



## Variable Area Flowmeters and Switches

for liquids and gases



measuring  
•  
monitoring  
•  
analysing

### KSM

- Measuring range:  
15 - 150 ... 8000 - 60 000 l/h water  
0.8 - 5 ... 300 - 2500 Nm<sup>3</sup>/h air
- $p_{\max}$ : 16 bar;  $t_{\max}$ : 100 °C
- Accuracy:  $\pm 4$  % of full scale
- Connection: 1/2" ... 3 1/2"
- Material:  
Trogamide-T or polysulfone



S2

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**Description**

The KOBOLD plastic flowmeters of model KSM are based on the float principle with the float moving freely without friction in the measuring tube. From nominal size DN65 the devices are provided with a guide rod to stabilize the floats. The indication point is at the greatest diameter of the float. The standard flowmeters are supplied with a scale for water (+20°C), a percentage scale, O-rings, two setpoint indicators and a guide rail for accessories. The measuring tube is available in polysulfone (KSM-2...) for less aggressive media or in Trogamide (model KSM-1...) for simple water or air applications. The materials are resistant to impact, bending and compressive stresses. Optional threaded fittings can be fitted on the external threads integrally extruded at the ends. The floats are supplied with integrated magnets for operation with a bistable reed contact.

**Special advantages**

- Rugged and corrosion resistant
- Special scales can be attached
- Guide rails for limit switches (can also be retrofitted, only replacement of the float is necessary).
- Nominal sizes, measuring range and measuring tube material are all marked on the measuring tube.

**Applications**

- Cooling circuits
- Water treatment
- Plant engineering

**Technical Details**

Housing:	KSM-1...: Trogamide-T KSM-2...: Polysulfone
Connections:	see table Order Details
Float:	PVDF
Guide rod:	PVDF stainless steel for the 3 largest sizes
Seals:	EPDM (KSM-1... / KSM-2...)
Max. temperature:	KSM-1...: 0-60°C KSM-2...: 0-100°C with contact max. 85°C
Max. pressure:	KSM-x0xx, KSM-x1xx: 16 bar KSM-x201, KSM-x301, KSM-x601: PN10
Accuracy:	±4 % of full scale
Repeatability:	≤1 %

**Reed contact option**

Bistable reed contact N/O contact with increasing flow

Max. ambient temp.:	0 ... 55°C
Max. power:	230 V <sub>AC</sub> 10 W / 12 VA 0,5 A
Hysteresis:	approx. 3 ... 12 mm float travel
Protection:	IP 65 (To retrofit an instrument with a contact the float must be replaced with a float with integral magnet).

**Auxiliary screwed fittings option**

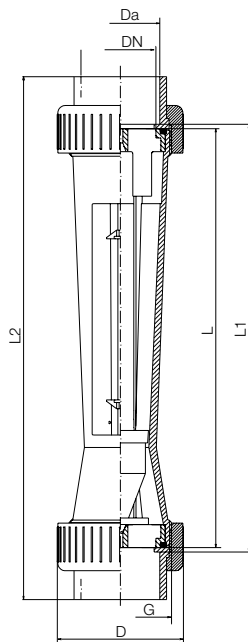
(KSM-1... and KSM-2...)

The following auxiliary screwed fittings are available with a union nut:

- Glue-in connection in PVC (max. 60°C, PN10)
- Internal thread in PVC (max. 60°C, PN10)
- Internal thread in cast iron

The sizes are shown in the Order Details table.

**Dimensions**



**Dimensions**

Model	DN	G	Da [mm]	L [mm]	L1 [mm] approx.	L2 [mm] approx.										D [mm] approx.
						Cast iron	Glue in	PVC G ½	PVC G ¾	PVC G 1	PVC G 1 ¼	PVC G 1 ½	PVC G 2	PVC Flange		
KSM-..001	25	G 1 ½	32	335	341	390	385	432	411	480	-	-	-	on request	60	
KSM-..005	25	G 1 ½	32	335	341	390	385	432	411	480	-	-	-	on request	60	
KSM-..010	25	G 1 ½	32	335	341	390	385	432	411	480	-	-	-	on request	60	
KSM-..020	40	G 2 ¼	50	335	341	401	403	-	-	467	477	525	-	475	83	
KSM-..030	40	G 2 ¼	50	335	341	401	403	-	-	467	477	525	-	475	83	
KSM-..060	50	G 2 ¾	63	335	341	411	417	-	-	482	-	498	558	501	103	
KSM-..120	50	G 2 ¾	63	335	341	411	417	-	-	482	-	498	558	501	103	
KSM-..201	65	G 3 ½	75	335	342	412	457	-	-	-	-	510	570	526	122	
KSM-..301	65	G 3 ½	75	335	342	412	457	-	-	-	-	510	570	526	122	
KSM-..601	65	G 3 ½	75	335	342	412	457	-	-	-	-	510	570	526	122	



**Medium liquids**

The following scales are available for liquids

Model	Standard Water [l/h]	Pressure loss [mbar]	Special scale		
			Water [m³/h]	Water [l/s]	Water [l/min]
KSM-..001	15 - 150	19	-	-	0.25 - 2.5
KSM-..005	50 - 500	19	-	-	0.8 - 8
KSM-..010	100 - 1000	19	0.1 - 1	-	1.7 - 17
KSM-..020	200 - 2000	26	0.2 - 2	0.056 - 0.56	3.3 - 33
KSM-..030	300 - 3000	26	0.3 - 3	0.08 - 0.8	5 - 50
KSM-..060	600 - 6000	26	0.6 - 6	0.17 - 1.7	10 - 100
KSM-..120	1200 - 12000	26	1.2 - 12	0.34 - 3.4	20 - 200
KSM-..201	2000 - 20000	26	2.0 - 20	0.55 - 5.5	33 - 330
KSM-..301	3000 - 30000	26	3.0 - 30	0.83 - 8.3	50 - 500
KSM-..601	8000 - 60000	34	8.0 - 60	2.22 - 16.66 <sup>1)</sup>	-

<sup>1)</sup> Only with KSM-1

**Order Details** (Example: KSM-1005 H K32 R1)

Measuring range water [l/h]	Order no. Trogamide	Order no. Polysulfone	Scale	Option screwed fitting	Option contact
15 - 150	KSM-1001...	KSM-2001...	H = l/h water Q = m³/h water M = l/min water S = l/s water	000 = without auxiliary screwed fitting K32 = glue-in connection Da32 (PVC) P15 = PVC G ½ female P20 = PVC G ¾ female P25 = PVC G 1 female T25 = malleable cast iron G1 female F25 = PVC flange DN 25	R0 = without contact R1 = 1 contact R2 = 2 contacts
50 - 500	KSM-1005...	KSM-2005...			
100 - 1000	KSM-1010...	KSM-2010...			
200 - 2000	KSM-1020...	KSM-2020...	H = l/h water Q = m³/h water M = l/min water S = l/s water	000 = without auxiliary screwed fitting K50 = glue-in connection Da50 (PVC) P25 = PVC G 1 female P32 = PVC G 1 ¼ female P40 = PVC G 1 ½ female T40 = malleable cast iron G 1 ½ female F40 = PVC flange DN 40	R0 = without contact R1 = 1 contact R2 = 2 contacts
300 - 3000	KSM-1030...	KSM-2030...			
600 - 6000	KSM-1060...	KSM-2060...	H = l/h water Q = m³/h water M = l/min water S = l/s water	000 = without auxiliary screwed fitting K63 = glue-in connection Da63 (PVC) P25 = PVC G 1 female P40 = PVC G 1 ½ female P50 = PVC G 2 female T50 = malleable cast iron G2 female F50 = PVC flange DN 50	R0 = without contact R1 = 1 contact R2 = 2 contacts
1200 - 12000	KSM-1120...	KSM-2120...			
2000 - 20000	KSM-1201...	KSM-2201...	H = l/h water Q = m³/h water M = l/min water S <sup>1)</sup> = l/s water	000 = without auxiliary screwed fitting K75 = glue-in connection Da75 (PVC) P40 = PVC G 1 ½ female P50 = PVC G 2 female T65 = malleable cast iron G2 ½ female F65 = PVC flange DN 65	R0 = without contact
3000 - 30000	KSM-1301...	KSM-2301...			
8000 - 60000	KSM-1601...	KSM-2601...			

<sup>1)</sup> Not for KSM-2601



**Medium air**

The following scales are available for air

Model	Nm <sup>3</sup> /h (0 bar rel.)	Nm <sup>3</sup> /h (1 bar rel.)	Nm <sup>3</sup> /h (2 bar rel.)	Nm <sup>3</sup> /h (3 bar rel.)	Nm <sup>3</sup> /h (4 bar rel.)	Nm <sup>3</sup> /h (5 bar rel.)	Nm <sup>3</sup> /h (6 bar rel.)	Nm <sup>3</sup> /h (7 bar rel.)	Nm <sup>3</sup> /h (8 bar rel.)
KSM-..001	0.8 - 5	1.2 - 7	1.4 - 9	1.6 - 10	2 - 12	2 - 13	2 - 14	2.5 - 14	2.5 - 15
KSM-..005	2 - 18	3 - 25	4 - 30	5 - 35	5 - 40	6 - 43	6 - 45	7 - 50	6 - 52
KSM-..010	4 - 34	6 - 50	8 - 60	8 - 70	10 - 74	10 - 84	10 - 90	12 - 96	12 - 100
KSM-..020	10 - 70	12 - 90	14 - 120	15 - 130	20 - 150	20 - 160	20 - 170	20 - 190	20 - 200
KSM-..030	10 - 90	15 - 130	20 - 160	20 - 190	20 - 210	25 - 230	25 - 250	30 - 260	30 - 280
KSM-..060	22 - 190	30 - 260	40 - 380	40 - 400	40 - 450	50 - 480	50 - 500	70 - 550	75 - 550
KSM-..120	45 - 370	60 - 520	80 - 660	100 - 760	100 - 840	100 - 900	100 - 1000	120 - 1000	140 - 1100
KSM-..201	70 - 580	-	-	-	-	-	-	-	-
KSM-..301	100 - 900	-	-	-	-	-	-	-	-

**Order Details** (Example: KSM-1010 2 P15 R0)

Meas. range air [Nm <sup>3</sup> /h] (0 bar rel.)	Order no. Trogamide	Order no. Polysulfone	Scale Range see table	Option screwed fitting	Option contact
0,8 - 5	KSM-1001...	KSM-2001...	0 = 0 bar rel. 1 = 1 bar rel. 2 = 2 bar rel. 3 = 3 bar rel. 4 = 4 bar rel. 5 = 5 bar rel. 6 = 6 bar rel. 7 = 7 bar rel. 8 = 8 bar rel.	000 = without auxiliary screwed fitting K32 = glue-in connection Da32 (PVC) P15 = PVC G 1/2 female P20 = PVC G 3/4 female P25 = PVC G 1 female T25 = malleable cast iron G1 female F25 = PVC flange DN 25	R0 = without contact R1 = 1 contact R2 = 2 contacts
2 - 18	KSM-1005...	KSM-2005...			
3 - 34	KSM-1010...	KSM-2010...			
10 - 70	KSM-1020...	KSM-2020...		000 = without auxiliary screwed fitting K50 = glue-in connection Da50 (PVC) P25 = PVC G 1 female P32 = PVC G 1 1/4 female P40 = PVC G 1 1/2 female T40 = malleable cast iron G 1 1/2 female F40 = PVC flange DN 40	R0 = without contact R1 = 1 contact R2 = 2 contacts
10 - 90	KSM-1030...	KSM-2030...			
22 - 190	KSM-1060...	KSM-2060...		000 = without auxiliary screwed fitting K63 = glue-in connection Da63 (PVC) P25 = PVC G 1 female P40 = PVC G 1 1/2 female P50 = PVC G 2 female T50 = malleable cast iron G2 female F50 = PVC flange DN 50	R0 = without contact R1 = 1 contact R2 = 2 contacts
45 - 370	KSM-1120...	KSM-2120...			
70 - 580	KSM-1201...*	KSM-2201...*		000 = without auxiliary screwed fitting K75 = glue-in connection Da75 (PVC) P40 = PVC G 1 1/2 female P50 = PVC G 2 female T65 = malleable cast iron G2 1/2 female F65 = PVC flange DN 65	R0 = without contact
100 - 900	KSM-1301...*	KSM-2301...*			

\* only available for 0 bar rel.