



## Design and applications

The plastic flow meters SKT, SKP and SKPVC are based on the variable area float principle.

The flowrate is indicated on a scale printed on the measuring tube by the indicator edge of the float. The indicator edge is identical with the largest diameter of the float.

The standard scale has been designed in l/h and in % for the medium water (20 °C) and has two adjustable nominal value indications.

Special scales for other substances are available on request.

By installation of electrical limit value switches, which are adjustable throughout the entire measuring range, this devices can be used as detectors.

By installing an linear displacement sensor an output signal can be generated which is proportional to the height setting of the flow meter.

Our technical documents provide a detailed explanation of the function and the measuring principle of VA flow meters.

SKT / SKP / SKPVC



- **break proof and corrosion resistant**
- **radially removable**
- **special scales for air, NaOH and HCl**
- **cost effective**
- **floats of synthetic materials and inserts made of PVDF**
- **optionally**
  - **limit value switches**
  - **analogue output 4 ... 20 mA**





# SKT / SKP / SKPVC

Variable area flow meters

## Type series

SKT	measuring tube made of trogamide
SKP / SKP k	measuring tube made of polysulphone
SKPVC / SKPVC k	measuring tube made of PVC
...-Z40	with limit value switch NC
...-Z42	with limit value switch NO
...-Z60	with analogue output 4 ... 20 mA

## Technical data

Level of nominal pressure of the armature	PN 10 at 20 °C
Operating temperature	polyvinyl chloride: 0 ... 40 °C trogamide: 0 ... 60 °C polysulphone: 0 ... 100 °C
Measuring range	1:10
Accuracy	4 acc. to VDI/VDE 3513, sheet 2
Special scales	see separate table
Connection	glued socket acc. to DIN 8063, optionally thread acc. to DIN 228 T 1 pipe fittings with female thread acc. to ISO 7-1, welded sleeve/butt welded nipple (PP, PVDF, PE)

## Materials

Component	Design	SKT	SKP / SKP k	SKPVC / SKPVC k
Measuring tube		trogamide	polysulphone	polyvinyl chloride
Float		PVDF red 1.4571 for DN 65 8.000 - 60.000 l/h		
Float receptacles		PVDF		
Fittings and insertion parts		PVC-Glued socket optionally PP-, PVDF-, PE-Welded sleeve/butt welded nipple, malleable casting, Zn, 1.4571		
Gaskets		EPDM, optionally Perbunan (SKT, SKP, SKP k, SKPVC k), FKM (SKPVC)		
Guiding rod		PEEK (from DN 50 - 1.500 - 15.000 l/h) 1.4571 DN 65 - 8.000 - 60.000 l/h		

## Dimensions

SKT / SKP / SKPVC						
DN	G	L	L1	L2	Ød	ØD
25	1 ½	335	341	385	32	60
32	2	335	341	393	40	72
40	2 ¼	335	341	403	50	83
50	2 ¾	335	341	417	63	103
65	3 ½	335	341	429	75	122

SKPk / SKPVck						
DN	G	L	L1	L2	Ød	ØD
10	¾	165	171	199	16	35
15	1	185	191	223	20	43
25	1 ½	200	206	250	32	60

## Measuring range

SKT, SKP und SKPVC				
DN	measuring range H <sub>2</sub> O			Pressure loss in mbar
25	50	-	500 l/h	23
	100	-	1000 l/h	
32	150	-	1.500 l/h	23
	250	-	2.500 l/h	
40	200	-	2.000 l/h	25
	300	-	3.000 l/h	
	600	-	6.000 l/h	
50	600	-	6.000 l/h	25
	1.000	-	10.000 l/h	
	1.500	-	15.000 l/h <sup>1)</sup>	
65	2.000	-	20.000 l/h <sup>1)</sup>	46
	3.000	-	30.000 l/h <sup>1)</sup>	
	8.000	-	60.000 l/h <sup>1)2)</sup>	

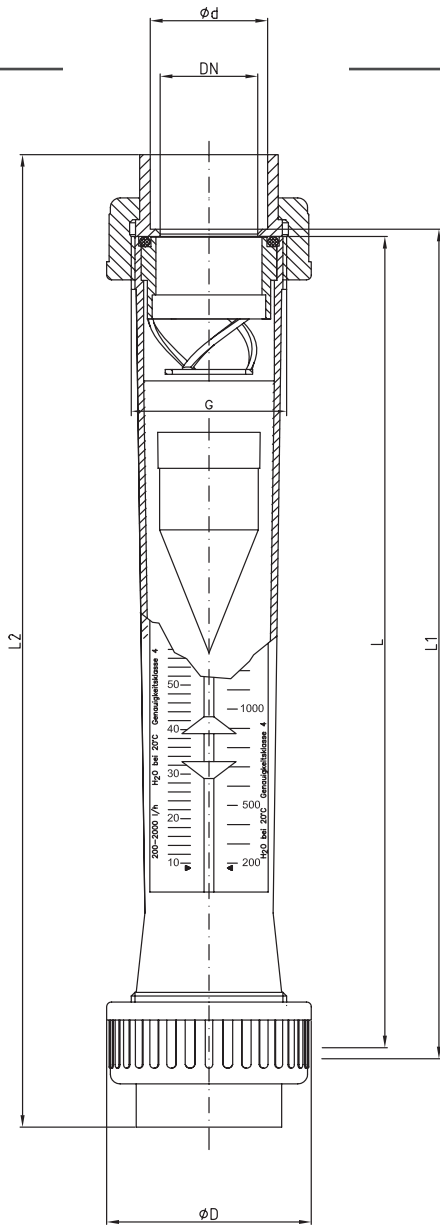
measuring ranges for other substances and operating conditions on request

1) with guiding rod made of 1.4571 with PVDF coating  
2) with float made of 1.4571

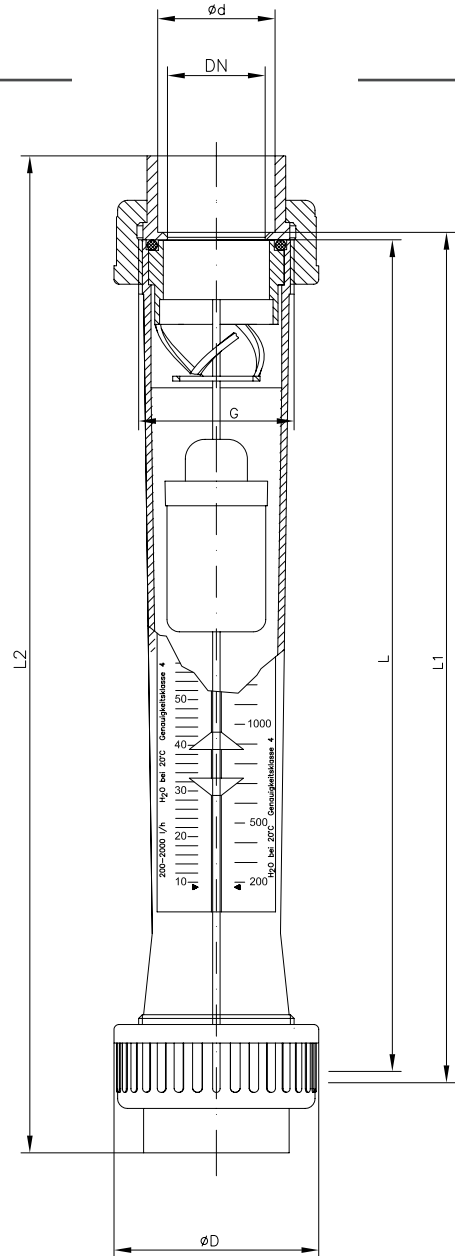
SKPk und SKPVck				
DN	measuring range H <sub>2</sub> O			Pressure loss in mbar
10	1,5	-	15 l/h	4,6
	2,5	-	25 l/h	
	5	-	50 l/h	
	10	-	100 l/h	
15	8	-	80 l/h	4,5
	15	-	150 l/h	
	20	-	200 l/h	
25	15	-	150 l/h	6
	30	-	300 l/h	
	50	-	500 l/h	
	100	-	1.000 l/h	

measuring ranges for other substances and operating conditions on request

SKT  
SKP  
SKPk  
SKPVC  
SKPVck



SKT <sup>1)</sup>  
SKP <sup>1)</sup>  
SKPVC <sup>1)</sup>



## Analogue output Z60

With specially developed electronics including a microprocessor and sensors, the measurement sensor Z60 provides an output signal of 4 ... 20 mA corresponding to the height position of the magnetic float in the flowmeter. This signal can be processed further, e.g. via an SPS in order to control processes, or to indicate the flow rate precisely on an external display. Please note: As the resolution of the different scales varies, we always program the respective measurement range individually. For this reason, please notify us of the desired measurement range when ordering.

## Technical data

Version	Z60
Supply voltage	12 ... 24 V DC ( $\pm 10\%$ )
Power consumption	< 50 mA
Load resistance	min. 0 max. 500 $\Omega$
Current output	4 ... 20 mA (3 conductors)
Protection type	IP 65
Ambient temperature	0 ... + 50 °C
Connector	DIN 43650 connector
Measurement inaccuracy	< 1 %



## Limit value switches Z40 / Z42

In order to realise a local display with monitoring function, the VA flow meter can be equipped with limit value switches. The limit value switch consists of a bistable Reed-switch (dry-reed switch) switched by the magnet integrated into the float. The limit value switch is infinitely adjustable over the full measuring range. Dry reed switches are characterized by a bistable performance. In case of inductive or capacitive load applications, e.g. caused by contactors or solenoid valves, uncontrollable surge currents or voltage peaks may occur. Depending 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 occurrence of inductive and capacitive peaks. It thereby ensures an extended lifetime of the limit value switches.

## Switching state

Limit value switch	Float above	Float below
Z40 min	open	closed
Z42 max	closed	open

## Technical data

Version	Z40, Z42
Switching voltage	max. 230 V AC/DC
Switching current	max. 0,5 A
Switching capacity	max. 10 W/12 VA
Volume resistance	< 200 Ω
Insulation resistance	> 10 <sup>11</sup> Ω
Temperature range	0 ... + 55 °C
Degree of protection	IP 65 acc. to DIN 40050
Make/break hysteresis	1 - 2 mm way of float

## Low Voltage Directive

Above 50 V AC/75 V DC, electrical components are subjected to the EU Low Voltage Directive (LVD). The user is required to verify their use accordingly.

## Proper use

The user is responsible for assessing the suitability of the flow meters for his case of application, for use as prescribed and for material compatibility regarding the fluid product used in his process.

The manufacturer shall not be liable for any damage arising from incorrect or improper use of the devices. Strong pressure surges can be avoided. The limit values given in the data sheet should be observed.

In all other respects we advise following the installation recommendations specified in Code VDI/VDE 3513, Sheet 3.

The equipment from **Kirchner und Tochter** has been tested in compliance with applicable CE-regulations of the European Community. The respective declaration of conformity is available on request. Subject to change without notice. The current valid version of our documents can be found at [www.kt-flow.de](http://www.kt-flow.de).

The **Kirchner und Tochter** QM-System is certified in accordance with DIN EN ISO 9001:2015. The quality is systematically adapted to the continuously increasing demands.