

Gas/air ratio regulators
GIK, GI



Gas/air ratio regulators GIK, GI

- /// For maintaining a constant air-gas mixture
- /// For modulating and high/low burner control
- /// High regulating precision
- /// Wide regulating range
- /// Maintenance-free
- /// Kromschroder is a company certified to ISO 9001



Application

The gas/air ratio regulators GIK and GI serve to maintain a constant air-gas ratio and to regulate the gas pressure upstream of gas burners on installations without preheated combustion air.

GIK and GI for modulating control, GIK..B with bypass for high/low/off control. Zero-pressure regulation with conversion kit.

Features

- With spring for compensating for the weight of the diaphragm assembly in the case of modulating control.
- Gas/air ratio regulator with inlet pressure compensation diaphragm and zero shut-off.
- The GIK can be converted to the GIK..B. The bypass screw must be exchanged for this purpose.

Function

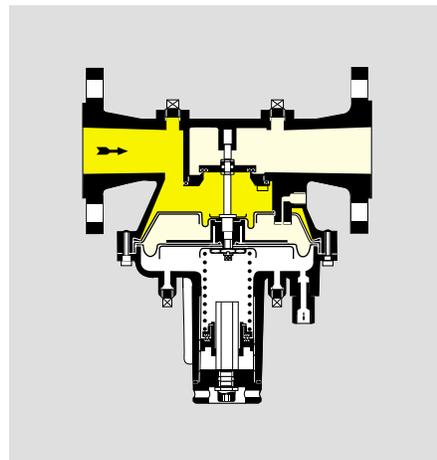
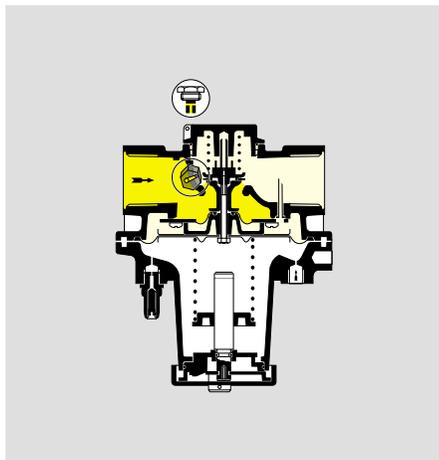
The gas/air ratio regulator is activated by the pressure of the combustion air line. It regulates the gas outlet pressure in the ratio 1:1 to the air control pressure. The burner capacity is varied with the aid of the air control valve.

Furnace pressure fluctuations have the same effect on gas and air throughput, thus meaning that the gas-air mixture does not change.

The low fire rate can be set by adjusting the regulator spring.

In the case of high/low control (GIK..B), the spring should be fully relaxed. The min. flow flows only through the bypass.

The setting at high fire is performed via orifices or valves on the burner.



Examples of installation

Modulating control with GIK, GI

With modulating control, several burners can be mechanically combined to zones. Each burner must be equipped as follows: The air flow is automatically, semi-automatically or manually adjusted for one burner or for each zone via the control valve for air. The respective gas flow is adapted via the gas/air ratio regulator.

High/low/off control using GIK..B

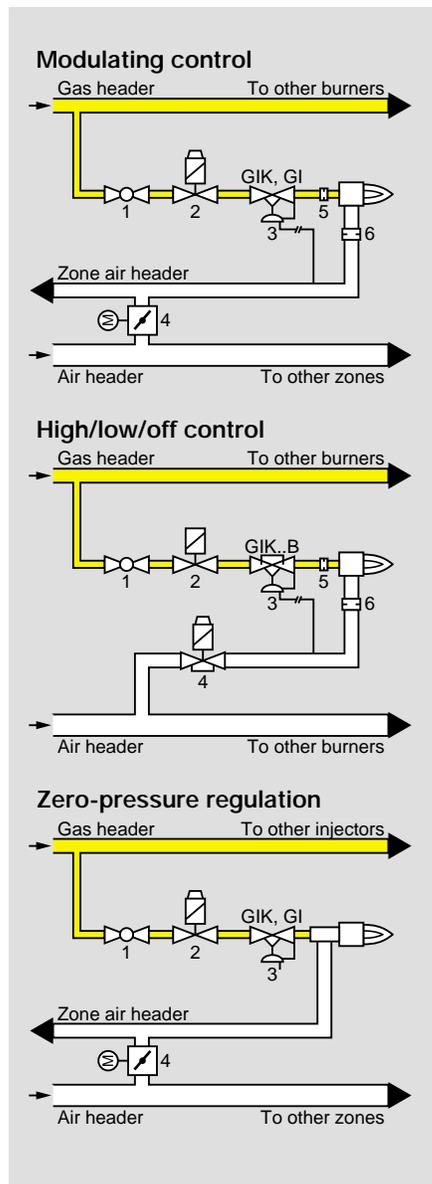
With high/low/off control, burners can be combined to zones. Equipment as for modulating control, but gas/air ratio regulator GIK..B with bypass for the low rate. The air flow is adjusted between low fire and high fire rate either by a slow opening solenoid operated butterfly valve with a defined leakage rate or by a solenoid valve with bypass. The GIK..B adapts the gas flow accordingly.

Zero pressure regulation

With its vent open to atmosphere, a GIK or GI regulator can be used as an zero regulator to supply gas for instance to a mixer or premix burner. If the burner is sealed-in and furnace pressure is other than atmospheric, the regulator vent can be connected to combustion chamber. The controlled "zero" gas pressure then will match furnace pressure; this is necessary to maintain the same gas/air ratio at all firing rates. A separate regulator for each mixer is preferred to avoid interference or interaction.

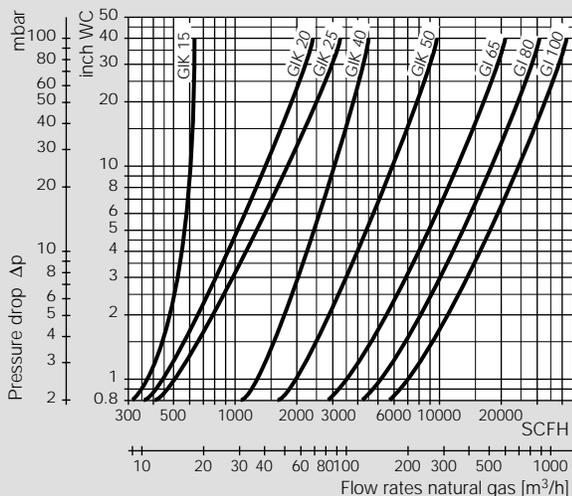
Warning

Situations dangerous to personnel and property can result in the misapplication and incorrect operation of combustion equipment. Kromschroder advises compliance with the National Fire and Protection Association standards that apply for related equipment and Insurance Underwriters recommendation, and care of operation.



- 1 manual shut-off valve
- 2 solenoid valve for gas
- 3 gas/air ratio regulator
- 4 control valve for air
- 5 gas orifice
- 6 air orifice

Flow rate

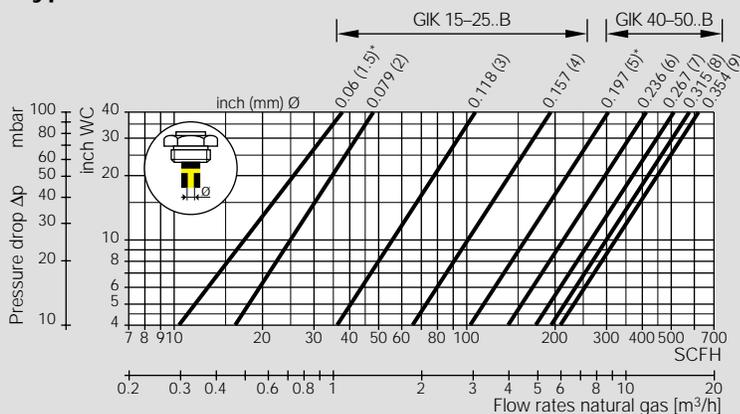


To correct for specific gravity

Multiply the flow from the table by:

0.774 with air (1.0 s.g.), 0.640 with propane (1.56 s.g.), 0.547 with butane (2.00 s.g.), 0.682 with propane/air (1.29 s.g.), 1.150 with coke oven gas (0.45 s.g.)

Bypass screw GIK..B



GIK: bypass plug – standard no hole

GIK..B: bypass plug – standard GIK 15–25..B: 0.06 inch (1,5 mm)

GIK 40–50..B: 0.197 inch (5 mm)

Technical data

GIK, GI

Type of gas: Natural gas, town gas, LPG (gaseous), biologically produced methane, GIK..L, GI..L only for air.

Max. inlet pressure: 3 psig (200 mbar).

Combustion air control pressure:

0.2 to 48 "WC (0.5 to 120 mbar).

Outlet pressure:

0.08 to 47.5 "WC (0.2 to 119 mbar).

Differential pressure between inlet pressure p_e and outlet pressure p_a : max. 40 "WC (100 mbar).

Transmission ratio: 1:1.

Bypass diameter GIK..B:

GIK 15–25: standard 0.06 inch (1.5 mm), possible up to 0.157 inch (4 mm)

GIK 40–50: standard 0.197 inch (5 mm), possible up to 0.354 inch (9 mm).

Adjusting range at min. flow:

-1.2 to +1.2 "WC (-3 to +3 mbar).

GIK

Connection: NPT-thread.

Connection for control line: 1/4 NPT.

Housing: Aluminium.

Diaphragms: Perbunan.

Valve seat: Aluminium.

Valve disc: Plastic.

Valve disc seal: Perbunan.

Bypass screw: Brass.

Ambient temperature:

-4 to +158°F (-20 to +70°C).

GI

Connection: ANSI-Flange.

Connection for control line: 1/2 NPT.

Housing: Aluminium.

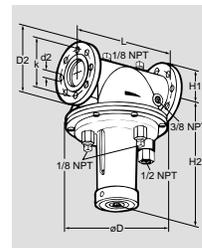
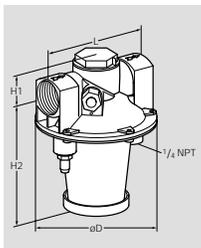
Diaphragms: Perbunan.

Valve seat: Aluminium.

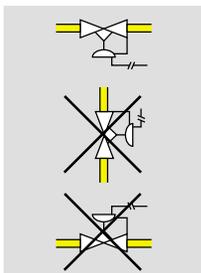
Valve disc: Aluminium with vulcanised-on Perbunan seal.

Ambient temperature:

5 to 140°F (-15 to +60°C).



Type	Connection	Dimensions										Flange				Weight						
		NPT ANSI	L		H1		H2		ØD		E		D2		d2		k		No.	lbs	kg	
GIK 15	15	1/2	4.72	120	1.34	34	5.20	132	5.28	134	1.57	40	-	-	-	-	-	-	-	-	2.2	1.0
GIK 20	20	3/4	4.92	125	1.34	34	5.20	132	5.28	134	1.57	40	-	-	-	-	-	-	-	-	2.4	1.1
GIK 25	25	1	4.92	125	1.34	34	5.20	132	5.28	134	1.57	40	-	-	-	-	-	-	-	-	2.4	1.1
GIK 40	40	1/2	4.92	155	1.77	45	5.87	149	7.28	185	1.57	40	-	-	-	-	-	-	-	-	4	1.8
GIK 50	50	2	7.87	200	2.05	52	6.57	167	9.21	234	1.57	40	-	-	-	-	-	-	-	-	6.2	2.8
GI 65	65	2 1/2	13.39	340	3.54	90	14.17	360	10.24	260	-	-	7.01	178	0.75	19	7.01	178	4	24	10.9	
GI 80	80	3	14.96	380	3.78	96	16.54	420	12.20	310	-	-	7.52	191	0.75	19	7.01	178	4	34.6	15.7	
GI 100	100	4	20.47	520	4.94	100	19.29	490	15.28	388	-	-	9.02	229	0.75	19	7.01	178	8	55.1	25	



Installation

Fitting position: The spring dome points downwards.

GIK has an internal impulse.

The GI requires an external impulse line to be piped at connection NPT 3/8 (distance: approx. 5 x DN from regulator outlet).

gas/air ratio regulator should always be higher than the max. air control pressure plus the pressure loss across the regulator.

We recommend a shut off valve, installed upstream of the gas/air ratio regulator. These valve should open slowly in the case of modulating control.

Project planning information

The min. gas pressure upstream of the

Accessories

Conversion kit for zero-pressure regulation.



Example how to order

GIK 40N02-5BZ

Selection

		N	A	02	-3	-5	L	B	Z
GIK	15	●	-	●	-	●	○	○	○
GIK	20	●	-	●	-	●	○	○	○
GIK	25	●	-	●	-	●	○	○	○
GIK	40	●	-	●	-	●	○	○	○
GIK	50	●	-	●	-	●	○	○	○
GI	65	-	●	●	●	-	○	-	-
GI	80	-	●	●	●	-	○	-	-
GI	100	-	●	●	●	-	○	-	-

Size

NPT thread / ANSI flange

Max. inlet pressure p_e 3 psig (200 mbar)

Screw plug in inlet and outlet /

Pressure test point in outlet

Only for air

Bypass screw

Bypass diameter to customer specifications

● = Standard,
○ = Option,
— = not available

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