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Gas pressure regulators VGBF

OPERATING INSTRUCTIONS

· Edition 05.25 · EN · 03250316

CONTENTS

1 SAFETY

1.1 Read the operating instructions before use

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

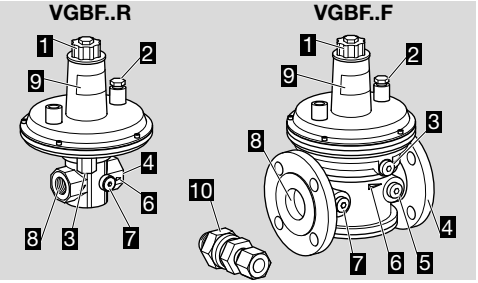
The gas pressure regulator VGBF serves to maintain a constant outlet pressure p_d despite changing gas flow rates and inlet pressures p_u in gas pipelines. This function is only guaranteed when used within the specified limits – see page 5 (10 Technical data).

Any other use is considered as non-compliant.

2.1 Type code

VGBF	Gas pressure regulator
15-150	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
05	p_u max. 500 mbar (50 kPa)
10	p_u max. 1 bar (100 kPa)
40	p_u max. 4 bar (400 kPa)
-1	Screw plug at the inlet
-3	Screw plug at the inlet and outlet
V	Viton equipment for gas or air (without approval)
Z	Special outlet pressure range

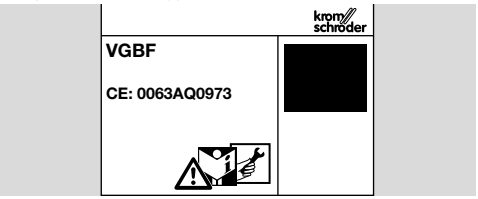
2.2 Part designations



1 Cover cap and adjusting screw
2 Breather screw
3 Impulse line connection (not on VGBF..05)
4 Output
5 Outlet p_d measuring connection
6 Arrow of direction of flow
7 Inlet p_u measuring connection
8 Input
9 Type label
10 Damping valve for VGBF 40–100..40

2.3 Type label

Inlet pressure p_u, outlet pressure p_d and ambient temperature: see type label.



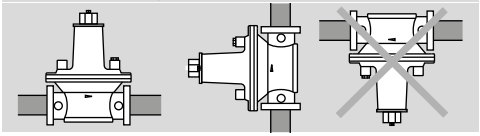
3 INSTALLATION

⚠ CAUTION

Incorrect installation

Please observe the following to ensure that the VGBF is not damaged during installation and operation:

- 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.
- Sealing material, thread cuttings and other impurities must not be allowed to get into the regulator housing.
- The installation location must be dry. Do not store or install the unit in the open air.
- Dropping the device can cause permanent damage. In this event, replace the entire device and associated modules before use.
- The breathing orifice in the breather screw must not be sealed. Otherwise, the pressure regulator cannot work properly.
- Installation in the horizontal position, never upside down. VGBF 15–50 can also be installed in the vertical position.



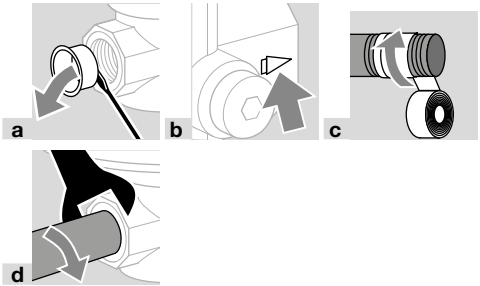
➔ The outlet pressure p_d is set at the factory with the spring dome pointing vertically upwards. VGBF 15–50: if installed with the spring dome in the horizontal position, check and adjust the outlet pressure p_d, see page 4 (6 Changing the outlet pressure pd).

➔ The housing must not be in contact with masonry. Minimum clearance 20 mm. Ensure that there is sufficient space for installation and adjustment.

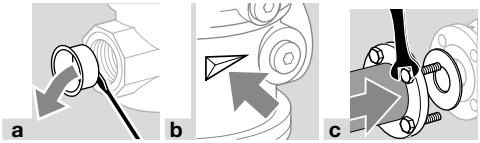
1 Install a filter upstream of the unit, in order to protect it against impurities in the pipe.

2 Installation

VGBF..R



VGBF..F



4 INSTALLING THE IMPULSE LINE

VGBF 40–150..05 for 500 mbar (50 kPa)

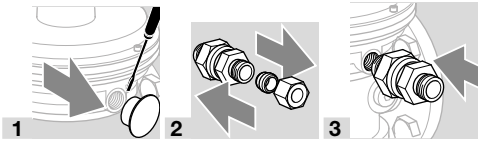
➔ No external impulse line required. VGBF..05 features an internal feedback function.

VGBF 40–100..40 for 4 bar (400 kPa)

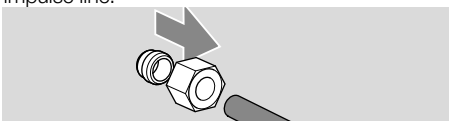
➔ In order to avoid possible oscillations, a damping valve should be fitted. The damping valve is secured to the spring dome with an adhesive strip on delivery.

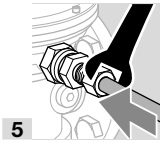
➔ Impulse line: 12 × 1.5 mm.

VGBF 40–100



4 Push union nut and compression fitting onto the impulse line.

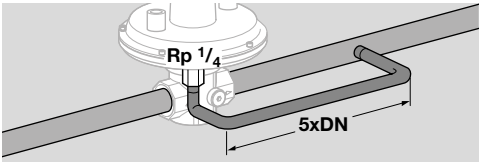




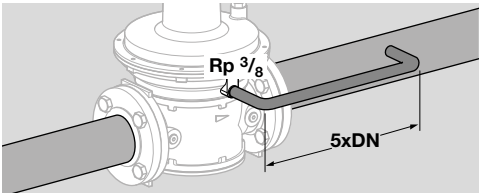
VGBF 15–100..10 for 1 bar (100 kPa) and VGBF 15–100..40 for 4 bar (400 kPa)

6 Install the impulse line and seal with approved sealing material.

VGBF 15–25R



VGBF 40–150F



5 TIGHTNESS TEST

⚠ WARNING

Gas is leaking.

If gas-filled spaces have been opened, check them for tightness.

1 Block the pipeline at the inlet and outlet.

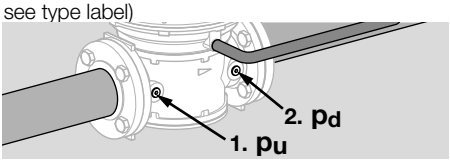
⚠ CAUTION

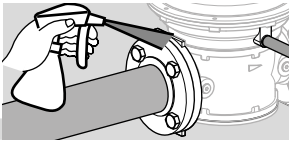
Please observe the following to ensure that the gas pressure regulator is not damaged:

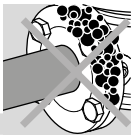
– First apply the inlet pressure p_u – then the outlet pressure p_d.
– The inlet pressure p_u must always be equal to or higher than the outlet pressure p_d.
– In the event of non-compliance with the sequence, the inlet pressure compensation diaphragm will reverse.

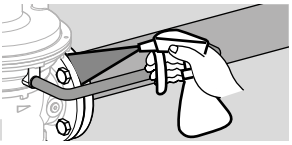
2 Slowly apply inlet pressure p_u. (p_u: ≤ 1.5 × $p_{u\,max.}$, see type label)

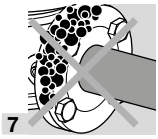
3 Slowly apply outlet pressure p_d. (p_d: ≤ 1.5 × p_d, see type label)

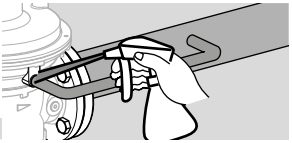


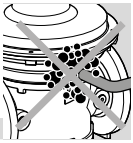


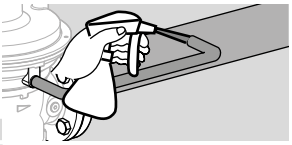


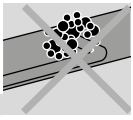






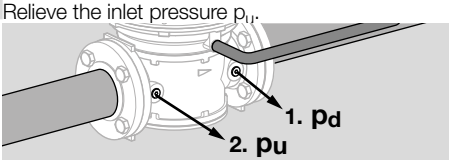






12 Relieve the outlet pressure p_d.

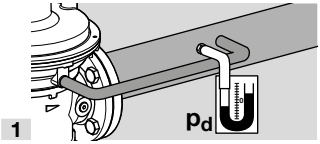
13 Relieve the inlet pressure p_u.



6 CHANGING THE OUTLET PRESSURE P_D

→ The outlet pressure p_d is set at the factory with the spring dome pointing vertically upwards. If the VGBF is installed with the spring dome in the horizontal position, check and adjust the outlet pressure p_d.

→ Use the test points on the unit only for measurements of zero flow or very slight flow.



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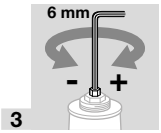


3


4

5 Clearly mark the adjusted value of the outlet pressure p_d on the type label.

7 CHECKING THE FUNCTION

1 Request different capacities on the burner in order to change the flow rate.

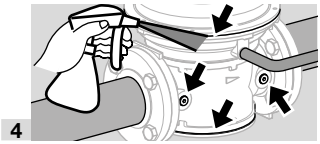
2 Close the manual valve at the inlet a little in order to change the inlet pressure p_u.

→ Despite changing flow rates and inlet pressures p_u (within the capacity range of the VGBF), the outlet pressure p_d must remain constant (± 10–15%).

3 Reduce the capacity to low-fire rate and close the valve downstream of the VGBF.

→ Approx. 30 seconds after the valve has been closed, the outlet pressure p_d should not increase significantly.

→ Check the tightness of the VGBF during operation to detect possible leaks due to hardened rubber materials.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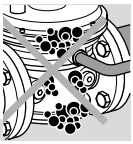
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6 If a leak is found, replace the rubber materials.

→ Selecting spare parts: see www.partdetective.de.

7 Then check for tightness once again.

8 REPLACING THE SPRING

1 Choose a spring according to the outlet pressure range , see page 7 (13 Spring table).

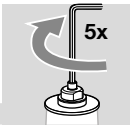
2 Remove the cover cap.

⚠ WARNING

Risk of injury!

– The taut spring can pop out when opening the spring dome. Therefore, decompress the spring as far as it will go before opening. Then turn back 5 x to relax the spring counter bearing.

3



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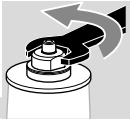
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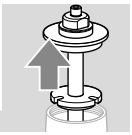
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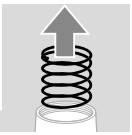
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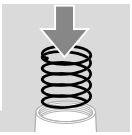
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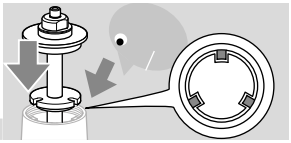
9 Turn down the spring counter bearing slightly.

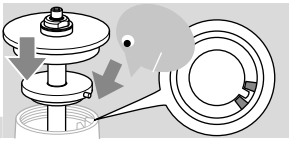
10 Insert the spring counter bearing.

VGBF 15–50

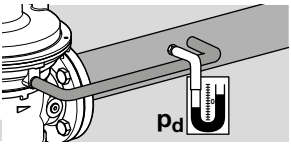

a

b Ensure that the guide grooves and bars engage in each other.

VGBF 65–150


a

b Ensure that the guide groove and the cylinder engage in each other.



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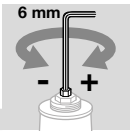

12

13 Screw on cover cap.

14 After inserting the spring, take the spring's label from the packaging and stick it below the type label on the pressure regulator.

15 Clearly mark the adjusted value of the outlet pressure p_d on the type label.

9 MAINTENANCE

In order to ensure smooth operation, check the tightness and function of the gas pressure regulator every year, or every six months if operated with biogas, see page 4 (7 Checking the function) and page 3 (5 Tightness test).

→ Selecting spare parts: see www.partdetective.de.

➔ If gas-filled space has been opened, check the tightness and function, see page 4 (7 Checking the function) and page 3 (5 Tightness test).

10 TECHNICAL DATA

10.1 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.
Ambient temperature: -20 to +60°C (-4 to +140°F), VGBF..V: 0 to 60°C (32 to 140°F).
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.

10.2 Mechanical data

Gas type: natural gas, town gas, LPG (gaseous), hydrogen and biogas (max. 0.02 %-by-vol. H_2S), VGBF..V for air.
Transport, storage and medium temperatures = ambient temperature.
The outlet pressure range is reached through the use of different springs, see page 7 (13 Spring table).
Rp 1/4 for test points or even for a pilot gas supply line:
at the inlet: VGBF 15 and 25,
at inlet and outlet: VGBF 40–150.
Strainers that are possibly fitted serve as flow conditioners.
Housing: aluminium,
diaphragms: NBR or Viton,
valve seat: aluminium,
valve stem: aluminium,
valve plate: vulcanized NBR or Viton seal.
Internal thread: Rp to ISO 7-1,
flanged connection: PN 16 to ISO 7005,
DN 15–50 available with NPT thread,
DN 50–100 available with ANSI flange.
Impulse line connections: NPT.

VGBF..10

Max. inlet pressure $p_{u\,max.}$: 1 bar (100 kPa).
Feedback via impulse line: Rp 1/4 connection for DN 15 and 25, Rp 3/8 connection for DN 40–150.
EN 334, accuracy class AC 10, lock-up pressure class: 5–50 mbar (0.5–5 kPa) = SG 30, > 50 mbar (5 kPa) = SG 20.

VGBF..40

Max. inlet pressure $p_{u\,max.}$: 4 bar (400 kPa).
Feedback via impulse line: Rp 1/4 connection for DN 15 and 25, Rp 3/8 connection for DN 40–100.
EN 334, accuracy class AC 10, lock-up pressure class: 5–50 mbar (0.5–5 kPa) = SG 30, > 50 mbar (5 kPa) = SG 20.

VGBF..05

Max. inlet pressure $p_{u\,max.}$: 500 mbar (50 kPa).
Internal feedback.
EN 88, Class A, Group 2.

10.3 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 13611 + EN 88 for VGBF: 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.

11 LOGISTICS

Transport

Protect the unit from external forces (blows, shocks, vibration).
Transport temperature: see page 5 (10 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 5 (10 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.

12 CERTIFICATION

12.1 Certificate download

Certificates – see www.docuthek.com

12.2 Declaration of conformity

We, the manufacturer, hereby declare that the products VGBF with product ID No. CE-0085AQ0973 comply with the requirements of the listed Directives and Standards.
VGBF 15–150:
Regulation:
– (EU) 2016/426 – GAR
Standards:
– EN 88-1
– EN 88-2:2008
– EN 334:2009
VGBF 100F40:
Directives:
– 2014/68/EU – PED
– 2011/65/EU – RoHS II
– 2015/863/EU – RoHS III
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 and for VGBF 100F40 pursuant to Directive 2014/68/EU Annex III Module D1. This declaration of conformity is issued under the sole responsibility of the manufacturer.
Elster GmbH

12.3 UKCA certified

Gas Appliances (Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019)
BS EN 88-1:2011+A1:2016, BS EN 88-2:2007, BS EN 334:2005+A1:2009, BS EN 13611:2019

12.4 Eurasian Customs Union

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

12.5 REACH Regulation

The device contains substances of very high concern which are listed in the Candidate List of the European REACH Regulation No. 1907/2006. See Reach list HTS at www.docuthek.com.

12.6 China RoHS

Directive on the restriction of the use of hazardous substances (RoHS) in China. Scan of the Disclosure Table China RoHS2, see certificates at www.docuthek.com.

13 SPRING TABLE

Outlet pressure range			Order No.				Marking
mbar	kPa	"WC	VGBF 15	VGBF 25	VGBF 40	VGBF 50	
5–12.5	0.5–1.25	2–5	75421911	75421961	75421961	75422031	–
10–30[1)]	1–3	4–12	75421921	75421971	75421971	75422041	red
25–45	2.5–4.5	10–18	75421931	75421980	75421980	75422051	yellow
40–60	4–6	16–32	75421941	75421990	75421990	75422061	green
55–75	5.5–7.5	21–29	75421951	75422000	75422000	75422071	blue
70–90	7–9	27–35	75442046	75422010	75422010	75422081	black
85–105	8.5–10.5	33–41	75442047	75422020	75422020	75422091	white
100–160[2)]	10–16	39–62	75442048	75438978	75438978	75438981	black/red
150–230	15–23	58.5–90	75442049	75438979	75438979	75438982	black/yellow
220–350	22–35	86–136.5	75442050	75438980	75438980	75438983[3)]	black/green

Outlet pressure range			Order No.				Marking
mbar	kPa	"WC	VGBF 65	VGBF 80	VGBF 100	VGBF 150	
5–12.5	0.5–1.25	2–5	75426160	75426230	75426310	75426450	–
10–30[1)]	1–3	4–12	75426170	75426240	75426320	75426460	red
25–45	2.5–4.5	10–18	75426180	75426250	75426330	75426470	yellow
40–60	4–6	16–32	75426190	75426260	75426340	75426480	green
55–75	5.5–7.5	21–29	75426200	75426270	75426350	75426490	blue
70–90	7–9	27–35	75426210	75426280	75426360	75426500	black
85–105	8.5–10.5	33–41	75426220	75426290	75426370	75426510	white
100–160[2)]	10–16	39–62	75446329	75438984	75438987	75438990	black/red
150–230	15–23	58.5–90	–	75438985	75438988	–	black/yellow
220–350	22–35	86–136.5	–	75428986	75438989	–	black/green

Dispatch complete with label for changed outlet pressure.

[1)] Standard spring.

[2)] T-products range standard spring.

[3)] Spring set comprising two springs.

FOR MORE INFORMATION

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

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