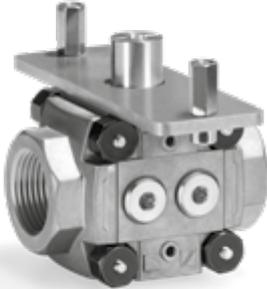


# Linear flow control VFC, linear flow control with actuator IFC

## OPERATING INSTRUCTIONS

· Edition 12.22 · EN · 03251248



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## 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

The linear flow control is designed to adjust volumes of gas and cold air on various appliances. The VFC with actuator IC 20/IC 30/IC 40 (IFC) is suitable for regulating flow rates for control ratios up to 25:1 in modulating-controlled or stage-controlled combustion processes.

Linear flow control VFC and actuator IC 20 or IC 40 can be supplied separately or assembled. IC 30 is supplied separately.

This function is only guaranteed when used within the specified limits – see page 5 (9 Technical data). Any other use is considered as non-compliant.

### 2.1 Type code VFC

<b>VFC</b>	Linear flow control
<b>1, 3</b>	Sizes
<b>T</b>	T-product
<b>10-65</b>	Nominal inlet flange diameter
<b>/10-/65</b>	Nominal outlet flange diameter
<b>R</b>	Rp internal thread
<b>F</b>	Flange to ISO 7005
<b>N</b>	NPT internal thread
<b>05-</b>	$p_u$ max. 500 mbar
<b>08-40</b>	Cylinder

#### Accessories, right, inlet

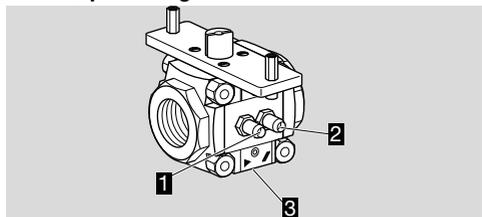
<b>P</b>	Screw plug
<b>M</b>	Test nipple
<b>1</b>	Pressure switch DG 17/VC
<b>2</b>	Pressure switch DG 40/VC
<b>3</b>	Pressure switch DG 110/VC
<b>4</b>	Pressure switch DG 300/VC

#### Accessories, right, outlet

<b>P</b>	Screw plug
<b>M</b>	Test nipple
<b>1</b>	Pressure switch DG 17/VC
<b>2</b>	Pressure switch DG 40/VC
<b>3</b>	Pressure switch DG 110/VC
<b>4</b>	Pressure switch DG 300/VC

**P, M, 1, 2, 3, 4** The same accessories can be selected for the left- or right-hand side.

### 2.2 VFC part designations



- 1 Test point for inlet pressure  $p_u$
- 2 Test point for outlet pressure  $p_d$
- 3 Adjusting spindle

### 2.3 Type code IFC

<b>IFC</b>	Linear flow control with actuator
<b>1, 3</b>	Sizes
<b>T</b>	T-product
<b>10-50</b>	Nominal inlet flange diameter
<b>/10-/50</b>	Nominal outlet flange diameter
<b>R</b>	Rp internal thread
<b>F</b>	Flange to ISO 7005
<b>N</b>	NPT internal thread
<b>05</b>	$p_u$ max. 500 mbar
<b>-08, -15, -20, -25, -32, -40</b>	Cylinder

#### Accessories, right, inlet

<b>P</b>	Screw plug
<b>M</b>	Test nipple
<b>1</b>	Pressure switch DG 17/VC
<b>2</b>	Pressure switch DG 40/VC
<b>3</b>	Pressure switch DG 110/VC
<b>4</b>	Pressure switch DG 300/VC

#### Accessories, right, outlet

<b>P</b>	Screw plug
<b>M</b>	Test nipple
<b>1</b>	Pressure switch DG 17/VC
<b>2</b>	Pressure switch DG 40/VC
<b>3</b>	Pressure switch DG 110/VC
<b>4</b>	Pressure switch DG 300/VC

**P, M, 1, 2, 3, 4** The same accessories can be selected for the left- or right-hand side.

<b>/20</b>	Actuator IC 20
<b>/40</b>	Actuator IC 40
<b>07-60</b>	Running time in s/90°

<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 100-230 V AC, 50/60 Hz

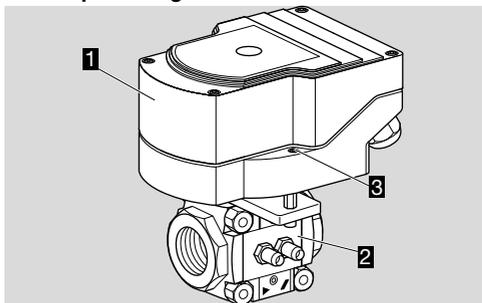
<b>2</b>	Torque 2.5 Nm
<b>3</b>	Torque 3 Nm
<b>T</b>	Three-point step control
<b>E</b>	Controlled by continuous signal
<b>D</b>	Digital input
<b>A</b>	4-20 mA analogue input

**R10** With 1000  $\Omega$  feedback potentiometer

**P** Parameter set No.

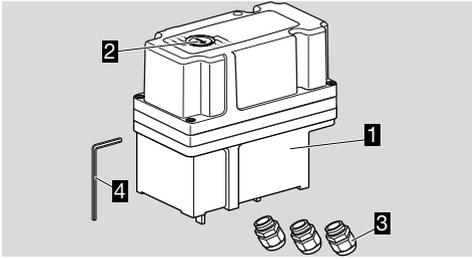
**-I** Cable glands on the inlet side (no specification: on the outlet side)

### 2.4 IFC part designations



- 1 Actuator IC 20, IC 40
- 2 Linear flow control VFC
- 3 Fastening set (2 x M6 x 35)

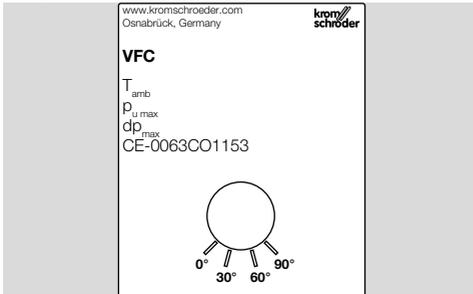
## 2.5 IC 30 part designations



- 1 Actuator IC 30
- 2 Position indicator
- 3 3 x M16 plastic cable glands (enclosed)
- 4 Allen key (enclosed)

## 2.6 VFC type label

Inlet pressure  $p_U$ , differential pressure  $d_p$  and ambient temperature – see type label.



## 3 INSTALLATION

### CAUTION

Incorrect installation

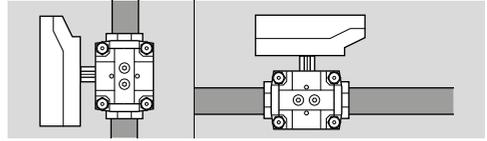
Please observe the following to ensure that the unit is not damaged during installation and operation:

- 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.
- Use approved sealing material only.
- Avoid subjecting the unit to strong impact/shocks.
- Dropping the device can cause permanent damage. In this event, replace the entire device and associated modules before use.
- Do not clamp the unit in a vice. Only secure the flange by holding the octagon with a suitable spanner. Risk of external leakage.

## 3.1 Installation position

VFC with IC 30: as required.

VFC with IC 20 (IFC../20) or with IC 40 (IFC../40): vertical or horizontal, never upside down.



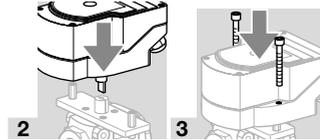
- Install the unit in the pipe free of mechanical stress.
- The VFC and IC can be assembled before or after the VFC has been installed in the pipework.
- The mounted actuator IC must not be rotated.
- Actuator IC is supplied in the closed position (0°) and linear flow control VFC in the open position (90°).

## 3.2 Mounting IC 20 or IC 40 onto linear flow control VFC

For subsequent assembly of VFC and IC 20 or IC 40, a fastening set can be supplied as an accessory.

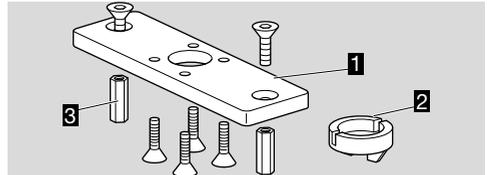
- The actuator can be turned through 180° to be installed on the adapter set. Note the direction of rotation of the actuator.

- 1 In order to mount the actuator, turn the VFC to the closed position (0°) manually.



## 3.3 Mounting IC 30 onto linear flow control VFC

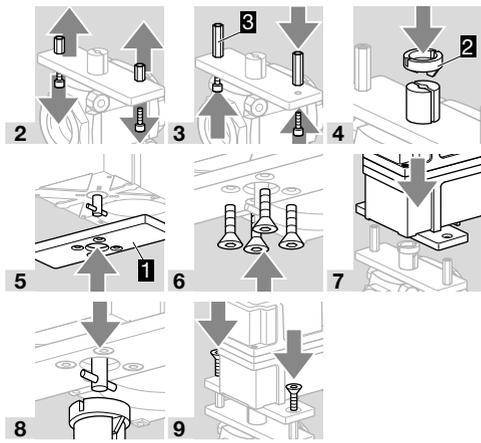
For the assembly of VFC and IC 30, an adapter set can be supplied as an accessory.



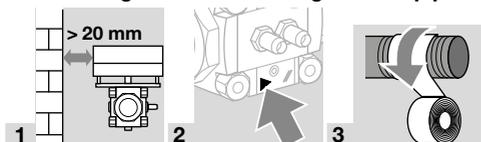
- 1 Adapter plate
  - 2 Coupling
  - 3 Spacers
- The actuator can be turned through 180° to be installed on the adapter set. Note the direction of rotation of the actuator.

- 1 In order to mount the actuator, turn the VFC to the closed position (0°) manually.

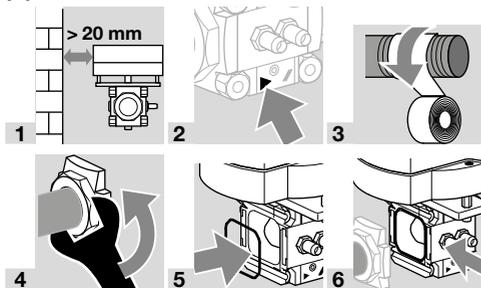
- In order to mount the IC 30 onto the VFC, the spacers must be replaced.



### 3.4 Installing the VFC with flanges in the pipe



### 3.5 Installing the VFC without flanges in the pipe



## 4 WIRING

Electrical connection of the IC, see enclosed operating instructions for actuator IC 20/IC 30/IC 40 or go to [www.docuthek.com](http://www.docuthek.com).

## 5 TIGHTNESS TEST

- 1 Close the gas supply.
- 2 Close off the outlet of the VFC with a blanking plate or close the solenoid valve for gas downstream of the VFC.

The VFC is in the closed position once the IC has been installed:

- 3 Set the IC 20, IC 30 in Manual mode, or the IC 40 using BCSofT, to 100% open position, see enclosed operating instructions for actuator IC 20/IC 30/IC 40 or go to [www.docuthek.com](http://www.docuthek.com).



- 6 Tightness OK: remove the blanking plate or open the solenoid valve for gas downstream of the VFC.
- 7 Once the tightness test has been carried out successfully, move the VFC to the closed position once more using the actuator IC.

→ Pipeline leaking: replace O-ring on flange, see accessories, seal set for sizes 1 and 3. Then check for tightness once again.

→ Unit leaking: remove the unit and return it to the manufacturer.

## 6 SETTING THE FLOW RATE

### ⚠ CAUTION

Incorrect settings

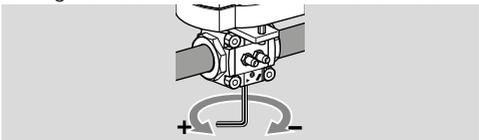
Please observe the following to ensure that the unit is not damaged:

- When setting a higher flow rate, do not turn the adjusting spindle further than the stop (= maximum flow rate). It must not be unscrewed completely.
- The VFC is set to the maximum flow rate at the factory.

→ Check the VFC for tightness after each adjustment of the adjusting spindle, see page 4 (5 Tightness test).

→ The flow rate can be adjusted using the adjusting spindle (2.5 Allen key) in the baseplate:

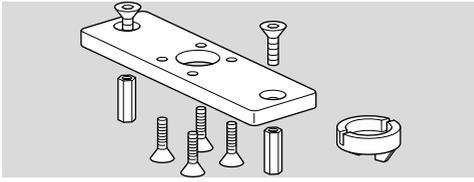
Turning it clockwise will reduce the flow rate, turning it anticlockwise will increase the flow rate.



→ The VFC is controlled by the IC, see enclosed operating instructions for actuator IC 20/IC 30/IC 40 or go to [www.docuthek.com](http://www.docuthek.com).

## 7 ACCESSORIES

### 7.1 Adapter set IC 30

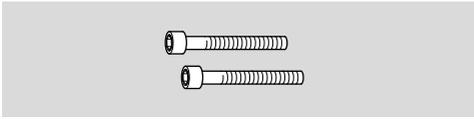


To attach the IC 30 to the linear flow control VFC. The adapter set is delivered enclosed as an additional item.

IC 30/VFC /B, Order No. 74340194

### 7.2 Fastening set

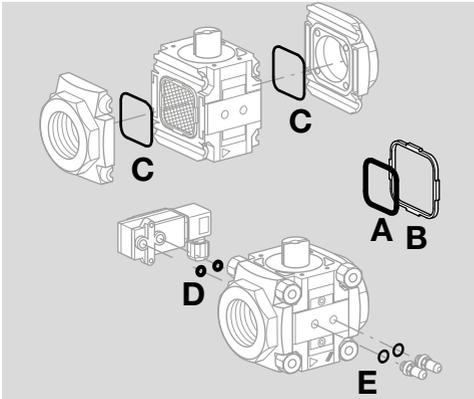
2 x M6 x 35 set screws, for retrofitting IC 20/IC 40 to butterfly valve BVG, BVA, BVH or linear flow control VFC.



Order No.: 74921082

### 7.3 Seal set for sizes 1 and 3

When retrofitting accessories or a second valVario control or when servicing, we recommend replacing the seals.



Size 1, Order No. 74921988.

Size 3, Order No. 74921990.

#### Scope of delivery:

- A** 1 x double block seal,
- B** 1 x retaining frame,
- C** 2 x O-rings (flange),
- D** 2 x O-rings (pressure switch),
- for test nipple/screw plug:
- E** 2 x sealing rings (flat sealing),
- 2 x profiled sealing rings.

→ The double block seal and retaining frame are not required for the VFC.

## 8 MAINTENANCE

In order to ensure smooth operation, check the tightness and function of the device every year, or every six months if operated with biogas.

- After carrying out the maintenance work, check for tightness, see page 4 (5 Tightness test).
- The device suffers little wear and requires little servicing.

## 9 TECHNICAL DATA

The specified technical data refer to the linear flow control VFC.

To maintain the function, refer also to the technical limits of the actuator installed or supplied separately, see enclosed operating instructions for actuator IC 20/IC 30/IC 40 or go to [www.docuthek.com](http://www.docuthek.com).

### 9.1 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), 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 = transport 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.

### 9.2 Mechanical data

Gas types: natural gas, LPG (gaseous), biogas (max. 0.1 %-by-vol. H<sub>2</sub>S) 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.

Medium temperature = ambient temperature.

Max. inlet pressure p<sub>i</sub>: 500 mbar (7.25 psig).

Control ratio: 25:1.

Leakage rate: < 2% of k<sub>V5</sub> value.

Running times:

IC 20: 7.5 s, 15 s, 30 s, 60 s

IC 30: 30 s, 60 s

IC 40: 4.5–76.5 s

Connection flanges: Rp internal thread pursuant to ISO 7-1.

Housing material: aluminium,

control cylinder: aluminium,

flow restricting cylinder: POM/aluminium,

seal: HNBR/NBR.

## 10 CERTIFICATION

### 10.1 Certificate download

Certificates – see [www.docuthek.com](http://www.docuthek.com)

### 10.2 Declaration of conformity



We, the manufacturer, hereby declare that the products VFC with product ID No. CE-0063CO1153 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 13611:2015+AC:2016

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

### 10.3 UKCA certified



Gas Appliances (Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019)

BS EN 13611:2015

### 10.4 Eurasian Customs Union



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

## 11 LOGISTICS

### Transport

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

Transport temperature: see page 5 (9 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 (9 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.

## 12 DISPOSAL

Devices with electronic components:

**WEEE Directive 2012/19/EU – Waste Electrical and Electronic Equipment Directive**



At the end of the product life (number of operating cycles reached), dispose of the packaging and product in a corresponding recycling centre. Do not dispose of the unit with the usual domestic refuse. Do not burn the product. On request, old units may be returned carriage paid to the manufacturer in accordance with the relevant waste legislation requirements.

## FOR MORE INFORMATION

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschroder and Maxon. To learn more about our products, visit [ThermalSolutions.honeywell.com](http://ThermalSolutions.honeywell.com) or contact your Honeywell Sales Engineer.

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