Variable area flowmeter TYPE SK04/SK05/SK06

description:

Variable area flowmeter made of stainless steel are ideal to read discharge values in a system and/or to controll flow rates.

product features:

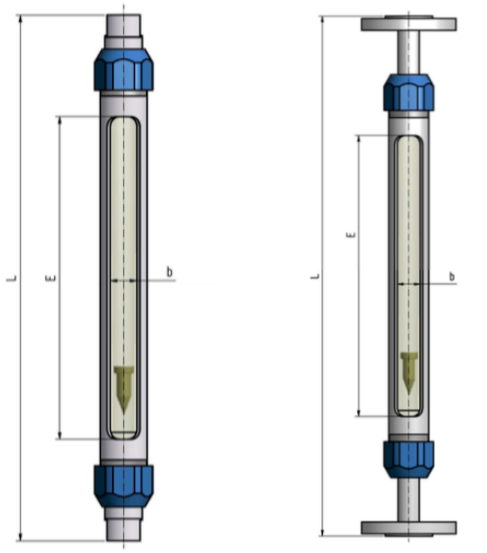
- suitable for **water, air & gases depending on type**
- simple mounting and handling
- flow from the bottom up
- maintenance-free

connection	temperature	pressure
female thread 1/4" – 2" G / NPT flange connection DN10 – DN80	up to max. +150°C	max. 10 bar – depending on design

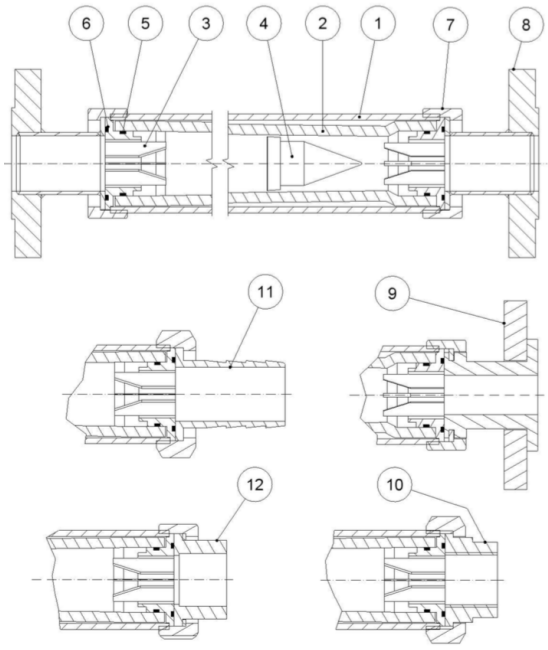
body material:	borosilicat-glas + stainless steel	
measuring cone:	liquids:	stainless steel 1.4571
	air:	aluminium
seal:	FKM, EPDM, FFKM (available from type 05)	
flow direction:	vertically upwars	
connection:	female thread DIN ISO 228, NPT, flange EN1092-1	
connection material:	Stainless steel 1.4571	
Union nut:	Aluminium	
temperature:	-10°C up to +150°C (from 90°C additional charge for engraved scale)	
Environment temp.:	-20°C up to +80°C	
measuring accuracy:	liquids:	G 1,6 qG 50% (acc. to VDE/VDI 3513, paper 2)
	gases:	G 2,5 qG 50% (acc. to VDE/VDI 3513, paper 2)
Pressure:	Max. 10 bar (from model 3 max. 8 bar) at 20°C	
Scale unit:	l/h (from type 27 in m^3/h)	

dimensions:

model	1				2				3			
Female thread	1/4"	3/8"		1/2"	1/2"	3/4"		1"	1"	1 1/4"	1 ½"	2"
flange	DN10 PN40	DN15 PN40	DN20 PN40	DN25 PN40	DN25 PN40	DN32 PN40	DN40 PN40	DN50 PN40	DN40 PN40	DN50 PN40	DN65 (PN16)	DN80 (PN16)
size E	235 mm				235 mm				235 mm			
length B	19 mm				38 mm				58 mm			
length L thread	375 mm				375 mm				375 mm			
length L flange	425 mm				425 mm				425 mm			
weight in Kg	0,65 / 1,9 kg				1,9 / 3,7 kg				3,8 / 8,7 kg			



Part list:



1 Fitting
2 Measuring cone
3 Stopper
4 Float
5 O-Ring stopper / Glass
6 O-Ring stopper / connection
7 Union nut
8 Flange connection
9 Flange connection in plastic
10 Female thread connection
11 Hose bushing connection
12 Adhesive bushing connection

*) 9., 11. and 12. just on request

measuring ranges:

The column dynamic shows the minimum and maximum of the flow.

For example: row 1, type 01 is usable from 0,1 – 1,0 l/h

Water H_2O (T=20°C, p=1 kg/l, viscosity 1mPa s)					**pressure loss float**
model		**1** **max. flow**	**2** **max. flow**	**3** **max. flow**	
Typ	Dynamik	l/h	l/h	l/h	mbar
01	1:10	1			10
02	1:10	3			10
03	1:10	5			10
04	1:10	10			10
05	1:10	16			10
06	1:10	25			10
07	1:10	30			10
08	1:10	40			10
09	1:10	50			10
10	1:10	65			10
11	1:10	80			10
12	1:10	100			10
13	1:10	125			20
14	1:10	160			20
15	1:10	200			20
16	1:10	250			20
17	1:10	315			40
18	1:10	400			40
19	1:10	500			40
20	1:10		650		19
21	1:10		800		19
22	1:10		1000		19
23	1:10		1250		24
24	1:10		1600		24
25	1:10		2000		33
26	1:10		2500		33
27	1:10		3000		25
28	1:10			4000	25
29	1:10			5000	25
30	1:10			6500	25
31	1:10			8000	25
32	1:10			10000	25
33	1:6			12500	25
34	1:4			16000	25
35	1:3			20000	25
36	1:3			25000	25

air (Pabs=1,013 bar, at T=0C, p=1,239 kg/m³, v= 0,0181 mPa s)					**pressure loss float**
model		**1** **max. flow**	**2** **max. flow**	**3** **max. flow**	
Typ	Dynamik	l/h	l/h	l/h	mbar
01	1:10	16			4
02	1:10	50			4
03	1:10	80			4
04	1:10	160			4
05	1:10	300			4
06	1:10	450			4
07	1:10	500			4
08	1:10	650			4
09	1:10	800			4
10	1:10	1100			4
11	1:10	1400			4
12	1:10	1600			4
13	1:10	2000			6,5
14	1:10	3000			6,5
15	1:10	3600			6,5
16	1:10	4000			6,5
17	1:10	5000			15
18	1:10	6400			15
19	1:10	8000			15
20	1:10		10000		7
21	1:10		13000		7
22	1:10		16000		7
23	1:10		20000		7
24	1:10		28000		9
25	1:10		36000		9
26	1:10		40000		12
27	1:10		50000		12
28	1:10			64000*	10
29	1:10			80000*	10
30	1:10			100000*	10
31	1:10			140000*	10
32	1:10			160000*	10
33	1:6			200000*	10
34	1:4			280000*	10
35	1:3			350000*	10
36	1:3			430000*	10

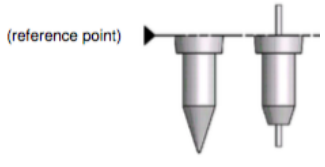
- float guided

note: Different measuring ranges for types with solenoid floats.

design float:

design 0 – float unguided

design 1 – float guided



Ausführung 0 1

contacts:

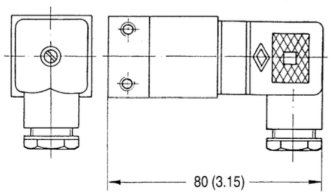
magnetic contacts can be ordere das an option to indicate the position. Meassured values can be signalised contactless and reactionless.

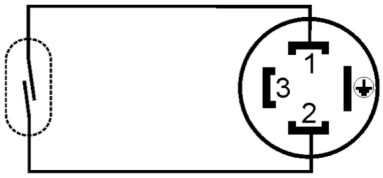
name	contact A (KA) / contact B (KB)
body/plug	PP/PA6
Contact material	Rhodium
Protection class	IP65
Environmental temperature:	-20°C up to 80°C
Max. switching frequency:	5/min
Max. switching capacity	AC 250 V/0,5 A/10 VA DC 250 V/0,5 A/ W

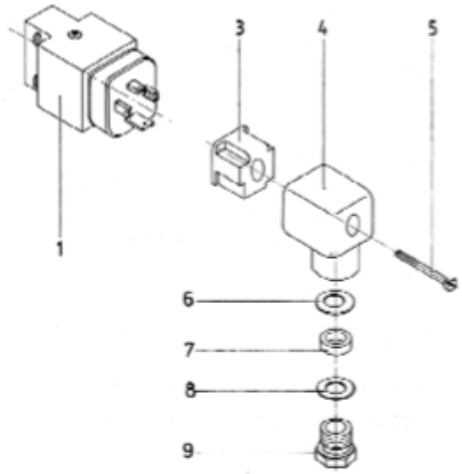
contact A (KA): contact closes when falling below limit
contact B (KB): contact closes whan exceed a limit

caution:

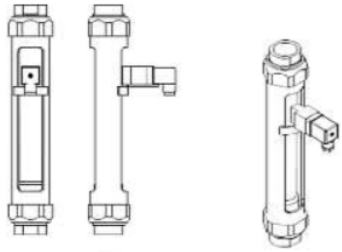
The maximum switching capacity and the maximum allowable inrush current must not be exceeded, otherwise a welding effect occurs at the contact tongues, thereby bonding with each other.







1. Remove the cable gland (9) and take out the gasket kit (8, 7, 6).
2. Remove the locking screw (5) and pull of the housing (4) from the insert connector (3).
3. Insert the connection cable through the cable gland (9), the gasket kit (6, 7, 8) and the housing.
4. Connect the wires to terminal 1 and 2 of the insert connector.
5. Assamble the rectangular connector in reverse order as described above. Please note, that the cable outlet can be varied by rotating the insert connector (4) through 90°.



When commissioning by the users, we recommend the float of the device once a contact or make contact according to the past out the float. Thus, the correct position of the contact is ensured.

installation:

For specific device sizes the float is inserted with a plastic net for transport lock. This must be removed through the top of the meter before installation. After that the free movement of the float inside the flow tube should be checked again.

The device must be mounted vertically and stress-free. Reductions, extensions, and control elements upstream and downstream of the meter have no influence on the measurement accuracy with liquids. For gases, however, the installation of the meter is recommended before valves to prevent compression oscillations.

Since variable area flow meters are very sensitive to changes in flow, control elements should always be adjusted slowly. The calibration is carried out for defined conditions. It is essential to ensure compliance with the calibration conditions. Deviations of the density, pressure or temperature of gases, as well as density and viscosity of liquids, result in errors. Therefore it is essential to specify the following data of the medium in the order: the medium, the density and the viscosity at operating temperature and pressure. For gases, the exact reference point for the pressure (gauge or absolute pressure) is also required.

Retrofitting of switching contacts is only possible when the floats are equipped with magnets. When commissioning the contact we recommend to ensure the correct position of the bistable contact by moving the float along the contact in flow direction.

Options:

- ATEX-version
- Engraved scale (>90°C/194°F)
- Splinter protection
- Individual scaling (measurement accuracy 1%)
- Silicon-free version

Our sales team looks forward to support you in case of optional needs.

Information on the dimensioning of variable area flowmeters:

The flowmeters types SK04 to SK06 work on the basis of the variable area principle:

The measuring unit consists of a glass cone in which a float can move up and down. The conical float is raised by the measuring material (medium) flowing from the bottom to the top. The annular gap increases until a balance has been established between the weight force FG, the buoyant force FA and the force FS due to the flow resistance.

The variable area flowmeters are set and calibrated to a specific operating and media state and delivered in accordance with previosuly defined measurement conditions.

The flow values specified in the data sheets and catalogue refer to the media of water and air in depressurised applications! If your media and operating data are different individual calculations must be made as to what design and what type are suitable for your application.

Therefore following data must be specified for a precise dimensioning:

Media data:
- Media
- Density
- Temperature
- Viscosity

Operating data:
- Operating pressure
- Flow rate

We automatically assume water/air with the above-mentioned parameters if no further information about substances, thickness, viscosity, etc. are given to us.

article number:

type	seal	media	measuring range	size
SK04 – DIN IS0 228	**1 – EPDM**	**0 – water**	01 – type 01	01 – 1/4"
SK05 – NPT*	2 – FKM	1 – air	02 – type 02	02 – DN10 | 3/8"
SK06 – flange	3 – FFKM**		…	03 – DN15 | 1/2"
			…	**04 – DN20 | 3/4"**
			…	05 – DN25 | 1"
			35 – type 35	06 – DN32 | 1 1/4"
			36 – type 36	07 – DN40 | 1 1/2"
			as seen in the table	08 – DN50 | 2"
				09 – DN65
				10 – DN80

example no. SK04100204:

SK04	**1**	**0**	**02**	**04**

Variable area flowmeter
connection: female thread DIN ISO 228
seal: EPDM
media: liquids
measuring range: type 02 | 0,3 up to 1,0 l/h
size: 3/4"

Note: From 90°C additional charge for engraved scale
*) NPT thread on request
**) FFKM seal on request, only available from measuring range type 05

Image similar, subject change without notice.