

Variable area flowmeters RA 77 / FA 77



- Direct reading on a calibrated tube
- Body: PVC / Reading tube: Glass
- For aggressive fluids
- Fittings: Unions or flanges
- Adjustable limit value switches

APPLICATIONS

- Water treatment, Industrial process (paper mill, textiles etc.), chemical and pharmaceutical industries, heating and cooling plants.

DESCRIPTION

Their design, plastic body and glass tube, makes them particularly suitable for aggressive fluids and corrosive environment.

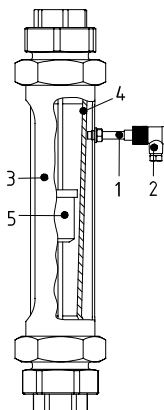
The measuring principle is that of the variable area flowmeter, the float is moved by the fluid inside a calibrated conical glass tube. The borosilicate glass conical tube is inside a plastic protection case with a transparent reading window.

Standard versions:

RA 77	Unions for solvent welding, ND10 to 80
FA 77	Flanges ND 10 to 80
RA / FA 77-MSK1	With bistable switch N.C.
RA / FA 77-MSK2	With bistable switch N.O.
RA / FA 77-MSKW	With bistable changeover switch

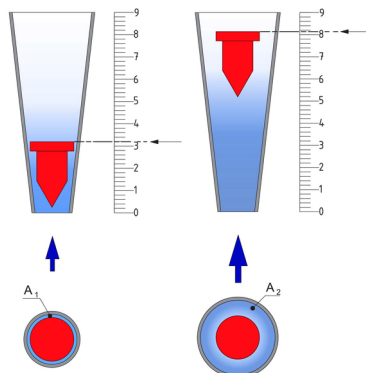
Limit values switches

These flowmeters can be equipped with a magnetic float and Reed contacts, triggerpoints adjustable over the entire measuring range.



Switch output

- 1) Reed contact
- 2) Right angle connector
- 3) Body
- 4) Reading tube
- 5) Magnetic float



Principle

TECHNICAL FEATURES

Nominal pressure	PN 10 at 20 °C
Temperature vs. pressure	PVC: Max. 40 °C / 6 bar PP: Max. 80 °C / 1.5 bar PVDF: Max. 80 °C / 5.5 bar
Operating pressure	See the table of measuring ranges
Scale factor	1:10
Accuracy class	According to VDE/VDI 3513 page 2 (08/2008)
Error limit (G)	1.6 %
Linear limit (qG)	50 %
Fittings RA 77	Unions for solvent welding (DIN 8063), Option: Thread according DIN EN 228 T1
Fittings FA 77	Flanges PN 10 according to DIN EN 1092-1, other fittings on request
Materials	
Protection case	Grey PVC tube, with reading window
Fittings and inserts RA 77	PVC (Options: PP, PVDF)
Flanges FA 77	PVC (Options : PP, UP-GF)
Reading tube	Borosilicate glass
Protective screen	Perspex ®
Seals	EPDM (Option: FPM)
Floats for liquids ¹⁾	Red PVC, metallic core
Floats for gases ¹⁾	Red PVC (Options: Anodized aluminium, PP, PVDF)
Floats for switches	Red PVC rouge, with built-in magnet

¹⁾ With guiding rod for size 30 and greater (details on request)

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22, Rue de la Voie des Bans · Z.I. de la gare · 95100 ARGENTEUIL

Tel +33 (0)1 30 25 83 20 Web www.bamo.eu

Fax +33 (0)1 34 10 16 05 E-mail export@bamo.fr

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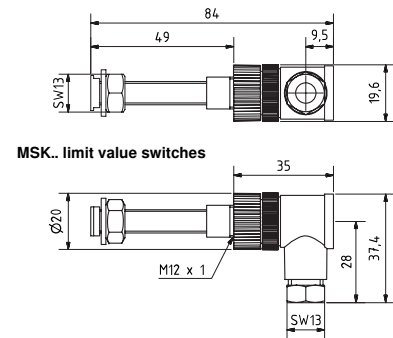
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	Switches features		
	MSK1	MSK2	MSKW
Operation	Bistable NC	Bistable NO	Bist. Changeover
Max. voltage	50 V AC / 75 V DC	50 V AC / 75 V DC	50 V AC / 75 V DC
Max. current	0.5 A	0.5 A	0.5 A
Switching capacity	10 W/VA	10 W/VA	5 W/VA
Temperature ¹⁾	-20...+90 °C	-20...+90 °C	-20...+90 °C

¹⁾ The thermal endurance of the flow meter is crucial.

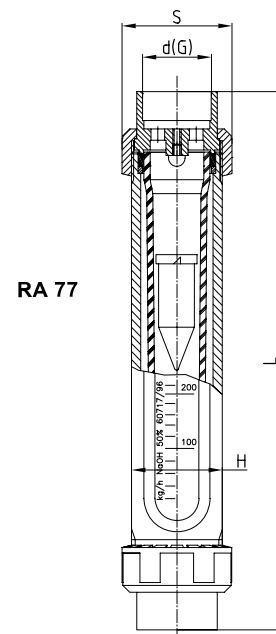


MEASURING RANGES

Size	Ranges					Max. pressure At 20 °C [bar]
	H ₂ O	HCl 30 %	NaOH 30 %	NaOH 50 %	Air (0 °C / 1013 mbar ABS)	
9.5	0.3 – 3 l/h	0.3 – 3 l/h	On request	On request	8 – 80 l/h	10
	10 – 100 l/h	10 – 100 l/h			0.22 – 2.2 m ³ /h	
10	0.1 – 1 l/h	1 – 10 l/h	On request	On request	0.3 – 3 l/h	10
	15 – 150 l/h	10 – 100 l/h			0.25 – 2.5 m ³ /h	
19	12 – 120 l/h	10 – 100 l/h	4 – 40 l/h	4 – 40 l/h	0.17 – 1.7 m ³ /h	10
	0.2 – 1.6 m ³ /h	0.11 – 1.1 m ³ /h	80 – 800 l/h	20 – 200 l/h	1.5 – 15 m ³ /h	
30	0.1 – 1 m ³ /h	90 – 900 l/h	0.1 – 1 m ³ /h	38 – 380 l/h	1 – 10 m ³ /h	8
	0.3 – 3 m ³ /h	0.28 – 2.8 m ³ /h	0.2 – 2 m ³ /h	0.1 – 1 m ³ /h	3 – 30 m ³ /h	
36	0.35 – 3.5 m ³ /h	0.3 – 3 m ³ /h	0.3 – 3 m ³ /h	0.15 – 1.5 m ³ /h	3.6 – 36 m ³ /h	8
	0.6 – 6 m ³ /h	0.55 – 5.5 m ³ /h	0.5 – 5 m ³ /h	0.35 – 3.5 m ³ /h	7 – 70 m ³ /h	
43	0.6 – 6 m ³ /h	0.56 – 5.6 m ³ /h	0.6 – 6 m ³ /h	0.45 – 4.5 m ³ /h	6 – 60 m ³ /h	8
	3 – 16 m ³ /h	0.95 – 9.5 m ³ /h	1 – 10 m ³ /h	0.8 – 8 m ³ /h	12 – 120 m ³ /h	
100	1.5 – 15 m ³ /h				13 – 130 m ³ /h	5
	2 – 20 m ³ /h				20 – 200 m ³ /h	

DIMENSIONS

Size	RA 77					
	ND	d [mm]	G	H	S [mm]	L [mm]
9.5	10	16	1/4"	1"	43	250
	15	20	3/8"			
10	10	16	1/4"	1"	43	350
	15	20	3/8"			
19	15	20	1/4"	1 1/2"	60	350
	20	25	3/8"			
	25	32	1/2"			
30	25	32	1"	2 1/4"	80	385
	32	40	1 1/4"			
	40	50				
36	32	40	1 1/4"	2 3/4"	98	385
	40	50	1 1/2"			
	50	63				
43	40	50	1 1/2"	3 1/2"	120	385
	50	63	2"			
	65	75				
100	50	63	2"	4 1/2"	140 ¹⁾	385
	65	75	2 1/2"			
	80	90	3"			



¹⁾ Aluminum hexagon union nuts

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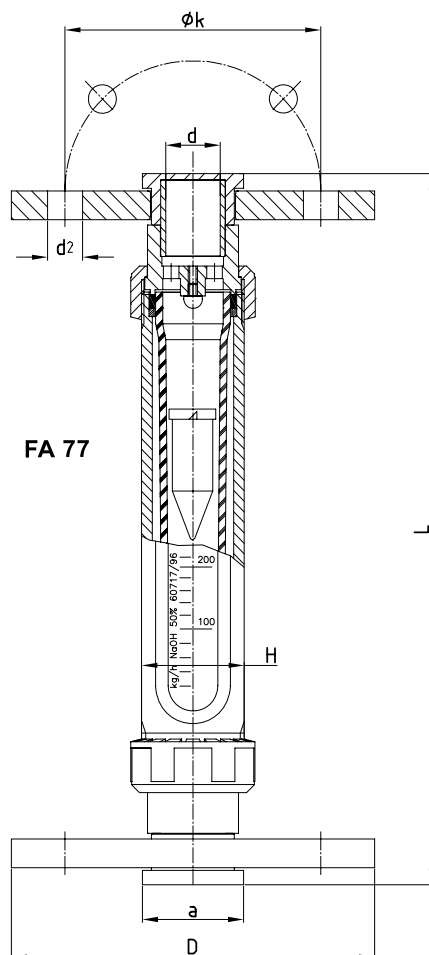
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FA 77

Size	DN	d [mm]	d ₂ [mm]	D [mm]	H	L [mm]	k [mm]	a [mm]	Screws	ISO Thread
9.5	10	16	14	90	1"	284 *	60	29	4	M 12
	15	20	14	95		288	65	34	4	M 12
10	10	16	14	90	1"	384	60	29	4	M 12
	15	20	14	95		388	65	34	4	M 12
19	15	20	14	95	1 ½"	388	65	34	4	M 12
	20	25	14	105		394	75	41	4	M 12
	25	32	14	115		400	85	50	4	M 12
30	25	32	14	115	2 ¼"	435	85	50	4	M 12
	32	40	18	140		443	100	61	4	M 16
36	40	50	18	150	2 ¾"	453	110	73	4	M 16
	32	40	18	140		443	100	61	4	M 16
	40	50	18	150		453	110	73	4	M 16
	50	63	18	165		467	125	90	4	M 16
43	40	50	18	150	3 ½"	453	110	73	4	M 16
	50	63	18	165		467	125	90	4	M 16
	65	75	18	185		479	145	106	8	M 16
100	50	63	18	165	4 ½"	467	125	90	4	M 16
	65	75	18	185		479	145	106	8	M 16
	80	90	18	200		497	160	125	8	M 16

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