

Operating instructions

Actuator IC 30



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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.

Changes to edition 12.16

The following chapters have been changed:

- Installation

Checking the usage

Intended use

Actuator IC 30

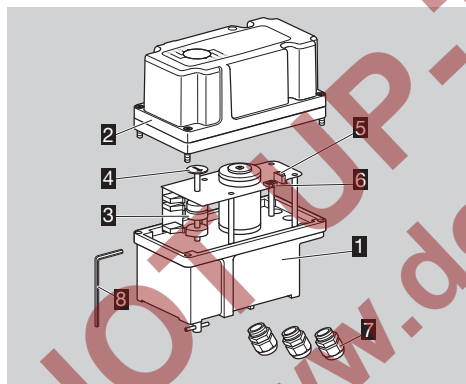
The IC 30 is used as an actuator for linear flow control VFC or for butterfly valves BVA, BVG. If the voltage is disconnected, the actuator stops in its current position.

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

Type code

Code	Description
IC 30	Actuator
	Running time [s]/90°:
-30	30
-60	60
K	Mains voltage: 24 V DC, $\pm 20\%$
3	Torque: 3 Nm
T	Three-point step control
R10	Feedback potentiometer

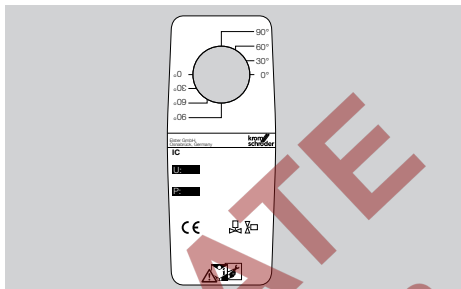
Part designations



- 1 Actuator IC 30
- 2 Housing cover
- 3 Switching cams
- 4 Position indicator
- 5 Slide switch (Manual/Automatic mode)
- 6 2 x buttons for Manual mode
- 7 3 x M16 plastic cable glands (enclosed)
- 8 Allen key (enclosed)

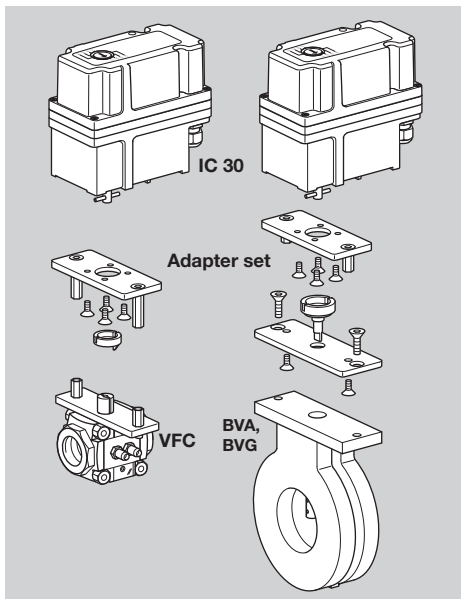
Type label

Mains voltage, electrical power rating, running time (load-dependent), enclosure, ambient temperature, torque and installation position – see type label.



Adapter set for IC 30

- ▷ For the assembly of actuator IC 30 and the respective control element VFC or BVG, BVA, different adapter sets are required, see page 6 (Accessories).
- ▷ Actuator, control element and adapter set must be ordered separately and are supplied separately.
- ▷ For further information on how to install the control element in the pipework, see enclosed VFC, IFC or Butterfly valve BV.. operating instructions. Otherwise see Linear flow control VFC, IFC operating instructions → www.docuthek.com, Elster Thermal Solutions → Products → O3 Valves and butterfly valves → Linear flow controls IFC, VFC. Or see Butterfly valve BV.. operating instructions → www.docuthek.com, Elster Thermal Solutions → Products → O3 Valves and butterfly valves → Butterfly valves BVG, BVA....



Installation

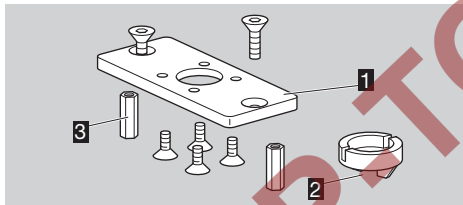
! CAUTION

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

- 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.
 - Avoid subjecting the unit to strong impact/shocks.
 - Note the direction of rotation of the actuator.
- ▷ Installation position: IC 30 with VFC can be installed in any position; IC 30 with BVA/BVG must not be installed upside down.

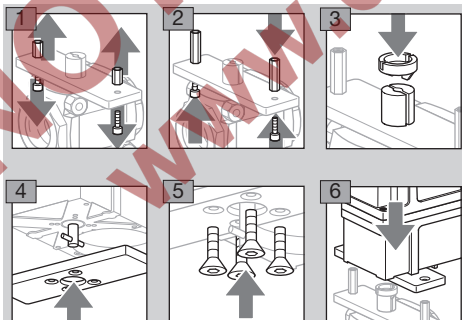
IC 30 on linear flow control VFC

For the assembly of VFC and IC 30, an adapter set can be supplied as an accessory, see page 6 (Accessories).

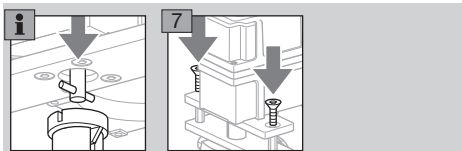


- 1 Adapter plate
- 2 Coupling
- 3 Spacers

- ▷ The actuator can be turned through 180° to be installed on the adapter set.
- ▷ In order to mount the IC 30 to the VFC, the spacers must be replaced.

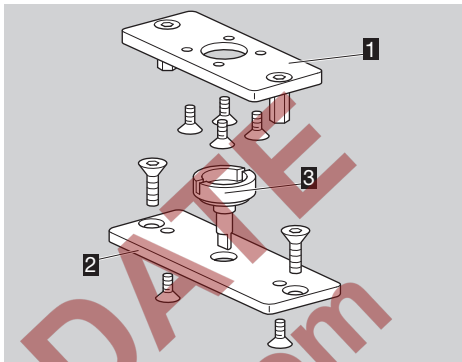


- ▷ The cylinder pin in the drive shaft must be locked in the coupling.



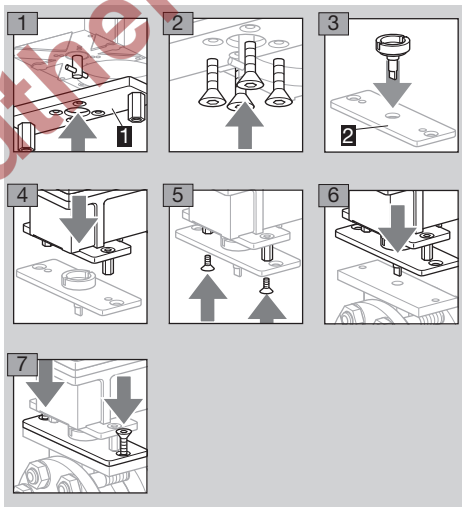
IC 30 on butterfly valves BVA/BVG

For the assembly of BVA/BVG and IC 30, an adapter set can be supplied as an accessory, see page 6 (Accessories).



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

- ▷ The actuator can be turned through 180° to be installed on the adapter set.



Wiring

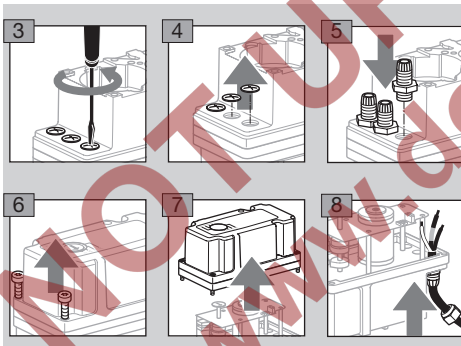
⚠ WARNING

- Before working on possible live components, ensure the unit is disconnected from the power supply.
- ▷ Install supply and signal lines separately.
- ▷ Feedback potentiometer lines should be equipped with additional shielding.
- ▷ Conductors which have not been connected (spare conductors) must be insulated at their ends.
- ▷ Cables should be installed well away from high-voltage lines of other devices.
- ▷ Observe EMC Directive for installation of signal lines.
- ▷ Use cables with wire end ferrules.
- ▷ Cable cross-section: max. 2.5 mm².
- ▷ An external device can be activated or an intermediate position can be checked via an additional, floating, infinitely adjustable switch (cam S1).

1 Disconnect the system from the electrical power supply.

2 Shut off the gas supply.

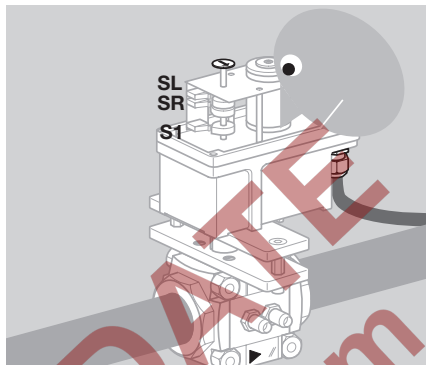
- ▷ Before opening the unit, the fitter should ground himself.
- ▷ Remove the blind plugs and replace them with plastic cable glands.



! CAUTION

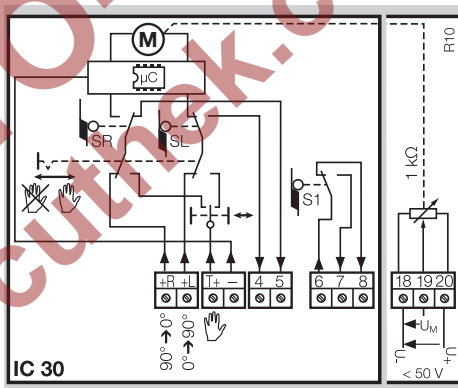
Take into account the direction of rotation.

- ▷ The direction of rotation and the corresponding designation of the switching cams in the connection diagram are shown as if viewed from above.



9 Wire as shown on the connection diagram.

- ▷ 24 V (+) = **+R, +L, T+**
- 24 V (–) = **–**



Switching cam SL (anti-clockwise)

- ▷ Voltage is applied to **–** and **+L**. The drive shaft moves anti-clockwise until contact SL switches.
- ▷ Feedback via terminal **4**. The feedback function is only active when voltage is applied to terminal **+L**.

Switching cam SR (clockwise)

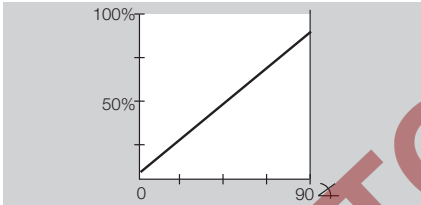
- ▷ Voltage is applied to **–** and **+R**. The drive shaft moves clockwise until contact SR switches.
- ▷ Feedback via terminal **5**. The feedback function is only active when voltage is applied to terminal **+R**.

Switching cam S1

- ▷ The feedback signal is emitted via terminal **7** or **8** if switching cam S1 has been wired.
- ▷ If the drive shaft is turning in the opposite direction to the control commands, swap the external connections of terminals **+L** and **+R**.

Feedback potentiometer R10

- ▷ The potentiometer must be utilized as a voltage divider. The change in position of the potentiometer wiper (which corresponds to the actuator position) can be measured as a changing voltage between U_- and U_M .
- ▷ Other circuit layouts produce measurement results that are inaccurate and do not remain stable over a long period of time or are non-reproducible. They also reduce the service life of the feedback potentiometer.
- ▷ Once the switching cams have been adjusted, the potentiometer automatically adjusts itself to the setting travel via the integrated slip clutch.
- ▷ The available range depends on the adjustment of switching cams SL and SR.



Commissioning

! CAUTION

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

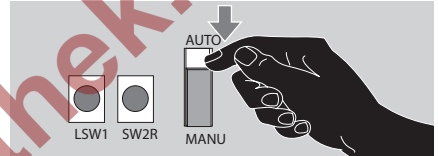
- Avoid overloading and blocking the actuator.
- Assignment of the switching cams: note the direction of rotation, see page 4 (Wiring).

Factory setting

- ▷ Switching cam SR = minimum opening angle: set to $0^\circ - 5^\circ$.
- ▷ Switching cam SL = maximum opening angle: set to $85^\circ - 90^\circ$.
- ▷ Switching cam S1 = intermediate position: set to $45^\circ \pm 10^\circ$.

Manual mode facilitates setting

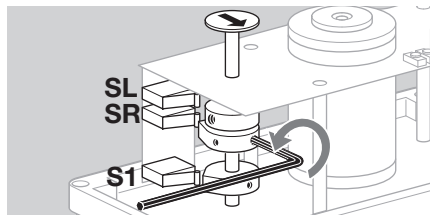
- ▷ The positions in the low-fire rate range can be precisely adjusted.
- ▷ Voltage is applied to terminal **T+**.
- ▷ Activate the red slide switch to change from Automatic to Manual mode.



- ▷ The actuator can now be operated manually using the buttons.
LSW1 = min. opening angle, actuator moves anti-clockwise,
SW2R = max. opening angle, actuator moves clockwise.
- ▷ Switching cams can be adjusted as described above.
- ▷ Once adjustment of the switching cams has been completed, set the slide switch to Auto-matic mode.

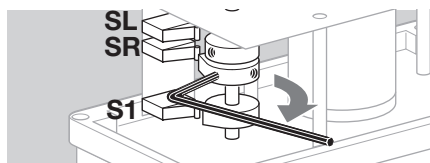
Setting switching cam SR (AUTO)

- ▷ The maximum opening angle can be set using switching cam SR.
- 1** Apply voltage to terminals **-** and **+R**.
- ▷ The actuator moves clockwise.
- 2** Disconnect the electrical power supply once the required position has been reached.
- ▷ There are two boreholes in each switching cam which are to be used for adjustment.
- 3** Using the enclosed Allen key, loosen the threaded bolt in the larger borehole of cam SR by turning it approx. 2 turns.



▷ The switching cam can now be turned.

- 4 Insert the Allen key in the smaller borehole and use it as a lever.



- 5 Turn switching cam SR in the direction of rotation of the drive shaft until the contact switches.
- 6 Tighten the threaded bolts to secure the position of switching cam SR.
- 7 Remove the Allen key.

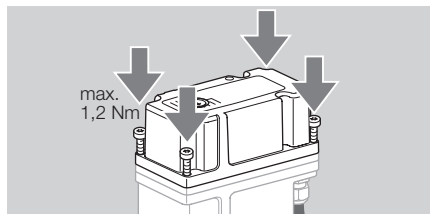
Setting switching cam SL (AUTO)

▷ The minimum opening angle can be set using switching cam SL.

- 8 Apply voltage to terminals – and +L.
- ▷ The actuator moves anti-clockwise.
- 9 Disconnect the electrical power supply once the required position has been reached.
- 10 Loosen switching cam SL as shown in Fig. 3.
- 11 Turn switching cam SL in the direction of rotation of the drive shaft until the contact switches.
- 12 Tighten the threaded bolts to secure the position of switching cam SL.
- 13 Remove the Allen key.
- 14 Operate the actuator electrically once again in order to check the settings. Readjust if necessary.
- ▷ In order to approach an intermediate position, switching cam S1 can also be set.

Assembly

- 15 Once the settings have been adjusted successfully, fit the housing cover again.

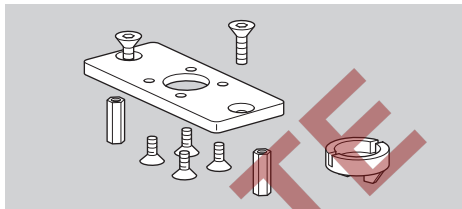


- 16 Check the plastic cable glands and the blind plugs for tightness.
- ▷ Commissioning is completed.

Accessories

Adapter set IC 30 for VFC

For the assembly of VFC and IC 30. The adapter set is delivered enclosed as an additional item.

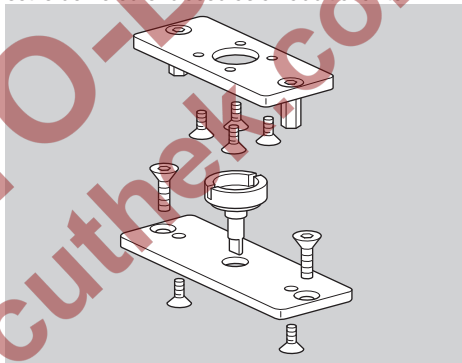


Order No.: 74340194

Assembly, see page 3 (Installation)

Adapter set IC 30 for BVA/BVG

For the assembly of BVA/BVG and IC 30. The adapter set is delivered enclosed as an additional item.



Order No.: 74924996

Assembly, see page 3 (Installation)

Maintenance

Actuators IC 30 suffer little wear and require little servicing. We recommend a function check once a year.

Technical data

Mains voltage: 24 V DC, $\pm 20\%$.

Line entrance: 3 x M16 plastic cable glands (enclosed).

Screw terminals using the elevator principles for cables up to 2.5 mm² with wire end ferrules.

The running time changes depending on the load.

It refers to the torque, see type label.

Contact rating of the cam switches:

Voltage	Min. current (resistive load)	Max. current (resistive load)
24 – 230 V, 50/60 Hz	1 mA	2 A
24 V DC	1 mA	100 mA

Minimum pulse duration: 100 ms.

Minimum pause between 2 pulses: 100 ms.

Enclosure: IP 65.

Duty cycle: 100%.

Ambient temperature:

-15 to +60°C, no condensation permitted.

Storage temperature: -15 to +40°C.

Resistance of the feedback potentiometer:

1 k Ω , < 50 V,

recommended wiper current: 0.2 μ A.

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 7 (Technical data).

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

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

NOT UP-TO-DATE
www.docuthek.com

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.

Honeywell

**krom/
schroder**

Elster GmbH
Strotheweg 1, D-49504 Lotte (Büren)

Tel. +49 541 1214-0

Fax +49 541 1214-370

hts.lotte@honeywell.com, www.kromschroeder.com