

Linear flow control with actuator IFC

Product brochure · GB

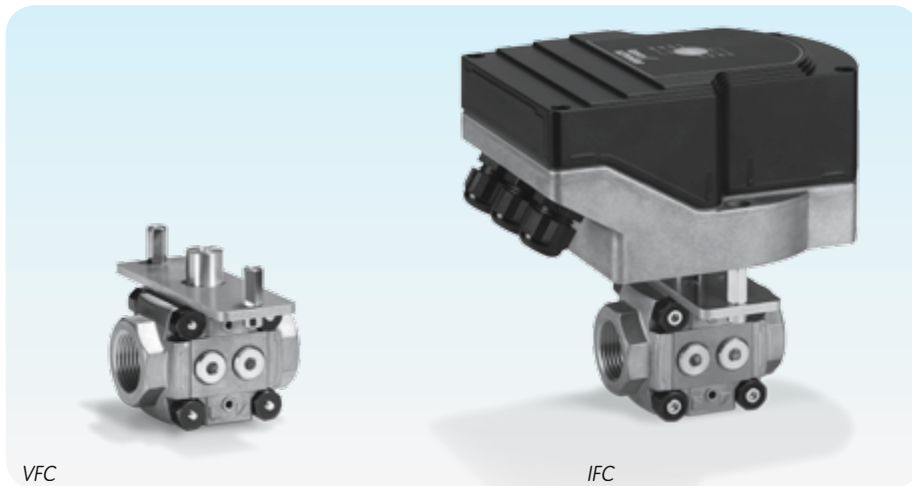
3 Edition 01.14



CE

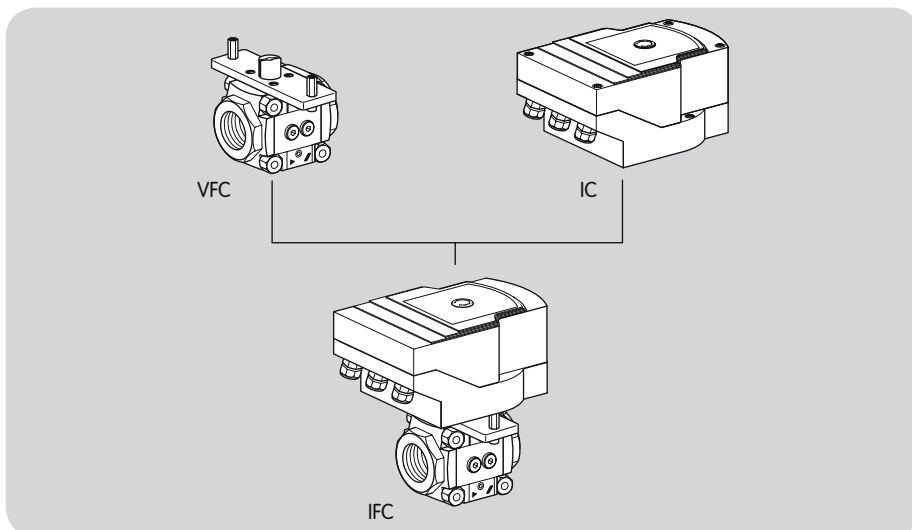
- Linear relationship between adjustment angle and flow rate
- Large control ratio of 25:1
- EC type-tested and certified
- Actuators IC 20 or IC 40 mounted directly
- For gas and air
- Low leakage rates
- High control accuracy

Application

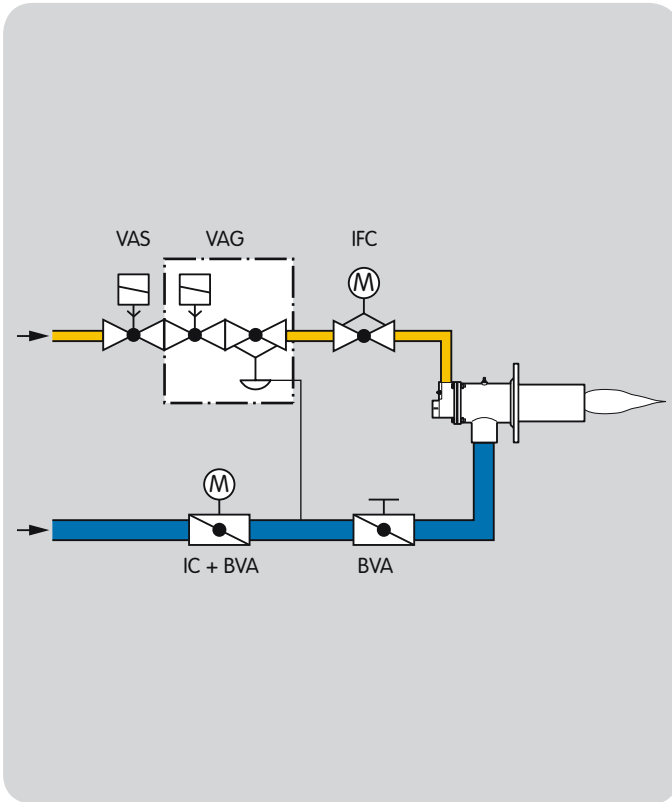


The IFC is composed of linear flow control VFC and actuator IC 20 or IC 40. It is designed to adjust volumes of gas and cold air on various appliances. The IFC is designed for control ratios up to 25:1 and is suitable for regulating flow rates for modulating or stage-controlled combustion processes.

Actuator IC 20 is controlled by a modulating signal or three-point step signal. Actuator IC 40 offers additional functions. It can be adjusted using the BCSoft programming software via an optical interface. The control type (two-point signal, three-point step signal or continuous control), running times, angles of rotation and intermediate positions can thus be programmed.

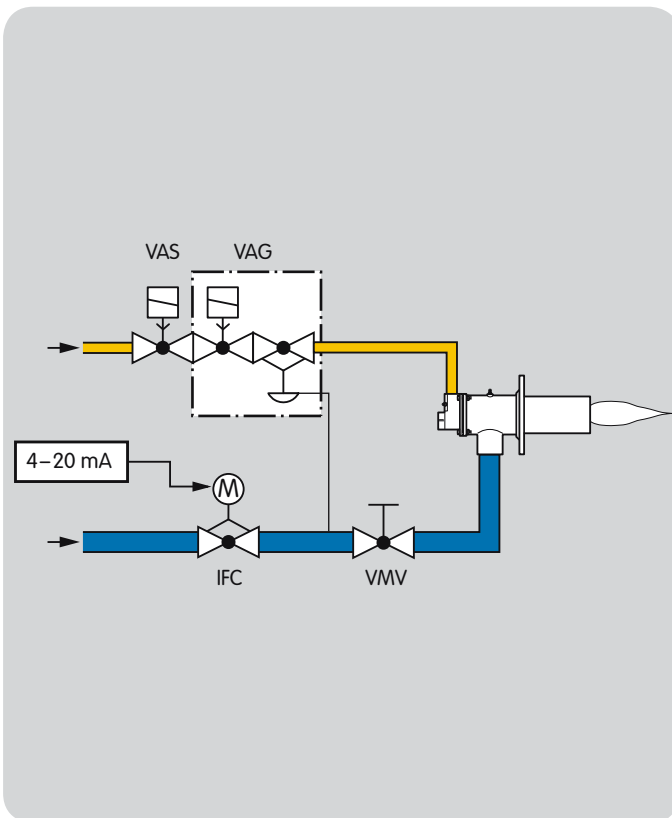


Examples of application



Lambda control

If the burner is to be operated with different lambda values for process reasons, the IFC can be used to correct the lambda value.



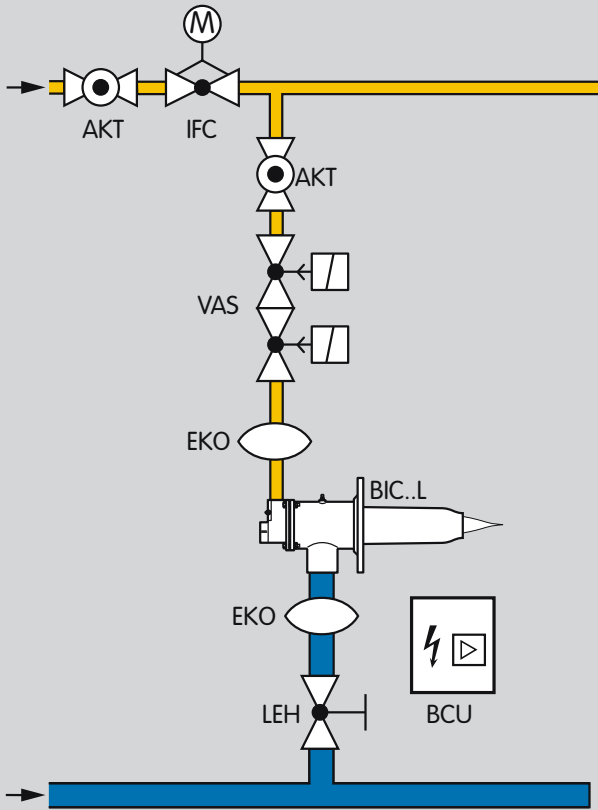
Adjusting the burner capacity

In pneumatic ratio control systems, the IFC with actuator IC 20..E determines the air volume for the required burner capacity.

The fine-adjusting valve VMV is used to adjust the high-fire rate.

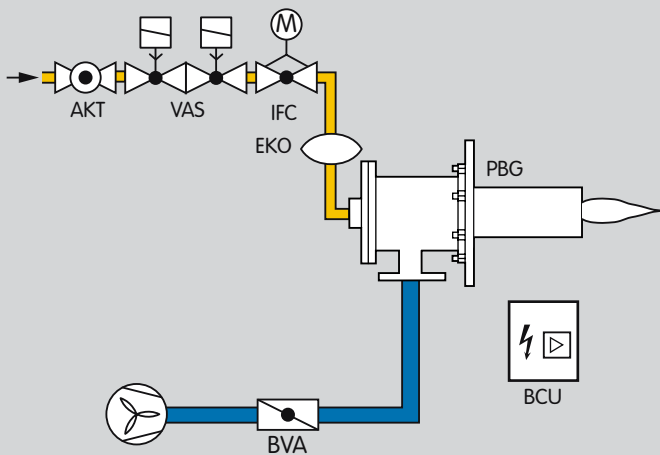
Zone control

After initiating the burner control unit, the gas solenoid valves open and the IFC is set to ignition position. The burner is ignited by the burner control unit BCU. The gas flow rate can be adjusted continuously using the IFC. The air flow rate remains constant.



Excess air burner

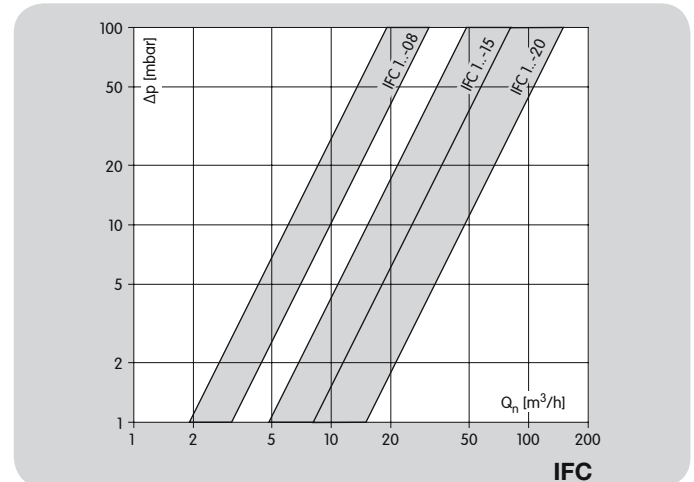
After initiating the burner control unit, the IFC moves to the ignition position. The burner is ignited by the burner control unit BCU. The gas flow rate can be adjusted continuously using the IFC. The air flow rate remains constant.



IFC, VFC type code

Code	Description
VFC	Linear flow control
IFC	Linear flow control with actuator
1	Size 1
T	T-product
10, 15, 20, 25	Inlet flange nominal size
-	No inlet flange
/10, /15, /20, /25	Outlet flange nominal size
/-	No outlet flange
R	Rp internal thread
N	NPT internal thread
05	$p_{U \max.}$ 500 mbar
-08	Cylinder
-15	
-20	
Accessories, right, inlet	
P	Plug
M	Pressure test point
1	Pressure switch for gas DG 17VC
2	Pressure switch for gas DG 40VC
3	Pressure switch for gas DG 110VC
4	Pressure switch for gas DG 300VC
-	No accessories
Accessories, right, outlet	
P	Plug
M	Pressure test point
1	Pressure switch for gas DG 17VC
2	Pressure switch for gas DG 40VC
3	Pressure switch for gas DG 110VC
4	Pressure switch for gas DG 300VC
-	No accessories
The same accessories can be selected for the left- or right-hand side.	
/20	Actuator IC 20
/40	Actuator IC 40
-07	Running time: 7.5 s/90°
-15	Running time: 15 s/90°
-30	Running time: 30 s/90°
-60	Running time: 60 s/90°
W	Mains voltage: 230 V AC, 50/60 Hz
Q	Mains voltage: 120 V AC, 50/60 Hz
A	Mains voltage: 100 – 230 V AC, 50/60 Hz
2	Torque: 2.5 Nm
3	Torque: 3 Nm
T	Three-point step control
E	Continuous control 0 (4)–20 mA, 0–10 V
D	Digital input
A	Analogue input 4–20 mA
R10	Feedback potentiometer: 1000 Ohm

Flow rate



Technical data

VFC

Gas types: natural gas, LPG (gaseous), biologically produced methane (max. 0.1 %-by-vol. H₂S) or clean air; other types of gas on request. The gas must be dry in all temperature conditions and must not contain condensate.

Control ratio: 25:1.

Leakage rate: < 2% of k_{VS} value.

Max. inlet pressure $p_{U \max}$: 500 mbar.

Running times:

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

IC 40: 4.5 s–76.5 s.

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

Housing material: aluminium,
control cylinder: POM,
seal: NBR.

Ambient temperature: -20 to +60°C
(-4 to +140°F).

Installation position: any; in conjunction with IC in the vertical upright position or tilted up to the horizontal, not upside down.

IC 20, IC 20..E

Mains voltage:

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

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

Screw terminals using the elevator principles for cables up to 4 mm² (single core cables) and for cables up to 2.5 mm² with wire end ferrules.

Angle of rotation: 0–90°, adjustable.

Holding torque = Torque.

Control by three-point step signal to terminals 1 and 2:

minimum pulse duration: 100 ms,

minimum pause between 2 pulses:

100 ms.

Switching capacity of the position switches:

Voltage	Resistive load	Incand. lamp load	Inductive load
125 V AC	2 A	0.5 A	2 A
250 V AC	2 A	0.5 A	2 A
< 30 V DC	2 A	2 A	2 A
< 50 V DC	1 A	0.4 A	1 A
< 75 V DC	0.75 A	0.3 A	0.75 A
< 125 V DC	0.5 A	0.2 A	0.03 A
< 250 V DC	0.25 A	0.1 A	0.03 A
12–30 V AC/DC	10–100 mA	–	10–100 mA

Enclosure: IP 65 pursuant to IEC 529.

Safety class: I pursuant to EN 60335.

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

Ambient temperature: -20 to +60°C
(-4 to +140°F), no condensation permitted.

IC 20

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

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.

IC 40

Mains voltage:
IC 40: 100–230 V AC, ±10%, 50/60 Hz; the
actuator automatically adjusts to the re-
spective mains voltage.

Power consumption: 8.4 W,
switch-on peak current: max. 8 A for max.
10 ms.

Screw terminals using the elevator princi-
ples for cables up to 4 mm² (single core
cables) and for cables up to 2.5 mm² with
wire end ferrules.

Angle of rotation: 0–90°.

Holding torque = torque as long as per-
manent supply voltage is applied.

2 digital inputs:
IC 40: 24 V DC or 100–230 V AC each. Cur-
rent requirement of digital inputs: 3 mA ±
1.5 mA.

1 analogue input (optional): 4–20 mA
(internal load impedance: max. 500 Ω at
20 mA).

Potentiometer (optional):
1000 Ohm +/- 20%,
linearity tolerance +/- 2%,
max. capacity 0.25 W,
conductive plastic element.

Important: tap wiper at high resistance.

2 digital outputs:
signalling contacts designed as relay
change-over contacts. Contact current of
digital outputs: min. 5 mA (resistive) and
max. 2 A.

The relay contacts can be connected to
100–230 V AC or 24 V DC. If the contacts
have been connected with a voltage
> 24 V and a current > 0.1 A once, the gold
plating on the contacts will have been
burnt through. This contact can then only
be connected with this power rating or
higher power rating.

2 LED status displays:

- Blue LED for operation "ON";
drive in motion = slow flashing light;
manual operation = fast flashing light;
drive stopped = permanent light.
- Red LED for warnings and faults;
warning = permanent light;
fault = flashing light.
- Red and blue LED simultaneously,
calibration in progress = flashing light.

Enclosure: IP 65 pursuant to IEC 529.

Safety class: I pursuant to EN 60335.

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

Ambient temperature: -20 to +60°C
(-4 to +140°F), no condensation permitted.



Detailed information on this product



http://docuthek.kromschroeder.com/doclib/main.php?language=1&folderid=401140&by_class=6

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