



Assembly and operating Instructions

Flap-type Flow Meter

KFS

KFS-RK1, KFS-RK2

KFS-IK1, KFS-IK2

KFS-IKS1, KFS-IKS2

KFS-EM, KFS EMZ

KFS Ex

KFS-IK1 Ex, KFS-IK2 Ex

KFS-EM Ex, KFS EMZ Ex

**For use of the KFS device in hazardous areas, refer to the
"Supplementary installation and operating instructions - flap-type
flow meter KFS ... Ex"!**



10 Technical Data

10.1 General technical data

Measuring accuracy	5 % FS
Scale	in physical units, e.g.: l/h, m ³ /h
Length of scale	max. 95 mm
Measuring range	min. 1:10
Degree of protection, indicator part	Standard: IP66; M40: IP68 (KFS-M40)
Corrosion protection for steel version	epoxy paint, kiln-dried, traffic blue (RAL 5017), satin finished
Corrosion class	C2
Mounting length	50 mm (standard) 60 mm (¹ PVC/PP/PVDF & DN 250 - 300)
Connections	mounting between flanges acc. to DIN EN 1092-1, PN 6/10/16/25/40
optionally	mounting between flanges acc. to ASME B16.5, JIS B 2220, others on request



10.2 Materials

Material, ring	Wetted internals	Wetted gasket ²⁾
S355	1.4571	Sil 4400
1.4571	1.4571	Sil 8800
PVC	1.4571¹⁾	EPDM
PP	1.4571 ¹⁾	EPDM
PVDF	1.4571 ¹⁾	FKM
Indicator part	KFS	KFS-M40
scale casing	stainless steel 1.4301	aluminium painted
pointer	aluminium painted	aluminium painted
scale	aluminium coated	aluminium coated
screen	PC, optionally glass	float glass

¹⁾ optionally Hastelloy C4

²⁾ others on request

Rubber coating on request

Material	DN [mm]			Media temperature [°C]			Pressure resistance [bar] ²⁾
S355/1.4571	25	–	300	-70	–	200	6/10 (16/25/40) ²⁾
S355/1.4571 Ex ¹⁾	25	–	300	-20	–	70 ¹⁾	6/10 (16/25/40) ²⁾
PVC	25	–	80	0	–	20	10
	100	–	300				6
PP	25	–	300	0	–	80	6
	25	–	80				10
	100	–	300				6
PVDF	25	–	300	-40	–	20	1,5
	25	–	80				10
	100	–	300				6
	25	–	300	-40	–	125	2

The process liquid must not freeze.

¹⁾ KFS ... Ex: Where insulation measures have been carried out , -70 ... +200 °C are also possible.

²⁾ optionally: PN 16, 25 or 40



10.3 Measuring ranges H₂O

DN	Standard measuring ranges [m ³ /h] H ₂ O at 20 °C					
25	0,5 - 7	1 - 12				
32	0,5 - 8	1,8 - 18	3 - 30			
40	0,6 - 6	1 - 10	2 - 20	3 - 30	5 - 50	
50	0,8 - 8	2 - 20	3 - 35	5 - 50	7 - 70	
65	2 - 20	4 - 40	6 - 60	9 - 90	11 - 110	
80	2 - 20	4 - 40	6 - 60	10 - 100	12 - 120	20 - 200
100	4 - 40	8 - 80	12 - 120	16 - 160	20 - 200	25 - 250
125	5 - 55	8 - 80	12 - 120	14 - 140	20 - 200	35 - 350
150	6 - 60	10 - 100	14 - 140	18 - 180	22 - 220	35 - 350
200	5 - 50	9 - 90	12 - 120	15 - 150	20 - 200	25 - 250
250	18 - 180	25 - 250	30 - 300	40 - 400		
300	15 - 170	20 - 220	25 - 250	30 - 300	50 - 500	

DN	Special measuring ranges [m ³ /h] H ₂ O at 20 °C			
200	40 - 400	60 - 600		
250	50 - 500	60 - 600		
300	60 - 650	90 - 900		
350	50 - 500	70 - 700	90 - 900	100 - 1000
400	60 - 600	75 - 750	110 - 1100	400 - 1850
500	70 - 700	100 - 1000	135 - 1350	200 - 1600
600	80 - 800	125 - 1250	165 - 1650	

intermediate measuring ranges possible

The measuring ranges for the series KFS-EM differ slightly from the above values. More detailed information and measuring ranges for other media and operating conditions are available on request.



KFS

Flap-type flow meters

10.4 Measuring ranges air

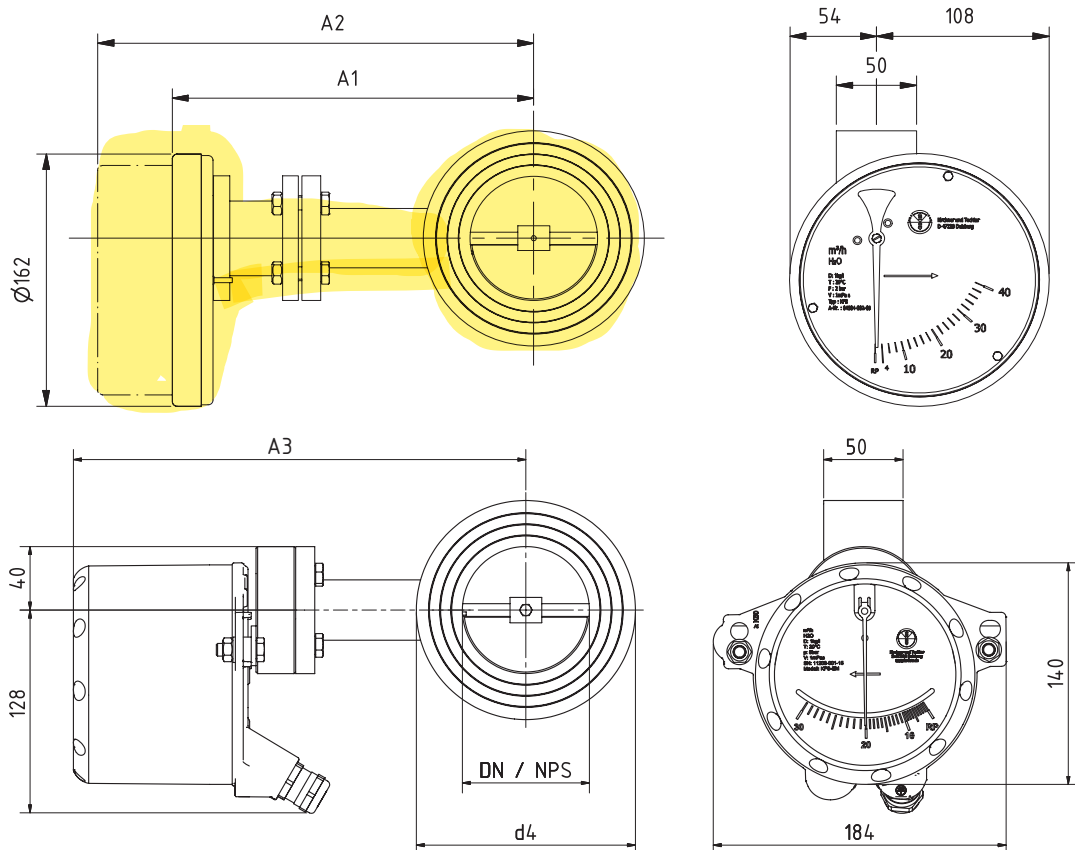
DN	Standard measuring ranges [m ³ /h] air at STP ¹⁾	
	minimum range	maximum range
25	15 - 150	30 - 400
32	15 - 150	30 - 400
40	15 - 150	45 - 450
50	18 - 180	75 - 750
65	18 - 180	80 - 800
80	20 - 200	100 - 1000
100	25 - 250	220 - 2200
125	25 - 250	360 - 3000
150	30 - 300	300 - 3000
200	40 - 400	300 - 3000
250	100 - 1000	400 - 4000
300	120 - 1200	500 - 5000

¹⁾ at STP: at standard conditions (0 °C and 1013 mbar abs.)

intermediate measuring ranges possible

The measuring ranges for the series KFS-EM differ slightly from the above values. More detailed information and measuring ranges for other media and operating conditions are available on request.

10.5 Dimensions and weights





DN	d ₄	Weight [kg]		ASME flange connection		KFS		KFS-IK		KFS-EM *)	
		Steel	PVC	NPS ³⁾	d ₄	A1 ²⁾	A1 ²⁾ (ASME)	A2 ²⁾	A3 ²⁾ (ASME)	A3 ²⁾	A3 ²⁾ (ASME)
25	68	3,8	2,0	1"	51	202	199	249	246	233	233
32	78	3,8	2,0	1¼"	64	206	204	253	251	236	238
40	88	3,8	2,0	1½"	73	206	206	253	253	242	240
50	102	3,9	2,1	2"	92	211	212	258	259	247	246
65	122	5,0	2,3	2½"	105	219	217	266	264	253	251
80	138	5,6	2,5	3"	127	226	225	273	272	260	259
100	158	6,4	2,7	4"	157	236	237	283	284	270	271
125	188	8,0	2,8	5"	186	249	250	296	297	283	284
150	212	8,8	3,3	6"	216	261	263	308	310	295	297
200	268	11,4	3,7	8"	270	286	287	333	334	320	321
250	320	13,0	4,5	10"	324	311	313	358	360	345	347
300	370	22,0	4,9	12"	381	336	338	383	385	370	372
350	430	29,3	–	–	–	376	–	423	–	395	–
400	482	31,5	–	–	–	401	–	448	–	420	–
500	585	39,0	–	–	–	451	–	498	–	485	–
600	685	45,5	–	–	–	501	–	548	–	535	–

all dimensions in mm except NPS

1) PVC/PP/PVDF versions max. DN 250 - 300 installation length 60mm.

2) PVC/PP/PVDF versions differ minimally from the standard.

3) NPS = Nominal pipe size acc. to ANSI / ASTM

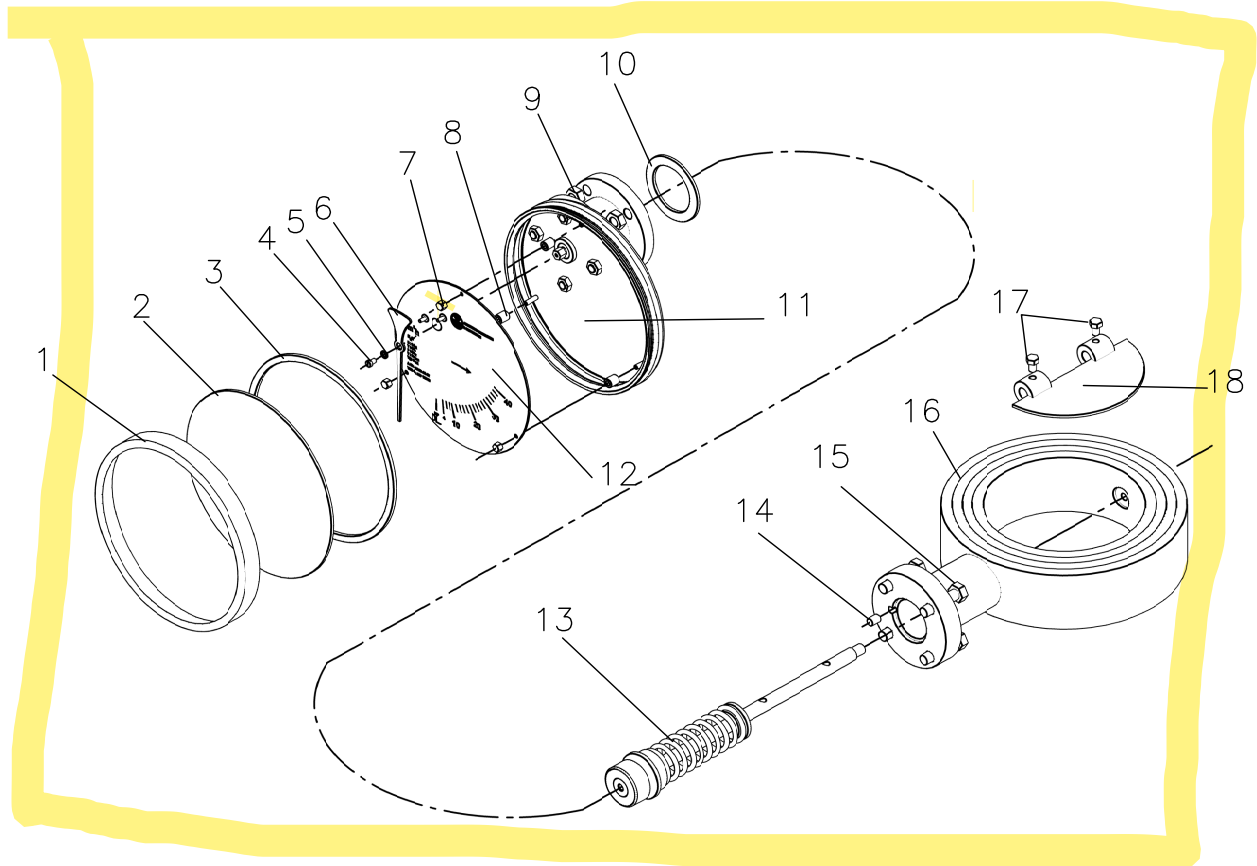
Note:

The flap axis for DN32 and DN25 devices is located 9mm above the ring axis!



11 Spare parts, accessories

11.1 KFS with standard indicator part and limit value switches





KFS

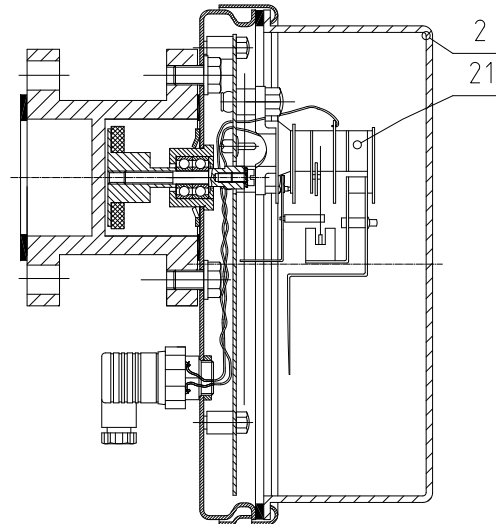
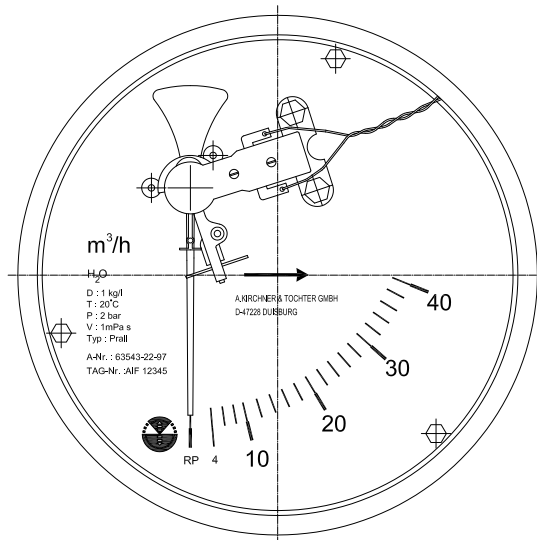
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KFS with standard indicator part

Note:



In the explosion-proof versions a grounding cable for connection to the potential equalization system is placed on the back of the indicator part (not shown here).



Indicator part KFS-IK1, KFS-IK2, KFS-IKS1, KFS-IKS2, KFS-RK1, KFS-RK2

Item	Qty	Description
1	1	Bayonet ring
2	1	Makrolon (polycarbonate) cover
3	1	Sealing ring
4	1	Screw M3
5	1	Spring washer
6	1	Pointer
7	3	Cap nut M3
8	3	Separator
9	4	Nut M8
10	1	Gasket
11	1	Bayonet casing

Item	Qty	Description
12	1	Scale
13	1	Spindle with magnet and spring
14	1	Alignment pin
15	4	Screw M8
16	1	Ring
17	1-2	Screws
18	1	Flap
19	8	Tooth lock washer DIN 6797-A8.4-A2 (only ATEX version, not depicted)
20		Sticker for ATEX version: reference to electrostatic charges (only ATEX vers., not depicted)
21		Contact of device used: RK/IK/IKS ...