



RA 60/FA 60

Design and applications

Measuring units RA 60 and FA 60 are based on the variable area float principle.

In pipelines the RA 60 is installed by means of screwed pipe joints and the FA 60 is mounted between flanges. The borosilicate glass measuring cone is located inside a protective stainless steel tube with an inspection window.

Va flow meters RA 60 and FA 60 are most suitable for the flow measurement of transparent fluids and gases. Each unit is customized with a scale specific for the medium to be measured. RA 60 and FA 60 are used in plant engineering (e.g. furnace construction and water treatment).

By installation of electrical limit switches, which are adjustable throughout the entire measuring range, these units can be employed as detectors too.



- calibrated borosilicate measuring glass
- armature with protective steel tube
- reliable due to simple mode of operation
- optional lining for flow measurement of acids, alkaline solutions, and aggressive gases
- with limit switches usable as detectors
- scales specific for the media to be measured
- CE 0085BN0045



Kirchner und Tochter

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RA 60/FA 60

Technical data

Nominal pressure rating	RA 60: PN 10 at 20 °C FA 60: PN 10 at 20 °C
max. operating pressure	see table of meas. ranges on page 3
Temperature resistance	80 °C at 5 bar overpressure
Measuring range	1:10
Accuracy class	1.6 acc. to VDI/VDE 3513
Connection RA 60	Two-part pipe fitting: Insert with cylindrical female thread acc. to ISO 7-1
Connection FA 60	Flange PN 10 acc. to DIN 2501, other connections on request

Dimensions

Size	Pipe fitting	RA 60			
		S	d ¹⁾	L	H
10	Rp 1/4	28	12	388	28
	Rp 3/8	32	16	390	
	Rp 1/2	39	20	393	
19	Rp 1/2	39	20	405	45
	Rp 3/4	48	25	407	
	Rp 1	55	32	415	
30	Rp 1	55	32	415	60
	Rp 1 1/4	67	40	430	
	Rp 1 1/2	74	50	436	
36	Rp 1 1/4	67	40	430	75
	Rp 1 1/2	74	50	436	
	Rp 2	90	63	446	
43	Rp 1 1/2	74	50	440	95
	Rp 2	90	63	446	
	Rp 2 1/2	111	75	460	
	Rp 3	131	90	470	
100	Rp 2	90	63	446	115
	Rp 2 1/2	111	75	458	
	Rp 3	131	90	470	
110	Rp 2 1/2	111	75	462	133
	Rp 3	131	90	474	
105	Rp 2 1/2	111	75	762	133
	Rp 3	131	90	774	

Materials

Protective tube	Precision tube made of steel St. 35
Heads RA 60	Grey cast iron (alumin. from size 43)
Fitting	Malleable cast iron, galvanized
Flanges FA 60	St 37
Measuring cone	Borosilicate glass
Seals	Standard: NBR, optionally Viton, EPDM
Floats for fluids ¹⁾	Standard: 1.4305, Special design: 1.4571, PVC, PP, PVDF or PTFE with lead core
Floats for gases ¹⁾	Standard: Aluminium anodized, optionally: PVC, PP, PTFE, PVDF or 1.4571
with limit switches ¹⁾	Standard: 1.4571 with magnetic core or PVC with magnetic cores
Special design:	Corrosion protection of all parts in contact with medium
RA 60	Gluing sleeve: PVC Welding sleeve: PP, PVDF Female thread: PTFE, 1.4571
FA 60	Lining: PVC, PP, PTFE, 1.4571, PVDF

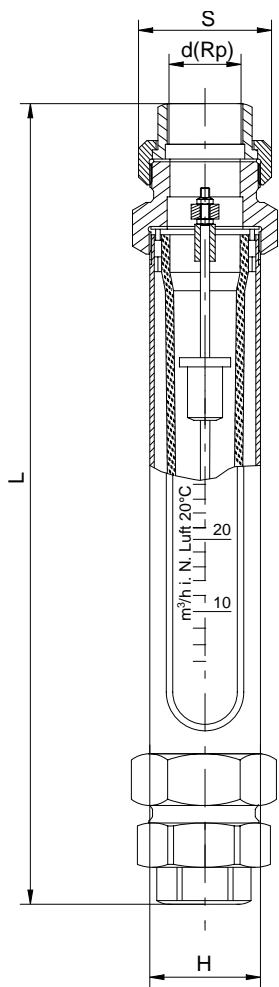
¹⁾ With small sizes VA flow meters floats unguided, from size 30 B partly with guide rod. We will send you a detailed table on request.

¹⁾ d with gluing and welding sleeves

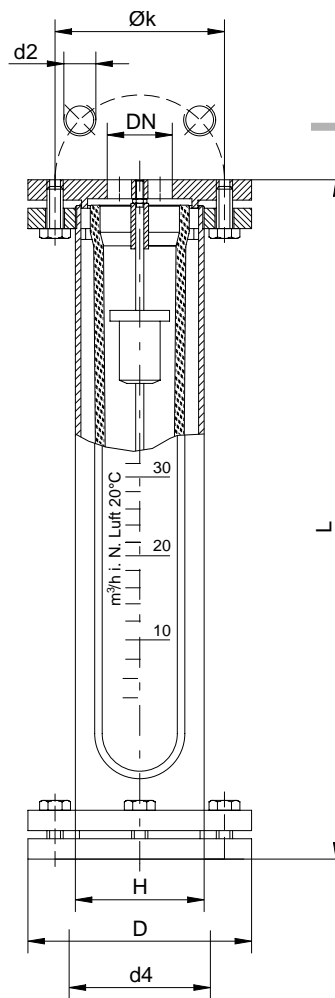
Size	DN	L	H	FA 60		Screws Qty.	Thread	d ₂
				D	k			
10	10	335	28	90	60	4	M12	M12
	15			95	65	4	M12	M12
	20			105	75	4	M12	M12
	25			115	85	4	M12	M12
19	10	335	45	90	60	4	M12	M12
	15			95	65	4	M12	M12
	20			105	75	4	M12	M12
	25			115	85	4	M12	M12
30	25	335	60	115	85	4	M12	M12
	32			140	100	4	M16	M16
	40			150	110	4	M16	M16
36	32	335	75	140	100	4	M16	M16
	40			150	110	4	M16	M16
	50			165	125	4	M16	M16
43	40	343	90	150	110	4	M16	M16
	50			165	125	4	M16	M16
	65			185	145	4	M16	M16
100	65	340	115	185	145	4	M16	M16
	80			200	160	8	M16	M16
	100			220	180	8	M16	M16
110	65	340	133	185	145	4	M16	M16
	80			200	160	8	M16	M16
	100			220	180	8	M16	M16
105	65	640	133	185	145	4	M16	M16
	80			200	160	8	M16	M16
	100			220	180	8	M16	M16
150	80 ¹⁾	640	178	220	160	8	M16	M16
	100			220	180	8	M16	M16
	125			250	210	8	M16	M16
	150			285	240	8	M20	M20
180	150	640	219	285	240	8	M20	M20
	200			340	295	8	M20	M20

¹⁾ Length: 655 mm

RA 60



FA 60



Measuring ranges (min. and max. measuring range; all intermediate measuring ranges are possible)

Size	Measuring range m ³ /h H ₂ O	Measuring range m ³ /h at s.c. air ¹⁾	RA 60 Pipe fitting	Connections RA 60 gluing or welding sleeves	FA 60 Flange connection DN	max. oper. press. in bar at 20 °C
10	0.1 – 1 l/h	0.001 – 0.01	Rp 1/4	d 12	10	10
	15 – 150 l/h	0.22 – 2.2	Rp 3/8	d 16	15	
			Rp 1/2	d 20	20 25	
19	0.012 – 0.12	0.15 – 1.5	Rp 1/2	d 20	10	10
	0.12 – 1.2	1.6 – 16	Rp 3/4	d 25	15	
			Rp 1	d 32	20 25	
30	0.1 – 1	1.3 – 13	Rp 1	d 32	25	10
	0.3 – 3	3.6 – 36	Rp 1 1/4	d 40	32	
			Rp 1 1/2	d 50	40	
36	0.4 – 4	4 – 40	Rp 1 1/4	d 40	32	8
	0.8 – 8	8 – 80	Rp 1 1/2	d 50	40	
			Rp 2	d 63	50	
43	0.9 – 9	5 – 50	Rp 1 1/2	d 50	40	8
	1.6 – 16	16 – 160	Rp 2	d 63	50	
			Rp 2 1/2	d 75	65	
			Rp 3	d 90		
100	1.6 – 16	12 – 120	Rp 2	d 63	65	6
	2 – 20	28 – 280	Rp 2 1/2	d 75	80	
			Rp 3	d 90	100	
110	2.5 – 25	14 – 140	Rp 2 1/2	d 75	65	5
	3 – 30	44 – 440	Rp 3	d 90	80	
					100	
105	3 – 30	20 – 200	Rp 2 1/2	d 75	65	4
	4.5 – 45	50 – 500	Rp 3	d 90	80	
					100	
150	5 – 50	30 – 300	—	—	80	4
	10 – 100	100 – 1000			100	
					125	
					150	
180	11 – 110	30 – 300	—	—	150	3
	13 – 130	150 – 1500			200	

Measuring ranges for other measuring substances and operating conditions on request.

¹⁾ at s.c.: at standard conditions (0 °C and 1.013 bar abs.)

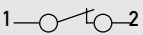
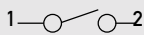


RA 60/FA 60

Limit switches MSK 1/MSK 12

In order to realize a local display with a monitoring function the flowmeter can be equipped with limit switches. The limit switch consists of a bistable reed contact switched by the magnet integrated in the float. The switch is guided in a guide slot on the back of the protective tube and can be adjusted throughout the entire measuring range. In case of inductive or capacitive load applications, e.g. caused by contactors or solenoid valves, uncontrolled current and voltage peaks may occur. In dependence on their geometry such peaks also occur in lines, if they exceed a certain length. It is therefore recommended to use an additionally available arc suppression relay "MSR". This increases the switching capacity and avoids the appearance of inductive and capacitive peaks. It thereby ensures a long lifetime of the contact.

Technical data of the limit switches

Design	MSK 1	MSK 12
Switching voltage	230 V AC/DC	230 V AC/DC
Switched current	0.5 A	0.5 A
Switching capacity	10 W/VA	10 W/VA
Dielectric strength	400 V	400 V
Temperature range	-40 to +50 °C	-40 to +50 °C
	the temperature resistance of the flow meter is decisive	
Switching function	Normally closed contact 	Normally open contact 

Notes on safety

For safety reasons we recommend to use the VA flow meters with glass measuring tubes only in combination with a protective shield in front of the measuring tube.

Avoid extreme pressure shocks.

The equipment from KIRCHNER has been tested in compliance with applicable CE-regulations of the European Community.

The respective declaration of conformity is available on request.

The KIRCHNER QM-System is certified in accordance with DIN-EN-ISO 9001:2000. The quality is systematically adapted to the continuously increasing demands.



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