

Air/gas ratio controls GIK, variable air/gas ratio controls GIKH

OPERATING INSTRUCTIONS

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CONTENTS

1 Safety	1
2 Checking the usage	2
3 Installation	2
4 Installing the air control line	3
5 Installing the breather line	4
6 Tightness test	4
7 Setting the low-fire rate	4
8 Bypass for staged control	5
9 Installing the variable restrictor	6
10 Maintenance cycles	7
11 Accessories	7
12 Technical data	8
13 Designed lifetime	9
14 Certification	9
15 Logistics	10

1 SAFETY

1.1 Please read and keep in a safe place



Please read through these instructions carefully before installing or operating. Following the installation, pass the instructions on to the operator. This unit must be installed and commissioned in accordance with the regulations and standards in force. These instructions can also be found at www.docuthek.com.

1.2 Explanation of symbols

1, 2, 3, a, b, c = Action

→ = Instruction

1.3 Liability

We will not be held liable for damage resulting from non-observance of the instructions and non-compliant use.

1.4 Safety instructions

Information that is relevant for safety is indicated in the instructions as follows:

⚠ DANGER

Indicates potentially fatal situations.

⚠ WARNING

Indicates possible danger to life and limb.

⚠ CAUTION

Indicates possible material damage.

All interventions may only be carried out by qualified gas technicians. Electrical interventions may only be carried out by qualified electricians.

1.5 Conversion, spare parts

All technical changes are prohibited. Only use OEM spare parts.

2 CHECKING THE USAGE

Air/gas ratio controls GIK for maintaining a constant gas/air ratio of 1:1 and for gas pressure control in systems without preheated combustion air.

Variable air/gas ratio controls GIKH for maintaining a constant gas/air ratio of 4:1 and for gas pressure control in systems using a recuperative air preheating system.

GIK, GIKH for continuous control. GIK..B, GIKH..B for staged control.

GIK..L, GIKH..L for air only.

This function is only guaranteed when used within the specified limits – see page 8 (12 Technical data). Any other use is considered as non-compliant.

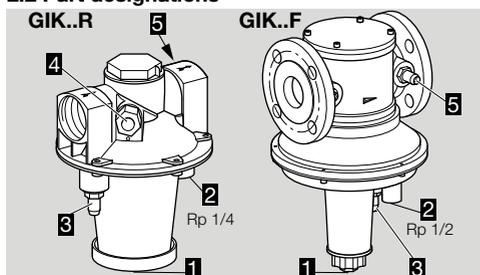
2.1 Type code

GIK	Air/gas ratio control
15-150	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
02	p_u max. 200 mbar
-5	Pressure test point at the outlet
-6	Pressure test point at the inlet and outlet
L	Only for air (without approval)
B	With bypass screw (GIK 15-25: 1.5 mm; GIK 40-50: 5 mm)

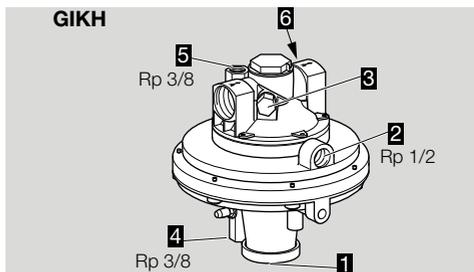
ANSI flange version GIK..A available up to DN 100.

GIKH	Variable air/gas ratio control
25	Nominal size
R	Rp internal thread
02	p_u max. 200 mbar
-5	Pressure test point at the outlet
L	Only for air (without approval)
B	With bypass screw

2.2 Part designations



- 1 Adjusting screw
- 2 Connection for air control pressure
- 3 Test point for air control pressure
- 4 Bypass screw
- 5 Test point for outlet pressure



- 1 Adjusting screw
- 2 Connection for breather line
- 3 Bypass screw
- 4 Connection and test point for air control pressure (+)
- 5 Connection and test point for air control pressure (-)
- 6 Test point for outlet pressure

2.3 Type label

Technical limits, e.g. max. inlet pressure and control pressure: see type label or page 8 (12 Technical data).



3 INSTALLATION

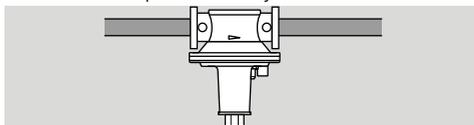
⚠ CAUTION

Incorrect installation

Please observe the following to ensure that the unit is not damaged during installation:

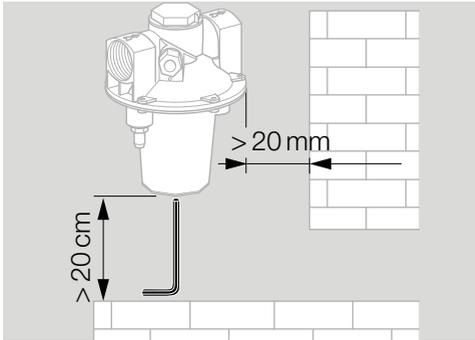
- Always install a manual valve, filter and safety valve upstream of the air/gas ratio control or variable air/gas ratio control.
- The installation location must be dry, see page 8 (12 Technical data).
- Dropping the device can cause permanent damage. In this event, replace the entire device and associated modules before use.
- Install the unit in the pipe free of mechanical stress.
- Do not clamp the unit in a vice or use it as a lever. Risk of external leakage.

→ Only install the unit in horizontal pipelines, the spring dome must point vertically downwards.



→ We recommend that a slowing down section of 3 x DN be provided downstream of the regulator.

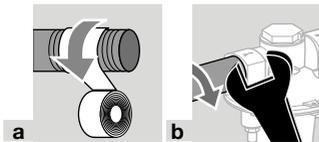
- The regulator must not be in contact with masonry. Ensure that there is sufficient space for adjusting the low-fire rate.



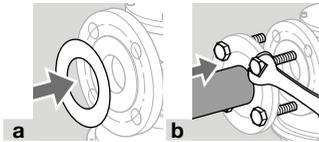
- 1 Remove the screw caps.
- Obey the direction of flow as marked on the housing.

GIK..R, GIKH..R

- Use approved sealing material only.
- Use a suitable spanner. Do not use the spring dome as a lever.

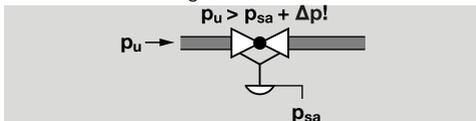


GIK..F

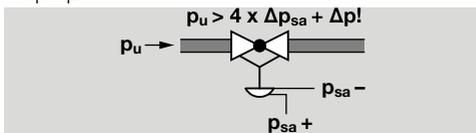


Inlet pressure p_u

GIK: the inlet pressure p_u must always be greater than the air control pressure p_{sa} plus the pressure drop Δp to ensure that the air/gas ratio control is not overloaded.

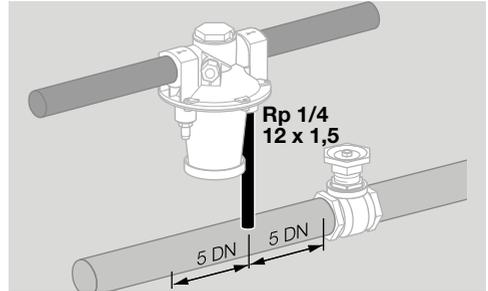


GIKH: The inlet pressure p_u must be greater than 4 x the differential control pressure Δp_{sa} plus the pressure drop Δp .

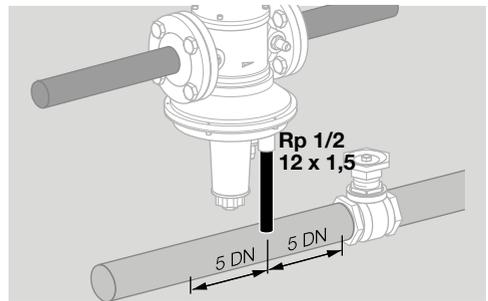


4 INSTALLING THE AIR CONTROL LINE

- Every signal line whose failure may lead to the uncontrolled escape of gas and therefore to an unsafe status and gas fire must be made of metal.
- The connection of the air control line must be at a distance of 5 x DN from other air control elements.

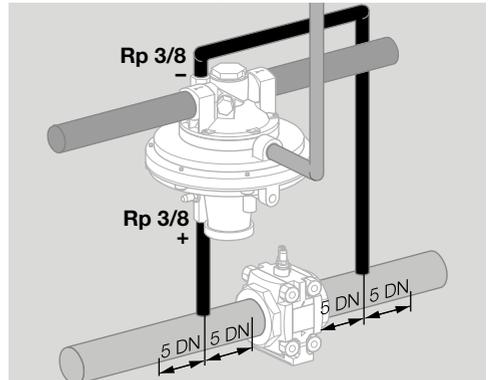


GIK..R



GIK..F

- Install the measuring orifice in the air line.

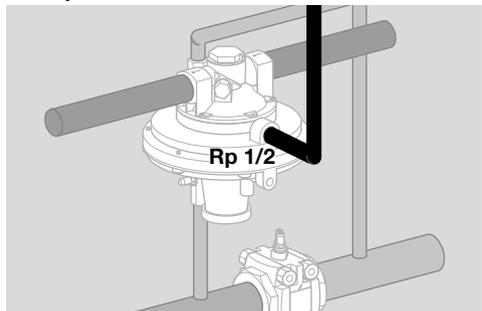


GIKH

5 INSTALLING THE BREATHER LINE

GIKH

→ When fitting the unit into a gas line, an Rp 1/2 breather line must be connected, which must be routed to a safe area. A breather line is not necessary if the unit is installed in the air line.

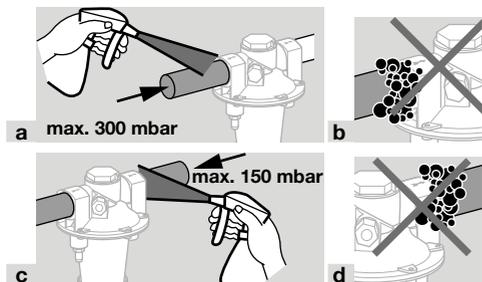


6 TIGHTNESS TEST

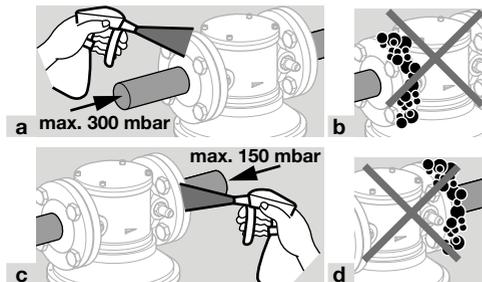
→ Check the tightness again, even after a function check.

- 1 Block the pipeline at the outlet.
- 2 Close the valve or close off the outlet with a blanking plate.
- 3 Slowly pressurize the regulator.

GIK..R



GIK..F

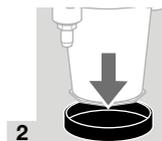


7 SETTING THE LOW-FIRE RATE

Set the high-fire rate using restricting orifices or adjustment elements on the burner.

- 1 Switch on the burner.

→ The cover cap must be removed from the GIK..R and GIKH for setting the low-fire rate.

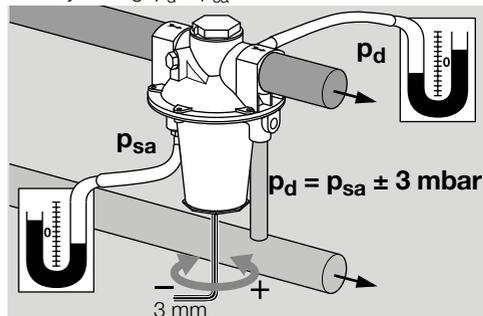


2

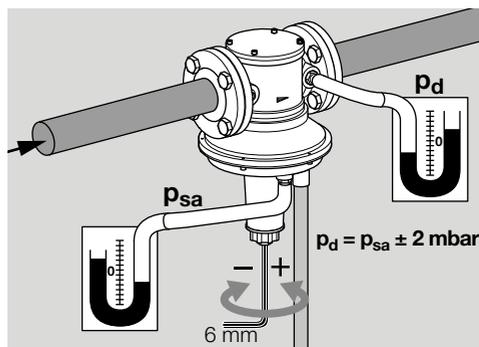
GIK

At low-fire rate: control pressure at least 0.5 mbar.

Factory setting: $p_d = p_{sa}$



GIK..R

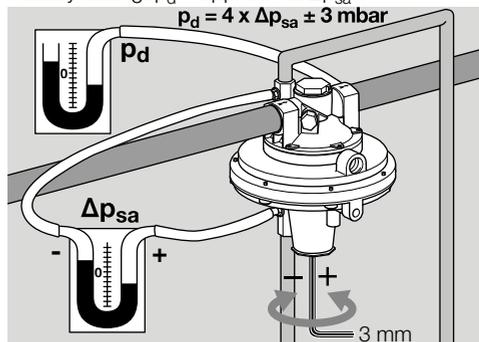


GIK..F

GIKH

At low-fire rate: differential control pressure at least 0.2 mbar.

Factory setting: $p_d = \text{approx. } 4 \times \Delta p_{sa}$



- 3 Fit the cover cap again once the settings have been made successfully on the GIK..R and GIKH.

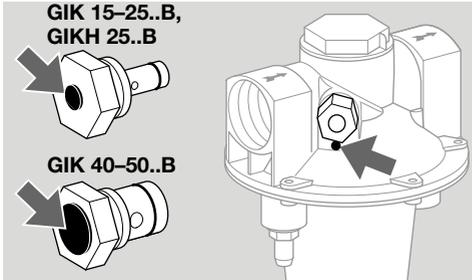
8 BYPASS FOR STAGED CONTROL

For staged control, the spring is decompressed at the factory in such a way that the low-fire rate only flows through the bypass.

The bypass orifice in the bypass screw determines the low-fire rate.

Use

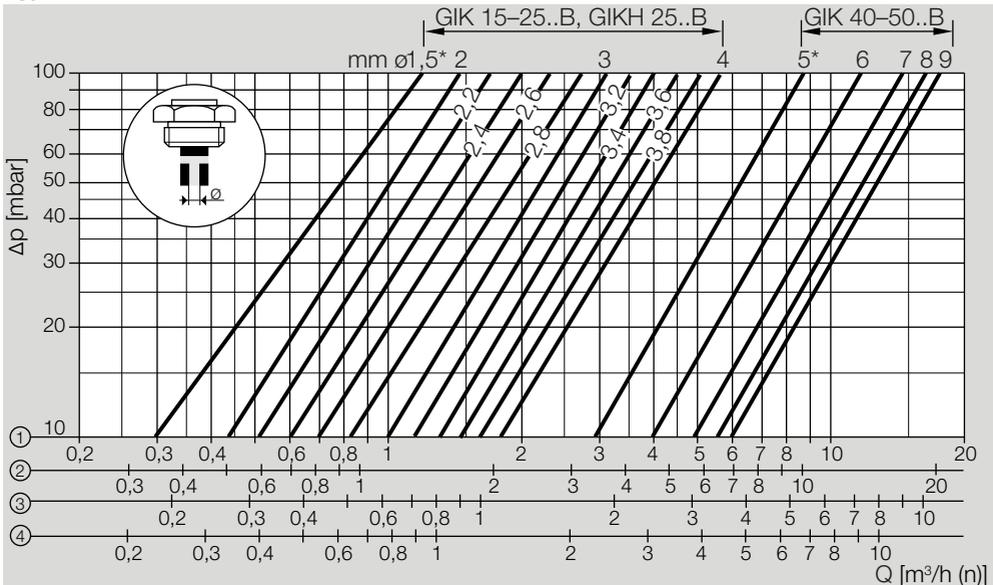
→ The bypass screws and the housings have been marked since 11.2000. Only marked screws may be used with marked housings.



Control pressure

- GIK..B: the air control pressure must be less than 2 mbar at low-fire rate.
- GIKH..B: the differential control pressure must be less than 0.5 mbar at low-fire rate.

Bypass flow rate



* Standard bypass orifice

1 = natural gas ($\rho = 0.80 \text{ kg/m}^3$)

2 = town gas ($\rho = 0.58 \text{ kg/m}^3$)

3 = propane ($\rho = 2.01 \text{ kg/m}^3$)

4 = air ($\rho = 1.29 \text{ kg/m}^3$)

- Bypass screw, for variable adjustment for GIK 15-25, see page 7 (11 Accessories).
- Bypass screws, diameter to order for GIK 15-25 and GIK 40-50, see page 7 (11 Accessories).

9 INSTALLING THE VARIABLE RESTRICTOR

If air control pressure $p_{sa} >$ inlet pressure p_u : install a variable restrictor on the GIK.

CAUTION

Incorrect installation

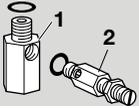
Please observe the following to ensure that the unit is not damaged:

- The variable restrictor must only be installed on the GIK.

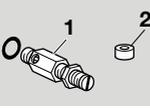
→ The outlet opening on the fitted restrictor must be protected from dirt.

- 1 Install a filter upstream of the variable restrictor.
- 2 Ensure that the variable restrictor is the correct design for GIK..R or GIK..F.

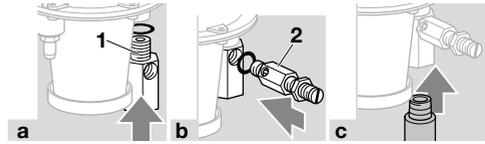
GIK..R



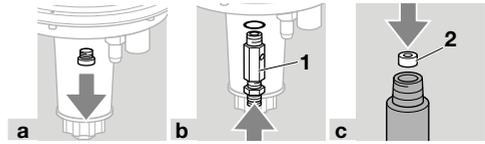
GIK..F



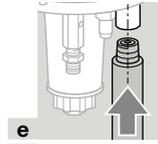
Installing the variable restrictor on the GIK..R



Installing the variable restrictor on the GIK..F



d Seal the air control line at the thread with sealant.

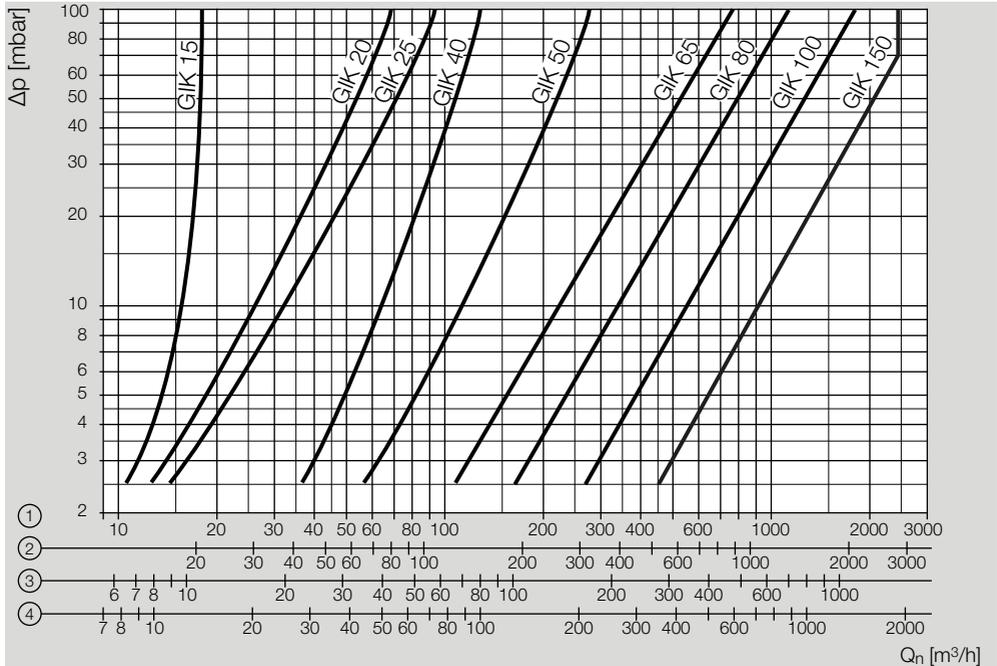


3 Enter the maximum gas flow rate in the diagram and read off the pressure drop Δp for the appropriate nominal size.

→ Min. pressure drop $\Delta p = 2.5$ mbar

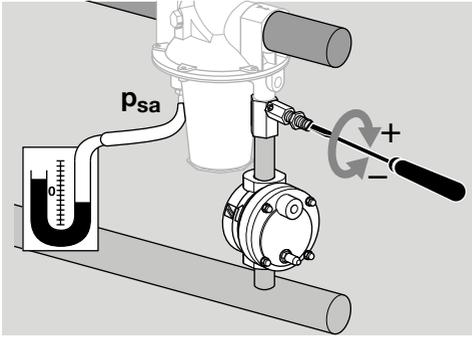
→ $p_{sa \text{ max.}} = p_u - \Delta p$

Flow rate

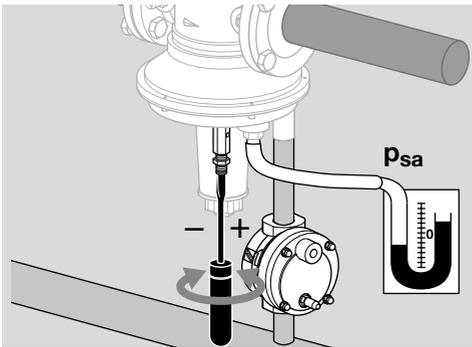


4 Open the air valve fully.

5 Adjust it until the air control pressure $p_{sa \max}$ reaches the calculated value. Observe the gas and air pressures on the downstream consumers.



GIK..R



GIK..F

6 Open the gas valve upstream of the air/gas ratio control.

→ It must be possible to identify a change in the gas outlet pressure p_d over the entire turndown range, corresponding to the air control pressure p_{sa} . If only the air control pressure p_{sa} rises in the upper capacity range and the gas outlet pressure p_d does not:

7 Turn the adjusting screw towards “-” and increase the flow rate to maximum volume again, making any adjustments that may be required.

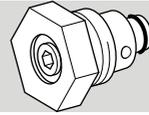
10 MAINTENANCE CYCLES

GIK, GIKH requires little servicing.

We recommend that a function check is carried out once per year, or at least twice a year if biogas is used.

11 ACCESSORIES

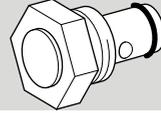
11.1 Bypass screw GIK 15–25, variable



The bore hole diameter for the flow rate can be adjusted as desired and corresponds to holes of 1.5–4 mm, see page 5 (8 Bypass for staged control).

Order No.: GIK 15–25: 74919806.

11.2 Bypass screw, diameter to order

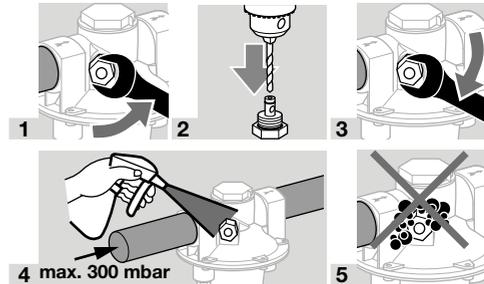


The bore hole diameter of the bypass screw is made to order.

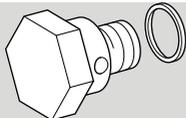
→ The bypass orifice can be enlarged if required.

Type	Bypass orifice [mm]	
	Standard	Enlarged
GIK 15–25, GIKH 25 Order No.: 74919820	Ø 1.5	Max. Ø 4
GIK 40–50 Order No.: 74919821	Ø 5	Max. Ø 9

Enlarging the bypass orifice



11.3 Conversion kit for zero pressure control

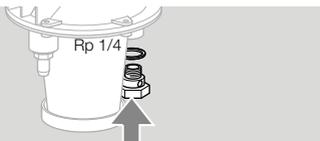


The zero shut-off prevents an increase in the outlet pressure when the consumer is switched off.

The conversion kit for zero pressure control is screwed in instead of the air control line.

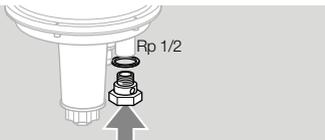
- The device has been converted to a zero governor. We recommend labelling the device clearly.
- Install the air/gas ratio control, see page 2 (3 Installation).
- Set the air/gas ratio control, see page 4 (7 Setting the low-fire rate).

GIK 15–50



Order No.: 03351039

GIK 65–150



Order No.: 74910853

12 TECHNICAL DATA

12.1 Ambient conditions

Icing, condensation and dew in and on the unit are not permitted.

Avoid direct sunlight or radiation from red-hot surfaces on the unit. Note the maximum medium and ambient temperatures!

Avoid corrosive influences, e.g. salty ambient air or SO₂. The unit may only be stored/installed in enclosed rooms/buildings.

Long-term use in the upper ambient temperature range accelerates the ageing of the elastomer materials and reduces the service life (please contact manufacturer).

This unit is not suitable for cleaning with a high-pressure cleaner and/or cleaning products.

Ambient temperature:

GIK 15–50: -20 to +60°C,

GIK 65–150: -15 to +60°C,

GIKH 25: -20 to +60°C.

Storage temperature: GIK 15–50: -20 to +40°C,

GIK 65–150: -15 to +40°C,

GIKH 25: -20 to +40°C.

Transport temperature = storage temperature.

12.1.1 Mechanical data

Gas types: town gas, natural gas, LPG (gaseous) and biogas (max. 0.02 %-by-vol. H₂S). GIK..L/ GIKH..L for air only. The gas must be clean and dry in all temperature conditions and must not contain condensate.

Medium temperature = ambient temperature.

12.1.2 GIK

The inlet pressure p_u must be greater than the control pressure p_{sa} plus the pressure drop Δp .

Max. pressure drop $\Delta p = 100$ mbar.

Air control pressure: 0.5 to 120 mbar.

Outlet pressure: 0.2 to 119 mbar.

Gas/air pressure ratio: 1:1.

Turndown: 1:10.

Rp internal thread pursuant to ISO 7-1 and NPT internal thread.

ISO flange pursuant to ISO 7005 (PN 16) and ANSI flange.

Type	Weight [kg]
GIK 15R, GIK 15N	1
GIK 20R, GIK 20N	1.1
GIK 25R, GIK 25N	1.1
GIK 40R, GIK 40N	1.8
GIK 50R, GIK 50N	2.8
GIK 65F, GIK 65A	12
GIK 80F, GIK 80A	16.1
GIK 100F, GIK 100A	26
GIK 150F	45.5

Housing: AISI.
Diaphragms: NBR.
Bypass screw: brass.
GIK 15–25 bypass orifice:
standard \varnothing 1.5 mm, up to \varnothing 4 mm possible.
GIK 40–50 bypass orifice:
standard \varnothing 5 mm, up to \varnothing 9 mm possible.

GIK 15–50

Adjusting range at low fire: -3 to +3 mbar.
Connection for control line: Rp 1/4.
Valve plate: plastic.
Valve plate seal: NBR.

GIK 65–150

Adjusting range at low fire: -2 to +2 mbar.
Connection for control line: Rp 1/2.
Valve plate: aluminium.
Valve plate seal: vulcanized NBR seal.

12.1.3 GIKH

Gas/air pressure ratio: 4:1.
Inlet pressure p_U : max. 200 mbar.
The inlet pressure p_U must be greater than 4 x the differential control pressure Δp_{sa} plus the pressure drop Δp .
Max. pressure drop $\Delta p = 100$ mbar.
Rp internal thread pursuant to ISO 7-1 and NPT internal thread.
Housing: aluminium.
Valve seat and stem: aluminium.
Diaphragms: NBR.
Valve plate: plastic.
Valve plate seal: NBR.
Bypass screw: brass.
When used for air: special version.
Weight: 3.4 kg.

13 DESIGNED LIFETIME

This information on the designed lifetime is based on using the product in accordance with these operating instructions. Once the designed lifetime has been reached, safety-relevant products must be replaced. Designed lifetime (based on date of manufacture) in accordance with EN 88 for GIK, GIKH: 15 years. You can find further explanations in the applicable rules and regulations and on the afecor website (www.afecor.org). This procedure applies to heating systems. For thermoprocessing equipment, observe local regulations.

14 CERTIFICATION

Declaration of conformity



We, the manufacturer, hereby declare that the products GIK 15–50 and GIKH 25 with product ID No. 2797CE688640 as well as GIK 65–150 with product ID No. CE-0085AQ0973 comply with the requirements of the listed Directives and Standards.

Directives:

- 2011/65/EU – RoHS II
- 2015/863/EU – RoHS III

Regulation:

- (EU) 2016/426 – GAR

Standards:

- EN 88-1:2011+A1:2016

The relevant product corresponds to the tested type sample.

The production is subject to the surveillance procedure pursuant to Regulation (EU) 2016/426 Annex III B. Elster GmbH

Scan of the Declaration of conformity for GIK (D, GB) – see www.docuthek.com, Declaration of conformity for GIKH (D, GB) – see www.docuthek.com.

Eurasian Customs Union



The products GIK, GIKH meet the technical specifications of the Eurasian Customs Union.

15 LOGISTICS

Transport

Protect the unit from external forces (blows, shocks, vibration).

Transport temperature: see page 8 (12 Technical data).

Transport is subject to the ambient conditions described.

Report any transport damage on the unit or packaging without delay.

Check that the delivery is complete.

Storage

Storage temperature: see page 8 (12 Technical data).

Storage is subject to the ambient conditions described.

Storage time: 6 months in the original packaging before using for the first time. If stored for longer than this, the overall service life will be reduced by the corresponding amount of extra storage time.

Packaging

The packaging material is to be disposed of in accordance with local regulations.

Disposal

Components are to be disposed of separately in accordance with local regulations.

FOR MORE INFORMATION

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschroder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.

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