - 300	00.001.140	3 - 24	00.001.141	4 - 26	00.001.142	4 - 28	00.001.143	4 - 30
50 - 500	00.001.151	6 - 40	00.001.152	6 - 44	00.001.153	8 - 48	00.001.154	8 - 50
100 - 1,000	00.001.162	12 - 70	00.001.163	15 - 75	00.001.164	15 - 80	00.001.165	15 - 85

Measuring range	Air 8 bar		Air 9 bar		Air 10 bar	
	Art.-No.	N m³/h	Art.-No.	N m³/h	Art.-No.	N m³/h
H <sub>2</sub> O l/h						
1.5 - 15	00.001.056	0.3 - 1.6	00.001.057	0.3 - 1.7	00.001.058	0.35 - 1.8
2.5 - 25	00.001.067	0.6 - 2.9	00.001.068	0.6 - 3.0	00.001.069	0.6 - 3.2
5 - 50	00.001.078	1.4 - 5.8	00.001.079	1.6 - 6.0	00.001.080	1.6 - 6.4
10 - 100	00.001.089	2.0 - 9.0	00.001.090	2 - 10	00.001.091	2 - 10
8 - 80	00.001.100	1.5 - 8.5	00.001.101	2.0 - 9.0	00.001.102	2.0 - 9.5
15 - 150	00.001.111	4 - 17	00.001.112	4 - 18	00.001.113	4 - 19
20 - 200	00.001.122	5 - 23	00.001.123	5 - 23	00.001.124	5 - 25
15 - 150	00.001.133	2.5 - 19.5	00.001.134	3 - 20	00.001.135	3 - 21
30 - 300	00.001.144	4 - 33	00.001.145	5 - 34	00.001.146	5 - 35
50 - 500	00.001.155	8 - 54	00.001.156	8 - 56	00.001.157	10 - 60
100 - 1,000	00.001.166	20 - 90	00.001.167	20 - 95	00.001.168	20 - 100

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### Special scales

Measuring range H <sub>2</sub> O l/h	HCl 30-33 % (PSU)		NaOH 30 %		NaOH 50 %	
	Art.-No.	l/h	Art.-No.	l/h	Art.-No.	l/h
1.5 - 15	00.005.117	1 - 10	00.005.144	0.1 - 2.0	–	–
2.5 - 25	00.005.118	2.5 - 20	00.005.145	0.2 - 5	–	–
5 - 50	00.005.119	5 - 40	00.005.128	1 - 14	–	–
10 - 100	00.005.120	10 - 85	00.005.129	3 - 35	–	–
8 - 80	00.005.121	8 - 70	00.005.130	2 - 23	00.005.137	0.2 - 3.5
15 - 150	00.005.122	15 - 125	00.005.131	3 - 55	00.005.138	0.5 - 10
20 - 200	00.005.123	20 - 170	00.005.132	5 - 80	00.005.139	0.5 - 16
15 - 150	00.005.124	5 - 125	00.005.133	3 - 55	00.005.140	0.5 - 11
30 - 300	00.005.125	30 - 260	00.005.134	6 - 130	00.005.141	1 - 33
50 - 500	00.005.126	50 - 425	00.005.135	10 - 250	00.005.142	2 - 80
100 - 1,000	00.005.127	100 - 850	00.005.136	40 - 600	00.005.143	10 - 220

#### Application instructions for special scales

When applying special scales later, ensure that the marking ◀ on the scale corresponds with the one on the measuring tube.

#### Special scales as requested by the customer

Details required: Medium, spec. weight in g/cm<sup>3</sup>, viscosity in cP or mPas, operating temperature in °C, desired measuring range in l/h.





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Special scales H <sub>2</sub> O with other units of measurement				
d	DN	l/h	Art.-No.	US GPM
16	10	1.5-15	00.000.959	0.006-0.066
16	10	2.5-25	00.000.961	0.01-0.11
16	10	5-50	00.000.962	0.02-0.22
16	10	10-100	00.000.963	0.04-0.44
20	15	8-80	00.000.964	0.035-0.35
20	15	15-150	00.000.965	0.06-0.66
20	15	20-200	00.000.966	0.08-0.8
32	25	15-150	00.000.967	0.06-0.66
32	25	30-300	00.000.968	0.13-1.3
32	25	50-500	00.000.969	0.22-2.2
32	25	100-1,000	00.000.970	0.44-4.4

### Accessories

Limit value contact Z 40 min.  
Limit value contact Z 42 max.  
For further information, refer to the separate data sheets.

### Installation and assembly instructions

- Install the flow meter into the pipeline system vertically and without tension.
- Provide an inlet and outlet section, Inlet approx. 10 x DN, outlet approx. 5 x DN.

### Notes on operation

- Avoid pressure surges, as these can damage the unit.
- Exercise caution when installing: the measuring tube must not come into contact with solvent!
- Before start-up, make sure that the connected parts are sufficiently tightened.
- The union nuts must not be mixed up on a measuring tube made from the material PVDF. The overall length also does not correspond to the dimensions table.
- We reserve the right to make technical changes in the interest of improvement.

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<b>Pressure core table for gases: calibration pressure 0 bar</b>	
Operating pressure in bar	Factor x display value
0.0	1.000
0.2	1.095
0.4	1.184
0.6	1.265
0.8	1.340
1.0	1.414
1.5	1.480
2.0	1.730
3.0	2.000
4.0	2.240
5.0	2.450
6.0	2.650
7.0	2.830
8.0	3.000
9.0	3.165
10.0	3.320

This table is used to correct values displayed for gases by the flow meter if the operating pressure deviates from the pressure used as a basis for the calibration. The values displayed on the flow meter are simply multiplied by the factor corresponding to the operating pressure.

We supply special scales for operating pressures between 1 and 8 bar (see page 6).



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### **Important instructions!**

Technical changes and errors reserved.

All illustrations / graphics in this operating manual serve the basic understanding. The illustrations may differ from the actual design of the devices. Photos are just one of many variants.

These operating instructions are an integral part of the device and must be kept accessible to the responsible personnel at all times in the immediate vicinity of the device. Persons installing, operating or maintaining this device must be technically qualified to do so and must comply with the applicable regulations for prevention of accidents. You must read and understand these operating instructions carefully before starting any work. All safety instructions and all other instructions in this manual must be adhered to. In addition, the local accident prevention regulations and general safety regulations for the area of application of the device as well as all national and international legal regulations and technical standards apply accordingly.

The device has been designed and constructed exclusively for the intended use described here.

### **limitations of liability**

All information and instructions in this operating manual have been compiled taking into account the applicable standards and regulations, the state of the art and our many years of knowledge and experience. Schmidt measuring and control technology accepts no liability for damage due to

- Failure to observe this manual
- Improper use of the device
- Work by untrained personnel with this unit
- Unauthorized modifications or technical modifications not approved by the manufacturer
- Use of unauthorized spare parts