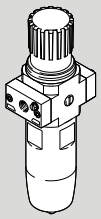
LFR-...-EX4-...
Filter regulator



FESTO

Festo SE & Co. KG
Ruiter Straße 82
73734 Esslingen
Germany
+49 711 347-0

www.festo.com

Instructions | Operating

8107996
2019-02b
[8107185]

Translation of the original instructions

1 Identification EX

Identification mark		
Ex	II 2G	Ex h IIC T6 Gb X
Ex	II 2D	Ex h IIIC T85°C Db X

Tab. 1

2 Further applicable documents

NOTICE!

Technical data for the product can have different values in other documents. For operation in an explosive atmosphere, the technical data in this document always have priority.

All available documents for the product ➔ www.festo.com/pk.

3 Safety

3.1 Safety instructions

- The device can be used under the stated operating conditions in zone 1, explosive gas atmospheres, and in zone 21, explosive dust atmospheres.
- The product may only be used in its original status without unauthorised modifications.
- Only use the product if it is in perfect technical condition.
- All work must be carried out outside of potentially explosive areas.
- Observe the specifications on the product labelling.
- Earth the device via the earthing screw.
- Only use media in accordance with the specifications ➔ 11 Technical data.

3.2 Intended use

The filter regulating valve LFR regulates the compressed air in the subsequent string to the set output pressure. The LFR thereby smoothes out pressure fluctuations.

3.3 Identification X: special conditions

- Danger of electrostatic discharge.
- Ambient temperature T18: –20 °C ≤ T_a ≤ +80 °C
- Ambient temperature T3: –40 °C ≤ T_a ≤ +80 °C

4 Further information

- Accessories ➔ www.festo.com/catalogue.
- Spare parts ➔ www.festo.com/spareparts.

5 Service

Contact your regional Festo contact person if you have technical questions ➔ www.festo.com.

6 Product overview

6.1 Function

The filter regulating valve LFR removes dirt particles and condensate. The output pressure can be adjusted within the pressure range.

6.2 Product variants

Ambient temperature T18: -20 °C ... +80 °C

Connection	Type	Part number
¼"	LFR-1/4-D-5M-O-MIDI-T18-EX4	4772764
	LFR-1/4-D-O-MIDI-T18-EX4	4772765
	LFR-1/4-D-16-5M-O-MIDI-T18-EX4	4772766
	LFR-1/4-D-16-O-MIDI-T18-EX4	4772767
	LFR-N1/4-D-5M-O-MIDI-T18-EX4	4772772
	LFR-N1/4-D-O-MIDI-T18-EX4	4772773
	LFR-N1/4-D-16-5M-O-MIDI-T18-EX4	4772774
	LFR-N1/4-D-16-O-MIDI-T18-EX4	4772775
½"	LFR-1/2-D-5M-O-MIDI-T18-EX4	4772768
	LFR-1/2-D-O-MIDI-T18-EX4	4772769
	LFR-1/2-D-16-5M-O-MIDI-T18-EX4	4772770
	LFR-1/2-D-16-O-MIDI-T18-EX4	4772771
	LFR-N1/2-D-5M-O-MIDI-T18-EX4	4772776
	LFR-N1/2-D-O-MIDI-T18-EX4	4772777
	LFR-N1/2-D-16-5M-O-MIDI-T18-EX4	4772778
	LFR-N1/2-D-16-O-MIDI-T18-EX4	4772779

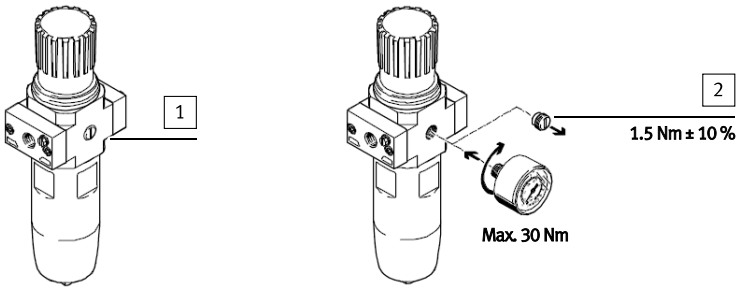
Tab. 2

Ambient temperature T3: -40 °C ... +80 °C

Connection	Type	Part number
¼"	LFR-1/4-D-5M-O-MIDI-T3-EX4	5271792
	LFR-1/4-D-O-MIDI-T3-EX4	5271793
	LFR-1/4-D-16-5M-O-MIDI-T3-EX4	5271794
	LFR-1/4-D-16-O-MIDI-T3-EX4	5271795
	LFR-N1/4-D-5M-O-MIDI-T3-EX4	5271800
	LFR-N1/4-D-O-MIDI-T3-EX4	5271801
	LFR-N1/4-D-16-5M-O-MIDI-T3-EX4	5271802
	LFR-N1/4-D-16-O-MIDI-T3-EX4	5271803
½"	LFR-1/2-D-5M-O-MIDI-T3-EX4	5271796
	LFR-1/2-D-O-MIDI-T3-EX4	5271797
	LFR-1/2-D-16-5M-O-MIDI-T3-EX4	5271798
	LFR-1/2-D-16-O-MIDI-T3-EX4	5271799
	LFR-N1/2-D-5M-O-MIDI-T3-EX4	5271804
	LFR-N1/2-D-O-MIDI-T3-EX4	5271805
	LFR-N1/2-D-16-5M-O-MIDI-T3-EX4	5271806
	LFR-N1/2-D-16-O-MIDI-T3-EX4	5271807

Tab. 3

7 Assembly and installation



1 Indication of flow direction
2 Plug screw

Fig. 1

7.1 Filter regulator

1. Observe the flow direction 1 after 2.
2. Place the device at least 80 mm below the filter bowl.
3. Position the device vertically (± 5°).

When assembling filter combinations, observe the sequence along the flow direction.

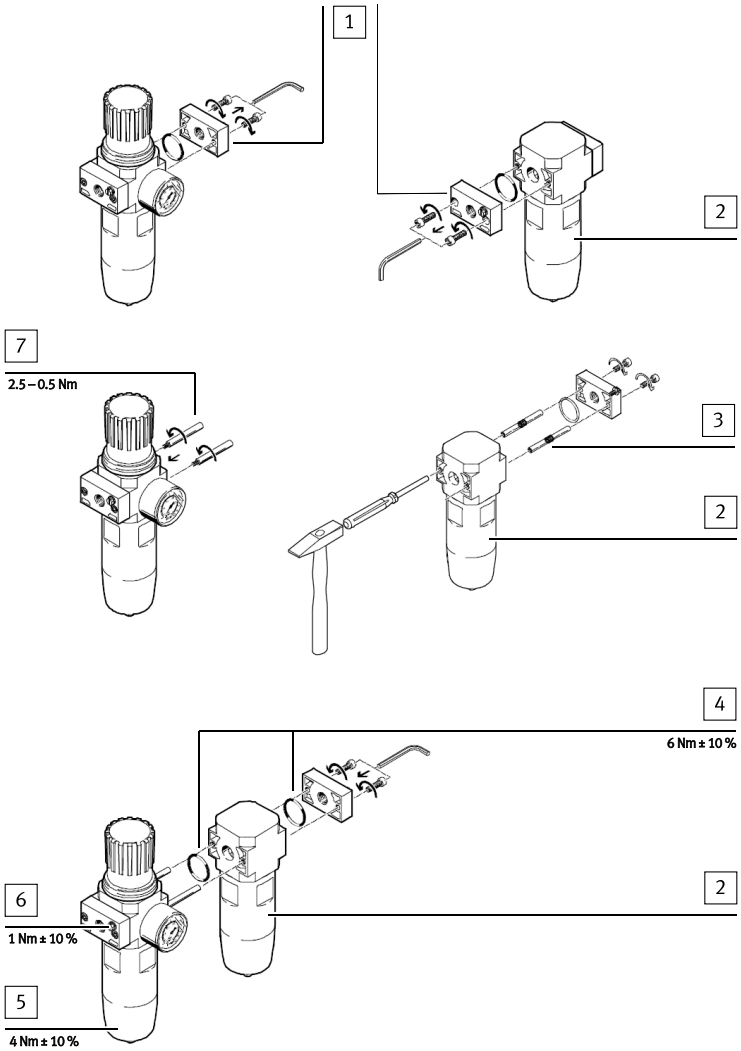
7.2 Pressure gauge

1. Remove the plug screw 2.
2. Turn pressure gauge with seal to the stop.

7.3 Assembly with a service unit component of the same size

NOTICE!

If non-Ex products are used, certification is revoked.



1 Sub-base
2 Existing service unit component (non-Ex product)
3 Spacer bolt
4 Seal
5 Filter bowl
6 Earthing screw
7 Threaded bolt FRB-D (not in scope of delivery)

Fig. 2

1. Remove sub-base 1 from both devices on the sides to be fitted together.
2. Screw the threaded bolt 7 into the device.
3. Remove the sub-base from the respective add-on device and drive out the corresponding spacer bolts 3 (drive out in the flow direction).
4. Mount the add-on device with the sub-base. Insert a seal 4 between the individual devices and the sub-base.

7.4 Installation on pneumatic actuators

- Screw the connectors into the pneumatic connections using a suitable sealing material.

8 Commissioning

⚠ WARNING!

The discharge of electrostatically charged parts can lead to ignitable sparks.

- Prevent electrostatic charging by taking appropriate installation and cleaning measures.
- Include the device in the system equipotential bonding.
- Operation without the rotary knob is not permissible.
- Use the knurled nut only for installation with an earthed mounting bracket. When using other mounting components, remove the knurled nut.

NOTICE!

The input pressure p1 is at least 1 bar higher than the output pressure p2.

NOTICE!

Strong charge-generating processes can charge non-conductive layers and coatings on metal surfaces.

NOTICE!

Escaping exhaust air can swirl up dust and create an explosive dust atmosphere.

NOTICE!

Particulate matter in the compressed air can cause electrostatic charges.

NOTICE!

Related type of ignition protection: c (constructional safety)

1. Unlock the rotary knob. To do this, pull the rotary knob away from the housing.
2. Turn the rotary knob closed (direction "–").
3. Pressurise the system slowly.
4. Open the rotary knob (direction "+") until the desired pressure is displayed on the pressure gauge.
5. Lock the rotary knob. To do this, press the rotary knob towards the housing.

9 Service

The condensate can be drained using the screw in regular intervals, depending on the application.

Replacing the filter cartridge

1. Exhaust the device.
2. Unscrew the filter bowl.
3. Unscrew the filter plate.
4. Remove the used filter cartridge.
5. Place a new filter cartridge on the filter plate and secure it in place.
6. Tighten the filter bowl.
7. Re-commissioning ➔ 8 Commissioning.

Cleaning

- Clean the device, if required, with a soft cloth.

Permissible cleaning agents:

– Soap suds (max. +60 °C)
– Petroleum ether (free of aromatic compounds)

10 Malfunctions

Malfunction	Remedy
Low flow rate (operating pressure breaks down with air consumption)	Replace the filter cartridge.
	Control the cable between shut-off valve and service unit.
Pressure increases above the set working pressure	Replace device.
Blowing noise can be heard at the rotary knob	
Blowing noise can be heard at the drain screw.	Tighten the drain screw or replace the device.

Tab. 4

11 Technical data

Operating conditions		
Operating medium		Compressed air to ISO 8573-1:2010:[-:9-]
Mounting position		Vertical ±5°
Flow direction		See direction of arrow on the device
Operating pressure p1	[bar]	1 … 20
	[MPa]	0.1 … 2
Pressure regulation range p2		
LFR-…D-…O-MIDI-…EX4-…	[bar]	0.5 … 12
	[MPa]	0.05 … 1.2
LFR-…D-16-…O-MIDI-…EX4-… (at +60 °C … +80 °C)	[bar]	0.5 … 16 (p2 = max. 12)
	[MPa]	0.05 … 1.6 (p2 = max. 1,2)
Temperature of medium/ambient temperature/storage temperature:		
LFR-…-D-…-O-MIDI-T18-EX4-…	[°C]	–20 … +80
LFR-…-D-…-O-MIDI-T3-EX4-…	[°C]	–40 … +80
Materials		
Housing		Zn
Seal		NBR
Filter cartridge		PE
Plug screw, rotary knob		POM
Knurled nut, outlet, filter bowl		Al, coated (CRC 3)

Tab. 5