



## All-Metal Variable Area Flowmeter for liquids and gases



measuring  
•  
monitoring  
•  
analysing

BGK



- Measuring range:  
0.1 - 1 l/h ... 20 - 200 l/h water  
3 - 30 NI/h ... 600 - 6000 NI/h air
- Accuracy:  
 $\pm 3\% q_G$  50 acc. VDE/VDI 3513
- $p_{\max}$ : PN40 bar;  $t_{\max}$ : 130 °C
- Connection: flange DN10/15/25,  
ASME 1/2", 3/4", 1"
- Material: stainless steel
- 1 or 2 inductive contacts
- Analogue output

IS



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KOBOLD Messring GmbH  
Nordring 22-24  
D-65719 Hofheim/Ts.  
Head Office:  
+49(0)6192 299-0  
+49(0)6192 23398  
info.de@kobold.com  
www.kobold.com



### Function

The fluid flows from bottom to top through the meter tube of the flowmeter. 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 measuring tube and a vertically movable float.

### Application

The BGK 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
- 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

- A variety of sealing materials
- High pressure application (option)
- Analogue output (option)

### Technical Details

#### Materials

Indicator housing: polyamide, cover Ultramid  
Measuring cone, float, armature: stainless steel 1.4404/1.4571 other materials on request

Process connection: flange see order details

Nominal pressure: PN 40/300 lbs

Accuracy liquid/gas:  $\pm 3\% q_G$  50 acc. VDE/VDI 3513

Process temperature:

Without limit contact/  
electronic:  $-40^\circ\text{C} \dots +130^\circ\text{C}$

With limit contact: NJ1,5-6,5N  $-25 \dots +100^\circ\text{C}$ ;  
NJ2-11SN  $-40 \dots +100^\circ\text{C}$

With analogue output:  $-40 \dots +100^\circ\text{C}$  (BGK-..E)

Ambient temperature:  $-25^\circ\text{C} \dots +70^\circ\text{C}$

Weight: 2.4 kg

Protection: IP 65 (EN60529)

Display: %-scale  
measuring range scale

### Certificate and Approval

Explosion protection: BVS 03 ATEX H/B 113

### Pressure drop

Measuring range	H <sub>2</sub> O/mbar
A	6
B	7.5
C	7.5
D	8
E	9
F	10
G	11
H	12
I	15
J	20
K	28



**Electrical contacts:**

Limit contacts: 1 up to max. 2 inductive limit contacts,  
NAMUR (Pepperl & Fuchs  
NJ 1.5-6.5N); 8,2 V (Ri ~1KΩ)  
(NJ 2-11-SN); 5...25 V<sub>DC</sub>  
(safety function)

**Analogue output**

(BGK-...E): 4-20 mA, 2-wire, passive; 14-30 V;  
load max. 500 Ω version Ex  
(intrinsically safe) connection via  
M12 plug

Ambient  
temperature: -40 °C...+70 °C

**Certificates and Approvals**

**Explosion protection**

BGK-...E: BVS 12 ATEX E 093 X and  
IECEX BVS 12.0061X  
II 2 G Ex ib IIC T4 Gb or  
II 2D Ex ib IIC T135 °C Db  
NJ1,5-6,5N PTB 00 ATEX 2048 X II  
2G Ex ia IIC T6-T4  
NJ 2-11SN PTB 00 ATEX 2049 X II  
2G Ex ia IIC T6-T4  
ZELM 03 ATEX 0128 X II 1D Ex iaD  
20 T...°C

CE-Marking: Explosion Protection Directive 94/9/EG,  
PED 97/23/EG

**Electromagnetic compatibility**

For add-on  
electrical sensors: EMV-Directive 89/336/EWG  
EN 61326-1:2006

SIL: SIL Conformity acc. IEC-61508-  
2:2000 and IEC-61508-2:2010

**Order Details (Example: BGK-301B A 0 A 0 0)**

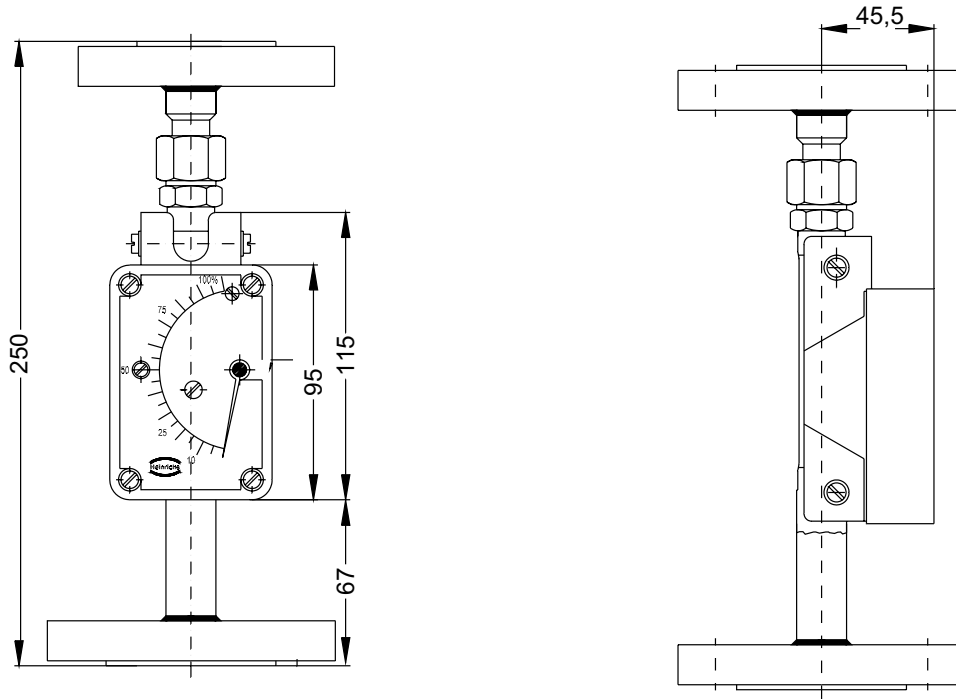
	Flange connection	Measuring range	Certificates <sup>2)</sup>	Scale	Electrical output	Special version
BGK-	301B = DN 10, PN 40, Form B1 DIN EN 1092-1	A = 0.1 - 1.0 l/h H <sub>2</sub> O; 3-30 NI/h air <sup>1)</sup>	0 = without	A = % Scale H <sub>2</sub> O B = MR-Scale H <sub>2</sub> O C = MR-Scale Air D = % Scale Media E = MR-Scale Media F = double scale according customer specification X = special scale according customer specification	0 = without (Process temperature -40 °C...+130 °C) 1 = 1 x Inductive contact, initiator (NJ1.5-6.5-N) (Process temperature -25 °C...+100 °C) 2 = 2x Inductive contact (NJ1.5-6.5-N) (Process temperature -25 °C...+100 °C) 3 = 1 x Inductive contact (NJ2-11-SN) (Process temperature -25 °C...+100 °C) E = transmitter 4-20 mA without Hart®, Ex ib X = special acc. to spezification	0 = without X = special acc. to specification
	305B = DN 15, PN 40, Form B1 DIN EN 1092-1	B = 0.25 - 2.5 l/h H <sub>2</sub> O; 5-50 NI/h air <sup>1)</sup>				
	305D = DN 15, PN 40, Form D DIN EN 1092-1	L = special measuring range for gases only; 6-60 NI/h air <sup>1)</sup>				
	309B = DN 25, PN 40, Form B1 DIN EN 1092-1	M = special measuring range for gases only; 7-70 NI/h air <sup>1)</sup>				
	309D = DN 25, PN 40, Form D DIN EN 1092-1	N = special measuring range for gases only; 11-110 NI/h air <sup>1)</sup>				
	201R = ½" Class 150 RF, ASME B16.5-2003	C = 0.6 - 6.0 l/h H <sub>2</sub> O; 18-180 NI/h air <sup>1)</sup>				
	221R = ½" Class 300 RF, ASME B16.5-2003	D = 1.0 - 10 l/h H <sub>2</sub> O; 30-300 NI/h air <sup>1)</sup>				
	202R = ¾" Class 150 RF, ASME B16.5-2003	E = 1.6 - 16 l/h H <sub>2</sub> O; 48-480 NI/h air <sup>1)</sup>				
	222R = ¾" Class 300 RF, ASME B16.5-2003	F = 2.5 - 25 l/h H <sub>2</sub> O; 75-750 NI/h air <sup>1)</sup>				
	203R = 1" Class 150 RF, ASME B16.5-2003	G = 4.0 - 40 l/h H <sub>2</sub> O; 120-1200 NI/h air <sup>1)</sup>				
	223R = 1" Class 300 RF, ASME B16.5-2003	H = 6.0 - 60 l/h H <sub>2</sub> O; 180-1800 NI/h air <sup>1)</sup>				
	203J = 1" Class 150 RTJ, ASME B16.5-2003	I = 10 - 100 l/h H <sub>2</sub> O; 300-3000 NI/h air <sup>1)</sup>				
	223J = 1" Class 300 RTJ, ASME B16.5-2003	J = 16 - 160 l/h H <sub>2</sub> O; 480-4800 NI/h air <sup>1)</sup>				
	XXXX = special connection	K = 20 - 200 l/h H <sub>2</sub> O; 600-6000 NI/h air <sup>1)</sup>				

<sup>1)</sup> Air 1,013 bar abs., 20 °C

<sup>2)</sup> Certificate of compliance with the order 2.1, Test report 2.2, Inspection certificate 3.1 with material certificate (DIN EN 10204:2004) and Inspection certificate 3.2 with material certificate (DIN EN 10204:2004) on request

Dimensions [mm]

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BGK-..E

