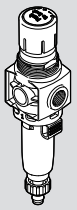
# MS2-LFR-...-B
## Filter regulator



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Operating instruction

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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 MS2-WR | – |

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.

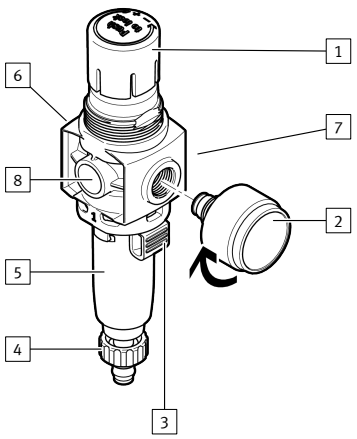
#### 2.3 Training of qualified personnel

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 | Pressure gauge |
| 3 | Lock release |
| 4 | Drain screw |
| 5 | Filter bowl |
| 6 | Plug screw (back) |
| 7 | Pneumatic port P2 |
| 8 | 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 2.0 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. Slide the regulator head through the hole in the mounting surface.
3. Tighten the nut MS2-WRS ➔ 3 Additional information. Tightening torque: 9 Nm ± 10%.

#### 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.

#### 5.4 Mounting pressure gauge

1. When using the Z variant:
   - Replace the plug screw and use the alternative port on the back of the product. Maximum tightening torque: 0.5 Nm
2. Turn the pressure gauge clockwise to the stop. The pressure gauge seal is pre-installed on the threaded connection journal.
3. Align scale. Unscrew pressure gauge anticlockwise and align the pressure gauge scale vertically (after screwing in to stop unscrew a maximum of 1 revolution).

### 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. 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 to unlock it.
2. Turn the rotary knob 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 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.

#### 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 with the rotary knob .
2. Press lock release on the filter bowl.
3. Turn the filter bowl anticlockwise manually (as seen from below) until the stop can be felt.
4. Pull filter bowl from the housing.
5. Unscrew the filter plate anticlockwise and remove the used filter cartridge.
6. Install new filter cartridge:
   - Hold the filter cartridge at the bottom and push it onto the support.
   - Screw in the filter plates. Tightening torque: 0.07 Nm ± 20%.
7. Mount the filter bowl :
   - 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

| MS2-LFR-...-B | | |
|---|---|---|
| Mounting position | [°] | Vertical ± 5 |
| Grade of filtration | [µm] | 5 |
| Condensate drain function | | Manual rotating |
| Vibration resistance in accordance with IEC 60068-2-6 | | Severity level 2 |
| Shock resistance in accordance with IEC 60068-2-27 | | Severity level 2 |
| Temperature of medium | [°C] | –5 ... +50 |
| Ambient temperature | [°C] | –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 |
| 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

| MS2-LFR-...-B | | |
|---|---|---|
| Operating medium | | Compressed air to ISO 8573-1:2010 [7:4:4] |
| Information on the operating medium | | Not compatible with ester oil. |
| Air purity class at the output | | Compressed air to ISO 8573-1:2010 [6:4:4] |
| Pressure regulation range | [MPa] | 0.05 ... 0.7 |
| | [bar] | 0.5 ... 7 |
| | [psi] | 7.25 ... 105 |
| Operating pressure | | |
| Pneumatic port M5 | [MPa] | 0.1 ... 1 |
| | [bar] | 1 ... 10 |
| | [psi] | 15 ... 145 |
| Pneumatic port QS6 | [MPa] | 0.1 ... 0.8 |
| | [bar] | 1 ... 8 |
| | [psi] | 15 ... 116 |
| Standard nominal flow rate | | |
| Pneumatic port M5 | [l/min] | 140 |
| Pneumatic port QS6 | [l/min] | 310 |

Tab. 5: Technical data, pneumatic