

Variable area flowmeter Easyflow



Variable area Flowmeter

These flowmeters operate according to the variable area principle, where a float is suspended in upward flowing media in a tapered plastic tube.

The vertical position of the float within the metering tube depends on the flowrate of the media.

The metering tube is graduated in suitable flow units (normally with 10:1 flow range) and the reading is taken in correspondence with the top edge of the float.

Versions for liquids and gases are available, providing accurate and cost effective measurement with scales in l/h and Nm³/h. Other engineering units like LPM, m³/h or % together with double scales and special scales suited to the medium are available on request.

Main Features

- Wide choice of measuring scales
- Wide choice of end connections
- Eight different diameters
- Five different tube lengths
- Three different plastic tube materials
- SS and PP float materials
- Special and double scales available
- Good level of accuracy with simple operation
- Easy to maintain



Tube
material: PVC

PA

PSU

Installation details

When the flowmeter is used in a system provided with control valves, the following criteria must be observed:

- With liquid media, isolating or control valves may be mounted both upstream or downstream the flowmeter
- With gaseous media, control valves are recommended to be mounted downstream the flowmeter
- All control valves must be open slowly and gradually due to the high sensitivity to the float to flow variations.
- Flowmeter must be mounted vertical

Classification

	liquid	gas	long	short
700	•		•	
701		•	•	
750	•			•
751		•		•

Versatility

Metering tubes are available in Trogamid (PA), suitable for inert media, PVC and Polysulfone (PSU) suitable for many corrosive media. Male threads moulded onto the end of the metering tube are used for easy mounting of unions. Standard unions are in PVC-U but others are available according to the different working conditions.

The floats are available in Stainless Steel 1.4571 (AISI 316 Ti) and PP depending on flow medium and measuring range.

All the flowmeters are equipped with min-max visual flow indicators fully adjustable. In addition, the flowmeters can be fitted with min-max flow switches.

When fitting the electrical accessories, a float with magnet must be installed in the flowmeter.

Technical Data

Diameter Range	- Type 700 d25 (3/4"); d32 (1"); d40 (1 1/4"); d50 (1 1/2"); d63 (2"); d75 (2 1/2") - Type 750 d16 (3/8"); d20 (1/2"); d25 (3/4"); d 32 (1")	Standard media*	- Water - Hydrochloric Acid (HCl 30%) - Sodium Hydroxide (NaOH 30%) - Sodium Hydroxide (NaOH 50%) - Air (20°C / 1013 mbar abs.)
Materials	- Measuring tube Transparent PVC-U; Trogamid (PA); Polysulfon (PSU) - Float Stainless Steel 1.4571 (AISI 316 Ti); PP; Stainless Steel 1.4571 (AISI 316 Ti) + magnet; PP + magnet - Union ends PVC-U; PVC-C; PP-H; Stainless Steel 1.4571 (AISI 316 Ti); Malleable Iron - O-rings EPDM; FPM	Maximum working pressure**	- Transparent PVC-U 10 bar (145 psi) with water up to 25 °C (77 °F) 1.5 bar (22 psi) with water up to 60 °C (140 °F) - Trogamid (PA) 10 bar (145 psi) with water up to 50 °C (122 °F) - Polysulfon (PSU): 10 bar (145 psi) with water up to 70 °C (158 °F) 6 bar (87 psi) with water up to 100 °C (212 °F)
Standards	- PVC-U Solvent welding metric size according to: ISO 727, EN 1452, DIN 8063 Parallel threads according to: UNI ISO 228/1, DIN 2999, BS 21 Others available on request - PVC-C Solvent welding metric size according to: ISO 727, EN ISO 15493 - PP-H Socket fusion according to: DIN 16962 - Stainless Steel 1.4571 (AISI 316 Ti) Parallel threads according to: UNI ISO 228/1, DIN 2999, BS 21 - Malleable Iron Parallel threads according to: UNI ISO 228/1, DIN 2999, BS 21	Working temperature range**	- Transparent PVC-U from 5 °C (41 °F) to 60 °C (140 °F) - Trogamid (PA) from -20 °C (-4 °F) to 50 °C (122 °F) - Polysulfon (PSU) from -20 °C (-4 °F) to 100 °C (212 °F)
		Standard and Approvals	- Manufactured under ISO 9001 (Quality Management) - Manufactured under ISO 14001 (Environmental Management) - GOST-R in compliance with Russian safety and quality regulation Certificate No POCC IT.A 50.B10366

* Other media on request
** Depends on union end material
(see Pressure / Temperature table for details page 4)

Versions

	Water	NaOH	HCl	Air
Float material				
PP	●	●	●	
PP + magnet	●	●	●	
1.4571 (AISI 316 Ti)	●	●		
1.4571 (AISI 316 Ti) + magnet	●	●		
PP air				●
PP air + magnet				●
Tube material				
PVC-U	●	●	●	
Trogamid (PA)	●			●
Polysulfone (PSU)	●	●	●	

Pressure Temperature Correlation

Temperature °C		-20	-10	0	5	10	20	25	30	40	50	60	70	80	90	100
Tube material	Union material	Operating pressure [bar]														
PVC-U	PVC-U				10,0	10,0	10,0	10,0	8,0	6,0	3,5	1,5				
	PVC-C				10,0	10,0	10,0	10,0	8,0	6,0	3,5	1,5				
	PP				10,0	10,0	10,0	10,0	8,0	6,0	3,5	1,5				
	Malleable Iron				10,0	10,0	10,0	10,0	8,0	6,0	3,5	1,5				
	Stainless steel				10,0	10,0	10,0	10,0	8,0	6,0	3,5	1,5				
Trogamid (PA)	PVC-U				10,0	10,0	10,0	10,0	8,0	6,0	3,5	1,5				
	PVC-C				10,0	10,0	10,0	10,0	8,5	6,5	5,0	3,5				
	PP				10,0	10,0	10,0	10,0	8,5	7,0	5,5	4,0				
	Malleable Iron	15,0	15,0	15,0	15,0	15,0	15,0	15,0	13,5	12,0	10,7	9,5				
	Stainless steel	15,0	15,0	15,0	15,0	15,0	15,0	15,0	13,5	12,0	10,7	9,5				
Polysulfon (PSU)	PVC-U				10,0	10,0	10,0	10,0	8,0	6,0	3,5	1,5				
	PVC-C				10,0	10,0	10,0	10,0	8,5	6,5	5,0	3,5	2,5	1,5		
	PP			10,0	10,0	10,0	10,0	10,0	8,5	7,0	5,5	4,0	2,7	1,5	0,8	
	Malleable Iron	15,0	15,0	15,0	15,0	15,0	15,0	15,0	14,0	13,0	12,0	11,0	9,7	8,5	7,7	6,0
	Stainless steel	15,0	15,0	15,0	15,0	15,0	15,0	15,0	14,0	13,0	12,0	11,0	9,7	8,5	7,7	6,0

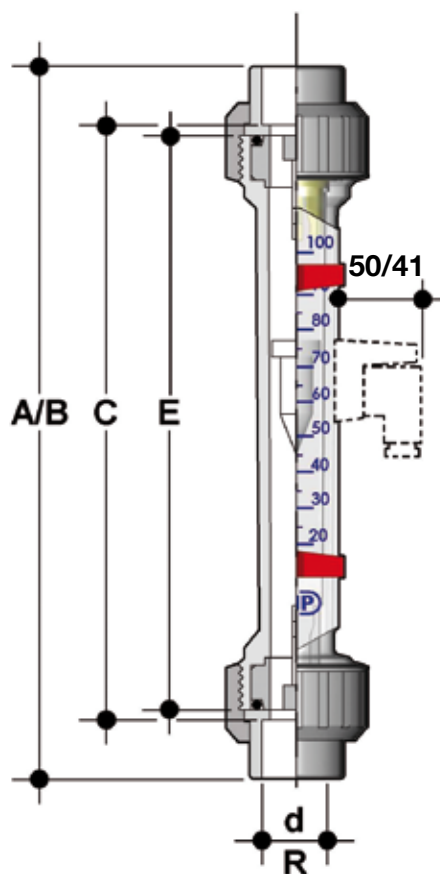
Type 700 (liquid fluid)

Pressure loss [mbar]						
Float Material	Size					
	d25 (3/4") DN20	d32 (1") DN25	d40 (1 1/4") DN32	d50 (1 1/2") DN40	d63 (2") DN50	d75 (2 1/2") DN65
PP	10	11	17	20	29	35
PP + magnet	10	11	17	20	29	35
1.4571 (AISI 316 Ti)	14	16	22	25	33	42
1.4571 (AISI 316 Ti) + magnet	14	16	22	25	33	42

Type 750 (liquid fluid)

Pressure loss [mbar]				
Float Material	Size			
	d16 (3/8") DN10	d20 (1/2") DN15	d25 (3/4") DN20	d32 (1") DN25
PP	4	5	7	8
PP + magnet	4	5	7	8
1.4571 (AISI 316 Ti)	7	9	12	15
1.4571 (AISI 316 Ti) + magnet	7	9	12	15

Dimensions



Type 700/701	Socket	Threaded BSP		Socket		Tube lenght
DN	d	R	A (mm)	B (mm)	C (mm)	E (mm)
20	25	3/4"	397	394	356	350
25	32	1"	401	400	356	350
32	40	1 1/4"	406	408	356	350
40	50	1 1/2"	413	418	356	350
50	63	2"	421	432	356	350
65	75	2 1/2"	-	444	356	350

Type 750/751	Socket	Threaded BSP		Socket		Tube lenght
DN	d	R	A (mm)	B (mm)	C (mm)	E (mm)
10	16	3/8"	198	199	171	165
15	20	1/2"	212	208	176	170
20	25	3/4"	232	229	191	185
25	32	1"	251	250	206	200

Accuracy Class

Type 700

Accuracy Class	2.5
Standard	VDI/VDE 3513, sheet 2
Accuracy	± 1.875% of reading + 0.625% of full scale

Type 750

Accuracy Class	4
Standard	VDI/VDE 3513, sheet 2
Accuracy	± 3% of reading + 1% of full scale

Type 700

	Nominal size			Tube	Liquid fluid			
					Water	Hydrochloric acid	Sodium Hydroxide	Sodium Hydroxide
					H ₂ O	HCl 30%	NaOH 30%	NaOH 50%
					Tube material			
	d	DN	R	Code	PVC-U - PA - PSU	PVC-U - PSU		
						Measuring Range [l/h]		
Float material: SS or SS + magnet	25	20	3/4"	40	25-250	-	6-125	1-27
				41	40-400	-	10-240	2,5-70
				42	60-640	-	25-425	5-170
				43	100-1000	-	35-725	15-350
	32	25	1"	46	40-400	-	10-240	2,5-65
				47	60-640	-	20-420	5-145
				48	100-1000	-	25-700	10-330
				49	150-1600	-	50-1200	25-675
	40	32	1 1/4"	50	150-1600	-	50-1150	25-550
				51	200-2500	-	100-1900	50-1100
				52	400-4000	-	200-3200	100-2000
				55	200-2500	-	100-1700	50-1000
	50	40	1 1/2"	56	400-4000	-	200-3000	50-1900
				57	500-5000	-	200-3700	100-2500
				60	400-4000	-	100-3000	50-1800
				61	600-6000	-	250-4700	100-3100
63	50	2"	62	1000-10000	-	500-8500	250-6000	
			66	1500-15000	-	1000-12000	250-9000	
			67	2000-20000	-	1500-16500	500-12500	
			68	10000-50000	-	8800-43000	8200-40000	
Float material: PP or PP + magnet	25	20	3/4"	40	15-150	14-140	2,5-54	0,5-9,5
				41	25-250	23-230	6-115	1,5-23
				42	45-450	42-420	11-235	3-65
				43	70-700	65-650	28-410	7-145
	32	25	1"	46	25-250	23-230	6-125	1-20
				47	40-400	37-370	10-200	2,5-50
				48	65-650	60-600	11-395	5,5-130
				49	100-1000	90-900	25-650	10-260
	40	32	1 1/4"	50	100-1000	80-900	25-600	10-200
				51	160-1600	150-1500	55-1100	20-500
				52	200-2500	200-2300	100-1700	25-950
				55	150-1600	140-1500	50-1000	25-425
	50	40	1 1/2"	56	200-2200	190-2000	100-1500	25-800
				57	250-2500	230-2300	120-1600	40-950
				60	250-2500	230-2300	60-1700	30-800
				61	350-3500	330-3200	90-2500	40-1400
63	50	2"	62	500-5000	470-4600	200-4000	80-2500	
			66	1000-8000	950-7500	670-6000	330-3800	
			67	1000-10000	930-9300	500-7500	170-5200	
			68	5000-25000	4700-23000	4400-22000	4100-20000	

Special scales on request

Type 701

	Nominal size			Tube	Gases fluid	
					Air 1.103 bar abs. 20° C	
					Tube material	
					PA	
	d	DN	R	Code	Measuring Range [Nm³/h]	
					Float material: PP	Float material: PP magnet
Float material: PP air and PP air + magnet	25	20	3/4"	40	0,2-2,5	0,6-6
				41	0,3-4	1-10
				42	0,5-6,5	1,6-16
				43	1-10	2,5-25
	32	25	1"	46	0,4-4	1-10
				47	0,5-6,5	1,6-16
				48	1-10	2,5-25
				49	1,5-16	4-40
	40	32	1 1/4"	50	1,5-16	4-40
				51	2-25	6-60
				52	4-40	10-100
				55	2-25	6-60
	50	40	1 1/2"	56	4-40	10-100
				57	5-50	12,5-125
				60	4-40	10-100
				61	6-64	16-160
Float material: PP air and PP air + magnet	63	50	2"	62	10-100	25-250
				66	15-140	35-350
				67	20-200	50-500
				68	50-500	on request

Special scales on request

Type 750

	Nominal size			Tube	Liquid fluid			
					Water H ₂ O	Hydrochloric acid HCl 30%	Sodium Hydroxide NaOH 30%	Sodium Hydroxide NaOH 50%
					Tube material			
					PVC-U - PA - PSU	PVC-U - PSU		
	d	DN	R	Code	Measuring Range [l/h]			
Float material: SS or SS + magnet	16	10	3/8"	1	3-30	-	-	-
				2	4-40	-	0,5-8,5	0,05-1,4
				3	10-100	-	2,5-40	0,5-8
				4	20-200	-	10-120	2,5-40
				5	30-300	-	15-180	4-55
	20	15	1/2"	10	5-50	-	-	-
				11	10-100	-	2,5-37,5	0,25-6,5
				12	15-160	-	4-75	1-15
				13	20-250	-	5-140	2-36
				14	35-350	-	9-220	4-75
	25	20	3/4"	15	60-600	-	24-360	6-140
				20	15-150	-	-	-
				21	25-250	-	6-135	2,5-30
				22	40-400	-	13-230	3-65
				23	50-600	-	20-350	4-135
	32	25	1"	24	100-1200	-	25-650	20-320
				31	40-400	-	10-220	2,5-55
				32	50-600	-	20-350	5-125
				33	100-1000	-	25-650	20-300
				34	150-1500	-	50-1000	25-600
Float material: PP or PP + magnet	16	10	3/8"	1	1,5-15	1,4-14	-	-
				2	2-20	2-18	0,25-3	0,025-0,5
				3	5-50	5-45	1-17	0,25-2,75
				4	10-100	10-90	2,5-45	0,5-9
				5	15-150	14-140	5-75	1-21
	20	15	1/2"	10	2-25	2-23	-	-
				11	5-50	5-45	1-12,5	0,1-2
				12	10-100	10-90	2-34	0,25-5,5
				13	15-150	14-140	2,5-63	0,5-12,5
				14	20-200	19-185	5-104	2-25,5
	25	20	3/4"	15	30-320	30-300	10-170	2,5-47,5
				20	8-80	7,5-75	-	-
				21	15-150	14-140	3,5-60	1-10
				22	20-200	19-185	5-92	1-19
				23	30-350	30-325	8-165	2-45
	32	25	1"	24	50-650	45-600	20-380	4-130
				31	20-200	19-185	5-90	1-15
				32	30-300	28-280	7,5-150	2-40
				33	60-600	55-550	20-360	5-110
				34	100-1000	90-900	25-650	10-260

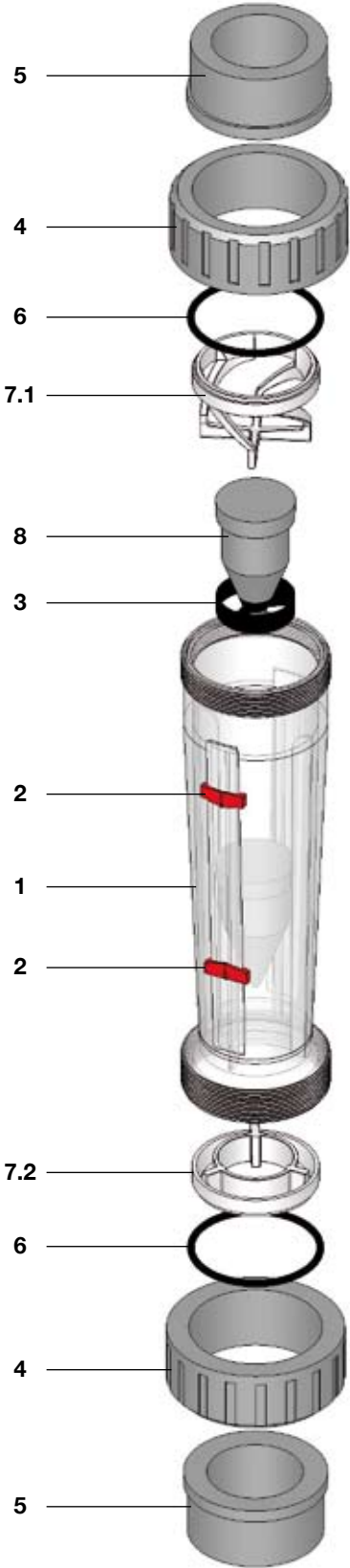
Special scales on request

Type 751

	Nominal size			Tube	Gases fluid	
					Air 1.103 bar abs. 20° C	
					Tube material	
					PA	
	d	DN	R	Code	Measuring Range [Nm ³ /h]	
Float material: PP air and PP air + magnet	16	10	3/8"	1	0,025-0,25	0,06-0,6
				2	0,04-0,4	0,1-1
				3	0,1-1	0,25-2,5
				4	0,2-2	0,45-4,5
				10	0,045-0,45	0,12-1,2
	20	15	1/2"	11	0,09-0,9	0,2-2
				12	0,15-1,5	0,35-3,5
				13	0,25-2,5	0,6-6
				14	0,38-3,8	1-10
				15	0,4-4,8	1,25-12,5
	25	20	3/4"	20	0,12-1,2	0,3-3
				21	0,3-2,5	0,6-6
				22	0,45-4,5	1,2-12
				23	0,6-6,5	1,6-16
				24	1,1-11	2,7-27
	32	25	1"	31	0,6-4	1-10
				32	0,7-7	1,7-17
				33	1,1-11	2,7-27
				34	2-14	3,5-35

Special scales on request

Part List

Description		Material	Quantity
	1	Tube	1
		Transparent PVC-U	
		Trogamid (PA)	
2	Adjustable visual flow indicator	Polysulfon (PSU)	2
		PVDF	
3*	Floater wing	PVDF	1
4	Nut	PVC-U	2
		PVC-C	
		PP	
		Stainless Steel	
		Malleable Cast Iron	
5	End connector	PVC-U	2
		PVC-C	
		PP	
		Stainless Steel	
		Malleable Cast Iron	
6	O-Ring	EPDM	2
		FPM	
7.1	Upper float stop	PVDF	1
7.2**	Lower float stop	PVDF	1
8	Float	Stainless Steel	1
		PP	

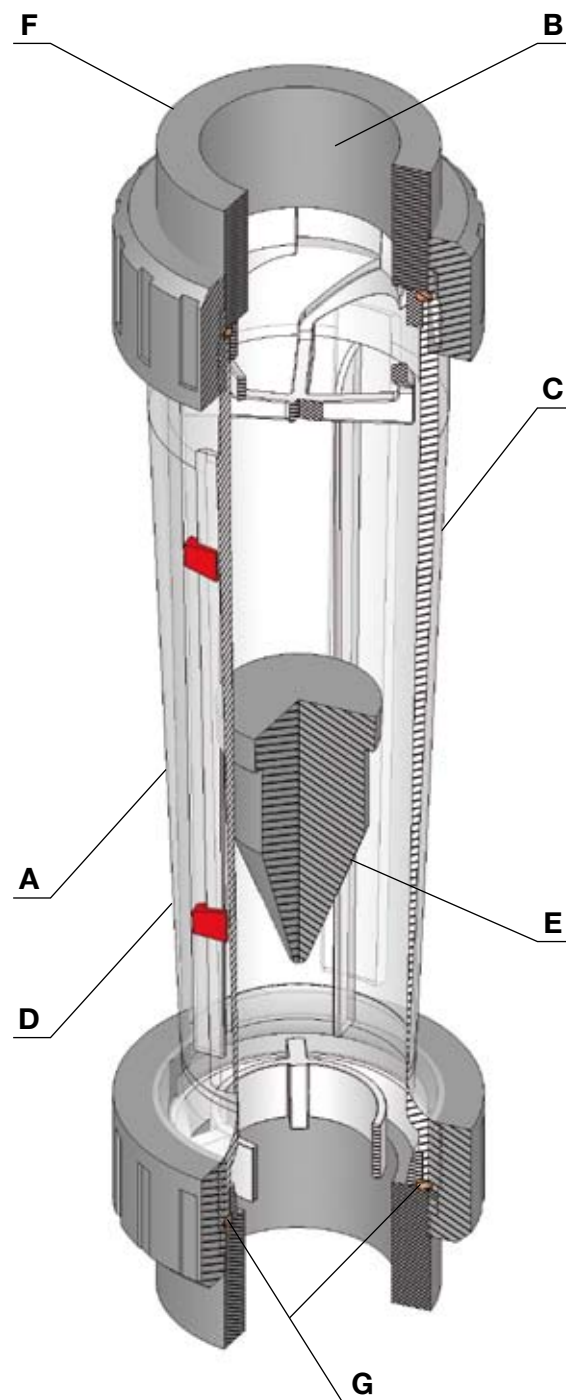
* For Code 68 only

** 7.2 for 700/701 only

Ordering key

A	B	C	D	E	F	G	H
Type	Size	Tube code	Tube material	Floater material	Connection	O-ring material	Fluid

Pos.	Description	Code	Specification
A	Type:	700	flowmeter type 700
		701	flowmeter type 701
		750	flowmeter type 750
		751	flowmeter type 751
	See page 2/5		
B	Size:	DN	10, 15, 20, 25,
			32, 40, 50, 65
C	Tube:	1, 2, 3,	Tube
		..., 68	
D	Tube material:	1	Trogamid
		2	Polysulfon
		3	PVC
E	Floater material:	2	Stainless steel
		5	PP (weighted)
		2M	Stainless steel -magnet
		5M	PP-magnet (weighted)
F	Connection:	10	PVC Standard plain socket
		11	PVC BS plain socket
		12	PVC ASTM plain socket
		13	PVC threaded socket BSP
		21	PP ISO-welding socket
		31	PVDF ISO-welding socket
		40	CPVC Standard plain socket
		70	Stainless steel, union end with threaded socket
		80	Malleable Iron
G	O-ring material:	1	EPDM (Ethylene-Propylene)
		2	FPM (Viton)
H	Fluid:	H ₂ O	Water
		NaOH 30	Caustic soda 30%
		NaOH 50	Caustic soda 50%
		HCL 30	Hydrochloric acid 30%
		AIR	Air
		V-number	Special scale



Specification required for special scale

Physical condition _____

Fluid _____

Density _____

Viscosity in mPas _____

Absolute pressure in bar
(for gases) _____

Temperature in °C _____

Measuring range _____

Accessories

Micro Switches

The micro switches are clamped on the guide of the flowmeter. A bi-stable reed contact is built into the switches and it is activated by the magnet incorporated into the float.

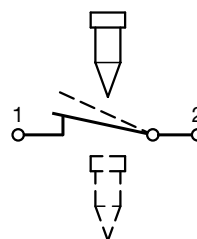
The bi-stable magnetic micro switch is used as a position indicator for floats in SED flowmeters. Measurements can be expressed contact-free and non-reactive.

The micro switches, with IP65 protection class, are available for MIN or MAX flow rate indication with a different design according to flowmeter sizes.



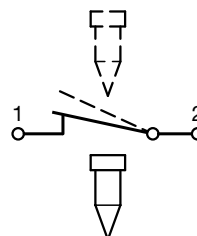
MAX control switch 024.86.050 / .055

It closes when the MAX threshold is overshoot upward.



MIN control switch 024.86.060 / .065

It closes when the MIN threshold is overshoot downward.



Classification

Type	Type flowmeter		
	700/701	750/751 DN10-20	750/751 DN25
024.86.050	•		•
024.86.055		•	
024.86.060	•		•
024.86.065		•	

Technical Data

Body material	- PP GRP
Connection	- DIN 43650
Protection rate	- IP65
Contact resistance	- 0.1 Ω
Contact insulation resistance	- from 10^{11} Ω
Closing time	- 2 msec.
Opening time	- 0.07 msec.
Working Temperature	- from -40 to +80° C
Contact Material	- Rhodium with inert protective gas
Max operating power	- 10 Watt, 12 VA
Max operating voltage	- 250 VAC/DC
Max input peak	- 0.5 A
Max current	- 22 mA @ 220 Volt 45 mA @ 110 Volt 0.2 A @ 24 Volt 0.5 A @ 10 Volt
Standards	- CE conformity RoHS conformity

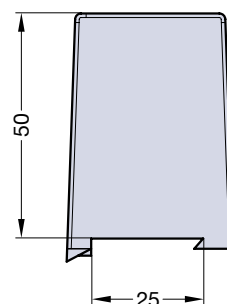
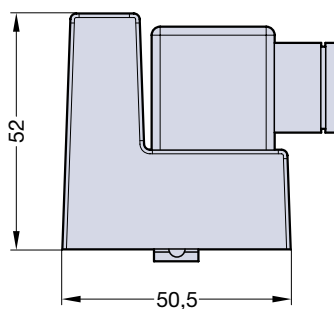
Caution: Take care of max current otherwise you may destroy the contact



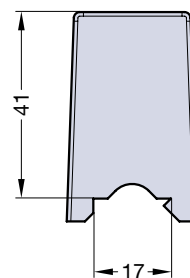
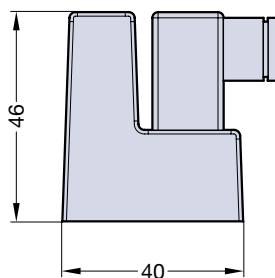
Micro switch can be mounted on one side or both sides.

Dimensions

024.86.050
024.86.060



024.86.055
024.86.065



Further selection of SED product range



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TD11 0020 Rev. a, Subject to alteration