

# Butterfly valve BV.. Actuator with butterfly valve IB..

## OPERATING INSTRUCTIONS

· Edition 07.23 · EN · 03251438



### CONTENTS

1 Safety	1
2 Checking the usage	2
3 Installation	3
4 Tightness test	5
5 Commissioning	5
6 Accessories	5
7 Maintenance	7
8 Technical data	7
9 Logistics	7
10 Certification	7

## 1 SAFETY

### 1.1 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](http://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

### 2.1 Intended use

#### BVG, BVGF, BVA, BVAF, BVH, BVHS, BVHR

The butterfly valves are designed to adjust volumes of gas, cold and hot air and flue gas on gas and air appliances and flue gas lines. They are designed for a control ratio of up to 10:1. Actuator IC and butterfly valve BV.. (IB..) are suitable for regulating flow rates for modulating-controlled or stage-controlled combustion processes.

This function is only guaranteed when used within the specified limits – see page 7 (8 Technical data). Any other use is considered as non-compliant.

### 2.2 Type code BVA, BVG

<b>BVG</b>	Butterfly valve for gas
<b>BVA</b>	Butterfly valve for air
<b>F</b>	Clearance-free
<b>40-150</b>	Nominal size
<b>/25-/125</b>	Reduced to nominal size
<b>Z</b>	For fitting between two EN flanges
<b>W<sup>1)</sup></b>	For fitting between two ANSI flanges
<b>05</b>	$p_u$ max. 500 mbar, $\Delta p$ max. 150 mbar
<b>H</b>	With manual adjustment
<b>F</b>	With free shaft end
<b>V</b>	With square shaft

1) BVG..W, BVGF..W: nominal sizes DN 40 to 100 available with ANSI flange and reduced to /25 to /80

### 2.3 Type code BVH

**BVH** Butterfly valve for air and flue gas  
**BVHS<sup>1)</sup>** Like BVH, but with additional emergency closing function

**BVHR** Like BVH, for medium temperatures of up to 550°C

<b>40-100</b>	Nominal size
<b>Z</b>	For fitting between two EN flanges
<b>W</b>	For fitting between two ANSI flanges
<b>01</b>	$p_u$ max. 150 mbar
<b>A</b>	With stop

1) BVHS can only be combined with IC 40S

### 2.3.1 Emergency closing function

The emergency closing function closes butterfly valve BVHS if the voltage fails.

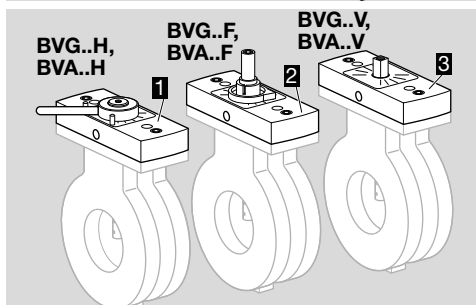
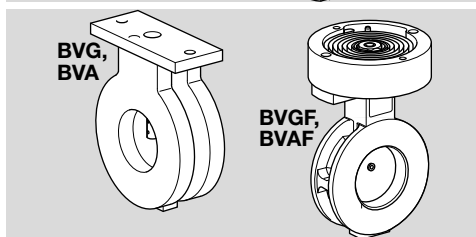
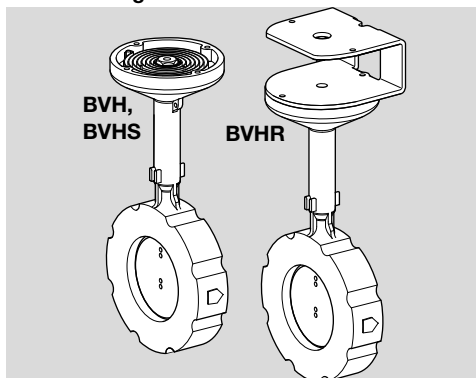
## ⚠ CAUTION

Please observe the following to ensure that no damage occurs:

The emergency closing function on the BVHS should be used only for the intended function.

If the emergency closing function is used for controlled shut-down or for intermittent switching of the burner, this will reduce the service life of the butterfly valve.

## 2.4 Part designations

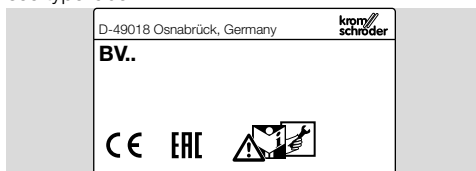


- 1 Adapter set with manual adjustment
- 2 Adapter set with free shaft end
- 3 Adapter set with square shaft

### 2.5 Type label

#### BV..

Gas type, inlet pressure and ambient temperature, see type label.



### 2.6 Type code IB..

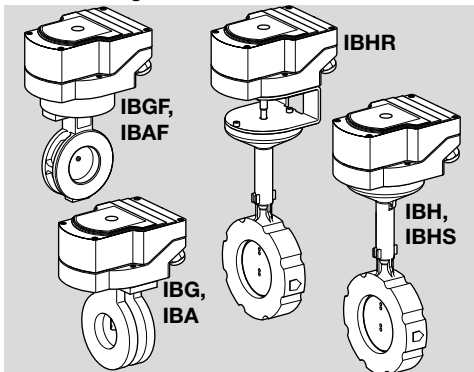
<b>IBG</b>	Actuator IC 20 or IC 40 + BVG
<b>IBGF</b>	Actuator IC 20 or IC 40 + BVGF
<b>IBA</b>	Actuator IC 20 or IC 40 + BVA
<b>IBAF</b>	Actuator IC 20 or IC 40 + BVAF
<b>IBH<sup>1)</sup></b>	Actuator IC 20 or IC 40 + BVH
<b>IBHR<sup>1)</sup></b>	Actuator IC 20 or IC 40 + BVHR

<b>IBHS<sup>1)</sup></b>	Actuator IC 20 or IC 40 + BVHS
<b>40-150</b>	BVG.., BVA.. nominal size
<b>40-100</b>	BVH.. nominal size
<b>/25-/125</b>	Reduced to nominal size
<b>Z</b>	For fitting between two EN flanges
<b>W<sup>2)</sup></b>	For fitting between two ANSI flanges
<b>01</b>	BVH..: p <sub>u</sub> max. 150 mbar (2.18 psi)
<b>05</b>	BVG.., BVA..: p <sub>u</sub> max. 500 mbar (7.25 psi)
<b>A</b>	BVH..: with stop bar
<b>/20</b>	Actuator IC 20
<b>/40</b>	Actuator IC 40
<b>-07</b>	Running time (at 50 Hz): 7.5 s
<b>-15</b>	Running time (at 50 Hz): 15 s
<b>-30</b>	Running time (at 50 Hz): 30 s
<b>-60</b>	Running time (at 50 Hz): 60 s
<b>W</b>	Mains voltage 230 V AC, 50/60 Hz
<b>Q</b>	Mains voltage 120 V AC, 50/60 Hz
<b>A</b>	Mains voltage 120-230 V AC, 50/60 Hz
<b>2</b>	Torque 2.5 Nm
<b>3</b>	Torque 3 Nm
<b>E</b>	Continuous control
<b>T</b>	Three-point step control
<b>A</b>	4-20 mA analogue input and digital input
<b>D</b>	Digital input
<b>R10</b>	With 1000 Ω feedback potentiometer

1) IBH.. available up to nominal size DN 100

2) IBG..W, IBGF..W: nominal sizes DN 40 to 100 available with ANSI flange and reduced to /25 to /80

## 2.7 Part designations



Further information can be found in the operating instructions for actuators IC.. at [www.docuthek.com](http://www.docuthek.com).

## 3 INSTALLATION

### ⚠ CAUTION

Incorrect installation

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

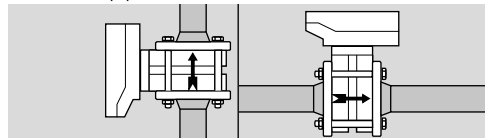
- Avoid pressure surges and temperature shocks.
- Dropping the device can cause permanent damage. In this event, replace the entire device and associated modules before use.
- Sealing material and dirt, e.g. thread cuttings, must not be allowed to get into the unit.
- Flange sealing surfaces must not be damaged by mechanical or other effects.
- If the actuator is retrofitted, the torque, direction of rotation and adjustment angles must be adjusted to the butterfly valve.
- A filter must be installed upstream of every system.

- The butterfly valve is intended to be installed in-between two flanges.
- Install the unit in the pipe free of mechanical stress.
- The length of the inlet and outlet section should be 2 x DN.

### 3.1 Installation position

The actuator must be installed in the vertical or horizontal position, not upside down.

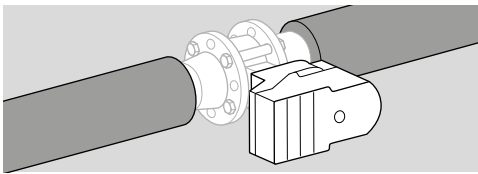
BVHR/IBHR: always position the actuator to the side of the pipe.



We recommend installing the butterfly valve in the vertical position with the direction of flow from bottom to top in order to prevent condensation and to prevent dirt from accumulating on the stop bar in the case of butterfly valves with stop bar (BVH..A).

### 3.2 Hot air as a medium

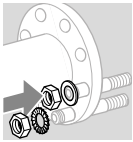
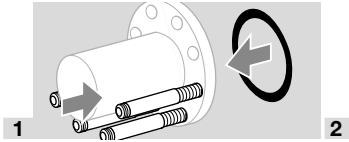
- If the valve is used with hot air, the pipe should be adequately insulated so as to reduce the ambient temperature. The flanges and the butterfly valve must be kept free of insulating material. Ensure that there is sufficient installation space around the flanges to access the screw connectors.
- For a better dissipation of heat, turn the butterfly valve when installing so that the actuator is positioned to the side of the pipe. This also avoids that rising hot air circulates around the actuator.



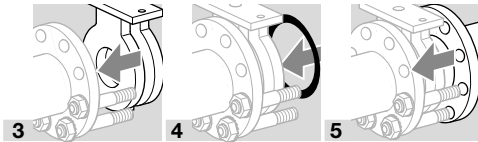
- Check the temperature resistance of the seals.
- Use heat deflectors for a medium temperature of > 250°C, see accessories.

### 3.3 Installing the butterfly valve in the pipe

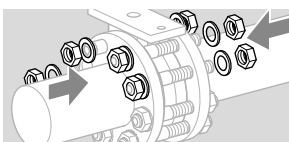
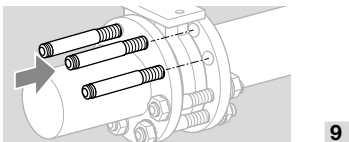
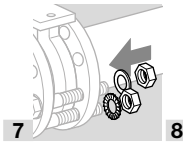
The pictures below may not correspond to the actual valve type.



- Ensure that both serrated lock washers are fitted to the same screw.
- Install the butterfly valve in the pipe free of mechanical stress.



- 6 Centre the butterfly valve. Ensure that the valve disc can move unobstructed.



- If the butterfly valve is to be used without an actuator, an adapter set with manual adjustment is available, see accessories.

### 3.4 Mounting the actuator to BVA, BVG

- If the butterfly valve BVA, BVG is to be mounted to an actuator other than an IC 20/IC 40, an adapter set will be available, see accessories.
- For further information on assembly of butterfly valve BVA, BVG with actuator IC 30/IC 50, see accessories or Actuator IC.. operating instructions at [www.docuthek.com](http://www.docuthek.com).

### Mounting the actuator IC 20/IC 40 to BVx

- If the actuator and butterfly valve are pre-assembled (IB..), the fastening set will already be fitted. If the actuator is retrofitted, the fastening set is delivered enclosed as an additional item, see accessories.
- The actuator IC 20, IC 40 may be installed rotated by 180° on all butterfly valves.

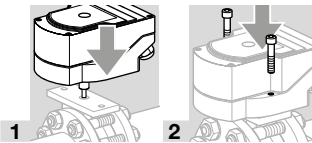
## ⚠ CAUTION

Incorrect installation

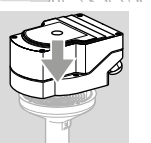
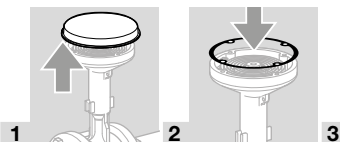
Please observe the following to ensure that the unit is not damaged during installation and operation:

- If the actuator is to be rotated by 180° following assembly to the butterfly valve, the actuator must be detached from the butterfly valve. Only turn the actuator. Otherwise, a change in the direction of rotation of the valve can lead to damage being caused to the mechanical and electronic components.

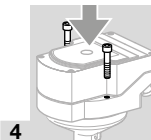
### BVG, BVGF, BVA, BVAF



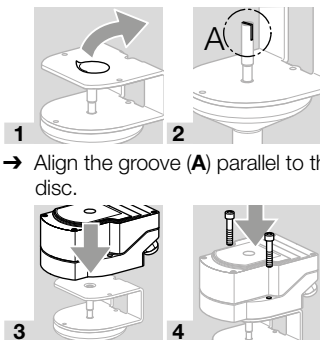
### BVH, BVHS



- Permitted installation position for IC: cable glands point to the inlet or outlet of the pipe.



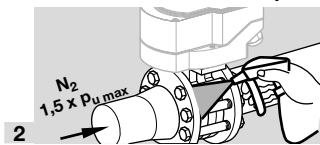
### BVHR



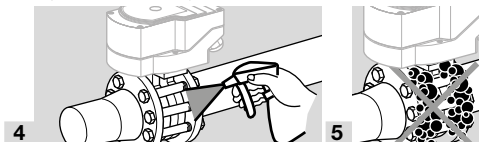
1 → Align the groove (A) parallel to the closed valve disc.

## 4 TIGHTNESS TEST

- 1 Close off the outlet of the butterfly valve with a blanking plate or close the gas solenoid valve downstream of the butterfly valve.



- 3 Open the butterfly valve.



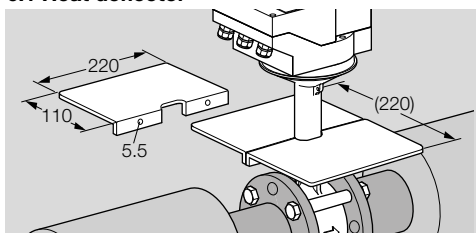
- 6 Once the tightness test has been successfully completed, remove the blanking plate or open the gas solenoid valve downstream of the butterfly valve.

## 5 COMMISSIONING

- The valve disc must open and close unobstructed.
- Purge the pipes thoroughly to remove any foreign particles from the system.
- For further information on commissioning the actuator, see enclosed Actuator IC 20/IC 30/IC 40 operating instructions or go to [www.docuthek.com](http://www.docuthek.com).

## 6 ACCESSORIES

### 6.1 Heat deflector

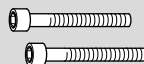


Install heat deflectors in order to protect the actuator from overheating if the medium temperature is  $> 250^{\circ}\text{C}$  ( $482^{\circ}\text{F}$ ).

Order No.: 74921670

### 6.2 Fastening set

2 x M6 x 35 set screws, for retrofitting IC 20/IC 40 to butterfly valve BVG, BVA, BVH or linear flow control VFC.



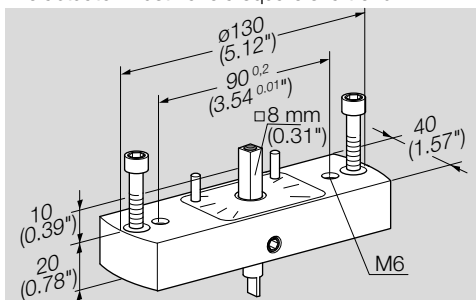
Order No.: 74921082

### 6.3 Adapter set for BVG, BVA

If the butterfly valve is to be installed without an actuator or with an actuator other than an IC, the following attachment sets can be used.

#### Adapter set with square shaft

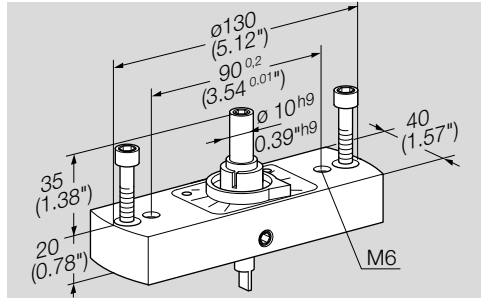
The actuator must have a square shaft end.



Order No.: 74921674, enclosed

### Adapter set with free shaft end

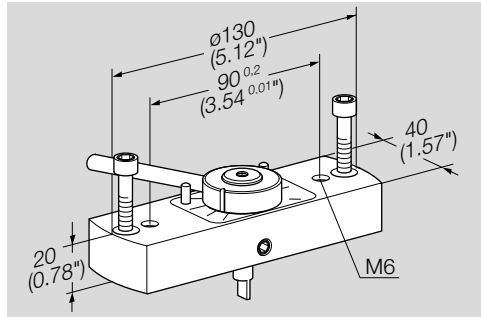
The actuator must have a  $\varnothing 10$  mm socket.



Order No.: 74921676, enclosed

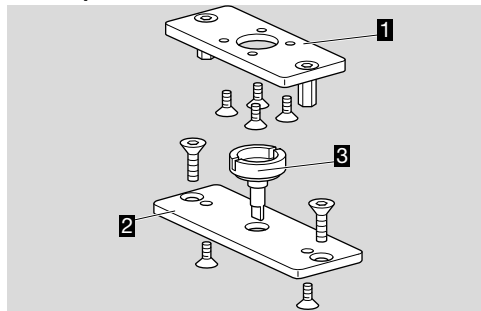
### Adapter set with manual adjustment

The lever can be locked in position.



Order No.: 74921678, enclosed

### 6.4 Adapter set IC 30 for BVA/BVG



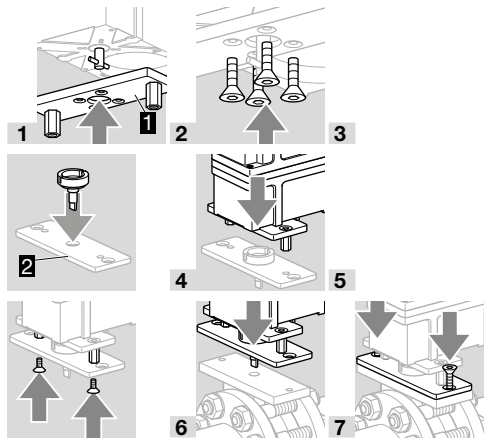
For the assembly of IC 30 and BVA, BVG.

Adapter set IC 30/BVA/BVG, Order No.: 74924996.

- 1 Adapter set IC 30
- 2 Adapter plate BVA/BVG
- 3 Coupling

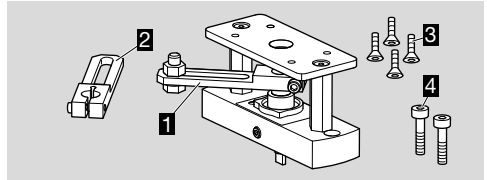
#### 6.4.1 Assembling and fitting the adapter set

→ The actuator can be turned through  $180^\circ$  to be installed on the adapter set.



### 6.5 Adapter set IC 50 for BVA/BVG

An adapter set can be supplied for the assembly of BVA/BVG and IC 50.

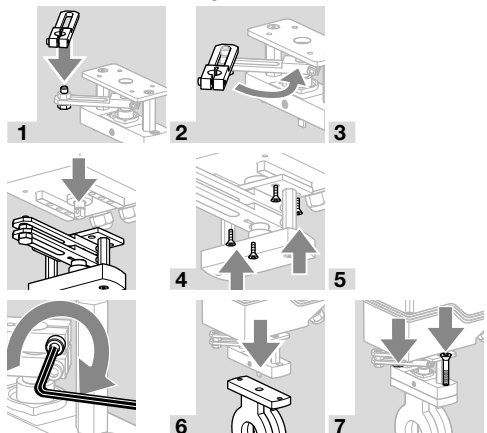


Order No.: 74926243

- 1 Adapter set IC 50
- 2 Top oblong-hole lever for actuator IC 50
- 3 4 x M5 countersunk screws
- 4 2 x M6 set screws

#### 6.5.1 Assembling and fitting the adapter set

→ The actuator can be turned through  $180^\circ$  to be installed on the adapter set.  
 → Ensure that the connection cables are laid outside the levers' range of motion.



## 7 MAINTENANCE

### 7.1 Maintenance

The butterfly valve requires little servicing.

We recommend a function check once a year.

BVG, BVGF: check for external tightness once a year.

If operated with biogas, a tightness test and function check must be carried out every six months.

## 8 TECHNICAL DATA

### 8.1 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<sub>2</sub>.

The unit may only be stored/installed in enclosed rooms/buildings.

The unit is suitable for a maximum installation height of 2000 m AMSL.

Ambient temperature:

-20 to +60°C (-4 to +140°F).

BVG, BVGF: Long-term use in the upper ambient temperature range accelerates the ageing of the elastomer materials and reduces the service life (please contact manufacturer).

Transport temperature = ambient temperature.

Storage temperature: -20 to +40°C (-4 to +104°F).

This unit is not suitable for cleaning with a high-pressure cleaner and/or cleaning products.

### 8.2 Mechanical data

Gas type:

BVG, BVGF: natural gas, town gas, LPG, biogas (max. 0.1 %-by-vol. H<sub>2</sub>S) and other non-aggressive fuel gases.

BVA, BVAF: air.

BVH, BVHR, BVHM, BVHS: air and flue gas.

The gas must be clean and dry in all temperature conditions and must not contain condensate.

### BVG, BVGF, BVA, BVAF

Housing material: AISI,

valve disc: aluminium,

drive shaft: stainless steel,

seals: HNBR.

Nominal size: DN 40–150,

reduction by 2 nominal sizes possible.

BVG, BVGF: nominal sizes DN 40 to 100 available with ANSI flange and reduced by 2 nominal sizes.

Inlet pressure p<sub>U</sub>: max. 500 mbar (7.25 psi).

Medium temperature = ambient temperature.

### BVH, BVHR, BVHM, BVHS

Housing material: GGG,

valve disc: stainless steel,

drive shaft: stainless steel.

Nominal size DN 40 to 100.

Inlet pressure p<sub>U</sub>: max. 150 mbar (2.18 psi). Pressure differential between inlet pressure p<sub>U</sub> and outlet pressure p<sub>D</sub>: max. 150 mbar (2.18 psi).

Medium temperature: BVH: -20 to +450°C (-4 to +840°F),

BVHR: -20 to +550°C (-4 to +1020°F).

### 8.3 Technical data for actuators IC 20, IC 40

See the enclosed operating instructions or the operating instructions for actuators IC.. at [www.docuthek.com](http://www.docuthek.com)

## 9 LOGISTICS

### Transport

Protect the unit from external forces (blows, shocks, vibration).

Transport temperature: see page 7 (8 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 7 (8 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.

## 10 CERTIFICATION

### Declaration of conformity



We, the manufacturer, hereby declare that the products BVG, BVGF, BVA, BVAF with product ID No. CE-0063BM1154 comply with the requirements of the listed Directives and Standards.

Directives:

- 2011/65/EU – RoHS II
- 2015/863/EU – RoHS III

Regulation:

- (EU) 2016/426 – GAR

Standards:

- EN 161:2011+A3:2013

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 paragraph 3.

Elster GmbH

Scan of the Declaration of conformity (D, GB) – see [www.docuthek.com](http://www.docuthek.com)

#### 10.1 UKCA certified

The UKCA logo consists of the letters 'UK' stacked above 'CA' in a bold, sans-serif font, centered within a light gray rectangular background.

Gas Appliances (Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019)  
BS EN 161:2011+A3:2013

#### 10.2 Eurasian Customs Union

The Eurasian Conformity logo features the letters 'EAC' in a bold, sans-serif font, centered within a light gray rectangular background.

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

#### 10.3 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](http://www.docuthek.com).

#### 10.4 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](http://www.docuthek.com).

## FOR MORE INFORMATION

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