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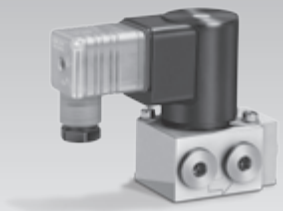
Operating instructions
Bypass/pilot gas valve VBY 8



Contents

Safety

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.

Explanation of symbols

•, **1**, **2**, **3**... = Action
▷ = Instruction

Liability

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

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.

Conversion, spare parts

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

Checking the usage

Intended use

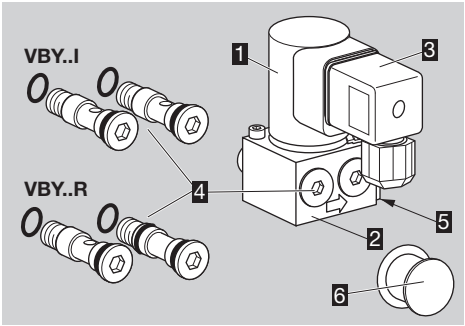
VBY 8 for automatic shut-off of a bypass or pilot gas volume on gas or air appliances. VBY is suitable for mounting on gas solenoid valve VAS 1 and double solenoid valve VCS 1.

This function is only guaranteed when used within the specified limits – see page 4 (Technical data). Any other use is considered as non-compliant.

Type code

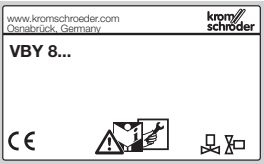
Code	Description
VBY	Gas valve
8	Nominal size
I	For internal gas pick-up as bypass valve
R	For external gas pick-up as pilot gas valve
	Mains voltage:
W	230 V AC, 50/60 Hz
Q	120 V AC, 50/60 Hz
K	24 V DC
6L	Electrical connection via plug and socket with LED
-R	Attachment side of main valve: right
-L	Attachment side of main valve: left
E	Attached to the VAx
B	Enclosed (separate packing unit)
05	Nozzle: 0.5 mm
D	With flow adjustment

Part designations



1 Solenoid actuator
2 Valve block
3 Socket with LED
4 **VBY..I:** 2 x retaining screws with 4 x O-rings: both retaining screws have a bypass orifice
VBY..R: 2 x retaining screws with 5 x O-rings: one retaining screw has a bypass orifice (2 x O-rings), the other does not (3 x O-rings)
5 Sealing plug at the outlet (R ¼)
6 Grease for the O-rings

Mains voltage, electrical power consumption, ambient temperature, enclosure, inlet pressure and installation position: see type label.



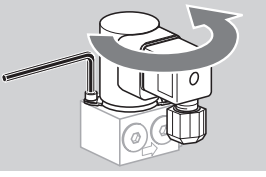
Installation

! CAUTION

Please observe the following to ensure that the gas solenoid valve is not damaged during installation and operation:

– Important! The gas must be dry in all conditions and must not contain condensate.
– Sealing material and dirt, e.g. thread cuttings, must not be allowed to get into the valve housing.
– A filter must be installed upstream of every system.
– If more than three valVario controls are installed in line, the controls must be supported.
– Do not clamp the unit in a vice. Risk of external leakage.
– Cleaning work on the solenoid actuator may not be performed using high pressure and/or chemical cleaning agents. This can cause moisture to get into the solenoid actuator and may lead to a dangerous failure.

▷ Note the attachment side.
▷ Installation position: black solenoid actuator in the vertical upright position or tilted up to the horizontal, not upside down.
▷ The solenoid actuator can be rotated to allow the socket for the electrical connection to be repositioned. To do so, loosen both screws, but do not unscrew completely.



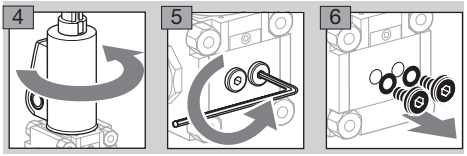
▷ Once the solenoid actuator is in the desired position, re-tighten the screws.

⚠ WARNING

Attention! Gas-filled space has been opened. Please observe the following to ensure that no damage occurs:

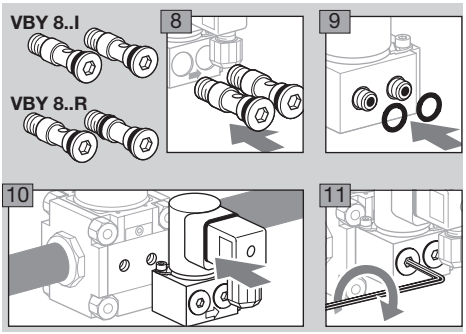
– Check for tightness, see page 3 (Tightness test).

1 Disconnect the system from the electrical power supply.
2 Shut off the gas supply.
3 Prepare the installed main valve.
▷ Turn the actuator so that the side on which the by-pass/pilot gas valve is to be installed is accessible.



Bypass valve VBY 8..I
▷ The screw plug at the outlet of the bypass valve remains mounted.

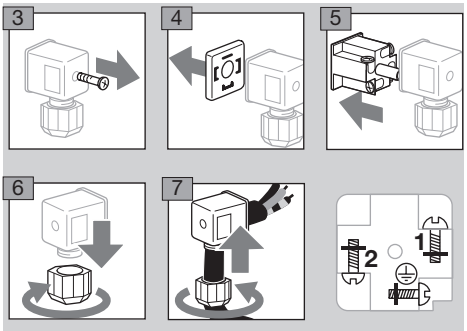
Pilot gas valve VBY 8..R
▷ Remove the screw plug at the outlet.
7 Grease O-rings.



▷ Tighten the retaining screws alternately so that VBY and VAx are flush.
12 Connect the Rp ¼ pilot gas line.

Wiring

▷ Use temperature-resistant cable (> 80°C).
1 Disconnect the system from the electrical power supply.
2 Shut off the gas supply.
▷ Wiring to EN 60204-1.
1 = N (–), 2 = $LV1_{V1}$ (+)



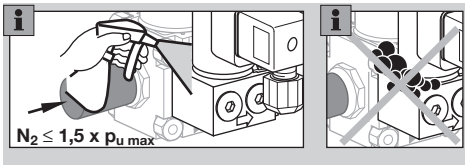
8 Follow the reverse procedure when reassembling.

Tightness test

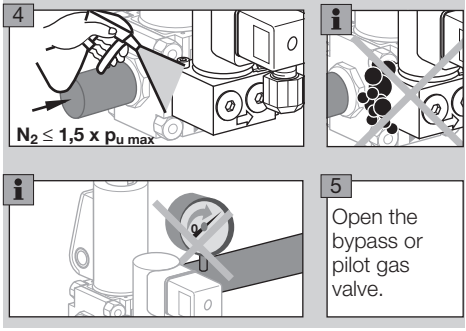
1 To be able to check the tightness, shut off the downstream pipeline as close as possible to the valve/combination control.
2 Close the main valve.
3 Close the VBY.

⚠ WARNING

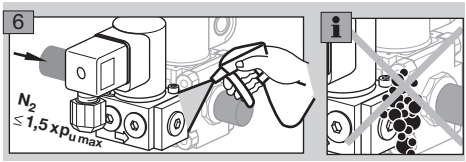
If the actuator of the VBY is rotated, the tightness can no longer be guaranteed. To ensure that there are no leaks, check the actuator of the VBY for tightness.



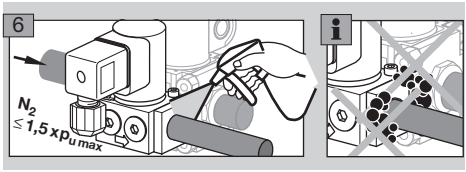
Checking the VBY for leaks on the inlet side



Checking the bypass valve VBY..I for leaks on the outlet side

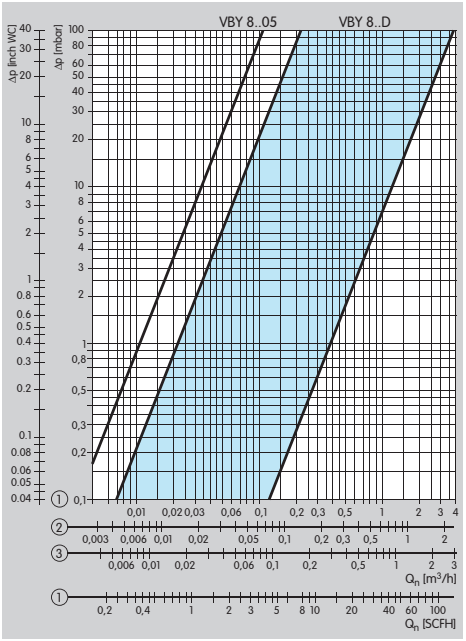


Checking the pilot gas valve VBY..R for leaks on the outlet side
▷ To be able to check the VBY for leaks on the outlet side, shut off the downstream pilot gas line as close as possible to the VBY.



Commissioning

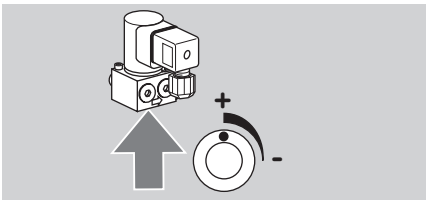
Setting the flow rate



① = natural gas (ρ = 0.80 kg/m³)
② = propane (ρ = 2.01 kg/m³)
③ = air (ρ = 1.29 kg/m³)

VBY 8..D

▷ The flow rate can be set by turning the flow rate restrictor (4 mm hexagon socket) ¼ of a turn.



▷ Only adjust the flow rate restrictor in the marked range, otherwise the required gas volume will not be reached.

VBY 8..05

▷ The flow is routed through a 0.5 mm (0.02") nozzle and thus has a fixed characteristic flow rate curve. Adjustment is not possible.

Technical data

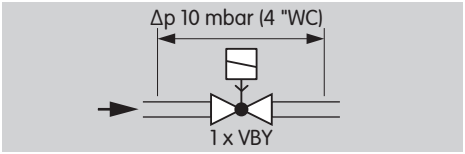
Gas types: natural gas, LPG (gaseous), biologically produced methane (max. 0.1 %-by-vol. H_2S) or clean air; other types of gas on request.
The gas must be clean and dry in all temperature conditions and must not contain condensate.
Max. inlet pressure p_u: 500 mbar (7.25 psig).
The flow adjustment facility limits the maximum flow rate: 10 to 100%.
Opening times:
quick opening: ≤ 1 s,
quick closing: < 1 s.
Medium and ambient temperatures:
0 to +60°C (32 to 140°F).
No condensation permitted.
Long-term use in the upper ambient temperature range accelerates the ageing of the elastomer materials and reduces the service life (please contact manufacturer).
Storage temperature: 0 to +40°C (32 to 104°F).
Enclosure: IP 54.
Valve housing: aluminium, valve seal: NBR.
Connection flange with internal thread: Rp to ISO 7-1.
Class A, Group 2 safety valve pursuant to EN 161, 230 V AC, 120 V AC, 24 V DC:
Mains voltage:
230 V AC, +10/-15%, 50/60 Hz;
120 V AC, +10/-15%, 50/60 Hz;
24 V DC, ±20%.
Electrical connection:
plug with socket to EN 175301-803.
Power consumption:

Type	Voltage	Power
VBY	24 V DC	8 W–
	120 V AC	8 W–
	230 V AC	9.5 W–

Switching frequency:
max. 30 × per minute,
duty cycle: 100%.
Power factor of the solenoid coil: cos φ = 0.9.

Air flow rate Q

Air flow rate Q for a pressure loss of Δp = 10 mbar (4 "WC)



Type	Air flow rate	
	Q [m³/h]	Q [SCFH]
Bypass valve VBY	0.85	30.01
Pilot gas valve VBY	0.89	31.43

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 161 for VBY 8:

Type	Designed lifetime	
	Switching cycles	Time [years]
VBY 8	2,000,000	10

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.

Logistics

Transport

Protect the unit from external forces (blows, shocks, vibration). On receipt of the product, check that the delivery is complete, see page 2 (Part designations). Report any transport damage immediately.

Storage

Store the product in a dry and clean place.
Storage temperature: see page 4 (Technical data).
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.

Certification

Declaration of conformity

CE

We, the manufacturer, hereby declare that the product VBY 8, marked with product ID No. CE-0063BO1580, complies with the essential requirements of the following Directives:

– 2009/142/EC,
– 2006/95/EC,
– 2004/108/EC.

The relevant product corresponds to the type tested by the notified body 0063.
The production is subject to the surveillance procedure pursuant to Directive 2009/142/EC according to Annex II, paragraph 3.
Elster GmbH
Scan of the Declaration of conformity (D, GB) – see www.docuthek.com

Eurasian Customs Union

The product VBY 8 meets the technical specifications of the Eurasian Customs Union (the Russian Federation, Belarus, Kazakhstan).

EAC

Contact

If you have any technical questions, please contact your local branch office/agent. The addresses are available on the Internet or from Elster GmbH.

We reserve the right to make technical modifications in the interests of progress.

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