Honeywell

krom schroder

Actuators IC 20, IC 30, IC 50

TECHNICAL INFORMATION

- Easy to switch between Automatic and Manual mode
- Position indicator that can be read externally
- Three-point step control
- IC 20..E and IC 50..E also for continuous control
- IC 20..E and IC 50..E with electronic positioning function
- IC 50 for high torques and with selectable direction of rotation
- IC 30 for 24 V DC
- IC 20 and IC 50 can be delivered ready installed on control element
- IC 20, IC 50: adjustable motor behaviour in the event of cable discontinuity, for example



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1 Application



IC 20



IC 30



IC 50

The actuators are designed for all applications that require precise, controlled rotary movement between 0° and 90°. In conjunction with a control element, they are suitable for regulating flow rates on gas and air appliances for modulating-controlled or stage-controlled combustion processes.

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 30 and IC 50 are controlled by a three-point step signal. IC 20..E and IC 50..E can also be controlled by a continuous signal.

IC 30 is suitable for 24 V DC applications.

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.

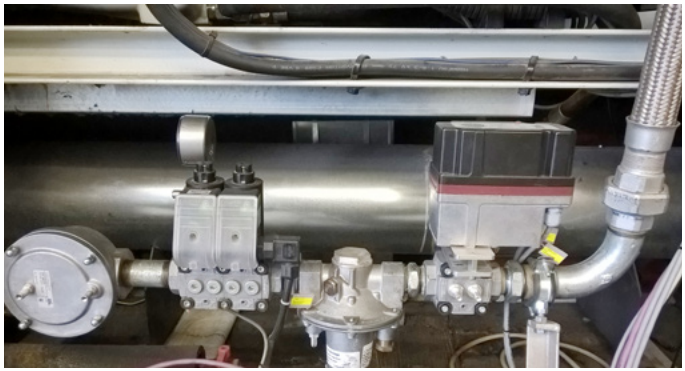
Fluctuations or interference in the input signal are suppressed by an adjustable potentiometer. In the case of continuous control, the input signal can be adapted to the minimum and maximum adjustment angles manually or automatically. This calibration process can be visualized using LEDs. The continuous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



Roller hearth kiln in the ceramics industry

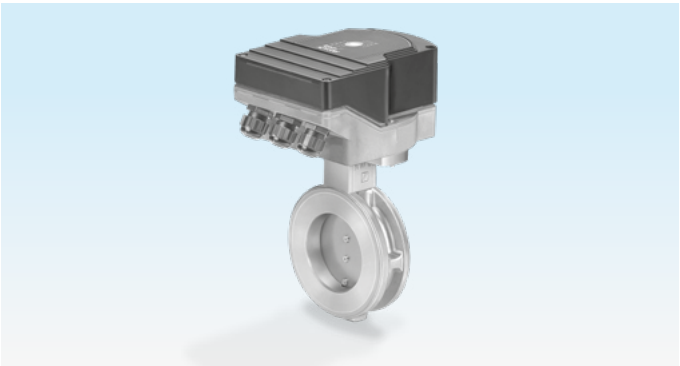


Forging furnace



CHP for generating electricity and heat

1.1 IC 20



IBG (IC 20 + BVG)

The actuator IC 20 can be delivered ready mounted onto a butterfly valve BVG, BVGF, BVA, BVAF, BVH or BVHS.

This combination is designed for a control ratio of up to 10:1.

See Technical Information: Butterfly valves BVG, BVA, BVH



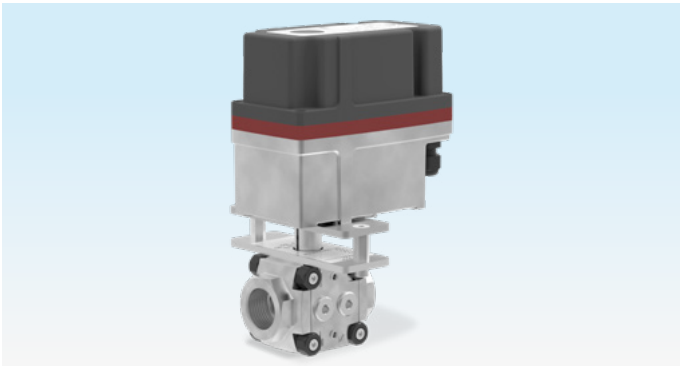
IFC (IC 20 + VFC)

Actuator IC 20 and linear flow control VFC can be delivered ready assembled.

This combination is designed for a control ratio of up to 25:1.

See Technical Information: Linear flow controls VFC

1.2 IC 30



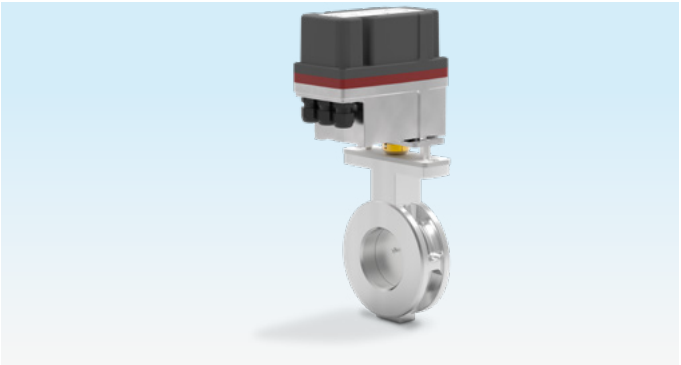
IC 30 + VFC

Actuator IC 30 can be used as an actuator for linear flow control VFC.

An adapter set must be used for assembly. The IC 30, linear flow control VFC and the adapter set are not assembled on delivery.

This combination is designed for a control ratio of up to 25:1.

See Technical Information: Linear flow controls VFC



IC 30 + BVA/BVG

Actuator IC 30 can be used as an actuator for butterfly valves BVA and BVG.

An adapter set must be used for assembly. The IC 30, butterfly valve BVA/BVG and the adapter set are not assembled on delivery.

This combination is designed for a control ratio of up to 10:1.

See Technical Information: Butterfly valves BVG, BVA, BVH

1.3 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. See Technical Information: Butterfly valves DKR

Axial mounting



IDR..AU



IDR..AS

The actuator is axially aligned to butterfly valve DKR and can be mounted rotated in increments of 90°. The connections are then positioned above the pipe 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. The actuator may be installed rotated by 180°.



IDR..GD

Attachment set ..GD is used for butterfly valves with disc clearance DKR..D.



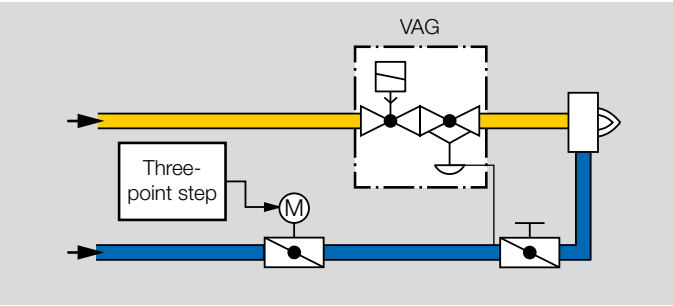
IDR..GAW

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

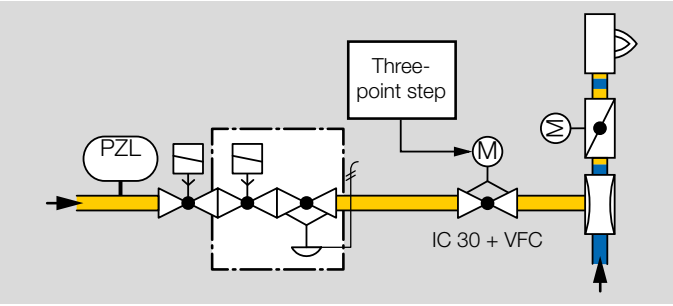
As of a medium temperature of > 250°C, the actuator is to be protected by a heat deflector, see page 35 (6.3.1 Heat deflector).

1.4 Application examples

1.4.1 Modulating control via three-point step signal

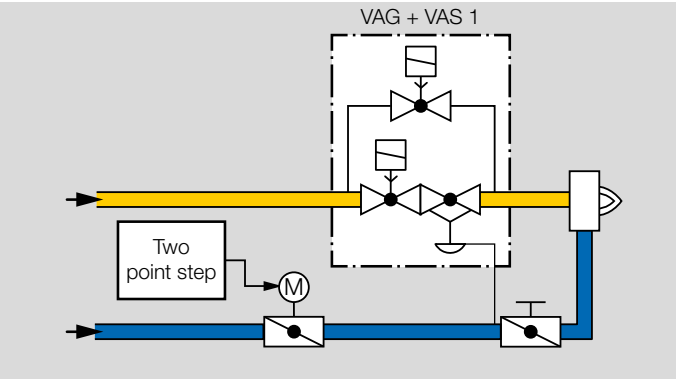


For processes that require high temperature accuracy and low circulation in the furnace. Actuator IC is controlled by a three-point step controller and moves the butterfly valve to the ignition position. The burner starts. The butterfly valve opens or closes between the low-fire/high-fire rate positions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



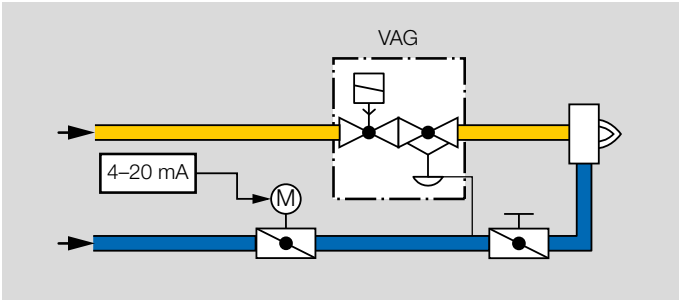
For processes that require high control accuracy. The low-fire and high-fire rates are adjusted using the control element upstream of the burner. Actuator IC 30 is controlled by a three-point step controller and ensures the desired gas/air mixture is produced.

1.4.2 Staged control via two-point step signal



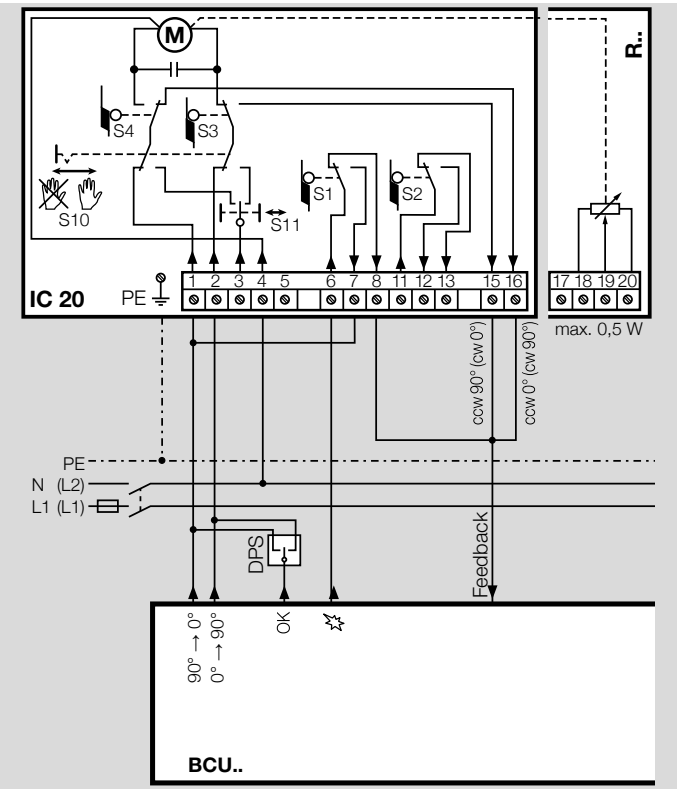
For processes that require a homogeneous temperature distribution in the furnace. Actuator IC..E is controlled by a two-point step controller and operates in On/Off or High/Low intermittent mode. The actuator closes when the voltage is disconnected.

1.4.3 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.

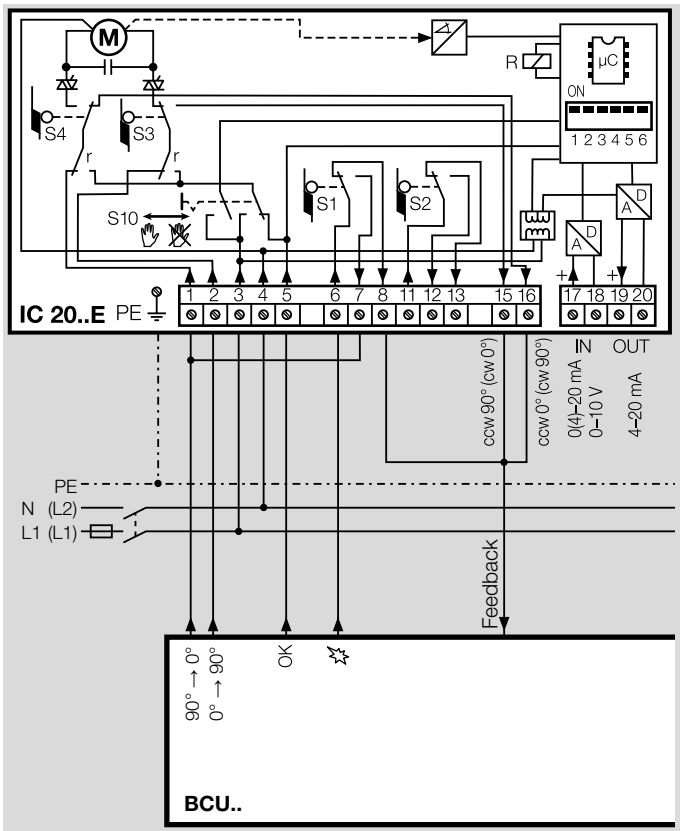
1.4.4 IC 20, modulating control with burner control unit BCU



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

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

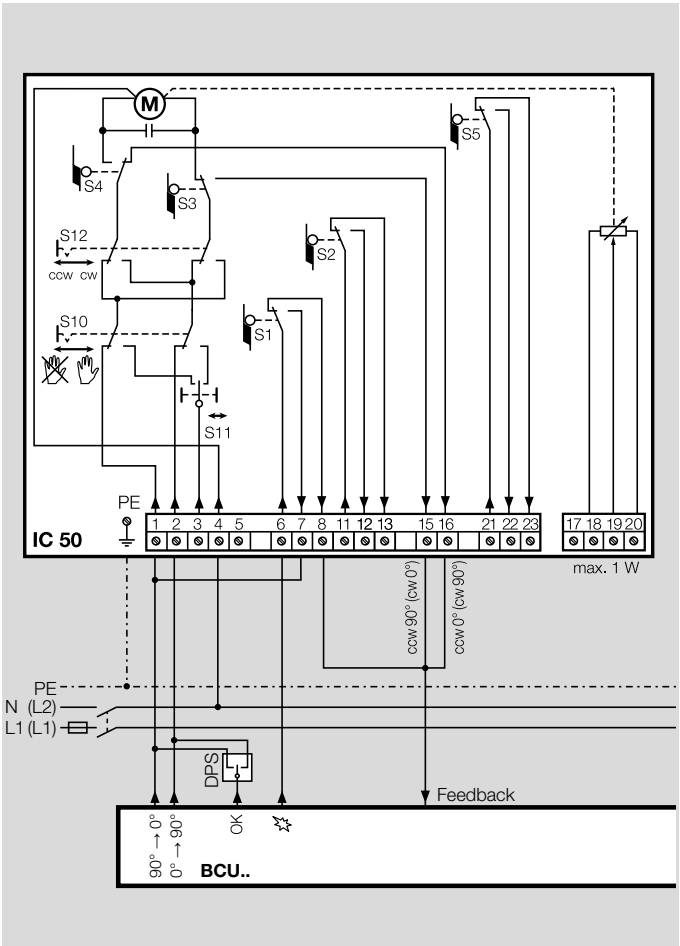


The BCU controls pre-purge and moves the butterfly valve to pre-purge and ignition positions.

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 set-point specification signals.

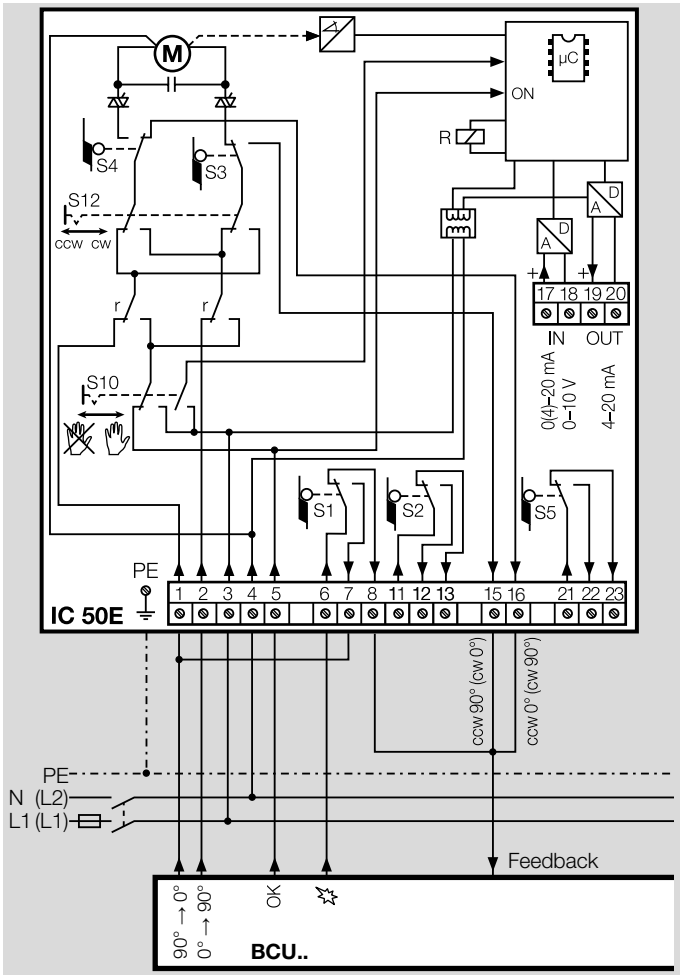
1.4.6 IC 50, three-point step control with burner control unit BCU



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.

1.4.7 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.

2 Certification

2.1 Certificate download

Certificates – see www.docuthek.com

2.2 EU certified

IC 20, IC 50

CE

- 2014/35/EU (LVD), Low Voltage Directive
- 2014/30/EU (EMV), Electromagnetic Compatibility Directive
- 2011/65/EU – RoHS II
- 2015/863/EU – RoHS III
- EN 60730:2011

2.3 ANSI/CSA approved

IC 20..Q, IC 50..Q (120 V AC) only

C US

Canadian Standards Association – ANSI/UL 429 and CSA C22.2

2.4 Eurasian Customs Union

EAC

The products IC 20, IC 50 meet the technical specifications of the Eurasian Customs Union.

3 Function

The actuator moves towards 0° or 90° if it is energized electrically at the related terminal. If the voltage is disconnected, the actuator stops in its current position. A high holding torque when de-energized renders additional braking elements superfluous. The low-fire and high-fire rates are adjusted using infinitely adjustable switching cams. An integrated feedback potentiometer (optional on IC 20, IC 30) makes it possible to monitor the current position of the actuator.

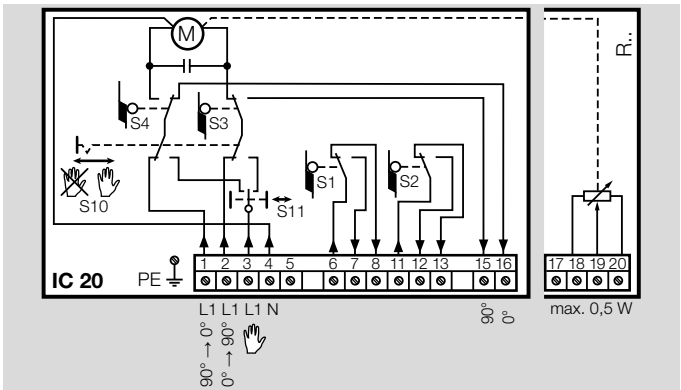
Automatic/Manual mode

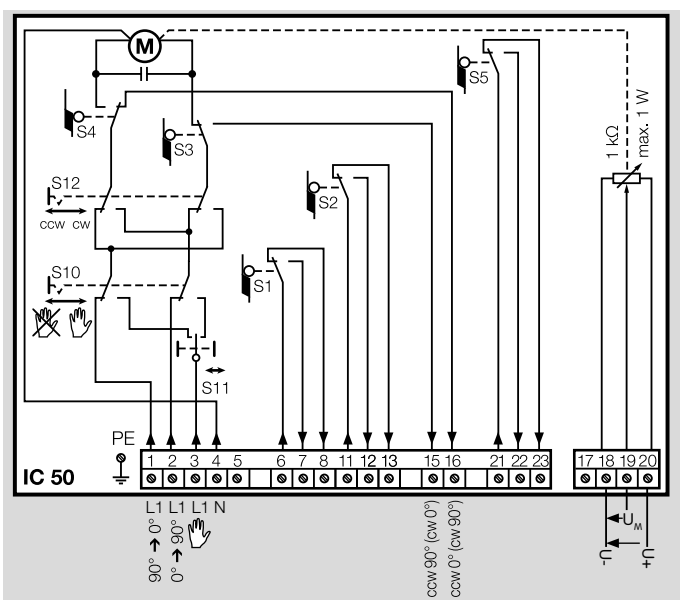
Switchover between Automatic and Manual mode facilitates setting of the infinitely adjustable switching cams during commissioning. This enables precise settings even in the low-fire rate range.

The switching point is set directly on the cams.

External devices can be activated or intermediate positions can be checked via additional, floating, infinitely adjustable switches. The IC 30 has one adjustable switching cam, the IC 20 has two and the IC 50 has three.

3.1 IC 20..T, IC 50..T connection diagram

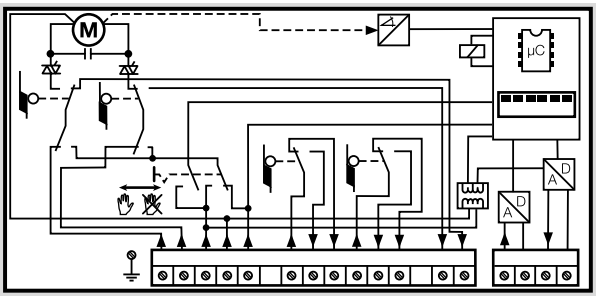


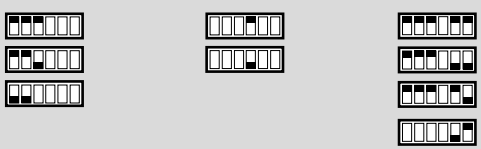


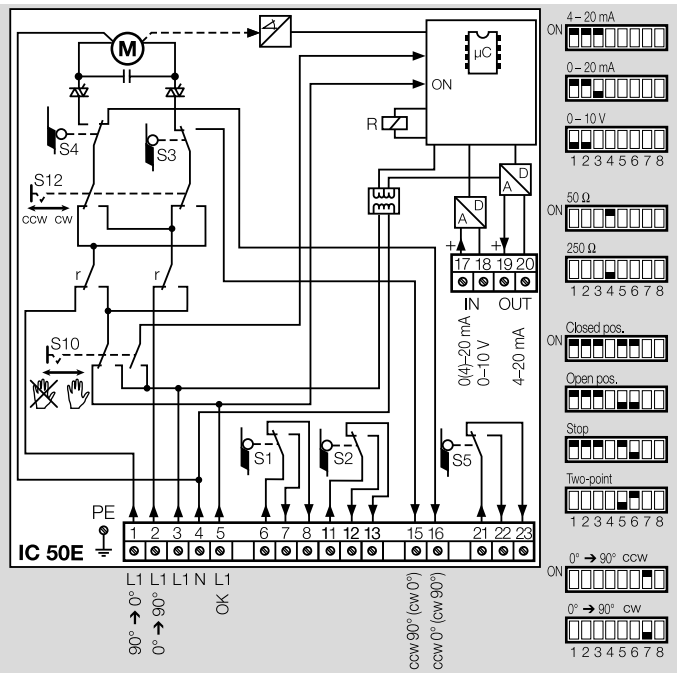
Three-point step control

In the case of default setting “Closed”: The control element opens until switch S3 trips when voltage is applied to terminal 2. The control element closes until S4 trips when voltage is applied to terminal 1, see page 30 (5 Project planning information).

3.2 IC 20..E, IC 50..E connection diagram







In normal operation, input “OK” is supplied with voltage. The setpoint device issues an actuating signal (0 (4)–20 mA, 0–10 V). The continuous signal corresponds to the adjustment angle to be approached (e.g. with a 0 to 20 mA signal, 10 mA correspond to a valve angle of 45°).

Continuous control

Following successful modulation enable via terminal 5 (OK), the actuator reacts to the setpoint specification (0 (4)–20 mA, 0–10 V) via terminals 17 and 18.

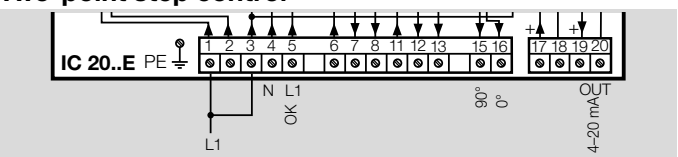
The IC..E offers the option of monitoring the current position of the actuator via terminals 19 and 20, see page 30 (5 Project planning information).

Three-point step control

No voltage at terminal 5. Voltage must be applied to terminals 3 and 4 continuously.

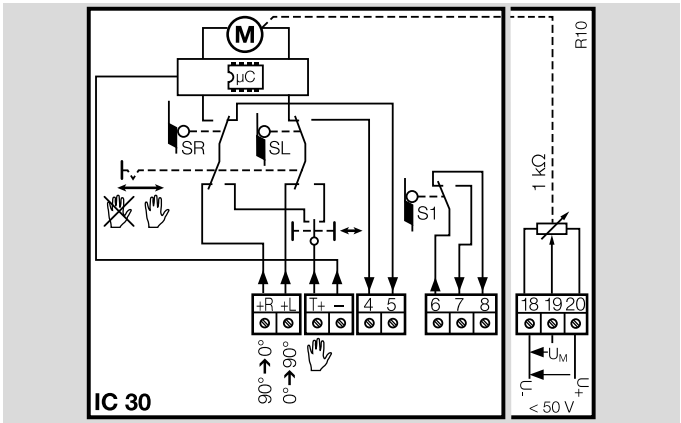
Two-point step control must be deactivated at the DIP switch.

Two-point step control



Connect voltage to terminals 1 and 3. Set the DIP switches to 2-point step control. If an input signal is applied to terminal 5 (OK), the actuator opens. If no input signal is applied to terminal 5, the actuator closes.

3.3 IC 30 connection diagram



Three-point step control

In the case of default setting “Closed”: the control element opens when voltage is applied to terminal +L. The control element closes when voltage is applied to terminal +R. To activate Manual mode, voltage must be applied to terminal T+.

Factory setting:
Switching cam SR = minimum opening angle, set to 0°–5°.
Switching cam SL = maximum opening angle, set to 85°–90°.
Switching cam S1 = intermediate position, set to 45° ± 10°.

3.4 IC 20..E display

Manual mode

Blue LED	Red LED	Operating state
Lit	Off	Manual mode
Flashing	Flashing	Calibration (in Manual mode only)

Low-fire/High-fire rate adjustment (in Manual mode only)

Blue LED	Red LED	Operating state
Lit	On for 0.5 s	Min. value ≥ max. value*
Off for ≤ 0.5 s	Off	Min. or Max. setting accepted

** Value will only be accepted, if the min or max button is pressed for another three seconds.*

Warnings and faults

Blue LED	Red LED	Warning/ fault	Description	Cause
Off	Flashing light (1×)	Warning	The device is in 4–20 mA mode, the input signal is < 3 mA	Cable discontinuity on the 4–20 mA setpoint input
Off	Flashing light (2×)	Warning	Many changes of direction, input signal oscillates	Hysteresis set too small
Off	Flashing light (3×)	Warning	Control range < 1°	Device programming error (min. and max. positions)
Flashing light (1×)	Permanent light	Fault	Calibration not successful	Min. or max. position has not been reached, motor defective, gear defective, potentiometer defective
Flashing light (2×)	Permanent light	Fault	Internal error	Unit defective

3.5 IC 20..E DIP switches

The input signals for the actuator can be set via DIP switches. DIP switch positions that are not indicated can be freely selected.

Choosing the input signal



4 – 20 mA



0 – 20 mA



0 – 10 V

Load impedance of the current input

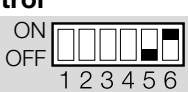


50 Ω



250 Ω

Two-point step control



Behaviour in the event of cable discontinuity (4–20 mA)



Butterfly valve moves to CLOSED position



Butterfly valve moves to OPEN position



Butterfly valve stops

3.6 IC 50..E DIP switches

The input signals for the actuator can be set via DIP switches. DIP switch positions that are not indicated can be freely selected.

Choosing the input signal



4 – 20 mA

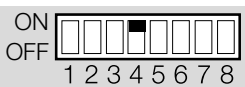


0 – 20 mA



0 – 10 V

Load impedance of the current input



50 Ω



250 Ω

Two-point step control



Behaviour in the event of cable discontinuity (4–20 mA)



Butterfly valve moves to CLOSED position

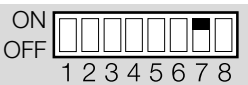


Butterfly valve moves to OPEN position

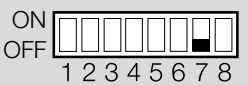


Butterfly valve stops

Direction of rotation



Butterfly valve opens clockwise CW



Butterfly valve opens anti-clockwise CCW

4 Selection

4.1 ProFi

A web app selecting the correct product is available at www.adlatus.org.

4.2 Selection table

Description	Code	IC 20	IC 30	IC 50	Condition
Actuator	**IC**	20	30	50	
Running time [s]/Adjustment angle [90°]					
3.7/90	**-03**			03	
7.5/90	**-07**	07	07	07	
15/90	**-15**	15	15	15	
30/90	**-30**	30	30	30	
60/90	**-60**	60	60	60	
Mains voltage					
230 V AC, 50/60 Hz	**W**	•		•	
120 V AC, 50/60 Hz	**Q**	•		•	
24 V AC, 50/60 Hz	**H**			•	
24 V DC	**K**		•		
Torque					
2 Nm	**2**	2.5			
3 Nm	**3**	3	3	3	
7 Nm	**7**			7	
15 Nm	**15**			15	
20 Nm	**20**			20	
30 Nm	**30**			30	
Controlled by continuous signal	**E**	•		•	
Three-point step control	**T**	•	•	•	
With 1000 Ω feedback potentiometer	**R10***	•	•	•	For a version without R10, this specification is omitted

Order example

IC 50-15W15TR10

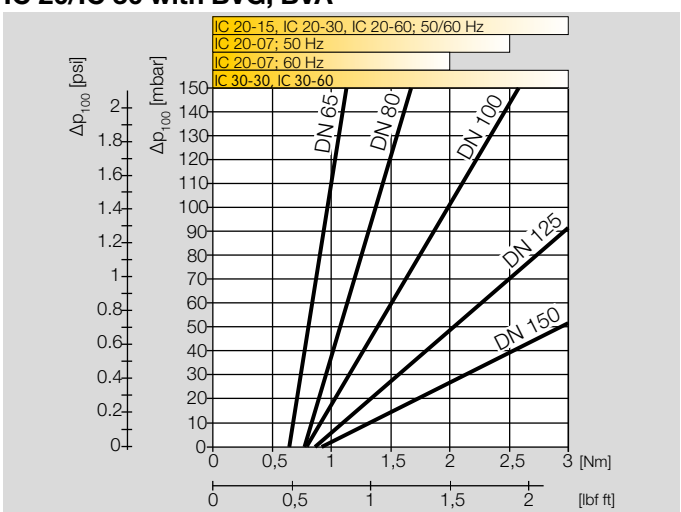
4.3 Butterfly valve torque, actuator running time

The characteristic curves relate to the maximum torque produced by the flow rate. In general, maximum torque is reached at approx. 70°.

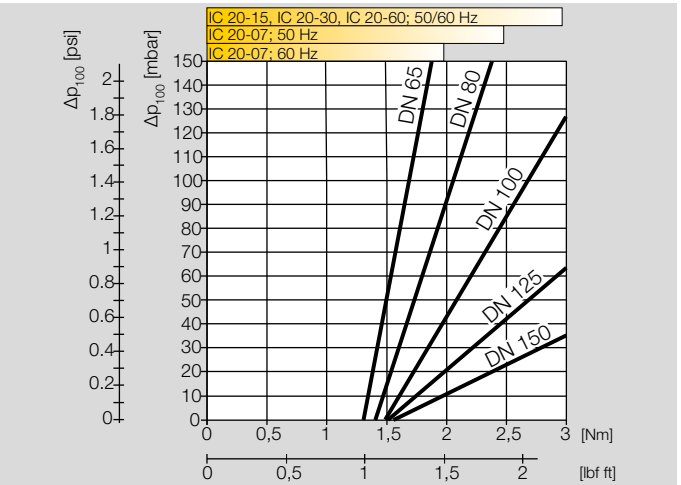
The running time of the actuator per 90° depends on the required torque.

The running time is reduced by a factor of 0.83 at a frequency of 60 Hz on the actuator.

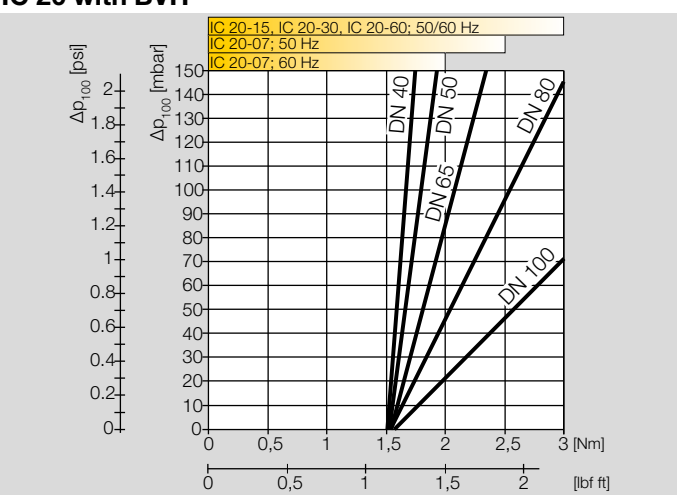
IC 20/IC 30 with BVG, BVA



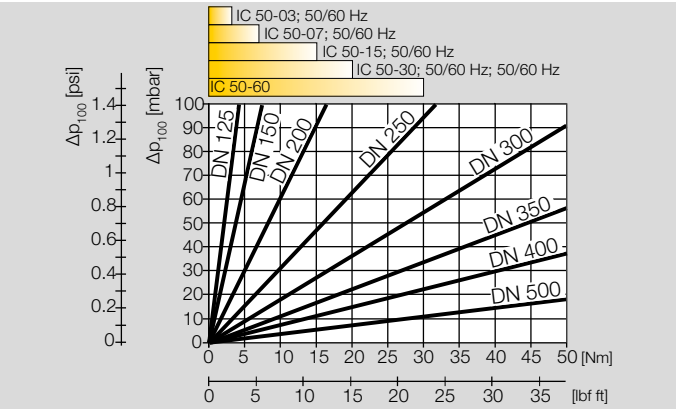
IC 20 with BVGF, BVAF



IC 20 with BVH



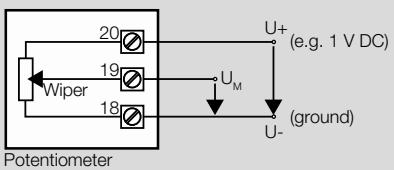
IC 50 with DKR



4.4 IC 20, IC 30, IC 50 position feedback

A feedback potentiometer offers the option of monitoring the current position of the actuator.

In the case of actuator IC 30, IC 50, the feedback potentiometer is included in the delivery. In the case of actuator IC 20, the feedback potentiometer can be retrofitted, see page 33 (6.1.5 Potentiometer installation set).



It 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_M and U-.

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.

IC 30: once the switching cams have been adjusted, the potentiometer automatically adjusts itself to the setting travel via the integrated slip clutch.

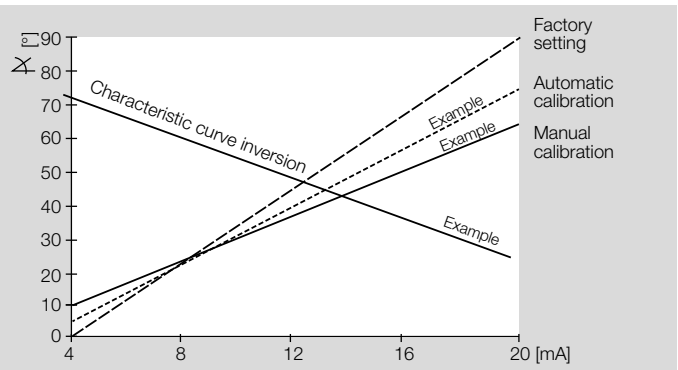
IC 20..E, IC 50..E

The IC..E offers the option of monitoring the current position of the actuator via the continuous 4–20 mA output signal (terminals 19 and 20).

Position feedback at terminals 15 and 16: interference suppression capacitors installed in the system must only be used in conjunction with a series resistor so as not to exceed the maximum switch-on current – see page 37 (7 Technical data).

4.5 IC 20..E, IC 50..E, continuous control: adapting the input signal to the adjustment angle

The continuous signal corresponds to the adjustment angle to be approached (e.g. with a 0 to 20 mA signal, 10 mA correspond to a valve angle of 45°).



Automatic calibration

If the factory setting is changed, the mA signal for the minimum and maximum opening angles must be confirmed via automatic calibration. The setpoint specification will then correspond to the setting of switching cams S3 and S4.

Manual calibration

If the mA signal is to be used for modulation between the minimum and maximum opening angles, the signal is set via manual calibration.

Characteristic curve inversion

If the mA value for low fire has to be greater than the mA value for high fire: press the min or max button until the red LED lights up briefly (approx. 0.5 seconds) and hold it in for approx. 3 seconds more until the blue LED goes out briefly (approx. 0.5 seconds).

5 Project planning information

5.1 Installation

Installation position

IC 20, IC 50:
vertical or horizontal, not upside down.

IC 30 with VFC:
as required; IC 30 with BVA/BVG: not upside down.

If the actuator is used with hot air, the pipeline should be adequately insulated so as to reduce the ambient temperature. In order to avoid overheating, the flanges and butterfly valve must not be insulated.

Use heat deflectors for a medium temperature of > 250°C, see IC 20, page 33 (6.1.1 Heat deflector), and IC 50, page 35 (6.3.1 Heat deflector).

IC 20

In order to mount actuator IC 20 onto control elements other than DKL, DKG, BVA, BVAF, BVG, BVGF, BVH, BVHS or VFC, the attachment set for “single application” is required, see page 33 (6.1.4 “Single application” attachment set).

IC 30

In order to mount actuator IC 30 onto linear flow control VFC, an adapter set is required, see page 34 (6.2.1 Adapter set IC 30) or page 34 (6.2.2 Adapter set IC 30 for BVA/BVG).

IC 50

Actuator IC 50 can be mounted directly onto a wall using a bracket, see page 35 (6.3.2 Wall mounting bracket).

Attachment sets are available for mounting to butterfly valve DKR, see page 36 (6.3.3 Attachment sets).

5.2 Cable selection

Install supply and signal lines separately.

Cables should be installed well away from high-voltage lines of other devices.

IC 30: feedback potentiometer lines should be equipped with additional shielding.

Observe EMC Directive for installation of signal lines.

Use cables with wire end ferrules.

Cable cross-section: max. 2.5 mm^2.

Conductors which have not been connected (spare conductors) must be insulated at their ends.

CSA requires temperature-resistant cables (≥ 90°C).

5.3 Electrical connection

IC 20, IC 50: running times are reduced by a factor of 0.83 at 60 Hz compared to 50 Hz.

When operating two or more actuators in parallel, the three-point step controller (terminals 1 and 2) must be electrically isolated to avoid leakage currents. We recommend using relays.

Interference suppression capacitors installed in the system must only be used in conjunction with a series resistor so as not to exceed the maximum current – see page 37 (7 Technical data).

IC 20..E, IC 50..E: three-point step control

When no voltage is applied to terminal 5, three-point step control is active. Two-point step control must be switched off at the DIP switch.

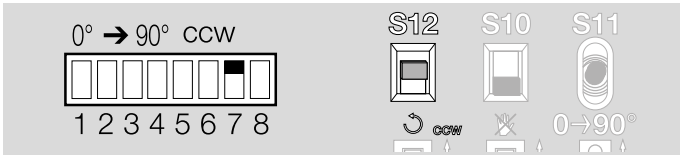
5.4 IC 50, IC 50..E: changing the direction of rotation

The function of switching cams S3/S4 changes if the direction of rotation ccw/cw (anticlockwise/clockwise) is modified. The actuator is set to ccw at the factory.

ccw: S3 = maximum angle, S4 = minimum angle.
cw: S3 = minimum angle, S4 = maximum angle.

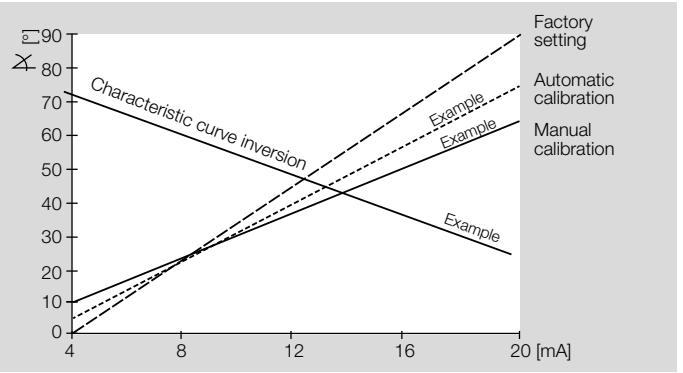
IC 50..E

When changing the direction of rotation, both DIP switch 7 and switch S12 must be in the same position (cw/ccw).



5.5 IC 20..E, IC 50..E, continuous control: adapting the input signal to the adjustment angle

The continuous signal corresponds to the adjustment angle to be approached (e.g. with a 0 to 20 mA signal, 10 mA correspond to a valve angle of 45°).



Automatic calibration

If the factory setting is changed, the mA signal for the minimum and maximum opening angles must be confirmed via automatic calibration. The setpoint specification will then correspond to the setting of switching cams S3 and S4.

Manual calibration

If the mA signal is to be used for modulation between the minimum and maximum opening angles, the signal is set via manual calibration.

Characteristic curve inversion

If the mA value for low fire has to be greater than the mA value for high fire: press the min or max button until the red LED lights up briefly (approx. 0.5 seconds) and hold it in for approx. 3 seconds more until the blue LED goes out briefly (approx. 0.5 seconds).

5.6 Using the IC 50 to replace the GT 50

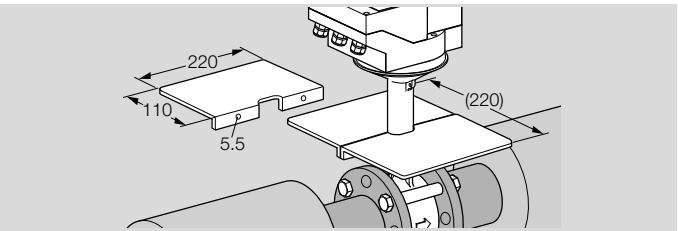
If a GT 50 is upgraded to an IC 50, it must be noted that the feedback potentiometers on both actuators have different adjustment ranges. IC 50: 0–90°

The zero positions may differ from each other.

6 Accessories

6.1 IC 20

6.1.1 Heat deflector



Install heat deflectors in order to protect the actuator from overheating if the medium temperature is > 250°C (482°F).

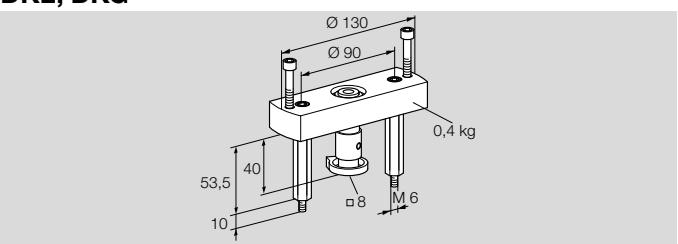
Order No.: 74921670

6.1.2 Fastening set for BVG, BVA, BVH

2 x M6 x 35 set screws, for retrofitting IC 20/IC 40 to the butterfly valve.

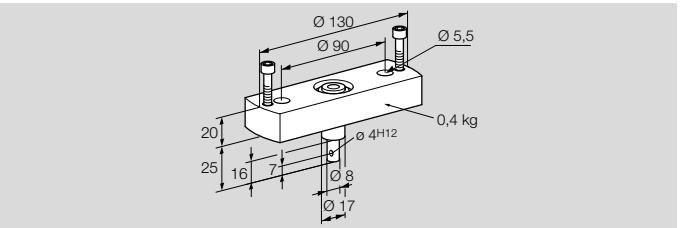
Order No.: 74921082

6.1.3 Adapter set for mounting onto a butterfly valve DKL, DKG



Order No.: 74921672

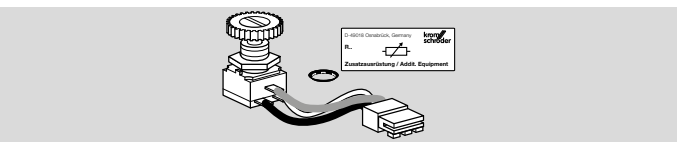
6.1.4 “Single application” attachment set



This attachment set is required if the actuator is mounted onto control elements other than DKL, DKG, BVA, BVAF, BVG, BVGF, BVH, BVHS or VFC.

Order No.: 74921671

6.1.5 Potentiometer installation set

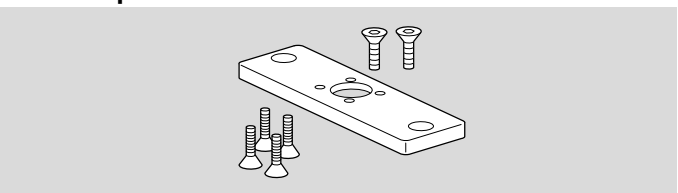


1000 Ω feedback potentiometer. The power consumption of the potentiometer is max. 0.5 W.

Order No.: 74921144

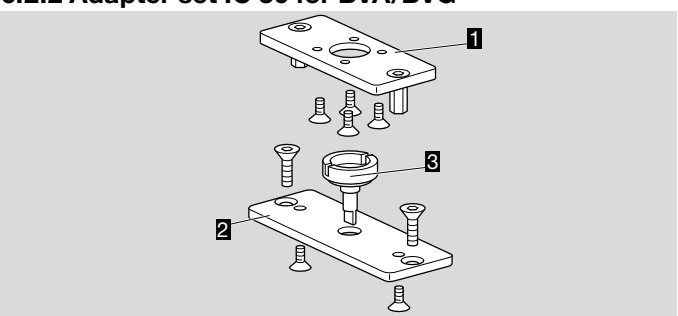
6.2 IC 30

6.2.1 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

6.2.2 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.

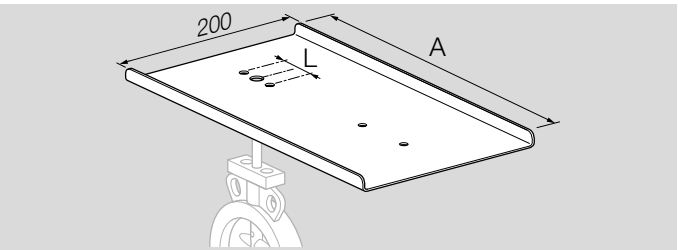
1 Adapter set IC 30
2 Adapter plate BVA/BVG
3 Coupling

6.3 IC 50

6.3.1 Heat deflector

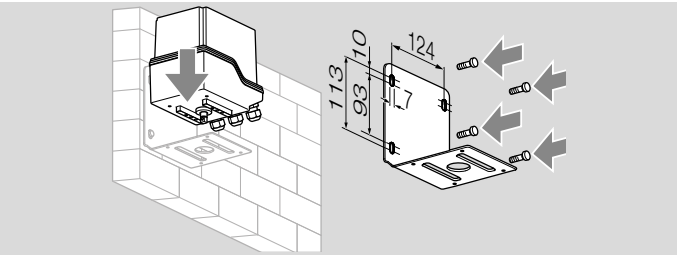
Install heat deflectors in order to protect the actuator from overheating if the medium temperature is > 250°C.

If used in conjunction with butterfly valves DKR, heat deflectors of various dimensions can be installed.



	L	A	Order No.
DKR 15–20	36	366	74924966
DKR 25–32	36	366	74924967
DKR 40–50	40	366	74924968
DKR 65–100	40	366	74924969
DKR 125	40	459	74924970
DKR 150–250	60	459	74924971
DKR 300	60	566	74924972
DKR 350	90	619	74924973
DKR 400–500	90	758	74924974

6.3.2 Wall mounting bracket



The actuator can be attached to a solid structure using the wall mounting bracket.

Order No.: 74924791

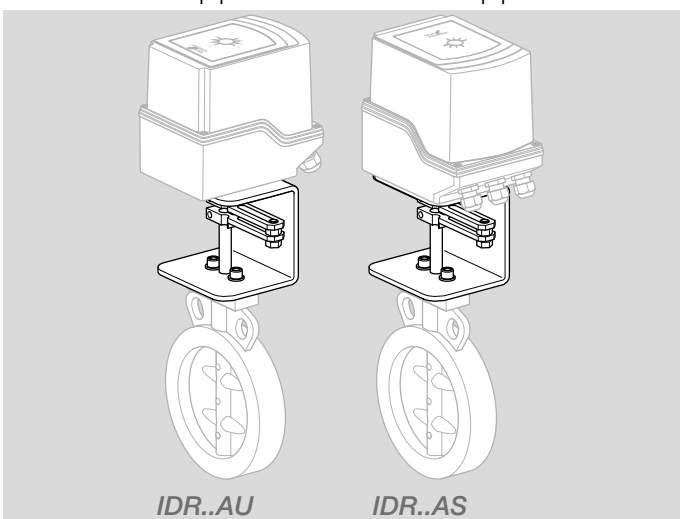
6.3.3 Attachment sets

Pre-assembled combinations of actuators, attachment sets and butterfly valves are available as models IDR up to nominal size DN 300.

The actuator, attachment set and butterfly valve can also be ordered separately.

Axial mounting

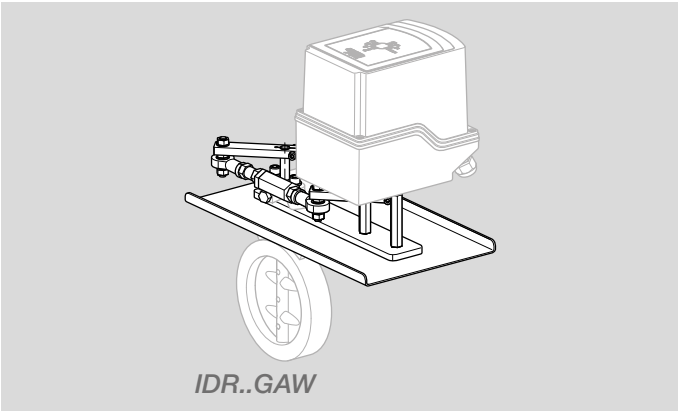
The actuator can be rotated in increments of 90° to be mounted to the U bracket . The connections are then positioned above the pipe or to the side of the pipe.



IDR..AU *IDR..AS*

Attachment with linkage

Depending on the type of butterfly valve (DKR..A = butterfly valve with stop bar, DKR..D = butterfly valve with disc clearance), the attachment set with linkage is available with or without shock suppressor. The actuator may be installed rotated by 180°.

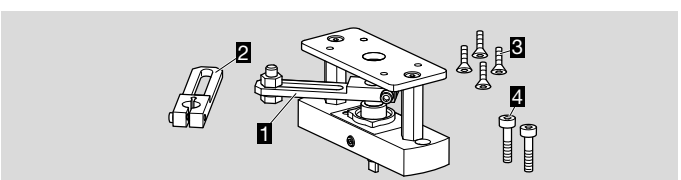


IDR..GAW

For further information on the attachment sets, see Technical Information: Butterfly valves DKR.

6.3.4 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

7 Technical data

7.1 IC 20

Angle of rotation: 0–90°, adjustable.

Holding torque = torque.

Duty cycle: 100%.

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

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

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

Typical designed lifetime:

Switching current	Switching cycles	
	cos φ = 1	cos φ = 0.3
1 mA	1,000,000	–
22 mA	–	1,000,000
100 mA	1,000,000	–
2 A	100,000	–

1) 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 54, in conjunction with BVH: IP 65,
Nema 2, in conjunction with BVG, BVA or BVH: Nema 3.

Safety class: I.

Ambient temperature: -20 to +60°C, no condensation permitted.
Storage temperature: -20 to +40°C.

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

Power consumption: 4.9 VA at 50 Hz, 5.8 VA at 60 Hz.

Resistance of the feedback potentiometer: 1 kΩ, max. 0,5 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, electrically 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.

7.2 IC 30

Angle of rotation: 0–90°, adjustable.

Holding torque = torque.

Mains voltage: 24 V DC, ±20%.

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

Screw terminals using the elevator principles for cables up to 2.5 mm^2 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%.

Power consumption: 4 W,
when switching on: briefly 8 W.

Ambient temperature:
-15 to +60°C, no condensation permitted.
Storage temperature: -15 to +40°C.

Resistance of the feedback potentiometer:
1 kΩ, < 50 V,
recommended wiper current: 0.2 µA.

7.3 IC 50

Angle of rotation: 0–90°, adjustable.

Holding torque = torque.

Duty cycle: 100%.

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

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

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

Typical designed lifetime:

Switching current	Switching cycles	
	cos φ = 1	cos φ = 0.3
1 mA	1,000,000	–
22 mA	–	1,000,000
100 mA	1,000,000	–
2 A	100,000	–

1) 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.

Ambient temperature: -20 to +60°C, no condensation permitted.
Storage temperature: -20 to +40°C.

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

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

Resistance of the feedback potentiometer: 1 kΩ, max. 1 W, max. wiper current: 0.1 mA.

IC 50..E

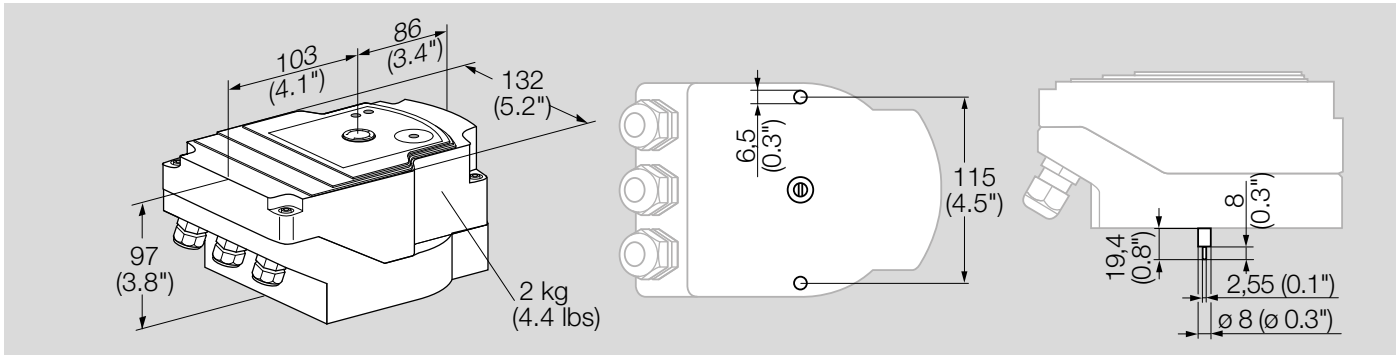
Power consumption:
terminals 1, 2 and 5: 16 VA at 60 Hz, 13 VA at 50 Hz,
terminal 3: 19 VA at 60 Hz, 16 VA at 50 Hz,
in total not exceeding: 19 VA at 60 Hz, 16 VA at 50 Hz.

Feedback output:
electrically isolated, max. 500 Ω 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 Ω and 250 Ω,
0–10 V: 100 kΩ input resistance.

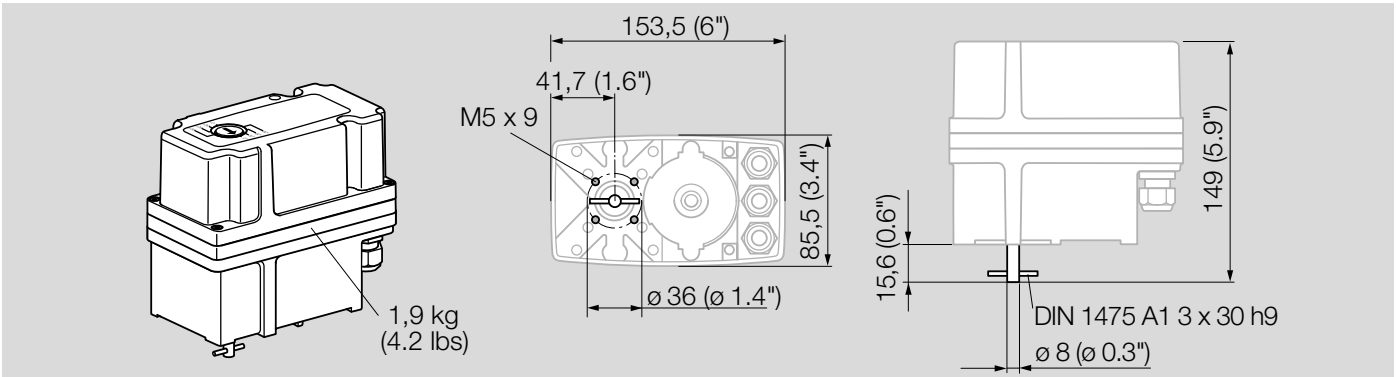
7.4 IC 20 dimensions



Other dimensions of IC 20 with butterfly valves BV.., see Technical Information: Butterfly valves BVG, BVA, BVH

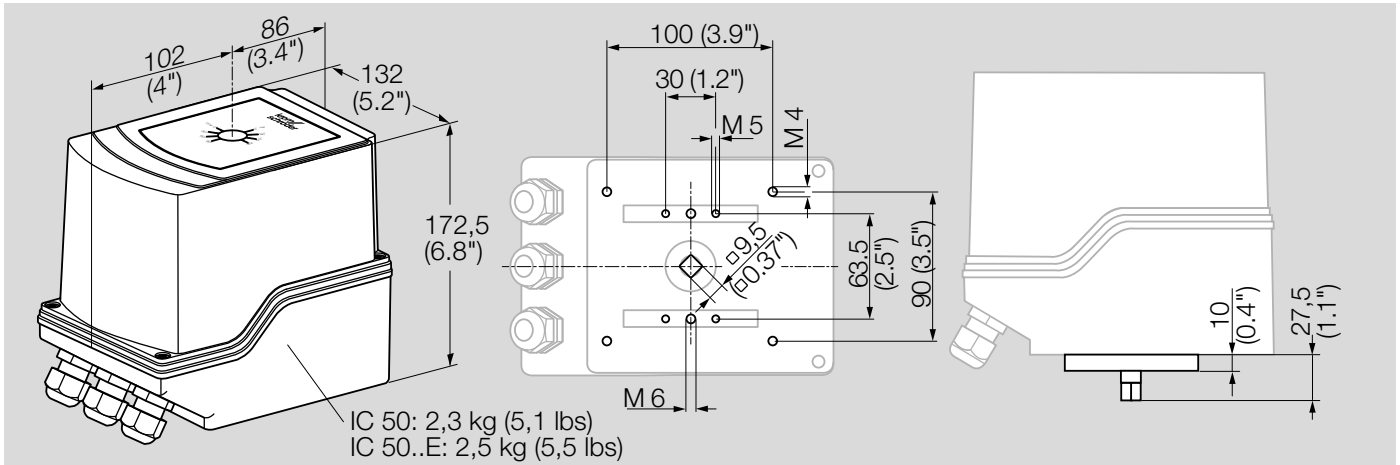
Dimensions of IC 20 with VFC, see Technical Information: Linear flow controls VFC

7.5 IC 30 dimensions



Dimensions of IC 30 with VFC, see Technical Information:
Linear flow controls VFC

7.6 IC 50 dimensions



Dimensions of IC 50 with butterfly valve DKR and various attachment sets, see Technische Information: Drosselklappen DKR.

For more information

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