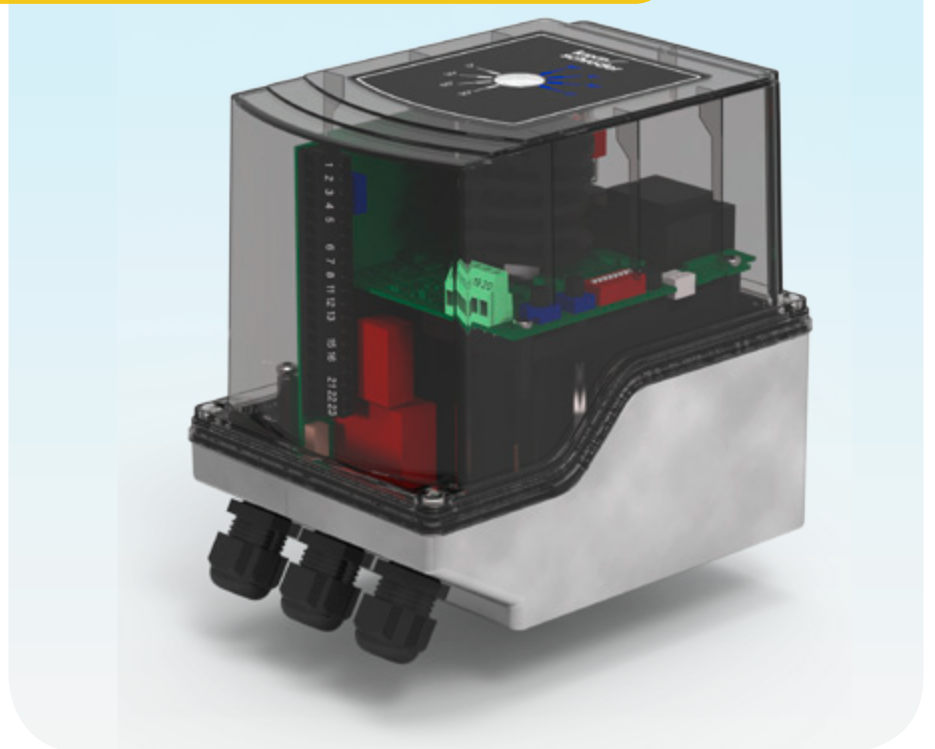


## Actuators IC 20, IC 50

Product brochure · GB  
3 Edition 08.15

EAC CE



krom  
schroder



- Continuous or three-point step control
- Easy to switch between Automatic and Manual mode
- Display of the valve position
- IC 50 for high torques
- IC 50 with selectable direction of rotation
- Actuators can be delivered ready installed on butterfly valves
- IC 20 delivered with linear flow control VFC ready installed
- IC 20..E, IC 50..E with electronic positioning function
- Adjustable motor behaviour in the event of cable discontinuity, for example

## Applications



IC 20



IC 50

### Application

The actuators are designed for all applications that require precise, controlled rotary movement between 0° and 90°.

The combination of actuator and butterfly valve is designed for flow adjustment and for regulating flow rates. IC and butterfly valve or IC 20 and linear flow control VFC can also be delivered ready assembled.

The IC is controlled by a continuous signal or three-point step signal.

In addition to setting the Min. and Max. positions using infinitely adjustable switching cams, floating limit switches mean that additional switching positions such as for ignition and high-fire rate positions can be set.

A standard Service switch allows the device to be switched from Automatic to Manual mode and a position indicator which can be read from the outside drastically simplifies the commissioning procedure.

#### IC 20, IC 50

An integrated feedback potentiometer offers the option of monitoring the current position of the actuator. This checking function can be used in automation processes.

#### IC 20..E, IC 50..E

The behaviour of the actuator, e.g. if the input signal falls below the minimum limit in the event of cable discontinuity, can be set using DIP switches.

Fluctuations or interference in the input signal are suppressed by an adjustable potentiometer. In the case of continuous control, the input signal can be adapted to the minimum and maximum adjustment angles manually or automatically. This calibration process can be visualized using LEDs. The continuous signal offers the option of monitoring the current position of the actuator.



Roller hearth kiln in the ceramics industry



Forging furnace

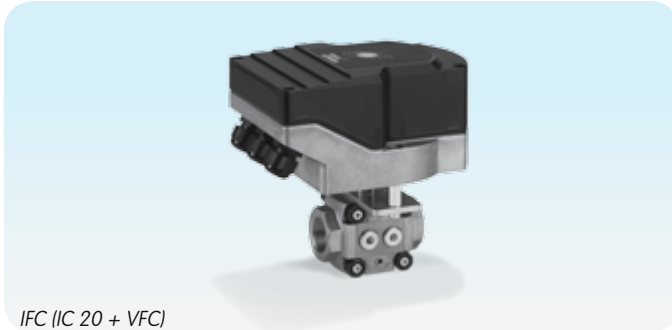
#### IC 20

The actuator IC 20 can be mounted directly onto the butterfly valves BVG, BVGF, BVA, BVAF, BVH or BVHS. The combination IB.. is designed to adjust volumes of gas, cold and hot air and flue gas on gas and air appliances and flue gas lines. IB.. is designed for control ratios up to 10:1 and is suitable for regulating flow rates for modulating-controlled combustion processes.



IBG (IC 20 + BVG)

The combination of IC 20 and linear flow control VFC is called IFC and is designed to adjust volumes of gas and cold air on various appliances. IFC is designed for control ratios up to 25:1 and is suitable for regulating flow rates for modulating-controlled combustion processes.



### IC 50

IC 50 is designed for applications with high torques of up to 30 Nm.

Actuator IC 50 and butterfly valve DKR are also delivered ready assembled up to nominal size 300.

The direction of rotation of the valve disc can be switched. The valve disc position can be read from the outside whereby the direction of rotation is indicated using a colour code.

Depending on the application, the actuator can be aligned to the butterfly valve using various attachment sets.

### Axial mounting

The actuator is axially aligned to butterfly valve DKR. Depending on the selected attachment set, the actuator can be mounted above or to the side of the pipe.



### Attachment with linkage

If the actuator is to be operated offset to the side of the butterfly valve, an attachment set with linkage can be used.



This attachment set is used for butterfly valves with disc clearance DKR..D.

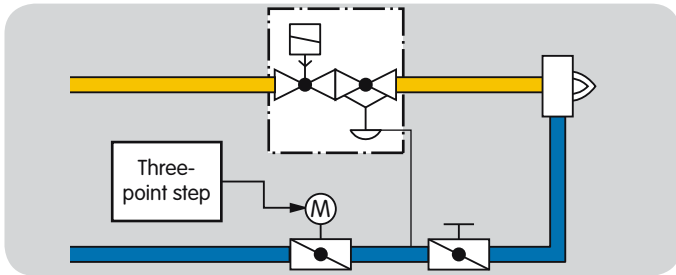


In the case of butterfly valves with stop bar DKR..A, an attachment set with shock suppressor must be used.

As of a medium temperature of > 250°C, the actuator is to be protected by a heat deflector.

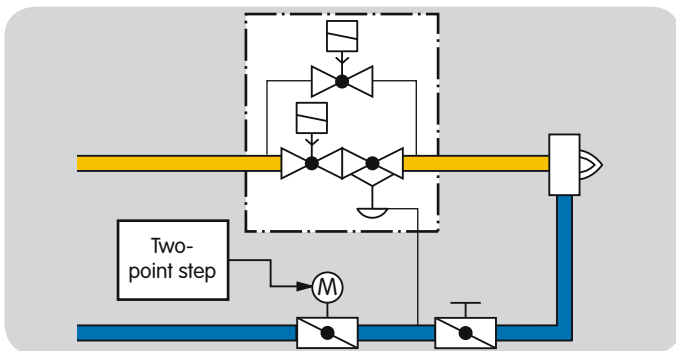
### Examples of application

#### Modulating control via three-point step signal



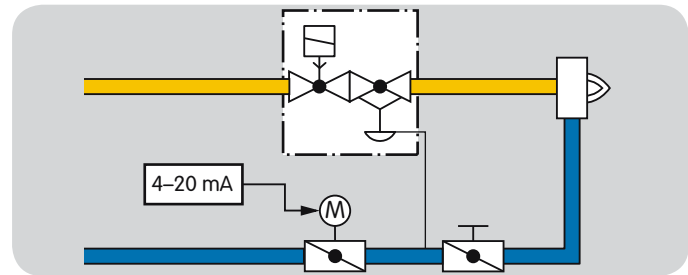
For processes that require high temperature accuracy and low circulation in the furnace. Actuator IC is controlled by a three-point step controller and moves the butterfly valve to the ignition position. The burner starts. The butterfly valve opens or closes between the low-fire/high-fire rate positions depending on the capacity demand of the burner. When the three-point step signal is disconnected, the butterfly valve stops at its current position.

#### Staged control via two-point step signal

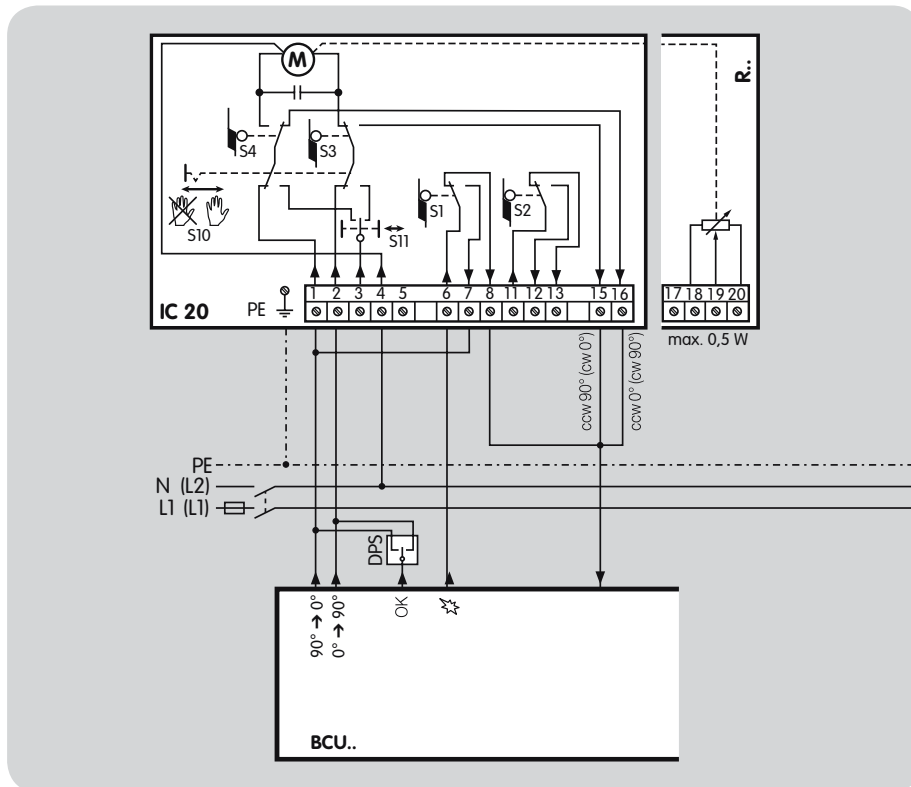


For processes that require a homogeneous temperature distribution in the furnace. Actuator IC..E is controlled by a two-point step controller and operates in On/Off or High/Low intermittent mode. The actuator closes when the voltage supply is interrupted.

#### Modulating control with continuous input signal



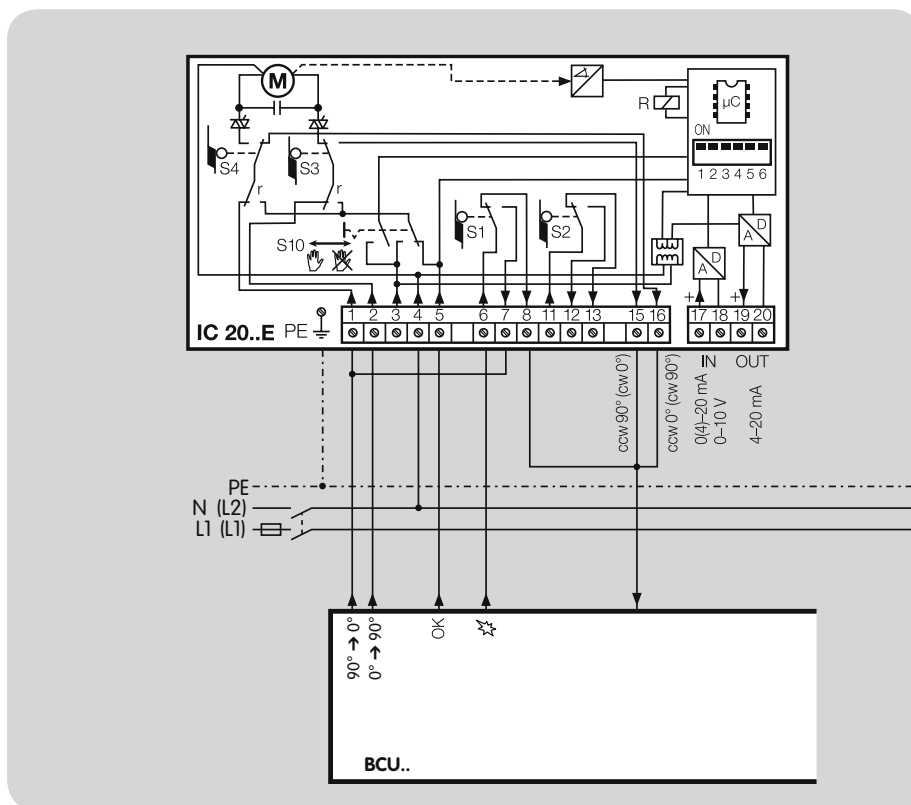
For processes that require high temperature accuracy and low circulation in the furnace. Actuator IC..E is controlled by a (0) 4–20 mA or 0–10 V signal. The continuous signal corresponds to the adjustment angle to be approached and offers the option of monitoring the current position of the actuator.



**IC 20, modulating control with burner control unit BCU**

The BCU moves the butterfly valve to pre-purge and ignition positions. After pre-purge and burner start, the controller enable signal is issued to an external three-point step controller which positions the butterfly valve in accordance with the capacity demand.

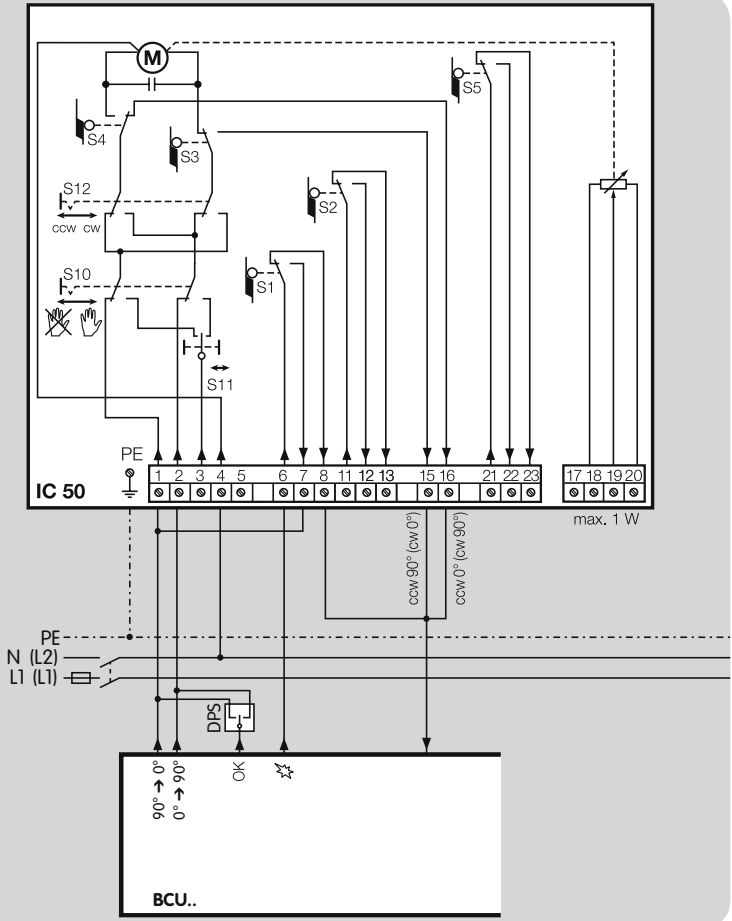
Once the pre-purge and ignition positions have been reached, a feedback signal is sent to the BCU.



**IC 20..E, continuous control with burner control unit BCU**

The BCU controls pre-purge and moves the butterfly valve to pre-purge and ignition position.

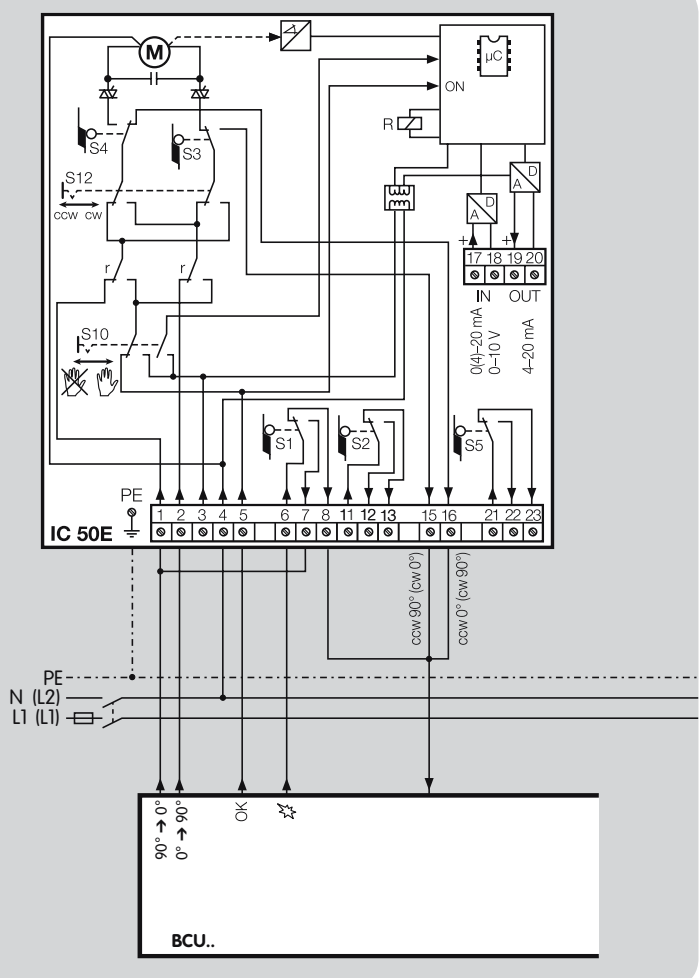
Once the BCU has started the burner, the modulation enable signal is issued via terminal 5 (OK). Actuator IC 20..E reacts to the (0) 4 – 20 mA or 0 – 10 V setpoint specification signals.



**IC 50, three-point step control with burner control unit BCU**

The BCU moves the butterfly valve to pre-purge and ignition positions. After pre-purge and burner start, the controller enable signal is issued to an external three-point step controller which positions the butterfly valve in accordance with the capacity demand.

Once the pre-purge or ignition position has been reached, a feedback signal is sent to the BCU.



**IC 50..E, continuous control with burner control unit BCU**

The BCU controls pre-purge and moves the butterfly valve to pre-purge and ignition positions.

Once the BCU has started the burner, the modulation enable signal is issued via terminal 5 (OK). Actuator IC 50..E reacts to the (0) 4–20 mA or 0–10 V setpoint specification signals.

## Type code

Code	Description
IC 20 IC 50	Actuator for butterfly valves
	Running time in s/90°:
-03 <sup>1)</sup>	3.7 <sup>1)</sup>
-07	7.5
-15	15
-30	30
-60	60
	Mains voltage (50/60 Hz):
W	230 V AC, 50/60 Hz
Q	120 V AC, 50/60 Hz
H	24 V AC, 50/60 Hz
	Torque:
2 <sup>2)</sup>	2.5 Nm <sup>2)</sup>
3	3 Nm
7 <sup>1)</sup>	7.5 Nm <sup>1)</sup>
15 <sup>1)</sup>	15 Nm <sup>1)</sup>
20 <sup>1)</sup>	20 Nm <sup>1)</sup>
30 <sup>1)</sup>	30 Nm <sup>1)</sup>
E	Continuous control
T	Three-point step control
R10	Feedback potentiometer

<sup>1)</sup> Only for IC 50

<sup>2)</sup> Only for IC 20

## Technical data

Screw terminals using the elevator principles for cables up to 4 mm<sup>2</sup> (single core cables) and for cables up to 2.5 mm<sup>2</sup> with wire end ferrules.

Angle of rotation: 0–90°, adjustable.

Holding torque = torque.

Contact rating of the position 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

Typical designed lifetime:

Switching current	Switching cycles	
	cos φ = 1	cos φ = 0.3
1 mA	1,000,000	–
22 mA <sup>1)</sup>	–	1,000,000
100 mA	1,000,000	–
2 A	100,000	–

<sup>1)</sup> Typical contactor application

(230 V, 50/60 Hz, 22 mA, cos φ = 0.3)

Three-point step signal to terminals 1 and 2:

minimum pulse duration: 100 ms,  
minimum pause between 2 pulses:  
100 ms.

Enclosure: IP 65.

Safety class: I.

Line entrance for electrical connection:  
3 × M20 plastic cable glands.

Ambient temperature:

-20 to +60°C, no condensation permitted.

Storage temperature: -20 to +40°C.

## IC 20, IC 20..E

Mains voltage:

120 V AC, -15/+10%, 50/60 Hz,

230 V AC, -15/+10%, 50/60 Hz.

Type	Running time [s/90°]		Torque [Nm]	
	50 Hz	60 Hz	50 Hz	60 Hz
IC 20-07	7.5	6.25	2.5	2
IC 20-15	15	12.5	3	3
IC 20-30	30	25	3	3
IC 20-60	60	50	3	3

## IC 20

Power consumption:

4.9 VA at 50 Hz, 5.8 VA at 60 Hz.

Resistance of the feedback potentiometer:

1 kΩ, max. 1 W.

## IC 20..E

Power consumption:

terminals 1, 2 and 5:

4.9 VA at 50 Hz, 5.8 VA at 60 Hz,

terminal 3:

8.4 VA at 50 Hz, 9.5 VA at 60 Hz,

in total not exceeding:

8.4 VA at 50 Hz, 9.5 VA at 60 Hz.

Position feedback output:

4–20 mA, galvanically isolated, max.

500 Ω load impedance.

The output is always active when supply voltage is applied to terminals 3 and 4.

Input: electrically isolated,

0 (4)–20 mA: load impedance switchable

between 50 Ω and 250 Ω,

0–10 V: 100 kΩ input resistance.

## IC 50, IC 50..E

Mains voltage:

24 V AC, -15/+10%, 50/60 Hz,

120 V AC, -15/+10%, 50/60 Hz,

230 V AC, -15/+10%, 50/60 Hz.

Type	Running time [s/90°]		Torque [Nm]
	50 Hz	60 Hz	50 Hz/60 Hz
IC 50-03	3.7	3.1	3
IC 50-07	7.5	6.25	7
IC 50-15	15	12.5	15
IC 50-30	30	25	20
IC 50-60	60	50	30

### IC 50

Power consumption:  
16 VA at 60 Hz, 13 VA at 50 Hz.

Resistance of the feedback potentiometer:  
1 k $\Omega$ , max. 1 W.

### IC 50..E

Power consumption: terminals 1, 2 and 5:  
16 VA at 60 Hz, 13 VA at 50 Hz,  
terminal 3: 19 VA at 60 Hz, 16 VA at 50 Hz,  
in total not exceeding: 19 VA at 60 Hz,  
16 VA at 50 Hz.

Feedback output:  
galvanically isolated, max. 500  $\Omega$  load  
impedance.

The output is always active when mains  
voltage is applied to terminal 3.

Input: electrically isolated,  
4 (0)–20 mA: load impedance switchable  
between 50  $\Omega$  and 250  $\Omega$ ,  
0–10 V: 100 k $\Omega$  input resistance.

## Maintenance

Actuators IC suffer little wear and require  
little servicing.

We recommend a function check once a year.

## Detailed information on this product



<http://docuthek.kromschroeder.com/documents/index.php?lang=en&selclass=6&sellang=GB&folder=203110>

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