Flow measurements

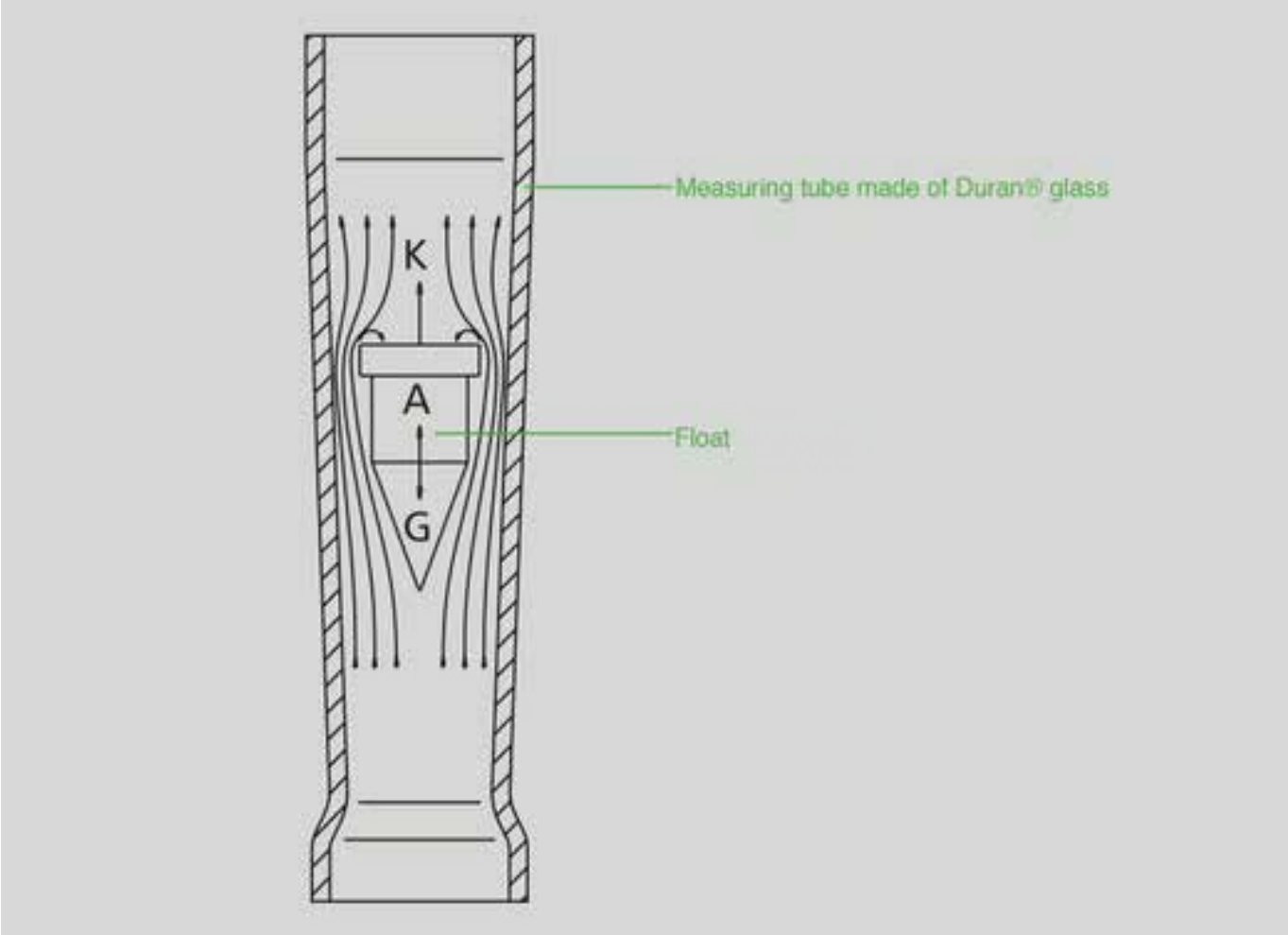
Our flow meters use the float principle and are suitable for exact measurement of gaseous and liquids. In addition to the extensive standard assortment, individual measuring ranges and different types of measurement acquisition are also possible on request.

Getting started with a flow meter

Type	Installation	Meas. Tube	Size mm	Flow range air	Flow range water	Connection	Material	As standard with valve	Measurement transmission
4L100...	W/S	St	10 x 75	4-40 l/h 10-100 l/h		rear	PP, PVDF, PFA	•	on request
4L200...	W/S	St	17 x 75	40-400 l/h 150-1.600 l/h	2,5-25 l/h 4-40 l/h 10-100 l/h	rear	PP, PVDF, PFA	•	on request
4L500...	W/S	St	28 x 50	250-2.500 l/h 600-6.000 l/h	25-250 l/h 60-600 l/h	rear	PP, PVDF, PFA	•	on request
4N100T...	S	St		a20-200 l/h 50-600 l/h 100-1.300 l/h 20-350 l/h		rear	PP	no	-
4H100...	R	St	10 x 165	on request	1,5-15 l/h 2,5-25 l/h 5-50 l/h 10-100 l/h	top/bottom	PSU,	no	option: - reed switch
4H200...	R	St	15 x 185	on request	8-80 l/h 15-150 l/h 20-200 l/h	top/bottom	PSU	no	
4H300...	R	St	25 x 200	on request	15-150 l/h 30-300 l/h 50-500 l/h 100-1.000 l/h	top/bottom	PSU	no	
4A100...*	W	So	10 x 150	state the flow rate you require		rear	PVDF, PTFE	•	option: - annular proximity switch - reed switch
4A110...*	W	So	10 x 150			side	PVDF, PTFE	•	
4A200...*	W	So	17 x 150			rear	PVDF, PTFE	•	
4A210...*	W	So	17 x 150			side	PVDF, PTFE	•	
4M100...	S	St	8 x 65	0,2-2 l/min	-	rear	PP, PVDF	•	-
4R100...	R	St	10 x 75	4-40 l/h 10-100	-	top/bottom	PP, PVDF, PFA	•	-
4R200...	R	St	17 x 75	40-400 l/h 150-1.600 l/h	2,5-25 l/h 4-40 l/h 10-100 l/h	top/bottom	PP, PVDF, PFA	•	-
4T100T...	R	St		20-200 l/h 50-600 l/h 100-1.300 l/h 20-350 l/h		top/bottom	PP	no	

*Glass change in installed state
W = wall mounting, S = panel mounting, R = inline installation, St = standard measuring tube, So = special measuring tube

EM-Technik GmbH – Industriestraße 2 – 67133 Maxdorf – Germany
info@em-technik.com



The emtechnik flow meters are based on the float principle. The flow rate measurement is given by the relation between the force of gravity on the float and the flow velocity of the medium inside the measuring tube. At a constant flow velocity the float stabilises at a specific height within the conical measuring cylinder. In this position the forces acting on the float are in equilibrium. This means that the weight force (G) of the float is raised by the buoyancy force (A), the amount of media displaced by the float and the flow force (K) caused by the flow (G=A+K).
If the flow velocity changes due to a pressure change, then the float rises or falls in the measuring cylinder to a larger or smaller equilibrium that corresponds to the modified force of the flow. The position of the float corresponds to a specific volumetric flow rate and can be read on the scale on the measuring tube as a flow rate.

Float table

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		Glass	1.4401	1.4571	HC	Mume-tall	Korund	Titan	Dyflor	PTFE
10 x 75	Gas	1,5 - 100	-	6,0 - 210	6,0 - 210	6 - 210	3,5 - 140	3,5 - 140	3,5 - 140	-
	Liquid	-	0,07 - 5,0	0,2 - 6,0	0,2 - 6,0	0,2 - 6,0	0,4 - 4	0,4 - 4	0,4 - 4	-
17 x 75	Gas	160 - 1600	-	350 - 3500	350 - 3500	350 - 3500	240 - 2400	240 - 2400	240 -2400	-
	Liquid	-	10 - 100	10 - 110	10 - 110	10 - 110	10 - 60	10 - 60	10 - 60	-
10 x 150	Gas	0,6 - 100	-	0,3 - 220	0,3 - 220	0,3 - 220	1,5 - 140	1,5 - 140	1,5 - 140	-
	Liquid	-	-	0,004 - 6,0	0,004 - 6,0	0,004 - 6,0	0,02 - 3,5	0,02 - 3,5	0,02 - 3,5	-
17 x 150	Gas	100 - 1600	-	260 - 3300	260 - 3300	260 - 3300	160 - 2400	160 - 2400	160 - 2400	160 - 2400
	Liquid	-	-	6,3 - 110	6,3 - 110	6,3 - 110	4,0 - 63	4,0 - 63	4,0 - 63	4,0 - 63
28 x 150	Gas	-	-	~ 5800	~ 5800		-	-	-	230 - 2300
	Liquid	-	-	100 - 630	100 - 630	-	-	100 - 400	-	100 - 400

Data in l/h

~ RI
~ REED

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Measuring tube and float

The measuring tubes that are used are mostly made of Duran® glass and correspond to accuracy classes 2.5 according to VDI/VDE 3513. Duran® glass has high corrosion resistance against almost all measuring material with the exception of hot concentrated lyes or hydrofluoric acid. The high boron trioxide content ensures a high temperature change resistance, so that its coefficient of linear expansion is only 3.2 x 10-6 m/1°C.
For easy flow rate measurements of air in which media resistance is not a key consideration, we also offer flow meters with more economical measuring glasses made of PP.
Depending on the diameter of the measuring tube and the application, the use of floats made of PTFE or PVDF with soft iron core or magnet is preferred. This offers the advantage that the measured values can be read and transferred. If necessary due to operating conditions, other materials can also be used, for example glass, stainless steel or mu metal.

Special measuring tube – the individual solution for your measuring range

There are applications for which no measuring tube available as a standard product is adequate. In these cases we will be pleased to deliver flow meters with special measuring tubes, manufactured specially for your requirements and specifications and calibrated accordingly by specialists. Detailed data regarding the media, pressure, temperature, measuring range, density and viscosity are required for these individually manufactured parts (see request form).
Send us your specifications. Based on this information our specialists will put together the optimum flow meter for your needs and send you a non-binding offer.

The regulation valve

emtechnik flow meters come standard with a fine control valve (except 4M, 4N, 4T). The flow rate characteristics of the valve are aligned to the respective flow rate. A design without valve is also possible on request.

Accuracy classes according to VDI/VDE 3513

Measuring tube Ø x length	Class	% of final value min/max
10 x 75	4	1,3 - 4
10 x 150	2,5	0,8 - 2,5
17 x 75	4	1,3 - 4
17 x 150	2,5	0,8 - 2,5
28 x 150	2,5	0,8 - 2,5
13 x 115	6	2 - 6