



Design and applications

Wherever in plant engineering a robust and reliable device is required for the indication of momentary values and for the monitoring of flows in the pipeline, the SMK is the right choice as a reliable device for the measurement of fluids and gases. Due to the magnetic transfer of the float position to a dial gauge, the SMK is, in contrast to standard flow meters with glass tubes, also suitable for the measurement of opaque media.

Each unit is calibrated to meet the requirements of the respective customer and is fitted with a scale specific for the medium to be measured.

For process control, the measuring unit can be equipped with limit value contacts or a measuring transducer with electrical analogue output.



- all-metal device, display via magnetic coupling
- for minute flow rates
- high resistance to pressure and temperatures
- optionally available with a needle valve
- optionally available with an analogue output 4...20 mA
- optionally available with a limit value switch
- scale specific for the media to be measured
- optionally explosion-protected design



Kirchner und Tochter



Designs

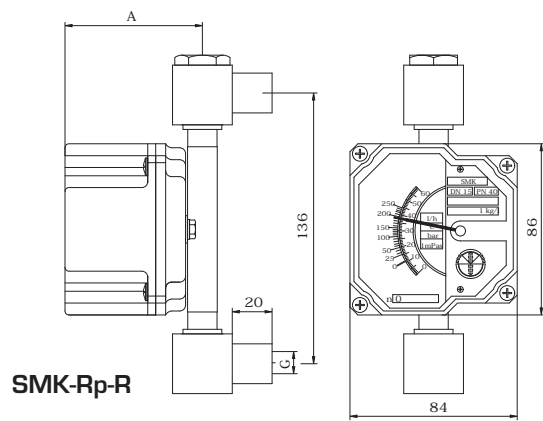
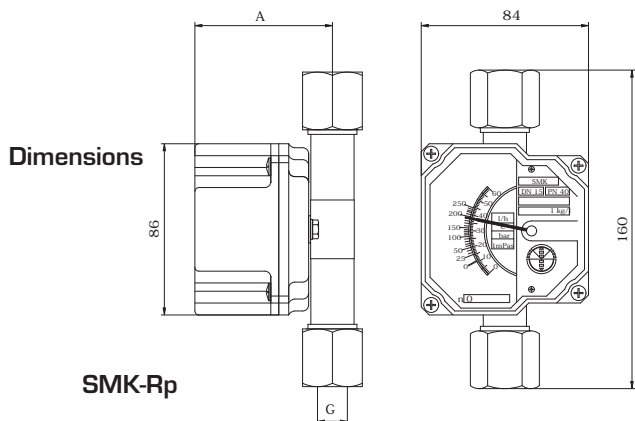
Ordering design	Connection, design
SMK-Rp-R	Rp, back side
SMK-NPT-R	NPT, back side
SMK-Rp-R-V	Rp, back side with valve
SMK-NPT-R-V	NPT, back side with valve
SMK-Rp	Rp, vertikal
SMK-NPT	NPT, vertikal
SMK-S	Milk tube fitting acc. DIN 11851
SMK-TC	Tri-Clamp, vertikal
SMK-IK1	with one limit value contact
SMK-IK2	with two limit value contacts
SKM-EM	with electrical measuring transducer

Materials

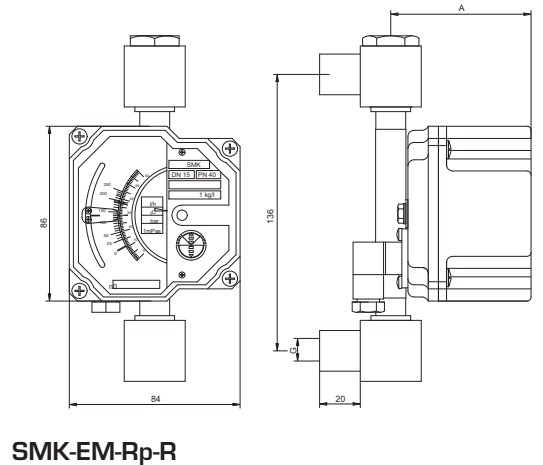
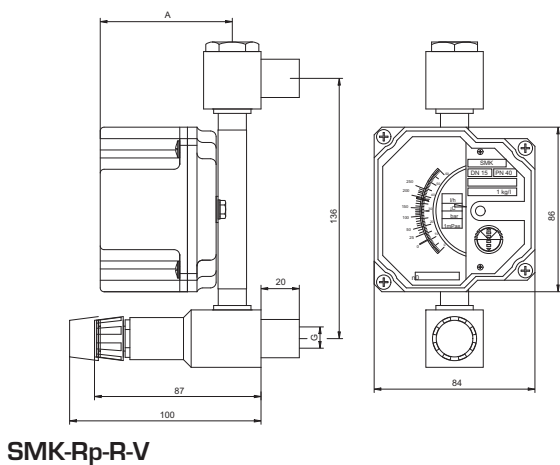
Measuring tube	1.4404
Float	1.4404
Float holder	1.4404
Sealing face	1.4404
Display unit:	
Scale housing	Aluminium / Kunststoff
Pointer	Aluminium / Kunststoff
Scale	Aluminium
Axle / bearing	Edelstahl 1.4401
Screen / gasket	Methacrylat / Acrylnitrit

Technical data

Accuracy class	4 acc. to VDE / VDI 3513
Replication accuracy	< 2 %
Scale	in phy. units, e.g.: l/h, m ³ /h
Length of scale	60 mm
Measuring range	1:10
Cable inlet	Plug with soldering lugs
Degree of prot. of housing	IP65
Medium temperature at ambient temperature 20° C:	
Version without switch	- 80° C ... + 210° C
Version with switch	- 20° C ... + 180° C
Perm. operating pressure	PN 40
optionally	to PN 400
Installation length	136 mm ... 160 mm, depending on connection
Connections	G (DIN ISO 228), NPT (ANSI B 1.20.1), Milk tube fitting (DIN 11851), Tri-Clamp



Rp	A	Rp	A	RP	A
¼	63 mm	½	67 mm	¾	72 mm



Measuring ranges

Rp / NPT	Nominal width / Connection		Measuring range l/h H ₂ O	Measuring range l/h air at STP ¹⁾	Pressure loss for Water mbar
	Tri-Clamp DN	Connection acc. to DIN 11851 DN			
¼	6	6	0,1 - 1	4 - 30	28
¼	6	6	0,2 - 2,5	8 - 80	28
¼	6	6	0,4 - 4	12 - 120	28
¼	8	8	1 - 10	30 - 300	30
¼	8	8	1,6 - 16	50 - 500	30
¼	8	8	2,5 - 25	80 - 800	30
¼	10	10	4 - 40	120 - 1200	32
¼	10	10	6 - 60	160 - 1800	32
¼	10	10	10 - 100	300 - 3000	32
½	15	15	16 - 160	500 - 5000	34
½	15	15	25 - 250	750 - 7500	34
½	20	20	40 - 400	1200 - 12000	40
½	20	20	60 - 630	1800 - 18000	40
¾	20	20	100 - 1000	3000 - 30000	40

Measuring ranges for other substances and operating conditions on request.

¹⁾ at STP: at standard conditions (0 °C und 1,013 bar abs.)



IK limit value switch with inductive slot-type initiator

The pointer in the measuring unit actuates the inductive switch inside the display housing using metal flag. The limit value switch can be adjusted across the entire measuring range. One SMK can be fitted with maximum 2 IK switches.

On the measuring scale, the switch position is marked by adjustable marks.

Contact data:	
Contact	Inductive slot-type initiator acc. to Namur DIN 19234
Switching function	norm. open / norm. closed depending on relais wiring
Switching performance	bistabile
Power supply	8 V DC via insulating contact amplifier KFA 6 Ex (optional)
Current consumption / output	
Active area free	3 mA
Active area covered	1 mA
Ambient temperature	- 25° C ... + 70° C
Explosion protection (optional):	
intrinsic safety	in connection with insulating amplifier KFA 6 Ex (optional)
Only for connection to intrinsically safe power circuits with following top values:	
No-load voltage U_0	15,5 V
Short-circuit voltage I_k	52 mA
Power P	169 mW
Self-inductance (Li)	150 µH
Self-capacitance (Ci)	150 nF
Ambient temperature	- 25° C ... + 40° C
Individual approval	⊗ 2G EEx ia IIC T6

Safety notes

Operate the device within the specified permitted working pressure and the permitted operating temperature only.
Avoid excessive pressure shocks.

EM Electrical measuring transducer

The measuring transducer uses the Hall Effect for contact free detection of the pointer position. The transducer generates a linear output signal of 4-20 mA, which is proportional to the measured flow.

Supply voltage	12 ... 50 V DC
Output signal	4 ... 20 mA DC
Current consumption	max. 20 mA DC
Burden	2 kΩ at 50 V DC 700 kΩ at 24 V DC
Ambient temperature	- 25° C ... + 70° C
Accuracy	< 0,6 % of display value
Connection	2-wire technology
Terminal assignment on plug:	
Soldering lug 1	+
Soldering lug 2	-
Soldering lug	Ground

Accessories

Electrical accessories for remote display and control, such as analogue displays, digital displays, recorders, PID-controls, limit value detectors, and arc suppression relays can be found in our separate product data sheets.

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.

Technical data supplied without liability. The current valid version of our documents can be found under this URL: www.kt-web.de

The **Kirchner und Tochter** QM-System is certified in accordance with DIN-EN-ISO 9001:2008. The quality is systematically adapted to the continuously increasing demands.



Kirchner und Tochter

A. Kirchner & Tochter GmbH

Dieselstraße 17 · D-47228 Duisburg

Fon: +49 2065 9609-0 · Fax: +49 2065 9609-22

www.kirchnerundtochter.de · info@kirchnerundtochter.de