



## All Metal Variable Area Flowmeter for Liquids and Gases



measuring  
•  
monitoring  
•  
analysing

KDS



- Measuring range:  
0.1 - 1 L/h ... 20 - 200 L/h water  
3 - 30 m<sup>3</sup><sub>N</sub>/h ... 600 - 6000 L<sub>N</sub>/h air
- Accuracy:  
±3 % of full scale
- p<sub>max</sub>: 420 bar; t<sub>max</sub>: 130 °C
- Connection:  
¼ NPT female thread (option valve)
- Material: Stainless steel



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**Function**

The fluid flows from bottom to top through the meter tube of the flow meter. The float is lifted until an annular gap between the measuring cone and the float is produced which corresponds to the flow. The forces acting on the float are in equilibrium.

The height of the float resulting from the flow rate is transmitted by the permanent magnet in the float through the magnetic tracking system in a rotation to the pointer axis of the analog indicator unit.

The variable-area flowmeter consists of a stainless steel device with an integrated conical stainless steel measuringtube and a vertically movable float. The valve for setting the flow rate is built-in (only KDS-K/C).

**Application**

The KDS meter is suitable for flow measurement of liquid or gaseous products in pipes.

It shows the current flow rate in volume or mass per unit in time.

**Areas of Application**

- Flow measurement of liquids and gases
- Dosing
- Can be used in the chemical industry or in medical or laboratory engineering
- Robust mechanical system with a low rate of wear

The devices are available with additional electrical equipment for process monitoring and control

- Design for horizontal and vertical connections available
- A variety of sealing materials
- Wall mounting possibility (KDS-C)
- Flow Controller (option)
- High pressure application (option)

**Technical Details**

**Materials**

Measuring cone, float, armature: Stainless steel  
other materials on request

Sealing: PTFE (special on request)

Process connection: ¼" NPT (F), adapter for other connections available  
special connections on request

Nominal pressure: PN 40 (KDS-K, C)  
PN 64 (KDS-S)  
optional up to 420 bar (KDS-S)

Accuracy: ±3 % of full scale

Process temperature: -40°C ... +130°C (without limit contact)  
-25°C ... +100°C (with limit contact)

Ambient temperature: -25°C ... +65°C

Weight: 0.6 kg

Protecion: IP 65 (EN60529)

**Certificate and Approval**

Explosion protection: BVS 03 ATEX H/B 113

**Pressure drop: [H<sub>2</sub>O/mbar]**

Measuring range	KDS-S...	KDS-K/C...
A	6.5	6.5
B	7.5	7.5
C	7.5	8.5
D	8	10
E	10	12
F	13	17
G	15	25
H	25	45
I	30	95
J	50	-
K	80	-

Reference condition:  
according to IEC 770, water at 20°C  
complete opened valve



**Electrical contacts:**

Inductive  
 limit contacts: (P&F) NJ1, 5-6, 5N  
 Induct. limit contacts  
 (safe technology): (P&F) NJ 2-11 SN  
 Ambient temperature: -25 °C... +65 °C


**Electromagnetic compability**

EMV-Directive 89/336/EWG  
 EN 61000-6-2: 1999 immunity for industrial environments  
 EN 61000-6-3: 2001 emissions residential environments  
 EN 55011:1998+A1: 1999 Group 1, Class B  
 (radio interference)

**Certificates and Approvals**

Explosion protection: PTB 00 ATEX 2048 X (gas)  
 Type of protection: II 2G EEx ia IIC T6-T4  
 Explosion protection: ZELM 03 ATEX 0128 X (dust)  
 Type of protection: II 1D Ex iaD 20 T...°C  
 CE-Marking: Ex-Directive 94/9/EG

**Connection vertical KDS-S... (Example: KDS-SA P 30 A 00)**

	Measuring range		Order-Code	Material	Connection	Scale	Contacts	Special option
	Water L/h	Air 1.013 bar abs., 20 °C L <sub>N</sub> /h						
	0.1 - 1.0	3.0 - 30	KDS-SA...	P = St. steel/ PTFE fitting X = special	30 = ¼ NPT female	A = % Scale B = Standard- scale H <sub>2</sub> O C = Standard- scale air D = % Scale fluid E = MR-scale fluid F = double scale acc. to specification X = Special scale	0 = without 1 = 1 x In- ductive contact 2 = 2 x In- ductive contact 3 = 1 x In- ductive contact acc. to safety standard	0 = without X = Special acc. to specifi- cation
	0.25 - 25	7.5 - 75	KDS-SB...					
	0.6 - 6.0	18 - 180	KDS-SC...					
	1.0 - 10	30 - 300	KDS-SD...					
	1.6 - 16	48 - 480	KDS-SE...					
	2.5 - 25	75 - 750	KDS-SF...					
	4.0 - 40	120 - 1200	KDS-SG...					
	6.0 - 60	180 - 1800	KDS-SH...					
	10 - 100	300 - 3000	KDS-SI...					
	16 - 160	480 - 4800	KDS-SJ...					
	20 - 200	600 - 6000	KDS-SK...					
	Special	Special	KDS-SX...					



All Metal Variable Area Flowmeter Model KDS

Connection horizontal KDS-K... (Example: KDS-KA P 30 A 00)

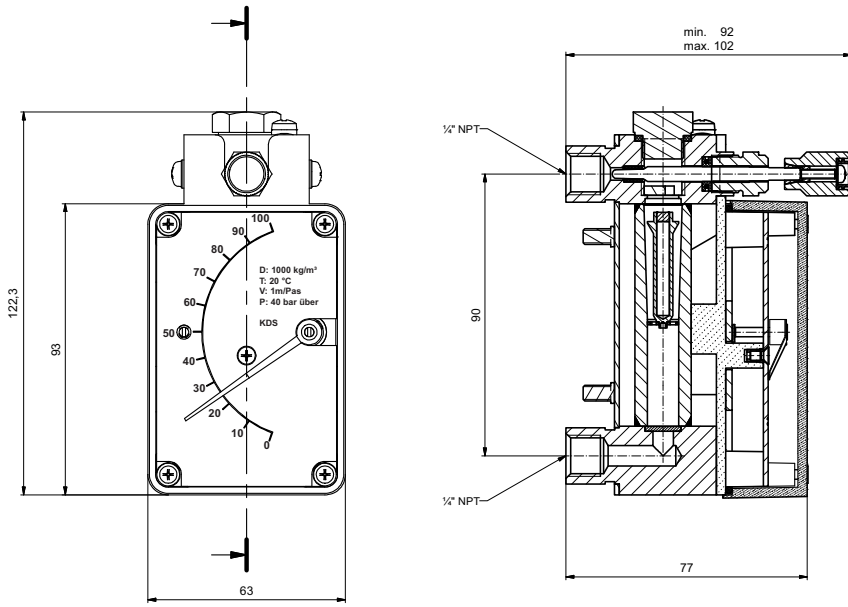
Measuring range	Order-Code	Material	Connection	Scale	Contacts	Special option	
							Water
L/h	L <sub>N</sub> /h						
0.1 - 1.0	3.0 - 30	P = St. steel/ PTFE fitting X = Special	30 = ¼ NPT female U0 = ¼ NPT female valve at bottom OO = ¼ NPT female valve at top	A = % Scale B = Standard- scale H <sub>2</sub> O C = Standard- scale air D = % Scale fluid E = MR-Scale fluid F = Double scale acc. to specifi- cation X = Special scale	0 = without 1 = 1 x Inductive contact 2 = 2 x Inductive contact 3 = 1 x Inductive contact acc. to safety standard	0 = without X = Special acc. to specifi- cation	
0.25 - 25	7.5 - 75						KDS-KA...
0.6 - 6.0	18 - 180						KDS-KB...
1.0 - 10	30 - 300						KDS-KC...
1.6 - 16	48 - 480						KDS-KD...
2.5 - 25	75 - 750						KDS-KE...
4.0 - 40	120 - 1200						KDS-KF...
6.0 - 60	180 - 1800						KDS-KG...
10 - 100	300 - 3000						KDS-KH...
Special	Special	KDS-KI...					
		KDS-KJ...					
		KDS-KK...					
		KDS-KL...					
		KDS-KM...					
		KDS-KN...					
		KDS-KO...					
		KDS-KP...					
		KDS-KQ...					
		KDS-KR...					
		KDS-KS...					
		KDS-KT...					
		KDS-KU...					
		KDS-KV...					
		KDS-KW...					
		KDS-KX...					

Connection horizontal for wall mounting KDS-C... (Example: KDS-CA P 30 A 00)

Measuring range	Order-Code	Material	Connection	Scale	Contacts	Special option	
							Water
L/h	L <sub>N</sub> /h						
0.1 - 1.0	3.0 - 30	P = St. steel/ PTFE fitting X = Special	30 = ¼ NPT female U0 = ¼ NPT female valve at bottom OO = ¼ NPT female valve at top	A = % Scale B = Standard- scale H <sub>2</sub> O C = Standard- scale air D = % Scale fluid E = MR-Scale fluid F = Double scale acc. to specifi- cation X = Special scale	0 = without 1 = 1 x Inductive contact 2 = 2 x Inductive contact 3 = 1 x Inductive contact acc. to safety standard	0 = without X = Special acc. to specifi- cation	
0.25 - 25	7.5 - 75						KDS-CA...
0.6 - 6.0	18 - 180						KDS-CB...
1.0 - 10	30 - 300						KDS-CC...
1.6 - 16	48 - 480						KDS-CD...
2.5 - 25	75 - 750						KDS-CE...
4.0 - 40	120 - 1200						KDS-CF...
6.0 - 60	180 - 1800						KDS-CG...
10 - 100	300 - 3000						KDS-CH...
Special	Special	KDS-CI...					
		KDS-CJ...					
		KDS-CK...					
		KDS-CL...					
		KDS-CM...					
		KDS-CN...					
		KDS-CO...					
		KDS-CP...					
		KDS-CQ...					
		KDS-CR...					
		KDS-CS...					
		KDS-CT...					
		KDS-CU...					
		KDS-CV...					
		KDS-CW...					
		KDS-CX...					

Dimensions

KDS-K, C



KDS-S

