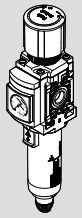
MS4-LFR-...-B

Filter regulator



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Operating instruction

8181872
2023-02b
[8181874]

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Translation of the original instructions

1 Applicable documents

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

Document	Product	Contents
Assembly instructions	Mounting bracket MS4/6-WR	–
Assembly instructions	Wall mounting kit MS...-WPE(-B)	–

Tab. 1: Applicable documents

2 Safety

2.1 Safety instructions

- Only use the product in its original condition without unauthorised modifications.
- Only use the product if it is in perfect technical condition.
- Observe the identifications on the product.
- Take into account the ambient conditions at the location of use.
- Before working on the product, switch off the compressed air supply and lock it to prevent it from being switched on again.

2.2 Intended use

The filter regulator controls the compressed air in the downstream string at the specified outlet pressure. The filter regulator smooths pressure fluctuations and removes dirt particles and condensate from the compressed air.

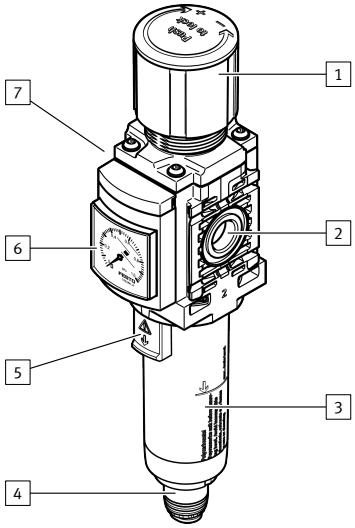
2.3 Training of qualified personnel

Work on the product may only be carried out by qualified personnel who can evaluate the work and detect dangers. The qualified personnel have knowledge and experience in pneumatics.

3 Additional information

- Contact the regional Festo contact if you have technical problems ➔ www.festo.com.
- Accessories ➔ www.festo.com/catalogue.

4 Product design



1 Rotary knob
2 Pneumatic port P2
3 Filter bowl
4 Drain screw
5 Lock release
6 Pressure gauge
7 Pneumatic port P1

Fig. 1: Product design

5 Assembly

5.1 Preparing assembly

For use with reduced particle emission:

- Remove soil from the product.

5.2 Direct fastening

- Space required above the product: ≥ 20 mm
- Space required under the product: ≥ 30 mm
- Space required left and right of the product: ≥ 30 mm
- Shut-off valves are installed in the compressed air supply line.
- The maximum permissible wall thickness is 2.5 mm.

1. Align the product vertically in the flow direction from 1 to 2. Use the numbers and the directional arrow on the product housing for orientation.
2. Pull the rotary knob upwards. If necessary, remove the padlock and push in the release lock.
3. Slide the regulator head through the hole in the mounting surface.
4. Tighten the hex nut MS4-WRS ➔ 3 Additional information. Tightening torque: 9 Nm ± 10%.
5. Press the rotary knob to lock it.

5.3 Wall mounting

- Space required above the product: ≥ 20 mm
- Space required under the product: ≥ 30 mm
- Space required left and right of the product: ≥ 30 mm
- Shut-off valves are installed in the compressed air supply line.

1. Align the product vertically in the flow direction from 1 to 2. Use the numbers and the directional arrow on the product housing for orientation.
2. Fasten the product to the mounting surface with the mounting accessories ➔ 3 Additional information.

6 Installation, pneumatic

1. Use fittings, seals and suitable tubing from the Festo catalogue ➔ 3 Additional information.
2. Screw the fittings into the pneumatic ports.
3. Note the maximum screw-in depth of the connector thread. Screwing in deeper will reduce the flow rate and can damage the housing. Maximum screw-in depth: 8.5 mm
4. Insert suitable tubing into the fitting to the stop.
   - Position tubing axial to the pneumatic ports.
   - Do not bend the tubing more than the minimum bending radius.

7 Commissioning

1. Pull the rotary knob [1] to unlock it.
2. Turn the rotary knob [1] completely in the – direction.
3. Pressurise the system slowly: turn the rotary knob in the + direction until the desired pressure is reached.
   Maintain the permissible pressure regulation range ➔ 10 Technical data.
   The input pressure p1 should be at least 0.05 MPa (0.5 bar; 7.3 psi) higher than the set output pressure p2 at all times.
4. Press the rotary knob [1] to lock it.

8 Maintenance

8.1 Draining condensate

Draining condensate

If the condensate reaches a level approx. 10 mm below the filter element:

1. Turn the drain screw [4] anticlockwise as seen from below.
   ↳ The condensate drains out.
2. Turn the drain screw [4] clockwise as seen from below.

Draining condensate automatically
The filter drains automatically.

8.2 Changing the filter

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Replace the filter cartridge if the flow rate is reduced even though the pressure setting is unchanged.

1. Exhaust the product.
2. Pull the lock release [5] on the filter bowl down.
3. Turn the filter bowl [3] anticlockwise manually (as seen from below) until the stop can be felt.
4. Pull filter bowl [3] from the housing.
5. Unlock the latch on the support module by pressing in on the upper edge.
6. Pull the support module upwards.
7. Unscrew the spin disc and remove the filter support.
8. Install new filter cartridge:
   – Grip the filter cartridge and push it onto the filter support.
   – Screw in the spin disc. Tightening torque: 0.4 Nm ± 10%
9. Press the spin disc into the filter bowl until the lock audibly engages at the end stop.
10. Mount the filter bowl [3]:
    – Align the lock release of filter bowl with the cutout on the housing and insert it.
    – Turn the filter bowl clockwise until the lock audibly engages at the end stop.

8.3 Cleaning

- Clean the outside of the product as required with a soft cloth.
  Permissible cleaning agents:
  – Soap solution, maximum +60 °C
  – Petroleum ether, free of aromatic compounds

9 Fault clearance

Malfunction	Cause	Remedy
A low flow rate, the operating pressure is lost with air consumption.	The supply line is constricted.	– Check the line.
	The filter cartridge is dirty.	– Replace the filter cartridge ➔ 8 Maintenance.
The pressure increases above the set working pressure.	The valve disc at the sealing seat is defective.	– Replace the product.
A continuous audible blowing noise at the rotary knob.	The valve seat is damaged.	– Replace the product.
An audible blowing noise at the drain screw.	The drain screw is leaking.	– Replace the product.

Tab. 2: Fault clearance

10 Technical data

10.1 Technical data, mechanical

MS4-LFR-...-B		-M	-VC
Mounting position	[°]	Vertical ± 5	
Condensate drain function		Manual rotating	Manual non-detenting
			Fully automatic
Vibration resistance in accordance with IEC 60068-2-6		Severity level 1	
Shock resistance in accordance with IEC 60068-2-27		Severity level 1	
Pneumatic port P1		G 1/4	
Pneumatic port P2			
Temperature of medium	[°C]	–5 ... +50	5 ... 50
Ambient temperature	[°C]	–5 ... +50	5 ... 50
Storage temperature	[°C]	–5 ... +50	

Tab. 3: Technical data, mechanical

Type of severity level (SL)					
Vibration load					
Frequency range [Hz]		Acceleration [m/s²]		Deflection [mm]	
SL1	SL2	SL1	SG2	SL1	SL2
2 … 8	2 … 8	–	–	±3.5	±3.5
8 … 27	8 … 27	10	10	–	–
27 … 58	27 … 60	–	–	±0.15	±0.35
58 … 160	60 … 160	20	50	–	–
160 … 200	160 … 200	10	10	–	–
Shock load					
Acceleration [m/s²]		Duration [ms]		Shocks per direction	
SL1	SL2	SL1	SL2	SL1	SL2
±150	±300	11	11	5	5

Type of severity level (SL)		
Continuous shock load		
Acceleration [m/s²]	Duration [ms]	Shocks per direction
±150	6	1000

Tab. 4: Type of severity level (SL)

10.2 Technical data, pneumatic

MS4-LFR-...-B		-M	-VC
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
		Inert gases	
Information on the operating medium		Not compatible with ester oil.	
Air purity class at the output			
MS4-LFR-...-C-...-B Grade of filtration 5 µm		Compressed air to ISO 8573-1:2010 [6:4:4]	
MS4-LFR-...-E-...-B Grade of filtration 40 µm		Compressed air to ISO 8573-1:2010 [7:4:4]	
Pressure regulation range	[MPa]	0.03 ... 0.7	
	[bar]	0.3 ... 7	
	[psi]	4.35 ... 105	
Operating pressure	[MPa]	0.1 ... 1	0.2 ... 1
	[bar]	1 ... 10	2 ... 10
	[psi]	15 ... 145	29 ... 145
Standard nominal flow rate			
MS4-LFR-...-C-...-B Grade of filtration 5 µm	[l/min]	1500	
MS4-LFR-...-E-...-B Grade of filtration 40 µm	[l/min]	1700	

Tab. 5: Technical data, pneumatic