

Flowmeter, Plastic

Construction

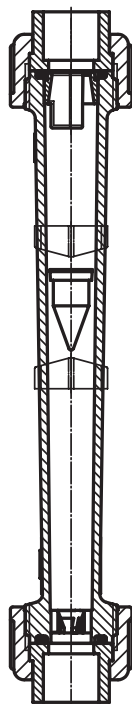
The flowmeter operates according to the variable area principle. Metering tubes are available in PA transparent or Polysulphone suitable for inert or corrosive* media (PVC-U and PVDF tubes on request). Male threads moulded onto the ends of the metering tube allow for easy mounting of unions. O-ring seals at the faces of the tube ensure reliable sealing between metering tube and union and provide stress-free sealing. The floats are available in stainless steel 1.4571, PVC-U, PP or PVDF (depending on working medium and measuring range). The scale on the metering tube can be suited to the medium and is available e.g. in l/h, m³/h or %. Dovetail sections moulded onto the metering tube allow for easy mounting of adjustable visual flow indicators, limit switches and a continuous readout transmitter.

Advantages

- Good level of accuracy, simple operation
- Corrosion resistant
- Over 500 standard scales and 13,000 special scales are available with further scales on request
- Clear and large size printed scale
- Versions according to ATEX available on request

* see information on working medium on page 2

Sectional drawing

**GEMÜ® 850**

851 / 855 / 857 / 861 / 865
867 / 870 / 875 / 880 / 885

Technical data

Working medium

Corrosive and inert gaseous and liquid media which have no negative impact on the physical and chemical properties of the metering tube, float, seal and union materials.

Operating pressure*

Metering tubes with plastic unions	max. 10 bar
Metering tubes with metal unions	max. 15 bar

*Operating pressure dependent on tube material and operating temperature

Version

Type	Working medium	Float material
851	Liquids and gases	PVC-U
861	Liquids and gases	PVC-U with magnet
855	Liquids and gases	PP
865	Liquids and gases	PP with magnet
857	Liquids	Stainless steel 1.4571
867	Liquids	Stainless steel 1.4571 with magnet
875	Gases	PP
885	Gases	PP with magnet
870	Liquids and gases	PVDF
880	Liquids and gases	PVDF with magnet

Pressure / temperature correlation - Variable area flowmeter

Tube material	Union material	Code	Temperature in °C																
			-20	-10	±0	5	10	20	25	30	40	50	60	70	80	90	100	110	120
			Operating pressure [bar]																
PA transparent code 21	PVC-U	1	-	-	-	10	10	10	10	8.0	6	3.5	1.5	-	-	-	-	-	-
	PP	5	-	-	-	10	10	10	10	8.5	7	5.5	4.0	-	-	-	-	-	-
	PVDF	20	10	10	10	10	10	10	10	9.0	8	7.1	6.3	-	-	-	-	-	-
	Malleable iron	6	15	15	15	15	15	15	15	13.5	12	10.7	9.5	-	-	-	-	-	-
	Stainless steel	7	15	15	15	15	15	15	15	13.5	12	10.7	9.5	-	-	-	-	-	-
	Stainless steel/PP	1V	-	-	-	10	10	10	10	8.5	7	5.5	4.0	-	-	-	-	-	-
Poly-sulphone code 22	PVC-U	1	-	-	-	10	10	10	10	8.0	6	3.5	1.5	-	-	-	-	-	-
	PP	5	-	-	-	10	10	10	10	8.5	7	5.5	4.0	2.7	1.5	0.8	-	-	-
	PVDF	20	-	-	-	10	10	10	10	9.0	8	7.1	6.3	5.4	4.7	3.6	2.5	-	-
	Malleable iron	6	-	-	-	15	15	15	15	14.0	13	12.0	11.0	9.7	8.5	7.7	6.0	-	-
	Stainless steel	7	-	-	-	15	15	15	15	14.0	13	12.0	11.0	9.7	8.5	7.7	6.0	-	-
	Stainless steel/PP	1V	-	-	-	10	10	10	10	8.5	7	5.5	4.0	2.7	1.5	0.8	-	-	-
PVC-U, transparent code 3	PVC-U	1	-	-	-	10	10	10	10	8.0	6	3.5	-	-	-	-	-	-	-
	Malleable iron	6	-	-	-	10	10	10	10	8.0	6	3.5	-	-	-	-	-	-	-
	Stainless steel	7	-	-	-	10	10	10	10	8.0	6	3.5	-	-	-	-	-	-	-
	Stainless steel/PP	1V	-	-	-	10	10	10	10	8.0	6	3.5	-	-	-	-	-	-	-
PVDF code 20	PVDF	20	10	10	10	10	10	10	10	9.0	8	7.1	6.3	5.4	4.7	3.6	2.5	1.7	1.2
	Stainless steel	7	10	10	10	10	10	10	10	9.0	8	7.1	6.3	5.4	4.7	3.6	2.5	1.7	1.2
	Stainless steel/PVDF	2V	10	10	10	10	10	10	10	9.0	8	7.1	6.3	5.4	4.7	3.6	2.5	1.7	1.2

Pressure loss [mbar]

Type	Nominal size			
	10	15	20	25
851	-	6.0	8	10.0
855, 861, 865, 870, 880	5	6.0	8	10.0
857, 867	10	12.0	17	19.0
875	1	1.5	2	2.5
885	-	-	11	13.0

Order data

Version	
Float material	Type
PVC-U (liquids and gases)	851
PVC-U with magnet (liquids and gases)	861
PP (liquids and gases)	855
PP with magnet (liquids and gases)	865
Stainless steel 1.4571 (liquids)	857
Stainless steel 1.4571 with magnet (liquids)	867
PP (gases)	875
PP with magnet (gases)	885
PVDF (liquids and gases)	870
PVDF with magnet (liquids and gases)	880

Body configuration	Code
Straight through	D

Connection	Code
Union ends with DIN insert (socket)	7
Union ends with inch insert (socket)	33
Union ends with DIN insert (butt welding)	71
Union ends with DIN insert (IR butt welding)	78
Union ends with insert (threaded socket Rp)	7R
Spigots DIN 11850, series 2	17
Spigots SMS 3008	37
Spigots ASME BPE	59
Spigots EN ISO 1127	60
Flanged connection on request	

Tube material	Code
PVC-U on request	3
PVDF on request	20
PA transparent temperature range 0 to 60°C* 21	
Polysulphone temperature range 0 to 100°C*	22

Seal material	Code
O-ring FPM	4
O-ring EPDM	14
O-ring FEP encapsulated	55

Union material	Code
Insert PVC-U, union nut PP	1
Insert PP, union nut PP	5
Malleable iron	6
Insert 1.4571 (threaded socket Rp) union nut stainless steel	7
Insert PVDF, union nut PVDF	20
Insert 1.4435 (butt weld spigot) union nut stainless steel	41
Insert 1.4435 (butt weld spigot) or Insert 1.4571 (threaded socket Rp), union nut PP	1V
Insert 1.4435 (butt weld spigot) or Insert 1.4571 (threaded socket Rp), union nut PVDF	2V
* Other materials on request	

Tube size	Code
See tables on pages 4 and 5	

Measuring range	Code
See tables on pages 4 and 5	
Always state the maximum measuring range value when ordering.	

Note:

The scale divisions given on pages 4 and 5 correspond to the actual flows.
When ordering, the flow ranges should be stated as follows:
Liquid media: l/h
Gaseous media: Nm³/h

Ordering information:

- The following data are necessary:
1. Type of medium
 2. Concentration of medium (%)
 3. Required flow range (l/h, m³/h, kg/h)
 4. Operating pressure, relative or absolute (bar)
 5. Temperature of medium (°C)
 6. Viscosity of medium
 7. Medium density
 8. Float with or without magnet

Order example	855	10	D	7	21	14	1	13	60
Version (type)	855								
Nominal size (code)		10							
Body configuration (code)			D						
Connection (code)				7					
Tube material (code)					21				
Seal material (code)						14			
Union material (code)							1		
Tube size (code)								13	
Measuring range max. (e.g. 60 l/h H ₂ O)									60

Accuracy class: 4 acc. to VDE/VDI 3513, sheet 2, i.e. $\pm 1\%$ of end value and $\pm 3\%$ of measured value.

Selection of scales */** (liquid media)										
Type	Nominal size	Water H ₂ O	Hydrochloric acid HCl 30-33%	Sodium hydroxide NaOH 30%	Sodium hydroxide NaOH 45%	Sodium hydroxide NaOH 50%	Tube size	Weight		
		Tube						Union		
		PA transpa- rent Polysulphone	Polysulphone	PA transparent / Polysulphone				PVC-U	Malleable iron	
	DN	l/h					Code	[kg]		
851/861 Float material PVC-U (GEMÜ 861 with magnet)	10	2 - 25	1 - 20	0.25 - 3.75	0.05 - 0.85	0.025 - 0.60	11	0.07	0.18	
		2 - 40	2 - 32	0.50 - 8.00	0.10 - 2.00	0.05 - 1.45	12			
		5 - 60	2 - 54	1.00 - 20.0	0.25 - 4.75	0.25 - 3.25	13			
		10 - 100	5 - 90	2.50 - 45.0	0.50 - 12.5	0.50 - 9.00	14			
		15 - 160	10 - 150	5.00 - 80.0	1.00 - 30.0	1.00 - 22.0	15			
855/865 Float material PP (GEMÜ 865 with magnet)	15	5 - 60	2.5 - 50	1.0 - 15.0	0.25 - 3.25	0.10 - 2.40	21	0.12	0.30	
		10 - 100	5.0 - 80	2.0 - 34.0	0.50 - 8.00	0.25 - 5.50	22			
		15 - 160	10 - 130	2.5 - 67.5	1.00 - 8.00	0.50 - 13.5	23			
		20 - 250	20 - 220	5.0 - 130	2.50 - 45.0	2.00 - 32.0	24			
		30 - 320	20 - 260	10.0 - 170	2.50 - 65.0	2.50 - 47.5	25			
870/880 Float material PVDF (GEMÜ 880 with magnet)	20	10 - 160	10 - 135	2.5 - 62.5	1.0 - 15.0	0.5 - 11	31	0.21	0.48	
		20 - 250	20 - 210	5.0 - 115.0	2.0 - 32.5	1.0 - 24	32			
		40 - 400	25 - 325	10 - 190.0	2.5 - 70.0	2.5 - 50	33			
	25	60 - 640	50 - 550	25 - 375.0	10.0 - 180	5.0 - 130	34	0.29	0.61	
		20 - 250	20 - 200	5 - 110	2.0 - 29	1.0 - 20	41			
	40 - 400	30 - 340	10 - 200	2.5 - 70	2.5 - 50	42				
	60 - 640	50 - 550	20 - 380	10 - 150	5 - 120	43				
	100 - 1000	100 - 900	25 - 650	25 - 350	10 - 260	44				

* All scales in this data sheet are based on a medium temperature of 20° C.

** For smaller or larger flow ranges see data sheets GEMÜ 800, 840.
Other ranges available on request.

Tubes in PVC-U and PVDF on request

Selection of scales (gaseous media)

Type	Nominal size	Medium air At 1 bar abs. and 20°C PA transparent, Polysul- phone	Tube size	Weight	
				Union	
				PVC-U	Malleable iron
				[kg]	
DN	Nm³/h	Code			
875 Float material PP (without magnet)	10	0.02 - 0.36	11	0.07	0.18
		0.05 - 0.55	12		
		0.10 - 0.90	13		
		0.15 - 1.50	14		
		0.20 - 2.40	15		
	15	0.10 - 0.90	21	0.11	0.29
		0.15 - 1.50	22		
		0.20 - 2.40	23		
		0.40 - 3.80	24		
		0.40 - 4.80	25		
	20	0.20 - 2.50	31	0.19	0.46
		0.25 - 3.75	32		
0.50 - 5.50		33			
1.00 - 10.0		34			
25	0.4 - 4.0	41	0.25	0.57	
	0.5 - 6.0	42			
	1.0 - 10.0	43			
	1.0 - 16.0	44			
885 Float material PP (with magnet)	20	0.75 - 6.5	31	0.19	0.46
		1.0 - 10.0	32		
		1.0 - 14.5	33		
		2.0 - 24.0	34		
	25	1.0 - 10.0	41	0.25	0.57
		2.0 - 16.0	42		
		3.0 - 24.0	43		
		5.0 - 37.5	44		

To types 875/885:

Caution! With gaseous media the scaling alters according to operating pressure. Please state when ordering.

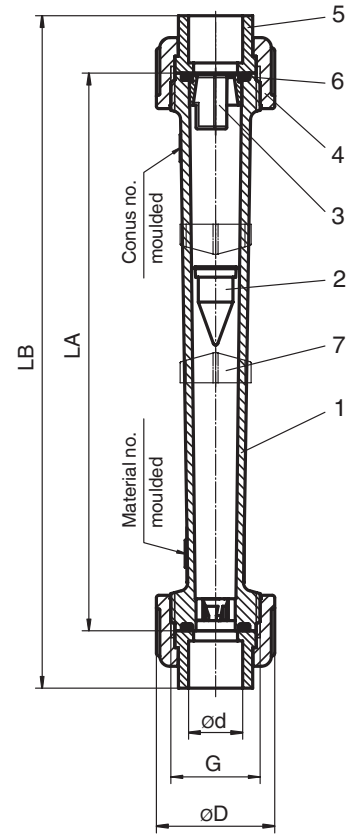
Special scales:

For other media and operating requirements differing from those given for standard versions, special scales are available. Please note the ordering information (see page 3).

Dimensions [mm]

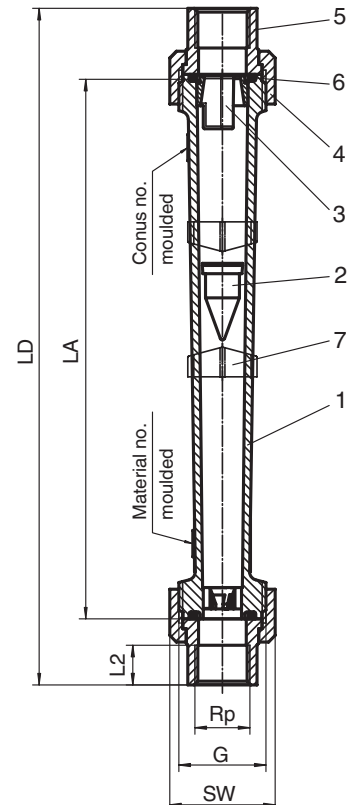
Plastic union												
Connection code				øD	7				33			
DN	G	LA*	O-ring		ød	LB			NPS	ød	LB	
Union material code				1		5	20	1				
10	G 3/4	165	15.5 x 2.6	35	16	201	201	201	3/8	17.3	209	
15	G 1	170	20.2 x 3.5	43	20	208	205	208	1/2	21.4	208	
20	G 1 1/4	185	28.0 x 3.5	53	25	229	223	227	3/4	26.7	229	
25	G 1 1/2	200	33.0 x 3.5	59	32	250	242	246	1	33.6	250	

Tube material PVDF = LA/LB -3 mm



Metal and plastic union							
Connection code				7R			
DN	G	LA*	O-ring	SW	Rp	L2	LD
Union material code				1, 6, 7			
10	G 3/4	165	15.5 x 2.6	32	Rp 3/8	12	207
15	G 1	170	20.2 x 3.5	41	Rp 1/2	13	215
20	G 1 1/4	185	28.0 x 3.5	50	Rp 3/4	16	230
25	G 1 1/2	200	33.0 x 3.5	55	Rp 1	19	252

Tube material PVDF = LA/LB -3 mm



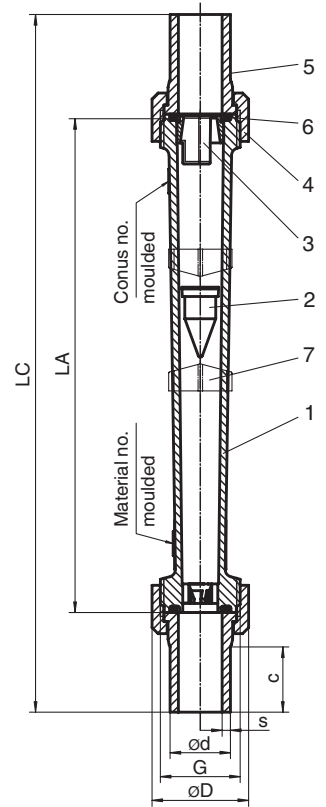
Dimensions [mm]

Plastic union											
Connection code				øD	ød	s		78			
DN	G	LA*	O-ring					c		LC	
Union material code				5	20	5	20	5	20		
10	G 3/4	165	15.5 x 2.6							35	-
15	G 1	170	20.2 x 3.5	43	20	1.9	1.9	37	276		
20	G 1 1/4	185	28.0 x 3.5	53	25	2.3	1.9	39	297		
25	G 1 1/2	200	33.0 x 3.5	59	32	2.9	2.4	40	318		

Tube material PVDF = LA/LB -3 mm

Metal union															
Connection code				SW	øD	LC	c	17		37		59		60	
DN	G	LA*	O-ring					ød	s	ød	s	ød	s	ød	s
Union material code				41, 1V, 2V											
10	G 3/4	165	15.5 x 2.6	32	35	240	34	13	1.5	-	-	9.53	0.89	17.2	1.6
15	G 1	170	20.2 x 3.5	41	43	246	34	19	1.5	-	-	12.70	1.65	21.3	1.6
20	G 1 1/4	185	28.0 x 3.5	50	53	261	34	23	1.5	-	-	19.05	1.65	26.9	1.6
25	G 1 1/2	200	33.0 x 3.5	55	59	279	34	29	1.5	25	1.2	25.40	1.65	33.7	1.6

Tube material PVDF = LA/LB -3 mm



Connection code 78

Designation		
Item		Pieces
1	Tube	1
2	Float	1
3	Float stop	2
4	Union nut	2
5	Union	2
6	O-ring (see table)	2
7	Flow indicator	2

Overview GEMÜ 850

Union material	1			5		6	7	20		41, 1V, 2V			
Connection code	7	7R	33	7	78	7R	7R	7	78	17	37	59	60
DN													
10	X	X	X	X	-	X	X	X	-	X	-	X	X
15	X	X	X	X	X	X	X	X	X	X	-	X	X
20	X	X	X	X	X	X	X	X	X	X	-	X	X
25	X	X	X	X	X	X	X	X	X	X	X	X	X

Accessories for flowmeter series GEMÜ 850

To increase the versatility of the GEMÜ 850 flowmeter, numerous accessories have been developed which can be retrofitted onto the tube without modification.

The float, however, must be one containing a magnet, in order for these accessories to function.



GEMÜ 1250 for DN 25

Change-over contact
(Switching duty of magnetic switch 10 VA)

GEMÜ 1256 for DN 10, 15, 20

Limit switch (max.)
(Switching duty of magnetic switch 10 VA)

GEMÜ 1251 for DN 25

Limit switch (max.)
(Switching duty of magnetic switch 10 VA)

GEMÜ 1257 for DN 10, 15, 20

Limit switch (min.)
(Switching duty of magnetic switch 10 VA)

GEMÜ 1252 for DN 25

Limit switch (min.)
(Switching duty of magnetic switch 10 VA)



GEMÜ 1276

Digital display unit Versions:
With or without switch points.



GEMÜ 1271

Instrument sensor for continuous
flow readout (resistance 0 -10 kΩ).

GEMÜ 1273

Instrument sensor for continuous
flow readout via output signal
4-20 mA from an integrated 2-wire
measuring transducer

Separate data sheets are available for the above accessories on request.

Other products from our product range:

- Plastic valves, pneumatically, electrically and manually operated.
- Metal valves, pneumatically, electrically and manually operated.

For further flowmeters, accessories and other products,
please see our Product Range catalogue and Price List.
Contact GEMÜ.

GEMÜ® VALVES, MEASUREMENT
AND CONTROL SYSTEMS

