Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

With the Festo Core Range, we have selected the most important products and functions from our broad product catalogue, and added the quickest delivery.

The Core Range offers you the best value for your automation tasks.

| Worldwide: | Quickest delivery – wherever, whenever |
| Simply good: | Expected high Festo quality |
| Fast: | Easy and fast to select |
Key features

**Service unit components of the MS series**

Solutions for every application

Freely combinable function modules

With its large product range, highly effective components and a wide choice of functions, the MS series from Festo offers a complete concept for compressed air preparation. It is suitable for simple standard applications as well as application-specific solutions with very high quality requirements.

Available as individual components, pre-assembled combinations ex-stock, application-specific combinations or complete turnkey solutions. The five sizes in the MS series achieve maximum flow rates with minimum space requirements.

**Pressure regulators, on/off and soft-start valves with safety function, filters, pressure and flow sensors, dryers, sensors and lubricators can be assembled into a suitable solution for every task. With the modular structure the components can be combined as required. The simple connection system saves time because there is no need to disassemble the entire combination when replacing individual modules. Many of the components are also UL and ATEX certified.**

---

**Integrated sensors**

Pressure and flow sensors

Safety functions

Soft-start/quick exhaust valves

MS6-SV/MS9-SV

**Saving energy**

Service unit combinations MSE6

**Intelligent mix of sizes**

**CAD models and configurator**

Convenient tools for planning and selecting application-specific individual devices and combinations. The product configurator can be used to configure customised solutions quickly and to transfer the order data without any hassle.

**Engineering tools**

Selection tool for choosing the right combination of service unit components without oversizing, and with the right air purity class:

➡ www.festo.com/engineering/service unit

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**Integrated sensors**

- Maximum machine availability thanks to controlled processes
- Reliable air preparation and system supply
- Integrated or stand-alone
- Easy to connect with M8/M12 plug

**Safety functions**

- Fast and reliable exhausting of systems up to Performance Level e, certified to EN ISO 13849-1
- Integrated soft-start function

**Saving energy**

- Fully automatic monitoring and regulation of the compressed air supply
- Automatic shut-off of the compressed air in standby mode
- Detection and notification of leaks
- Condition monitoring of relevant process data
- Optimum flow rate with a size that is up to 18% smaller
- Excellent energy efficiency
- Cost-optimised combinations – save up to 30%

---

**Size differences**

<table>
<thead>
<tr>
<th>Size</th>
<th>MS4</th>
<th>MS6</th>
<th>MS9</th>
<th>MS12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid dimension [mm]</td>
<td>40</td>
<td>62</td>
<td>90</td>
<td>124</td>
</tr>
<tr>
<td>Connection sizes</td>
<td>G1/8, G1/4, G3/8</td>
<td>G1/4, G3/8, G1/2, G3/4</td>
<td>G1/2, G3/4, G1, G1 1/4, G1 1/2</td>
<td>G1, G1 1/4, G1 1/2, G2</td>
</tr>
<tr>
<td>Standard nominal flow rate qN[1] [l/min]</td>
<td>1800</td>
<td>6500</td>
<td>20000</td>
<td>20000</td>
</tr>
</tbody>
</table>

[1] Using pressure regulator MS-LR as an example
Key features

Note

Information

The next few pages provide a brief overview of the product range for the MS series service unit components.

You can find detailed information and all the technical data in the documentation for the relevant service unit component.

Accessories such as connecting plates or mounting brackets can be ordered either via the configurator or separately.

Design of a service unit combination

The order of the individual service unit components within a combination is relevant for safety and functionality. The service unit components cannot be combined in any order in the flow direction. There are restrictions and rules.

The configurator for the service unit MSB is a reliable and convenient way of combining individual service unit components and ensures compliance with the applicable rules. As a result, you get a fully assembled combination with UL or ATEX certification, if necessary.

When combining a unit from individually configured and ordered service unit components, the points on the right must be adhered to under all circumstances.

• Regulators MS-LFR/LR/LRP are only permissible in the flow direction with the same or decreasing pressure regulation range
• Filters MS-LFR/LF/LFM/LFX are only permissible in the flow direction with an increasing grade of filtration
• Lubricators MS-LOE are not permitted in the flow direction upstream of a filter MS-LFR/LFM/LF/LFX, water separator MS-LWS or membrane air dryer MS-LDM1
• A micro filter MS-LFM must be installed in the flow direction upstream of an activated carbon filter MS-LFX or membrane air dryer MS-LDM1
• A flow sensor SFAM cannot be installed directly downstream of a regulator MS-LFR/LR; a branching module MS-FRM must be positioned between them
• A soft-start/quick exhaust valve MS-SV must be the last service unit component in the flow direction

Product range for service unit components of the MS series

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Size</th>
<th>Pneumatic connection</th>
<th>Connecting plate with thread</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Push-in connector</td>
<td>Female thread</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Service unit combinations MSB-FRC

<table>
<thead>
<tr>
<th>Combination</th>
<th>Description</th>
<th>Datasheets</th>
<th>Internet: msb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Combinations of filter regulator and lubricator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>–</td>
<td>1/8, 1/4</td>
<td>–</td>
</tr>
<tr>
<td>6</td>
<td>–</td>
<td>1/4, 3/8, 1/2</td>
<td>–</td>
</tr>
</tbody>
</table>

Service unit combinations MSB

<table>
<thead>
<tr>
<th>Combination</th>
<th>Description</th>
<th>Datasheets</th>
<th>Internet: msb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Certain predefined combinations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>–</td>
<td>1/4</td>
<td>–</td>
</tr>
<tr>
<td>6</td>
<td>–</td>
<td>1/2</td>
<td>–</td>
</tr>
</tbody>
</table>

Service unit combinations MSE6

<table>
<thead>
<tr>
<th>Combination</th>
<th>Description</th>
<th>Datasheets</th>
<th>Internet: mse6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Combinations with fieldbus connection for measuring pressure, flow rate and consumption</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Key features

### Product range for service unit components of the MS series

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Size</th>
<th>Pneumatic connection</th>
<th>Female thread</th>
<th>Connecting plate with thread</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M</td>
<td>G</td>
</tr>
<tr>
<td><strong>Individual devices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Filter regulators MS-LFR</strong></td>
<td>Filter and pressure regulator in a single device, grade of filtration 5 or 40 µm</td>
<td>2</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>1/8, 1/4</td>
<td>1/8, 1/4, 3/8</td>
<td>1/8, 1/4, 3/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>3/4, 1</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>–</td>
<td>1, 1/4, 1/2, 2</td>
<td>–</td>
</tr>
<tr>
<td><strong>Filter regulators MS-LFR-B</strong></td>
<td>Filter and pressure regulator in a single device in polymer housing, grade of filtration 5 or 40 µm</td>
<td>4</td>
<td>1/4</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>1/2</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Filters MS-LF</strong></td>
<td>Grade of filtration 5 or 40 µm</td>
<td>4</td>
<td>1/4, 1/4</td>
<td>1/8, 1/4, 3/8</td>
<td>1/8, 1/4, 3/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>3/4, 1</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>–</td>
<td>1, 1/4, 1/2, 2</td>
<td>–</td>
</tr>
<tr>
<td><strong>Fine and micro filters MS-LFM</strong></td>
<td>Grade of filtration 0.01 or 1 µm</td>
<td>4</td>
<td>1/4, 1/4</td>
<td>1/8, 1/4, 3/8</td>
<td>1/8, 1/4, 3/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>3/4, 1</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
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<tr>
<td></td>
<td></td>
<td>12</td>
<td>–</td>
<td>1, 1/4, 1/2, 2</td>
<td>–</td>
</tr>
<tr>
<td><strong>Activated carbon filters MS-LFX</strong></td>
<td>For removing liquid and gaseous oil particles</td>
<td>4</td>
<td>1/4, 1/4</td>
<td>1/8, 1/4, 3/8</td>
<td>1/8, 1/4, 3/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>3/4, 1</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
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<td></td>
<td></td>
<td>12</td>
<td>–</td>
<td>1, 1/4, 1/2, 2</td>
<td>–</td>
</tr>
<tr>
<td><strong>Water separators MS-LWS</strong></td>
<td>Remove condensate from compressed air, maintenance-free</td>
<td>6</td>
<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>3/4, 1</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
<td>1/2, 3/4, 1, 1/4, 1/12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>–</td>
<td>1, 1/4, 1/2, 2</td>
<td>–</td>
</tr>
</tbody>
</table>
### Key features

#### Product range for service unit components of the MS series

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Size</th>
<th>Pneumatic connection</th>
<th>Female thread</th>
<th>Connecting plate with thread</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Push-in connector</td>
<td>M</td>
<td>G</td>
<td>NPT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Individual devices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pressure regulators MS-LR**

For setting the required operating pressure, a pressure regulation range.

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Description</th>
<th>Pressure</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>MS</td>
<td>Q5-6</td>
<td>1/8, 1/4</td>
<td>1/8, 1/4, 3/8</td>
</tr>
<tr>
<td>4</td>
<td>MS</td>
<td>–</td>
<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
<tr>
<td>9</td>
<td>MS</td>
<td>–</td>
<td>3/4, 1</td>
<td>1/2, 3/4, 1, 1 1/4, 1 1/2</td>
</tr>
<tr>
<td>12</td>
<td>MS</td>
<td>–</td>
<td>–</td>
<td>1, 1 1/4, 1 1/2, 2</td>
</tr>
</tbody>
</table>

Datasheets → Internet: ms2-lr; ms4-lr; ms6-lr; ms9-lr; ms12-lr

**Pressure regulators MS-LR-B**

For setting the required operating pressure, in polymer housing.

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Description</th>
<th>Pressure</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>MS</td>
<td>–</td>
<td>1/4</td>
<td>–</td>
</tr>
<tr>
<td>6</td>
<td>MS</td>
<td>–</td>
<td>1/2</td>
<td>–</td>
</tr>
</tbody>
</table>

Datasheets → Internet: ms4-lr-b; ms6-lr-b

**Pressure regulators MS-LRB**

For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is at the front or rear.

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Description</th>
<th>Pressure</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>MS</td>
<td>–</td>
<td>1/4</td>
<td>–</td>
</tr>
<tr>
<td>6</td>
<td>MS</td>
<td>–</td>
<td>1/2</td>
<td>–</td>
</tr>
</tbody>
</table>

Datasheets → Internet: ms4-lrb; ms6-lrb

**Precision pressure regulators MS-LRP**

For precisely setting the required operating pressure, a pressure regulation range, pressure hysteresis 0.02 bar.

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Description</th>
<th>Pressure</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>MS</td>
<td>–</td>
<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
</tbody>
</table>

Datasheets → Internet: ms6-lrp

**Precision pressure regulators MS-LRPB**

For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is at the front or rear.

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Description</th>
<th>Pressure</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>MS</td>
<td>–</td>
<td>1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
</tbody>
</table>

Datasheets → Internet: ms6-lrpb

**Lubricators MS-LOE**

Add a precisely adjustable amount of oil to the compressed air. The amount of oil mist is proportional to the compressed air flow rate.

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Description</th>
<th>Pressure</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>MS</td>
<td>–</td>
<td>1/8, 1/4</td>
<td>1/8, 1/4, 3/8</td>
</tr>
<tr>
<td>6</td>
<td>MS</td>
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<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
</tr>
<tr>
<td>9</td>
<td>MS</td>
<td>–</td>
<td>3/4, 1</td>
<td>1/2, 3/4, 1, 1 1/4, 1 1/2</td>
</tr>
<tr>
<td>12</td>
<td>MS</td>
<td>–</td>
<td>–</td>
<td>1, 1 1/4, 1 1/2, 2</td>
</tr>
</tbody>
</table>

Datasheets → Internet: ms4-loe; ms6-loe; ms9-loe; ms12-loe
## Key features

<table>
<thead>
<tr>
<th>Product range for service unit components of the MS series</th>
<th>Pneumatic connection</th>
<th>Female thread</th>
<th>Connecting plate with thread</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>Push-in connector</td>
<td>M</td>
<td>G</td>
</tr>
<tr>
<td><strong>Individual devices</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>On/off valves MS-EM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Image]</td>
<td>Manually actuated on/off valve for pressurising and exhausting pneumatic systems.</td>
<td>4</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>–</td>
</tr>
<tr>
<td><strong>On/off valves MS-EE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Image]</td>
<td>Electrically actuated on/off valve for pressurising and exhausting pneumatic systems.</td>
<td>4</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>–</td>
</tr>
<tr>
<td><strong>On/off valves MS-EE-B</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Image]</td>
<td>Electrically actuated on/off valve in polymer housing for pressurising and exhausting pneumatic systems.</td>
<td>4</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td><strong>Soft-start valves MS-DL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Image]</td>
<td>Pneumatically actuated soft-start valve for slowly pressurising and exhausting pneumatic systems.</td>
<td>4</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
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</tr>
<tr>
<td><strong>Soft-start valves MS-DE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Image]</td>
<td>Electrically actuated soft-start valve for slowly pressurising and exhausting pneumatic systems.</td>
<td>4</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>–</td>
</tr>
<tr>
<td><strong>On/off valves MS-DE-B</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Image]</td>
<td>Electrically actuated soft-start valve in polymer housing for slowly pressurising and exhausting pneumatic systems.</td>
<td>4</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td><strong>Soft-start/quick exhaust valves MS-SV</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Image]</td>
<td>For building up pressure gradually and reducing pressure quickly and safely in pneumatic piping systems. Up to category 1, PL c.</td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
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</tr>
<tr>
<td><strong>On/off valves MS-EdE-B</strong></td>
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<tr>
<td>[Image]</td>
<td>Electrically actuated soft-start valve in polymer housing for slowly pressurising and exhausting pneumatic systems.</td>
<td>4</td>
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<td></td>
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<tr>
<td><strong>Soft-start/quick exhaust valves MS-SV</strong></td>
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</tr>
<tr>
<td>[Image]</td>
<td>Up to category 3, PL d. Up to category 4, PL e in the case of optional extension.</td>
<td>6</td>
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<tr>
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# Key features

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Size</th>
<th>Pneumatic connection</th>
<th>Connecting plate with thread</th>
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<tbody>
<tr>
<td>Membrane air dryers MS-LDM1</td>
<td>Wear-free membrane dryer with internal air consump-</td>
<td>4</td>
<td>1/8, 1/4</td>
<td>1/8, 1/4, 3/8</td>
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<tr>
<td></td>
<td>tion</td>
<td>6</td>
<td>1/4, 3/8, 1/2</td>
<td>1/4, 3/8, 1/2, 3/4</td>
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<tr>
<td>Branching modules MS-FRM</td>
<td>Compressed air distributors with 4 connections</td>
<td>4</td>
<td>1/8, 1/4</td>
<td>1/8, 1/4, 3/8</td>
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<td></td>
<td></td>
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<td>1/4, 3/8, 1/2, 3/4</td>
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<td>9</td>
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<td>3/4, 1, 1 1/4, 1 1/2</td>
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<td>12</td>
<td></td>
<td>1, 1 1/4, 1 1/2, 2</td>
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<tr>
<td>Distributor blocks MS-FRM-FRZ</td>
<td>Compressed air distributors with 4 connections and half the grid width</td>
<td>4</td>
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<tr>
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<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow sensors SFAM</td>
<td>For absolute flow rate information and cumulative air consumption measurement</td>
<td>6</td>
<td></td>
<td>1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td></td>
<td>1, 1 1/2</td>
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</tbody>
</table>
Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

Pressure regulator MS4/MS6-LR

Note
Additional accessories:
• Module connectors for combination with size MS4/MS6 or size MS9
  → Internet: amv, rmv, armv
• Adapters for mounting on profiles
  → Internet: ipm-80, ipm-40-80, ipm-80-80

Pressure regulator with rotary knob pressure gauge
MS4-LR....-DM2  MS4-LR....-DM1/MS6-LR....-DM2

Internet: www.festo.com/catalogue/...
### Pressure regulators MS4/MS6-LR, MS series

#### Peripherals overview

<table>
<thead>
<tr>
<th>Mounting attachments and accessories1)</th>
<th>Individual device</th>
<th>Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without connecting plate</td>
<td>With connecting plate</td>
</tr>
<tr>
<td>[1] Pressure regulator MS4/MS6-LR</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[3] Mounting bracket MS4-WBM</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[5] Knurled nut (included in the scope of delivery) MS-LR</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[6] Padlock LRVS-D</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[7] Cover cap MS4/6-END</td>
<td>■</td>
<td>–</td>
</tr>
<tr>
<td>[8] Module connector MS4/6-MV</td>
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<td>■</td>
</tr>
<tr>
<td>[9] Connecting plate SET MS4/6-AG...</td>
<td>–</td>
<td>■</td>
</tr>
<tr>
<td>Connecting plate SET MS4/6-AQ...</td>
<td>–</td>
<td>■</td>
</tr>
<tr>
<td>[11] Pressure sensor with display AD1 ... AD4</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[12] Pressure sensor with LCD display AD11/AD12</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[14] Pressure sensor without display AD7 ... AD10</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[16] Adapter for EN pressure gauge 1/8, 1/4 A8/A4</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[17] Pressure gauge MA</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[18] Cover plate VS</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>– Mounting bracket MS4/6-WP/WPB/WPE/WPM</td>
<td>■</td>
<td>■</td>
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</table>

1) Connecting plates and certain mounting brackets can also be ordered via the modular product system ➔ page 26
Pressure regulators MS4/MS6-LR, MS series

<table>
<thead>
<tr>
<th>Type codes</th>
<th>001</th>
<th>Series</th>
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<td>Grid dimension 40 mm</td>
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<tr>
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<th>Function</th>
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<th>Pneumatic connection</th>
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<td>1/8</td>
<td>Female thread G1/8</td>
</tr>
<tr>
<td>1/4</td>
<td>Female thread G1/4</td>
</tr>
<tr>
<td>AGA</td>
<td>Sub-base G1/8</td>
</tr>
<tr>
<td>AG8</td>
<td>Sub-base G1/8</td>
</tr>
<tr>
<td>AGC</td>
<td>Sub-base G3/8</td>
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<tr>
<td>AGP</td>
<td>Sub-base NPT1/8</td>
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<tr>
<td>AQN</td>
<td>Sub-base NPT1/4</td>
</tr>
<tr>
<td>AQP</td>
<td>Sub-base NPT3/8</td>
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<table>
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<tr>
<th>005</th>
<th>Pressure regulation range</th>
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<tbody>
<tr>
<td>D5</td>
<td>0.3 ... 4 bar</td>
</tr>
<tr>
<td>D6</td>
<td>0.3 ... 7 bar</td>
</tr>
<tr>
<td>D7</td>
<td>0.5 ... 12 bar</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>006</th>
<th>Pressure gauge alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>V5</td>
<td>Cover plate</td>
</tr>
<tr>
<td>A8</td>
<td>Adapter for EN pressure gauge 1/8, without pressure gauge</td>
</tr>
<tr>
<td>A4</td>
<td>Adapter for EN pressure gauge 1/4, without pressure gauge</td>
</tr>
<tr>
<td>RG</td>
<td>Integrated pressure gauge, red/green scale</td>
</tr>
<tr>
<td>AD1</td>
<td>Pressure sensor with LCD display, MB plug, PNP, 3-pin</td>
</tr>
<tr>
<td>AD2</td>
<td>Pressure sensor with LCD display, MB plug, NPN, 3-pin</td>
</tr>
<tr>
<td>AD3</td>
<td>Pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA</td>
</tr>
<tr>
<td>AD4</td>
<td>Pressure sensor with LCD display, M12 plug, NPN, 4-pin, analogue output 4 ... 20 mA</td>
</tr>
<tr>
<td>AD7</td>
<td>Pressure sensor with switching display, MB plug, threshold value comparator, PNP, N/O</td>
</tr>
<tr>
<td>AD8</td>
<td>Pressure sensor with switching display, MB plug, threshold value comparator, PNP, N/C</td>
</tr>
<tr>
<td>AD9</td>
<td>Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O</td>
</tr>
<tr>
<td>AD10</td>
<td>Pressure sensor with operational status indicator, MB plug, window comparator, PNP, N/C</td>
</tr>
<tr>
<td>AD11</td>
<td>Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA</td>
</tr>
<tr>
<td>AD12</td>
<td>Pressure sensor with LCD display, MB plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA</td>
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<table>
<thead>
<tr>
<th>007</th>
<th>Alternative pressure gauge scale</th>
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<tbody>
<tr>
<td>PSI</td>
<td>psi</td>
</tr>
<tr>
<td>MPA</td>
<td>MPa</td>
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<table>
<thead>
<tr>
<th>008</th>
<th>Secondary exhausting</th>
</tr>
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<tbody>
<tr>
<td>OS</td>
<td>Without secondary exhaust</td>
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</table>

<table>
<thead>
<tr>
<th>009</th>
<th>Rotary knob alternative</th>
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</thead>
<tbody>
<tr>
<td>LD</td>
<td>Long rotary knob</td>
</tr>
<tr>
<td>DM1</td>
<td>Rotary knob pressure gauge, small</td>
</tr>
<tr>
<td>DM2</td>
<td>Rotary knob pressure gauge, large</td>
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</table>

<table>
<thead>
<tr>
<th>010</th>
<th>Alternative mounting position</th>
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<td>KD</td>
<td>Rotary knob underneath</td>
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<table>
<thead>
<tr>
<th>011</th>
<th>Lockability</th>
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</thead>
<tbody>
<tr>
<td>AS</td>
<td>Can be locked using accessories</td>
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<tr>
<td>E11</td>
<td>With integrated lock</td>
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<table>
<thead>
<tr>
<th>012</th>
<th>Type of mounting</th>
</tr>
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<tbody>
<tr>
<td>WR</td>
<td>Mounting bracket with knurled nut on regulator knob</td>
</tr>
<tr>
<td>WP</td>
<td>Mounting bracket basic design</td>
</tr>
<tr>
<td>WPM</td>
<td>Mounting bracket for hooking in service unit components</td>
</tr>
<tr>
<td>WB</td>
<td>Mounting centrally at rear (wall mounting top and bottom), connecting plates not required</td>
</tr>
<tr>
<td>WBM</td>
<td>Mounting centrally at rear (wall mounting top), connecting plates not required</td>
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</table>

<table>
<thead>
<tr>
<th>013</th>
<th>EU certification</th>
</tr>
</thead>
<tbody>
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<td>II 2GD</td>
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<tbody>
<tr>
<td>UL1</td>
<td>cULus ordinary location for Canada and USA</td>
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<table>
<thead>
<tr>
<th>015</th>
<th>Flow direction</th>
</tr>
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<tbody>
<tr>
<td>Z</td>
<td>Flow direction from left to right</td>
</tr>
<tr>
<td>016</td>
<td>Flow direction from right to left</td>
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### Pressure regulators MS4/MS6-LR, MS series

#### Type codes

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<td>MS series</td>
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<td>Size</td>
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<td>003</td>
<td>Function</td>
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<td>Pressure regulator</td>
</tr>
<tr>
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<td>Pneumatic connection</td>
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<td>Female thread G1/4</td>
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<tr>
<td>3/8</td>
<td>Female thread G3/8</td>
</tr>
<tr>
<td>1/2</td>
<td>Female thread G1/2</td>
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<tr>
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<td>Sub-base G1/4</td>
</tr>
<tr>
<td>AGC</td>
<td>Sub-base G3/8</td>
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<tr>
<td>AGD</td>
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<td>AGE</td>
<td>Sub-base G3/4</td>
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<td>AON</td>
<td>Sub-base NPT1/4</td>
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<td>Sub-base NPT3/8</td>
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<td>D5</td>
<td>0.3 ... 4 bar</td>
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<tr>
<td>D6</td>
<td>0.3 ... 7 bar</td>
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<tr>
<td>D7</td>
<td>0.5 ... 12 bar</td>
</tr>
<tr>
<td>D8</td>
<td>0.5 ... 16 bar</td>
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<tr>
<td>006</td>
<td>Pressure gauge alternatives</td>
</tr>
<tr>
<td>V5</td>
<td>Cover plate</td>
</tr>
<tr>
<td>A8</td>
<td>Adapter for EN pressure gauge 1/8, without pressure gauge</td>
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<tr>
<td>A4</td>
<td>Adapter for EN pressure gauge 1/4, without pressure gauge</td>
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<tr>
<td>RG</td>
<td>Integrated pressure gauge, red/green scale</td>
</tr>
<tr>
<td>AD1</td>
<td>Pressure sensor with LCD display, M8 plug, PNP, 3-pin</td>
</tr>
<tr>
<td>AD2</td>
<td>Pressure sensor with LCD display, M8 plug, NPN, 3-pin</td>
</tr>
<tr>
<td>AD3</td>
<td>Pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA</td>
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<tr>
<td>AD4</td>
<td>Pressure sensor with LCD display, M12 plug, NPN, 4-pin, analogue output 4 ... 20 mA</td>
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<tr>
<td>AD7</td>
<td>Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O</td>
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<tr>
<td>AD8</td>
<td>Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C</td>
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<tr>
<td>AD9</td>
<td>Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O</td>
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<tr>
<td>AD10</td>
<td>Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C</td>
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<tr>
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<td>Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA</td>
</tr>
<tr>
<td>AD12</td>
<td>Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA</td>
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<tr>
<td>007</td>
<td>Alternative pressure gauge scale</td>
</tr>
<tr>
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<td>MS pressure gauge</td>
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<td>PSI</td>
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<td>MPa</td>
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<td>008</td>
<td>Secondary exhausting</td>
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<td>Without secondary exhaust</td>
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<tr>
<td>009</td>
<td>Rotary knob alternative</td>
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<td>DR</td>
<td>Long rotary knob</td>
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<tr>
<td>DM2</td>
<td>Rotary knob pressure gauge, large</td>
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<tr>
<td>010</td>
<td>Alternative mounting position</td>
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<tr>
<td>BD</td>
<td>Rotating knob underneath</td>
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<tr>
<td>011</td>
<td>Lockability</td>
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<tr>
<td>A2</td>
<td>Can be locked using accessories</td>
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<tr>
<td>E11</td>
<td>With integrated lock</td>
</tr>
<tr>
<td>012</td>
<td>Type of mounting</td>
</tr>
<tr>
<td>WR</td>
<td>Without mounting bracket</td>
</tr>
<tr>
<td>WP</td>
<td>Mounting bracket basic design</td>
</tr>
<tr>
<td>WPM</td>
<td>Mounting bracket for hooking in service unit components</td>
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<tr>
<td>WB</td>
<td>Mounting centrally at rear (wall mounting top and bottom), connecting plates not required</td>
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<td>Flow direction</td>
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<td>Flow direction from left to right</td>
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<td>2</td>
<td>Flow direction from right to left</td>
</tr>
<tr>
<td>016</td>
<td>Version</td>
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</tbody>
</table>

Internet: www.festo.com/catalogue/...
The pressure regulator maintains a constant working pressure (secondary side), independently of the pressure fluctuations in the system (primary side) and the air consumption.

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- High flow rate performance with minimal pressure drop
- Available with and without secondary exhausting
- Actuator lock to protect the set values from being adjusted
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Two pressure gauge connections for different installation options
- Return flow option for exhausting from output 2 to output 1 already integrated
- Optional pressure sensor
- Optional rotary knob pressure gauge
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

### General technical data

<table>
<thead>
<tr>
<th>Size</th>
<th>MS4</th>
<th>MS6</th>
</tr>
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<tbody>
<tr>
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<td>G1/4, G3/8 or G1/2</td>
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<tr>
<td>Female thread</td>
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<td></td>
</tr>
<tr>
<td>Connecting plate</td>
<td>[AG...] G1/8, G1/4 or G3/8</td>
<td>G1/4, G3/8, G1/2 or G3/4</td>
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<tr>
<td></td>
<td>[AQ...] 1/8 NPT, 1/4 NPT or 3/8 NPT</td>
<td>1/4 NPT, 3/8 NPT, 1/2 NPT or 3/4 NPT</td>
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<tr>
<td>Regulator function</td>
<td>Output pressure constant, with input pressure compensation, with return flow, with/without secondary exhausting</td>
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<td>In-line installation</td>
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<td>Front panel mounting</td>
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<td>Mounting position</td>
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<td>Actuator lock</td>
<td>Rotary knob with latch</td>
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<td></td>
<td>Rotary knob with latch, can be locked using accessories</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rotary knob with integrated lock</td>
<td></td>
</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>[D5] [bar] 0.3 ... 4, manually actuated¹</td>
<td>[D6] [bar] 0.3 ... 7, manually actuated¹</td>
</tr>
<tr>
<td></td>
<td>[D7] [bar] 0.5 ... 12, manually actuated (0.5 ... 10 with pressure sensor or with UL certification)¹</td>
<td>[D8] [bar] – 0.5 ... 16, manually actuated (0.5 ... 10 with UL certification)</td>
</tr>
<tr>
<td>Max. pressure hysteresis</td>
<td>[D5] [bar] 0.25 (0.4 with rotary knob pressure gauge)</td>
<td></td>
</tr>
<tr>
<td>Pressure indication</td>
<td>Via pressure sensor for indicating the output pressure and electrical output via LCD display</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Via pressure sensor for indicating the output pressure and electrical output</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Via pressure gauge for indicating the output pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Via pressure gauge with red/green scale for indicating the output pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Via pressure gauge in the rotary knob for displaying the output pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prepared for G1/8</td>
<td>Prepared for G1/4</td>
</tr>
</tbody>
</table>

¹ MS4: the pressure regulation range for pressure regulators with rotary knob pressure gauge starts at 0.8 bar.

¹ Note: This product conforms to ISO 1179-1 and ISO 228-1.
# Datasheet

<table>
<thead>
<tr>
<th>Standard nominal flow rate $q_{nN}$ [l/min]</th>
<th>Size</th>
<th>MS4</th>
<th>MS6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic connection</td>
<td></td>
<td>G1/8</td>
<td>G1/4</td>
</tr>
<tr>
<td>Pressure regulation range</td>
<td>[D5]</td>
<td>1200</td>
<td>2100</td>
</tr>
<tr>
<td></td>
<td>[D6]</td>
<td>1150</td>
<td>1800</td>
</tr>
<tr>
<td></td>
<td>[D7]</td>
<td>1000</td>
<td>1700</td>
</tr>
<tr>
<td></td>
<td>[D8]</td>
<td>–</td>
<td>1700</td>
</tr>
</tbody>
</table>

1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar
2) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar
3) With a rotary knob pressure gauge, $q_{nN} = 800$ l/min, $q_{n\text{max}} = 2200$ l/min

## Operating and environmental conditions

<table>
<thead>
<tr>
<th>Size</th>
<th>Operating pressure [bar]</th>
<th>Operating medium</th>
<th>Note on the operating/pilot medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Compressed air to ISO 8573-1:2010 [7:4:k]</td>
<td>Lubricated operation possible (in which case lubrication will always be required)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>Ambient temperature [°C]</th>
<th>Temperature of medium [°C]</th>
<th>Storage temperature [°C]</th>
<th>Corrosion resistance class CRC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–10 ... +60 (0 ... +50)</td>
<td>–10 ... +60 (0 ... +50)</td>
<td>–10 ... +60</td>
<td>2</td>
</tr>
</tbody>
</table>

Note on the operating/pilot medium:
- Lubricated operation possible (in which case lubrication will always be required)
- Value in brackets applies to MS4/MS6-LR with UL certification.
- Value in brackets applies to MS4/MS6-LR with pressure sensor.

<table>
<thead>
<tr>
<th>Size</th>
<th>UL certification</th>
<th>ATEX certification</th>
<th>EU certification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>EX4</td>
<td>EX4</td>
</tr>
</tbody>
</table>

ATEX category for gas: II 2G
Type of (ignition) protection for gas: Ex h IIC T6 Gb X

ATEX category for dust: II 2D
Type of (ignition) protection for dust: Ex h IIC T60°C Db X

Explosion ambient temperature: $-10 \leq T_a \leq +60 \degree C$

Explosion protection certification outside the EU:
- EPL Db (GB)
- EPL Gb (GB)

CE marking (see declaration of conformity):
To EU Explosion Protection Directive (ATEX)

UKCA marking (see declaration of conformity):
To UK regulations for explosions


## Weight [g]

<table>
<thead>
<tr>
<th>Size</th>
<th>MS4</th>
<th>MS6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure regulator</td>
<td>225</td>
<td>730</td>
</tr>
<tr>
<td>Pressure regulator with rotary knob with integrated lock</td>
<td>350</td>
<td>1000</td>
</tr>
<tr>
<td>Connecting plates [AG...]/[AQ...]</td>
<td>128</td>
<td>300</td>
</tr>
<tr>
<td>Mounting bracket  [WBM]</td>
<td>48</td>
<td>–</td>
</tr>
<tr>
<td>[WB]</td>
<td>46</td>
<td>121</td>
</tr>
<tr>
<td>[WR]</td>
<td>49</td>
<td>90</td>
</tr>
<tr>
<td>[WP]</td>
<td>39</td>
<td>76</td>
</tr>
<tr>
<td>[WPM]</td>
<td>45</td>
<td>144</td>
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</tbody>
</table>
Pressure regulators MS4/MS6-LR, MS series

Datasheet

Materials

Sectional view

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>Housing</td>
</tr>
<tr>
<td>2</td>
<td>Rotary knob</td>
</tr>
<tr>
<td>3</td>
<td>Diaphragms</td>
</tr>
<tr>
<td>4</td>
<td>Bottom cover</td>
</tr>
<tr>
<td>5</td>
<td>Springs</td>
</tr>
<tr>
<td></td>
<td>Seals</td>
</tr>
</tbody>
</table>

Note on materials: RoHS-compliant

LABS (PWIS) conformity: VDMA24364-B1/B2-L

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)

<table>
<thead>
<tr>
<th></th>
<th>MS4-LR-1/8</th>
<th>MS4-LR-1/4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Input pressure p1 = 10 bar

MS4-LR-1/8

MS4-LR-1/4

MS6-LR-1/4

MS6-LR-3/8

MS6-LR-1/2

Input pressure p1 = 10 bar

1) There is a higher initial pressure drop in the characteristic curve for variant DM1/DM2.

D6: 0.3 ... 7 bar

D7: 0.5 ... 12 bar

D6: 0.3 ... 7 bar

D7: 0.5 ... 12 bar

D6: 0.3 ... 7 bar

D7: 0.5 ... 12 bar
## Dimensions – Basic version

[Int] Integrated MS pressure gauge with standard scale  
[RG] Integrated MS pressure gauge with red/green scale  
[AS] Rotary knob with latch, can be locked using accessories

### MS4

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>D1</th>
<th>D2</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS4-LR-1/8</td>
<td>40</td>
<td>21</td>
<td>57</td>
<td>58.5</td>
<td>G1/8</td>
<td></td>
<td>37.2</td>
<td>59</td>
<td>27</td>
</tr>
<tr>
<td>MS4-LR-1/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LR-1/4</td>
<td>62</td>
<td>31</td>
<td>77</td>
<td>78.5</td>
<td>G1/4</td>
<td></td>
<td>51.2</td>
<td>94</td>
<td>39</td>
</tr>
<tr>
<td>MS6-LR-3/8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G3/8</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>MS6-LR-1/2</td>
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<td></td>
<td>G1/2</td>
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</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
Pressure regulators MS4/MS6-LR, MS series

Datasheet

Dimensions – Alternative mounting position

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3 Pressure gauge</th>
<th>D1</th>
<th>D2</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Standard scale</td>
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<tr>
<td>MS4-LR-1/8-...-KD</td>
<td>40</td>
<td>21</td>
<td>57</td>
<td>58.5</td>
<td>G1/8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS4-LR-1/4-...-KD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LR-1/4-...-KD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LR-3/8-...-KD</td>
<td>62</td>
<td>31</td>
<td>77</td>
<td>78.5</td>
<td>G1/8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LR-1/2-...-KD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1/2</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
## Pressure regulators MS4/MS6-LR, MS series

### Datasheet

#### Dimensions – Pressure gauge alternatives

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>D1</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS4-LR-1/8-...-VS</td>
<td>21</td>
<td>54</td>
<td>G1/8</td>
<td>–</td>
</tr>
<tr>
<td>MS4-LR-1/4-...-VS</td>
<td>21</td>
<td>58.5</td>
<td>G1/4</td>
<td>–</td>
</tr>
<tr>
<td>MS4-LR-1/8-...-A8</td>
<td>21</td>
<td>58.5</td>
<td>G1/4</td>
<td>G1/8</td>
</tr>
<tr>
<td>MS4-LR-1/4-...-A8</td>
<td>21</td>
<td>58.5</td>
<td>G1/4</td>
<td>G1/8</td>
</tr>
<tr>
<td>MS4-LR-1/8-...-A4</td>
<td>21</td>
<td>76</td>
<td>G1/4</td>
<td>–</td>
</tr>
<tr>
<td>MS4-LR-1/4-...-A4</td>
<td>21</td>
<td>78.5</td>
<td>G1/4</td>
<td>G1/4</td>
</tr>
<tr>
<td>MS6-LR-1/4-...-VS</td>
<td>31</td>
<td>76</td>
<td>G3/8</td>
<td>–</td>
</tr>
<tr>
<td>MS6-LR-3/8-...-VS</td>
<td>31</td>
<td>78.5</td>
<td>G3/8</td>
<td>G1/4</td>
</tr>
<tr>
<td>MS6-LR-1/2-...-VS</td>
<td>31</td>
<td>78.5</td>
<td>G1/2</td>
<td>–</td>
</tr>
<tr>
<td>MS6-LR-3/8-...-A4</td>
<td>31</td>
<td>78.5</td>
<td>G1/4</td>
<td>G1/4</td>
</tr>
<tr>
<td>MS6-LR-1/2-...-A4</td>
<td>31</td>
<td>78.5</td>
<td>G1/4</td>
<td>G1/4</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
Pressure regulators MS4/MS6-LR, MS series

Datasheet

Dimensions – Pressure gauge alternatives

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>B5</th>
<th>B6</th>
<th>D6</th>
<th>L5</th>
<th>L6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS4-LR-...-AD1/AD2</td>
<td>21</td>
<td>82.6</td>
<td>32</td>
<td>32.3</td>
<td>M8x1</td>
<td>35.1</td>
<td>46.7</td>
</tr>
<tr>
<td>MS4-LR-...-AD3/AD4</td>
<td>31</td>
<td>103</td>
<td>51</td>
<td>32.3</td>
<td>M8x1</td>
<td>35.1</td>
<td>46.7</td>
</tr>
<tr>
<td>MS6-LR-...-AD1/AD2</td>
<td>31</td>
<td>103</td>
<td>51</td>
<td>32.3</td>
<td>M12x1</td>
<td>35.1</td>
<td>55.8</td>
</tr>
<tr>
<td>MS6-LR-...-AD3/AD4</td>
<td>31</td>
<td>103</td>
<td>51</td>
<td>32.3</td>
<td>M12x1</td>
<td>35.1</td>
<td>55.8</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Download CAD data → www.festo.com
Datasheets → Internet: sde1

Variant AD1:
SDE1-D10-G2-MS-L-P1-M8 with
3-pin plug M8x1, 1 switching output
PNP

Variant AD2:
SDE1-D10-G2-MS-L-N1-M8 with
3-pin plug M8x1, 1 switching output
NPN

Variant AD3:
SDE1-D10-G2-MS-L-P1-M12 with
4-pin plug M12x1, 1 switching output
PNP and 4...20 mA analogue

Variant AD4:
SDE1-D10-G2-MS-L-N1-M12 with
4-pin plug M12x1, 1 switching output
NPN and 4...20 mA analogue

Flow direction
Datasheet

**Dimensions – Pressure gauge alternatives**

<table>
<thead>
<tr>
<th>Variant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD7</td>
<td>SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator,</td>
</tr>
<tr>
<td></td>
<td>1 switching output PNP, N/O contact</td>
</tr>
<tr>
<td>AD8</td>
<td>SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator,</td>
</tr>
<tr>
<td></td>
<td>1 switching output PNP, N/C contact</td>
</tr>
<tr>
<td>AD9</td>
<td>SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator,</td>
</tr>
<tr>
<td></td>
<td>1 switching output PNP, N/O contact</td>
</tr>
<tr>
<td>AD10</td>
<td>SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator,</td>
</tr>
<tr>
<td></td>
<td>1 switching output PNP, N/C contact</td>
</tr>
</tbody>
</table>

**Type** | **B2** | **B3** | **B5** | **B6** | **D6** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MS4-LR-...-AD7/AD8/AD9/AD10</td>
<td>21</td>
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<td>32</td>
<td>16</td>
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</tr>
<tr>
<td>MS6-LR-...-AD7/AD8/AD9/AD10</td>
<td>31</td>
<td>79.1</td>
<td>51</td>
<td>16</td>
<td>M8x1</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
**Pressure regulators MS4/MS6-LR, MS series**

**Datasheet**

**Dimensions – Pressure gauge alternatives**

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>D6</th>
<th>L5</th>
<th>L6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS4-LR-...-AD11</td>
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<td>81.2</td>
<td>73.3</td>
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<td>32</td>
<td>M12x1</td>
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</tr>
<tr>
<td>MS4-LR-...-AD12</td>
<td>21</td>
<td>81.2</td>
<td>73.3</td>
<td>32</td>
<td>32</td>
<td>M8x1</td>
<td>37.9</td>
<td>39</td>
</tr>
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<td>MS6-LR-...-AD11</td>
<td>31</td>
<td>101.8</td>
<td>93.7</td>
<td>51</td>
<td>32</td>
<td>M12x1</td>
<td>41.2</td>
<td>39</td>
</tr>
<tr>
<td>MS6-LR-...-AD12</td>
<td>31</td>
<td>101.8</td>
<td>93.7</td>
<td>51</td>
<td>32</td>
<td>M8x1</td>
<td>37.9</td>
<td>39</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Variant AD11:
SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:
SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

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Datasheet

Dimensions – Pneumatic connection

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>D1</th>
<th>D2</th>
<th>L1</th>
<th>L2</th>
<th>¬Ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS4-LR-...-AGA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1/8</td>
<td>16.8</td>
<td>42</td>
<td>14.5</td>
<td>24</td>
</tr>
<tr>
<td>MS4-LR-...-AGB</td>
<td></td>
<td></td>
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<td></td>
<td>G1/4</td>
<td>21</td>
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</tr>
<tr>
<td>MS4-LR-...-AGC</td>
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<td></td>
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<td>G3/8</td>
<td>24</td>
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<td>MS4-LR-...-AQK</td>
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<td>MS4-LR-...-AQN</td>
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[1] Earthing screw M4x8 (only with MS4/6-...-EX)

Dimensions – Type of mounting

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
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Download CAD data → www.festo.com
Pressure regulators MS4/MS6-LR, MS series

Datasheet

### Dimensions – Type of mounting

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
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<th>B3</th>
<th>B4</th>
<th>B5</th>
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<th>L2</th>
<th>L3</th>
<th>L4</th>
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<td>44</td>
<td>8</td>
<td>41</td>
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<td>44</td>
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<td>115</td>
<td>158</td>
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**Download CAD data → [www.festo.com](http://www.festo.com)**

### Dimensions – Type of mounting

<table>
<thead>
<tr>
<th>Type</th>
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<th>B3</th>
<th>B4</th>
<th>B5</th>
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<th>L2</th>
<th>L3</th>
<th>L4</th>
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<tr>
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<td>69</td>
<td>17.5</td>
<td>54</td>
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<td>98.6</td>
<td>41.3</td>
<td>6.6</td>
<td>41.3</td>
</tr>
</tbody>
</table>
Datasheet

**Dimensions – Rotary knob**

For control panel installation

- Rotary knob with latch
- Rotary knob with latch, can be locked using accessories
- Rotary knob with integrated lock

**Type** | B4 | B5 | D2 | D3 | L3 | L8 | L9 | L10
---|---|---|---|---|---|---|---|---
MS4-LR... | – | – | – | M30x1.5 | 51.1 | 13 | 5 | –
MS4-LR...-AS | 48.6 | 30 | 37.2 | – | 60.2 | 13 | 5 | –
MS4-LR...-E11 | – | – | – | 76 | 14 | 6 | 60 | –
MS4-LR...-LD | – | – | – | 51.1 | – | – | 76.8 | –
MS4-LR...-LD-AS | 48.6 | 30 | 37.2 | 60 | – | – | 85.7 | –
MS6-LR... | – | – | – | M44x1 | 86 | 21 | 14 | –
MS6-LR...-AS | 64.4 | 38.8 | 51.2 | 95.1 | 12 | 5 | 60 | –
MS6-LR...-E11 | – | – | – | 110 | 21 | 14 | 60 | –
MS6-LR...-LD | – | – | – | 86 | – | – | 139 | –
MS6-LR...-LD-AS | 64.4 | 38.8 | 51.2 | 95.5 | – | – | 148.5 | –
Pressure regulators MS4/MS6-LR, MS series

Datasheet

Dimensions – Rotary knob pressure gauge

<table>
<thead>
<tr>
<th>[DM1]</th>
<th>Rotary knob pressure gauge, small</th>
</tr>
</thead>
<tbody>
<tr>
<td>[DM2]</td>
<td>Rotary knob pressure gauge, large</td>
</tr>
</tbody>
</table>

MS4

Rotary knob pressure gauge, small

Rotary knob pressure gauge, large

MS4

MS6

Note

Due to the protruding rotary knob, only a distributor block MS4-FRM-FRZ or a branching module MS4-FRM can be mounted as a directly adjacent service unit component.

Flow direction

<table>
<thead>
<tr>
<th>Type</th>
<th>D2</th>
<th>D3</th>
<th>L3</th>
<th>L4</th>
<th>L8</th>
<th>L9</th>
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<td>37.2</td>
<td>M30x1.5</td>
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<td>M48x1.5</td>
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<td>MS6-LR-...-DM2</td>
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<td>M44x1</td>
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<td>94</td>
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# Pressure regulators MS4/MS6-LR, MS series

## Core Range

<table>
<thead>
<tr>
<th>Ordering data</th>
<th>Pressure regulation range</th>
<th>Flow direction</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic connection 1</td>
<td>0.3 ... 4 bar</td>
<td>From left to right</td>
<td>529421</td>
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<td>G1/8</td>
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<td></td>
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# Pressure regulators MS4/MS6-LR, MS series

## Ordering data – Modular product system

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<th>62</th>
<th>Conditions</th>
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### Series
- Standard: MS

### Size
- 4
- 6

### Function
- Pressure regulator

### Pneumatic connection
- Female thread G1/8
- Female thread G1/4
- Female thread G3/8
- Female thread G1/2
- Connecting plate G1/8
- Connecting plate G1/4
- Connecting plate G3/8
- Connecting plate G1/2
- Connecting plate G3/4
- Connecting plate 1/8 NPT
- Connecting plate 3/8 NPT
- Connecting plate 1/2 NPT
- Connecting plate 3/4 NPT

### Pressure regulation range/actuation
- 0.3 … 4 bar, manually actuated: -D5
- 0.3 … 7 bar, manually actuated: -D6
- 0.5 … 12 bar, manually actuated: -D7
- 0.5 … 16 bar, manually actuated: -D8

### Pressure gauge alternatives
- MS pressure gauge: -VS
- Adapter for EN pressure gauge G1/8, without pressure gauge: -A8
- Adapter for EN pressure gauge G1/4, without pressure gauge: -A4
- Integrated pressure gauge, red/green scale: -RG
- Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin: -AD1
- Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin: -AD2
- Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 … 20 mA: -AD3
- Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 … 20 mA: -AD4
- Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact: -AD7
- Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact: -AD8
- Pressure sensor with status indicator, plug M8, window comparator, PNP, N/O contact: -AD9
- Pressure sensor with status indicator, plug M8, window comparator, PNP, N/C contact: -AD10
- Pressure sensor with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 … 10 V, 1 … 5 V, 4 … 20 mA: -AD11
- Pressure sensor with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 8 … 10 V, 1 … 5 V, 4 … 20 mA: -AD12

---

1/8, 1/4, 3/8, 1/2, AQK, AQN, AQP, AD, A9, AD1 - AD4, AD7 - AD10, DM1, DM2, KD, E11, WPM
- Not with EU EX4 certification.
2. RG, AD1 - AD4, AD7 - AD10, AD11/AD12, DS, KD, AS, WR, WD
- Not with rotary knob alternative DM1.
3. DS, KD, AS
- Not with rotary knob alternative DM2.
4. DS, KD, AS
- Measuring range max. 10 bar.
5. AD1 - AD4, AD7 - AD10, AD11/AD12
- Not with pressure regulation range D8.
## Ordering data – Modular product system

<table>
<thead>
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<td>With secondary exhausting</td>
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<td>-WPM</td>
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<td>Mounting bracket centrally at the rear (wall mounting top and bottom), connecting plates not required</td>
<td>[2]</td>
<td>-WB</td>
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<tr>
<td>Mounting bracket centrally at the rear (wall mounting top), connecting plates not required</td>
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<td>II 2GD to EU Explosion Protection Directive (ATEX)</td>
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<td><strong>UL certification</strong></td>
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<tr>
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<tr>
<td>cULus, ordinary location for Canada and USA</td>
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<tr>
<td><strong>Flow direction</strong></td>
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<td></td>
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<tr>
<td>Flow direction from left to right</td>
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<td>Flow direction from right to left</td>
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<td>-Z</td>
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</tbody>
</table>

[6] PSI Not with pressure gauge alternatives VS, AA, AD1 ... AD9, AD10.
[7] MPA Not with pressure gauge alternatives VS, AA, AD1 ... AD9, AD10.
Not with rotary knob alternative DM1, DM2.
[9] DM1, DM2 Can only be combined with pressure gauge alternatives VS, AA, AD1 ... AD9, AD10.
[10] KD Not with pressure gauge alternative R.
Not with alternative pressure gauge scale MPa.
Not with alternative type MPA.
[12] WP, WPM Only with connecting plate AGA, AGB, AGC, AGD, A6J, AKJ, AKN, AQP, AQK, PQK or AQK.
Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

Pressure regulator MS4/MS6-LRB with pressure output at the rear

Note

Additional accessories:
- Module connectors for combination with size MS4/MS6 or size MS9
  - Internet: amv, rmv, armv
- Adapters for mounting on profiles
  - Internet: ipm-80, ipm-40-80, ipm-80-80

Pressure regulator with rotary knob pressure gauge
MS4-LRB-....-DM1/
MS6-LRB-....-DM2
## Peripherals overview

### Mounting attachments and accessories

<table>
<thead>
<tr>
<th></th>
<th>Individual device</th>
<th>Combination</th>
<th>Page/Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without connecting plate</td>
<td>With connecting plate</td>
<td>Without connecting plate</td>
</tr>
<tr>
<td>[1] Pressure regulator MS4/MS6-LRB</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>[2] Angled outlet block MS4/6-WP</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>[3] Mounting bracket MS4/6-WPB</td>
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</tr>
<tr>
<td>[4] Mounting bracket MS4/6-WPE</td>
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<tr>
<td>[5] Mounting bracket MS4/6-WPM</td>
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</tr>
<tr>
<td>[6] Padlock LRVS-D</td>
<td>-</td>
<td>-</td>
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<tr>
<td>[7] Cover cap MS4/6-END</td>
<td>-</td>
<td>-</td>
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<tr>
<td>[8] Module connector MS4/6-MV</td>
<td>-</td>
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</tr>
<tr>
<td>[9] Connecting plate SET MS4/6-AG...</td>
<td>-</td>
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<tr>
<td>[10] Connecting cable NBU-M8...-LE1/NBU-M12...-LE4</td>
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<tr>
<td>[11] Pressure sensor with display AD1 ... AD4</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>[12] Pressure sensor with LCD display AD11/AD12</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>[13] Connecting cable NBU-M8...-LE4/NBU-M12...-LE4</td>
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<tr>
<td>[14] Pressure sensor without display AD7 ... AD10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>[15] Adapter for EN pressure gauge 1/8, 1/4 A8/A4</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>[16] Pressure gauge MA</td>
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<td>-</td>
</tr>
<tr>
<td>[17] Cover plate VS</td>
<td>-</td>
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Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

Pressure regulator MS4/MS6-LRB with pressure output at the front

Note
Additional accessories:
• Module connectors for combination with size MS4/MS6 or size MS9
  ➔ Internet: amv, rmv, armv
• Adapters for mounting on profiles
  ➔ Internet: ipm-80, ipm-40-80, ipm-80-80
### Peripherals overview

#### Mounting attachments and accessories

| [1] Cover cap |
| MS4/6-END |  |  |  |  | ms4-end, ms6-end |
| [2] Connecting plate SET |
| MS4/6-AG... |  |  |  |  | ms4-ag, ms6-ag |
| [3] Module connector |
| MS4/6-MV |  |  |  |  | ms4-mv, ms6-mv |
| MS4/6-WB |  |  |  |  | ms4-wb, ms6-wb |
| MS4-WBM |  |  |  |  | ms4-wbm |
| MS4/6-WR |  |  |  |  | ms4-wr, ms6-wr |
| [7] Knurled nut (included in the scope of delivery) |
| MS-LR |  |  |  |  |  |
| [8] Angled outlet block |
| B... |  |  |  |  | 46 |
| [9] Cover plate |
| VS |  |  |  |  | 46 |
| [10] Pressure sensor without display |
| AD7 ... AD10 |  |  |  |  | 46 |
| NEBU-M8...-LE3 |  |  |  |  | 102 |
| [12] Padlock |
| LRVS-D |  |  |  |  | 102 |
## Pressure regulators MS4/MS6-LRB, MS series

### Type codes

<table>
<thead>
<tr>
<th>Type code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Series</td>
</tr>
<tr>
<td>002</td>
<td>Size</td>
</tr>
<tr>
<td>003</td>
<td>Function</td>
</tr>
<tr>
<td>004</td>
<td>Pneumatic connection</td>
</tr>
<tr>
<td>005</td>
<td>Pressure regulation range</td>
</tr>
<tr>
<td>006</td>
<td>Pressure gauge alternatives</td>
</tr>
<tr>
<td>007</td>
<td>Alternative pressure gauge scale</td>
</tr>
<tr>
<td>008</td>
<td>Secondary exhausting</td>
</tr>
<tr>
<td>009</td>
<td>Rotary knob alternative</td>
</tr>
<tr>
<td>010</td>
<td>Alternative mounting position</td>
</tr>
<tr>
<td>011</td>
<td>Lockability</td>
</tr>
<tr>
<td>012</td>
<td>Alternative pressure outlet</td>
</tr>
<tr>
<td>013</td>
<td>Type of mounting</td>
</tr>
<tr>
<td>014</td>
<td>EU certification</td>
</tr>
<tr>
<td>015</td>
<td>UL certification</td>
</tr>
<tr>
<td>016</td>
<td>Flow direction</td>
</tr>
</tbody>
</table>

### Specific Details

- **Series**: MS
- **Size**: 4
- **Function**: Pressure regulator for manifold assembly
- **Pneumatic connection**: 1/4
- **Pressure regulation range**:
  - D5: 0.3 ... 4 bar
  - D6: 0.3 ... 7 bar
  - D7: 0.3 ... 12 bar
- **Pressure gauge alternatives**:
  - None
  - VS: Cover plate
  - A8: Adapter for EN pressure gauge 1/8, without pressure gauge
  - A4: Adapter for EN pressure gauge 1/4, without pressure gauge
  - RG: Integrated pressure gauge, red/green scale
  - AD1: Pressure sensor with LCD display, M8 plug, PNP, 3-pin
  - AD2: Pressure sensor with LCD display, M8 plug, NPN, 3-pin
  - AD3: Pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA
  - AD4: Pressure sensor with LCD display, M12 plug, NPN, 4-pin, analogue output 4 ... 20 mA
  - AD7: Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O
  - AD8: Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C
  - AD9: Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O
  - AD10: Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, NC
  - AD11: Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA
  - AD12: Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA
- **Secondary exhausting**:
  - OS: Without secondary exhausting
  - OS: With secondary exhausting
- **Rotary knob alternative**:
  - LD: Long rotary knob
  - DM1: Rotary knob pressure gauge, small
- **Alternative mounting position**:
  - None
  - KD: Rotary knob underneath
- **Lockability**:
  - None
  - AS: Can be locked using accessories
  - E11: With integrated lock
- **Alternative pressure outlet**:
  - None
  - BC: Angled outlet block QS-6
  - BD: Angled outlet block QS-8
- **Type of mounting**:
  - Without mounting bracket
  - WR: Mounting bracket with knurled nut on regulator knob
  - WP: Mounting bracket basic design
  - WPM: Mounting bracket for hooking in service unit components
  - WB: Mounting centrally at rear (wall mounting top and bottom), connecting plates not required
  - WBM: Mounting centrally at rear (wall mounting top), connecting plates not required
  - WPB: Mounting bracket for large wall gap
- **EU certification**:
  - None
  - EX4: II 2GD
- **UL certification**:
  - None
  - UL1: cULus ordinary location for Canada and USA
- **Flow direction**:
  - Pressure output to the rear
  - Pressure output to the front

---

**Internet**: www.festo.com/catalogue/...
## Pressure regulators MS4/MS6-LRB, MS series

### Type codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>001</td>
<td>Series</td>
</tr>
<tr>
<td>002</td>
<td>Size</td>
</tr>
<tr>
<td>003</td>
<td>Function</td>
</tr>
<tr>
<td>004</td>
<td>Pneumatic connection</td>
</tr>
<tr>
<td>005</td>
<td>Pressure regulation range</td>
</tr>
<tr>
<td>006</td>
<td>Pressure gauge alternatives</td>
</tr>
<tr>
<td>007</td>
<td>Alternative pressure gauge scale</td>
</tr>
<tr>
<td>008</td>
<td>Secondary exhausting</td>
</tr>
<tr>
<td>009</td>
<td>Rotary knob alternative</td>
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<tr>
<td>010</td>
<td>Alternative mounting position</td>
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<tr>
<td>011</td>
<td>Lockability</td>
</tr>
<tr>
<td>012</td>
<td>Alternative pressure outlet</td>
</tr>
<tr>
<td>013</td>
<td>Type of mounting</td>
</tr>
<tr>
<td>014</td>
<td>EU certification</td>
</tr>
<tr>
<td>015</td>
<td>UL certification</td>
</tr>
<tr>
<td>016</td>
<td>Flow direction</td>
</tr>
</tbody>
</table>

### Type codes descriptions

- **001 Series**: MS
- **002 Size**: 6
- **003 Function**: LRB
- **004 Pneumatic connection**: 1/2
- **005 Pressure regulation range**:
  - D5: 0.3 ... 4 bar
  - D6: 0.3 ... 7 bar
  - D7: 0.5 ... 12 bar
  - D8: 0.5 ... 16 bar
- **006 Pressure gauge alternatives**: None
- **007 Alternative pressure gauge scale**: MS pressure gauge
- **008 Secondary exhausting**: With secondary exhausting
- **009 Rotary knob alternative**: None
- **010 Alternative mounting position**: None
- **011 Lockability**: None
- **012 Alternative pressure outlet**: None
- **013 Type of mounting**: Without mounting bracket
- **014 EU certification**: None
- **015 UL certification**: None
- **016 Flow direction**: Pressure output to the rear

### Additional details

- **Internet**: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)
- **Pressure regulators MS4/MS6-LRB, MS series**

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2021/05 – Subject to change


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Pressure regulators MS4/MS6-LRB, MS series

Datasheet

Without pressure gauge
- Flow rate
  300 ... 7300 l/min
- Temperature range
  -10 ... +60°C
- Operating pressure
  0.8 ... 20 bar

With pressure gauge
- Flow rate
  300 ... 7300 l/min
- Temperature range
  -10 ... +60°C
- Operating pressure
  0.8 ... 20 bar

Several pressure regulators mounted next to one another to form a regulator manifold:

The pressure regulator is suitable for manifold assemblies with through air supply, for configuring a regulator manifold with separate, independent pressure regulation ranges. The pressure output is to the front or rear.

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- Actuator lock to protect the set values from being adjusted
- Available with and without secondary exhausting
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Return flow option for exhausting from output 2 to output 1 already integrated
- Optional pressure sensor
- Optional rotary knob pressure gauge
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data

<table>
<thead>
<tr>
<th>Size</th>
<th>MS4</th>
<th>MS6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic connection 1 Female thread</td>
<td>G1/4</td>
<td>G1/2</td>
</tr>
<tr>
<td>Connecting plate</td>
<td>G1/8, G1/4 or G3/8</td>
<td>G1/4, G1/2 or G3/4</td>
</tr>
<tr>
<td>Pneumatic connection 2 Female thread</td>
<td>G1/4</td>
<td>G1/2</td>
</tr>
<tr>
<td>Angled outlet block</td>
<td>QS-6</td>
<td>QS-8</td>
</tr>
<tr>
<td></td>
<td>[BD] QS-8</td>
<td>QS-10</td>
</tr>
<tr>
<td>Design</td>
<td>Directly actuated diaphragm regulator with through compressed air supply</td>
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<tr>
<td>Regulator function</td>
<td>Output pressure constant, with input pressure compensation, with return flow, with/without secondary exhausting</td>
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</tr>
<tr>
<td>Type of mounting</td>
<td>Via accessories</td>
<td></td>
</tr>
<tr>
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<td>In-line installation</td>
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<td>Front panel mounting</td>
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<tr>
<td>Mounting position</td>
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</tr>
<tr>
<td>Actuator lock</td>
<td>Rotary knob with latch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rotary knob with latch, can be locked using accessories</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rotary knob with integrated lock</td>
<td></td>
</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>[D5] [bar] 0.3 ... 4, manually actuated(^1)</td>
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</tr>
<tr>
<td></td>
<td>[D6] [bar] 0.3 ... 7, manually actuated(^1)</td>
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<tr>
<td></td>
<td>[D7] [bar] 0.5 ... 12, manually actuated (0.5 ... 10 with pressure sensor or with UL certification)(^1)</td>
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</tr>
<tr>
<td></td>
<td>[D8] [bar] –</td>
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<tr>
<td>Max. pressure hysteresis [bar]</td>
<td>0.25</td>
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<tr>
<td>Pressure indication</td>
<td>Via pressure sensor for indicating the output pressure and electrical output via LCD display</td>
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</tr>
<tr>
<td></td>
<td>Via pressure sensor for indicating the output pressure and electrical output</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Via pressure gauge for indicating the output pressure</td>
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<tr>
<td></td>
<td>Via pressure gauge with red/green scale for indicating the output pressure</td>
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<tr>
<td></td>
<td>Via pressure gauge in the rotary knob for displaying the output pressure</td>
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</tr>
<tr>
<td></td>
<td>Prepared for G1/8</td>
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</tr>
<tr>
<td></td>
<td>Prepared for G1/4</td>
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</tr>
</tbody>
</table>

\(^1\) MS4: the pressure regulation range for pressure regulators with rotary knob pressure gauge starts at 0.8 bar.

\(^1\) Note: This product conforms to ISO 1179-1 and ISO 228-1.
## Datasheet

### Standard nominal flow rate $q_{N1}$ [l/min]

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<tr>
<th>Size</th>
<th>MS4</th>
<th>Angled outlet block</th>
<th>MS6</th>
<th>Angled outlet block</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Standard [BC]: QS-6</td>
<td></td>
<td>Standard [BD]: QS-8</td>
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<td></td>
<td></td>
<td>[BD]: QS-8</td>
<td></td>
<td>[BE]: QS-10</td>
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<tr>
<td>[D5]</td>
<td>1900</td>
<td>300</td>
<td>7300</td>
<td>600</td>
</tr>
<tr>
<td>[D6]</td>
<td>1700</td>
<td>350</td>
<td>840</td>
<td>880</td>
</tr>
<tr>
<td>[D7]</td>
<td>1500</td>
<td>350</td>
<td>640</td>
<td>5500</td>
</tr>
<tr>
<td>[D8]</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>4500</td>
</tr>
</tbody>
</table>

1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar
2) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar
3) With a rotary knob pressure gauge, $q_{N} = 800$ l/min, $q_{n_{\text{max}}} = 2200$ l/min

### Operating and environmental conditions

<table>
<thead>
<tr>
<th>Size</th>
<th>MS4</th>
<th>MS6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating pressure [bar]</td>
<td>0.8 ... 14 (0.8 ... $10^2$)</td>
<td>0.8 ... 20 (0.8 ... $10^2$)</td>
</tr>
<tr>
<td>Note on the operating/pilot medium</td>
<td>Lubricated operation possible (in which case lubrication will always be required)</td>
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</tr>
<tr>
<td>Ambient temperature [°C]</td>
<td>–10 ... +50 ($0 ... +50^2$)</td>
<td>–10 ... +50 ($0 ... +50^2$)</td>
</tr>
<tr>
<td>Temperature of medium [°C]</td>
<td>–10 ... +50 ($0 ... +50^2$)</td>
<td>–10 ... +50</td>
</tr>
<tr>
<td>Storage temperature [°C]</td>
<td>–10 ... +60</td>
<td>–10 ... +60</td>
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<tr>
<td>Corrosion resistance class CRC</td>
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<td>See supplementary material information</td>
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<tr>
<td>Food-safe</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>UL certification</td>
<td>UL us - Recognized (OL)</td>
<td></td>
</tr>
</tbody>
</table>

1) Value in brackets applies to MS4/MS6-LRB with UL certification.
2) Value in brackets applies to MS4/MS6-LRB with pressure sensor.
3) More information www.festo.com/x/topic/crc
4) More information: www.festo.com/catalogue/ms-lrb

### ATEX

<table>
<thead>
<tr>
<th>EU certification</th>
<th>[EX4]</th>
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<tr>
<td>ATEX category for gas</td>
<td>II 2G</td>
</tr>
<tr>
<td>Type of (ignition) protection for gas</td>
<td>Ex h IIC T6 Gb X</td>
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<tr>
<td>ATEX category for dust</td>
<td>II 2D</td>
</tr>
<tr>
<td>Type of (ignition) protection for dust</td>
<td>Ex a IIC T60°C Db X</td>
</tr>
<tr>
<td>Explosion ambient temperature</td>
<td>$-10^\circ C \leq T_a \leq +60^\circ C$</td>
</tr>
<tr>
<td>Explosion protection certification outside the EU</td>
<td>EPL Db (GB)</td>
</tr>
<tr>
<td>CE marking (see declaration of conformity)</td>
<td>To EU Explosion Protection Directive (ATEX)</td>
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<tr>
<td>UKCA marking (see declaration of conformity)</td>
<td>To UK regulations for explosions</td>
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### Weight [g]

<table>
<thead>
<tr>
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<th>MS6</th>
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<tbody>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pressure regulator</td>
<td>222</td>
<td>747</td>
</tr>
<tr>
<td>Pressure regulator with rotary knob with integrated lock</td>
<td>347</td>
<td>1017</td>
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</table>

Pressure regulators MS4/MS6-LRB, MS series

Datasheet

Materials

Sectional view

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Housing</td>
</tr>
<tr>
<td>2</td>
<td>Rotary knob</td>
</tr>
<tr>
<td>3</td>
<td>Diaphragm</td>
</tr>
<tr>
<td>4</td>
<td>Bottom cover</td>
</tr>
<tr>
<td>5</td>
<td>Springs</td>
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<td>Seals</td>
</tr>
<tr>
<td>Note on materials</td>
<td>RoHS-compliant</td>
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</table>

LABS (PWIS) conformity: VDMA24364-B1/B2-L

Standard flow rate $q_n$ as a function of output pressure $p_2$ ($p_1 = 10$ bar)

Input pressure $p_1 = 10$ bar

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
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<tbody>
<tr>
<td>8</td>
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<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
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<tr>
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</table>

1) There is a higher initial pressure drop in the characteristic curve for variant DM1.
### Datasheet

**Dimensions – Basic version**

[Integrated MS pressure gauge with standard scale](#)
[Integrated MS pressure gauge with red/green scale](#)
[Rotary knob with latch](#)

![Flow direction diagram](#)

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>D1</th>
<th>D2</th>
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<th>L4</th>
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*Note: This product conforms to ISO 1179-1 and ISO 228-1.*
Pressure regulators MS4/MS6-LRB, MS series

Datasheet

### Dimensions – Alternative mounting position

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<thead>
<tr>
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<th>B2</th>
<th>B3</th>
<th>D1</th>
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<th>L3</th>
<th>L4</th>
<th>L5</th>
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⇒ Flow direction

Note: This product conforms to ISO 1179-1 and ISO 228-1.
## Pressure regulators MS4/MS6-LRB, MS series

### Datasheet

#### Dimensions – Angled outlet block

- Angled outlet block
- Pressure output at the rear

### MS4

![Diagram of MS4](image)

### MS6

![Diagram of MS6](image)

### Table of Dimensions

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<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B6</th>
<th>B8</th>
<th>D1</th>
<th>D2</th>
<th>Ø</th>
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<td>G1/4</td>
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<td>77</td>
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<td>G1/2</td>
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Note: This product conforms to ISO 1179-1 and ISO 228-1.
Pressure regulators MS4/MS6-LRB, MS series

Datasheet

**Dimensions – Angled outlet block**

- [BC]/[BD]/[BE]  Angled outlet block
- [Z]  Pressure output to front

MS4 (not shown)

MS6

<table>
<thead>
<tr>
<th>Type</th>
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<th>B8</th>
<th>D1</th>
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*Note: This product conforms to ISO 1179-1 and ISO 228-1.*
### Datasheet

#### Dimensions – Pressure gauge alternatives

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<th>B3</th>
<th>D1</th>
<th>D4</th>
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<tr>
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<td>–</td>
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<tr>
<td>MS4-LRB-1/4-...-A8</td>
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<td>58.5</td>
<td>G1/4</td>
<td>G1/8</td>
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<td>MS4-LRB-1/4-...-A4</td>
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<td>58.5</td>
<td>G1/4</td>
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<tr>
<td>MS6-LRB-1/2-...-VS</td>
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<td>76</td>
<td>G1/2</td>
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<td>MS6-LRB-1/2-...-A4</td>
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<td>78.5</td>
<td>G1/2</td>
<td>G1/4</td>
</tr>
</tbody>
</table>

- **Note:** This product conforms to ISO 1179-1 and ISO 228-1.

[VS] Cover plate

[A8] Adapter for EN pressure gauge 1/8, without pressure gauge

[A4] Adapter for EN pressure gauge 1/4, without pressure gauge

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Flow direction

---

2021/05 – Subject to change


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Pressure regulators MS4/MS6-LRB, MS series

Datasheet

Dimensions – Pressure gauge alternatives

| Variant AD1: | SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP |
| Variant AD2: | SDE1-D10-G2-MS-L-N1-M8 with 3-pin plug M8x1, 1 switching output NPN |
| Variant AD3: | SDE1-D10-G2-MS-L-P1-M12 with 4-pin plug M12x1, 1 switching output PNP and 4 ... 20 mA analogue |
| Variant AD4: | SDE1-D10-G2-MS-L-N1-M12 with 4-pin plug M12x1, 1 switching output NPN and 4 ... 20 mA analogue |

| Variant AD7: | SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact |
| Variant AD8: | SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact |
| Variant AD9: | SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact |
| Variant AD10: | SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact |

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Datasheets → Internet: sde1

[AD1 ... 4] Pressure sensor with LCD display

| Variant AD1: | SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP |
| Variant AD2: | SDE1-D10-G2-MS-L-N1-M8 with 3-pin plug M8x1, 1 switching output NPN |

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Datasheets → Internet: sde1

[AD7 ... 10] Pressure sensor without LCD display (switching status indicator only)

| Variant AD7: | SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact |
| Variant AD8: | SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact |
| Variant AD9: | SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact |
| Variant AD10: | SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact |

Download CAD data → www.festo.com

Datasheets → Internet: sde5

Type | B2 | B3 | B5 | B6 | D6 | L5 | L6 |
<table>
<thead>
<tr>
<th></th>
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<td>M8x1</td>
<td>35.1</td>
<td>46.7</td>
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<td>82.6</td>
<td>32</td>
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<td>M12x1</td>
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<td>M8x1</td>
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<td>MS6-LR-...-AD3/AD4</td>
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<td>103</td>
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<td>MS6-LR-...-AD7/AD8/AD9/AD10</td>
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Note: This product conforms to ISO 1179-1 and ISO 228-1.
Pressure regulators MS4/MS6-LRB, MS series

Datasheet

Dimensions – Pressure gauge alternatives

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
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<td>M8x1</td>
<td>37.9</td>
<td>39</td>
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</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Variant AD11:
SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:
SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Download CAD data → www.festo.com
Datasheets → Internet: spau

[AD11/AD12] Pressure sensor with LCD display

Download CAD data → www.festo.com
Datasheets → Internet: spau

Variants AD11/AD12

Variant AD11:
SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:
SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
Pressure regulators MS4/MS6-LRB, MS series

Datasheet

Dimensions – Rotary knob

For control panel installation

- Rotary knob with latch
- Rotary knob with latch, can be locked using accessories
- Rotary knob with integrated lock

Download CAD data → www.festo.com

For pressure adjustment: fully pull out telescopic rotary knob

<table>
<thead>
<tr>
<th>Type</th>
<th>B4</th>
<th>B5</th>
<th>D2</th>
<th>D3</th>
<th>L3</th>
<th>L8</th>
<th>L9</th>
<th>L10</th>
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<tr>
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</table>
## Pressure regulators MS4/MS6-LRB, MS series

### Datasheet

**Dimensions – Rotary knob pressure gauge**

<table>
<thead>
<tr>
<th>[DM1] Rotary knob pressure gauge, small</th>
<th>[DM2] Rotary knob pressure gauge, large</th>
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**Flow direction**

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<tr>
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<th>L4</th>
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<th>L9</th>
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**Ordering data**

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<th>Part no.</th>
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<td>G1/4</td>
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<td></td>
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<td>From right to left</td>
<td>529482</td>
<td>MS4-LRB-1/4-D6-AS-VS-AS-Z</td>
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<tr>
<td></td>
<td>0.5 ... 12 bar</td>
<td>From left to right</td>
<td>529483</td>
<td>MS4-LRB-1/4-D7-A8-AS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>From left to right</td>
<td>529485</td>
<td>MS4-LRB-1/4-D7-AS</td>
</tr>
<tr>
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<td>From left to right</td>
<td>529486</td>
<td>MS4-LRB-1/4-D7-AS-BD</td>
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<tr>
<td><strong>MS6-LRB...</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G1/2</td>
<td>0.3 ... 4 bar</td>
<td>From left to right</td>
<td>530322</td>
<td>MS6-LRB-1/2-D5-A5-AS</td>
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<tr>
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<td>530320</td>
<td>MS6-LRB-1/2-D5-A4-AS</td>
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<tr>
<td></td>
<td>0.3 ... 7 bar</td>
<td>From left to right</td>
<td>530326</td>
<td>MS6-LRB-1/2-D6-A4-AS</td>
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<td>530328</td>
<td>MS6-LRB-1/2-D6-AS</td>
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<tr>
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<td></td>
<td>From left to right</td>
<td>530329</td>
<td>MS6-LRB-1/2-D6-AS-BD</td>
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<td>530330</td>
<td>MS6-LRB-1/2-D6-AS-BD-Z</td>
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<td>0.5 ... 12 bar</td>
<td>From left to right</td>
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<td>530334</td>
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<td></td>
<td>From left to right</td>
<td>530335</td>
<td>MS6-LRB-1/2-D7-AS-BD</td>
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</table>
### Ordering table – Modular product system

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<thead>
<tr>
<th>Grid dimension [mm]</th>
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<th>62</th>
<th>Conditions</th>
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<tr>
<td>Module no.</td>
<td>527692</td>
<td>527665</td>
<td>MS</td>
<td>MS</td>
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<td>Series</td>
<td>Standard</td>
<td>LRB</td>
<td>LRB</td>
<td></td>
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<tr>
<td>Size</td>
<td>4</td>
<td>6</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Function</td>
<td>Pressure regulator for manifold assembly</td>
<td>Pressure regulator for manifold assembly</td>
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<tr>
<td>Pneumatic connection</td>
<td>Female thread G1/4</td>
<td>Female thread G1/2</td>
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<td>Connecting plate G1/B</td>
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<td>-</td>
<td>-AGA</td>
<td>-AGB</td>
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<tr>
<td>Connecting plate G1/A</td>
<td>Connecting plate G1/A</td>
<td>Connecting plate G1/2</td>
<td>Connecting plate G3/4</td>
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<tr>
<td>Connecting plate G1/2</td>
<td>Connecting plate G1/2</td>
<td>Connecting plate G1/2</td>
<td>Connecting plate G3/4</td>
<td>-AGE</td>
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</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>0.3 ... 4 bar, manually actuated</td>
<td>0.3 ... 7 bar, manually actuated</td>
<td>0.5 ... 12 bar, manually actuated</td>
<td>0.5 ... 16 bar, manually actuated</td>
<td></td>
</tr>
<tr>
<td>Pressure gauge alternatives</td>
<td>MS pressure gauge</td>
<td>MS pressure gauge</td>
<td>MS pressure gauge</td>
<td>MS pressure gauge</td>
<td></td>
</tr>
<tr>
<td>Cover plate</td>
<td>-</td>
<td>-</td>
<td>VS</td>
<td>-</td>
<td></td>
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<tr>
<td>Adapter for EN pressure gauge 1/8, without pressure gauge</td>
<td>-</td>
<td>-</td>
<td>-A8</td>
<td>-</td>
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<tr>
<td>Adapter for EN pressure gauge 1/4, without pressure gauge</td>
<td>-</td>
<td>-</td>
<td>-A4</td>
<td>-</td>
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<tr>
<td>Integrated pressure gauge, red/green scale</td>
<td>-</td>
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<tr>
<td>Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin</td>
<td>-</td>
<td>-</td>
<td>AD1</td>
<td>AD2</td>
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<tr>
<td>Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin</td>
<td>4 ... 20 mA</td>
<td>4 ... 20 mA</td>
<td>AD3</td>
<td>AD4</td>
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<tr>
<td>Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output</td>
<td>4 ... 20 mA</td>
<td>4 ... 20 mA</td>
<td>AD5</td>
<td>AD6</td>
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<tr>
<td>Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output</td>
<td>4 ... 20 mA</td>
<td>4 ... 20 mA</td>
<td>AD7</td>
<td>AD8</td>
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<tr>
<td>Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact</td>
<td>4 ... 20 mA</td>
<td>4 ... 20 mA</td>
<td>AD9</td>
<td>AD10</td>
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<tr>
<td>Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact</td>
<td>4 ... 20 mA</td>
<td>4 ... 20 mA</td>
<td>AD11</td>
<td>AD12</td>
<td></td>
</tr>
<tr>
<td>Pressure sensor with status indicator, plug M8, window comparator, PNP, N/O contact</td>
<td>4 ... 20 mA</td>
<td>4 ... 20 mA</td>
<td>AD13</td>
<td>AD14</td>
<td></td>
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<tr>
<td>Pressure sensor with status indicator, plug M8, window comparator, PNP, N/C contact</td>
<td>4 ... 20 mA</td>
<td>4 ... 20 mA</td>
<td>AD15</td>
<td>AD16</td>
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<tr>
<td>Pressure sensor with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA</td>
<td>1</td>
<td>1</td>
<td>AD17</td>
<td>AD18</td>
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<tr>
<td>Pressure sensor with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA</td>
<td>1</td>
<td>1</td>
<td>AD19</td>
<td>AD20</td>
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<tr>
<td>Alternative pressure gauge scale</td>
<td>MS pressure gauge, bar</td>
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<td>psi</td>
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<tr>
<td>MPA</td>
<td>-</td>
<td>-</td>
<td>MPA</td>
<td>-</td>
<td></td>
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</tbody>
</table>

[1] 1/4, 1/2, D8, AD1 ... AD4, AD7 ... AD10, AD11 ... AD12, DM1, DM2, KD, E11, WPM
[3] VS Must be selected if outlet direction Z is selected without alternative mounting position KD and without pressure output BC, BD, BE.
[4] A8, A4, AD1 ... AD4, AD11 ... AD12 Not with rotary knob pressure gauge DM1, DM2.
[5] AD1 ... AD4, AD7 ... AD10, AD11 ... AD12 Measuring range max. 10 bar. Not with pressure regulation range D8.
[6] AD11 ... AD12 AD7 ... AD10 In combination with outlet direction Z only with alternative mounting position KD. Not with rotary knob pressure gauge DM1, DM2.
[7] AD1 ... AD4, AD7 ... AD10 AD11 ... AD12 In combination with outlet direction Z only with pressure output BC, BD, BE or in combination with outlet direction Z only with alternative mounting position KD.
[8] AD1 ... AD4, AD7 ... AD10 AD11 ... AD12 In combination with outlet direction Z only with pressure output BC, BD, BE or in combination with outlet direction Z only with pressure output BC, BD, BE.
### Ordering table – Modular product system

<table>
<thead>
<tr>
<th>Grid dimension [mm]</th>
<th>40</th>
<th>62</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
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</thead>
<tbody>
<tr>
<td><strong>Secondary exhausting</strong></td>
<td>With secondary exhausting</td>
<td>[2]</td>
<td>[2]</td>
<td>DS</td>
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<tr>
<td>Without secondary exhausting</td>
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<tr>
<td><strong>Rotary knob alternative</strong></td>
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<tr>
<td>Long rotary knob</td>
<td>[9]</td>
<td>[9]</td>
<td>LD</td>
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<td>Rotary knob pressure gauge, small</td>
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<td>[1]</td>
<td>[1]</td>
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<td>Rotary knob pressure gauge, large</td>
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<tr>
<td><strong>Locking option</strong></td>
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<tr>
<td>With integrated lock</td>
<td>[1]</td>
<td>[1]</td>
<td>E11</td>
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<tr>
<td><strong>Pressure output</strong> ((p_{\text{max}} = 10 \text{ bar}))</td>
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<td>Angled outlet block QS-6</td>
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<td>Angled outlet block QS-8</td>
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<tr>
<td>–</td>
<td>Angled outlet block QS-10</td>
<td>BE</td>
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<tr>
<td><strong>Type of mounting</strong></td>
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<tr>
<td>Mounting bracket with knurled nut for regulator head</td>
<td>[12]</td>
<td>[13]</td>
<td>WR</td>
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<tr>
<td>Mounting bracket standard design</td>
<td>[14]</td>
<td>[15]</td>
<td>WP</td>
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</tr>
<tr>
<td>Mounting bracket for hooking in service unit components</td>
<td>[1]</td>
<td>[1]</td>
<td>[14]</td>
<td>WPM</td>
<td></td>
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<tr>
<td>Mounting bracket for large wall gap</td>
<td>[14]</td>
<td>[16]</td>
<td>WPB</td>
<td></td>
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</tr>
<tr>
<td>Mounting bracket centrally at the rear (wall mounting top and bottom), connecting plates not required</td>
<td>[12]</td>
<td>[12]</td>
<td>WB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting bracket centrally at the rear (wall mounting top), connecting plates not required</td>
<td>–</td>
<td>–</td>
<td>WBM</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EU certification</strong></td>
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<td></td>
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</tr>
<tr>
<td>II 2GD to EU Explosion Protection Directive (ATEX)</td>
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<td>EX4</td>
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<td><strong>UL certification</strong></td>
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<td>cULus, ordinary location for Canada and USA</td>
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<td><strong>Outlet direction</strong></td>
<td>Pressure output at the rear</td>
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<td></td>
<td></td>
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<tr>
<td>Pressure output at the front (without angled outlet block, no pressure gauge)</td>
<td>–</td>
<td>–</td>
<td>Z</td>
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<td></td>
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</table>

---

[10] DM1, DM2 Can only be selected in combination with pressure gauge alternatives VS, A4, AD1 … AD4, AD7 ... AD10.
[12] WR, WPM, WB, WBM In combination with alternative pressure gauge scale PSI only with outlet direction Z and/or only with pressure output BC, BD, BE.
[13] WR In combination with mounting type WR, WPM, WB, WBM not with outlet direction Z.
[14] WP, WPM, WB Not with pressure gauge alternative KG.
[15] WP, WPM In combination with pressure gauge alternatives A8, A4, AD1, AD2, AD3, AD4 only with outlet direction Z.
[16] WPB In combination with outlet direction Z not with alternative mounting position KD.

---

Internet: www.festo.com/catalogue/...
Precision pressure regulators MS6-LRP, MS series

Peripherals overview

**Precision pressure regulator MS6-LRP**

### Additional accessories:
- Module connectors for combination with size MS4/MS6 or size MS9
  - Internet: amv, rmv, armv
- Adapters for mounting on profiles
  - Internet: ipm-80, ipm-40-80, ipm-80-80

<table>
<thead>
<tr>
<th>Manually actuated</th>
<th>Pneumatically actuated</th>
</tr>
</thead>
</table>

[Diagram of Precision pressure regulator MS6-LRP with component numbers 1-16]
## Peripherals overview

<table>
<thead>
<tr>
<th>Mounting attachments and accessories</th>
<th>Individual device</th>
<th>Combination</th>
<th>Page/Internet</th>
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<tbody>
<tr>
<td></td>
<td>Without connecting plate</td>
<td>With connecting plate</td>
<td>Without connecting plate</td>
</tr>
<tr>
<td>[1] Adapter for EN pressure gauge 1/8, 1/4 A8/A4</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[3] Cover cap MS6-END</td>
<td>■</td>
<td>—</td>
<td>■</td>
</tr>
<tr>
<td>[4] Module connector MS6-MV</td>
<td>—</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[5] Connecting plate SET MS6-AQ...</td>
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<td>—</td>
</tr>
<tr>
<td>Connecting plate SET MS6-AG...</td>
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<td>■</td>
<td>—</td>
</tr>
<tr>
<td>[7] Pressure sensor with display AD1 ... AD4</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[8] Pressure sensor with LCD display AD11/AD12</td>
<td>■</td>
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<td>■</td>
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<tr>
<td>[10] Pressure sensor without display AD7 ... AD10</td>
<td>■</td>
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<td>■</td>
</tr>
<tr>
<td>[12] Precision pressure gauge ABM/MAP</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[13] Cover plate VS</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>[14] Knurled nut (included in the scope of delivery) MS-LR</td>
<td>■</td>
<td>■</td>
<td>—</td>
</tr>
<tr>
<td>[15] Mounting bracket MS6-WR</td>
<td>■</td>
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<td>—</td>
</tr>
<tr>
<td>[16] Padlock LRVS-D</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>— Mounting bracket MS6-WP/WPB/WPE/WPM</td>
<td>—</td>
<td>■</td>
<td>■</td>
</tr>
</tbody>
</table>
### Type codes

**001 Series**
- MS: MS series

**002 Size**
- 6: Grid dimension 62 mm

**003 Function**
- LRP: Precision pressure regulator

**004 Pneumatic connection**
- 1/4: Female thread G1/4
- 3/8: Female thread G3/8
- 1/2: Female thread G1/2
- AGB: Sub-base G1/4
- AGC: Sub-base G3/8
- AGD: Sub-base G1/2
- AGE: Sub-base G3/4
- AQP: Sub-base NPT3/8
- APK: Sub-base NPT1/2
- AQS: Sub-base NPT3/4

**005 Pressure regulation range**
- D2: 0.05 ... 0.7 bar
- D4: 0.05 ... 2.5 bar
- D5: 0.1 ... 4 bar
- D7: 0.1 ... 12 bar
- PO: Max. 12 bar, pneumatically actuated (pressure range determined by pilot regulator)

**006 Pressure gauge alternatives**
- V5: Cover plate
- A8: Adapter for EN pressure gauge 1/8, without pressure gauge
- ABM: Adapter for EN pressure gauge 1/8, with precision pressure gauge
- A4: Adapter for EN pressure gauge 1/4, without pressure gauge
- AD1: Pressure sensor with LCD display, M8 plug, PNP, 3-pin
- AD2: Pressure sensor with LED display, M8 plug, NPN, 3-pin
- AD3: Pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA
- AD4: Pressure sensor with LCD display, M12 plug, NPN, 4-pin, analogue output 4 ... 20 mA
- AD7: Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O
- AD8: Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C
- AD9: Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O
- AD10: Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C
- AD11: Pressure sensor with LED display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
- AD12: Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

**007 Rotary knob alternative**
- None
- LD: Long rotary knob

**008 Alternative mounting position**
- None
- KD: Rotary knob underneath

**009 Lockability**
- None
- AS: Can be locked using accessories
- E11: With integrated lock

**010 Type of mounting**
- WR: Mounting bracket with knurled nut on regulator knob
- WP: Mounting bracket basic design
- WPM: Mounting bracket for hooking in service unit components
- WB: Mounting centrally at rear (wall mounting top and bottom), connecting plates not required

**011 EU certification**
- None
- EX4: II 2GD

**012 UL certification**
- None
- UL1: cULus ordinary location for Canada and USA

**013 Flow direction**
- Flow direction from left to right
- Flow direction from right to left
The precision pressure regulator is suitable for sensitive applications requiring a pressure hysteresis of 0.02 bar. The output pressure \( p_2 \) can be set within the pressure regulation range either manually using the rotary knob or pneumatically via pilot pressure \( p_{12} \) by an external pilot regulator (where possible using a precision pressure regulator). When the input pressure \( p_1 \) is switched off, the output pressure \( p_2 \) is exhausted via port 3 (secondary exhausting).

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- High flow rate performance with minimal pressure drop
- High secondary exhausting for ultra-fast reaction times
- Actuator lock to protect the set values from being adjusted

### General technical data

<table>
<thead>
<tr>
<th>Size</th>
<th>MS6</th>
</tr>
</thead>
</table>
| Pneumatic connection 1, 2  
Female thread | \( G_{1/4}, G_{3/8} \) or \( G_{1/2} \) |
| Connecting plate | \( [AG...], G_{1/4}, G_{3/8}, G_{1/2} \) or \( G_{3/4} \) |
| Pneumatic connection 3 (secondary exhausting) | \( G_{1/4} \) |
| Pilot air port 12 | \( G_{1/8} \) (MS6-LRP-...-PO) |
| Design | Piloted precision diaphragm regulator |
| Regulator function | Output pressure constant, with secondary exhausting |
| Type of mounting | Via accessories  
In-line installation  
Front panel mounting |
| Mounting position | Any |
| Actuator lock | Rotary knob with latch  
Rotary knob with latch, can be locked using accessories  
Rotary knob with integrated lock |
| Pressure regulation range/actuation\(^1\) | \[
\begin{align*}
[D2] \text{ [bar]} & = 0.05 \ldots 0.7, \text{ manually actuated} \\
[D4] \text{ [bar]} & = 0.05 \ldots 2.5, \text{ manually actuated} \\
[D5] \text{ [bar]} & = 0.1 \ldots 4, \text{ manually actuated} \\
[D7] \text{ [bar]} & = 0.1 \ldots 12, \text{ manually actuated (0.1 \ldots 10 with pressure sensor or with UL certification)} \\
[PO] \text{ [bar]} & = 0.1 \ldots 12, \text{ pneumatically actuated (0.1 \ldots 10 with pressure sensor or with UL certification)} \\
\end{align*}
\] |
| Max. pressure hysteresis | \( \text{bar} \) 0.02 |
| Pressure indication | Via pressure sensor for indicating the output pressure and electrical output via LCD display  
Via pressure sensor for indicating the output pressure and electrical output  
Via precision pressure gauge for indicating the output pressure  
Prepared for \( G_{1/8} \)  
Prepared for \( G_{1/4} \) |

\(^1\) \([D2][D4][D5][D7][PO] \): Input pressure \( p_1 \) to output pressure \( p_2 + 1 \) bar.  
[PO]: Pilot pressure \( p_{12} = \text{output pressure} p_2 + \max. 0.5 \text{ bar} \)

Note: This product conforms to ISO 1179-1 and ISO 228-1.
## Datasheet

### Flow rates

<table>
<thead>
<tr>
<th>Pressure regulation range</th>
<th>[D2]: 0.05 ... 0.7 bar</th>
<th>[D4]: 0.05 ... 2.5 bar</th>
<th>[D5]: 0.1 ... 4 bar</th>
<th>[D7]/[PO]: 0.1 ... 12 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard nominal flow rate qN N [l/min]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>qN 1 = 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G1/4</td>
<td>800</td>
<td>1100</td>
<td>1400</td>
<td>3000</td>
</tr>
<tr>
<td>G3/8</td>
<td>1100</td>
<td>1400</td>
<td>1700</td>
<td>3300</td>
</tr>
<tr>
<td>G1/2</td>
<td>1600</td>
<td>2300</td>
<td>3000</td>
<td>5000</td>
</tr>
</tbody>
</table>

### Secondary exhaust flow rate qN 2 [l/min]

| qN 2 | ≥ 220 | ≥ 450 | ≥ 650 | ≥ 900 |

1) Estimated at p1 = 10 bar and p2 = 0.5 bar, Δp = 0.1 bar
2) Estimated at p1 = 10 bar and p2 = 1.5 bar, Δp = 0.1 bar
3) Estimated at p1 = 10 bar and p2 = 2.5 bar, Δp = 0.1 bar
4) Estimated at p1 = 10 bar and p2 = 6.0 bar, Δp = 0.1 bar
5) Estimated at p1 = 10 bar and p2 = 0.7 bar, Δp2 = 0.1 bar
6) Estimated at p1 = 10 bar and p2 = 2.5 bar, Δp2 = 0.1 bar
7) Estimated at p1 = 10 bar and p2 = 4.0 bar, Δp2 = 0.1 bar
8) Estimated at p1 = 10 bar and p2 = 6.0 bar, Δp2 = 0.1 bar

### Operating and environmental conditions

<table>
<thead>
<tr>
<th>Operating pressure [bar]</th>
<th>1 ... 14 (1 ... 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating medium</td>
<td>Compressed air to ISO 8573-1:2010 [7:4:4]</td>
</tr>
<tr>
<td>Inert gases</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature [°C]</td>
<td>−10 ... +60 (0 ... +50)</td>
</tr>
<tr>
<td>Temperature of medium</td>
<td>−10 ... +60 (0 ... +50)</td>
</tr>
<tr>
<td>Storage temperature [°C]</td>
<td>−10 ... +60</td>
</tr>
<tr>
<td>Corrosion resistance class CRC</td>
<td>2</td>
</tr>
<tr>
<td>UL certification</td>
<td>c UL us - Recognized (UL)</td>
</tr>
</tbody>
</table>

1) Value in brackets applies to MS6-LRP with UL certification.
2) Value in brackets applies to MS6-LRP with pressure sensor.
3) More information: www.festo.com/x/topic/crc

### ATEX

<table>
<thead>
<tr>
<th>EU certification</th>
<th>[EX4]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX category for gas</td>
<td>II 2G</td>
</tr>
<tr>
<td>Type of (ignition) protection for gas</td>
<td>Ex h IIC T6 Gb X</td>
</tr>
<tr>
<td>ATEX category for dust</td>
<td>II 2D</td>
</tr>
<tr>
<td>Type of (ignition) protection for dust</td>
<td>Ex h IIC T60°C Db X</td>
</tr>
<tr>
<td>Explosion ambient temperature</td>
<td>−10°C ≤ Ta ≤ +60°C</td>
</tr>
<tr>
<td>Explosion protection certification outside the EU</td>
<td>EPL Db (GB)</td>
</tr>
<tr>
<td>CE marking (see declaration of conformity)[1]</td>
<td>To EU Explosion Protection Directive (ATEX)</td>
</tr>
<tr>
<td>UKCA marking (see declaration of conformity)[2]</td>
<td>To UK regulations for explosions</td>
</tr>
</tbody>
</table>


### Weight [g]

<table>
<thead>
<tr>
<th>Precision pressure regulator</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precision pressure regulator with rotary knob with integrated lock</td>
<td>1120</td>
</tr>
</tbody>
</table>
Datasheet

Materials

Sectional view

Precision pressure regulator

| 1 | Housing | Die-cast aluminium |
| 2 | Rotary knob | PA, POM |
|   | Rotary knob with integrated lock | Aluminium |
| 3 | Diaphragms | NBR |
| 4 | Bottom cover | PC |
| 5 | Springs | Steel |
|   | Seals | NBR |

Note on materials: RoHS-compliant

PWIS conformity: VDMA24364-B1/B2-L

Standard flow rate $q_n$ as a function of output pressure $p_2$ ($p_1 = 10$ bar)

**MS6-LRP-1/4-D2**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.8</td>
</tr>
<tr>
<td>0.05</td>
<td>0.7</td>
</tr>
<tr>
<td>0.1</td>
<td>0.5</td>
</tr>
<tr>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>0.4</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**MS6-LRP-1/2-D2**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.8</td>
</tr>
<tr>
<td>0.05</td>
<td>0.7</td>
</tr>
<tr>
<td>0.1</td>
<td>0.5</td>
</tr>
<tr>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>0.4</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**MS6-LRP-3/8-D2**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.8</td>
</tr>
<tr>
<td>0.05</td>
<td>0.7</td>
</tr>
<tr>
<td>0.1</td>
<td>0.5</td>
</tr>
<tr>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>0.4</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**MS6-LRP-1/4-D4/D5**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>0.05</td>
<td>4</td>
</tr>
<tr>
<td>0.1</td>
<td>3</td>
</tr>
<tr>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td>0.3</td>
<td>1</td>
</tr>
</tbody>
</table>

[D2]: 0.05 ... 0.7 bar
[D4]: 0.05 ... 2.5 bar
[D5]: 0.1 ... 4 bar
Precision pressure regulators MS6-LRP, MS series

Datasheet

**Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)**

<table>
<thead>
<tr>
<th>MS6-LRP-3/8-D4/D5</th>
<th>MS6-LRP-1/2-D4/D5</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Graph 1" /></td>
<td><img src="#" alt="Graph 2" /></td>
</tr>
</tbody>
</table>

- **[D4]: 0.05 ... 2.5 bar**
- **[D5]: 0.1 ... 4 bar**

<table>
<thead>
<tr>
<th>MS6-LRP-1/4-D7/PO</th>
<th>MS6-LRP-3/8-D7/PO</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Graph 3" /></td>
<td><img src="#" alt="Graph 4" /></td>
</tr>
</tbody>
</table>

- **[D7]/[PO]: 0.1 ... 12 bar**

<table>
<thead>
<tr>
<th>MS6-LRP-1/2-D7/PO</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Graph 5" /></td>
</tr>
</tbody>
</table>

- **[D7]/[PO]: 0.1 ... 12 bar**
Precision pressure regulators MS6-LRP, MS series

Datasheet

Internal air consumption $q_n$ as a function of input pressure $p_1$

<table>
<thead>
<tr>
<th>$p_1$ [bar]</th>
<th>$q_n$ [l/h]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>7</td>
<td>70</td>
</tr>
<tr>
<td>8</td>
<td>80</td>
</tr>
<tr>
<td>9</td>
<td>90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$p_1$ [bar]</th>
<th>$q_n$ [l/h]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
</tr>
<tr>
<td>4</td>
<td>200</td>
</tr>
<tr>
<td>5</td>
<td>250</td>
</tr>
<tr>
<td>6</td>
<td>300</td>
</tr>
</tbody>
</table>

Dimensions

- [D2]/[D4]/[D5]/[D7] Pressure regulation range, manually actuated
- [A8M] Adapter for EN pressure gauge 1/8, with precision pressure gauge
- [AS] Rotary knob with latch, can be locked using accessories

Flow direction

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B7</th>
<th>D1</th>
<th>D2 $\varnothing$</th>
<th>D4 $\varnothing$</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-1/4-D2/D4/D5/D7-A8M-AS</td>
<td>62</td>
<td>31</td>
<td>76</td>
<td>116</td>
<td>G1/4</td>
<td></td>
<td></td>
<td>95.1</td>
<td>78</td>
<td>133</td>
<td>254</td>
</tr>
<tr>
<td>MS6-LRP-1/2-D2/D4/D5/D7-A8M-AS</td>
<td>G1/2</td>
<td>40</td>
<td>133</td>
<td>78</td>
<td>95.1</td>
<td></td>
<td></td>
<td>124</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
Precision pressure regulators MS6-LRP, MS series

Datasheet

Dimensions

<table>
<thead>
<tr>
<th>[P0] Pressure regulation range, pneumatically actuated</th>
<th>[VS] Cover plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-1/4-P0-VS</td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-3/8-P0-VS</td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-1/2-P0-VS</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>D1</th>
<th>D2</th>
<th>L1</th>
<th>L2</th>
<th>L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-1/4-P0-VS</td>
<td>62</td>
<td>31</td>
<td>76</td>
<td>G1/4</td>
<td>G1/8</td>
<td>136</td>
<td>81</td>
<td>127</td>
</tr>
<tr>
<td>MS6-LRP-3/8-P0-VS</td>
<td></td>
<td></td>
<td></td>
<td>G3/8</td>
<td>G1/8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-1/2-P0-VS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1/2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Dimensions – Alternative mounting position

<table>
<thead>
<tr>
<th>[KD] Rotary knob underneath</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>D1</th>
<th>D2</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-1/4-...-KD</td>
<td>62</td>
<td>31</td>
<td>76</td>
<td>G1/4</td>
<td>51.2</td>
<td>133</td>
<td>78</td>
<td>95.1</td>
<td>124</td>
</tr>
<tr>
<td>MS6-LRP-3/8-...-KD</td>
<td></td>
<td></td>
<td></td>
<td>G3/8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-1/2-...-KD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
## Datasheet

### Dimensions – Pressure gauge alternatives

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>D1</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-1/4-...-VS</td>
<td>31</td>
<td>76</td>
<td>G1/4</td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-3/8-...-VS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-1/2-...-VS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-1/4-...-A8</td>
<td>31</td>
<td>78.5</td>
<td>G1/4</td>
<td>G1/8</td>
</tr>
<tr>
<td>MS6-LRP-3/8-...-A8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-1/2-...-A8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-1/4-...-A4</td>
<td>31</td>
<td>78.5</td>
<td>G1/4</td>
<td>G1/4</td>
</tr>
<tr>
<td>MS6-LRP-3/8-...-A4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-1/2-...-A4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
Precision pressure regulators MS6-LRP, MS series

Datasheet

Dimensions – Pressure gauge alternatives

<table>
<thead>
<tr>
<th>[AD1 ... 4]</th>
<th>Pressure sensor with LCD display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variant AD1:</td>
<td>SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP</td>
</tr>
<tr>
<td>Variant AD2:</td>
<td>SDE1-D10-G2-MS-L-M1-M8 with 3-pin plug M8x1, 1 switching output NPN</td>
</tr>
<tr>
<td>Variant AD3:</td>
<td>SDE1-D10-G2-MS-L-P1-M12 with 4-pin plug M12x1, 1 switching output PNP and 4 ... 20 mA analogue</td>
</tr>
<tr>
<td>Variant AD4:</td>
<td>SDE1-D10-G2-MS-L-N1-M12 with 4-pin plug M12x1, 1 switching output NPN and 4 ... 20 mA analogue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>B5</th>
<th>B6</th>
<th>D6</th>
<th>L5</th>
<th>L6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-...-AD1/AD2</td>
<td>31</td>
<td>103</td>
<td>51</td>
<td>32.3</td>
<td>M8x1</td>
<td>35.1</td>
<td>46.7</td>
</tr>
<tr>
<td>MS6-LRP-...-AD3/AD4</td>
<td>31</td>
<td>103</td>
<td>51</td>
<td>32.3</td>
<td>M12x1</td>
<td>35.1</td>
<td>55.8</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Datasheets ➔ Internet: sde1

Pressure sensor without LCD display (switching status indicator only)

<table>
<thead>
<tr>
<th>[AD7 ... 10]</th>
<th>Pressure sensor without LCD display (switching status indicator only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variant AD7:</td>
<td>SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact</td>
</tr>
<tr>
<td>Variant AD8:</td>
<td>SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact</td>
</tr>
<tr>
<td>Variant AD9:</td>
<td>SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact</td>
</tr>
<tr>
<td>Variant AD10:</td>
<td>SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>B5</th>
<th>B6</th>
<th>D6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-...-AD7/AD8/AD9/AD10</td>
<td>31</td>
<td>79.1</td>
<td>51</td>
<td>16</td>
<td>M8x1</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Datasheets ➔ Internet: sde5

Flow direction

Internet: www.festo.com/catalogue/...
**Datasheet**

**Dimensions – Pressure gauge alternatives**

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>D6</th>
<th>L5</th>
<th>L6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-...-AD11</td>
<td>31</td>
<td>101.8</td>
<td>93.7</td>
<td>51</td>
<td>32</td>
<td>M12x1</td>
<td>41.2</td>
<td>39</td>
</tr>
<tr>
<td>MS6-LRP-...-AD12</td>
<td>31</td>
<td>101.8</td>
<td>93.7</td>
<td>51</td>
<td>32</td>
<td>M8x1</td>
<td>37.9</td>
<td>39</td>
</tr>
</tbody>
</table>

Variant AD11:
SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:
SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Note: This product conforms to ISO 1179-1 and ISO 228-1.
Precision pressure regulators MS6-LRP, MS series

Datasheet

**Dimensions – Rotary knob**

For control panel installation

<table>
<thead>
<tr>
<th>Type</th>
<th>B4</th>
<th>B5</th>
<th>D2</th>
<th>D3</th>
<th>L3</th>
<th>L8</th>
<th>L9</th>
<th>L10</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRP-...</td>
<td></td>
<td></td>
<td></td>
<td>M44x1</td>
<td>86</td>
<td>21</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-...-AS</td>
<td>64.4</td>
<td>38.8</td>
<td></td>
<td></td>
<td>95.1</td>
<td>12</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-...-E11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>110</td>
<td>21</td>
<td>14</td>
<td>60</td>
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<tr>
<td>MS6-LRP-...-LD</td>
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<td></td>
<td></td>
<td></td>
<td>86</td>
<td></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>MS6-LRP-...-LD-AS</td>
<td>64.4</td>
<td>38.8</td>
<td></td>
<td></td>
<td>95.5</td>
<td></td>
<td></td>
<td>139</td>
</tr>
</tbody>
</table>

Download CAD data → www.festo.com
## Datasheet

### Precision pressure regulators MS6-LRP, MS series

<table>
<thead>
<tr>
<th>Ordering data</th>
<th>Pneumatic connection 1</th>
<th>Pressure regulation range</th>
<th>Flow direction</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MS6-LRP...</strong></td>
<td>(<strong>G1/4</strong>)</td>
<td>0.05 ... 0.7 bar</td>
<td>From left to right</td>
<td>538004</td>
<td>MS6-LRP-1/4-D2-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.05 ... 2.5 bar</td>
<td>From left to right</td>
<td>538006</td>
<td>MS6-LRP-1/4-D4-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 ... 4 bar</td>
<td>From left to right</td>
<td>538008</td>
<td>MS6-LRP-1/4-D5-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 ... 12 bar</td>
<td>From left to right</td>
<td>538010</td>
<td>MS6-LRP-1/4-D7-A8</td>
</tr>
<tr>
<td></td>
<td>(<strong>G3/8</strong>)</td>
<td>0.05 ... 0.7 bar</td>
<td>From left to right</td>
<td>538012</td>
<td>MS6-LRP-3/8-D2-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.05 ... 2.5 bar</td>
<td>From left to right</td>
<td>538014</td>
<td>MS6-LRP-3/8-D4-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 ... 4 bar</td>
<td>From left to right</td>
<td>538016</td>
<td>MS6-LRP-3/8-D5-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 ... 12 bar</td>
<td>From left to right</td>
<td>538018</td>
<td>MS6-LRP-3/8-D7-A8</td>
</tr>
<tr>
<td></td>
<td>(<strong>G1/2</strong>)</td>
<td>0.05 ... 0.7 bar</td>
<td>From left to right</td>
<td>538020</td>
<td>MS6-LRP-1/2-D2-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.05 ... 2.5 bar</td>
<td>From left to right</td>
<td>538022</td>
<td>MS6-LRP-1/2-D4-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 ... 4 bar</td>
<td>From left to right</td>
<td>538024</td>
<td>MS6-LRP-1/2-D5-A8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 ... 12 bar</td>
<td>From left to right</td>
<td>538026</td>
<td>MS6-LRP-1/2-D7-A8</td>
</tr>
</tbody>
</table>
## Precision pressure regulators MS6-LRP, MS series

### Ordering table – Modular product system

<table>
<thead>
<tr>
<th>Grid dimension</th>
<th>Module no.</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>538028</td>
<td>MS</td>
<td>MS</td>
<td></td>
</tr>
</tbody>
</table>

**Series**
- Standard
**Size**
- 6
**Function**
- Precision pressure regulator

**Pneumatic connection**
- Female thread G1/4
- Female thread G3/8
- Female thread G1/2
- Connecting plate G1/4
- Connecting plate G3/8
- Connecting plate G1/2
- Connecting plate G3/4
- Connecting plate NPT1/4
- Connecting plate NPT3/8
- Connecting plate NPT1/2
- Connecting plate NPT3/4

**Pressure regulation range/actuation**
- 0.05 ... 0.7 bar, manually actuated
- 0.05 ... 2.5 bar, manually actuated
- 0.1 ... 4 bar, manually actuated
- 0.1 ... 12 bar, manually actuated
- 0.1 ... 12 bar, pneumatically actuated (pressure range determined by pilot regulator)

**Pressure gauge alternatives**
- Cover plate
- Adapter for EN pressure gauge 1/8, without pressure gauge
- Adapter for EN pressure gauge 1/8, with precision pressure gauge
- Adapter for EN pressure gauge 1/4, without pressure gauge
- Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin
- Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin
- Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA
- Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA
- Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact
- Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact
- Pressure sensor with status indicator, plug M8, window comparator, PNP, N/O contact
- Pressure sensor with status indicator, plug M8, window comparator, PNP, N/C contact
- Pressure sensor with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA
- Pressure sensor with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

- | [1] PO | Not with EU EX4 certification. |
- | [3] AD1 ... AD4 | Not with mounting type WR. |
- | [3] AD7 ... AD10 | Not with pressure regulation range/actuation D7, D8. |
- | [4] AD7 ... AD10 | Not with pressure regulation range/actuation D7, D8. |
## Ordering data – Modular product system

<table>
<thead>
<tr>
<th>Grid dimension [mm]</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rotary knob alternative</th>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long rotary knob</td>
<td>[5]</td>
<td>-LD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternative mounting position</th>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotary knob underneath</td>
<td>[1] [6]</td>
<td>-KD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Locking option</th>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lockable using accessories</td>
<td></td>
<td>-AS</td>
</tr>
<tr>
<td>With integrated lock</td>
<td>[1]</td>
<td>-E11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of mounting</th>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without mounting bracket</td>
<td></td>
<td>WR</td>
</tr>
<tr>
<td>Mounting bracket with knurled nut for regulator head</td>
<td>[7]</td>
<td>-WR</td>
</tr>
<tr>
<td>Mounting bracket standard design</td>
<td>[8]</td>
<td>-WP</td>
</tr>
<tr>
<td>Mounting bracket for hooking in service unit components</td>
<td>[1] [8]</td>
<td>-WPM</td>
</tr>
<tr>
<td>Mounting bracket centrally at the rear (wall mounting top and bottom), connecting plates not required</td>
<td></td>
<td>-WB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EU certification</th>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II 2GD to EU Explosion Protection Directive (ATEX)</td>
<td></td>
<td>-EX4</td>
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<table>
<thead>
<tr>
<th>UL certification</th>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cULus, ordinary location for Canada and USA</td>
<td></td>
<td>-UL1</td>
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</table>

<table>
<thead>
<tr>
<th>Flow direction</th>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow direction from left to right</td>
<td></td>
<td>-Z</td>
</tr>
<tr>
<td>Flow direction from right to left</td>
<td></td>
<td>-Z</td>
</tr>
</tbody>
</table>

[6] KD Not with mounting type WP.
[7] WR Not with rotary knob alternative LD.
[8] WP, WPM Only with connecting plate AGB, AGC, AGD, AGF, AQN, AQP, AQR or AQS.
Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

Precision pressure regulator MS6-LRPB with pressure output at the rear

**Note**

Additional accessories:
- Module connectors for combination with size MS4/MS6 or size MS9
  - Internet: amv, rmv, armv
- Adapters for mounting on profiles
  - Internet: ipm-80, ipm-40-80, ipm-80-80

Manually actuated | Pneumatically actuated
### Peripherals overview

<table>
<thead>
<tr>
<th>Individual device</th>
<th>Without connecting plate</th>
<th>With connecting plate</th>
<th>Combination</th>
<th>Without connecting plate</th>
<th>With connecting plate</th>
<th>Page/Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] Adapter for EN pressure gauge 1/8, 1/4 A8/A4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ms6-wp</td>
</tr>
<tr>
<td>[2] Angled outlet block B...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[3] Mounting bracket MS6-WP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[4] Mounting bracket MS6-WPB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[5] Mounting bracket MS6-WPE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[6] Mounting bracket MS6-WPM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[7] Cover cap MS6-END</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[8] Module connector MS6-MV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[9] Connecting plate SET MS6-AG...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[11] Pressure sensor with display AD1 ... AD4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[12] Pressure sensor with LCD display AD11/AD12</td>
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<td></td>
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<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[14] Pressure sensor without display AD7 ... AD10</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>[16] Precision pressure gauge ASM/MAP</td>
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<td></td>
<td></td>
<td></td>
<td>102</td>
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<tr>
<td>[17] Cover plate VS</td>
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<td>78</td>
</tr>
<tr>
<td>[18] Padlock LRVS-D</td>
<td></td>
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<td>78</td>
</tr>
</tbody>
</table>
Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

**Precision pressure regulator MS6-LRPB with pressure output at the front**

**Note**

Additional accessories:
- Module connectors for combination with size MS4/MS6 or size MS9
  → Internet: amv, rmv, armv
- Adapters for mounting on profiles
  → Internet: ipm-80, ipm-40-80, ipm-80-80

Manually actuated  Pneumatically actuated
## Peripherals overview

<table>
<thead>
<tr>
<th>Mounting attachments and accessories</th>
<th>Individual device</th>
<th>Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without connecting plate</td>
<td>With connecting plate</td>
<td></td>
</tr>
<tr>
<td>Without connecting plate</td>
<td>With connecting plate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[1] Cover cap</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>MS6-END</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[2] Connecting plate SET</td>
<td></td>
<td>■</td>
</tr>
<tr>
<td>MS6-AG...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[3] Module connector</td>
<td></td>
<td>■</td>
</tr>
<tr>
<td>MS6-MV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-WB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[5] Angled outlet block</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>8...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[6] Cover plate</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>VS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[7] Pressure sensor without display</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>AD7 ... AD10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[8] Connecting cable</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>NEBU-M8...-LE3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS6-WR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[10] Knurled nut (included in the scope of delivery)</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>MS-LR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LRVS-D</td>
<td></td>
<td></td>
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</table>
## Precision pressure regulators MS6-LRPB, MS series

### Type codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Series</td>
<td><strong>MS</strong> MS series</td>
</tr>
<tr>
<td>002</td>
<td>Size</td>
<td>6 Grid dimension 62 mm</td>
</tr>
<tr>
<td>003</td>
<td>Function</td>
<td><strong>LRPB</strong> Precision pressure regulator for manifold installation</td>
</tr>
<tr>
<td>004</td>
<td>Connection</td>
<td><strong>1/2</strong> Female thread G1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AGB</strong> Sub-base G1/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AGC</strong> Sub-base G3/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AGD</strong> Sub-base G1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AGE</strong> Sub-base G3/4</td>
</tr>
<tr>
<td>005</td>
<td>Pressure regulation range</td>
<td><strong>D2</strong> 0.05 ... 0.7 bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>D4</strong> 0.05 ... 2.5 bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>D5</strong> 0.1 ... 4 bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>D7</strong> 0.1 ... 12 bar</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>PO</strong> Max. 12 bar, pneumatically actuated (pressure range determined by pilot regulator)</td>
</tr>
<tr>
<td>006</td>
<td>Pressure gauge alternatives</td>
<td><strong>VS</strong> Cover plate</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>A8</strong> Adapter for EN pressure gauge 1/8, without pressure gauge</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>ABN</strong> Adapter for EN pressure gauge 1/8, with precision pressure gauge</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>A4</strong> Adapter for EN pressure gauge 1/4, without pressure gauge</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD1</strong> Pressure sensor with LCD display, MB plug, PNP, 3-pin</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD2</strong> Pressure sensor with LCD display, MB plug, NPN, 3-pin</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD4</strong> Pressure sensor with LCD display, MB plug, NPN, 4-pin, analogue output 4 ... 20 mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD7</strong> Pressure sensor with switching display, MB plug, threshold value comparator, PNP, N/O</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD8</strong> Pressure sensor with switching display, MB plug, threshold value comparator, PNP, N/C</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD9</strong> Pressure sensor with switching display, MB plug, window comparator, PNP, N/O</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD10</strong> Pressure sensor with operational status indicator, MB plug, window comparator, PNP, N/C</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD11</strong> Pressure sensor with LCD display, MB plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AD12</strong> Pressure sensor with LCD display, MB plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA</td>
</tr>
<tr>
<td>007</td>
<td>Rotary knob alternative</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LD</strong> Long rotary knob</td>
</tr>
<tr>
<td>008</td>
<td>Alternative mounting position</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>KD</strong> Rotary knob underneath</td>
</tr>
<tr>
<td>009</td>
<td>Lockability</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AS</strong> Can be locked using accessories</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>E11</strong> With integrated lock</td>
</tr>
<tr>
<td>010</td>
<td>Alternative pressure outlet</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>BD</strong> Angled outlet block QS-8</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>BE</strong> Angled outlet block QS-10</td>
</tr>
<tr>
<td>011</td>
<td>Type of mounting</td>
<td>Without mounting bracket</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>WR</strong> Mounting bracket with knurled nut on regulator knob</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>WP</strong> Mounting bracket basic design</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>WPM</strong> Mounting bracket for hooking in service unit components</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>WB</strong> Mounting centrally at rear (wall mounting top and bottom), connecting plates not required</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>WPB</strong> Mounting bracket for large wall gap</td>
</tr>
<tr>
<td>012</td>
<td>EU certification</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>EX4</strong> CE 2GD</td>
</tr>
<tr>
<td>013</td>
<td>UL certification</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>UL1</strong> cULus ordinary location for Canada and USA</td>
</tr>
<tr>
<td>014</td>
<td>Flow direction</td>
<td>Pressure output to the rear</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pressure output to the front</td>
</tr>
</tbody>
</table>

---

Subject to change – 2023/05
Precision pressure regulators MS6-LRPB, MS series

Datasheet

Several precision pressure regulators mounted next to one another to form a regulator manifold:

The precision pressure regulator is suitable for sensitive applications requiring a hysteresis of 0.02 bar.

The output pressure p2 can be set within the pressure regulation range either manually using the rotary knob or pneumatically via pilot pressure p12 by an external pilot regulator (where possible using a precision pressure regulator). When the input pressure p1 is switched off, the output pressure p2 is exhausted via port 3 (secondary exhausting).

- Good regulation characteristics with minimal hysteresis and input pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- Actuator lock to protect the set values from being adjusted
- Four pressure regulation ranges: 0.05 ... 0.7 bar, 0.05 ... 2.5 bar, 0.1 ... 4 bar and 0.1 ... 12 bar
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

### General technical data

<table>
<thead>
<tr>
<th>Size</th>
<th>MS6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic connection 1 Female thread</td>
<td>G1/2</td>
</tr>
<tr>
<td>Connecting plate [AG... ]</td>
<td>G1/4, G3/8, G1/2 or G3/4</td>
</tr>
<tr>
<td>Pneumatic connection 2 Female thread</td>
<td>G1/2</td>
</tr>
<tr>
<td>Angled outlet block [BD ]</td>
<td>QS-8</td>
</tr>
<tr>
<td>[BE]</td>
<td>QS-10</td>
</tr>
<tr>
<td>Pneumatic connection 3</td>
<td>G1/4</td>
</tr>
<tr>
<td>Pilot air port 12</td>
<td>G1/8 (MS6-LRPB-...-PO)</td>
</tr>
<tr>
<td>Design</td>
<td>Piloted precision diaphragm regulator with through compressed air supply</td>
</tr>
<tr>
<td>Regulator function</td>
<td>Output pressure constant, with secondary exhausting</td>
</tr>
<tr>
<td>Type of mounting</td>
<td>Via accessories</td>
</tr>
<tr>
<td></td>
<td>In-line installation</td>
</tr>
<tr>
<td></td>
<td>Front panel mounting</td>
</tr>
<tr>
<td>Mounting position</td>
<td>Any</td>
</tr>
<tr>
<td>Actuator lock</td>
<td>Rotary knob with latch</td>
</tr>
<tr>
<td></td>
<td>Rotary knob with latch, can be locked using accessories</td>
</tr>
<tr>
<td></td>
<td>Rotary knob with integrated lock</td>
</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>0.05 ... 0.7, manually actuated</td>
</tr>
<tr>
<td>Actuation</td>
<td>0.05 ... 2.5, manually actuated</td>
</tr>
<tr>
<td>[D4]</td>
<td>0.1 ... 4, manually actuated</td>
</tr>
<tr>
<td>[D7]</td>
<td>0.1 ... 12, manually actuated (0.1 ... 10 with pressure sensor AD... or with UL certification)</td>
</tr>
<tr>
<td>Max. pressure hysteresis</td>
<td>0.02</td>
</tr>
</tbody>
</table>

1) [D2]/[D4]/[D5]/[D7]: input pressure p1 = output pressure p2 + 1 bar.  
[PO]: pilot pressure p12 = output pressure p2 + max. 0.5 bar

Note: This product conforms to ISO 1179-1 and ISO 228-1.
## Datasheet

### General technical data

<table>
<thead>
<tr>
<th>Size</th>
<th>MS6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure indication</td>
<td>Via pressure sensor for indicating the output pressure and electrical output via LCD display</td>
</tr>
<tr>
<td></td>
<td>Via pressure sensor for indicating the output pressure and electrical output</td>
</tr>
<tr>
<td></td>
<td>Via pressure gauge for indicating the output pressure</td>
</tr>
<tr>
<td></td>
<td>Prepared for G1/8</td>
</tr>
<tr>
<td></td>
<td>Prepared for G1/4</td>
</tr>
</tbody>
</table>

### Flow rates

<table>
<thead>
<tr>
<th>Pressure regulation range</th>
<th>[D2]: 0.05 ... 0.7 bar</th>
<th>[D4]: 0.05 ... 2.5 bar</th>
<th>[D5]: 0.1 ... 4 bar</th>
<th>[D7]/[PO]: 0.1 ... 12 bar</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Standard nominal flow rate (q_{N}[l/min])</th>
<th>G1/2</th>
<th>1600¹</th>
<th>2300²</th>
<th>3000⁶</th>
<th>5000⁸</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary exhaust flow rate (q_{n}[l/min])</td>
<td>≤ 220³</td>
<td>≥ 450⁴</td>
<td>≥ 650⁷</td>
<td>≥ 900⁹</td>
<td></td>
</tr>
</tbody>
</table>

1) Measured at \(p_1 = 10 \text{ bar} \) and \(p_2 = 0.5 \text{ bar} \), \(\Delta p = 0.1 \text{ bar}\)
2) Measured at \(p_1 = 10 \text{ bar} \) and \(p_2 = 1.5 \text{ bar} \), \(\Delta p = 0.1 \text{ bar}\)
3) Measured at \(p_1 = 10 \text{ bar} \) and \(p_2 = 2.5 \text{ bar} \), \(\Delta p = 0.1 \text{ bar}\)
4) Measured at \(p_1 = 10 \text{ bar} \) and \(p_2 = 6.0 \text{ bar} \), \(\Delta p = 0.1 \text{ bar}\)
5) Measured at \(p_1 = 10 \text{ bar} \) and \(p_2 = 0.7 \text{ bar} \), \(\Delta p = 0.1 \text{ bar}\)
6) Measured at \(p_1 = 10 \text{ bar} \) and \(p_2 = 2.5 \text{ bar} \), \(\Delta p = 0.1 \text{ bar}\)
7) Measured at \(p_1 = 10 \text{ bar} \) and \(p_2 = 4.0 \text{ bar} \), \(\Delta p = 0.1 \text{ bar}\)
8) Measured at \(p_1 = 10 \text{ bar} \) and \(p_2 = 6.0 \text{ bar} \), \(\Delta p = 0.1 \text{ bar}\)

### Operating and environmental conditions

<table>
<thead>
<tr>
<th>Operating pressure [bar]</th>
<th>1 ... 14 (1 ... 10)¹¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating medium</td>
<td>Compressed air to ISO 8573-1:2010 [7:4:4]</td>
</tr>
<tr>
<td>Inert gases</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature [°C]</td>
<td>–10 ... +60 (0 ... +50)¹²</td>
</tr>
<tr>
<td>Temperature of medium [°C]</td>
<td>–10 ... +60 (0 ... +50)¹²</td>
</tr>
<tr>
<td>Storage temperature [°C]</td>
<td>–10 ... +60</td>
</tr>
<tr>
<td>Corrosion resistance class CRC ³²</td>
<td>2</td>
</tr>
<tr>
<td>UL certification ⁴</td>
<td>c-UL us - Recognized (UL)</td>
</tr>
</tbody>
</table>

1) Value in brackets applies to MS6-LRPB with UL certification.
2) Value in brackets applies to MS6-LRPB with pressure sensor.
3) More information: www.festo.com/x/topic/crc

### ATEX

<table>
<thead>
<tr>
<th>EU certification</th>
<th>[EX4]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX category for gas</td>
<td>II 2G</td>
</tr>
<tr>
<td>Type of (ignition) protection for gas</td>
<td>Ex h IIC T6 Gb X</td>
</tr>
<tr>
<td>ATEX category for dust</td>
<td>II 2D</td>
</tr>
<tr>
<td>Type of (ignition) protection for dust</td>
<td>Ex h IIC T60°C Db X</td>
</tr>
<tr>
<td>Explosion ambient temperature</td>
<td>–10°C ≤ Ta ≤ +60°C</td>
</tr>
<tr>
<td>Explosion protection certification outside the EU</td>
<td>EPL D0 (GB)</td>
</tr>
<tr>
<td>CE marking (see declaration of conformity)¹³</td>
<td>To EU Explosion Protection Directive (ATEX)</td>
</tr>
<tr>
<td>UKCA marking (see declaration of conformity)¹⁴</td>
<td>To UK regulations for explosions</td>
</tr>
</tbody>
</table>


### Weight [g]

<table>
<thead>
<tr>
<th>Precision pressure regulator</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precision pressure regulator with rotary knob with integrated lock</td>
<td>1120</td>
</tr>
</tbody>
</table>

©Internet: www.festo.com/catalogue/... Subject to change – 2023/05
Datasheet

### Materials

**Sectional view**

<table>
<thead>
<tr>
<th>Precision pressure regulator (manifold assembly)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Housing</td>
</tr>
<tr>
<td>2. Rotary knob</td>
</tr>
<tr>
<td>2. Rotary knob with integrated lock</td>
</tr>
<tr>
<td>3. Diaphragm</td>
</tr>
<tr>
<td>4. Bottom cover</td>
</tr>
<tr>
<td>5. Springs</td>
</tr>
<tr>
<td>- Seals</td>
</tr>
<tr>
<td>Note on materials</td>
</tr>
<tr>
<td>PWIS conformity</td>
</tr>
</tbody>
</table>

### Standard flow rate $q_n$ as a function of output pressure $p_2$ ($p_1 = 10$ bar)

**MS6-LRPB-1/2-D2**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.8</td>
</tr>
<tr>
<td>0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>0.2</td>
<td>0.6</td>
</tr>
<tr>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>0.6</td>
<td>0.3</td>
</tr>
<tr>
<td>0.7</td>
<td>0.2</td>
</tr>
<tr>
<td>0.8</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**MS6-LRPB-1/2-D4/D5**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5.0</td>
</tr>
<tr>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>4</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**MS6-LRPB-1/2-D7/PO**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10.0</td>
</tr>
<tr>
<td>1</td>
<td>9.0</td>
</tr>
<tr>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>3</td>
<td>7.0</td>
</tr>
<tr>
<td>4</td>
<td>6.0</td>
</tr>
<tr>
<td>5</td>
<td>5.0</td>
</tr>
<tr>
<td>6</td>
<td>4.0</td>
</tr>
<tr>
<td>7</td>
<td>3.0</td>
</tr>
<tr>
<td>8</td>
<td>2.0</td>
</tr>
<tr>
<td>9</td>
<td>1.0</td>
</tr>
</tbody>
</table>

[D2]: 0.05 ... 0.7 bar

[D4]: 0.05 ... 2.5 bar

[D5]: 0.1 ... 4 bar

[D7]/[PO]: 0.1 ... 12 bar
Precision pressure regulators MS6-LRPB, MS series

Datasheet

Internal air consumption \( q_n \) as a function of input pressure \( p_1 \)

<table>
<thead>
<tr>
<th>MS6-LRPB-...-D2/D4</th>
<th>MS6-LRPB-...-D5/D7/PO</th>
</tr>
</thead>
<tbody>
<tr>
<td>( p_1 ) [bar]</td>
<td>( q_n ) [l/h]</td>
</tr>
<tr>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>70</td>
</tr>
<tr>
<td>7</td>
<td>80</td>
</tr>
<tr>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>9</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>110</td>
</tr>
<tr>
<td>11</td>
<td>120</td>
</tr>
<tr>
<td>12</td>
<td>130</td>
</tr>
<tr>
<td>13</td>
<td>140</td>
</tr>
<tr>
<td>14</td>
<td>150</td>
</tr>
</tbody>
</table>

Dimensions

- [D2]/[D4]/[D5]/[D7] Pressure regulation range, manually actuated
- [A8M] Adapter for EN pressure gauge 1/8, with precision pressure gauge
- [BD]/[BE] Angled outlet block
- [AS] Rotary knob with latch, can be locked using accessories

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
<th>D1</th>
<th>D2</th>
<th>D4</th>
<th>( \varnothing )</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRPB-1/2-D2/D4/D5/D7-A8M-BD/BE-AS</td>
<td>62</td>
<td>31</td>
<td>76</td>
<td>23</td>
<td>115</td>
<td>23.4</td>
<td>G1/2</td>
<td>51.2</td>
<td>40</td>
<td>124</td>
<td>68</td>
<td>95.1</td>
<td>114</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] Push-in connector

Flow direction

Note: This product conforms to ISO 1179-1 and ISO 228-1.
# Datasheet

## Dimensions

<table>
<thead>
<tr>
<th>[P0] Pressure regulation range, pneumatically actuated</th>
<th>[VS] Cover plate</th>
<th>[BD]/[BE] Angled outlet block</th>
</tr>
</thead>
</table>

![Diagram](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B6</th>
<th>D1</th>
<th>D2</th>
<th>L1</th>
<th>L2</th>
<th>L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRPB-1/2-PO-VS-BD/BE</td>
<td>62</td>
<td>31</td>
<td>76</td>
<td>23</td>
<td>G1/2</td>
<td>G1/8</td>
<td>137</td>
<td>81</td>
<td>127</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.

## Dimensions – Alternative mounting position

|-----------------------------|-----------------------|----------------|

![Diagram](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B7</th>
<th>B8</th>
<th>D1</th>
<th>D2</th>
<th>DA</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRPB-1/2-...-KD</td>
<td>62</td>
<td>31</td>
<td>99</td>
<td>138</td>
<td>23.4</td>
<td>G1/2</td>
<td>51.2</td>
<td>40</td>
<td>124</td>
<td>68</td>
<td>95.1</td>
<td>114</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
Precision pressure regulators MS6-LRPB, MS series

Datasheet

Dimensions – Pressure gauge alternatives

<table>
<thead>
<tr>
<th>VS</th>
<th>Name</th>
<th>B2</th>
<th>B3</th>
<th>B6</th>
<th>D1</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cover plate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adapter for EN pressure gauge 1/8, without pressure gauge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adapter for EN pressure gauge 1/4, without pressure gauge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] Push-in connector

Flow direction

Note: This product conforms to ISO 1179-1 and ISO 228-1.
Datasheet

**Dimensions – Pressure gauge alternatives**

**[AD1 ... 4]** Pressure sensor with LCD display

| Variant AD1: | SDE1-D10-G2-MS-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP |
| Variant AD2: | SDE1-D10-G2-MS-L-N1-M8 with 3-pin plug M8x1, 1 switching output NPN |

**[AD7 ... 10]** Pressure sensor without LCD display (switching status indicator only)

| Variant AD7: | SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact |
| Variant AD8: | SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact |
| Variant AD9: | SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact |
| Variant AD10: | SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact |

**[AD11/AD12]** Pressure sensor with LCD display

| Variant AD11: | SPAU-P10R-MS-L-PNLK-M12 with plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA |
| Variant AD12: | SPAU-P10R-MS-L-PNLK-M8 with plug M8, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA |

---

Note: This product conforms to ISO 1179-1 and ISO 228-1.

---

Type | B2 | B3 | B5 | B6 | D6 | L5 | L6
---|---|---|---|---|---|---|---
MS6-LRPB-...-AD1/AD2 | 31 | 103 | 51 | 32.3 | M8x1 | 35.1 | 46.7
MS6-LRPB-...-AD3/AD4 | 31 | 103 | 51 | 32.3 | M12x1 | 35.1 | 55.8
MS6-LRPB-...-AD7/AD8/AD9/AD10 | 31 | 79.1 | 51 | 16 | M8x1 | – | –

Type | B2 | B3 | B4 | B5 | B6 | D6 | L5 | L6
---|---|---|---|---|---|---|---|---
MS6-LRPB-...-AD11 | 31 | 101.8 | 93.7 | 51 | 32 | M12x1 | 41.2 | 39
MS6-LRPB-...-AD12 | 31 | 101.8 | 93.7 | 51 | 32 | M8x1 | 37.9 | 39
Precision pressure regulators MS6-LRPB, MS series

Datasheet

Dimensions – Rotary knob

For control panel installation

[ ] Rotary knob with latch
[AS] Rotary knob with latch, can be locked using accessories
[E11] Rotary knob with integrated lock

For pressure adjustment: fully pull out telescopic rotary knob

<table>
<thead>
<tr>
<th>Type</th>
<th>B4</th>
<th>B5</th>
<th>D2</th>
<th>D3</th>
<th>L3</th>
<th>LB</th>
<th>L9</th>
<th>L10</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRPB...</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>51.2</td>
<td>86</td>
<td>21</td>
<td>14</td>
<td>–</td>
</tr>
<tr>
<td>MS6-LRPB...-AS</td>
<td>64.4</td>
<td>38.8</td>
<td>–</td>
<td>M44x1</td>
<td>95.1</td>
<td>12</td>
<td>5</td>
<td>–</td>
</tr>
<tr>
<td>MS6-LRPB...-E11</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>110</td>
<td>21</td>
<td>14</td>
<td>60</td>
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<tr>
<td>MS6-LRPB...-LD</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>86</td>
<td>–</td>
<td>–</td>
<td>139</td>
</tr>
<tr>
<td>MS6-LRPB...-LD-AS</td>
<td>64.4</td>
<td>38.8</td>
<td>–</td>
<td>–</td>
<td>95.5</td>
<td>–</td>
<td>–</td>
<td>148.5</td>
</tr>
</tbody>
</table>
Precision pressure regulators MS6-LRPB, MS series

Datasheet

<table>
<thead>
<tr>
<th>Ordering data</th>
<th>Pneumatic connection 1</th>
<th>Pressure regulation range</th>
<th>Flow direction</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS6-LRPB...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G1/2</td>
<td>0.05 ... 0.7 bar</td>
<td>From left to right</td>
<td>534865</td>
<td>MS6-LRPB-1/2-D2-A8-BD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.05 ... 2.5 bar</td>
<td>From left to right</td>
<td>534914</td>
<td>MS6-LRPB-1/2-D4-A8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.1 ... 4 bar</td>
<td>From left to right</td>
<td>534917</td>
<td>MS6-LRPB-1/2-D5-A8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.1 ... 12 bar</td>
<td>From left to right</td>
<td>534874</td>
<td>MS6-LRPB-1/2-D7-A8-BD</td>
<td></td>
</tr>
</tbody>
</table>
# Precision pressure regulators MS6-LRPB, MS series

## Ordering data – Modular product system

<table>
<thead>
<tr>
<th>Grid dimension [mm]</th>
<th>Module no.</th>
<th>Series</th>
<th>Size</th>
<th>Function</th>
<th>Pneumatic connection</th>
<th>Pressure regulation range/actuation</th>
<th>Pressure gauge alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>535007</td>
<td>Standard</td>
<td>6</td>
<td>Precision pressure regulator for manifold assembly</td>
<td>Female thread G1/2</td>
<td>0.05 ... 0.7 bar, manually actuated</td>
<td>Cover plate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connecting plate G1/4</td>
<td>0.05 ... 2.5 bar, manually actuated</td>
<td>Adapter for EN pressure gauge 1/8, without pressure gauge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connecting plate G1/4</td>
<td>0.1 ... 4 bar, manually actuated</td>
<td>Adapter for EN pressure gauge 1/8, with precision pressure gauge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connecting plate G3/8</td>
<td>0.1 ... 12 bar, manually actuated</td>
<td>Adapter for EN pressure gauge 1/4, without pressure gauge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connecting plate G3/8</td>
<td>0.1 ... 12 bar, pneumatically actuated</td>
<td>Pressure sensor with LCD display, plug M12, 1 switching output PNP, 3-pin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connecting plate G3/8</td>
<td>(pressure range determined by pilot regulator)</td>
<td>Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connecting plate G3/8</td>
<td>0 ... 20 mA</td>
<td>Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connecting plate G3/8</td>
<td>4 ... 20 mA</td>
<td>Pressure sensor with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connecting plate G3/8</td>
<td>4 ... 20 mA</td>
<td>Pressure sensor with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA</td>
</tr>
</tbody>
</table>

1/2, PO, AD1 ... AD4, AD7 ... AD10, AD11/AD12, KD, E11, WPM

**Not with EU EX4 certification.**

2/ PO Not with long rotary knob LD.

Not with locking option AS, E11.

Not with mounting type WR.

3/ VS Must be selected with outlet direction Z without alternative mounting position KD or without alternative pressure output BD, BE.

Must be selected with alternative mounting position KD without outlet direction Z or without alternative pressure output BD, BE.

4/ A8, A8M, A8, AD1 ... AD4, AD7 ... AD10, AD11/AD12

In combination with outlet direction Z only with alternative mounting position KD.

5/ AD1 ... AD4, AD7 ... AD10, AD11/AD12

Measuring range max. 10 bar.

Not with pressure regulation range/actuation D1, D4.

6/ AD7 ... AD10 In combination with outlet direction Z only with alternative pressure output BD, BE or in combination with outlet direction Z only with alternative mounting position KD.
## Ordering data – Modular product system

<table>
<thead>
<tr>
<th>Grid dimension [mm]</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Rotary knob
- Standard
- Long rotary knob

### Alternative mounting position
- None
- Rotary knob underneath

### Locking option
- None
- Lockable using accessories
- With integrated lock

### Long rotary knob [7]
- -LD

### Alternative mounting position None
- -KD

### Rotary knob underneath [1] [8]
- -KD

### Alternative pressure output (p max = 10 bar)
- None
- Angled outlet block QS-10
- Angled outlet block QS-8

### Alternative pressure output
- Lockable using accessories - AS
- With integrated lock - E11

### Type of mounting
- Without mounting bracket
- Mounting bracket with knurled nut for regulator head - WR
- Mounting bracket standard design - WP
- Mounting bracket for hooking in service unit components - WPM
- Mounting bracket for large wall gap - WPB
- Mounting bracket centrally at the rear (wall mounting top and bottom), connecting plates not required [9]

### EU certification
- None
- II 2GD to EU Explosion Protection Directive (ATEX) - EX4

### UL certification
- None
- cULus, ordinary location for Canada and USA - UL1

### Outlet direction
- Pressure output at the rear - Z
- Pressure output at the front (without angled outlet block, no pressure gauge)

### Notes
- [8] KD In combination with pressure gauge alternatives A8, A4, AD1 ... AD4, AD7 ... AD10 only with outlet direction Z.
- [9] WR, WPM Only with outlet direction Z.
- [10] WR Not with long rotary knob LD.
- [11] WP, WPM, WPB Only with connecting plate AGB, AGC, AGD or AGE.
- [12] WP Not with alternative mounting position KD.
- [13] WPB Not with alternative pressure output BD, BE.

---

2021/05 – Subject to change

→ Internet: www.festo.com/catalogue/...
Pressure regulators MS9-LR, MS series

Peripherals overview

Pressure regulator MS9-LR

Note

Additional accessories:
- Module connectors for combination with size MS6, MS9 or MS12

Internet: rmv, armv

Manually actuated Pneumatically actuated
## Pressure regulators MS9-LR, MS series

### Peripherals overview

<table>
<thead>
<tr>
<th>Mounting attachments and accessories</th>
<th>Individual device</th>
<th>Combination</th>
<th>Page/Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With female thread</td>
<td>With connecting plate</td>
<td>Module without connecting thread, without connecting plate</td>
</tr>
<tr>
<td></td>
<td>Without EU certification</td>
<td>With EU certification</td>
<td></td>
</tr>
<tr>
<td>[1] Connecting plate SET MS9-AG...</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connecting plate SET MS9-AQ...</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[6] MS pressure gauge AG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[7] Cover plate VS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[8] Pressure sensor without display AD7 ... AD10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[9] Connecting cable NEBU-M8...LE3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[10] Adapter for EN pressure gauge 1/4 A4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[12] Padlock LRVS-D</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Pressure regulators MS9-LR, MS series

### Type codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS</td>
<td>Series</td>
</tr>
<tr>
<td>002</td>
<td>Size</td>
</tr>
<tr>
<td>9</td>
<td>Grid dimension 90 mm</td>
</tr>
<tr>
<td>LR</td>
<td>Function</td>
</tr>
<tr>
<td>004</td>
<td>Pneumatic connection</td>
</tr>
<tr>
<td>3/4</td>
<td>Female thread G3/4</td>
</tr>
<tr>
<td>1</td>
<td>Female thread G1</td>
</tr>
<tr>
<td>AGD</td>
<td>Sub-base G1/2</td>
</tr>
<tr>
<td>AGE</td>
<td>Sub-base G3/4</td>
</tr>
<tr>
<td>AGF</td>
<td>Sub-base G1</td>
</tr>
<tr>
<td>AGG</td>
<td>Sub-base G11/4</td>
</tr>
<tr>
<td>AGH</td>
<td>Sub-base G11/2</td>
</tr>
<tr>
<td>N3/4</td>
<td>NPT3/4</td>
</tr>
<tr>
<td>N1</td>
<td>NPT1</td>
</tr>
<tr>
<td>AQR</td>
<td>Sub-base NPT1/2</td>
</tr>
<tr>
<td>AQS</td>
<td>Sub-base NPT3/4</td>
</tr>
<tr>
<td>AQF</td>
<td>Sub-base NPT1</td>
</tr>
<tr>
<td>AQU</td>
<td>Sub-base NPT11/4</td>
</tr>
<tr>
<td>AQV</td>
<td>Sub-base NPT11/2</td>
</tr>
<tr>
<td>G</td>
<td>Module without connecting thread, without sub-base</td>
</tr>
<tr>
<td>NG</td>
<td>Module without connecting thread, without sub-base (inch)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>005</td>
<td>Pressure regulation range</td>
</tr>
<tr>
<td>D5</td>
<td>0.3 ... 4 bar</td>
</tr>
<tr>
<td>D6</td>
<td>0.3 ... 7 bar</td>
</tr>
<tr>
<td>D7</td>
<td>0.5 ... 12 bar</td>
</tr>
<tr>
<td>D8</td>
<td>0.5 ... 16 bar</td>
</tr>
<tr>
<td>PO</td>
<td>Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>006</td>
<td>Regulator type</td>
</tr>
<tr>
<td>DI</td>
<td>Pilot actuated</td>
</tr>
<tr>
<td>DI</td>
<td>Directly actuated</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>007</td>
<td>Pressure gauge alternatives</td>
</tr>
<tr>
<td>AG</td>
<td>MS pressure gauge</td>
</tr>
<tr>
<td>VS</td>
<td>Cover plate</td>
</tr>
<tr>
<td>A4</td>
<td>Adapter for EN pressure gauge 1/4, without pressure gauge</td>
</tr>
<tr>
<td>RG</td>
<td>Integrated pressure gauge, red/green scale</td>
</tr>
<tr>
<td>AD7</td>
<td>Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O</td>
</tr>
<tr>
<td>AD8</td>
<td>Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C</td>
</tr>
<tr>
<td>AD9</td>
<td>Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O</td>
</tr>
<tr>
<td>AD10</td>
<td>Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>008</td>
<td>Alternative pressure gauge scale</td>
</tr>
<tr>
<td>PSI</td>
<td>psl</td>
</tr>
<tr>
<td>MPA</td>
<td>MPa</td>
</tr>
<tr>
<td>BAR</td>
<td>bar</td>
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<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>009</td>
<td>Secondary exhausting</td>
</tr>
<tr>
<td>OS</td>
<td>Without secondary exhaust</td>
</tr>
<tr>
<td>OD</td>
<td>With secondary exhausting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>010</td>
<td>Alternative mounting position</td>
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<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>KD</td>
<td>Rotary knob underneath</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>011</td>
<td>Lockability</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>AS</td>
<td>Can be locked using accessories</td>
</tr>
<tr>
<td>E11</td>
<td>With integrated lock</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>012</td>
<td>Type of mounting</td>
</tr>
<tr>
<td>None</td>
<td>Without mounting bracket</td>
</tr>
<tr>
<td>WP</td>
<td>Mounting bracket basic design</td>
</tr>
<tr>
<td>WPM</td>
<td>Mounting bracket for hooking in service unit components</td>
</tr>
<tr>
<td>WPB</td>
<td>Mounting bracket for large wall gap</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>013</td>
<td>EU certification</td>
</tr>
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<td>None</td>
<td>None</td>
</tr>
<tr>
<td>EX4</td>
<td>II 2GD</td>
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<th>Description</th>
</tr>
</thead>
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<td>014</td>
<td>UL certification</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>UL1</td>
<td>cULus ordinary location for Canada and USA</td>
</tr>
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</table>

<table>
<thead>
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<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>015</td>
<td>Flow direction</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Z</td>
<td>Flow direction from right to left</td>
</tr>
<tr>
<td>Z</td>
<td>Flow direction from left to right</td>
</tr>
</tbody>
</table>
Datasheet

Pressure regulators MS9-LR, MS series

The pressure regulator maintains an essentially constant output pressure p2, independently of pressure fluctuations in the system and air consumption. The output pressure p2 can be set within the pressure regulation range either manually using the rotary knob or pneumatically via pilot pressure p12 by an external pilot regulator. When the operating pressure is switched off, the output pressure p2 is exhausted via port 3 (secondary exhausting).

• Good regulation characteristics with minimal hysteresis and input pressure compensation
• High flow rate performance with minimal pressure drop
• Piloted or directly actuated diaphragm regulator
• Four pressure regulation ranges: 0.5 ... 4 bar, 0.5 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
• Available with or without secondary exhausting
• Actuator lock to protect the set values from being adjusted
• Return flow option for exhausting from output 2 to output 1 already integrated
• Optional pressure sensor
• Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

General technical data

<table>
<thead>
<tr>
<th>Pneumatic connection 1, 2</th>
<th>G3/4 or G1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female thread</td>
<td></td>
</tr>
<tr>
<td>Connecting plate</td>
<td>G1/2, G3/4, G1, G1 1/4 or G1 1/2</td>
</tr>
<tr>
<td>[AG...]</td>
<td></td>
</tr>
<tr>
<td>[AQ...]</td>
<td>1/2 NPT, 3/4 NPT, 1 NPT, 1 1/4 NPT or 1 1/2 NPT</td>
</tr>
<tr>
<td>Module without connecting thread/connecting plate</td>
<td>[G]/[NG]</td>
</tr>
<tr>
<td>Pilot air port 12</td>
<td>G1/4 (MS9-LR..., PO)</td>
</tr>
<tr>
<td>Design</td>
<td>Piloted diaphragm regulator</td>
</tr>
<tr>
<td>Design</td>
<td>Directly actuated diaphragm regulator</td>
</tr>
<tr>
<td>Regulator function</td>
<td>Piloted</td>
</tr>
<tr>
<td>Regulator function</td>
<td>Output pressure constant, with return flow, with input pressure compensation, with secondary exhausting</td>
</tr>
<tr>
<td>Regulator function</td>
<td>Directly actuated</td>
</tr>
<tr>
<td>Regulator function</td>
<td>Output pressure constant, with return flow, with/without secondary exhausting</td>
</tr>
<tr>
<td>Type of mounting</td>
<td>Via accessories</td>
</tr>
<tr>
<td>Type of mounting</td>
<td>In-line installation</td>
</tr>
<tr>
<td>Type of mounting</td>
<td>Front panel mounting</td>
</tr>
<tr>
<td>Mounting position</td>
<td>Any1)</td>
</tr>
<tr>
<td>Actuator lock</td>
<td>Rotary knob with latch, can be locked using accessories</td>
</tr>
<tr>
<td>Actuator lock</td>
<td>Rotary knob with integrated lock</td>
</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>[D5] [bar] 0.5 ... 4, manually actuated</td>
</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>[D6] [bar] 0.5 ... 7, manually actuated</td>
</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>[D7] [bar] 0.5 ... 12, manually actuated (0.5 ... 10 with pressure sensor)</td>
</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>[D8] [bar] 0.5 ... 16, manually actuated (0.5 ... 10 with pressure sensor)</td>
</tr>
<tr>
<td>Pressure regulation range/actuation</td>
<td>[PO] [bar] 0.5 ... 16, pneumatically actuated2)</td>
</tr>
<tr>
<td>Max. pressure hysteresis</td>
<td>0.4</td>
</tr>
</tbody>
</table>

1) The pressure regulator must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.
2) Output pressure p2 corresponds roughly to the applied pilot pressure p12.

Note: This product conforms to ISO 1179-1 and ISO 228-1.
### Pressure regulators MS9-LR, MS series

#### Datasheet

##### General technical data

<table>
<thead>
<tr>
<th>Pressure indication</th>
<th>Via pressure sensor for indicating the output pressure and electrical output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Via pressure gauge for indicating the output pressure</td>
</tr>
<tr>
<td></td>
<td>Via pressure gauge with red/green scale for indicating the output pressure</td>
</tr>
<tr>
<td></td>
<td>Prepared for G1/4</td>
</tr>
</tbody>
</table>

##### Standard nominal flow rate $q_n$ [l/min]

<table>
<thead>
<tr>
<th>Design</th>
<th>Pilotaged diaphragm regulator</th>
<th>Directly actuated diaphragm regulator DI</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1, NPT1</td>
<td>G1, NPT1</td>
<td>20000</td>
</tr>
<tr>
<td>[D5]</td>
<td>19000$^{(1)}$</td>
<td>14000$^{(1)}$</td>
</tr>
<tr>
<td>[D6]</td>
<td>17000</td>
<td>14000</td>
</tr>
<tr>
<td>[D7]</td>
<td>17000</td>
<td>–</td>
</tr>
<tr>
<td>[D8]</td>
<td>17000</td>
<td>–</td>
</tr>
<tr>
<td>[PO]</td>
<td>21000</td>
<td>25000</td>
</tr>
</tbody>
</table>

1) All values ±15%
2) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar
3) Measured at $p_1 = 10$ bar and $p_2 = 4$ bar, $\Delta p = 1$ bar

##### Operating and environmental conditions

<table>
<thead>
<tr>
<th>EU certification</th>
<th>[EX4]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure [bar]</td>
<td>1 ... 20</td>
</tr>
<tr>
<td>Operating medium</td>
<td>Compressed air to ISO 8573-1:2010 [7:4:4]</td>
</tr>
<tr>
<td>Note on the operating/pilot medium</td>
<td>Lubricated operation possible (in which case lubrication will always be required)</td>
</tr>
<tr>
<td>Note on the operating/pilot medium</td>
<td>Lubricated operation not possible</td>
</tr>
<tr>
<td>Ambient temperature [°C]</td>
<td>–10 ... +60 (0 ... +50)$^{(1)}$</td>
</tr>
<tr>
<td>Temperature of medium [°C]</td>
<td>–10 ... +60 (0 ... +50)$^{(1)}$</td>
</tr>
<tr>
<td>Storage temperature [°C]</td>
<td>–10 ... +60</td>
</tr>
<tr>
<td>Corrosion resistance class CRC$^{(2)}$</td>
<td>2</td>
</tr>
<tr>
<td>UL certification$^{(3)}$</td>
<td>c UL us - Recognized (OL)</td>
</tr>
</tbody>
</table>

1) Value in brackets applies to MS9-LR with pressure sensor.
2) More information www.festo.com/x/topic/crc
3) More information: www.festo.com/catalogue/ms9-lr

#### ATEX

<table>
<thead>
<tr>
<th>EU certification</th>
<th>[EX4]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX category for gas</td>
<td>II 2G</td>
</tr>
<tr>
<td>Type of (ignition) protection for gas</td>
<td>Ex e IIC T6 Gb X</td>
</tr>
<tr>
<td>ATEX category for dust</td>
<td>II 2D</td>
</tr>
<tr>
<td>Type of (ignition) protection for dust</td>
<td>Ex e IIC T60°C Gb X</td>
</tr>
<tr>
<td>Explosion ambient temperature</td>
<td>–10°C ≤ $T_a$ ≤ +60°C</td>
</tr>
<tr>
<td>Explosion protection certification outside the EU</td>
<td>EPL D0 (GB)</td>
</tr>
<tr>
<td>EPL G0 (GB)</td>
<td></td>
</tr>
<tr>
<td>CE marking (see declaration of conformity)$^{(1)}$</td>
<td>To EU Explosion Protection Directive (ATEX)</td>
</tr>
<tr>
<td>UKCA marking (see declaration of conformity)$^{(1)}$</td>
<td>To UK regulations for explosions</td>
</tr>
</tbody>
</table>

1) More information: www.festo.com/catalogue/ms9-lr

#### Weight [g]

| Pressure regulator | 1400 |
| Pressure regulator with rotary knob with integrated lock | 1700 |
## Materials

### Sectional view

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Housing</td>
<td>Die-cast aluminium</td>
</tr>
<tr>
<td>2</td>
<td>Rotary knob</td>
<td>PA</td>
</tr>
<tr>
<td></td>
<td>Rotary knob with integrated lock</td>
<td>Aluminium</td>
</tr>
<tr>
<td>3</td>
<td>Diaphragm</td>
<td>NBR</td>
</tr>
<tr>
<td>4</td>
<td>Valve tappet</td>
<td>Wrought aluminium alloy, NBR, POM</td>
</tr>
<tr>
<td></td>
<td>Covering</td>
<td>Reinforced PA</td>
</tr>
<tr>
<td></td>
<td>Connecting plate, module connector, mounting bracket</td>
<td>Die-cast aluminium</td>
</tr>
<tr>
<td></td>
<td>Seals</td>
<td>NBR</td>
</tr>
</tbody>
</table>

**Note on materials:** RoHS-compliant

**LABS (PWIS) conformity:** VDMA24364-B1/B2-L

## Standard flow rate $q_n$ as a function of output pressure $p_2$ ($p_1 = 10$ bar)

### Piloted diaphragm regulator

**Pneumatic connection G3/4, NPT3/4**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

**Legend:**
- [D5]: 0.5 ... 4 bar
- [D6]: 0.5 ... 7 bar
- [D7]: 0.5 ... 12 bar
- [D8]: 0.5 ... 16 bar

### Directly actuated diaphragm regulator

**Pneumatic connection G3/4, NPT3/4**

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

**Legend:**
- [D5]: 0.5 ... 4 bar
- [D6]: 0.5 ... 7 bar
Pressure regulators MS9-LR, MS series

Datasheet

Standard flow rate $q_n$ as a function of output pressure $p_2$ ($p_1 = 10$ bar)

External pilot regulator
Pressure regulation range, pneumatically actuated
Pneumatic connection G3/4, NPT3/4

Pneumatic connection G1, NPT1

<table>
<thead>
<tr>
<th>Dimensions – Basic version</th>
</tr>
</thead>
<tbody>
<tr>
<td>[D5]/[D6]/[D7]/[D8] Pressure regulation range, manually actuated</td>
</tr>
<tr>
<td>[G]/[NG] Module without connecting thread, without connecting plate</td>
</tr>
<tr>
<td>[VS] Cover plate</td>
</tr>
<tr>
<td>[K5] Rotary knob with latch, can be locked using accessories</td>
</tr>
</tbody>
</table>

![Graphs showing flow rate vs pressure](image)

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<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>D3</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Piloted</td>
<td>Directly actuated</td>
<td>Piloted</td>
</tr>
<tr>
<td>MS9-LR-G/NG-D5/D6/D7/D8</td>
<td>90</td>
<td>45</td>
<td>109</td>
<td>–</td>
<td>129</td>
<td>122</td>
<td>71.4</td>
</tr>
<tr>
<td>MS9-LR-G/NG-PO</td>
<td>G1/4</td>
<td>120</td>
<td>–</td>
<td>62</td>
<td>–</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

→ Flow direction

Subject to change – 2023/05

Internet: www.festo.com/catalogue/...
Datasheet

Dimensions – Connecting thread/connecting plate

<table>
<thead>
<tr>
<th>Type</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
<th>D1</th>
<th>D4</th>
<th>D5</th>
<th>L4</th>
<th>L5</th>
<th>T1</th>
<th>Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS9-LR-3/4</td>
<td></td>
<td></td>
<td>90</td>
<td>104</td>
<td>91.5</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>11</td>
<td>6.5</td>
<td>66</td>
<td>–</td>
</tr>
<tr>
<td>MS9-LR-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G3/4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AGD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G3/4</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AGF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AGG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1 1/4</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AGH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G1 1/2</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-N3/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3/4 NPT</td>
<td>11</td>
<td>6.5</td>
<td>66</td>
<td>–</td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td>MS9-LR-N1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 NPT</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AQR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/2 NPT</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AQS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3/4 NPT</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AQT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 NPT</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AQU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 1/4 NPT</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS9-LR-AQV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 1/2 NPT</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] Note: This product conforms to ISO 1179-1 and ISO 228-1.

Flow direction
Pressure regulators MS9-LR, MS series

Datasheet

Dimensions – Pressure gauge alternatives

<table>
<thead>
<tr>
<th>Type</th>
<th>B2</th>
<th>B3</th>
<th>D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS9-LR-...-AG/RG</td>
<td>45</td>
<td>109</td>
<td>–</td>
</tr>
<tr>
<td>MS9-LR-...-A4</td>
<td>110</td>
<td>–</td>
<td>G1/4</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Dimensions – Pressure gauge alternatives

<table>
<thead>
<tr>
<th>Variant AD7</th>
<th>SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variant AD8</td>
<td>SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact</td>
</tr>
<tr>
<td>Variant AD9</td>
<td>SDE5-D10-03-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact</td>
</tr>
<tr>
<td>Variant AD10</td>
<td>SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact</td>
</tr>
</tbody>
</table>

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Datasheets → Internet: sde5

Flow direction

Type

<table>
<thead>
<tr>
<th>Variant AD7/AD8/AD9/AD10</th>
<th>B2</th>
<th>B3</th>
<th>D3</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS9-LR-...-AD7/AD8/AD9/AD10</td>
<td>45</td>
<td>112</td>
<td>M8</td>
</tr>
</tbody>
</table>
Datasheet

Dimensions – Rotary knob

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>D1</th>
<th>D2</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS9-LR-...-AS</td>
<td>64.4</td>
<td>51.2</td>
<td>–</td>
<td>94.5</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>MS9-LR-...-E11</td>
<td>–</td>
<td>44x1</td>
<td>–</td>
<td>103.5</td>
<td>13.5</td>
<td>60</td>
</tr>
</tbody>
</table>

Ordering data

<table>
<thead>
<tr>
<th>Design</th>
<th>Pressure regulation range</th>
<th>Flow direction</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot diaphragm regulator</td>
<td>0.5 ... 4 bar</td>
<td>From left to right</td>
<td>564134</td>
<td>MS9-LR-G-D5-AG-BAR-AS</td>
</tr>
<tr>
<td>Pilot diaphragm regulator</td>
<td>0.5 ... 7 bar</td>
<td>From left to right</td>
<td>564135</td>
<td>MS9-LR-G-D5-DI-AG-BAR-AS</td>
</tr>
<tr>
<td>Pilot diaphragm regulator</td>
<td>0.5 ... 12 bar</td>
<td>From left to right</td>
<td>564136</td>
<td>MS9-LR-G-D6-AG-BAR-AS</td>
</tr>
<tr>
<td>Pilot diaphragm regulator</td>
<td>0.5 ... 12 bar</td>
<td>From left to right</td>
<td>564137</td>
<td>MS9-LR-G-D6-DI-AG-Psi-AS</td>
</tr>
</tbody>
</table>

Download CAD data → www.festo.com
# Pressure regulators MS9-LR, MS series

## Ordering data – Modular product system

<table>
<thead>
<tr>
<th>Grid dimension [mm] 90</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
</table>

### Module no.
- 562530

### Series
- Standard

### Size
- 9

### Function
- Pressure regulator

### Pneumatic connection

<table>
<thead>
<tr>
<th>Grid dimension [mm] 90</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
</table>

| Female thread 3/4 | [1] -3/4 |
| Female thread 1 | [1] -1 |
| Connecting plate G1/2 | AGD |
| Connecting plate G3/4 | AGE |
| Connecting plate G1 | AGF |
| Connecting plate G1 1/4 | AGG |
| Connecting plate G1 1/2 | AGH |
| Female thread 3/4 NPT | [1] -N3/4 |
| Female thread 1 NPT | [1] -N1 |
| Connecting plate 1/2 NPT | AQR |
| Connecting plate 1 NPT | [1] -AQT |
| Connecting plate 1 1/4 NPT | [1] -AVQ |
| Connecting plate 1 1/2 NPT | [1] -AQV |
| Module without connecting thread, without connecting plate | [1] -G |
| Module without connecting thread, without connecting plate (inch) | [1] -NG |

### Pressure regulation range/actuation

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
</table>

| 0.5 ... 4 bar, manually actuated | -D5 |
| 0.5 ... 7 bar, manually actuated | -D6 |
| 0.5 ... 12 bar, manually actuated | -D7 |
| 0.5 ... 16 bar, manually actuated | [1] -D8 |
| Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator) | [2] -PO |

### Regulator type
- Piloted
- Directly actuated [3] -DI

### Pressure gauge/pressure gauge alternatives

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Code</th>
</tr>
</thead>
</table>

| MS pressure gauge | -AG |
| Cover plate | -VS |
| Adapter for EN pressure gauge 1/4, without pressure gauge | [4] -A4 |
| Integrated pressure gauge, red/green scale | -RG |
| Pressure sensor with status indicator, plug MS, threshold value comparator, PNP, N/O contact | [1] [5] -AD7 |
| Pressure sensor with status indicator, plug MS, threshold value comparator, PNP, N/C contact | [1] [5] -AD8 |
| Pressure sensor with status indicator, plug MS, window comparator, PNP, N/O contact | [1] [5] -AD9 |
| Pressure sensor with status indicator, plug MS, window comparator, PNP, N/C contact | [1] [5] -AD10 |

### Notes:

1. 3/4, 1, N3/4, N1, AQR, AGS, AQG, AGD, AQW, G, NG, DI, AD7, AD9, AD10, E11, WPM
   - Not with EU EX4 certification
2. PO Not with regulator type DI.
   - Not with locking options AS, E11.
3. DI Not with pressure regulation range D7, D8.
4. RG Not with alternative pressure gauge scale PSI, PSI scale is only used as an auxiliary scale.
5. AD7 ... AD10 Measuring range max. 10 bar.
## Ordering data – Modular product system

<table>
<thead>
<tr>
<th>Grid dimension [mm]</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative pressure gauge scale</td>
<td>psi</td>
<td>[6]</td>
<td>-PSI</td>
</tr>
<tr>
<td></td>
<td>MPa</td>
<td>[6]</td>
<td>-MPA</td>
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<tr>
<td></td>
<td>bar</td>
<td>[6]</td>
<td>-BAR</td>
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<tr>
<td>Secondary exhausting</td>
<td>With secondary exhausting</td>
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</tr>
<tr>
<td></td>
<td>Without secondary exhausting</td>
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<tr>
<td></td>
<td></td>
<td>[7]</td>
<td>-OS</td>
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<tr>
<td>Alternative mounting position</td>
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<tr>
<td></td>
<td>Rotary knob underneath (connection underneath with PO)</td>
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<tr>
<td>Locking option</td>
<td>Without (locking option AS is predefined)</td>
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<td>Lockable using accessories</td>
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<td></td>
<td>With integrated lock</td>
<td>[1]</td>
<td>-E11</td>
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<td>Type of mounting</td>
<td>Without mounting bracket</td>
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<tr>
<td></td>
<td>Mounting bracket standard design</td>
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<td>-WP</td>
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<tr>
<td></td>
<td>Mounting bracket for hooking in service unit components</td>
<td>[1] [8]</td>
<td>-WPM</td>
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<td>Mounting bracket for large wall gap</td>
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<td>II 2GD to EU Explosion Protection Directive (ATEX)</td>
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<td>UL certification</td>
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<td></td>
<td>cULus, ordinary location for Canada and USA</td>
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<td>-UL1</td>
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<td>Flow direction</td>
<td>Flow direction from left to right</td>
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<tr>
<td></td>
<td>Flow direction from right to left</td>
<td></td>
<td>-Z</td>
</tr>
</tbody>
</table>

(1) 3/4, 1, N3/4, N1, AQR, AQS, AQI, AQV, G, NG, DB, AD7, AD8, AD9, AD10, E11, WPM

Not with EU EX4 certification

(6) PSI, MPa, BAR

Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10

(7) OS

Only with regulator type DI

(8) WP, WPM, WPB

Not with pneumatic connection G, NG
Peripherals overview

**Pressure regulator MS12-LR**

- **Note**
  - Additional accessories:
    - Module connectors for combination with size MS9

<table>
<thead>
<tr>
<th>Manually actuated</th>
<th>Pneumatically actuated</th>
<th>Electrically actuated</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Manually actuated" /></td>
<td><img src="image2.png" alt="Pneumatically actuated" /></td>
<td><img src="image3.png" alt="Electrically actuated" /></td>
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</tbody>
</table>
## Peripherals overview

<table>
<thead>
<tr>
<th>Mounting attachments and accessories</th>
<th>Page/Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] Connecting plate SET MS12-AG...</td>
<td>ms12-ag</td>
</tr>
<tr>
<td>[3] Module connector MS12-MV</td>
<td>ms12-mv</td>
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<tr>
<td>[4] Cover plate VS</td>
<td>101</td>
</tr>
<tr>
<td>[5] Adapter for EN pressure gauge 1/4 A4</td>
<td>101</td>
</tr>
<tr>
<td>[6] Pressure gauge MA</td>
<td>102</td>
</tr>
<tr>
<td>[7] Padlock LRVS-D</td>
<td>102</td>
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<tr>
<td>[8] Connecting cable NEBU-M12G...-LE4</td>
<td>102</td>
</tr>
<tr>
<td>[10] Sensor socket SIE-GD</td>
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</table>
## Pressure regulators MS12-LR, MS series

### Type codes

<table>
<thead>
<tr>
<th>001</th>
<th>002</th>
<th>003</th>
<th>004</th>
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</tr>
<tr>
<td>MS</td>
<td>Size</td>
<td>Function</td>
<td>Pneumatic connection</td>
<td>Pressure regulation range</td>
<td>Pressure gauge alternatives</td>
<td>Alternative pressure gauge scale</td>
<td>Rotary knob alternative</td>
<td>Type of mounting</td>
<td>Flow direction</td>
</tr>
<tr>
<td>MS</td>
<td>002</td>
<td>LR</td>
<td>AGF</td>
<td>AGG</td>
<td>AGH</td>
<td>AGI</td>
<td>G</td>
<td>005</td>
<td>006</td>
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<tr>
<td></td>
<td>12</td>
<td>Pressure regulator</td>
<td>Sub-base G1</td>
<td>Sub-base G11/4</td>
<td>Sub-base G11/2</td>
<td>Sub-base G2</td>
<td>Module without connecting thread, without sub-base</td>
<td>0.3 ... 7 bar</td>
<td>None</td>
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<td>0.5 ... 12 bar</td>
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<td>0.5 ... 16 bar</td>
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<td>Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)</td>
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<td>0.15 ... 6 bar, solenoid actuated (pilot control by proportional-pressure regulator)</td>
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<td>PE6</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>PE6</td>
<td></td>
</tr>
</tbody>
</table>

### Notes

- **Type codes**
  - **Series**: MS
  - **Size**: 12
  - **Function**: LR
  - **Pneumatic connection**: AGF (Sub-base G1), AGG (Sub-base G11/4), AGH (Sub-base G11/2), AGI (Sub-base G2), G (Module without connecting thread, without sub-base)
  - **Pressure regulation range**: D6 (0.3 ... 7 bar), D7 (0.5 ... 12 bar), D8 (0.5 ... 16 bar), PO (Max. 16 bar), PE6 (0.15 ... 6 bar, solenoid actuated (pilot control by proportional-pressure regulator))
  - **Pressure gauge alternatives**: None, VS (Cover plate), A4 (Adapter for EN pressure gauge 1/4, without pressure gauge)
  - **Alternative pressure gauge scale**: MS pressure gauge, PSI (psi), MPA (MPa)
  - **Rotary knob alternative**: None, LD (Long rotary knob)
  - **Type of mounting**: Without mounting bracket, WP (Mounting bracket basic design)
  - **Flow direction**: Flow direction from left to right, Z (Flow direction from right to left)
Datasheet

Pressure regulators MS12-LR, MS series

The pressure regulator maintains an essentially constant output pressure p2, independently of pressure fluctuations in the system and air consumption. The output pressure p2 can be set within the pressure regulation range either manually using the rotary knob, pneumatically via pilot pressure p12 by an external pilot regulator, or electrically via setpoint signals.

When the operating pressure or the voltage for the setpoint signals is switched off, the output pressure p2 is exhausted via port 3 (secondary exhausting).

• Good regulation characteristics with minimal hysteresis and input pressure compensation
• High flow rate performance with minimal pressure drop
• Actuator lock to protect the set values from being adjusted
• With secondary exhausting
• Pressure gauge connection for different fitting options

General technical data

<table>
<thead>
<tr>
<th>Pressure regulation range/actuation</th>
<th>[D6]</th>
<th>[D7]</th>
<th>[D8]</th>
<th>[PO]</th>
<th>[PE6]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pneumatic connection 1, 2</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Connecting plate</td>
<td>G1, G1 1/4, G1 1/2 or G2</td>
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</tr>
<tr>
<td>Module without connecting thread/connecting plate</td>
<td>–</td>
<td></td>
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</tr>
<tr>
<td>Pilot air port 12</td>
<td>G1/4 (MS12-LR-...-PO)</td>
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<tr>
<td><strong>Design</strong></td>
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<tr>
<td>Pressure regulator with/without pressure gauge</td>
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<tr>
<td>Piloted diaphragm regulator (MS12-LR-...-D6/D7/D8/PE6)</td>
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<td>Diaphragm regulator (MS12-LR-...-PO)</td>
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<tr>
<td><strong>Regulator function</strong></td>
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</tr>
<tr>
<td>Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting</td>
<td></td>
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<tr>
<td><strong>Type of mounting</strong></td>
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</tr>
<tr>
<td>Via accessories</td>
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<tr>
<td>In-line installation</td>
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</tr>
<tr>
<td>Any</td>
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</tr>
<tr>
<td><strong>Actuator lock</strong></td>
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<tr>
<td>Rotary knob with latch, can be locked using accessories</td>
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<tr>
<td>Rotary knob with integrated lock</td>
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<tr>
<td><strong>Pressure regulation range</strong></td>
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</tr>
<tr>
<td>[MPa]</td>
<td>0.03 ... 0.7</td>
<td>0.05 ... 1.2</td>
<td>0.05 ... 1.6</td>
<td>0.05 ... 1.6</td>
<td>0.015 ... 0.6</td>
</tr>
<tr>
<td>[bar]</td>
<td>0.3 ... 7</td>
<td>0.5 ... 12</td>
<td>0.5 ... 16</td>
<td>0.5 ... 16</td>
<td>0.15 ... 6</td>
</tr>
<tr>
<td>[psi]</td>
<td>4.35 ... 102</td>
<td>7.25 ... 174</td>
<td>7.25 ... 232</td>
<td>7.25 ... 232</td>
<td>2.175 ... 87</td>
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<tr>
<td><strong>Actuation</strong></td>
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<tr>
<td>Manually actuated¹</td>
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<td>Manually actuated²</td>
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<tr>
<td>Manually actuated³</td>
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<td>Pneumatically actuated⁴</td>
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<td><strong>Max. pressure hysteresis</strong></td>
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<td>[bar]</td>
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<td>[psi]</td>
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<tr>
<td>With pressure gauge</td>
<td></td>
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</tr>
</tbody>
</table>

¹ Prerequisite P1 = P2 + 1 bar.
² Note: This product conforms to ISO 1179-1 and ISO 228-1.
## Pressure regulators MS12-LR, MS series

### Datasheet

#### Flow rates

<table>
<thead>
<tr>
<th>Pressure regulation range/actuation</th>
<th>[D6]/[D7]/[D8]/[PO]</th>
<th>[PE6]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard nominal flow rate (q_{nN}^{1)} ) [l/min]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(q_{nN}^{1)} )</td>
<td>(12000)</td>
<td>(12000)</td>
</tr>
<tr>
<td>(G1)</td>
<td>(13000)</td>
<td>(13500)</td>
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<tr>
<td>(G1)</td>
<td>(16000)</td>
<td>(15000)</td>
</tr>
<tr>
<td>(G2)</td>
<td>(22000)</td>
<td>21000</td>
</tr>
<tr>
<td>Secondary exhaust flow rate [l/min]</td>
<td>(\leq 600)</td>
<td>(\leq 600)</td>
</tr>
</tbody>
</table>

1) Measured at \(p_1 = 10\) bar and \(p_2 = 6\) bar, \(\Delta p = 0.5\) bar
2) Measured at \(p_1 = 7\) bar and \(p_2 = 6\) bar, \(\Delta p = 0.5\) bar
3) Dependent on the selected connecting plate; must be ordered separately as an accessory

#### Electrical data

<table>
<thead>
<tr>
<th>Pressure regulation range/actuation</th>
<th>[PE6]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage range ([V DC])</td>
<td>21.6 ... 26.4</td>
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<tr>
<td>Nominal operating voltage ([V DC])</td>
<td>24</td>
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<tr>
<td>Residual ripple ([%])</td>
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<tr>
<td>Analogue input signal range ([V])</td>
<td>0 ... 10</td>
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<tr>
<td>Max. current consumption ([A])</td>
<td>0.15</td>
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<tr>
<td>Max. electrical power consumption ([W])</td>
<td>3.6</td>
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<td>Degree of protection</td>
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</tbody>
</table>

#### Operating and environmental conditions

<table>
<thead>
<tr>
<th>Pressure regulation range/actuation</th>
<th>[D6]/[D7]/[D8]/[PO]</th>
<th>[PE6]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure ([MPa])</td>
<td>0.08 ... 2.1</td>
<td>0.115 ... 0.8</td>
</tr>
<tr>
<td>([bar])</td>
<td>0.8 ... 21</td>
<td>1.15 ... 8</td>
</tr>
<tr>
<td>([psi])</td>
<td>11.6 ... 304.5</td>
<td>16.675 ... 116</td>
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<tr>
<td>Operating medium</td>
<td>Compressed air to ISO 8573-1:2010 [7:4:4]</td>
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<tr>
<td>Inert gases</td>
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<tr>
<td>Temperature of medium ([\degree C])</td>
<td>(-10 ... +60)</td>
<td>(+10 ... +50)</td>
</tr>
<tr>
<td>Storage temperature ([\degree C])</td>
<td>(-10 ... +60)</td>
<td>(+10 ... +50)</td>
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<tr>
<td>Corrosion resistance class CRC (1))</td>
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<tr>
<td>CE marking (see declaration of conformity) (2))</td>
<td>To EU EMC Directive</td>
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<tr>
<td>To EU RoHS Directive</td>
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<tr>
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<tr>
<td>To UK RoHS regulations</td>
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<tr>
<td>KC marking</td>
<td>KC EMC</td>
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1) More information: www.festo.com/x/topic/crc

If the devices are subject to usage restrictions in residential, commercial or light industrial environments, further measures for the reduction of the emitted interference may be necessary.

#### Weight [g]

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Pressure regulator</td>
<td>4000</td>
</tr>
<tr>
<td>Pressure regulator with rotary knob with integrated lock</td>
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Datasheet

Materials

Sectional view

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<table>
<thead>
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<tbody>
<tr>
<td>1</td>
<td>Housing</td>
<td>Die-cast aluminium</td>
</tr>
<tr>
<td>2</td>
<td>Rotary knob</td>
<td>Reinforced PA, POM</td>
</tr>
<tr>
<td></td>
<td>Rotary knob with integrated lock</td>
<td>Wrought aluminium alloy</td>
</tr>
<tr>
<td>3</td>
<td>Bottom cover</td>
<td>Wrought aluminium alloy</td>
</tr>
<tr>
<td>4</td>
<td>Spring</td>
<td>Spring steel</td>
</tr>
<tr>
<td>5</td>
<td>Valve tappet</td>
<td>Wrought aluminium alloy, NBR, high-alloy stainless steel</td>
</tr>
<tr>
<td></td>
<td>Seals, diaphragm</td>
<td>NBR</td>
</tr>
<tr>
<td></td>
<td>Note on materials</td>
<td>RoHS-compliant</td>
</tr>
<tr>
<td></td>
<td>LABS (PWIS) conformity</td>
<td>VDMA24364-B1/B2-L</td>
</tr>
</tbody>
</table>

Standard flow rate $q_n$ as a function of output pressure $p_2$ ($p_1 = 10$ bar) (MS12-LR-...D6/D7/D8/PO only)

Pneumatic connection G1 with connecting plate MS12-AGF

Pneumatic connection G1 1/4 with connecting plate MS12-AGG

Input pressure $p_1 = 10$ bar

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>5000</td>
</tr>
<tr>
<td>2</td>
<td>10000</td>
</tr>
<tr>
<td>3</td>
<td>15000</td>
</tr>
<tr>
<td>4</td>
<td>20000</td>
</tr>
<tr>
<td>5</td>
<td>25000</td>
</tr>
</tbody>
</table>

Pneumatic connection G1 1/2 with connecting plate MS12-AGH

Pneumatic connection G2 with connecting plate MS12-AGI

Input pressure $p_1 = 10$ bar

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>$q_n$ [l/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>5000</td>
</tr>
<tr>
<td>2</td>
<td>10000</td>
</tr>
<tr>
<td>3</td>
<td>15000</td>
</tr>
<tr>
<td>4</td>
<td>20000</td>
</tr>
<tr>
<td>5</td>
<td>25000</td>
</tr>
</tbody>
</table>
Pressure regulators MS12-LR, MS series

Datasheet

Standard flow rate $q_n$ as a function of output pressure $p_2$ ($p_1 = 10$ bar) (MS12-LR-...-PE6 only)

Pneumatic connection G1 1/2 with connecting plate MS12-AGH

<table>
<thead>
<tr>
<th>$p_2$ [bar]</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>$q_n$ [l/min]</td>
<td>0</td>
<td>5000</td>
<td>10000</td>
<td>15000</td>
<td>20000</td>
<td>25000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Input pressure $p_1 = 10$ bar

Dimensions – Basic version

[D6]/[D7]/[D8] Pressure regulation range, manually actuated

[g] Module without connecting thread, without connecting plate

[ ] Integrated MS pressure gauge with standard scale

[LD-AS] Rotary knob, long, with latch, can be locked using accessories

Download CAD data → www.festo.com

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>D2</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS12-LR-...-D6/D7/D8</td>
<td>124</td>
<td>122</td>
<td>61</td>
<td>148</td>
<td>51.2</td>
<td>178</td>
<td>88</td>
<td>95</td>
<td>168</td>
</tr>
</tbody>
</table>
Datasheet

**Dimensions – Pressure regulation range**

<table>
<thead>
<tr>
<th>Type</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>D3</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS12-LR-...-PO</td>
<td>124</td>
<td>122</td>
<td>61</td>
<td>148</td>
<td>–</td>
<td>181</td>
<td>91</td>
<td>–</td>
<td>171</td>
<td></td>
</tr>
<tr>
<td>MS12-LR-...-PE6</td>
<td>50</td>
<td>M12</td>
<td>172</td>
<td>82</td>
<td>62.7</td>
<td>162</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions – Pressure gauge alternatives**

<table>
<thead>
<tr>
<th>Type</th>
<th>B3</th>
<th>B4</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS12-LR-...-VS</td>
<td>61</td>
<td>148</td>
<td>–</td>
</tr>
<tr>
<td>MS12-LR-...-A4</td>
<td>61</td>
<td>148</td>
<td>G1/4</td>
</tr>
</tbody>
</table>

Note: This product conforms to ISO 1179-1 and ISO 228-1.
Pressure regulators MS12-LR, MS series

Datasheet

Dimensions – Rotary knob

[LD-AS] Rotary knob, long, with latch, can be locked using accessories

[E11] Rotary knob with integrated lock

Download CAD data → www.festo.com

[2] Installation dimension

Type

B4  D2  L3  L8  L10

MS12-LR...-LD-AS  64.4  51.2  95  12  ~
MS12-LR...-E11  ~  51.8  112  ~  60

Ordering data

Design  Pressure regulation range  Flow direction  Part no.  Type

Piloted diaphragm regulator  0.15 ... 6 bar  From left to right  564888  MS12-LR-G-PE6
  0.5 ... 12 bar  From left to right  537148  MS12-LR-G-D7-LD-AS
Diaphragm regulator  0.5 ... 16 bar  From left to right  541680  MS12-LR-G-PO
# Pressure regulators MS12-LR, MS series

## Ordering data – Modular product system

<table>
<thead>
<tr>
<th>Grid dimension</th>
<th>Module no.</th>
<th>Conditions</th>
<th>Code</th>
<th>Enter code</th>
</tr>
</thead>
<tbody>
<tr>
<td>124</td>
<td>535021</td>
<td>MS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Series
- Standard

### Size
- 12

### Function
- Pressure regulator

### Pneumatic connection
- Connecting plate G1
- Connecting plate G1 1/4
- Connecting plate G1 1/2
- Connecting plate G2
- Module without connecting thread, without connecting plate

### Pressure regulation range/actuation
- 0.3 ... 7 bar, manually actuated
- 0.5 ... 12 bar, manually actuated
- 0.5 ... 16 bar, manually actuated
- Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)
- 0.15 ... 6 bar, electrically actuated (pilot control using proportional pressure regulator)

### Pressure gauge alternatives
- MS pressure gauge
- Cover plate
- Adapter for EN pressure gauge 1/4, without pressure gauge

### Alternative pressure gauge scale
- MS pressure gauge, bar
- psi
- MPa

### Rotary knob alternative
- None
- Long rotary knob

### Locking option
- None
- Lockable using accessories
- With integrated lock

### Type of mounting
- Without mounting bracket
- Mounting bracket standard design

### Flow direction
- Flow direction from left to right
- Flow direction from right to left

---

[1] PO, PE6 Not with rotary knob alternative LD.
[2] PO, PE6, LD Not with locking option AS.
[4] Must be selected if pressure regulation range/actuation PO, PE6 is selected.
[6] AS Only with rotary knob alternative LD.
[7] PO Only with connecting plate AGF, AGG, AGH or AGI.
### Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

**Accessories**

#### Ordering data – Pressure gauge MA

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>Pneumatic connection</th>
<th>Display range</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure gauge MA, EN 837-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>R1/4</td>
<td>0 ... 16</td>
<td>187080</td>
<td>MA-40-16-R1/4-EN</td>
</tr>
<tr>
<td></td>
<td>G1/4</td>
<td>0 ... 16</td>
<td>183901</td>
<td>MA-40-16-G1/4-EN</td>
</tr>
<tr>
<td>Pressure gauge MA, EN 837-1, with red/green range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>R1/8</td>
<td>0 ... 16</td>
<td>525726</td>
<td>MA-40-16-R1/8-E-RG</td>
</tr>
<tr>
<td>50</td>
<td>R1/4</td>
<td>0 ... 16</td>
<td>525729</td>
<td>MA-50-16-R1/4-E-RG</td>
</tr>
</tbody>
</table>

#### Ordering data – Connecting cable NEBU-M8

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>Number of wires</th>
<th>Cable length [m]</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8x1, straight socket</td>
<td>3</td>
<td>2.5</td>
<td>541333</td>
<td>NEBU-M8G3-K-2.5-LE</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2.5</td>
<td>541341</td>
<td>NEBU-M8G3-K-5-LE</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2.5</td>
<td>541342</td>
<td>NEBU-M8G4-K-2.5-LE</td>
</tr>
</tbody>
</table>

#### Ordering data – Connecting cable NEBU-M12

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>Number of wires</th>
<th>Cable length [m]</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12x1, straight socket</td>
<td>4</td>
<td>2.5</td>
<td>550326</td>
<td>NEBU-M12G5-K-2.5-LE</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2.5</td>
<td>541331</td>
<td>NEBU-M12G5-K-5-LE</td>
</tr>
</tbody>
</table>

#### Ordering data – Sensor socket SIE-GD

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12x1, 4-pin</td>
<td>18494</td>
<td>SIE-GD</td>
</tr>
</tbody>
</table>

#### Ordering data – Angled plug socket SIE-WD

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12x1, 4-pin</td>
<td>12956</td>
<td>SIE-WD-TR</td>
</tr>
</tbody>
</table>

#### Ordering data – Padlock LRVS-D

<table>
<thead>
<tr>
<th>Weight [g]</th>
<th>Part no.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>193786</td>
<td>LRVS-D</td>
</tr>
</tbody>
</table>