

Variable air/gas ratio controls GIKH

TECHNICAL INFORMATION

- For maintaining a constant mixture of gas and air on systems using preheated air
- Design with inlet pressure compensation diaphragm ensures high control accuracy
- Adjustment of the gas flow to the air flow that varies due to the heating of the combustion air
- Variable air/gas ratio controls with differential pressure measuring unit for the control pressure
- High turndown
- EU certified



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1 Application



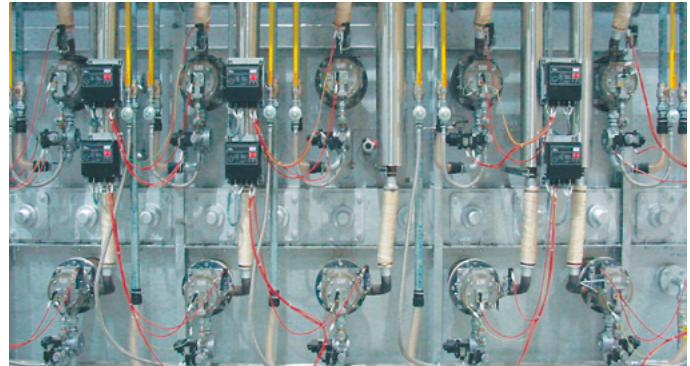
The variable air/gas ratio control GIKH serves to maintain a constant gas/air pressure ratio and to control the gas pressure in systems using a recuperative air preheating system. When the burner capacity is changed and with varying combustion air temperature, the gas pressure is controlled such that the ratio (gas to cold air) remains constant.

For use in systems using preheated air in the iron, steel, glass and ceramics industries, as well as in commercial heat generation, such as the packaging, paper and food-stuffs industries.

1.1 Application examples



Bogie hearth furnace

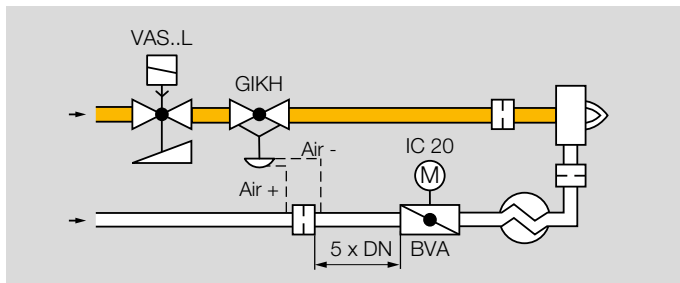


Roller hearth furnace



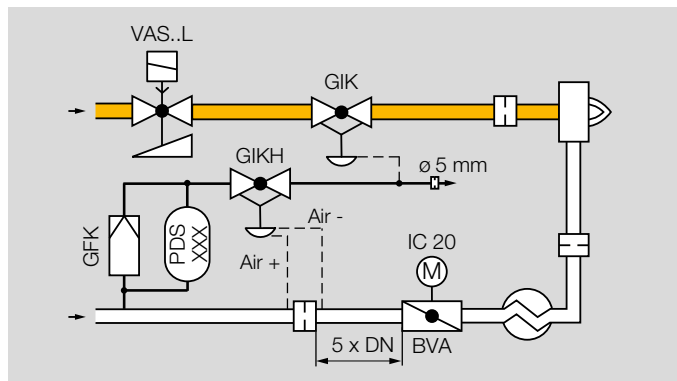
Intermittent shuttle kiln

1.1.1 Continuous control



Continuous variable air/gas ratio control on one or multiple burners in hot-air operating mode. In multiple burner systems, the burners downstream of the measuring orifice may not be switched off individually. Safety valves which open slowly in the case of continuous control must always be installed upstream of the air/gas ratio control GIKH.

1.1.2 Continuous control for nominal sizes > DN 25



Continuous variable air/gas ratio control on one or multiple burners in hot air operating mode for gas pipes larger than DN 25. In multiple burner systems, the burners downstream of the measuring orifice may not be switched off individually. Safety valves must always be installed upstream of the variable air/gas ratio control GIKH. These safety valves must open slowly in the case of continuous control.

2 Certification

Certificates – see www.docuthek.com

EU certified



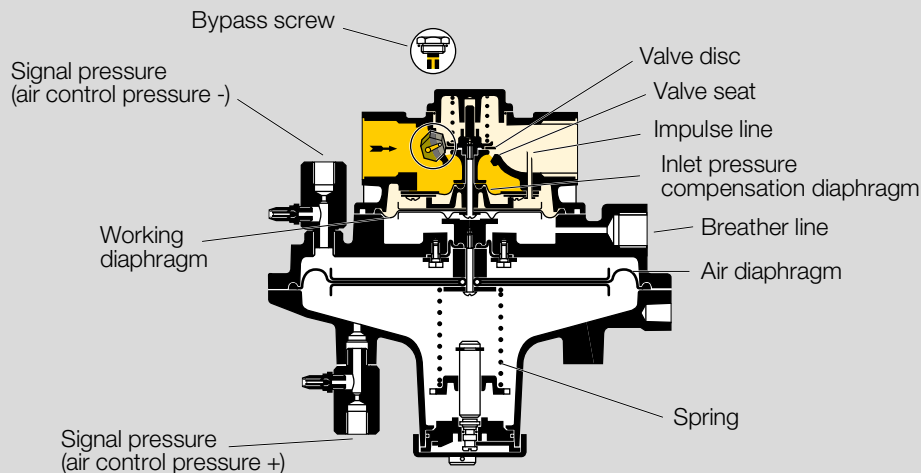
- (EU) 2016/426 (GAR) – Gas Appliances Regulation
- EN 88-1:2022 + A1:2023

2.1 Eurasian Customs Union



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

3 Function



Variable air/gas ratio control GIKH is actuated by the differential pressure on the orifice in the air line. This pressure acts on the large air diaphragm. The valve plate is lifted from the valve seat and the gas flows into the regulator outlet area via the open valve seat. The outlet pressure is fed from the gas side to the space above the working diaphragm via the impulse line. The two pressure forces are compared and compensated. Thanks to the differing diaphragm diameters, the forces are balanced at a pressure ratio of 4:1. The inlet pressure compensation diaphragm ensures high control accuracy.

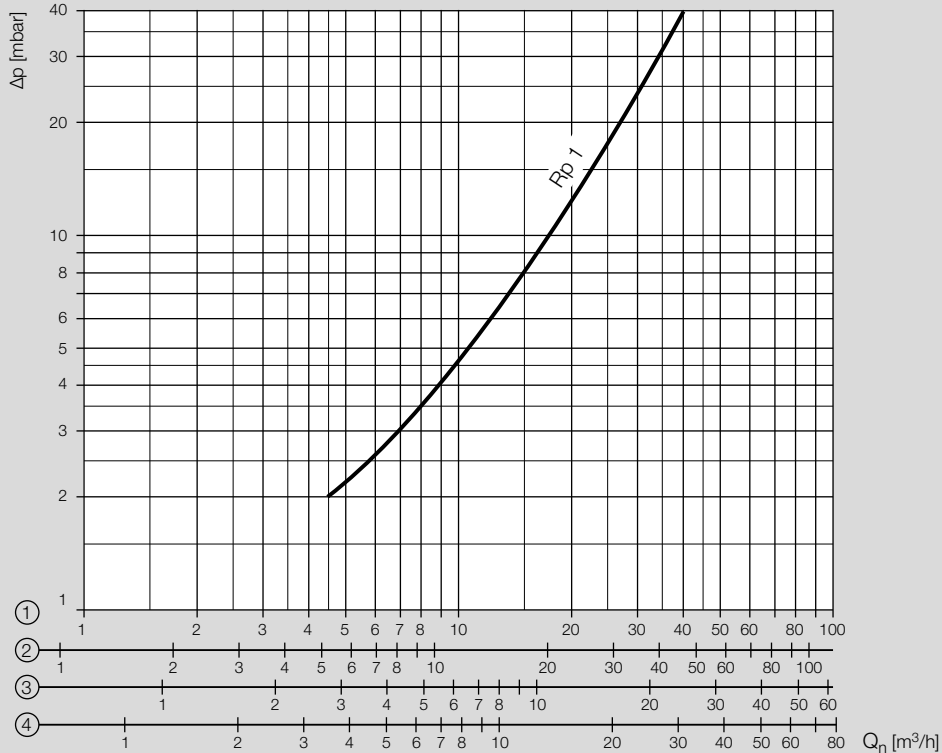
The spring can be used for compensating the weight of the measuring unit. In the low-fire rate range, the gas/air mixture can be set by adjusting the spring.

Adjustment at high-fire rate is carried out using orifices or valves on the burner.

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

A test nipple has been installed to measure the outlet pressure.

4 Flow rate



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

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

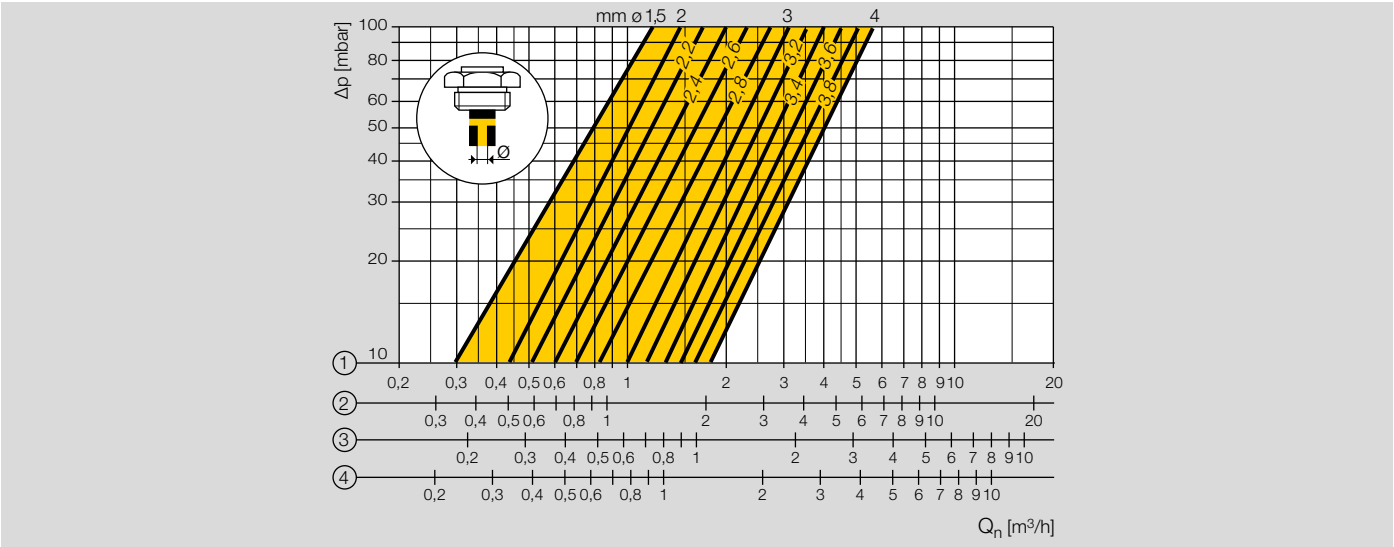
3 = propane ($\rho = 2.01 \text{ kg/m}^3$)

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

4.1 Calculating the nominal size

A web app for calculating the nominal size is available at www.adlatus.org.

4.2 Bypass screw flow rate



5 Selection

Variable air/gas ratio control GIKH is available in a single nominal size.

5.1 ProFi

A web app selecting the correct product is available at www.adlatus.org.

5.2 Type code

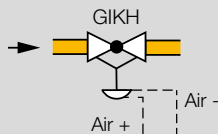
GIKH	Variable air/gas ratio control
25	Nominal size
T	T-product
R	Rp internal thread
N	NPT internal thread
02	p _u max. 200 mbar
-5	Pressure test point at the outlet
L	For air only (without approval)
B	With bypass screw

6 Project planning information

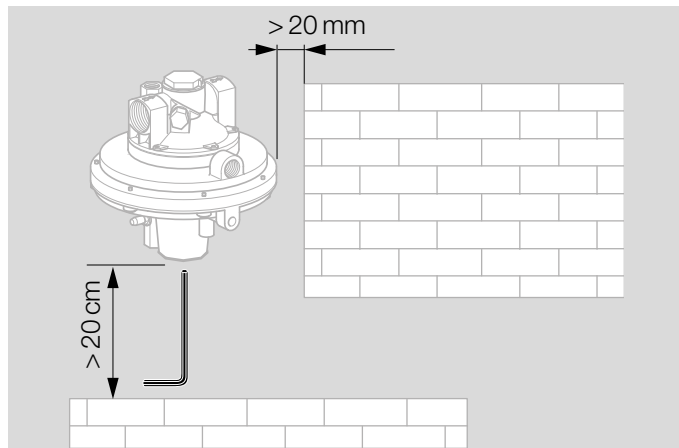
An Rp ½ breather line must be connected when fitting into the gas line.

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

6.1 Installation



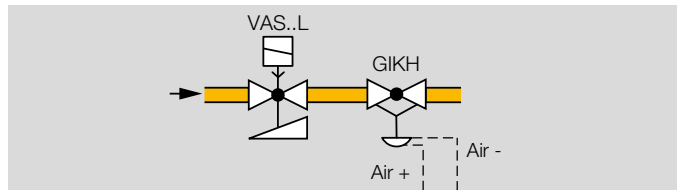
Installation position: install in horizontal pipelines only. The spring dome points downwards.



The variable air/gas ratio control GIKH must not be in contact with masonry. Ensure that there is sufficient space for adjusting the low-fire rate.

Do not store or install the unit in the open air.

Sealing material and dirt, e.g. thread cuttings, must not be allowed to get into the regulator housing. Install a filter (GFK) upstream of every system.



Safety valves VAS..L must always be installed upstream of the variable air/gas ratio control GIKH. These must be slow opening valves.

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

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.

7 Technical data

7.1 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 SO_2 .

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.

7.2 Mechanical data

Gas types: town gas, natural gas, LPG (gaseous) and bio-gas (max. 0.02 %-by-vol. H_2S). 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.

7.3 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 Δp = 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.

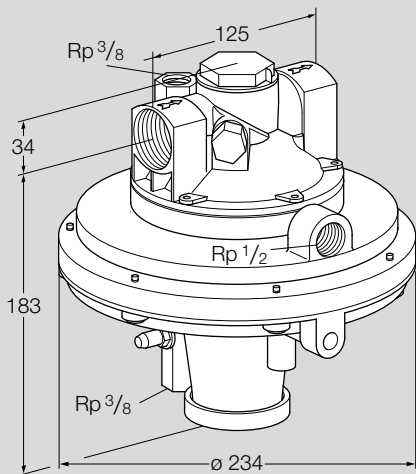
Valve plate seal: NBR.

Bypass screw: brass.

When used for air: special version.

Weight: 3.4 kg.

7.4 Dimensions



8 Converting units

See www.adlatus.org

9 Maintenance cycles

At least once a year, at least twice a year in the case of biologically produced methane.

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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