

- /// For maintaining constant gas/air ratios on preheated air combustion systems
- /// Precise pressure regulation over wide turndown ranges
- /// Compensated for varying inlet pressures
- /// Long life, low maintenance

### **Application**

GIKH and GIKH..B regulators allow precise, repeatable control of gas/air ratios on preheated air combustion systems, where air density is affected by temperature changes. They can be used as direct gas pressure controllers or as loading signal generators for conventional gas/air ratio regulators. They are also suitable for cold air combustion systems where the available gas pressure is higher than the combustion air pressure, avoiding the necessity of troublesome, high maintenance bleeders. They are suitable for natural, LP and clean coke oven or bio-gas. Special models are available for controlling air pressure.

## Specifications

### Operating Limits

Ambient temperature range:	-4° F to 158° F (-20° C to 70° C)
Maximum inlet pressure:	3 psig (200 mbar)
Maximum operational inlet-to-outlet differential pressure:	1.5 psig (100 mbar)
Combustion air loading(+) to air loading (-) pressure:	7" WC (17.5 mbar)
Outlet pressure Range:	GIKH: Up to 28" WC (70 mbar) GIKH..B: Up to 27.8" WC (69.5 mbar), see turndown table

### Materials of Construction

GIKH and GIKH..B regulators have pressure die-cast aluminum alloy valve bodies and diaphragm housings. Valve seats are precision-machined from aluminum, and valve discs are aluminium with vulcanized nitrile rubber seals. Diaphragms are nitrile rubber.

### Special Features

#### GIKH..B regulators with fixed internal bypass

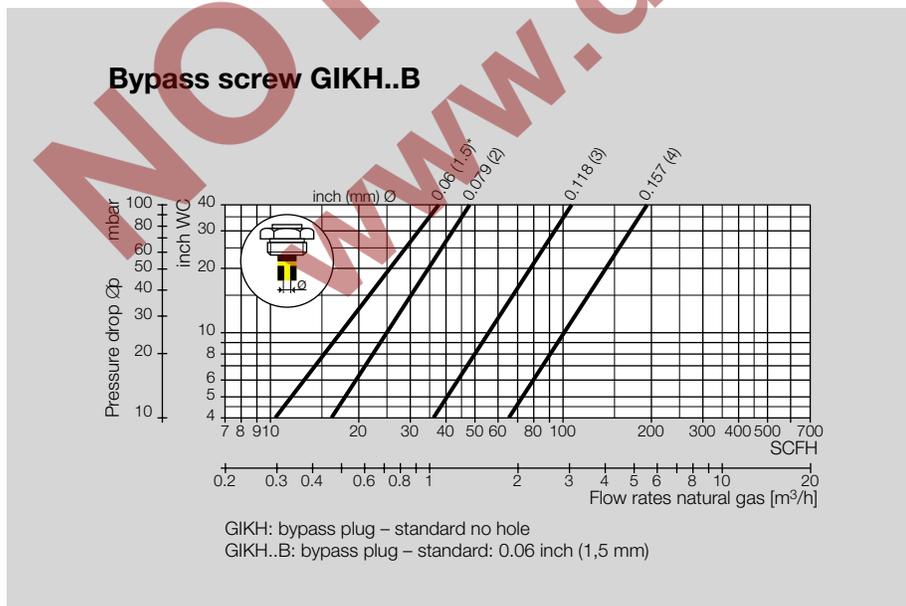
Many gas burner installations operate at extremely small heat inputs at low fire – frequently only the pilot. This puts a tremendous burden on the control regulator, requiring it to return to exactly the same nearly-closed position every time the system cycles to low fire.

To overcome this turndown, Kromschroder developed the GIKH..B regulator with a fixed internal bypass. The outlet pressure can be biased up to 0.16" wc (3 mbar) negative by adjusting the spring. When the system drives to low fire, the GIKH..B's valve closes completely, and the low fire gas flow is controlled by the precision machined internal orifice. The result is precisely controlled, repeatable low fire gas flow.

### Additional Features

#### Bypass Sizing

1. Correct the low fire bypass flow you want with the same factors used to size the regulator.
2. Find this flow at the bottom of the bypass orifice sizing chart and read up to the pressure drop that will be available across the regulator. (At low fire, this nearly equals the inlet pressure to the regulator, so you can simply use the inlet pressure.)
3. Move down from this point. The first orifice curve you come to is the size to use.



### Sizing

Maximum flow capacity at pressure drop  $\Delta p$  (listed below) through regulator

Type	max. flow at $\Delta p$		max. flow at $\Delta p$		max. flow at $\Delta p$	
	2" WC SCFH	5 mbar m <sup>3</sup> /h	5" WC SCFH	12.5 mbar m <sup>3</sup> /h	10" WC SCFH	25 mbar m <sup>3</sup> /h
GIKH 25T	365	10.3	700	19.8	1100	31.1

Flows in the table above based on 1 psig, 60° F at sea level (14.7 psia) and natural gas with a specific gravity of 0.62. Flows will decrease if the ambient temperature or altitude increase and if the specific gravity increases. To correct for conditions other than the ones used in table above divide the flows table by the factors.

### Flow Correction Factors Tables

Specific Gravity	Factor
Air (1.0 s. g.)	1.27
Propane (1.56 s. g.)	1.61
Butane (2.00 s. g.)	1.83
Propane/Air (1.29 s. g.)	1.47
Coke Oven (0.45 s. g.)	0.87

Temperature	Factor
60°F (16°C)	1.0
100°F (38°C)	0.96
120°F (46°C)	0.95

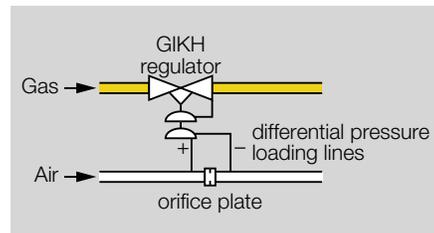
  

Altitude	Line Pressure		
	1 psig	2 psig	3 psig
Sea Level	1.00	1.03	1.06
1000' (305 m)	0.98	1.01	1.05
2000' (610 m)	0.97	1.00	1.03
3000' (915 m)	0.95	0.98	1.01
4000' (1220 m)	0.93	0.97	1.00
5000' (1525 m)	0.92	0.95	0.98
6000' (1830 m)	0.90	0.94	0.97
7000' (2135 m)	0.88	0.92	0.95

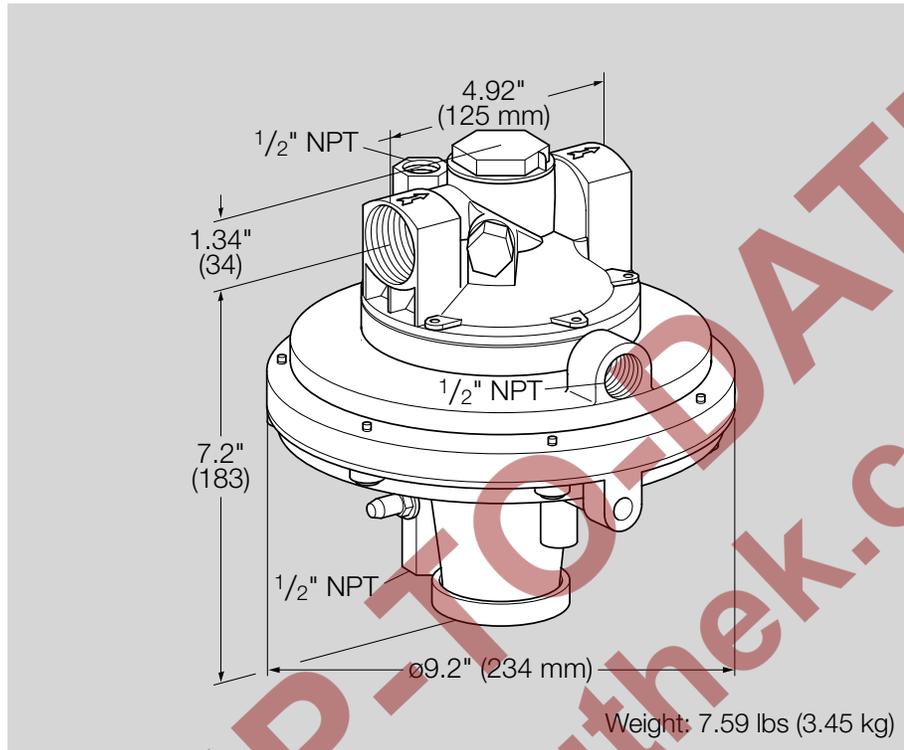
### Turndown

The flow turndown range of GIKH regulators is determined by the high fire pressure drop across the orifice plate generating the differential pressure loading signal to the regulator. The higher this differential, the greater the turndown.

Orifice plate Differential pressure		Flow turndown Ratio	GIKH 25 Outlet pressure	
" WC	mbar		" WC	mbar
8.0	20	10 to 1	32.0	80
5.2	13	8 to 1	20.8	52
4.0	10	7 to 1	16.0	40
2.0	5	5 to 1	8.0	20



Dimensions and Weights



**Order Information**  
Air/Gas Regulator GIKH

GIKH	air/gas regulator
1" (DN 25)	nominal diameter
T	T-product
N	NPT-internal thread
02	max inlet pressure 3 psig (200 mbar)
-5	pressure test point in outlet
L	only for air
B	Bypass screw

**Warning:**

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

We reserve the right to make technical changes designed to improve our products without prior notice. For current product information, visit our website at [www.kromschroder.com](http://www.kromschroder.com).