

## Variable Area Flow Meters

For simple and accurate measurement of fluids and gases

### ➤ Know your flow



Measurement & Control



**Asmuss Plastic Systems Limited**

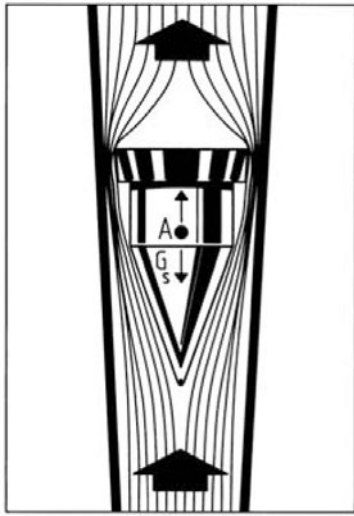
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## Installation in the piping system

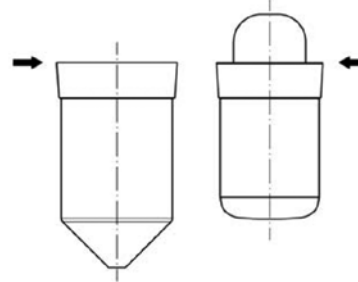


### While installing

- The VAFM must be installed tension-free.
- It should be ascertained that taper tube does not come into contact with solvents so that the indicator scale is not damaged.
- Prior to initial operation, check that all parts are properly connected.

### After installing

The top edge of the float indicates the flow volume.



If special scales are applied subsequently, it must be ascertained that the scale marking is affixed congruently with the one on the taper tube.

### Before installing

1. The net in which the float is wrapped must be removed. To do this, the upper union nut is unscrewed and the upper insert including seals is removed.
2. Then the VAFM must be reassembled.
3. The pipe system into which the VAFM is built must be in a vertical position to ensure its functionality.
4. An inlet and outlet section must be provided for. (inlet ca. 10 x DN, outlet ca. 5 x DN)

## Chemical resistance list

	Chemical			PVC-U	Trogamid	PSU	PVDF	Peek
<b>Acid</b>	phosphoric acid	H3PO4	75%	X	O	X	X	X
	sulfuric acid	H2SO4	<90%	X	-	-	X	-
	nitric acid	HNO3	<55%	X	-	-	X	-
	nitric acid	HNO3	67%	-	-	-	X	-
	hydrofluoric acid	HF	<70%	X	-	-	X	-
	hydrochloric acid	HCl	36%	X	O	X	X	O
<b>Base</b>	ammonia	NH4OH	25%	X	X	X	-	X
	caustic potash	KOH	>50%	X	O	X	-	X
	caustic soda	NaOH	<50%	X	O	X	-	X
<b>Anorganica</b>	ferric chloride	FeCl3	X	X	X	X	X	
	sodium hydrochloride	NaOCl	15%	X	X	X	-	X
	sodium bisulfite	NaHSO3	<40%	X	X	X	X	X
	hydrogen peroxide	H2O2	35%	X	-	X	O	X
	aqueous inorganic sline solutions (not oxidizing)	til saturation		X	X	X	X	X
<b>Organica</b>	formic acid	HCOOH	85%	O	-	O	O	O
	acetic acid	CH3COOH	85%	O	-	O	O	O
	formaldehyde	H2CO	<40%	X	-	X	O	X
	glycol		<50%	O	-	X	X	X
	acetone		undiluted	-	O	-	O	X
	ethanol, methanol		undiluted	O	-	X	X	X
	aliphatic hydrocarbons		undiluted	O	X	X	X	X

Valid for 40°C and 2bar

X: recommended

O: with limitations

-: not recommended

For higher or lower concentrations than mentioned in the list or entry "O", please contact Plastic Systems

## Accuracy of measurement

In accordance with VDE/VDI 3513 sheet 2, accuracy class 4

1. Part failure  $\pm 3\%$  related to the measured value
2. Part failure  $\pm 1\%$  related to the full scale

Flow rate %	1. part failure		2. part failure		Total measurement error	
	% of measured value	% of full scale value	% of measured value	% of full scale value	% of measured value	% of full scale value
100	3.0	3.0	1.000	1.000	4.000	4.000
90	3.0	2.7	1.111	1.000	4.111	3.700
80	3.0	2.4	1.250	1.000	4.250	3.400
70	3.0	2.1	1.429	1.000	4.429	3.100
60	3.0	1.8	1.667	1.000	4.667	2.800
50	3.0	1.5	2.000	1.000	5.000	2.500
40	3.0	1.2	2.500	1.000	5.500	2.200
30	3.0	0.9	3.333	1.000	6.333	1.900
20	3.0	0.6	5.000	1.000	8.000	1.600
10	3.0	0.3	10.000	1.000	13.000	1.300

## Temperature range

To determine the maximum internal pressure, we refer you to our material-related pressure/temperature charts.

max. temperature range at 2 bar (taper tube with union):

PVC-U transparent with PVC-U fitting	0 to +60 °C
Polyamid and Polysulphone with PVCU fitting	0 to +60 °C
Polysulphone with PP-PVDF union nut	0 to +90 °C
PVDF with PVDF union nut	0 to +100 °C

## Pressure loss for type 335/ 350

DN	Loss (mmWP)	Loss (mbar)
25	256.4	25.46
32	256.4	25.46
40	300.2	30.02
50	300.2	30.02
65	459.5	56.59
65*	481.3	48.13

\* measuring range 8'000-60'000 l/h

## Pressure loss for type SK

Type	Loss (mmWP)	Type	Loss (mmWP)
SK 10/100	242	SK 41/410	312
SK 11/110	242	SK 50/500	44
SK 12/120	242	SK 51/510	44
SK 18/180	255	SK 52/520	44
SK 19/190	255	SK 60/600	83
SK 20/200	255	SK 61/610	83
SK 21/210	255	SK 62/620	83
SK 29/290	254	SK 70/700	46
SK 30/30	305	SK 71/710	6
SK 31/310	305	SK 72/720	46
SK 40/400	312	SK 73/730	46

### Accessories

#### Limit contacts

Variable area flow meters from George Fischer are equipped with two dovetail shafts. For external electrical monitoring, these can be used for fitting magnetically actuated limit contacts.

#### Function of the limit contact (GK)

The limit contact serves to monitor externally the limited flow values and can be adjusted to any flow value on the corresponding scale. The magnet built into the float closes or opens a reed contact in the limit contact. This is a bistable switching function because the switching status remains when the float is taken from the contact.

**Note:** When subsequently mounting limit contacts, mind that you have to replace the standard float with a magnetic float.

The limit contacts GK10/ GK11 are only suitable for the VAFM type 335/ 350 as well as the short version of the existing range. The same contact type can not be used for monitoring both the min. and max. levels. (GK 10min / GK11 max)

#### Assembly instructions

1. Replace the float with a magnetic float.
2. Position the limit contact on the dovetail shaft of the VAFM.
3. Tighten fastening screw.

#### Mode of operation of contacts

Position of float in relation to limit contacts:

Top Bottom

max. contact (GK11) closed open

min. contact (GK10) open closed

The contacts remain in these positions, even if the float leaves the contact concerned. When the float moves back to the desired position, the corresponding contact is deactivated.



#### Technical data to contacts

Connection: Standard plug DIN 40050

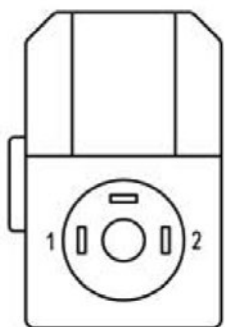
Contact fitted: Reed contact

Mode of protection: IP 65

Max. voltage: 230 V

Max. continuous current: 0.2 A

Peak switch-on current: 0.5 A



For use with inductive loads, use a relay to protect the contacts