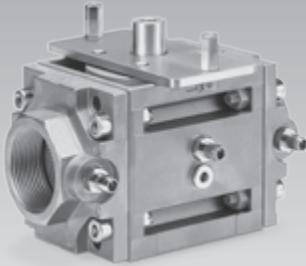


Operating instructions

Linear flow control LFC



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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.

Transport

On receipt of the product, check that the delivery is complete (see Part designations). Report any transport damage immediately.

Storage

Store the product in a dry place. Ambient temperature: see Technical data.

Changes to edition 05.09

The following chapters have been changed:

- Declaration of conformity
- Updating of symbols

Checking the usage

LFC

Linear flow control to adjust volumes of gas and cold air on various appliances. With mounted actuator IC 20 or IC 40, the LFC is suitable for regulating flow rates for control ratios up to 25:1 in modulating or stage-controlled combustion processes.

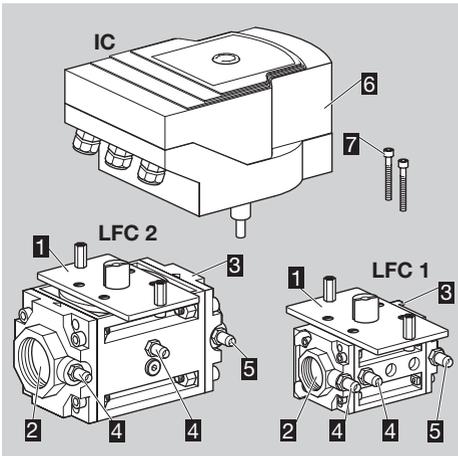
This function is only guaranteed when used within the specified limits – see also Technical data. Any other use is considered as non-compliant.

Type code

Code	Description
LFC	Linear flow control
108	Size 108
115	Size 115
120	Size 120
232	Size 232
/10 – /40	Nominal connection diameter*
R	Rp internal thread
ML	MODULINE system
05	$p_{u \text{ max.}}$ 500 mbar

* Only in conjunction with Rp internal thread.

Part designations



- 1 Mounting for actuator IC 20, IC 40
- 2 Inlet flange
- 3 Outlet flange
- 4 Test point for inlet pressure p_u
- 5 Test point for outlet pressure p_d
- 6 Actuator IC 20, IC 40 (supplied separately)
- 7 Fastening set (supplied separately)

▷ Inlet pressure p_u – see type label.

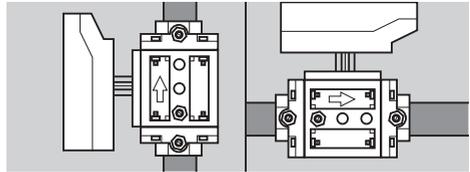


Installation

! CAUTION

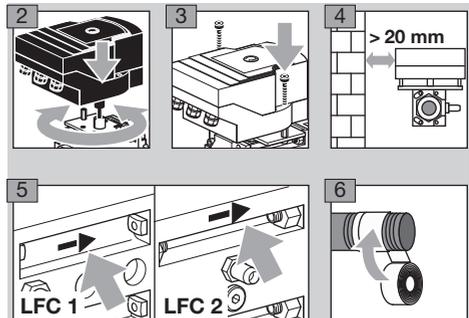
Please observe the following to ensure that the LFC is not damaged during the installation:

- Sealing material, cuttings and other impurities must not be allowed to get into the housing.
- The installation location must be dry. Do not install the unit in the open air.
- Use approved sealing material only.
- Install the LFC in the pipe free of mechanical stress.
- Do not clamp the unit in a vice or use it as a lever. Only secure the flange by holding the octagon with a suitable spanner. Risk of external leakage.
- Installation of IC 20, IC 40 in the vertical or horizontal position, never upside down.
- Max. inlet pressure $p_{u \text{ max.}}$ 500 mbar.

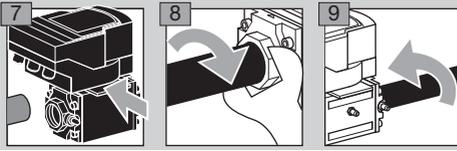


Linear flow control LFC and actuator IC are supplied separately:

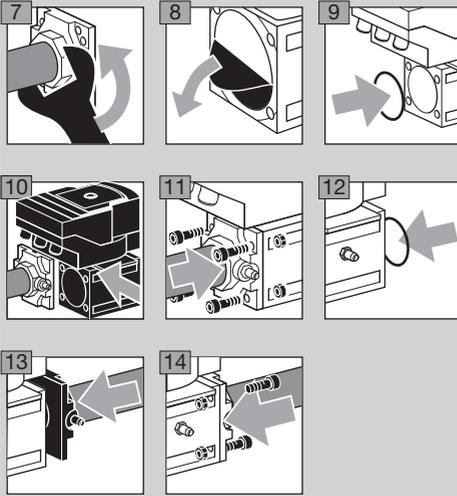
- ▷ The LFC and IC can be assembled before or after the LFC has been installed in the pipework.
 - ▷ The fastening set for the assembly of LFC and IC is supplied separately – see Accessories.
- 1 Install a filter upstream of the LFC in order to protect it against impurities in the pipe.
- ▷ The IC may be installed offset by 180°.



- ▷ The LFC is installed in-between two flanges.



- ▷ The LFC has been supplied without flanges.



Wiring

- ▷ Electrical connection of the IC (see operating instructions "Actuators IC 20, IC 40, IC 40S, Butterfly valves BVG, BVA, BVH, BVHS").

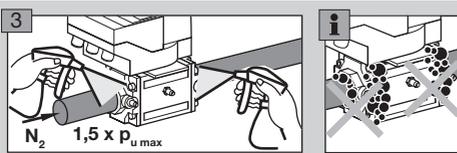
Tightness test

- ▷ Shut off the gas supply.

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

The LFC is in the closed position once the IC has been installed.

- 2 Set the IC 20 in Manual mode, or the IC 40 using BCSofT, to 100% open position (see operating instructions "Actuators IC 20, IC 40, IC 40S, Butterfly valves BVG, BVA, BVH, BVHS", Commissioning).

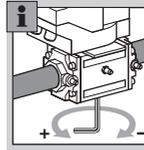


- ▷ Remove the blanking plate or open the solenoid valve for gas downstream of the LFC.

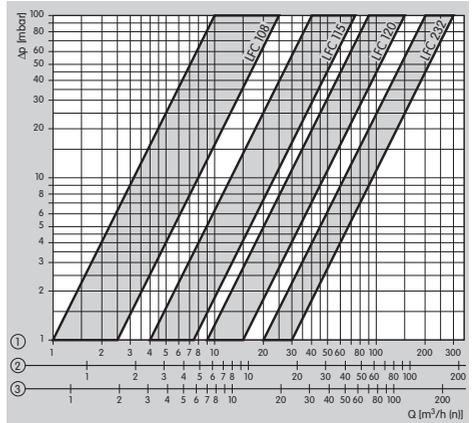
- 4 Once the tightness test has been carried out successfully, move the LFC to the closed position once more using the actuator IC.

Setting the flow rate

- ▷ The maximum flow rate can be adjusted using the adjusting spindle (2.5 Allen key) in the base plate: turning it clockwise will decrease the volume, turn it anti-clockwise will increase the volume.
- ▷ The LFC is set to the maximum flow rate at the factory.



- ▷ The LFC is controlled by the IC (see operating instructions "Actuators IC 20, IC 40, IC 40S, Butterfly valves BVG, BVA, BVH, BVHS").



- ① = Natural gas, $dv = 0.62$

- ② = LPG, $dv = 1.56$

- ③ = Air, $dv = 1.00$

- ▷ The characteristic curves are measured at 15°C with a measurement set-up in accordance with the standards EN 13611/EN 161. This involves measuring the pressure $5 \times DN$ upstream and downstream of the unit under test. The pressure drop of the pipe is also measured but is not compensated for.

Left curve:

Min. flow rate adjustable by flow restricting cylinder.

Right curve:

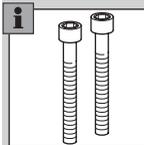
Max. flow rate with restricting cylinder fully open.

Accessories

Fastening set

For the assembly of LFC and IC. The fastening set is fitted at the factory or delivered enclosed as an additional item.

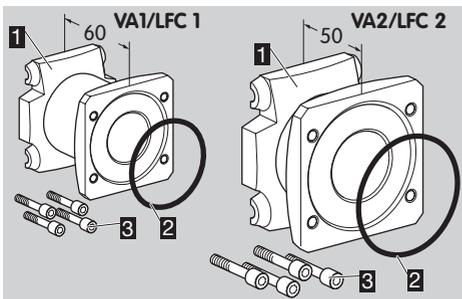
Fastening set IC-BVG/BVA/BVH/LFC /B (enclosed)	Order No. 74921082
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Flange set for Moduline

For attaching solenoid valves for gas VAS 1/ VAS 2 or double solenoid valves VCS 1/VCS 2 to LFC 1/LFC 2:

Flange set	Order No.
VA1/LFC 1	74922171
VA2/LFC 2	74922172



- 1** 1 x flange LFC 1/LFC 2
- 2** 1 x O-ring
- 3** 4 x set screws M5 x 16

Maintenance

In order to ensure smooth operation:

- ▷ For operation with natural gas, town gas and LPG, check the function annually.
- ▷ For operation with biologically produced methane, service every half year.
- ▷ After carrying out the maintenance work, check for tightness.

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.

Technical data

Gas type: natural gas, town gas, LPG and air.

Control ratio: 25:1.

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

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

Running times: 7.5 s, 15 s, 30 s, 60 s.

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

Housing material: aluminium,
control cylinder: POM.

Ambient temperature: -20 to +60°C.

Installation position: any.

Declaration of conformity



We, the manufacturer, hereby declare that the product LFC, marked with product ID No. CE-0085AP0254, complies with the requirements of the listed Directives and Standards.

Directives:

- 90/396/EEC
- 2006/95/EC
- 2004/108/EC

Standards:

- EN 161

The relevant product corresponds to the type tested by the notified body 0085.

The production is subject to the surveillance procedure pursuant to DIN EN ISO 9001 according to annex II, paragraph 3 of Directive 90/396/EEC.

Elster GmbH

Scan of the Declaration of conformity (D, GB) – see www.docuthek.com

Approval for Russia



Certified by Gosstandart under Technical Regulations. Approved by Rostekhnadzor (RTN).

elster
Kromschroeder

Elster GmbH
Postfach 28 09, D-49018 Osnabrück
Strothweg 1, D-49504 Lotte (Büren)

T +49 541 1214-0

F +49 541 1214-370

info@kromschroeder.com, www.kromschroeder.com