

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

**FESTO**



Festo Core Range  
Solves the majority of your automation tasks

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:  
Simply good:  
Fast:

Quickest delivery – wherever, whenever  
Expected high Festo quality  
Easy and fast to select

Just look  
for the  
star!

## Key features

### MS series service unit components

Solutions for every application

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.

### CAD models and configurator

Convenient tools for planning and selecting application-specific individual components and combinations. The product configurator lets you configure customised solutions quickly and transfer the order data without any hassle.

### Engineering tools

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

→ [www.festo.com/engineering/service-unit](http://www.festo.com/engineering/service-unit)

### Freely combinable function modules

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 replacing individual modules does not require disassembling the entire combination.

Many of the components are also UL and ATEX certified.

### Air quality

This program supports configuring an appropriate service unit. Please insert the required air cleanliness either by your application or an ISO-code or by direct selection of air filters.

**Selection criteria: Application**  
Filter combination is proposed based upon your selected application

☐ standard pneumatics  
operation of valves and cylinders, e.g. in automotive industry, secondary packaging

☐ mining and building industry  
applications without special air cleanliness requirements

☐ application of pressure operated tools and machines  
pneumatic hammer, air engine, positioning with proportional valve

☐ electronic, flatpanel and solar industry,  
textile and paper production  
application with residual oil content <0.5 mg/m<sup>3</sup>

☐ painting, powder coating, air bearing  
application with residual oil content <0.01 mg/m<sup>3</sup>

☐ food and beverage industry, optica  
application with residual oil content <0.003 mg/m<sup>3</sup>  
reduction of oil vapours and aromas

**Selection criteria: ISO-class**  
Filter combination is proposed based upon the air cleanliness class according to ISO 8573-1:2010

particle : 4 : oil

**Direct filter selection**  
Independent selection of filter combination

☐ 40 µm Filter

☐ 5 µm Filter

☐ 1 µm Fine Filter

☐ 0.01 µm Micro Filter \*

☐ Active Carbon Filter

**ISO**

\* Downstream from the compressor the water content is assumed to be ISO class 4. Better classes can be achieved by applying an absorption dryer (DSD) or a membrane dryer (DMB)

\* To enhance the filter lifetime and in consequence the maintenance interval arrange a 1 µm Fine Filter in front of the 0.01 µm Micro Filter as a preliminary filter.

### Integrated sensors

Pressure and flow sensors

### Safety functions

Soft-start/quick exhaust valves  
MS6-SV/MS9-SV

### Energy savings

Service unit combinations MSE6

Intelligent mix of sizes



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



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



- Fully automatic monitoring and regulation of compressed air supply
- Automatic shut-off of the compressed air in stand-by mode
- Detection and notification of leakages
- 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

| Size  | MS4              | MS6                    | MS9                            | MS12                   |
|---|------------------|------------------------|--------------------------------|------------------------|
| Grid dimension [mm]   | 40               | 62                     | 90                             | 124                    |
| Connection sizes  | G1/8, G1/4, G3/8 | G1/4, G3/8, G1/2, G3/4 | G1/2, G3/4, G1, G1 1/4, G1 1/2 | G1, G1 1/4, G1 1/2, G2 |
| Standard nominal flow rate q <sub>N</sub> <sup>1)</sup> [l/min] | 1800             | 6500                   | 20000                          | 22000                  |

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

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 combination MSB is a reliable and convenient way of arranging individual service unit components and it ensures compliance with the applicable rules. As a result, you get a completely 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/LRE 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 MS series service unit components

| Type  | Description   | Size | Pneumatic connection |               |               |        |                              |                           |
|---|---|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
|   |   |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                           |
|   |   |      |                      | M             | G             | NPT    | G                            | NPT                       |
| Combinations  |   |      |                      |               |               |        |                              |                           |
| Service unit combinations MSB-FRC <span style="float:right">Datasheets → Internet: msb</span> |   |      |                      |               |               |        |                              |                           |
|            | Combinations of filter regulator and lubricator   | 4    | –                    | –             | 1/8, 1/4      | –      | –                            | –                         |
|   |   | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | –                            | –                         |
|   |   |      |                      |               |               |        |                              |                           |
| Service unit combinations MSB <span style="float:right">Datasheets → Internet: msb</span>     |   |      |                      |               |               |        |                              |                           |
|            | 7 combinations, predefined  | 4    | –                    | –             | 1/4           | –      | –                            | –                         |
|   |   | 6    | –                    | –             | 1/2           | –      | –                            | –                         |
|   |   |      |                      |               |               |        |                              |                           |
|            | Freely configurable combinations  | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|   |   | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|   |   | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|   |   |      |                      |               |               |        |                              |                           |
| Service unit combinations MSE6 <span style="float:right">Datasheets → Internet: mse6</span>   |   |      |                      |               |               |        |                              |                           |
|            | Combinations with fieldbus connection for measuring pressure, flow rate and consumption | 6    | –                    | –             | –             | –      | 1/2                          | –                         |
|   |   |      |                      |               |               |        |                              |                           |








## Key features

| Product range for MS series service unit components                                 |  |      |                      |               |               |        |                               |                           |
|---|--|------|----------------------|---------------|---------------|--------|-------------------------------|---------------------------|
| Type  | Description  | Size | Pneumatic connection |               |               |        | Connecting plate with thread  |                           |
|   |  |      | Push-in connector    | Female thread |               |        |                               |                           |
|   |  |      |                      | M             | G             | NPT    | G                             | NPT                       |
| Individual devices  |  |      |                      |               |               |        |                               |                           |
| Filter regulators MS-LFR  |  |      |                      |               |               |        | Datasheets → Internet: ms-lfr |                           |
|    | Filter and pressure regulator in a single device, grade of filtration 5 or 40 µm | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                 | 1/8, 1/4, 3/8             |
|   |  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4            | 1/4, 3/8, 1/2, 3/4        |
|   |  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2     | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2            | –                         |
|   |  |      |                      |               |               |        |                               |                           |
| Filters MS-LF   |  |      |                      |               |               |        |                               |                           |
|   |  |      |                      |               |               |        | Datasheets → Internet: ms-lf  |                           |
|    | Grade of filtration 5 or 40 µm   | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                 | 1/8, 1/4, 3/8             |
|   |  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4            | 1/4, 3/8, 1/2, 3/4        |
|   |  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2     | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2            | –                         |
|   |  |      |                      |               |               |        |                               |                           |
| Fine and micro filters MS-LFM   |  |      |                      |               |               |        |                               |                           |
|   |  |      |                      |               |               |        | Datasheets → Internet: ms-lfm |                           |
|    | Grade of filtration 0.01 or 1 µm   | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                 | 1/8, 1/4, 3/8             |
|   |  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4            | 1/4, 3/8, 1/2, 3/4        |
|   |  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2     | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2            | –                         |
|   |  |      |                      |               |               |        |                               |                           |
| Activated carbon filters MS-LFX   |  |      |                      |               |               |        |                               |                           |
|   |  |      |                      |               |               |        | Datasheets → Internet: ms-lfx |                           |
|  | For removing liquid and gaseous oil particles                                    | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                 | 1/8, 1/4, 3/8             |
|   |  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4            | 1/4, 3/8, 1/2, 3/4        |
|   |  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2     | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2            | –                         |
|   |  |      |                      |               |               |        |                               |                           |
| Water separators MS-LWS   |  |      |                      |               |               |        |                               |                           |
|   |  |      |                      |               |               |        | Datasheets → Internet: ms-lws |                           |
|  | Remove condensate from compressed air, maintenance-free                          | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4            | 1/4, 3/8, 1/2, 3/4        |
|   |  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2     | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2            | –                         |
|   |  |      |                      |               |               |        |                               |                           |





## Key features

| Product range for MS series service unit components                                 |   |      |                      |               |               |        |                              |                                |
|---|---|------|----------------------|---------------|---------------|--------|------------------------------|--------------------------------|
| Type  | Description   | Size | Pneumatic connection |               |               |        |                              |                                |
|   |   |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                                |
|   |   |      |                      | M             | G             | NPT    | G                            | NPT                            |
| Individual devices  |   |      |                      |               |               |        |                              |                                |
| Pressure regulators MS-LR   |   |      |                      |               |               |        |                              | Datasheets → Internet: ms-lr   |
|    | For setting the required operating pressure, 4 pressure regulation ranges   | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8                  |
|   |   | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4             |
|   |   | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2      |
|   |   | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                              |
|   |   |      |                      |               |               |        |                              |                                |
| Pressure regulators MS-LRB  |   |      |                      |               |               |        |                              |                                |
| Pressure regulators MS-LRB  |   |      |                      |               |               |        |                              | Datasheets → Internet: ms-lrb  |
|    | For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is to the front or rear.              | 4    | –                    | –             | 1/4           | –      | 1/8, 1/4, 3/8                | –                              |
|   |   | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                              |
|   |   |      |                      |               |               |        |                              |                                |
| Precision pressure regulators MS-LRP  |   |      |                      |               |               |        |                              |                                |
| Precision pressure regulators MS-LRP  |   |      |                      |               |               |        |                              | Datasheets → Internet: ms-lrp  |
|    | For precise setting of the required operating pressure, 4 pressure regulation ranges, pressure hysteresis 0.02 bar                      | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4             |
|   |   |      |                      |               |               |        |                              |                                |
| Precision pressure regulators MS-LRPB   |   |      |                      |               |               |        |                              |                                |
| Precision pressure regulators MS-LRPB   |   |      |                      |               |               |        |                              | Datasheets → Internet: ms-lrpb |
|  | For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is to the front or rear.              | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                              |
|   |   |      |                      |               |               |        |                              |                                |
| Electric pressure regulators MS-LRE   |   |      |                      |               |               |        |                              |                                |
| Electric pressure regulators MS-LRE   |   |      |                      |               |               |        |                              | Datasheets → Internet: ms-lre  |
|  | Electrically adjustable pressure regulator, 4 pressure regulation ranges  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4             |
|   |   |      |                      |               |               |        |                              |                                |
| Lubricators MS-LOE  |   |      |                      |               |               |        |                              |                                |
| Lubricators MS-LOE  |   |      |                      |               |               |        |                              | Datasheets → Internet: 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. | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8                  |
|   |   | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4             |
|   |   | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2      |
|   |   | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                              |
|   |   |      |                      |               |               |        |                              |                                |

## Key features

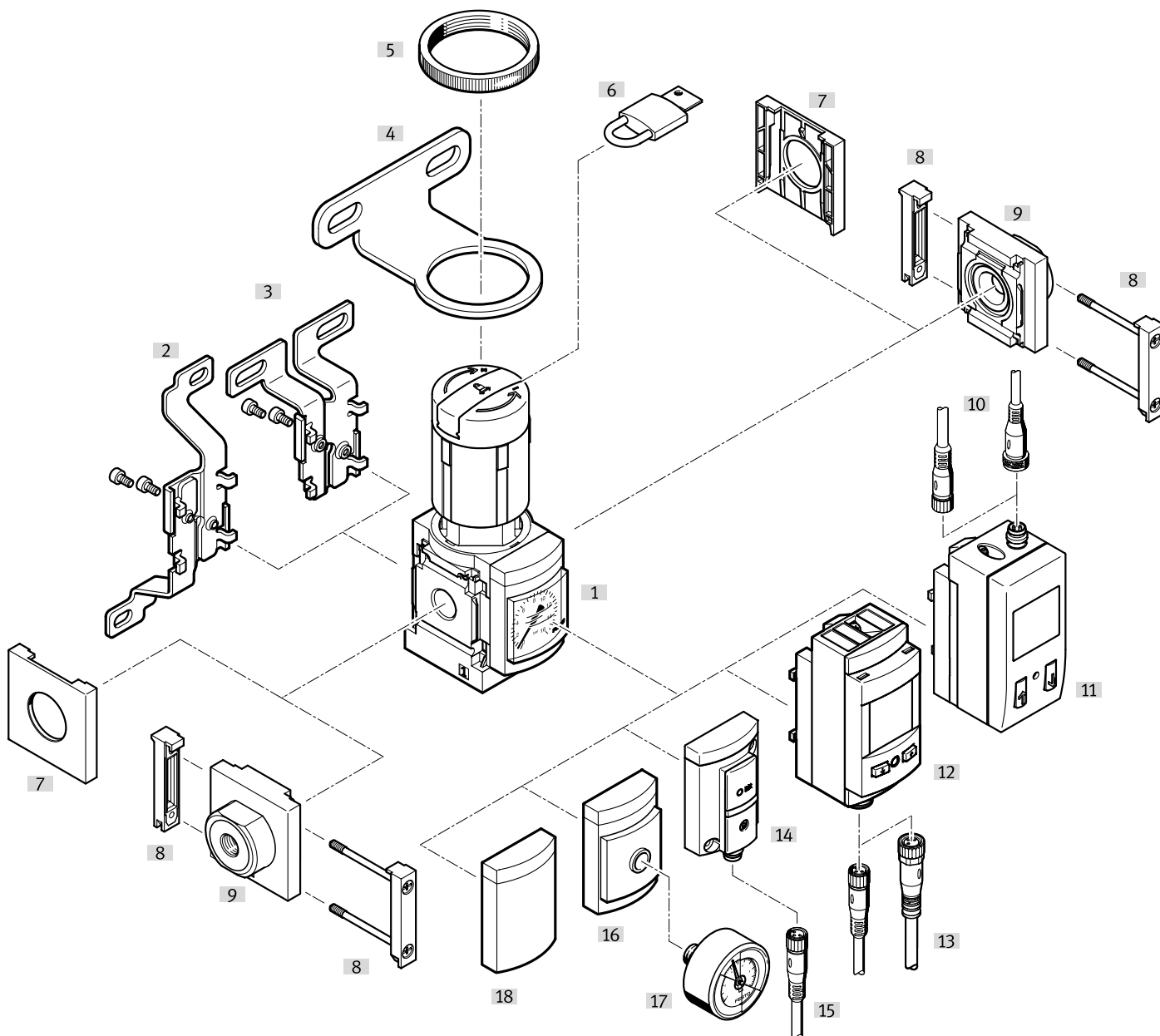
| Product range for MS series service unit components                                 |  |      |                      |               |               |        |                              |                              |
|---|--|------|----------------------|---------------|---------------|--------|------------------------------|------------------------------|
| Type  | Description  | Size | Pneumatic connection |               |               |        |                              |                              |
|   |  |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                              |
|   |  |      |                      | M             | G             | NPT    | G                            | NPT                          |
| Individual devices  |  |      |                      |               |               |        |                              |                              |
| On/off valves MS-EM   |  |      |                      |               |               |        |                              | Datasheets → Internet: ms-em |
|    | Manually actuated on/off valve for pressurising and exhausting pneumatic systems.  | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8                |
|   |  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4           |
|   |  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2    |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                            |
|   |  |      |                      |               |               |        |                              |                              |
| On/off valves MS-EE   |  |      |                      |               |               |        |                              |                              |
| On/off valves MS-EE   |  |      |                      |               |               |        |                              | Datasheets → Internet: ms-ee |
|    | Solenoid actuated on/off valve for pressurising and exhausting pneumatic systems.  | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8                |
|   |  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4           |
|   |  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2    |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                            |
|   |  |      |                      |               |               |        |                              |                              |
| Soft-start valves MS-DL   |  |      |                      |               |               |        |                              |                              |
| Soft-start valves MS-DL   |  |      |                      |               |               |        |                              | Datasheets → Internet: ms-dl |
|    | Pneumatically actuated soft-start valve for slow pressurisation and exhaust of pneumatic installations.                          | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8                |
|   |  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4           |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                            |
|   |  |      |                      |               |               |        |                              |                              |
|   |  |      |                      |               |               |        |                              |                              |
| Soft-start valves MS-DE   |  |      |                      |               |               |        |                              |                              |
| Soft-start valves MS-DE   |  |      |                      |               |               |        |                              | Datasheets → Internet: ms-de |
|  | Electrically actuated soft-start valve for slow pressurisation and exhaust of pneumatic installations.                           | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8                |
|   |  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4           |
|   |  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                            |
|   |  |      |                      |               |               |        |                              |                              |
|   |  |      |                      |               |               |        |                              |                              |
| Soft-start/quick exhaust valves MS-SV   |  |      |                      |               |               |        |                              |                              |
| Soft-start/quick exhaust valves MS-SV   |  |      |                      |               |               |        |                              | Datasheets → Internet: ms-sv |
|  | For building up pressure gradually and reducing pressure quickly and safely in pneumatic piping systems. Up to category 1, PL c. | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4           |
|   |  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2    |
|   |  |      |                      |               |               |        |                              |                              |
|  | Up to category 3, PL d. Up to category 4, PL e in the case of optional extension.  | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4           |
|   |  |      |                      |               |               |        |                              |                              |
|  | Up to category 4, PL e.  | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                            |
|   |  |      |                      |               |               |        |                              |                              |

## Key features

| Product range for MS series service unit components                                 |   |      |                      |               |               |        |                              |                                   |
|---|---|------|----------------------|---------------|---------------|--------|------------------------------|-----------------------------------|
| Type  | Description   | Size | Pneumatic connection |               |               |        |                              |                                   |
|   |   |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                                   |
|   |   |      |                      | M             | G             | NPT    | G                            | NPT                               |
| Individual devices  |   |      |                      |               |               |        |                              |                                   |
| Membrane air dryers MS-LDM1   |   |      |                      |               |               |        |                              | Datasheets → Internet: ms-ldm     |
|    | Wear-free membrane dryer with internal air consumption                        | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8                     |
|   |   | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4                |
|   |   |      |                      |               |               |        |                              |                                   |
| Branching modules MS-FRM  |   |      |                      |               |               |        |                              |                                   |
|   |   |      |                      |               |               |        |                              | Datasheets → Internet: ms-frm     |
|    | Compressed air distributors with 4 connections                                | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | –                                 |
|   |   | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | –                                 |
|   |   | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2         |
|   |   | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                                 |
| Distributor blocks MS-FRM-FRZ   |   |      |                      |               |               |        |                              |                                   |
|   |   |      |                      |               |               |        |                              | Datasheets → Internet: ms-frm-frz |
|    | Compressed air distributors with 4 connections and half the grid width        | 4    | –                    | –             | –             | –      | –                            | –                                 |
|   |   | 6    | –                    | –             | –             | –      | –                            | –                                 |
| Flow sensors SFAM   |   |      |                      |               |               |        |                              |                                   |
|   |   |      |                      |               |               |        |                              | Datasheets → Internet: sfam       |
|  | For absolute flow rate information and cumulative air consumption measurement | 6    | –                    | –             | –             | –      | 1/2                          | 1/2                               |
|   |   | 9    | –                    | –             | –             | –      | 1, 1 1/2                     | 1, 1 1/2                          |

## Peripherals overview

### Pressure regulator MS4/MS6-LR



#### Note

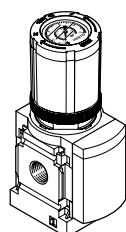
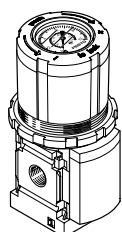
Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9  
→ Internet: amv, rmv, armv
- Adapter 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





## Peripherals overview

| Mounting attachments and accessories <sup>1)</sup> |  | Single device            |                       | Combination              |                       | → Page/Internet     |
|--|--|--------------------------|-----------------------|--------------------------|-----------------------|---------------------|
|  |  | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                     |
| [1]  | Pressure regulator<br>MS4/MS6-LR                         | ■                        | ■                     | ■                        | ■                     | 10                  |
| [2]  | Mounting bracket<br>MS4/6-WB                             | ■                        | ■                     | –                        | –                     | ms4-wb,<br>ms6-wb   |
| [3]  | Mounting bracket<br>MS4-WBM                              | ■                        | ■                     | –                        | –                     | ms4-wbm             |
| [4]  | Mounting bracket<br>MS4/6-WR                             | ■                        | ■                     | –                        | –                     | ms4-wr,<br>ms6-wr   |
| [5]  | Knurled nut (included in the scope of delivery)<br>MS-LR | ■                        | ■                     | –                        | –                     | –                   |
| [6]  | Padlock<br>LRVS-D  | ■                        | ■                     | ■                        | ■                     | 110                 |
| [7]  | Cover cap<br>MS4/6-END                                   | ■                        | –                     | ■                        | –                     | ms4-end,<br>ms6-end |
| [8]  | Module connector<br>MS4/6-MV                             | –                        | ■                     | ■                        | ■                     | ms4-mv,<br>ms6-mv   |
| [9]  | Connecting plate SET<br>MS4/6-AG...                      | –                        | ■                     | –                        | ■                     | ms4-ag,<br>ms6-ag   |
|  | Connecting plate SET<br>MS4/6-AQ...                      | –                        | ■                     | –                        | ■                     | ms4-aq,<br>ms6-aq   |
| [10]   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4       | ■                        | ■                     | ■                        | ■                     | 110                 |
| [11]   | Pressure sensor with display<br>AD1 ... AD4              | ■                        | ■                     | ■                        | ■                     | 26                  |
| [12]   | Pressure sensor with LCD display<br>AD11/AD12            | ■                        | ■                     | ■                        | ■                     | 26                  |
| [13]   | Connecting cable<br>NEBU-M8...-LE4/NEBU-M12...-LE4       | ■                        | ■                     | ■                        | ■                     | 110                 |
| [14]   | Pressure sensor without display<br>AD7 ... AD10          | ■                        | ■                     | ■                        | ■                     | 26                  |
| [15]   | Connecting cable<br>NEBU-M8...-LE3                       | ■                        | ■                     | ■                        | ■                     | 110                 |
| [16]   | Adapter for EN pressure gauge 1/8, 1/4<br>A8/A4          | ■                        | ■                     | ■                        | ■                     | 26                  |
| [17]   | Pressure gauge<br>MA                                     | ■                        | ■                     | ■                        | ■                     | 110                 |
| [18]   | Cover plate<br>VS  | ■                        | ■                     | ■                        | ■                     | 26                  |
| –  | Mounting bracket<br>MS4/6-WP/WPB/WPE/WPM                 | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |

1) Connecting plates and certain mounting brackets can also be ordered via the modular product system → page 26

## Type codes

|     |           |  |
|-----|-----------|--|
| 001 | Series    |  |
| MS  | MS series |  |

|     |                      |  |
|-----|----------------------|--|
| 002 | Size                 |  |
| 4   | Grid dimension 40 mm |  |

|     |                    |  |
|-----|--------------------|--|
| 003 | Function           |  |
| LR  | Pressure regulator |  |

|     |                      |  |
|-----|----------------------|--|
| 004 | Pneumatic connection |  |
| 1/8 | Female thread G1/8   |  |
| 1/4 | Female thread G1/4   |  |
| AGA | Sub-base G1/8        |  |
| AGB | Sub-base G1/4        |  |
| AGC | Sub-base G3/8        |  |
| AQK | Sub-base NPT1/8      |  |
| AQN | Sub-base NPT1/4      |  |
| AQP | Sub-base NPT3/8      |  |

|     |                           |  |
|-----|---------------------------|--|
| 005 | Pressure regulation range |  |
| D5  | 0.3 ... 4 bar             |  |
| D6  | 0.3 ... 7 bar             |  |
| D7  | 0.5 ... 12 bar            |  |

|      |  |  |
|------|--|--|
| 006  | 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, N/C        |  |
| AD11 | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, 0...10 V, 1...5 V, 4...20 mA |  |
| AD12 | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, 0...10 V, 1...5 V, 4...20 mA  |  |

|     |                                  |  |
|-----|----------------------------------|--|
| 007 | Alternative pressure gauge scale |  |
|     | MS pressure gauge                |  |
| PSI | psi                              |  |
| MPa | MPa                              |  |

|     |                           |  |
|-----|---------------------------|--|
| 008 | Secondary exhausting      |  |
|     | With secondary exhausting |  |
| OS  | Without secondary exhaust |  |

|     |                                   |  |
|-----|-----------------------------------|--|
| 009 | Rotary knob alternative           |  |
|     | None                              |  |
| LD  | Long rotary knob                  |  |
| DM1 | Rotary knob pressure gauge, small |  |
| DM2 | Rotary knob pressure gauge, large |  |

|     |                               |  |
|-----|-------------------------------|--|
| 010 | Alternative mounting position |  |
|     | None                          |  |
| KD  | Rotary knob underneath        |  |

|     |                                 |  |
|-----|---------------------------------|--|
| 011 | Lockability                     |  |
|     | None                            |  |
| AS  | Can be locked using accessories |  |
| E11 | With integrated lock            |  |

|     |   |  |
|-----|---|--|
| 012 | 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            |  |

|     |                  |  |
|-----|------------------|--|
| 013 | EU certification |  |
|     | None             |  |
| EX4 | II 2GD           |  |

|     |  |  |
|-----|--|--|
| 014 | UL certification                           |  |
|     | None                                       |  |
| UL1 | cULus ordinary location for Canada and USA |  |

|     |                                   |  |
|-----|-----------------------------------|--|
| 015 | Flow direction                    |  |
|     | Flow direction from left to right |  |
| Z   | Flow direction from right to left |  |

|     |  |  |
|-----|--|--|
| 016 |  |  |
|-----|--|--|

## Type codes

| 001 | Series    |  |
|-----|-----------|--|
| MS  | MS series |  |

| 002 | Size                 |  |
|-----|----------------------|--|
| 6   | Grid dimension 62 mm |  |

| 003 | Function           |  |
|-----|--------------------|--|
| LR  | 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        |  |
| AQN | Sub-base NPT1/4      |  |
| AQP | Sub-base NPT3/8      |  |
| AQR | Sub-base NPT1/2      |  |
| AQS | Sub-base NPT3/4      |  |

| 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  |  |
| 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, N/C             |  |
| 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  |  |

| 007 | Alternative pressure gauge scale |  |
|-----|----------------------------------|--|
|     | MS pressure gauge                |  |
| PSI | psi                              |  |
| MPA | MPa                              |  |

| 008 | Secondary exhausting      |  |
|-----|---------------------------|--|
|     | With secondary exhausting |  |
| OS  | Without secondary exhaust |  |

| 009 | Rotary knob alternative           |  |
|-----|-----------------------------------|--|
|     | None                              |  |
| LD  | Long rotary knob                  |  |
| DM2 | Rotary knob pressure gauge, large |  |

| 010 | Alternative mounting position |  |
|-----|-------------------------------|--|
|     | None                          |  |
| KD  | Rotary knob underneath        |  |

| 011 | Lockability                     |  |
|-----|---------------------------------|--|
|     | None                            |  |
| AS  | Can be locked using accessories |  |
| E11 | With integrated lock            |  |

| 012 | 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 |  |

| 013 | EU certification |  |
|-----|------------------|--|
|     | None             |  |
| EX4 | II 2GD           |  |

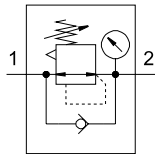
| 014 | UL certification                           |  |
|-----|--|--|
|     | None                                       |  |
| UL1 | cULus ordinary location for Canada and USA |  |





| 015 | Flow direction                    |  |
|-----|-----------------------------------|--|
|     | Flow direction from left to right |  |
| Z   | Flow direction from right to left |  |

| 016 | Version |  |
|-----|---------|--|
|-----|---------|--|

## Datasheet

With pressure gauge



-  - Flow rate 1000 ... 7500 l/min
-  - Temperature range  
-10 ... +60°C
-  - Operating pressure  
0.8 ... 20 bar
-  - [www.festo.com](http://www.festo.com)



The pressure regulator maintains a constant working pressure (secondary side), regardless 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 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               |            |   |  |
|--------------------------------------|------------|---|--|
| Size                                 |            | MS4   | MS6  |
| Pneumatic connection 1, 2            |            |   |  |
| Female thread                        |            | G1/8 or G1/4  | G1/4, G3/8 or G1/2   |
| Connecting plate                     | [AG...]    | G1/8, G1/4 or G3/8  | G1/4, G3/8, G1/2 or G3/4   |
|                                      | [AQ...]    | 1/8 NPT, 1/4 NPT or 3/8 NPT   | 1/4 NPT, 3/8 NPT, 1/2 NPT or 3/4 NPT                             |
| Design                               |            | Directly actuated diaphragm regulator   |  |
| Regulator function                   |            | Output pressure constant, with input pressure compensation, with return flow, with/without secondary exhausting |  |
| Type of mounting                     |            | With 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 | [D5] [bar] | 0.3 ... 4, manually actuated <sup>1)</sup>  |  |
|                                      | [D6] [bar] | 0.3 ... 7, manually actuated <sup>1)</sup>  |  |
|                                      | [D7] [bar] | 0.5 ... 12, manually actuated (0.5 ... 10 with pressure sensor or with UL certification) <sup>1)</sup>          |  |
|                                      | [D8] [bar] | –   | 0.5 ... 16, manually actuated (0.5 ... 10 with UL certification) |
| Max. pressure hysteresis [bar]       |            | 0.25 (0.4 with rotary knob pressure gauge)  |  |
| Pressure indicator                   |            | Via pressure sensor for indicating the output pressure via LCD display and electrical output                    |  |
|                                      |            | Via pressure sensor for indicating the output pressure via status indicator and electrical output               |  |
|                                      |            | Via pressure gauge for displaying the output pressure   |  |
|                                      |            | Via pressure gauge with red/green scale for indicating the output pressure                                      |  |
|                                      |            | Via pressure gauge in the rotary knob for displaying the output pressure  |  |
|                                      |            | Prepared for G1/8   | –  |
|                                      |            | Prepared for G1/4   |  |

<sup>1)</sup> MS4: the pressure regulation range for pressure regulators with rotary knob pressure gauge starts at 0.8 bar.

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

## Datasheet

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |      |                    |                    |                    |                    |                    |
|--|------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Size   | MS4  |                    |                    | MS6                |                    |                    |
| Pneumatic connection                             | G1/8 |                    | G1/4               | G1/4               | G3/8               | G1/2               |
| Pressure regulation range                        | [D5] | 1200 <sup>2)</sup> | 2100 <sup>2)</sup> | 2400 <sup>2)</sup> | 5500 <sup>2)</sup> | 7500 <sup>2)</sup> |
|  | [D6] | 1150               | 1800               | 3000               | 5800               | 6500               |
|  | [D7] | 1000               | 1700 <sup>3)</sup> | 2700               | 4500               | 5500               |
|  | [D8] | –                  | –                  | 2200               | 4000               | 4500               |

- 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,  $q_{n\max} = 2200$  l/min

| Operating and environmental conditions       |  |     |
|--|--|-----|
| Size   | MS4  | MS6 |
| Operating pressure [bar]                     | 0.8 ... 14 (0.8 ... 10) <sup>1)</sup>  |     |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]  |     |
|  | Inert gases  |     |
| Note on the operating/pilot medium           | Lubricated operation possible (in which case lubricated operation will always be required) |     |
| Ambient temperature [°C]                     | –10 ... +60 (0 ... +50) <sup>2)</sup>  |     |
| Temperature of medium [°C]                   | –10 ... +60 (0 ... +50) <sup>2)</sup>  |     |
| Storage temperature [°C]                     | –10 ... +60  |     |
| Corrosion resistance class CRC <sup>3)</sup> | 2  |     |
| Food-safe <sup>4)</sup>                      | See supplementary material information   |     |
| UL certification <sup>4)</sup>               | c UL us - Recognized (OL)  |     |

- 1) Value in brackets applies to MS4/MS6-LR with UL certification.  
 2) Value in brackets applies to MS4/MS6-LR with pressure sensor.  
 3) Corrosion resistance class CRC 2 to Festo standard FN 940070  
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.  
 4) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| ATEX   |   |
|--|---|
| EU certification   | [EX4]                                       |
| 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 IIIC T60°C Db X                        |
| Explosion-proof ambient temperature                      | –10°C ≤ Ta ≤ +60°C                          |
| CE marking (see declaration of conformity) <sup>1)</sup> | To EU Explosion Protection Directive (ATEX) |

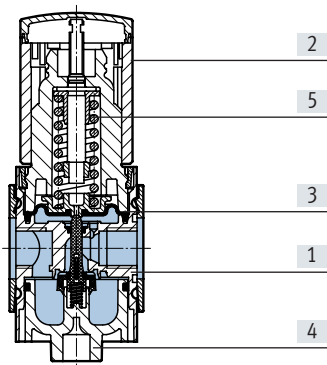
- 1) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| Weight [g]   |       |      |
|--|-------|------|
| Size   | MS4   | MS6  |
| Pressure regulator                                       | 225   | 730  |
| Pressure regulator with rotary knob with integrated lock | 350   | 1000 |
| Connecting plates [AG...]/[AQ...]                        | 128   | 300  |
| Mounting bracket   | [WBM] | 48   |
|  | [WB]  | 46   |
|  | [WR]  | 49   |
|  | [WP]  | 39   |
|  | [WPM] | 45   |
|  |       | 144  |

Datasheet

Materials

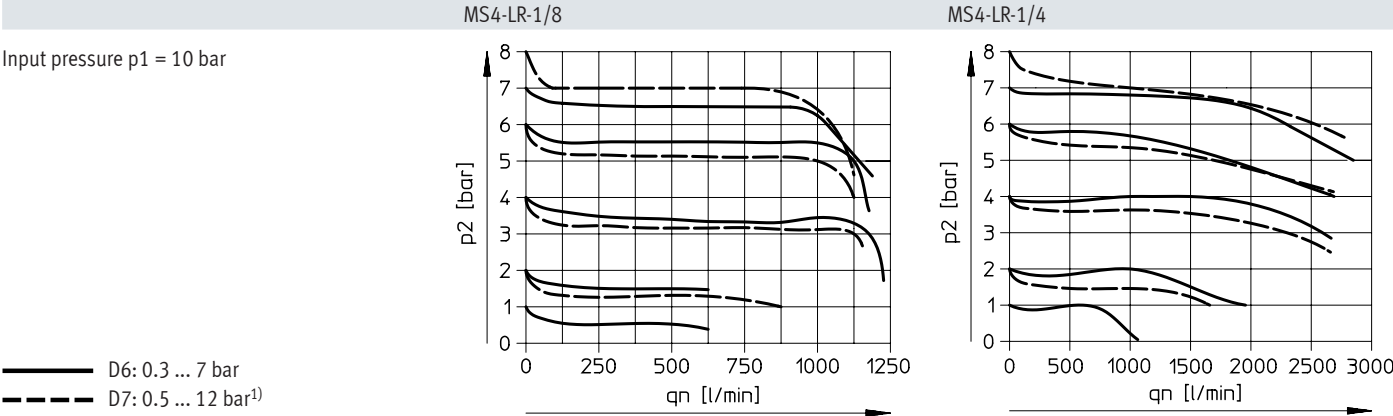
Sectional view



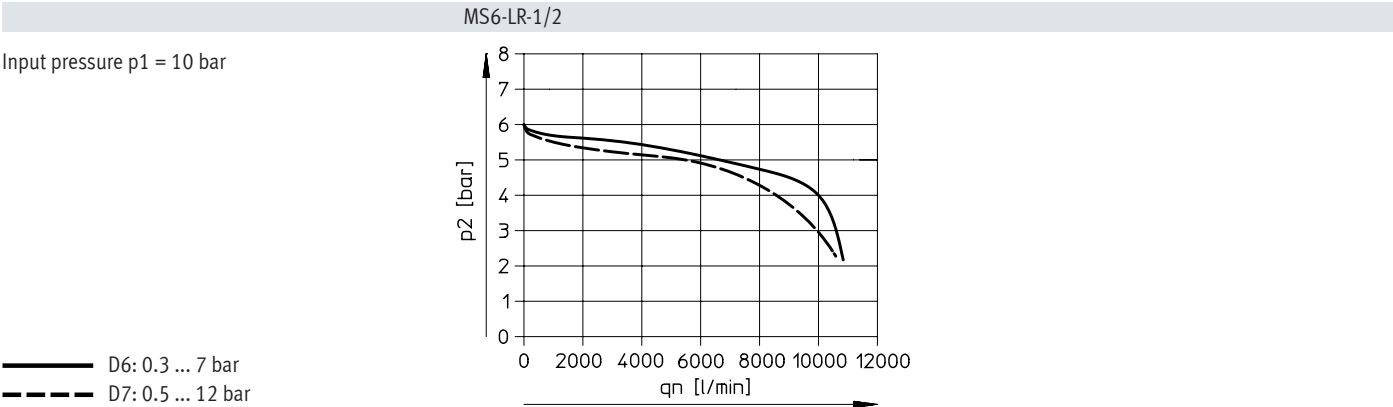
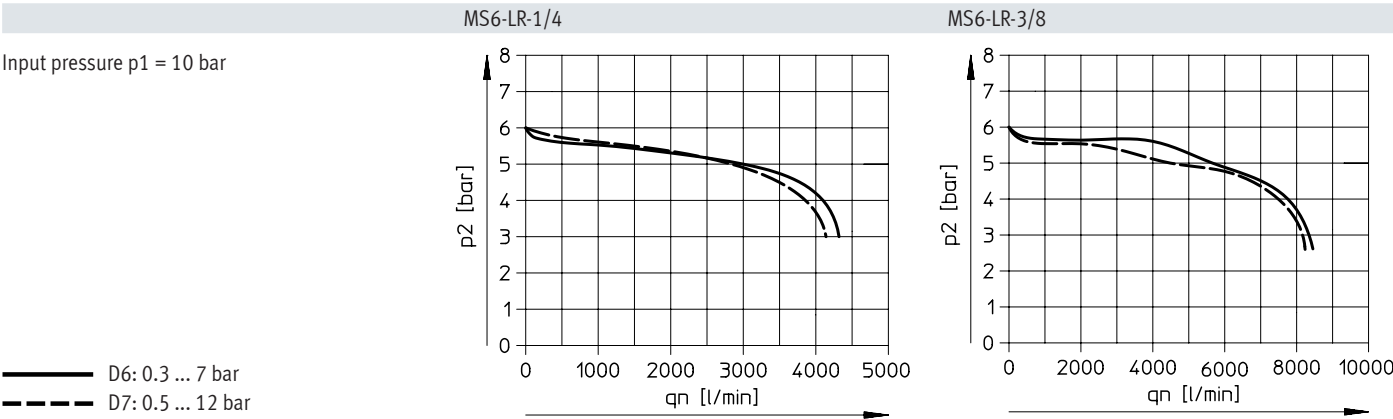
| Pressure regulator |                                  |   |
|--------------------|----------------------------------|---|
| [1]                | Housing                          | Die-cast aluminium                            |
| [2]                | Rotary knob                      | PA, POM                                       |
|                    | Rotary knob with integrated lock | Aluminium                                     |
| [3]                | Diaphragm                        | NBR   |
| [4]                | Bottom cover                     | PET   |
| [5]                | Springs                          | Steel   |
| -                  | Seals                            | NBR   |
| Note on materials  |                                  | RoHS-compliant                                |
|                    |                                  | Free of copper and PTFE only with cover plate |

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

Input pressure  $p_1 = 10$  bar



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



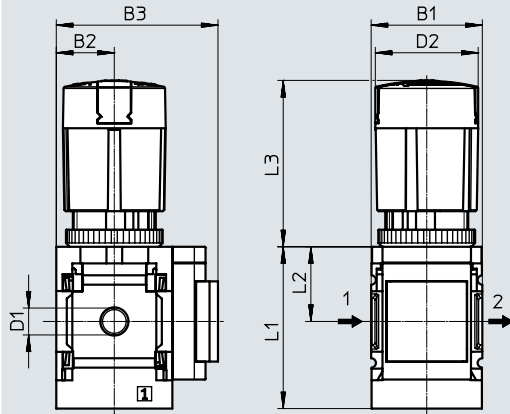
# Datasheet

## Dimensions – Basic version

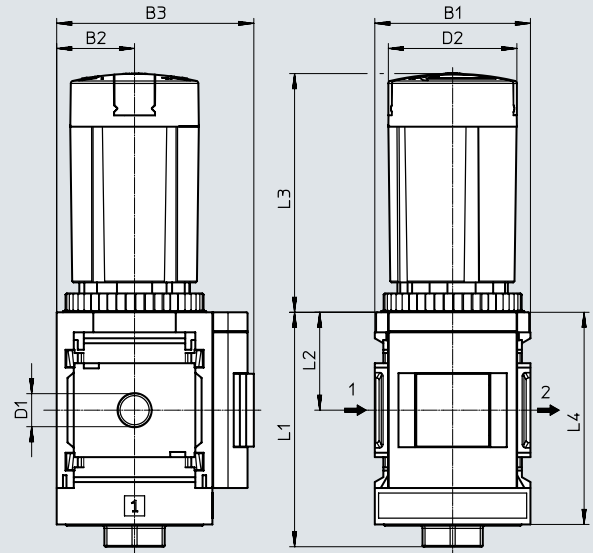
Download CAD data → [www.festo.com](http://www.festo.com)

- [ ] 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



MS6



→ Flow direction

| Type       | B1 | B2 | B3                |                    | D1   | D2<br>Ø | L1 | L2 | L3   | L4 |
|------------|----|----|-------------------|--------------------|------|---------|----|----|------|----|
|            |    |    | Standard<br>scale | Red/green<br>scale |      |         |    |    |      |    |
| MS4-LR-1/8 | 40 | 21 | 57                | 58.5               | G1/8 | 37.2    | 59 | 27 | 60.2 | –  |
| MS4-LR-1/4 |    |    |                   |                    | G1/4 |         |    |    |      |    |
| MS6-LR-1/4 | 62 | 31 | 77                | 78.5               | G1/4 | 51.2    | 94 | 39 | 95.1 | 85 |
| MS6-LR-3/8 |    |    |                   |                    | G3/8 |         |    |    |      |    |
| MS6-LR-1/2 |    |    |                   |                    | G1/2 |         |    |    |      |    |

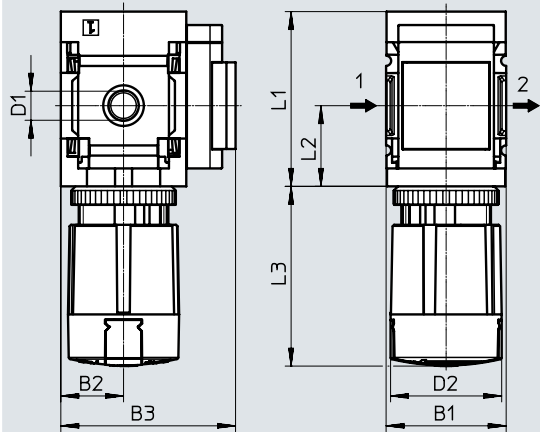
Note: this product conforms to ISO 1179-1 and ISO 228-1.

Datasheet

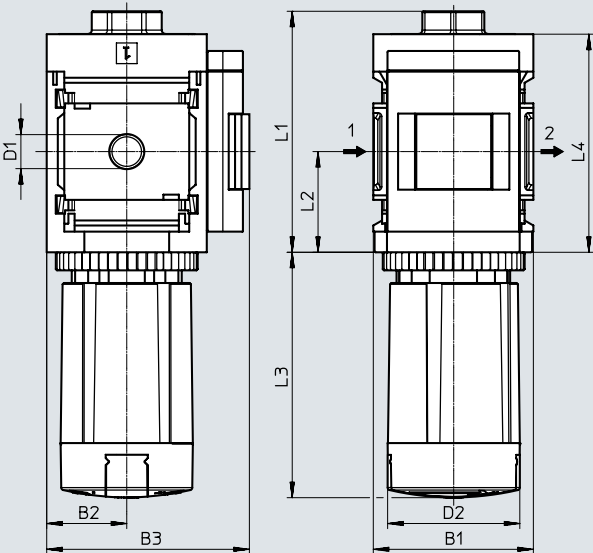
Dimensions – Alternative mounting position Download CAD data → [www.festo.com](http://www.festo.com)

[KD] Rotary knob underneath

MS4



MS6



→ Flow direction

| Type              | B1 | B2 | B3                |                    | D1   | D2<br>Ø | L1 | L2 | L3   | L4 |
|-------------------|----|----|-------------------|--------------------|------|---------|----|----|------|----|
|                   |    |    | Standard<br>scale | Red/green<br>scale |      |         |    |    |      |    |
| MS4-LR-1/8-...-KD | 40 | 21 | 57                | 58.5               | G1/8 | 37.2    | 59 | 27 | 60.2 | –  |
| MS4-LR-1/4-...-KD |    |    |                   |                    | G1/4 |         |    |    |      |    |
| MS6-LR-1/4-...-KD | 62 | 31 | 77                | 78.5               | G1/4 | 51.2    | 94 | 39 | 95.1 | 85 |
| MS6-LR-3/8-...-KD |    |    |                   |                    | G3/8 |         |    |    |      |    |
| MS6-LR-1/2-...-KD |    |    |                   |                    | G1/2 |         |    |    |      |    |

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



# Datasheet

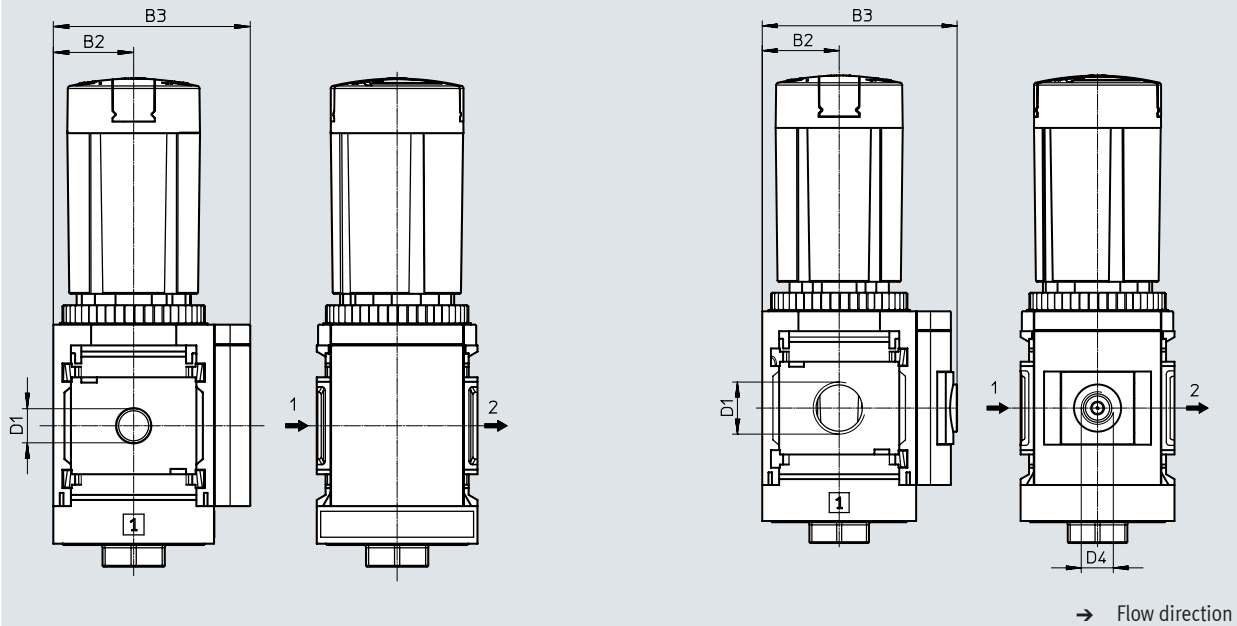
## Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

[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



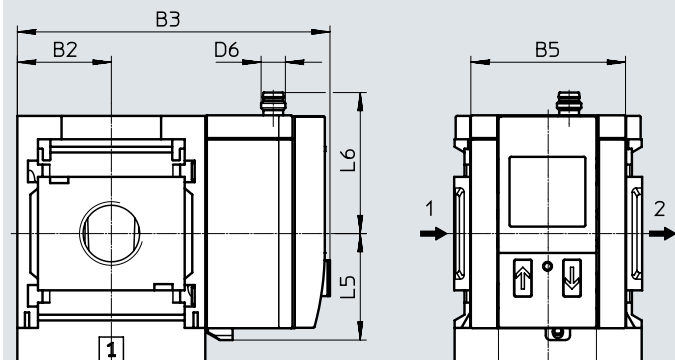
| Type              | B2 | B3   | D1   | D4   |
|-------------------|----|------|------|------|
| MS4-LR-1/8-...-VS | 21 | 54   | G1/8 | –    |
| MS4-LR-1/4-...-VS |    |      | G1/4 |      |
| MS4-LR-1/8-...-A8 | 21 | 58.5 | G1/8 | G1/8 |
| MS4-LR-1/4-...-A8 |    |      | G1/4 |      |
| MS4-LR-1/8-...-A4 | 21 | 58.5 | G1/8 | G1/4 |
| MS4-LR-1/4-...-A4 |    |      | G1/4 |      |
| MS6-LR-1/4-...-VS | 31 | 76   | G1/4 | –    |
| MS6-LR-3/8-...-VS |    |      | G3/8 |      |
| MS6-LR-1/2-...-VS |    |      | G1/2 |      |
| MS6-LR-1/4-...-A4 | 31 | 78.5 | G1/4 | G1/4 |
| MS6-LR-3/8-...-A4 |    |      | G3/8 |      |
| MS6-LR-1/2-...-A4 |    |      | G1/2 |      |

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 M8x1 plug, 1 switching output  
PNP

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

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

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

→ Flow direction

| Type               | B2 | B3   | B5 | B6   | D6    | L5   | L6   |
|--------------------|----|------|----|------|-------|------|------|
| MS4-LR-...-AD1/AD2 | 21 | 82.6 | 32 | 32.3 | M8x1  | 35.1 | 46.7 |
| MS4-LR-...-AD3/AD4 | 21 | 82.6 | 32 | 32.3 | M12x1 | 35.1 | 55.8 |
| MS6-LR-...-AD1/AD2 | 31 | 103  | 51 | 32.3 | M8x1  | 35.1 | 46.7 |
| MS6-LR-...-AD3/AD4 | 31 | 103  | 51 | 32.3 | M12x1 | 35.1 | 55.8 |

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

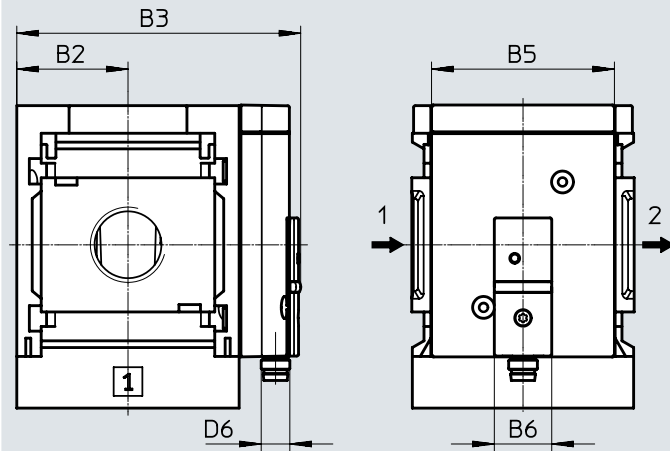
# Datasheet

## Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

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

Datasheets → Internet: sde5



Variant AD7:  
SDE5-D10-O-...-P-M8 with 3-pin plug  
M8x1, threshold value comparator,  
1 switching output PNP, N/O contact

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

→ Flow direction

| Type                        | B2 | B3   | B5 | B6 | D6   |
|-----------------------------|----|------|----|----|------|
| MS4-LR-...-AD7/AD8/AD9/AD10 | 21 | 59.1 | 32 | 16 | M8x1 |
| MS6-LR-...-AD7/AD8/AD9/AD10 | 31 | 79.1 | 51 | 16 | M8x1 |

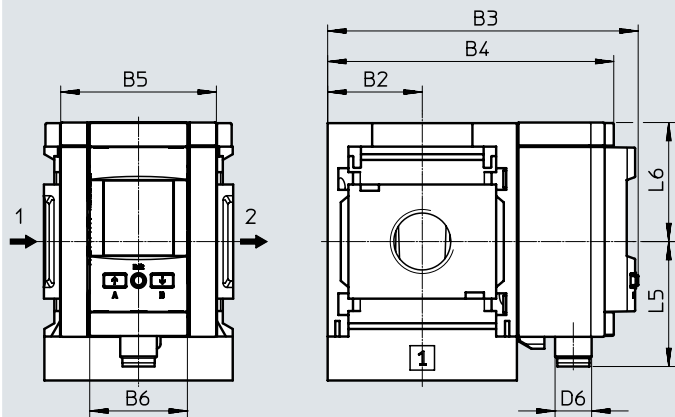
† Note: this product conforms to ISO 1179-1 and ISO 228-1.

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)  
Datasheets → Internet: spau

[AD11/AD12] Pressure sensor with LCD display



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

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

→ Flow direction

| Type            | B2 | B3    | B4   | B5 | B6 | D6    | L5   | L6 |
|-----------------|----|-------|------|----|----|-------|------|----|
| MS4-LR-...-AD11 | 21 | 81.2  | 73.3 | 32 | 32 | M12x1 | 41.2 | 39 |
| MS4-LR-...-AD12 | 21 | 81.2  | 73.3 | 32 | 32 | M8x1  | 37.9 | 39 |
| MS6-LR-...-AD11 | 31 | 101.8 | 93.7 | 51 | 32 | M12x1 | 41.2 | 39 |
| MS6-LR-...-AD12 | 31 | 101.8 | 93.7 | 51 | 32 | M8x1  | 37.9 | 39 |

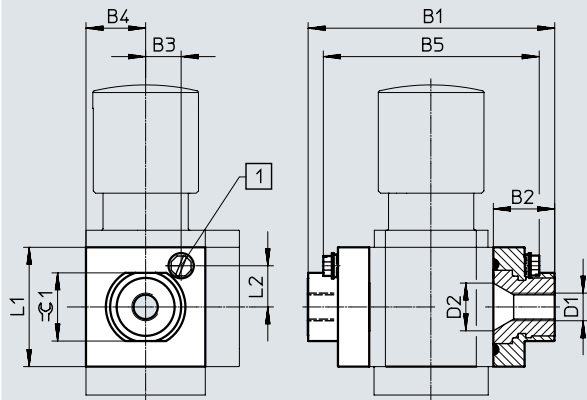
⚡ Note: this product conforms to ISO 1179-1 and ISO 228-1.

## Datasheet

## Dimensions – Pneumatic connection

Download CAD data → [www.festo.com](http://www.festo.com)

[AG...]/[AQ...] Connecting plate



[1] Earthing screw M4x8 (only with MS4/6-...-EX)

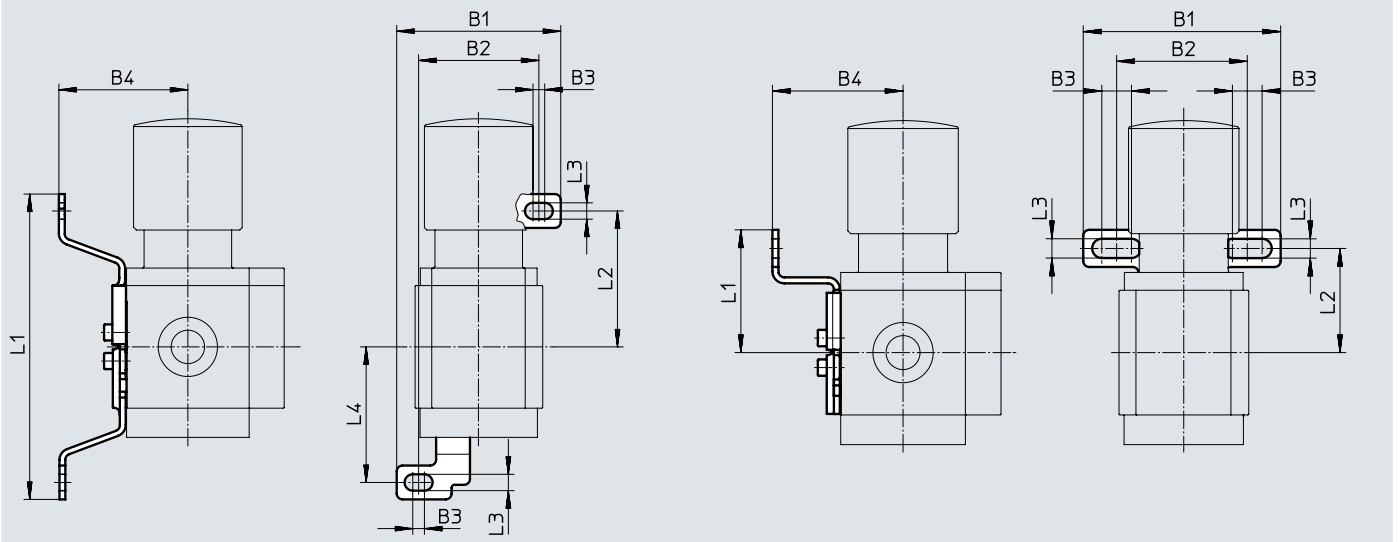
| Type          | B1   | B2   | B3   | B4 | B5   | D1         | D2   | L1 | L2   | ≅ 1 |
|---------------|------|------|------|----|------|------------|------|----|------|-----|
| MS4-LR...-AGA | 83.4 | 21.5 | 12.5 | 21 | 72.5 | G1/8       | 16.8 | 42 | 14.5 | 24  |
| MS4-LR...-AGB |      |      |      |    |      | G1/4       |      |    |      | 21  |
| MS4-LR...-AGC |      |      |      |    |      | G3/8       |      |    |      | 24  |
| MS4-LR...-AQK |      |      |      |    |      | 1/8-27 NPT |      |    |      | 24  |
| MS4-LR...-AQN |      |      |      |    |      | 1/4-18 NPT |      |    |      | 24  |
| MS4-LR...-AQP |      |      |      |    |      | 3/8-18 NPT |      |    |      | 24  |
| MS6-LR...-AGB | 115  | 26.5 | 20.5 | 31 | 98.3 | G1/4       | 24   | 62 | 15.5 | 34  |
| MS6-LR...-AGC |      |      |      |    |      | G3/8       |      |    |      | 34  |
| MS6-LR...-AGD |      |      |      |    |      | G1/2       |      |    |      | 26  |
| MS6-LR...-AGE |      |      |      |    |      | G3/4       |      |    |      | 34  |
| MS6-LR...-AQN |      |      |      |    |      | 1/4-18 NPT |      |    |      | 34  |
| MS6-LR...-AQP |      |      |      |    |      | 3/8-18 NPT |      |    |      | 34  |
| MS6-LR...-AQR |      |      |      |    |      | 1/2-14 NPT |      |    |      | 34  |
| MS6-LR...-AQS |      |      |      |    |      | 3/4-14 NPT |      |    |      | 34  |

## Dimensions – Type of mounting

Download CAD data → [www.festo.com](http://www.festo.com)

[WB] Mounting bracket

[WBM] Mounting bracket



| Type          | B1   | B2 | B3  | B4   | L1    | L2   | L3  | L4   |
|---------------|------|----|-----|------|-------|------|-----|------|
| MS4-LR...-WB  | 56   | 41 | 4   | 44.2 | 104.6 | 46.6 | 5.6 | 46.5 |
| MS4-LR...-WBM | 66.5 | 44 | 10  | 44   | 41.3  | 35   | 6.5 | –    |
| MS6-LR...-WB  | 79.4 | 62 | 4.5 | 53.8 | 157.6 | 71   | 6.6 | 71   |

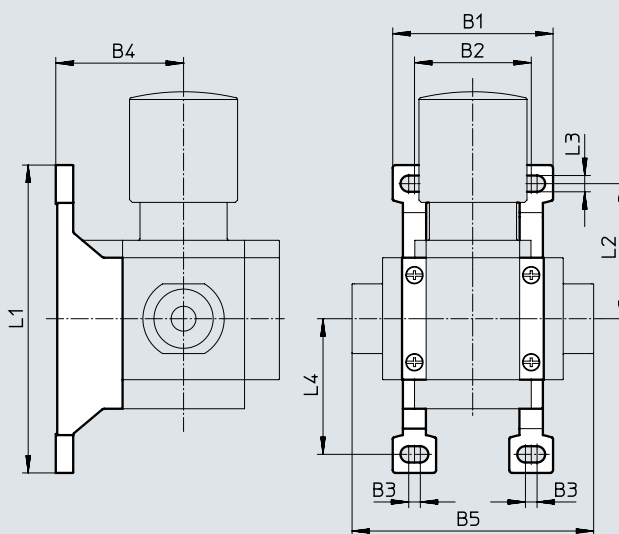
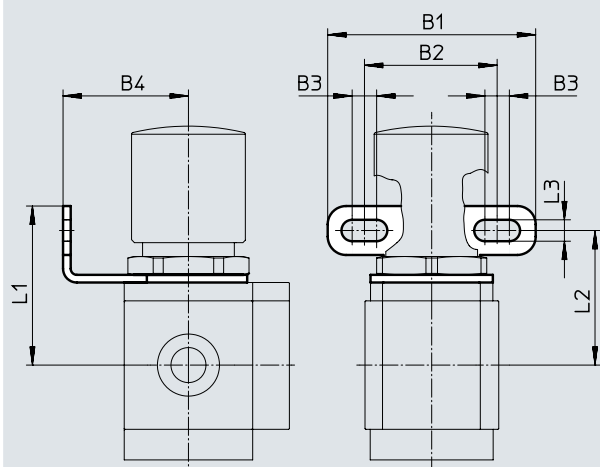
# Datasheet

## Dimensions – Type of mounting

Download CAD data → [www.festo.com](http://www.festo.com)

[WR] Mounting bracket

[WP] Mounting bracket



| Type         | B1   | B2   | B3  | B4 | B5   | L1  | L2   | L3  | L4   |
|--------------|------|------|-----|----|------|-----|------|-----|------|
| MS4-LR...-WR | 68   | 44   | 8   | 41 | –    | 52  | 44   | 7   | –    |
| MS4-LR...-WP | 55.2 | 40.2 | 4   | 44 | 83.4 | 106 | 46.5 | 5.6 | 46.7 |
| MS6-LR...-WR | 70   | 42   | 8.2 | 40 | –    | 67  | 57   | 7.1 | –    |
| MS6-LR...-WP | 79   | 62   | 4.5 | 54 | 115  | 158 | 71   | 6.6 | 71   |

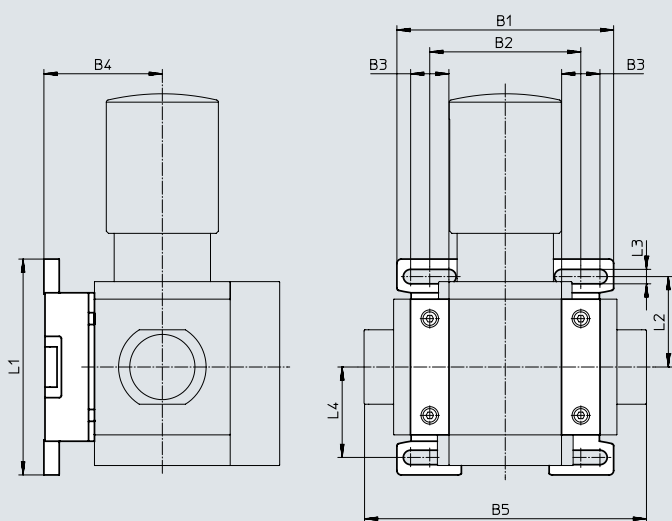
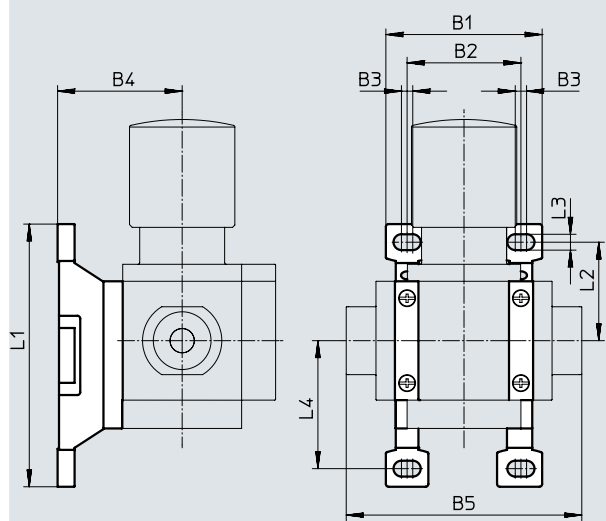
## Dimensions – Type of mounting

Download CAD data → [www.festo.com](http://www.festo.com)

[WPM] Mounting bracket

MS4

MS6



| Type          | B1   | B2   | B3   | B4 | B5   | L1   | L2   | L3  | L4   |
|---------------|------|------|------|----|------|------|------|-----|------|
| MS4-LR...-WPM | 55.2 | 40.2 | 4    | 44 | 83.4 | 92.8 | 34.8 | 5.6 | 45.2 |
| MS6-LR...-WPM | 99   | 69   | 17.5 | 54 | 129  | 98.6 | 41.3 | 6.6 | 41.3 |

# Datasheet

## Dimensions – Rotary knob

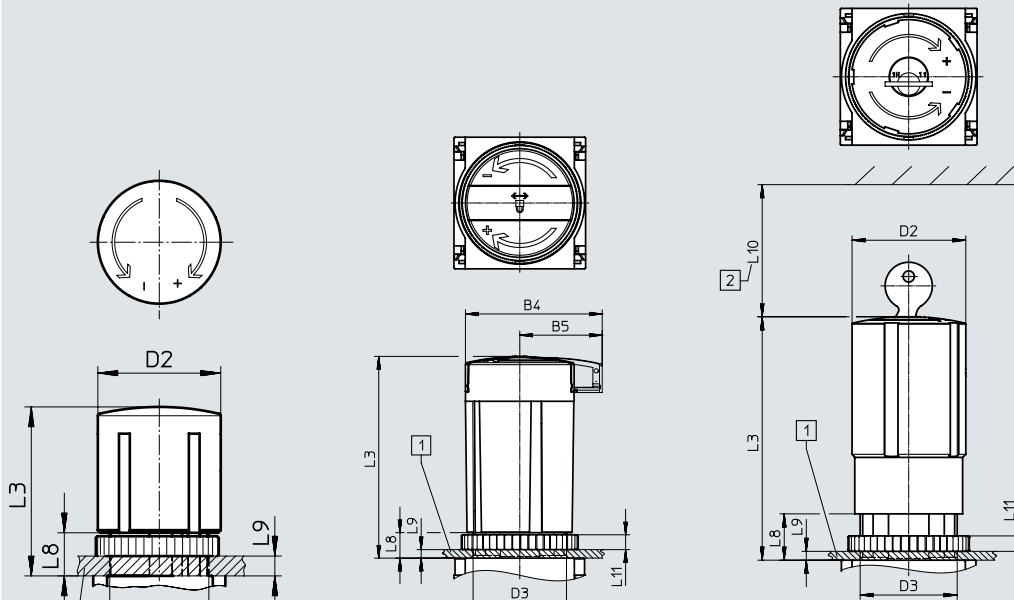
Download CAD data → [www.festo.com](http://www.festo.com)

For control panel installation

[ ] Rotary knob with latch

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

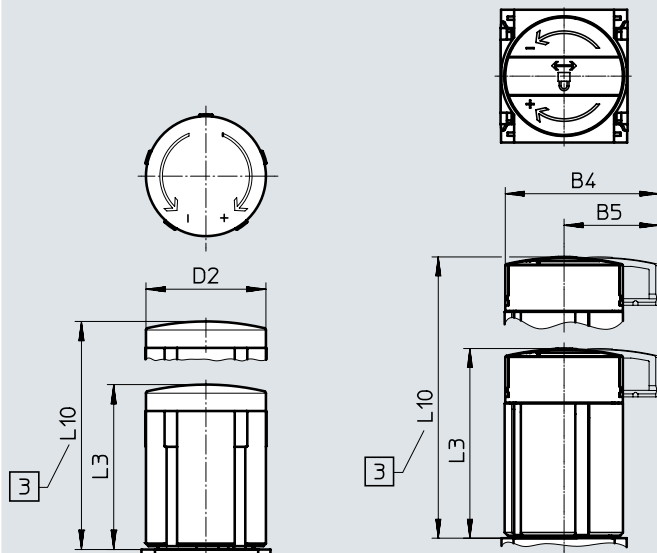
[E11] Rotary knob with integrated lock



[1] Max. control panel thickness  
[2] Installation dimension

[LD] Rotary knob, long, with latch

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



[3] For pressure adjustment: fully pull out telescopic rotary knob

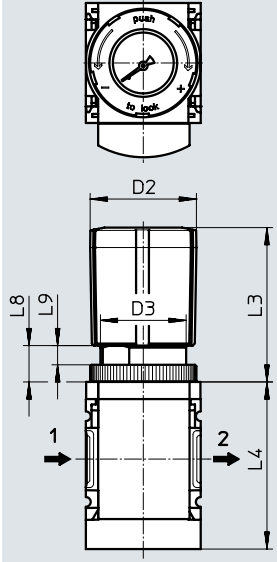
| Type            | B4   | B5   | D2   | D3      | L3   | L8 | L9 | L10   |
|-----------------|------|------|------|---------|------|----|----|-------|
| MS4-LR...       | -    | -    | 37.2 | M30x1.5 | 51.1 | 13 | 5  | -     |
| MS4-LR...-AS    | 48.6 | 30   |      |         | 60.2 | 13 | 5  |     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

Datasheet

Dimensions – Rotary knob pressure gauge

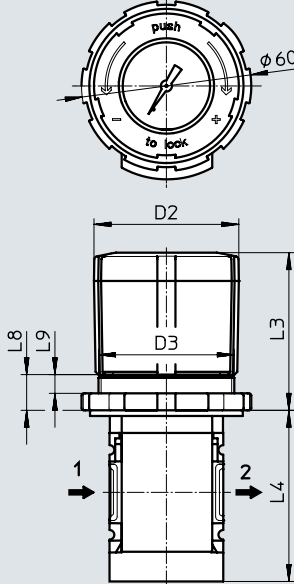
[DM1] Rotary knob pressure gauge, small

MS4

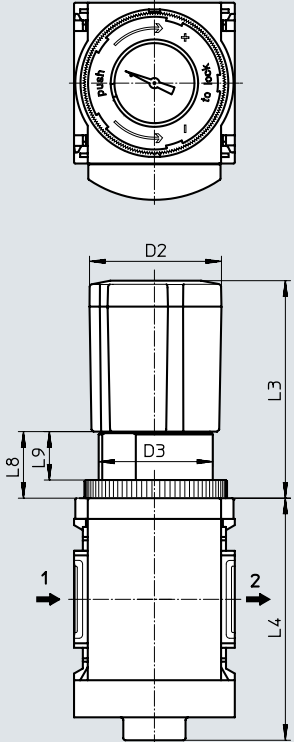


[DM2] Rotary knob pressure gauge, large

MS4



MS6



Note

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

→ Flow direction

| Type          | D2   | D3      | L3 | L4 | L8   | L9   |
|---------------|------|---------|----|----|------|------|
| MS4-LR...-DM1 | 37.2 | M30x1.5 | 54 | 59 | 13   | 6.7  |
| MS4-LR...-DM2 | 51.2 | M48x1.5 | 56 | 59 | 13   | 7    |
| MS6-LR...-DM2 | 51   | M44x1   | 84 | 94 | 25.4 | 18.4 |



## Datasheet

## ★ Core Range

| Ordering data          |                           |                    |          |                    |
|------------------------|---------------------------|--------------------|----------|--------------------|
| Pneumatic connection 1 | Pressure regulation range | Flow direction     | Part no. | Type               |
| MS4-LR...              |                           |                    |          |                    |
| G1/8                   | 0.3 ... 4 bar             | From left to right | 529421   | MS4-LR-1/8-D5-AS   |
|                        |                           | From right to left | 529422   | MS4-LR-1/8-D5-AS-Z |
|                        | 0.3 ... 7 bar             | From left to right | 529423   | MS4-LR-1/8-D6-AS   |
|                        |                           | From right to left | 529424   | MS4-LR-1/8-D6-AS-Z |
|                        |                           | From left to right | 543520   | MS4-LR-1/8-D6-WR   |
|                        |                           | From left to right | 543519   | MS4-LR-1/8-D6-A8   |
|                        | 0.5 ... 12 bar            | From left to right | 529425   | MS4-LR-1/8-D7-AS   |
|                        |                           | From right to left | 529426   | MS4-LR-1/8-D7-AS-Z |
| G1/4                   | 0.3 ... 4 bar             | From left to right | ★ 529415 | MS4-LR-1/4-D5-AS   |
|                        |                           | From right to left | 529416   | MS4-LR-1/4-D5-AS-Z |
|                        | 0.3 ... 7 bar             | From left to right | ★ 529417 | MS4-LR-1/4-D6-AS   |
|                        |                           | From right to left | 529418   | MS4-LR-1/4-D6-AS-Z |
|                        | 0.5 ... 12 bar            | From left to right | ★ 529419 | MS4-LR-1/4-D7-AS   |
|                        |                           | From right to left | 529420   | MS4-LR-1/4-D7-AS-Z |
| MS6-LR...              |                           |                    |          |                    |
| G1/4                   | 0.3 ... 4 bar             | From left to right | 529995   | MS6-LR-1/4-D5-AS   |
|                        | 0.3 ... 7 bar             | From left to right | 529997   | MS6-LR-1/4-D6-AS   |
|                        | 0.5 ... 12 bar            | From left to right | 529999   | MS6-LR-1/4-D7-AS   |
| G3/8                   | 0.3 ... 4 bar             | From left to right | 530001   | MS6-LR-3/8-D5-AS   |
|                        | 0.3 ... 7 bar             | From left to right | 530003   | MS6-LR-3/8-D6-AS   |
|                        |                           | From right to left | 530004   | MS6-LR-3/8-D6-AS-Z |
|                        | 0.5 ... 12 bar            | From left to right | 530005   | MS6-LR-3/8-D7-AS   |
| G1/2                   | 0.3 ... 4 bar             | From left to right | ★ 529989 | MS6-LR-1/2-D5-AS   |
|                        | 0.3 ... 7 bar             | From left to right | ★ 529991 | MS6-LR-1/2-D6-AS   |
|                        |                           | From right to left | 529992   | MS6-LR-1/2-D6-AS-Z |
|                        | 0.5 ... 12 bar            | From left to right | ★ 529993 | MS6-LR-1/2-D7-AS   |
|                        |                           | From right to left | 529994   | MS6-LR-1/2-D7-AS-Z |

## Ordering data – Modular product system

| Ordering table                      |  |                                   |             |            |       |
|-------------------------------------|--|-----------------------------------|-------------|------------|-------|
| Grid dimension                      | [mm]   | 40                                | 62          | Conditions | Code  |
| Module no.                          |  | 527690                            | 527663      |            |       |
| Series                              | Standard   |                                   |             |            | MS    |
| Size                                | 4  | 6                                 |             |            | ...   |
| Function                            | Pressure regulator   |                                   |             |            | -LR   |
| Pneumatic connection                | Female thread G1/8   | –                                 | [1]         |            | -1/8  |
|                                     | Female thread G1/4   | Female thread G1/4                | [1]         |            | -1/4  |
|                                     | –  | Female thread G3/8                | [1]         |            | -3/8  |
|                                     | –  | Female thread G1/2                | [1]         |            | -1/2  |
|                                     | Connecting plate G1/8  | –                                 |             |            | -AGA  |
|                                     | Connecting plate G1/4  | Connecting plate G1/4             |             |            | -AGB  |
|                                     | Connecting plate G3/8  | Connecting plate G3/8             |             |            | -AGC  |
|                                     | –  | Connecting plate G1/2             |             |            | -AGD  |
|                                     | –  | Connecting plate G3/4             |             |            | -AGE  |
|                                     | Connecting plate 1/8 NPT   | –                                 | [1]         |            | -AQK  |
|                                     | Connecting plate 1/4 NPT   | Connecting plate 1/4 NPT          | [1]         |            | -AQN  |
|                                     | Connecting plate 3/8 NPT   | Connecting plate 3/8 NPT          | [1]         |            | -AQP  |
|                                     | –  | Connecting plate 1/2 NPT          | [1]         |            | -AQR  |
|                                     | –  | Connecting plate 3/4 NPT          | [1]         |            | -AQS  |
| 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 | [1] [4]     |            | -D8   |
| Pressure gauge alternatives         | MS pressure gauge  |                                   |             |            |       |
|                                     | Cover plate  |                                   |             |            | -VS   |
|                                     | Adapter for EN pressure gauge 1/8, without pressure gauge  | –                                 |             |            | -A8   |
|                                     | Adapter for EN pressure gauge 1/4, without pressure gauge  |                                   |             |            | -A4   |
|                                     | Integrated pressure gauge, red/green scale   |                                   | [2] [3] [4] |            | -RG   |
|                                     | Pressure sensor with LCD display, M8 plug, 1 switching output PNP, 3-pin                                 |                                   | [1] [2] [5] |            | -AD1  |
|                                     | Pressure sensor with LCD display, M8 plug, 1 switching output NPN, 3-pin                                 |                                   | [1] [2] [5] |            | -AD2  |
|                                     | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA   |                                   | [1] [2] [5] |            | -AD3  |
|                                     | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA   |                                   | [1] [2] [5] |            | -AD4  |
|                                     | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact             |                                   | [1] [2] [5] |            | -AD7  |
|                                     | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact             |                                   | [1] [2] [5] |            | -AD8  |
|                                     | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/O contact                      |                                   | [1] [2] [5] |            | -AD9  |
|                                     | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/C contact                      |                                   | [1] [2] [5] |            | -AD10 |
|                                     | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA |                                   | [2] [5]     |            | -AD11 |
|                                     | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA  |                                   | [2] [5]     |            | -AD12 |

[1] 1/8, 1/4, 3/8, 1/2, AQK, AQN, AQP, AQR, AQS, D8, AD1 ... AD4, Not with EU EX4 certification.

AD7 ... AD10, DM1, DM2, KD, E11, WPM

[2] RG, AD1 ... AD4, AD7 ... AD10, AD11/AD12, OS, KD, AS, WR, WB MS4: not with rotary knob alternative DM2.

[3] RG, OS, KD, AS Not with rotary knob alternative DM1.

[4] D8, RG, OS, KD, AS MS6: not with rotary knob alternative DM2.

[5] AD1 ... AD4, AD7 ... AD10, AD11/AD12 Measuring range max. 10 bar.

Not with pressure regulation range D8

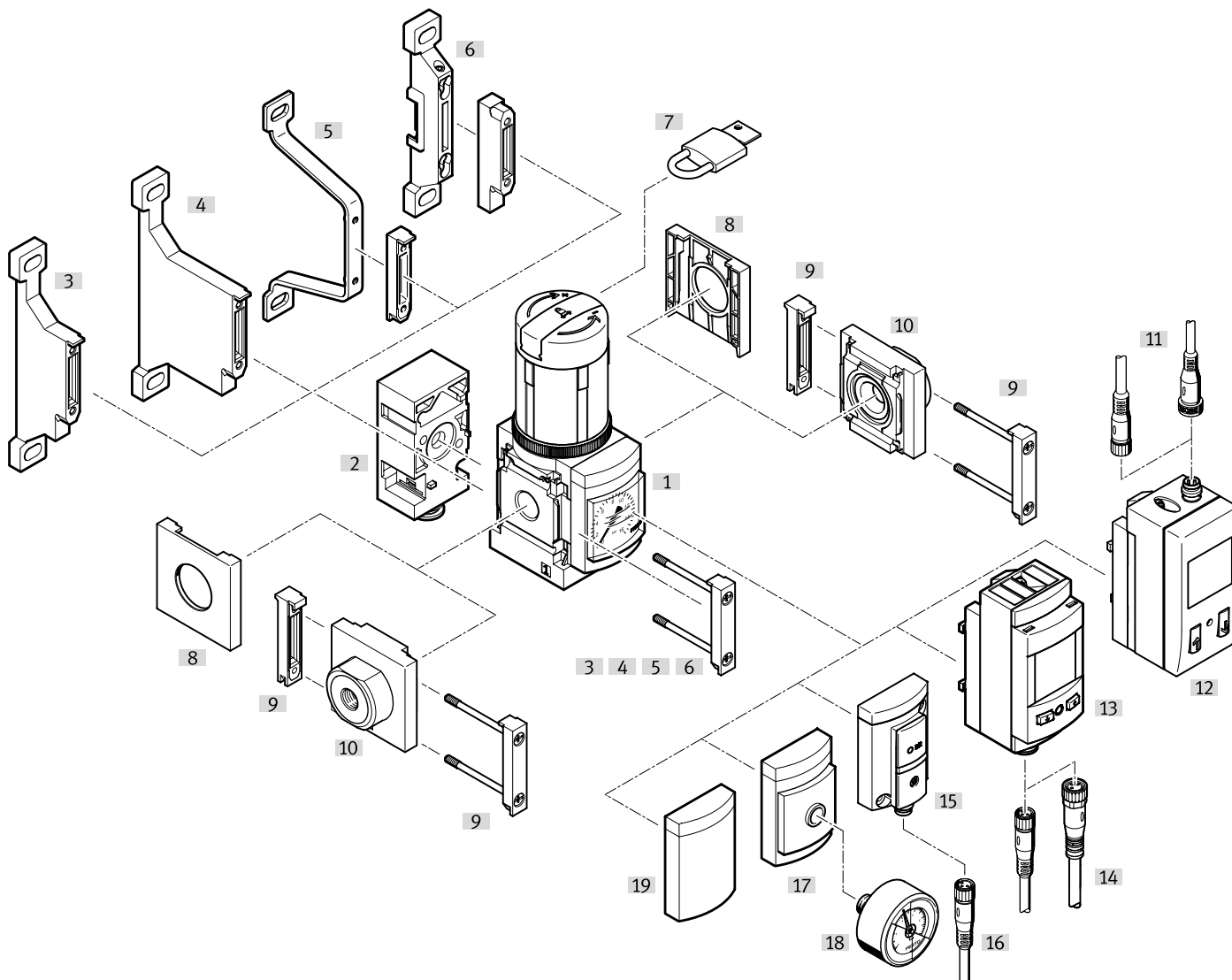
## Ordering data – Modular product system

| Ordering table                   |   |    |    |                         |      |
|----------------------------------|---|----|----|-------------------------|------|
| Grid dimension                   | [mm]  | 40 | 62 | Conditions              | Code |
| Alternative pressure gauge scale | MS pressure gauge, bar  |    |    |                         |      |
|                                  | psi   |    |    | [6]                     | -PSI |
|                                  | MPa   |    |    | [7]                     | -MPA |
| Secondary exhausting             | With secondary exhausting   |    |    |                         |      |
|                                  | Without secondary exhausting  |    |    | [2] [3] [4]             | -OS  |
| Rotary knob alternatives         | None  |    |    |                         |      |
|                                  | Long rotary knob  |    |    | [8]                     | -LD  |
|                                  | Rotary knob pressure gauge, small   | –  |    | [1] [8] [9]             | -DM1 |
|                                  | Rotary knob pressure gauge, large   |    |    | [1] [8] [9]             | -DM2 |
| Alternative mounting position    | None  |    |    |                         |      |
|                                  | Rotary knob underneath  |    |    | [1] [2] [3]<br>[4] [10] | -KD  |
| Locking option                   | None  |    |    |                         |      |
|                                  | Lockable using accessories  |    |    | [2] [3] [4]             | -AS  |
|                                  | With integrated lock  |    |    | [1]                     | -E11 |
| Type of mounting                 | Without mounting bracket  |    |    |                         |      |
|                                  | Mounting bracket with knurled nut for regulator head  |    |    | [2] [11]                | -WR  |
|                                  | Mounting bracket standard design  |    |    | [12]                    | -WP  |
|                                  | Mounting bracket for attaching service unit components  |    |    | [1] [12]                | -WPM |
|                                  | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required |    |    | [2]                     | -WB  |
|                                  | Mounting bracket centrally at rear (wall mounting top), connecting plates required                | –  |    |                         | -WBM |
| EU certification                 | None  |    |    |                         |      |
|                                  | II 2GD to EU Explosion Protection Directive (ATEX)  |    |    |                         | -EX4 |
| UL certification                 | None  |    |    |                         |      |
|                                  | cULus, ordinary location for Canada and USA   |    |    |                         | -UL1 |
| Flow direction                   | Flow direction from left to right   |    |    |                         |      |
|                                  | Flow direction from right to left   |    |    |                         | -Z   |

- [6] PSI Not with pressure gauge alternatives VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10.
- [7] MPA Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10.  
Not with rotary knob alternative DM1, DM2.
- [8] LD, DM1, DM2 Not with locking option E11.
- [9] DM1, DM2 Can only be combined with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10.
- [10] KD Not with pressure gauge alternative RG.  
Not with alternative pressure gauge scale MPa.  
Not with type of mounting WP.
- [11] WR Not with long rotary knob LD.
- [12] WP, WPM Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS.

## Peripherals overview

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



#### Note

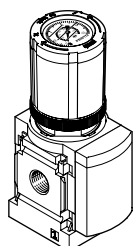
Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9  
→ Internet: amv, rmv, armv
- Adapter 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

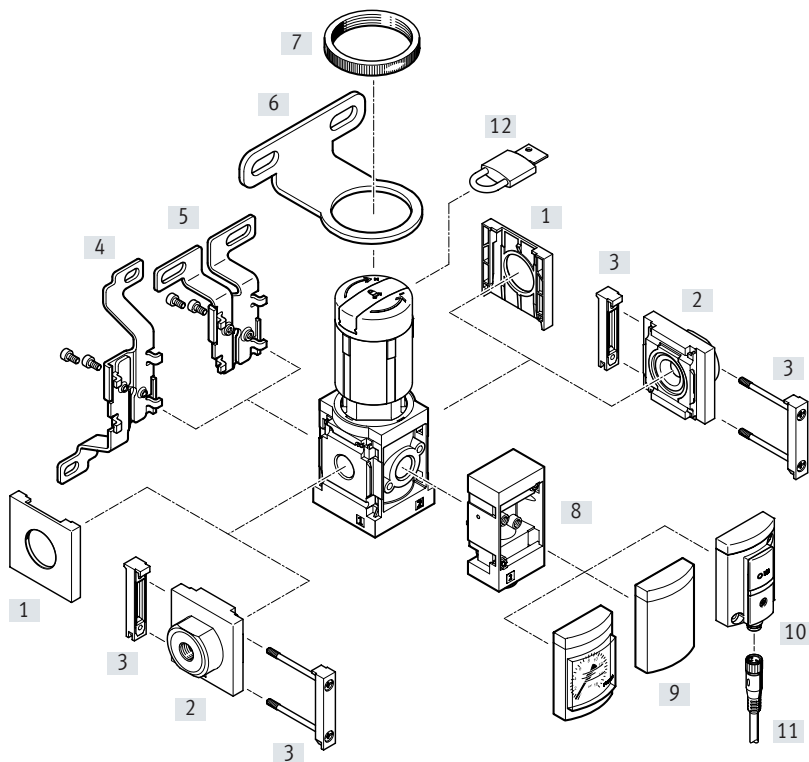


## Peripherals overview

| Mounting attachments and accessories |  | Single device            |                       | Combination              |                       | → Page/Internet     |
|--------------------------------------|--|--------------------------|-----------------------|--------------------------|-----------------------|---------------------|
|                                      |  | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                     |
| [1]                                  | Pressure regulator<br>MS4/MS6-LRB                  | ■                        | ■                     | ■                        | ■                     | 32                  |
| [2]                                  | Angled outlet block<br>B...                        | ■                        | ■                     | ■                        | ■                     | 46                  |
| [3]                                  | Mounting bracket<br>MS4/6-WP                       | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |
| [4]                                  | Mounting bracket<br>MS4/6-WPB                      | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |
| [5]                                  | Mounting bracket<br>MS4/6-WPE                      | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |
| [6]                                  | Mounting bracket<br>MS4/6-WPM                      | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |
| [7]                                  | Padlock<br>LRVS-D                                  | ■                        | ■                     | ■                        | ■                     | 110                 |
| [8]                                  | Cover cap<br>MS4/6-END                             | ■                        | –                     | ■                        | –                     | ms4-end,<br>ms6-end |
| [9]                                  | Module connector<br>MS4/6-MV                       | –                        | ■                     | ■                        | ■                     | ms4-mv,<br>ms6-mv   |
| [10]                                 | Connecting plate SET<br>MS4/6-AG...                | –                        | ■                     | –                        | ■                     | ms4-ag,<br>ms6-ag   |
| [11]                                 | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4 | ■                        | ■                     | ■                        | ■                     | 110                 |
| [12]                                 | Pressure sensor with display<br>AD1 ... AD4        | ■                        | ■                     | ■                        | ■                     | 46                  |
| [13]                                 | Pressure sensor with LCD display<br>AD11/AD12      | ■                        | ■                     | ■                        | ■                     | 46                  |
| [14]                                 | Connecting cable<br>NEBU-M8...-LE4/NEBU-M12...-LE4 | ■                        | ■                     | ■                        | ■                     | 110                 |
| [15]                                 | Pressure sensor without display<br>AD7 ... AD10    | ■                        | ■                     | ■                        | ■                     | 46                  |
| [16]                                 | Connecting cable<br>NEBU-M8...-LE3                 | ■                        | ■                     | ■                        | ■                     | 110                 |
| [17]                                 | Adapter for EN pressure gauge 1/8, 1/4<br>A8/A4    | ■                        | ■                     | ■                        | ■                     | 46                  |
| [18]                                 | Pressure gauge<br>MA                               | ■                        | ■                     | ■                        | ■                     | 110                 |
| [19]                                 | Cover plate<br>VS                                  | ■                        | ■                     | ■                        | ■                     | 46                  |

## Peripherals overview

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



#### Note

Additional accessories:

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

## Peripherals overview

| Mounting attachments and accessories |  | Single device            |                       | Combination              |                       | → Page/Internet     |
|--------------------------------------|--|--------------------------|-----------------------|--------------------------|-----------------------|---------------------|
|                                      |  | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                     |
| [1]                                  | Cover cap<br>MS4/6-END                                   | ■                        | –                     | ■                        | –                     | ms4-end,<br>ms6-end |
| [2]                                  | Connecting plate SET<br>MS4/6-AG...                      | –                        | ■                     | –                        | ■                     | ms4-ag,<br>ms6-ag   |
| [3]                                  | Module connector<br>MS4/6-MV                             | –                        | ■                     | ■                        | ■                     | ms4-mv,<br>ms6-mv   |
| [4]                                  | Mounting bracket<br>MS4/6-WB                             | ■                        | ■                     | –                        | –                     | ms4-wb,<br>ms6-wb   |
| [5]                                  | Mounting bracket<br>MS4-WBM                              | ■                        | ■                     | –                        | –                     | ms4-wbm             |
| [6]                                  | Mounting bracket<br>MS4/6-WR                             | ■                        | ■                     | –                        | –                     | ms4-wr,<br>ms6-wr   |
| [7]                                  | Knurled nut (included in the scope of delivery)<br>MS-LR | ■                        | ■                     | –                        | –                     | –                   |
| [8]                                  | Angled outlet block<br>B...                              | ■                        | ■                     | ■                        | ■                     | 46                  |
| [9]                                  | Cover plate<br>VS  | ■                        | ■                     | ■                        | ■                     | 46                  |
| [10]                                 | Pressure sensor without display<br>AD7 ... AD10          | ■                        | ■                     | ■                        | ■                     | 46                  |
| [11]                                 | Connecting cable<br>NEBU-M8...-LE3                       | ■                        | ■                     | ■                        | ■                     | 110                 |
| [12]                                 | Padlock<br>LRVS-D  | ■                        | ■                     | ■                        | ■                     | 110                 |

## Type codes

|             |   |  |
|-------------|---|--|
| <b>001</b>  | <b>Series</b>   |  |
| <b>MS</b>   | MS series   |  |
| <b>002</b>  | <b>Size</b>   |  |
| <b>4</b>    | Grid dimension 40 mm  |  |
| <b>003</b>  | <b>Function</b>   |  |
| <b>LRB</b>  | Pressure regulator for manifold assembly  |  |
| <b>004</b>  | <b>Pneumatic connection</b>   |  |
| <b>1/4</b>  | Female thread G1/4  |  |
| <b>AGA</b>  | Sub-base G1/8   |  |
| <b>AGB</b>  | Sub-base G1/4   |  |
| <b>AGC</b>  | Sub-base G3/8   |  |
| <b>005</b>  | <b>Pressure regulation range</b>  |  |
| <b>D5</b>   | 0.3 ... 4 bar   |  |
| <b>D6</b>   | 0.3 ... 7 bar   |  |
| <b>D7</b>   | 0.5 ... 12 bar  |  |
| <b>006</b>  | <b>Pressure gauge alternatives</b>  |  |
|             | None  |  |
| <b>VS</b>   | Cover plate   |  |
| <b>A8</b>   | Adapter for EN pressure gauge 1/8, without pressure gauge   |  |
| <b>A4</b>   | Adapter for EN pressure gauge 1/4, without pressure gauge   |  |
| <b>RG</b>   | Integrated pressure gauge, red/green scale  |  |
| <b>AD1</b>  | Pressure sensor with LCD display, M8 plug, PNP, 3-pin   |  |
| <b>AD2</b>  | Pressure sensor with LCD display, M8 plug, NPN, 3-pin   |  |
| <b>AD3</b>  | Pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA                 |  |
| <b>AD4</b>  | Pressure sensor with LCD display, M12 plug, NPN, 4-pin, analogue output 4 ... 20 mA                 |  |
| <b>AD7</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O               |  |
| <b>AD8</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C               |  |
| <b>AD9</b>  | Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O                        |  |
| <b>AD10</b> | Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C             |  |
| <b>AD11</b> | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA |  |
| <b>AD12</b> | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA  |  |
| <b>007</b>  | <b>Alternative pressure gauge scale</b>   |  |
|             | MS pressure gauge   |  |
| <b>PSI</b>  | psi   |  |
| <b>MPA</b>  | MPa   |  |

|            |   |  |
|------------|---|--|
| <b>008</b> | <b>Secondary exhausting</b>   |  |
|            | With secondary exhausting   |  |
| <b>OS</b>  | Without secondary exhaust   |  |
| <b>009</b> | <b>Rotary knob alternative</b>  |  |
|            | None  |  |
| <b>LD</b>  | Long rotary knob  |  |
| <b>DM1</b> | Rotary knob pressure gauge, small   |  |
| <b>010</b> | <b>Alternative mounting position</b>  |  |
|            | None  |  |
| <b>KD</b>  | Rotary knob underneath  |  |
| <b>011</b> | <b>Lockability</b>  |  |
|            | None  |  |
| <b>AS</b>  | Can be locked using accessories   |  |
| <b>E11</b> | With integrated lock  |  |
| <b>012</b> | <b>Alternative pressure outlet</b>  |  |
|            | None  |  |
| <b>BC</b>  | Angled outlet block QS-6  |  |
| <b>BD</b>  | Angled outlet block QS-8  |  |
| <b>013</b> | <b>Type of mounting</b>   |  |
|            | Without mounting bracket  |  |
| <b>WR</b>  | Mounting bracket with knurled nut on regulator knob                                       |  |
| <b>WP</b>  | Mounting bracket basic design   |  |
| <b>WPM</b> | Mounting bracket for hooking in service unit components                                   |  |
| <b>WB</b>  | Mounting centrally at rear (wall mounting top and bottom), connecting plates not required |  |
| <b>WBM</b> | Mounting centrally at rear (wall mounting top), connecting plates not required            |  |
| <b>WPB</b> | Mounting bracket for large wall gap   |  |
| <b>014</b> | <b>EU certification</b>   |  |
|            | None  |  |
| <b>EX4</b> | II 2GD  |  |
| <b>015</b> | <b>UL certification</b>   |  |
|            | None  |  |
| <b>UL1</b> | cULus ordinary location for Canada and USA  |  |
| <b>016</b> | <b>Flow direction</b>   |  |
|            | Pressure output to the rear   |  |
| <b>Z</b>   | Pressure output to the front  |  |



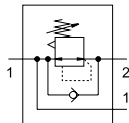
## Type codes

|             |   |  |
|-------------|---|--|
| <b>001</b>  | <b>Series</b>   |  |
| <b>MS</b>   | MS series   |  |
| <b>002</b>  | <b>Size</b>   |  |
| <b>6</b>    | Grid dimension 62 mm  |  |
| <b>003</b>  | <b>Function</b>   |  |
| <b>LRB</b>  | Pressure regulator for manifold assembly  |  |
| <b>004</b>  | <b>Pneumatic connection</b>   |  |
| <b>1/2</b>  | Female thread G1/2  |  |
| <b>AGB</b>  | Sub-base G1/4   |  |
| <b>AGC</b>  | Sub-base G3/8   |  |
| <b>AGD</b>  | Sub-base G1/2   |  |
| <b>AGE</b>  | Sub-base G3/4   |  |
| <b>005</b>  | <b>Pressure regulation range</b>  |  |
| <b>D5</b>   | 0.3 ... 4 bar   |  |
| <b>D6</b>   | 0.3 ... 7 bar   |  |
| <b>D7</b>   | 0.5 ... 12 bar  |  |
| <b>D8</b>   | 0.5 ... 16 bar  |  |
| <b>006</b>  | <b>Pressure gauge alternatives</b>  |  |
|             | None  |  |
| <b>VS</b>   | Cover plate   |  |
| <b>A8</b>   | Adapter for EN pressure gauge 1/8, without pressure gauge   |  |
| <b>A4</b>   | Adapter for EN pressure gauge 1/4, without pressure gauge   |  |
| <b>RG</b>   | Integrated pressure gauge, red/green scale  |  |
| <b>AD1</b>  | Pressure sensor with LCD display, M8 plug, PNP, 3-pin   |  |
| <b>AD2</b>  | Pressure sensor with LCD display, M8 plug, NPN, 3-pin   |  |
| <b>AD3</b>  | Pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA                 |  |
| <b>AD4</b>  | Pressure sensor with LCD display, M12 plug, NPN, 4-pin, analogue output 4 ... 20 mA                 |  |
| <b>AD7</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O               |  |
| <b>AD8</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C               |  |
| <b>AD9</b>  | Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O                        |  |
| <b>AD10</b> | Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C             |  |
| <b>AD11</b> | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA |  |
| <b>AD12</b> | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA  |  |

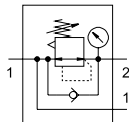
|            |   |  |
|------------|---|--|
| <b>007</b> | <b>Alternative pressure gauge scale</b>   |  |
|            | MS pressure gauge   |  |
| <b>PSI</b> | psi   |  |
| <b>MPA</b> | MPa   |  |
| <b>008</b> | <b>Secondary exhausting</b>   |  |
|            | With secondary exhausting   |  |
| <b>OS</b>  | Without secondary exhaust   |  |
| <b>009</b> | <b>Rotary knob alternative</b>  |  |
|            | None  |  |
| <b>LD</b>  | Long rotary knob  |  |
| <b>DM2</b> | Rotary knob pressure gauge, large   |  |
| <b>010</b> | <b>Alternative mounting position</b>  |  |
|            | None  |  |
| <b>KD</b>  | Rotary knob underneath  |  |
| <b>011</b> | <b>Lockability</b>  |  |
|            | None  |  |
| <b>AS</b>  | Can be locked using accessories   |  |
| <b>E11</b> | With integrated lock  |  |
| <b>012</b> | <b>Alternative pressure outlet</b>  |  |
|            | None  |  |
| <b>BD</b>  | Angled outlet block QS-8  |  |
| <b>BE</b>  | Angled outlet block QS-10   |  |
| <b>013</b> | <b>Type of mounting</b>   |  |
|            | Without mounting bracket  |  |
| <b>WR</b>  | Mounting bracket with knurled nut on regulator knob                                       |  |
| <b>WP</b>  | Mounting bracket basic design   |  |
| <b>WPM</b> | Mounting bracket for hooking in service unit components                                   |  |
| <b>WB</b>  | Mounting centrally at rear (wall mounting top and bottom), connecting plates not required |  |
| <b>WBM</b> | Mounting centrally at rear (wall mounting top), connecting plates not required            |  |
| <b>014</b> | <b>EU certification</b>   |  |
|            | None  |  |
| <b>EX4</b> | II 2GD  |  |
| <b>015</b> | <b>UL certification</b>   |  |
|            | None  |  |
| <b>UL1</b> | cULus ordinary location for Canada and USA  |  |
| <b>016</b> | <b>Flow direction</b>   |  |
|            | Pressure output to the rear   |  |
| <b>Z</b>   | Pressure output to the front  |  |





## Datasheet

Without pressure gauge



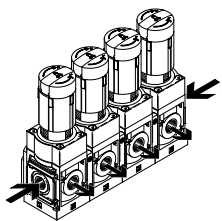
With pressure gauge



-  Flow rate  
300 ... 7300 l/min
-  Temperature range  
-10 ... +60°C
-  Operating pressure  
0.8 ... 20 bar
-  [www.festo.com](http://www.festo.com)



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 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              |            |   |  |
|-------------------------------------|------------|---|--|
| Size                                |            | MS4   | MS6  |
| Pneumatic connection 1              |            |   |  |
| Female thread                       |            | G1/4  | G1/2   |
| Connecting plate                    | [AG...]    | G1/8, G1/4 or G3/8  | G1/4, G3/8, G1/2 or G3/4   |
| Pneumatic connection 2              |            |   |  |
| Female thread                       |            | G1/4  | G1/2   |
| Angled outlet block                 | [BC]       | QS-6  | –  |
|                                     | [BD]       | QS-8  | QS-8   |
|                                     | [BE]       | –   | QS-10  |
| Design                              |            | Directly actuated diaphragm regulator with through compressed air supply  |  |
| Regulator function                  |            | Output pressure constant, with input pressure compensation, with return flow, with/without secondary exhausting |  |
| Type of mounting                    |            | With 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 | [D5] [bar] | 0.3 ... 4, manually actuated <sup>1)</sup>  |  |
|                                     | [D6] [bar] | 0.3 ... 7, manually actuated <sup>1)</sup>  |  |
|                                     | [D7] [bar] | 0.5 ... 12, manually actuated (0.5 ... 10 with pressure sensor or with UL certification) <sup>1)</sup>          |  |
|                                     | [D8] [bar] | –   | 0.5 ... 16, manually actuated (0.5 ... 10 with UL certification) |
| Max. pressure hysteresis            | [bar]      | 0.25  | 0.25 (0.4 with rotary knob pressure gauge)                       |
| Pressure indicator                  |            | Via pressure sensor for indicating the output pressure via LCD display and electrical output                    |  |
|                                     |            | Via pressure sensor for indicating the output pressure via status indicator and electrical output               |  |
|                                     |            | Via pressure gauge for displaying the output pressure   |  |
|                                     |            | Via pressure gauge with red/green scale for indicating the output pressure                                      |  |
|                                     |            | Via pressure gauge in the rotary knob for displaying the output pressure  |  |
|                                     |            | Prepared for G1/8   | –  |
|                                     |            | Prepared for G1/4   | –  |

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

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

## Datasheet

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |      |                    |                     |                   |                    |                     |                   |
|--|------|--------------------|---------------------|-------------------|--------------------|---------------------|-------------------|
| Size   |      | MS4                |                     |                   | MS6                |                     |                   |
|  |      | Standard           | Angled outlet block |                   | Standard           | Angled outlet block |                   |
|  |      |                    | [BC]: QS-6          | [BD]: QS-8        |                    | [BD]: QS-8          | [BE]: QS-10       |
| Pressure regulation range                        | [D5] | 1900 <sup>2)</sup> | 300 <sup>2)</sup>   | 650 <sup>2)</sup> | 7300 <sup>2)</sup> | 600 <sup>2)</sup>   | 750 <sup>2)</sup> |
|  | [D6] | 1700               | 350                 | 840               | 6300               | 880                 | 1000              |
|  | [D7] | 1500 <sup>3)</sup> | 350                 | 640               | 5500               | 800                 | 950               |
|  | [D8] | –                  | –                   | –                 | 4500               | 750                 | 850               |

- 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,  $q_{n \max} = 2200$  l/min

| Operating and environmental conditions       |  |                                       |
|--|--|---------------------------------------|
| Size   | MS4  | MS6                                   |
| Operating pressure [bar]                     | 0.8 ... 14 (0.8 ... 10) <sup>1)</sup>  | 0.8 ... 20 (0.8 ... 10) <sup>1)</sup> |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]  |                                       |
|  | Inert gases  |                                       |
| Note on the operating/<br>pilot medium       | Lubricated operation possible (in which case lubricated operation will always be required) |                                       |
| Ambient temperature [°C]                     | −10 ... +60 (0 ... +50) <sup>2)</sup>  |                                       |
| Temperature of medium [°C]                   | −10 ... +60 (0 ... +50) <sup>2)</sup>  |                                       |
| Storage temperature [°C]                     | −10 ... +60  |                                       |
| Corrosion resistance class CRC <sup>3)</sup> | 2  |                                       |
| Food-safe <sup>4)</sup>                      | See supplementary material information   |                                       |
| UL certification <sup>4)</sup>               | c UL us - Recognized (OL)  |                                       |

- 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) Corrosion resistance class CRC 2 to Festo standard FN 940070  
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.  
 4) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| ATEX   |   |
|--|---|
| EU certification   | [EX4]                                       |
| 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 IIIC T60°C Db X                        |
| Explosion-proof ambient temperature                      | –10°C ≤ Ta ≤ +60°C                          |
| CE marking (see declaration of conformity) <sup>1)</sup> | To EU Explosion Protection Directive (ATEX) |

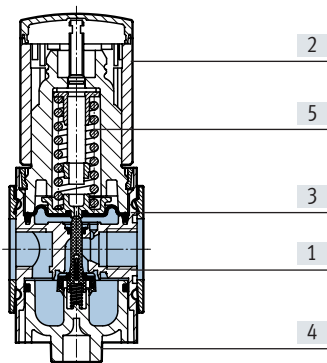
- 1) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| Weight [g]   |  |      |
|--|--|------|
| Size   |  | MS6  |
| Pressure regulator                                       |  | 747  |
| Pressure regulator with rotary knob with integrated lock |  | 1017 |

Datasheet

Materials

Sectional view



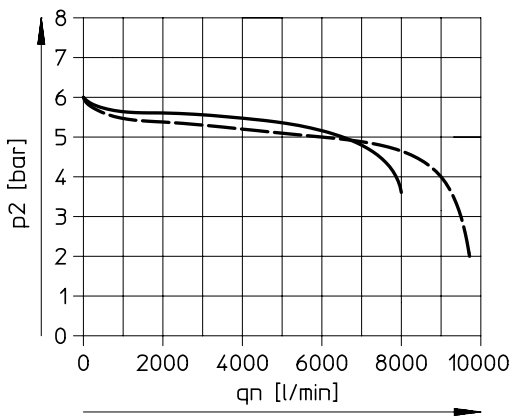
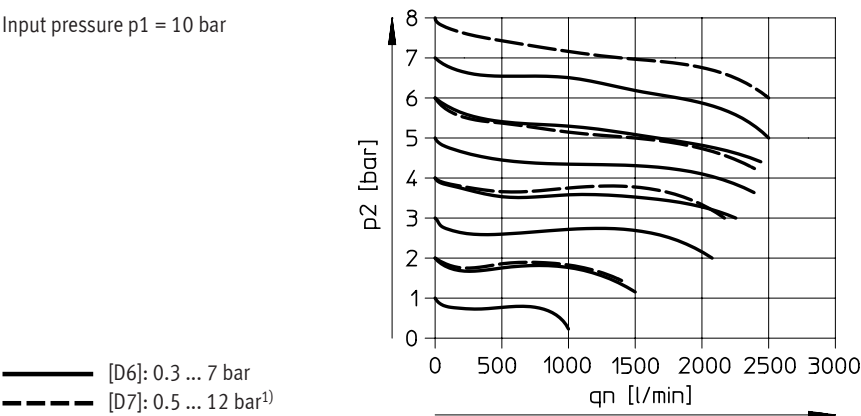
| Pressure regulator (manifold assembly) |                                  |   |
|--|----------------------------------|---|
| [1]                                    | Housing                          | Die-cast aluminium                            |
| [2]                                    | Rotary knob                      | PA, POM                                       |
|  | Rotary knob with integrated lock | Aluminium                                     |
| [3]                                    | Diaphragm                        | NBR   |
| [4]                                    | Bottom cover                     | PET   |
| [5]                                    | Springs                          | Steel   |
| -                                      | Seals                            | NBR   |
| Note on materials                      |                                  | RoHS-compliant                                |
|  |                                  | Free of copper and PTFE only with cover plate |

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

MS4-LRB-1/4

MS6-LRB-1/2

Input pressure p1 = 10 bar



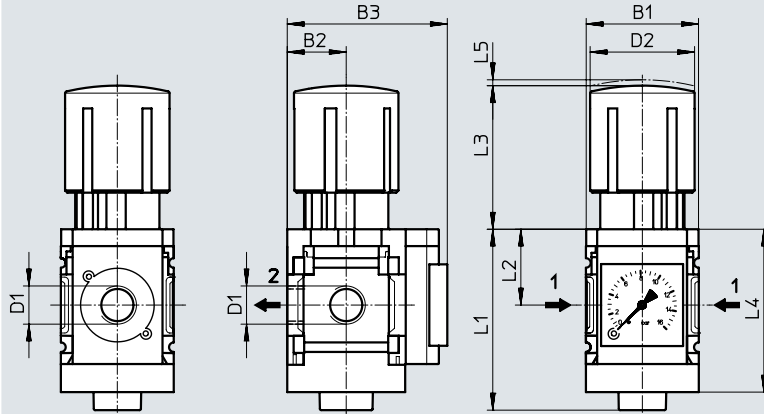
1) There is a higher initial pressure drop in the characteristic curve for variant DM1.

# Datasheet

## Dimensions – Basic version

Download CAD data → [www.festo.com](http://www.festo.com)

- [ ] Integrated MS pressure gauge with standard scale
- [RG] Integrated MS pressure gauge with red/green scale
- [ ] Rotary knob with latch



→ Flow direction

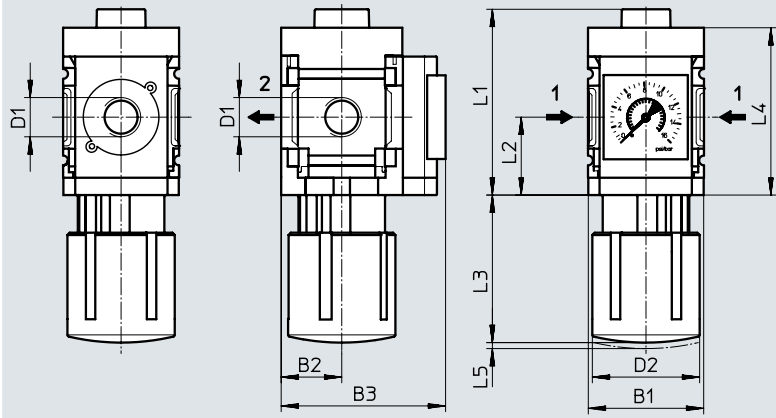
| Type        | B1 | B2 | B3             |                 | D1   | D2   | L1   | L2 | L3   | L4   | L5 |
|-------------|----|----|----------------|-----------------|------|------|------|----|------|------|----|
|             |    |    | Pressure gauge |                 |      |      |      |    |      |      |    |
|             |    |    | Standard scale | Red/green scale |      |      |      |    |      |      |    |
| MS4-LRB-1/4 | 40 | 21 | 57             | 58.5            | G1/4 | 37.2 | 64.4 | 27 | 60.3 | 58.5 | 2  |
| MS6-LRB-1/2 | 62 | 31 | 77             | 78.5            | G1/2 | 51.2 | 94   | 39 | 95.1 | 85   | 5  |

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

Datasheet

Dimensions – Alternative mounting position Download CAD data → [www.festo.com](http://www.festo.com)

[KD] Rotary knob underneath



→ Flow direction

| Type               | B1 | B2 | B3 | D1   | D2   | L1   | L2 | L3   | L4   | L5 |
|--------------------|----|----|----|------|------|------|----|------|------|----|
| MS4-LRB-1/4-...-KD | 40 | 21 | 57 | G1/4 | 37.2 | 64.4 | 27 | 60.3 | 58.5 | 2  |
| MS6-LRB-1/2-...-KD | 62 | 31 | 77 | G1/2 | 51.2 | 94   | 39 | 95.1 | 85   | 5  |

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

## Datasheet

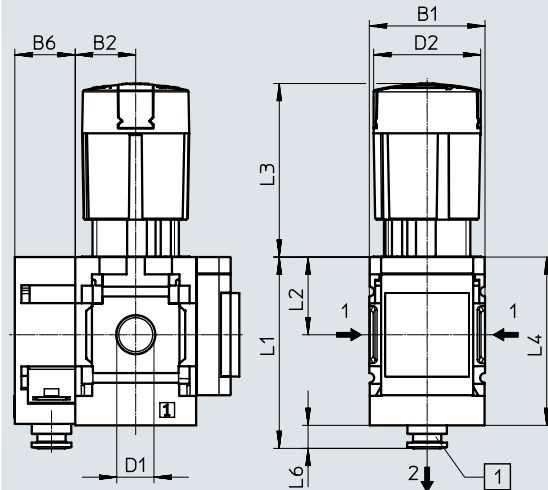
## Dimensions – Angled outlet block

Download CAD data → [www.festo.com](http://www.festo.com)

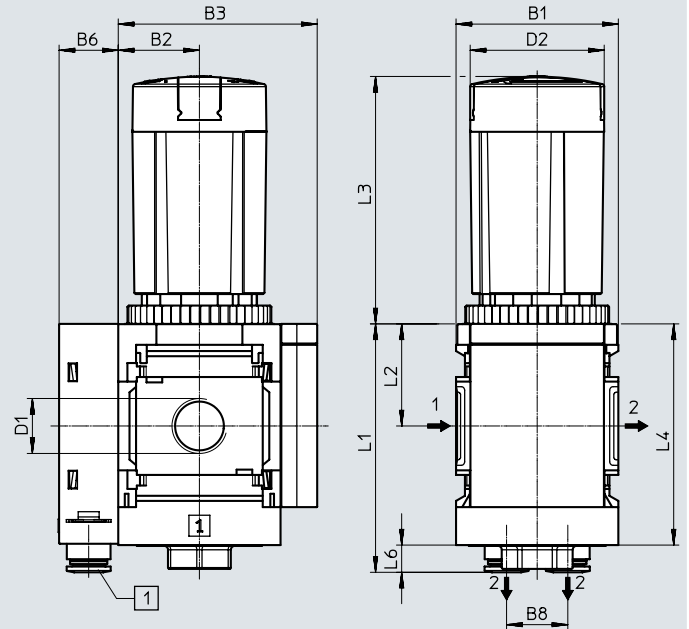
[BC]/[BD]/[BE] Angled outlet block

[] Pressure output to the rear

MS4



MS6



[1] Push-in connector QS

→ Flow direction

| Type                  | B1 | B2 | B3 | B6 | B8   | D1   | D2<br>Ø | L1   | L2 | L3   | L4   | L6   |
|-----------------------|----|----|----|----|------|------|---------|------|----|------|------|------|
| MS4-LRB-1/4-...-BC/BD | 40 | 21 | 57 | 21 | –    | G1/4 | 37.2    | 66.5 | 27 | 60.3 | 58.5 | 8    |
| MS6-LRB-1/2-...-BD/BE | 62 | 31 | 77 | 23 | 23.4 | G1/2 | 51.2    | 94.9 | 39 | 95.1 | 85   | 10.4 |

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

Datasheet

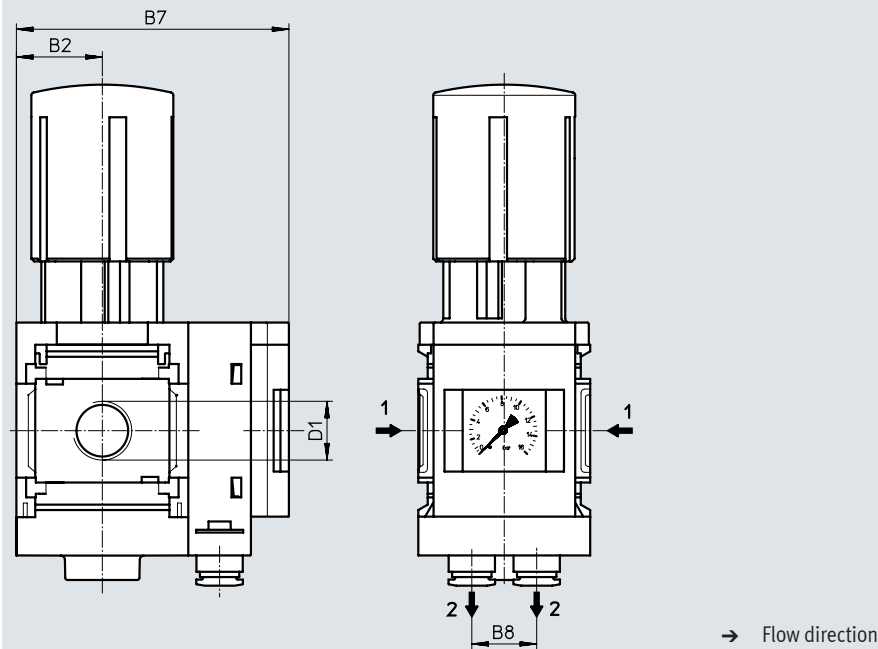
Dimensions – Angled outlet block Download CAD data → [www.festo.com](http://www.festo.com)

[BC]/[BD]/[BE] Angled outlet block

[Z] Pressure output to front

MS4 (not illustrated)

MS6



| Type                  | B2 | B7 | B8   | D1   |
|-----------------------|----|----|------|------|
| MS4-LRB-1/4-...-BC/BD | 21 | 75 | –    | G1/4 |
| MS6-LRB-1/2-...-BD/BE | 31 | 99 | 23.4 | G1/2 |

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



## Datasheet

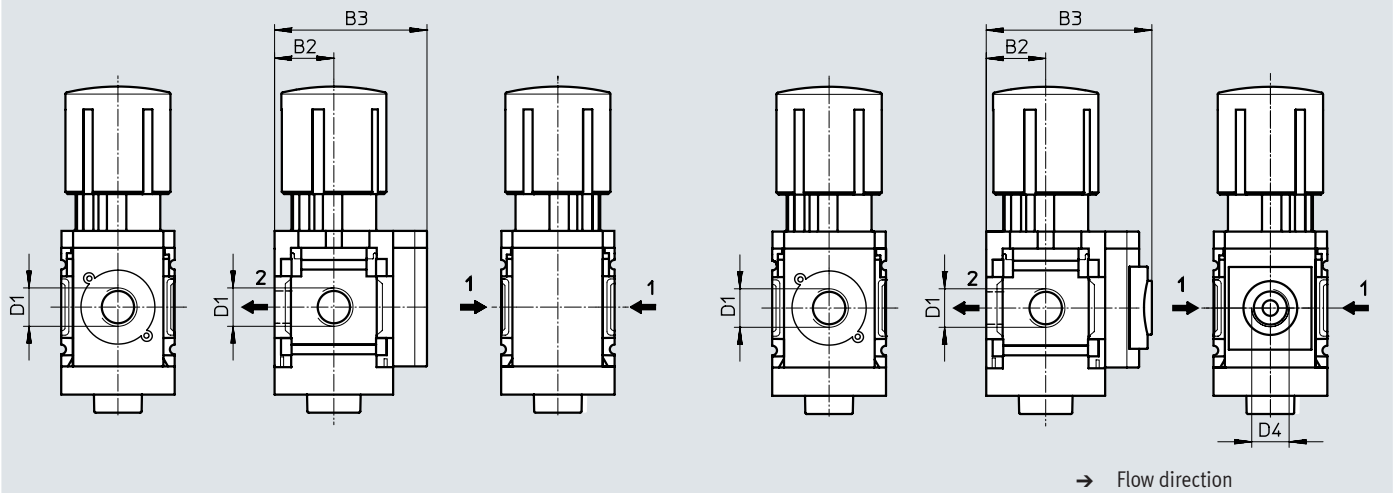
## Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

[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



| Type               | B2 | B3   | D1   | D4   |
|--------------------|----|------|------|------|
| MS4-LRB-1/4-...-VS | 21 | 54   | G1/4 | –    |
| MS4-LRB-1/4-...-A8 | 21 | 58.5 | G1/4 | G1/8 |
| MS4-LRB-1/4-...-A4 | 21 | 58.5 | G1/4 | G1/4 |
| MS6-LRB-1/2-...-VS | 31 | 76   | G1/2 | –    |
| MS6-LRB-1/2-...-A4 | 31 | 78.5 | G1/2 | G1/4 |

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

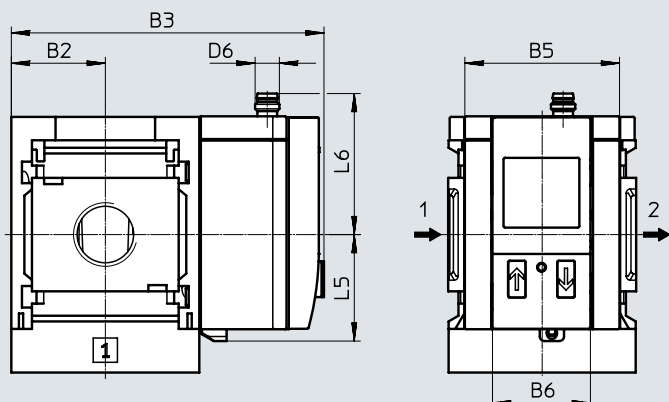
## Datasheet

### Dimensions – Pressure gauge alternatives

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

Download CAD data → [www.festo.com](http://www.festo.com)

Datasheets → Internet: sde1



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

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

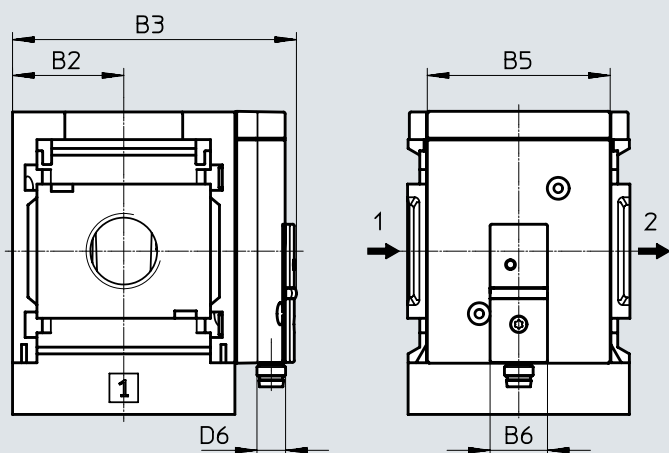
Variant AD2:  
SDE1-D10-G2-MS-L-N1-M8 with  
3-pin M8x1 plug, 1 switching output  
NPN

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

→ Flow direction

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

Datasheets → Internet: sde5



Variant AD7:  
SDE5-D10-O-...-P-M8 with 3-pin plug  
M8x1, threshold value comparator,  
1 switching output PNP, N/O contact

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

→ Flow direction

| Type                        | B2 | B3   | B5 | B6   | D6    | L5   | L6   |
|-----------------------------|----|------|----|------|-------|------|------|
| MS4-LR-...-AD1/AD2          | 21 | 82.6 | 32 | 32.3 | M8x1  | 35.1 | 46.7 |
| MS4-LR-...-AD3/AD4          | 21 | 82.6 | 32 | 32.3 | M12x1 | 35.1 | 55.8 |
| MS4-LR-...-AD7/AD8/AD9/AD10 | 21 | 59.1 | 32 | 16   | M8x1  | –    | –    |
| MS6-LR-...-AD1/AD2          | 31 | 103  | 51 | 32.3 | M8x1  | 35.1 | 46.7 |
| MS6-LR-...-AD3/AD4          | 31 | 103  | 51 | 32.3 | M12x1 | 35.1 | 55.8 |
| MS6-LR-...-AD7/AD8/AD9/AD10 | 31 | 79.1 | 51 | 16   | M8x1  | –    | –    |

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

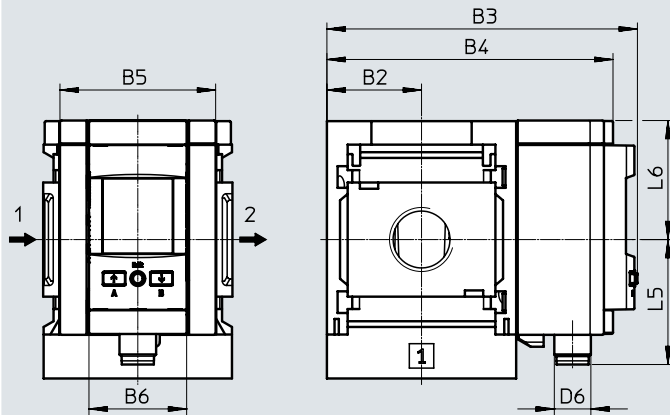
## Datasheet

## Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

[AD11/AD12] Pressure sensor with LCD display

Datasheets → Internet: spau



## Variant AD11:

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

## Variant AD12:

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

→ Flow direction

| Type            | B2 | B3    | B4   | B5 | B6 | D6    | L5   | L6 |
|-----------------|----|-------|------|----|----|-------|------|----|
| MS4-LR-...-AD11 | 21 | 81.2  | 73.3 | 32 | 32 | M12x1 | 41.2 | 39 |
| MS4-LR-...-AD12 | 21 | 81.2  | 73.3 | 32 | 32 | M8x1  | 37.9 | 39 |
| MS6-LR-...-AD11 | 31 | 101.8 | 93.7 | 51 | 32 | M12x1 | 41.2 | 39 |
| MS6-LR-...-AD12 | 31 | 101.8 | 93.7 | 51 | 32 | M8x1  | 37.9 | 39 |

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

# Datasheet

## Dimensions – Rotary knob

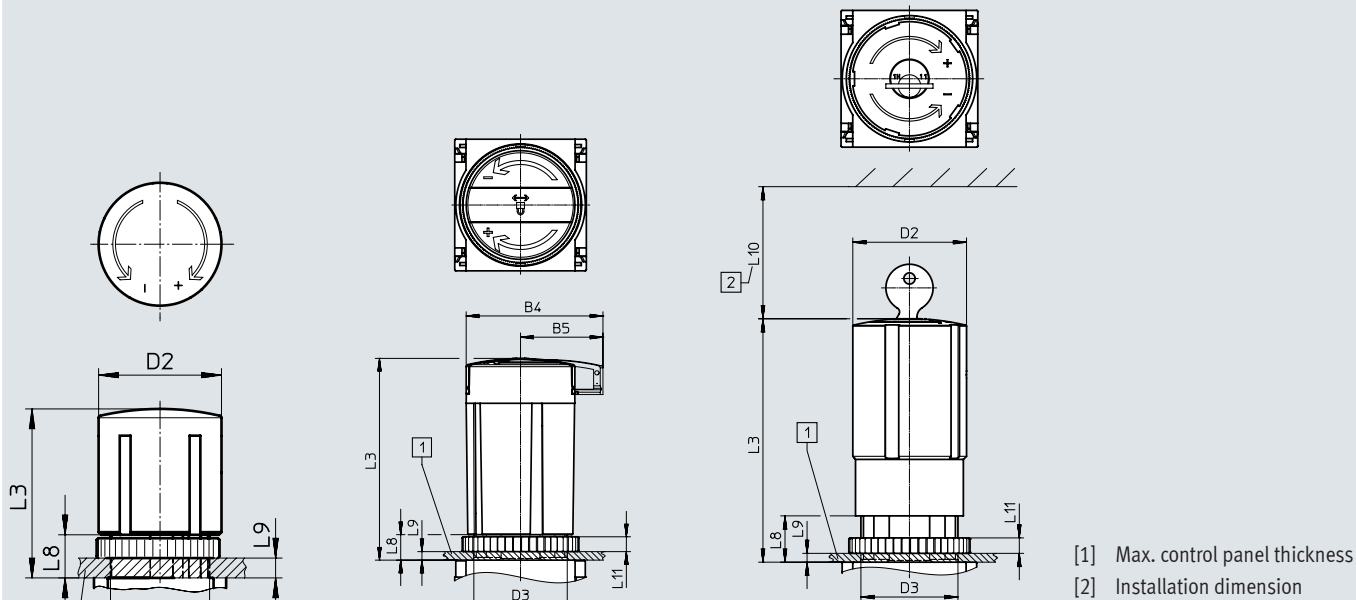
Download CAD data → [www.festo.com](http://www.festo.com)

For control panel installation

[ ] Rotary knob with latch

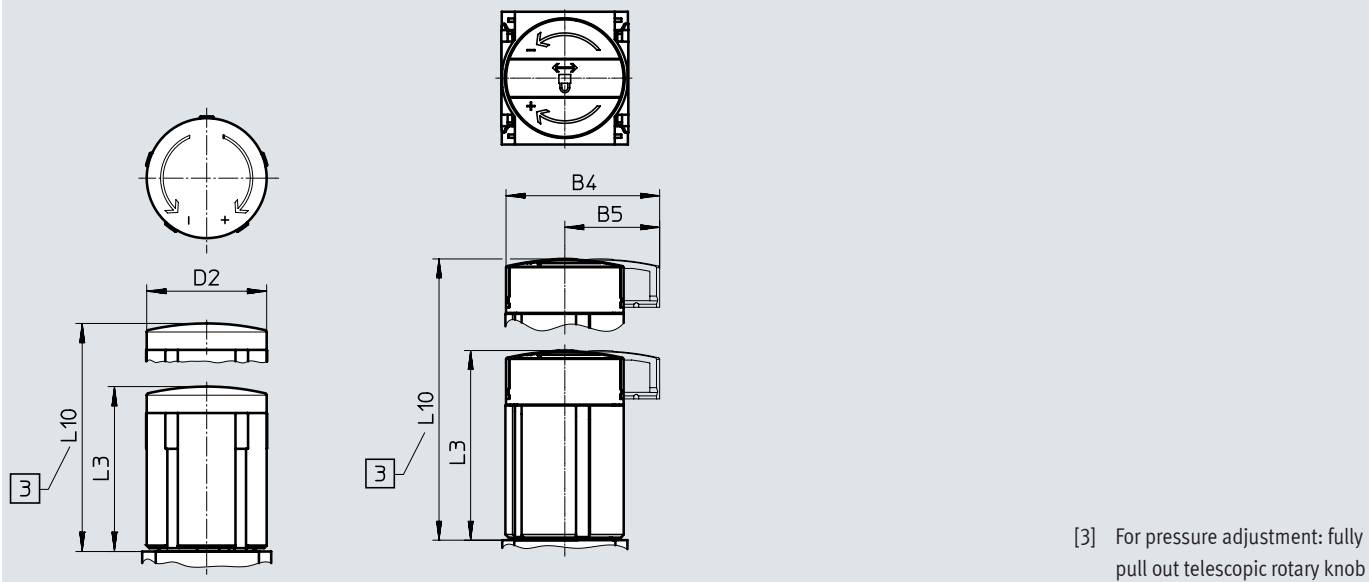
[AS] Rotary knob with latch, can be locked using accessories

[E11] Rotary knob with integrated lock



[LD] Rotary knob, long, with latch

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



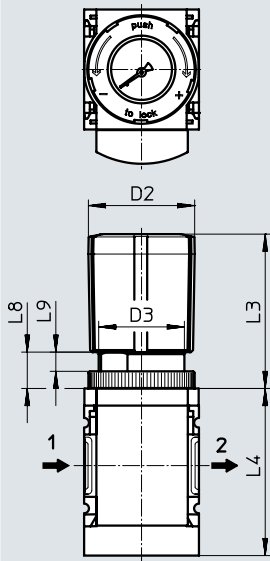
| Type              | B4   | B5   | D2   | D3      | L3   | L8 | L9 | L10   |
|-------------------|------|------|------|---------|------|----|----|-------|
| MS4-LRB-...       | -    | -    | 37.2 | M30x1.5 | 51.1 | 13 | 5  | -     |
| MS4-LRB-...-AS    | 48.6 | 30   |      |         | 60.2 | 13 | 5  |       |
| MS4-LRB-...-E11   | -    | -    |      |         | 76   | 14 | 6  |       |
| MS4-LRB-...-LD    | -    | -    |      |         | 51.1 | -  | -  |       |
| MS4-LRB-...-LD-AS | 48.6 | 30   |      | -       | 60   | -  | -  | 85.7  |
| MS6-LRB-...       | -    | -    | 51.2 | M44x1   | 86   | 21 | 14 | -     |
| MS6-LRB-...-AS    | 64.4 | 38.8 |      |         | 95.1 | 12 | 5  |       |
| MS6-LRB-...-E11   | -    | -    |      |         | 110  | 21 | 14 |       |
| MS6-LRB-...-LD    | -    | -    |      |         | 86   | -  | -  |       |
| MS6-LRB-...-LD-AS | 64.4 | 38.8 |      | -       | 95.5 | -  | -  | 148.5 |

## Datasheet

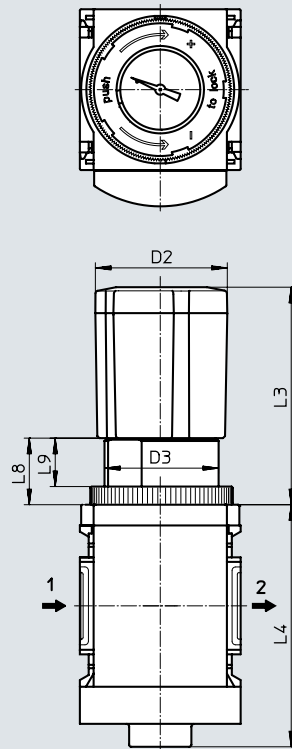
## Dimensions – Rotary knob pressure gauge

Download CAD data → [www.festo.com](http://www.festo.com)

[DM1] Rotary knob pressure gauge, small



[DM2] Rotary knob pressure gauge, large



→ Flow direction

| Type            | D2   | D3      | L3 | L4   | L8 | L9  |
|-----------------|------|---------|----|------|----|-----|
| MS4-LRB-...-DM1 | 37.2 | M30x1.5 | 54 | 58.5 | 13 | 6.7 |
| MS6-LRB-...-DM2 | 51   | M44x1   | 84 | 94   | 25 | 18  |

## Ordering data

| Pneumatic connection 1 | Pressure regulation range | Flow direction     | Part no. | Type                   |
|------------------------|---------------------------|--------------------|----------|------------------------|
| MS4-LRB...             |                           |                    |          |                        |
| G1/4                   | 0.3 ... 4 bar             | From left to right | 529471   | MS4-LRB-1/4-D5-A8-AS   |
|                        |                           | From left to right | 529473   | MS4-LRB-1/4-D5-AS      |
|                        |                           | From left to right | 529474   | MS4-LRB-1/4-D5-AS-BD   |
|                        | 0.3 ... 7 bar             | From left to right | 529477   | MS4-LRB-1/4-D6-A8-AS   |
|                        |                           | From left to right | 529479   | MS4-LRB-1/4-D6-AS      |
|                        |                           | From left to right | 529480   | MS4-LRB-1/4-D6-AS-BD   |
|                        |                           | From right to left | 529481   | MS4-LRB-1/4-D6-AS-BD-Z |
|                        |                           | From right to left | 529482   | MS4-LRB-1/4-D6-VS-AS-Z |
|                        | 0.5 ... 12 bar            | From left to right | 529483   | MS4-LRB-1/4-D7-A8-AS   |
|                        |                           | From left to right | 529485   | MS4-LRB-1/4-D7-AS      |
|                        |                           | From left to right | 529486   | MS4-LRB-1/4-D7-AS-BD   |
| MS6-LRB...             |                           |                    |          |                        |
| G1/2                   | 0.3 ... 4 bar             | From left to right | 530322   | MS6-LRB-1/2-D5-AS      |
|                        |                           | From left to right | 530320   | MS6-LRB-1/2-D5-A4-AS   |
|                        | 0.3 ... 7 bar             | From left to right | 530326   | MS6-LRB-1/2-D6-A4-AS   |
|                        |                           | From left to right | 530328   | MS6-LRB-1/2-D6-AS      |
|                        |                           | From left to right | 530329   | MS6-LRB-1/2-D6-AS-BD   |
|                        |                           | From right to left | 530330   | MS6-LRB-1/2-D6-AS-BD-Z |
|                        | 0.5 ... 12 bar            | From left to right | 530332   | MS6-LRB-1/2-D7-A4-AS   |
|                        |                           | From left to right | 530334   | MS6-LRB-1/2-D7-AS      |
|                        |                           | From left to right | 530335   | MS6-LRB-1/2-D7-AS-BD   |

## Ordering data – Modular product system

| Ordering table                      |  |                                   |             |            |       |
|-------------------------------------|--|-----------------------------------|-------------|------------|-------|
| Grid dimension                      | [mm]   | 40                                | 62          | Conditions | Code  |
| Module no.                          |  | 527692                            | 527665      |            |       |
| Series                              | Standard   |                                   |             |            | MS    |
| Size                                | 4  | 6                                 |             |            | ...   |
| Function                            | Pressure regulator for manifold assembly   |                                   |             |            | -LRB  |
| Pneumatic connection                | Female thread G1/4   | –                                 | [1]         |            | -1/4  |
|                                     | –  | Female thread G1/2                | [1]         |            | -1/2  |
|                                     | Connecting plate G1/8  | –                                 |             |            | -AGA  |
|                                     | Connecting plate G1/4  | Connecting plate G1/4             |             |            | -AGB  |
|                                     | Connecting plate G3/8  | Connecting plate G3/8             |             |            | -AGC  |
|                                     | –  | Connecting plate G1/2             |             |            | -AGD  |
|                                     | –  | Connecting plate G3/4             |             |            | -AGE  |
| 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 | [1] [2]     |            | -D8   |
| Pressure gauge alternatives         | MS pressure gauge  |                                   |             |            |       |
|                                     | Cover plate  |                                   | [3]         |            | -VS   |
|                                     | Adapter for EN pressure gauge 1/8, without pressure gauge  | –                                 | [4]         |            | -A8   |
|                                     | Adapter for EN pressure gauge 1/4, without pressure gauge  |                                   | [4]         |            | -A4   |
|                                     | Integrated pressure gauge, red/green scale   |                                   | [2]         |            | -RG   |
|                                     | Pressure sensor with LCD display, M8 plug, 1 switching output PNP, 3-pin                                 |                                   | [1] [4] [5] |            | -AD1  |
|                                     | Pressure sensor with LCD display, M8 plug, 1 switching output NPN, 3-pin                                 |                                   | [1] [4] [5] |            | -AD2  |
|                                     | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA   |                                   | [1] [4] [5] |            | -AD3  |
|                                     | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA   |                                   | [1] [4] [5] |            | -AD4  |
|                                     | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact             |                                   | [1] [5] [6] |            | -AD7  |
|                                     | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact             |                                   | [1] [5] [6] |            | -AD8  |
|                                     | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/O contact                      |                                   | [1] [5] [6] |            | -AD9  |
|                                     | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/C contact                      |                                   | [1] [5] [6] |            | -AD10 |
|                                     | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA |                                   | [1] [4] [5] |            | -AD11 |
|                                     | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA  |                                   | [1] [4] [5] |            | -AD12 |
| Alternative pressure gauge scale    | MS pressure gauge, bar   |                                   |             |            |       |
|                                     | psi  |                                   | [7]         |            | -PSI  |
|                                     | MPa  |                                   | [8]         |            | -MPA  |

[1] 1/4, 1/2, D8, AD1 ... AD4, AD7 ... AD10, AD11/AD12, DM1, DM2, KD, E11, WPM

[2] D8, RG, OS, KD, AS Not with rotary knob pressure gauge DM1, DM2.

[3] VS Must be selected if outlet direction Z is selected without alternative mounting position KD and without pressure output BC, BD, BE. Must be selected if alternative mounting position KD is selected without outlet direction Z and without pressure output BC, BD, BE.

[4] A8, A4, AD1 ... AD4, AD11/AD12 Not with outlet direction Z. 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 D8.

[6] AD7 ... AD10 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.

[7] PSI Not with pressure gauge alternatives VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10. In combination with outlet direction Z only with pressure output BC, BD, BE.

[8] MPA Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10. Not with alternative mounting position KD. Not with rotary knob alternative DM1, DM2. In combination with outlet direction Z only with pressure output BC, BD, BE.

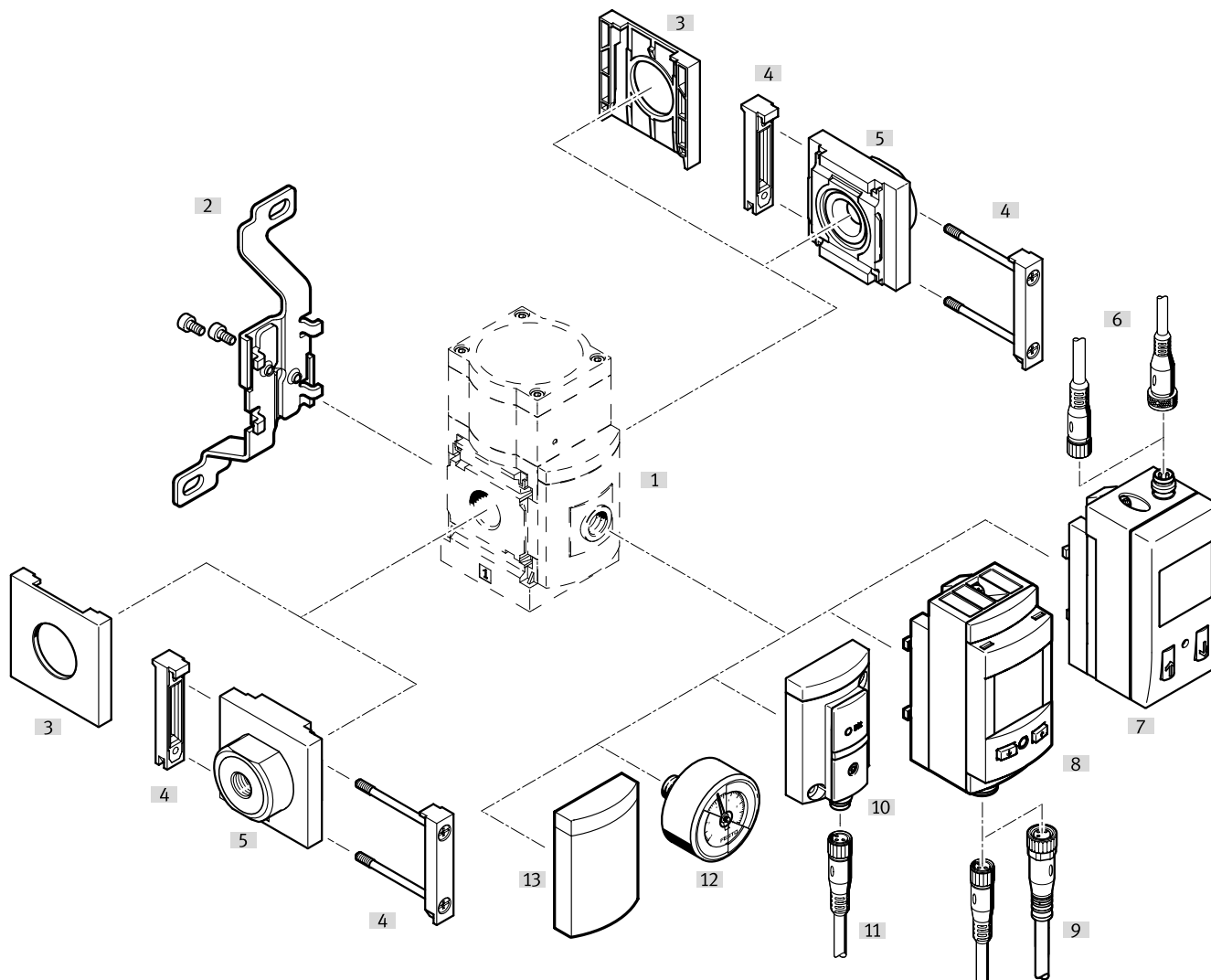
## Ordering data – Modular product system

| Ordering table                                 |   |    |                                   |               |      |            |
|--|---|----|-----------------------------------|---------------|------|------------|
| Grid dimension                                 | [mm]  | 40 | 62                                | Conditions    | Code | Enter code |
| Secondary exhausting                           | With secondary exhausting   |    |                                   |               |      |            |
|  | Without secondary exhausting  |    |                                   | [2]           | -OS  |            |
| Rotary knob alternatives                       | None  |    |                                   |               |      |            |
|  | Long rotary knob  |    |                                   | [9]           | -LD  |            |
|  | Rotary knob pressure gauge, small   |    | –                                 | [1] [9] [10]  | -DM1 |            |
|  | –   |    | Rotary knob pressure gauge, large | [1] [9] [10]  | -DM2 |            |
| Alternative mounting position                  | None  |    |                                   |               |      |            |
|  | Rotary knob underneath  |    |                                   | [1] [2] [11]  | -KD  |            |
| Locking option                                 | None  |    |                                   |               |      |            |
|  | Lockable using accessories  |    |                                   | [2]           | -AS  |            |
|  | With integrated lock  |    |                                   | [1]           | -E11 |            |
| Pressure output<br>(p <sub>max</sub> = 10 bar) | None  |    |                                   |               |      |            |
|  | Angled outlet block QS-6  |    | –                                 |               | -BC  |            |
|  | Angled outlet block QS-8  |    | Angled outlet block QS-8          |               | -BD  |            |
|  | –   |    | Angled outlet block QS-10         |               | -BE  |            |
| Type of mounting                               | Without mounting bracket  |    |                                   |               |      |            |
|  | Mounting bracket with knurled nut for regulator head  |    |                                   | [12] [13]     | -WR  |            |
|  | Mounting bracket standard design  |    |                                   | [14] [15]     | -WP  |            |
|  | Mounting bracket for attaching service unit components  |    |                                   | [1] [12] [14] | -WPM |            |
|  | Mounting bracket for large wall gap   |    |                                   | [14] [16]     | -WPB |            |
|  | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required |    |                                   | [12]          | -WB  |            |
|  | Mounting bracket centrally at rear (wall mounting top), connecting plates required                |    | –                                 | [12]          | -WBM |            |
| 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 to the rear   |    |                                   |               |      |            |
|  | Pressure output to the front (without angled outlet block, no pressure gauge)                     |    |                                   |               | -Z   |            |

- [9] LD, DM1, DM2 Not with locking option E11.  
 [10] DM1, DM2 Can only be selected in combination with pressure gauge alternatives VS, A4, AD1 ... AD4, AD7 ... AD10.  
 [11] KD Not with alternative pressure gauge scale MPa.  
 In combination with alternative pressure gauge scale PSI only with outlet direction Z and/or only with pressure output BC, BD, BE.  
 Not with mounting type WP, WPB.  
 In combination with mounting type WR, WPM, WB, WBM not with outlet direction Z.  
 Not with pressure gauge alternative RG.  
 In combination with pressure gauge alternatives A8, A4, AD1, AD2, AD3, AD4 only with outlet direction Z.  
 In combination with outlet direction Z not with alternative mounting position KD.
- [12] WR, WPM, WB, WBM  
 [13] WR Only with outlet direction Z.  
 Not with rotary knob alternative LD.  
 [14] WP, WPM, WPB Only with connecting plate AGA, AGB, AGC, AGD, AGE.  
 [15] WP Only with outlet direction Z and/or only with pressure output BC, BD, BE.  
 [16] WPB Not with outlet direction Z.  
 Not with pressure output BC, BD, BE.

## Peripherals overview

### Precision pressure regulator MS6-LRP



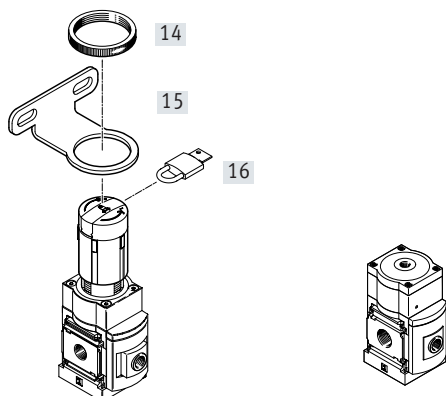
#### Note

Additional accessories:

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

Manually actuated

Pneumatically actuated





## Peripherals overview

| Mounting attachments and accessories |   | Single device            |                       | Combination              |                       | → Page/Internet |
|--------------------------------------|---|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|                                      |   | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| [1]                                  | Adapter for EN pressure gauge 1/8, 1/4 A8/A4          | ■                        | ■                     | ■                        | ■                     | 62              |
| [2]                                  | Mounting bracket MS6-WB                               | ■                        | ■                     | –                        | –                     | ms6-wb          |
| [3]                                  | Cover cap MS6-END                                     | ■                        | –                     | ■                        | –                     | ms6-end         |
| [4]                                  | Module connector MS6-MV                               | –                        | ■                     | ■                        | ■                     | ms6-mv          |
| [5]                                  | Connecting plate SET MS6-AG...                        | –                        | ■                     | –                        | ■                     | ms6-ag          |
|                                      | Connecting plate SET MS6-AQ...                        | –                        | ■                     | –                        | ■                     | ms6-aq          |
| [6]                                  | Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4       | ■                        | ■                     | ■                        | ■                     | 110             |
| [7]                                  | Pressure sensor with display AD1 ... AD4              | ■                        | ■                     | ■                        | ■                     | 62              |
| [8]                                  | Pressure sensor with LCD display AD11/AD12            | ■                        | ■                     | ■                        | ■                     | 62              |
| [9]                                  | Connecting cable NEBU-M8...-LE4/NEBU-M12...-LE4       | ■                        | ■                     | ■                        | ■                     | 110             |
| [10]                                 | Pressure sensor without display AD7 ... AD10          | ■                        | ■                     | ■                        | ■                     | 62              |
| [11]                                 | Connecting cable NEBU-M8...-LE3                       | ■                        | ■                     | ■                        | ■                     | 110             |
| [12]                                 | Precision pressure gauge A8M/MAP                      | ■                        | ■                     | ■                        | ■                     | 62, 110         |
| [13]                                 | Cover plate VS  | ■                        | ■                     | ■                        | ■                     | 62              |
| [14]                                 | Knurled nut (included in the scope of delivery) MS-LR | ■                        | ■                     | –                        | –                     | –               |
| [15]                                 | Mounting bracket MS6-WR                               | ■                        | ■                     | –                        | –                     | ms6-wr          |
| [16]                                 | Padlock LRVS-D  | ■                        | ■                     | ■                        | ■                     | 110             |
| –                                    | Mounting bracket MS6-WP/WPB/WPE/WPM                   | –                        | ■                     | ■                        | ■                     | ms6-wp          |

## Type codes

|             |   |  |
|-------------|---|--|
| <b>001</b>  | <b>Series</b>   |  |
| <b>MS</b>   | MS series   |  |
| <b>002</b>  | <b>Size</b>   |  |
| <b>6</b>    | Grid dimension 62 mm  |  |
| <b>003</b>  | <b>Function</b>   |  |
| <b>LRP</b>  | Precision pressure regulator  |  |
| <b>004</b>  | <b>Pneumatic connection</b>   |  |
| <b>1/4</b>  | Female thread G1/4  |  |
| <b>3/8</b>  | Female thread G3/8  |  |
| <b>1/2</b>  | Female thread G1/2  |  |
| <b>AGB</b>  | Sub-base G1/4   |  |
| <b>AGC</b>  | Sub-base G3/8   |  |
| <b>AGD</b>  | Sub-base G1/2   |  |
| <b>AGE</b>  | Sub-base G3/4   |  |
| <b>AQN</b>  | Sub-base NPT1/4   |  |
| <b>AQP</b>  | Sub-base NPT3/8   |  |
| <b>AQR</b>  | Sub-base NPT1/2   |  |
| <b>AQS</b>  | Sub-base NPT3/4   |  |
| <b>005</b>  | <b>Pressure regulation range</b>  |  |
| <b>D2</b>   | 0.05 ... 0.7 bar  |  |
| <b>D4</b>   | 0.05 ... 2.5 bar  |  |
| <b>D5</b>   | 0.1 ... 4 bar   |  |
| <b>D7</b>   | 0.1 ... 12 bar  |  |
| <b>PO</b>   | Max. 12 bar, pneumatically actuated (pressure range determined by pilot regulator)                  |  |
| <b>006</b>  | <b>Pressure gauge alternatives</b>  |  |
| <b>VS</b>   | Cover plate   |  |
| <b>A8</b>   | Adapter for EN pressure gauge 1/8, without pressure gauge   |  |
| <b>A8M</b>  | Adapter for EN pressure gauge 1/8, with precision pressure gauge                                    |  |
| <b>A4</b>   | Adapter for EN pressure gauge 1/4, without pressure gauge   |  |
| <b>AD1</b>  | Pressure sensor with LCD display, M8 plug, PNP, 3-pin   |  |
| <b>AD2</b>  | Pressure sensor with LCD display, M8 plug, NPN, 3-pin   |  |
| <b>AD3</b>  | Pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA                 |  |
| <b>AD4</b>  | Pressure sensor with LCD display, M12 plug, NPN, 4-pin, analogue output 4 ... 20 mA                 |  |
| <b>AD7</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O               |  |
| <b>AD8</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C               |  |
| <b>AD9</b>  | Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O                        |  |
| <b>AD10</b> | Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C             |  |
| <b>AD11</b> | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA |  |
| <b>AD12</b> | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA  |  |

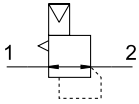
|            |   |  |
|------------|---|--|
| <b>007</b> | <b>Rotary knob alternative</b>  |  |
|            | None  |  |
| <b>LD</b>  | Long rotary knob  |  |
| <b>008</b> | <b>Alternative mounting position</b>  |  |
|            | None  |  |
| <b>KD</b>  | Rotary knob underneath  |  |
| <b>009</b> | <b>Lockability</b>  |  |
|            | None  |  |
| <b>AS</b>  | Can be locked using accessories   |  |
| <b>E11</b> | With integrated lock  |  |
| <b>010</b> | <b>Type of mounting</b>   |  |
|            | Without mounting bracket  |  |
| <b>WR</b>  | Mounting bracket with knurled nut on regulator knob                                       |  |
| <b>WP</b>  | Mounting bracket basic design   |  |
| <b>WPM</b> | Mounting bracket for hooking in service unit components                                   |  |
| <b>WB</b>  | Mounting centrally at rear (wall mounting top and bottom), connecting plates not required |  |
| <b>011</b> | <b>EU certification</b>   |  |
|            | None  |  |
| <b>EX4</b> | II 2GD  |  |
| <b>012</b> | <b>UL certification</b>   |  |
|            | None  |  |
| <b>UL1</b> | cULus ordinary location for Canada and USA  |  |
| <b>013</b> | <b>Flow direction</b>   |  |
|            | Flow direction from left to right   |  |
| <b>Z</b>   | Flow direction from right to left   |  |

## Datasheet





Pressure regulation range/actuation,  
manually actuated



Pressure regulation range/actuation,  
pneumatically actuated



The precision pressure regulator is suitable for sensitive applications requiring a pressure 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 switching off the

-  Flow rate  
800 ... 5000 l/min
-  Temperature range  
-10 ... +60°C
-  Operating pressure  
1 ... 14 bar
-  [www.festo.com](http://www.festo.com)




input pressure p1, the output pressure p2 is exhausted via connection 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 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                                |      |         |   | MS6   |
|---|------|---------|---|---|
| Size  |      |         |   | MS6   |
| Pneumatic connection 1, 2                             |      |         |   |   |
| Female thread   |      |         |   | G1/4, G3/8 or G1/2  |
| Connecting plate                                      |      | [AG...] | G1/4, G3/8, G1/2 or G3/4  |   |
|   |      | [AQ...] | 1/4 NPT, 3/8 NPT, 1/2 NPT or 3/4 NPT  |   |
| Pneumatic connection 3 (secondary exhausting)         |      |         |   | G1/4  |
| Pilot air port 12                                     |      |         |   | G1/8 (MS6-LRP-...-PO)   |
| Design  |      |         |   | Piloted precision diaphragm regulator   |
| Regulator function                                    |      |         |   | Output pressure constant, with secondary exhausting   |
| Type of mounting                                      |      |         |   | With 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/<br>actuation <sup>1)</sup> | [D2] | [bar]   | 0.05 ... 0.7, manually actuated   |   |
|   | [D4] | [bar]   | 0.05 ... 2.5, manually actuated   |   |
|   | [D5] | [bar]   | 0.1 ... 4, manually actuated  |   |
|   | [D7] | [bar]   | 0.1 ... 12, manually actuated (0.1 ... 10 with pressure sensor or with UL certification)      |   |
|   | [PO] | [bar]   | 0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor or with UL certification) |   |
| Max. pressure hysteresis                              |      | [bar]   | 0.02  |   |
| Pressure indicator                                    |      |         |   | Via pressure sensor for indicating the output pressure via LCD display and electrical output      |
|   |      |         |   | Via pressure sensor for indicating the output pressure via status indicator and electrical output |
|   |      |         |   | Via precision pressure gauge for indicating the output pressure                                   |
|   |      |         |   | Prepared for G1/8   |
|   |      |         |   | Prepared for G1/4   |

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

| Flow rates                                  |                          |                          |                          |                           |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| Pressure regulation range                   | [D2]: 0.05 ... 0.7 bar   | [D4]: 0.05 ... 2.5 bar   | [D5]: 0.1 ... 4 bar      | [D7]/[PO]: 0.1 ... 12 bar |
| Standard nominal flow rate $q_{nN}$ [l/min] |                          |                          |                          |                           |
| $q_{nN} 1 \rightarrow 2$                    | G1/4                     | 800 <sup>1)</sup>        | 1100 <sup>2)</sup>       | 1400 <sup>3)</sup>        |
|   | G3/8                     | 1100 <sup>1)</sup>       | 1400 <sup>2)</sup>       | 1700 <sup>3)</sup>        |
|   | G1/2                     | 1600 <sup>1)</sup>       | 2300 <sup>2)</sup>       | 3000 <sup>3)</sup>        |
| Secondary exhaust flow rate [l/min]         |                          |                          |                          |                           |
| $q_{nN} 2 \rightarrow 3$                    | $\geq 220$ <sup>5)</sup> | $\geq 450$ <sup>6)</sup> | $\geq 650$ <sup>7)</sup> | $\geq 900$ <sup>8)</sup>  |

1) Measured at  $p_1 = 10$  bar and  $p_2 = 0.5$  bar,  $\Delta p = 0.1$  bar2) Measured at  $p_1 = 10$  bar and  $p_2 = 1.5$  bar,  $\Delta p = 0.1$  bar3) Measured at  $p_1 = 10$  bar and  $p_2 = 2.5$  bar,  $\Delta p = 0.1$  bar4) Measured at  $p_1 = 10$  bar and  $p_2 = 6.0$  bar,  $\Delta p = 0.1$  bar5) Measured at  $p_1 = 10$  bar and  $p_2 = 0.7$  bar,  $\Delta p_2 = 0.1$  bar6) Measured at  $p_1 = 10$  bar and  $p_2 = 2.5$  bar,  $\Delta p_2 = 0.1$  bar7) Measured at  $p_1 = 10$  bar and  $p_2 = 4.0$  bar,  $\Delta p_2 = 0.1$  bar8) Measured at  $p_1 = 10$  bar and  $p_2 = 6.0$  bar,  $\Delta p_2 = 0.1$  bar

| Operating and environmental conditions       |  |
|--|--|
| Operating pressure                           | [bar] 1 ... 14 (1 ... 10) <sup>1)</sup>    |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]  |
|  | Inert gases                                |
| Note on the operating/pilot medium           | Lubricated operation not possible          |
| Ambient temperature                          | [°C] -10 ... +60 (0 ... +50) <sup>2)</sup> |
| Temperature of medium                        | [°C] -10 ... +60 (0 ... +50) <sup>2)</sup> |
| Storage temperature                          | [°C] -10 ... +60                           |
| Corrosion resistance class CRC <sup>3)</sup> | 2  |
| UL certification <sup>4)</sup>               | c UL us - Recognized (OL)                  |

1) Value in brackets applies to MS6-LRP with UL certification.

2) Value in brackets applies to MS6-LRP with pressure sensor.

3) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

4) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| ATEX   |   |
|--|---|
| EU certification   | [EX4]                                       |
| 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 IIIC T60°C Db X                        |
| Explosion-proof ambient temperature                      | -10°C ≤ Ta ≤ +60°C                          |
| CE marking (see declaration of conformity) <sup>1)</sup> | To EU Explosion Protection Directive (ATEX) |

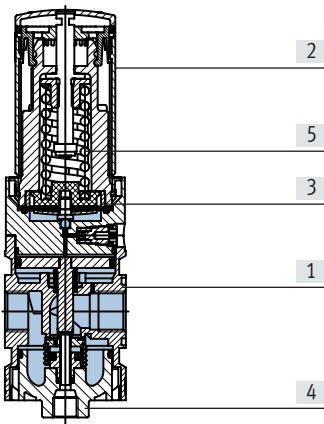
1) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| Weight [g]   |      |
|--|------|
| Precision pressure regulator                                       | 1000 |
| Precision pressure regulator with rotary knob with integrated lock | 1120 |

## Datasheet

## Materials

## Sectional view

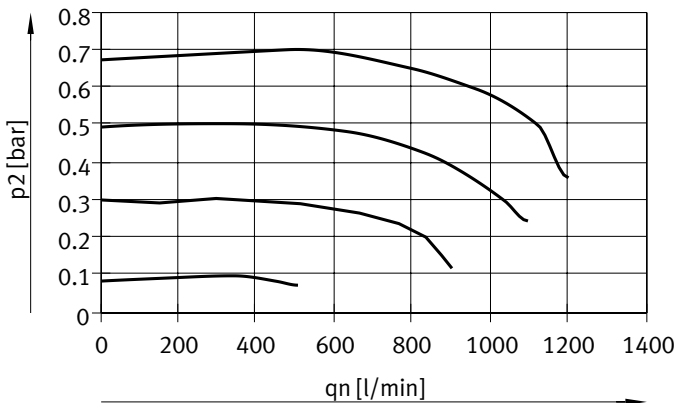


Precision pressure regulator

|                   |                                  |  |
|-------------------|----------------------------------|--|
| [1]               | Housing                          | Die-cast aluminium   |
| [2]               | Rotary knob                      | PA, POM  |
|                   | Rotary knob with integrated lock | Aluminium  |
| [3]               | Diaphragm                        | NBR  |
| [4]               | Bottom cover                     | PC   |
| [5]               | Springs                          | Steel  |
| -                 | Seals                            | NBR  |
| Note on materials |                                  | RoHS-compliant   |
|                   |                                  | Free of copper and PTFE (not with adapter for EN pressure gauge 1/8, with precision pressure gauge or pressure sensor) |

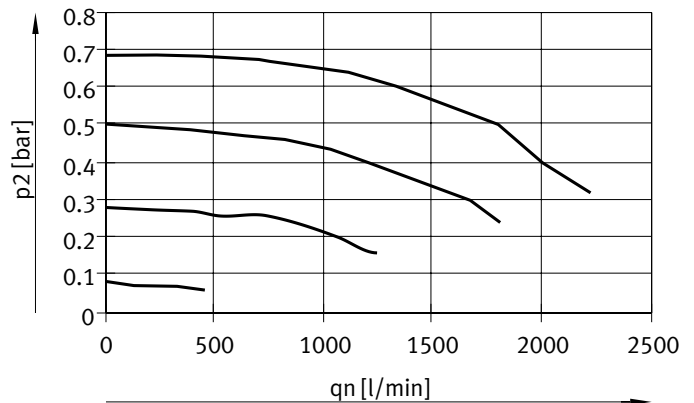
Standard flow rate  $q_n$  as a function of output pressure  $p_2$  ( $p_1 = 10$  bar)

MS6-LRP-1/4-D2



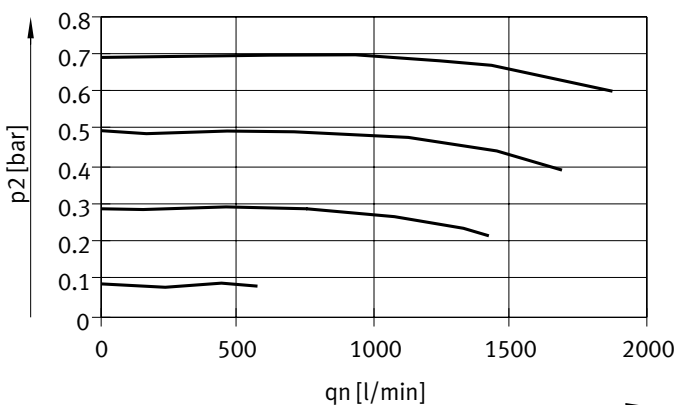
[D2]: 00.5 ... 0.7 bar

MS6-LRP-3/8-D2



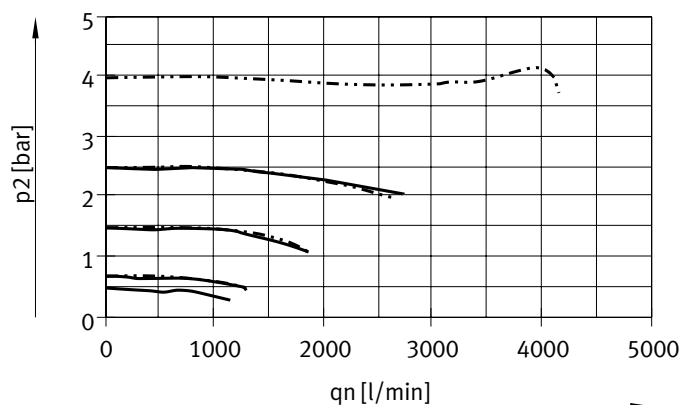
[D2]: 00.5 ... 0.7 bar

MS6-LRP-1/2-D2



[D2]: 00.5 ... 0.7 bar

MS6-LRP-1/4-D4/D5

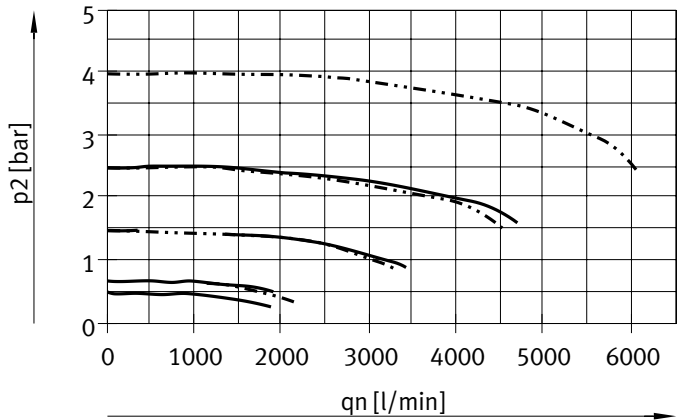


[D4]: 00.5 ... 2.5 bar

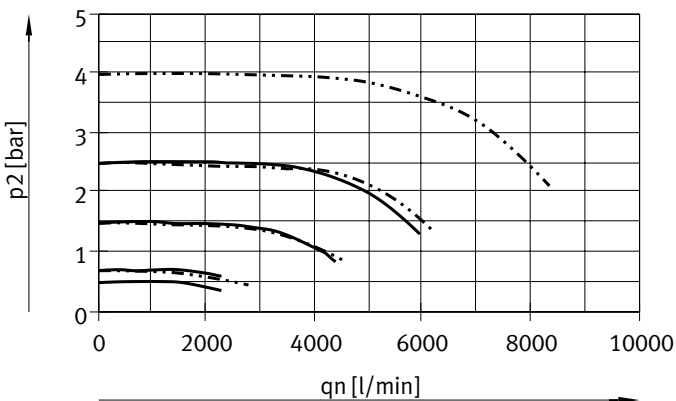
[D5]: 0.1 ... 4 bar

Datasheet

Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)  
MS6-LRP-3/8-D4/D5 MS6-LRP-1/2-D4/D5

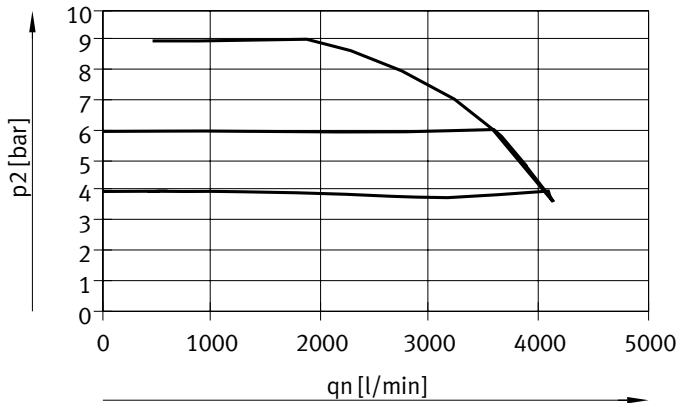


— [D4]: 0.5 ... 2.5 bar  
- - - [D5]: 0.1 ... 4 bar

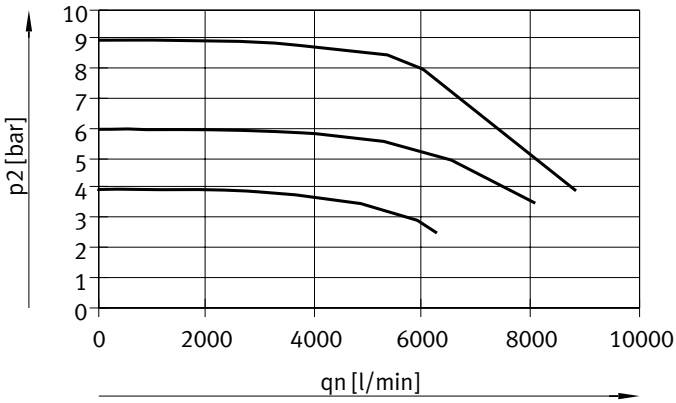


— [D4]: 0.5 ... 2.5 bar  
- - - [D5]: 0.1 ... 4 bar

MS6-LRP-1/4-D7/PO MS6-LRP-3/8-D7/PO

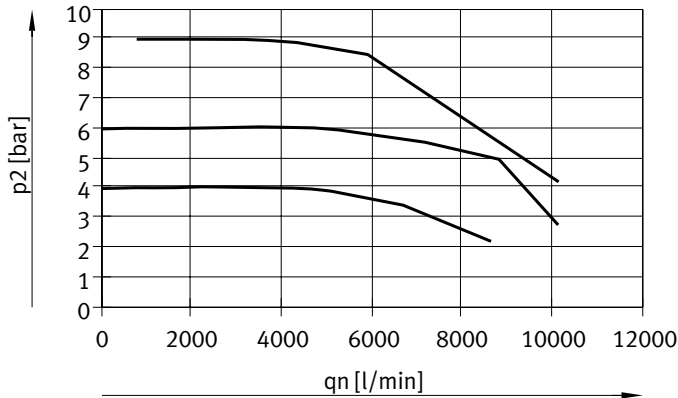


— [D7]/[PO]: 0.1 ... 12 bar



— [D7]/[PO]: 0.1 ... 12 bar

MS6-LRP-1/2-D7/PO



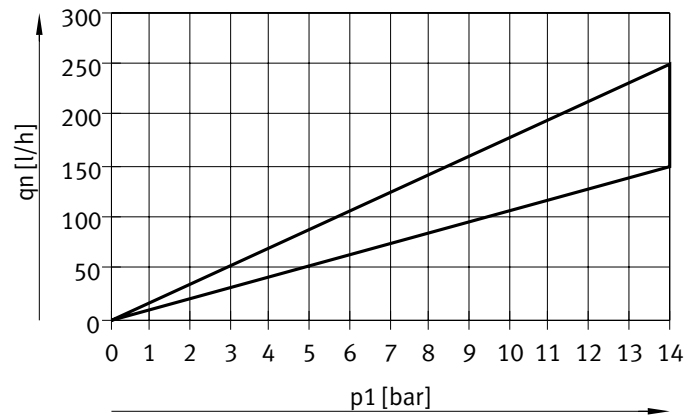
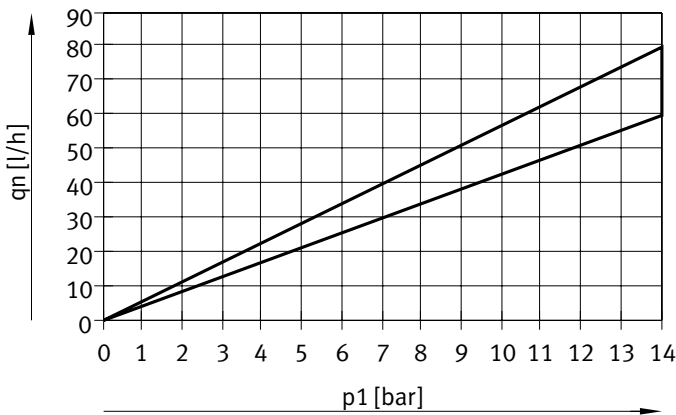
— [D7]/[PO]: 0.1 ... 12 bar

## Datasheet

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

MS6-LRP-...-D2/D4

MS6-LRP-...-D5/D7/P0



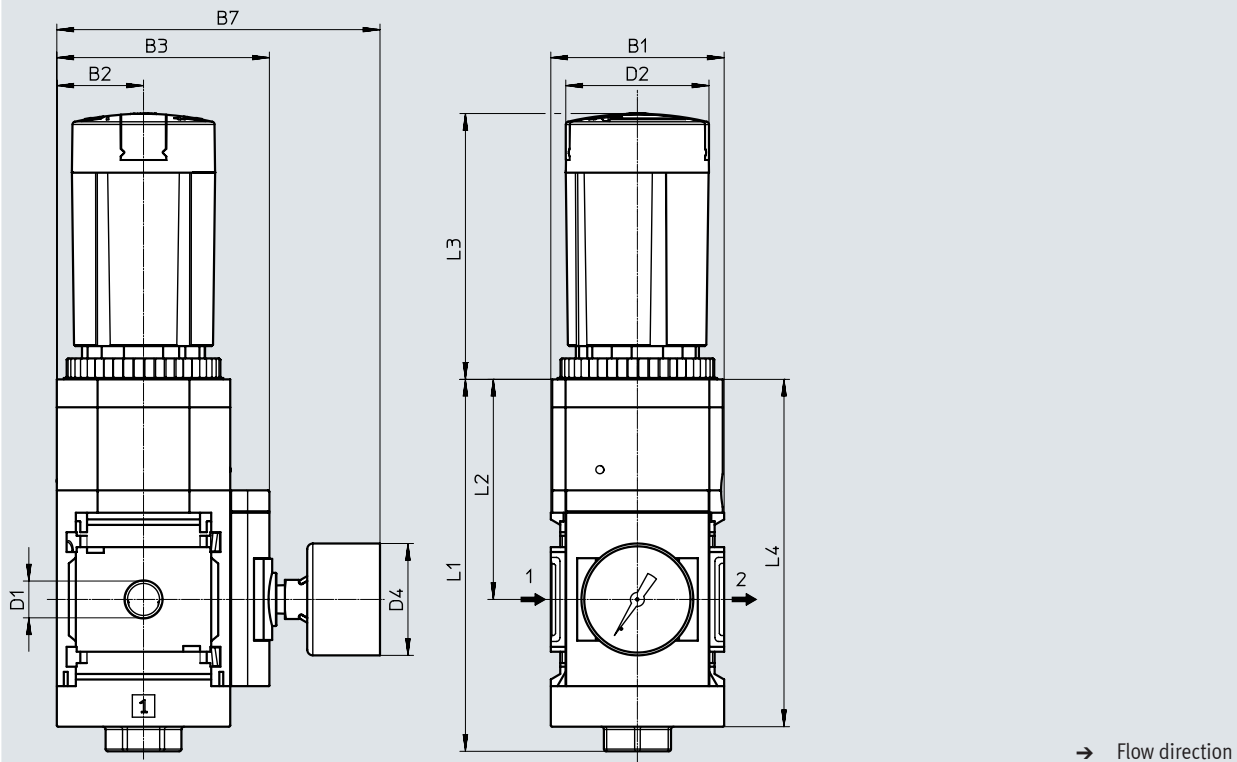
## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

[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



| Type                           | B1 | B2 | B3 | B7  | D1   | D2<br>Ø | D4<br>Ø | L1  | L2 | L3   | L4  |
|--------------------------------|----|----|----|-----|------|---------|---------|-----|----|------|-----|
| MS6-LRP-1/4-D2/D4/D5/D7-A8M-AS | 62 | 31 | 76 | 116 | G1/4 | 51.2    | 40      | 133 | 78 | 95.1 | 124 |
| MS6-LRP-3/8-D2/D4/D5/D7-A8M-AS |    |    |    |     | G3/8 |         |         |     |    |      |     |
| MS6-LRP-1/2-D2/D4/D5/D7-A8M-AS |    |    |    |     | G1/2 |         |         |     |    |      |     |

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

Datasheet

Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

[PO] Pressure regulation range, pneumatically actuated

[VS] Cover plate

→ Flow direction

| Type              | B1 | B2 | B3 | D1   | D2   | L1  | L2 | L4  |
|-------------------|----|----|----|------|------|-----|----|-----|
| MS6-LRP-1/4-PO-VS | 62 | 31 | 76 | G1/4 | G1/8 | 136 | 81 | 127 |
| MS6-LRP-3/8-PO-VS |    |    |    | G3/8 |      |     |    |     |
| MS6-LRP-1/2-PO-VS |    |    |    | G1/2 |      |     |    |     |

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

Dimensions – Alternative mounting position

Download CAD data → [www.festo.com](http://www.festo.com)

[KD] Rotary knob underneath

→ Flow direction

| Type               | B1 | B2 | B3 | D1   | D2<br>Ø | L1  | L2 | L3   | L4  |
|--------------------|----|----|----|------|---------|-----|----|------|-----|
| MS6-LRP-1/4-...-KD | 62 | 31 | 76 | G1/4 | 51.2    | 133 | 78 | 95.1 | 124 |
| MS6-LRP-3/8-...-KD |    |    |    | G3/8 |         |     |    |      |     |
| MS6-LRP-1/2-...-KD |    |    |    | G1/2 |         |     |    |      |     |

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



## Datasheet

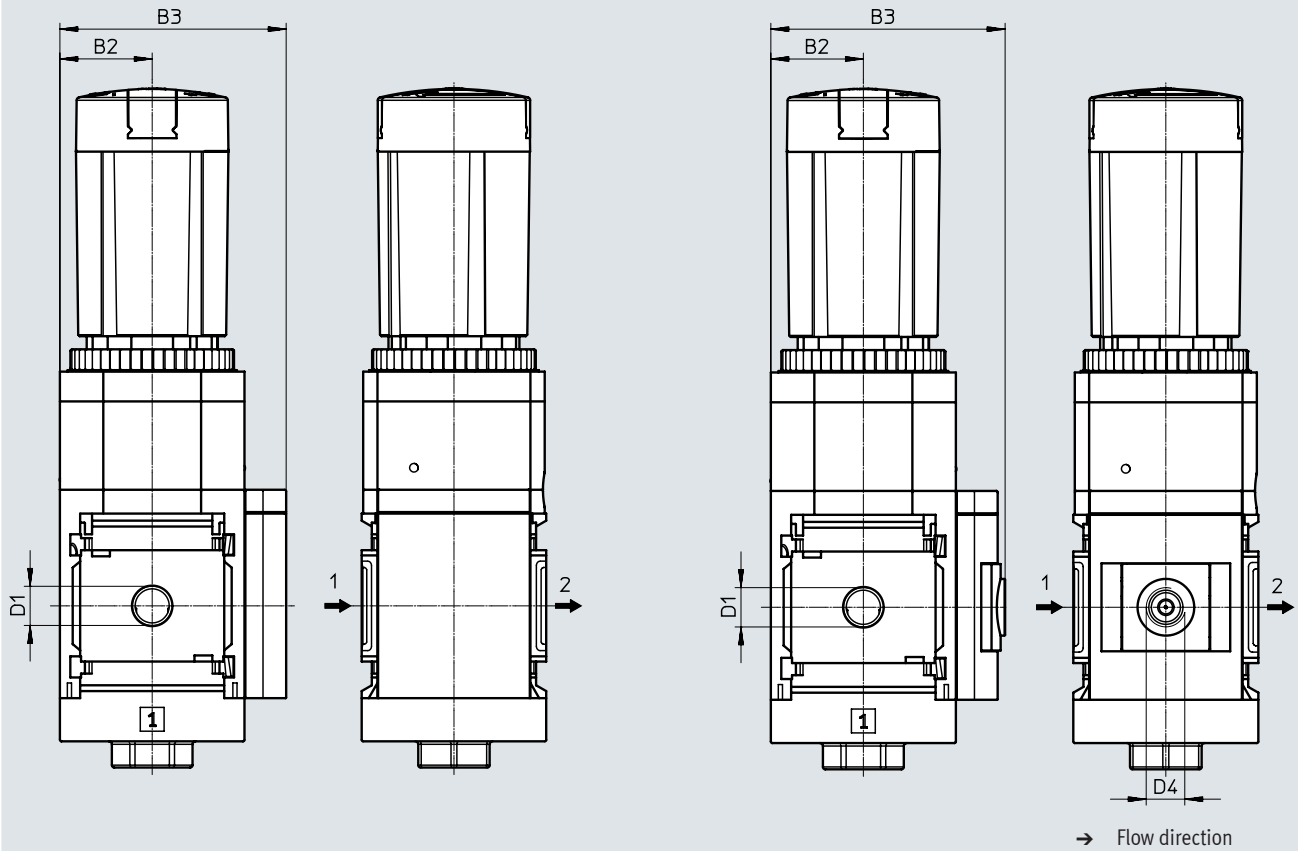
## Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

[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



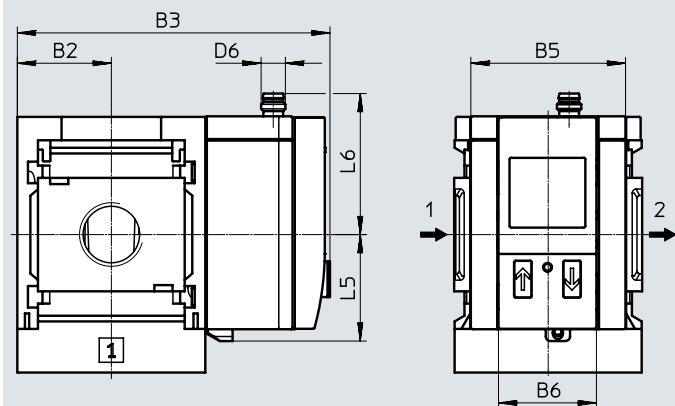
| Type               | B2 | B3   | D1   | D4   |
|--------------------|----|------|------|------|
| MS6-LRP-1/4-...-VS | 31 | 76   | G1/4 | –    |
| MS6-LRP-3/8-...-VS |    |      | G3/8 |      |
| MS6-LRP-1/2-...-VS |    |      | G1/2 |      |
| MS6-LRP-1/4-...-A8 | 31 | 78.5 | G1/4 | G1/8 |
| MS6-LRP-3/8-...-A8 |    |      | G3/8 |      |
| MS6-LRP-1/2-...-A8 |    |      | G1/2 |      |
| MS6-LRP-1/4-...-A4 | 31 | 78.5 | G1/4 | G1/4 |
| MS6-LRP-3/8-...-A4 |    |      | G3/8 |      |
| MS6-LRP-1/2-...-A4 |    |      | G1/2 |      |

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

Datasheet

Dimensions – Pressure gauge alternatives

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



Download CAD data → [www.festo.com](http://www.festo.com)  
Datasheets → Internet: [sde1](#)

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

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

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

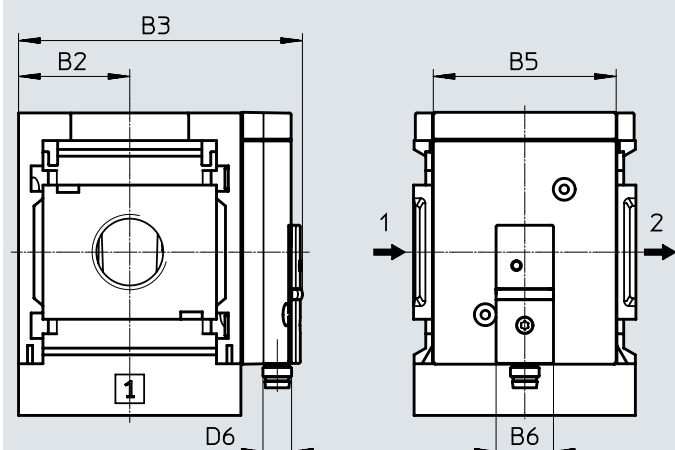
Variant AD4:  
SDE1-D10-G2-MS-L-NI-M12 with  
4-pin M12x1 plug, 1 switching out-  
put NPN and 4 ... 20 mA analogue

→ Flow direction

| Type                | B2 | B3  | B5 | B6   | D6    | L5   | L6   |
|---------------------|----|-----|----|------|-------|------|------|
| MS6-LRP-...-AD1/AD2 | 31 | 103 | 51 | 32.3 | M8x1  | 35.1 | 46.7 |
| MS6-LRP-...-AD3/AD4 | 31 | 103 | 51 | 32.3 | M12x1 | 35.1 | 55.8 |

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

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



Datasheets → Internet: [sde5](#)

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

→ Flow direction

| Type                         | B2 | B3   | B5 | B6 | D6   |
|------------------------------|----|------|----|----|------|
| MS6-LRP-...-AD7/AD8/AD9/AD10 | 31 | 79.1 | 51 | 16 | M8x1 |

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

58

→ Internet: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Subject to change – 2022/10

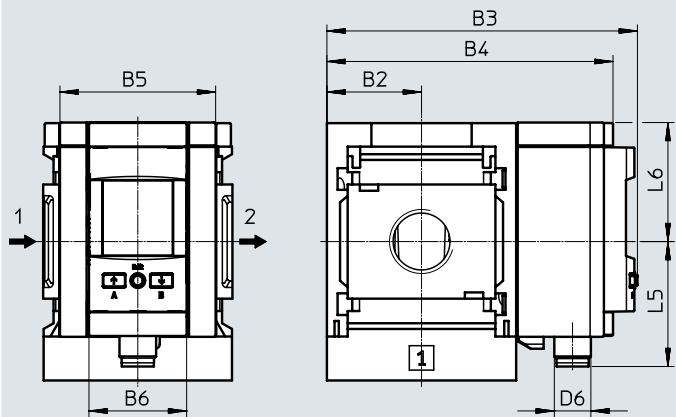
# Datasheet

## Dimensions – Pressure gauge alternatives

[AD11/AD12] Pressure sensor with LCD display

Download CAD data → [www.festo.com](http://www.festo.com)

Datasheets → Internet: spau



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

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

→ Flow direction

| Type             | B2 | B3    | B4   | B5 | B6 | D6    | L5   | L6 |
|------------------|----|-------|------|----|----|-------|------|----|
| MS6-LRP-...-AD11 | 31 | 101.8 | 93.7 | 51 | 32 | M12x1 | 41.2 | 39 |
| MS6-LRP-...-AD12 | 31 | 101.8 | 93.7 | 51 | 32 | M8x1  | 37.9 | 39 |

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

## Datasheet

### Dimensions – Rotary knob

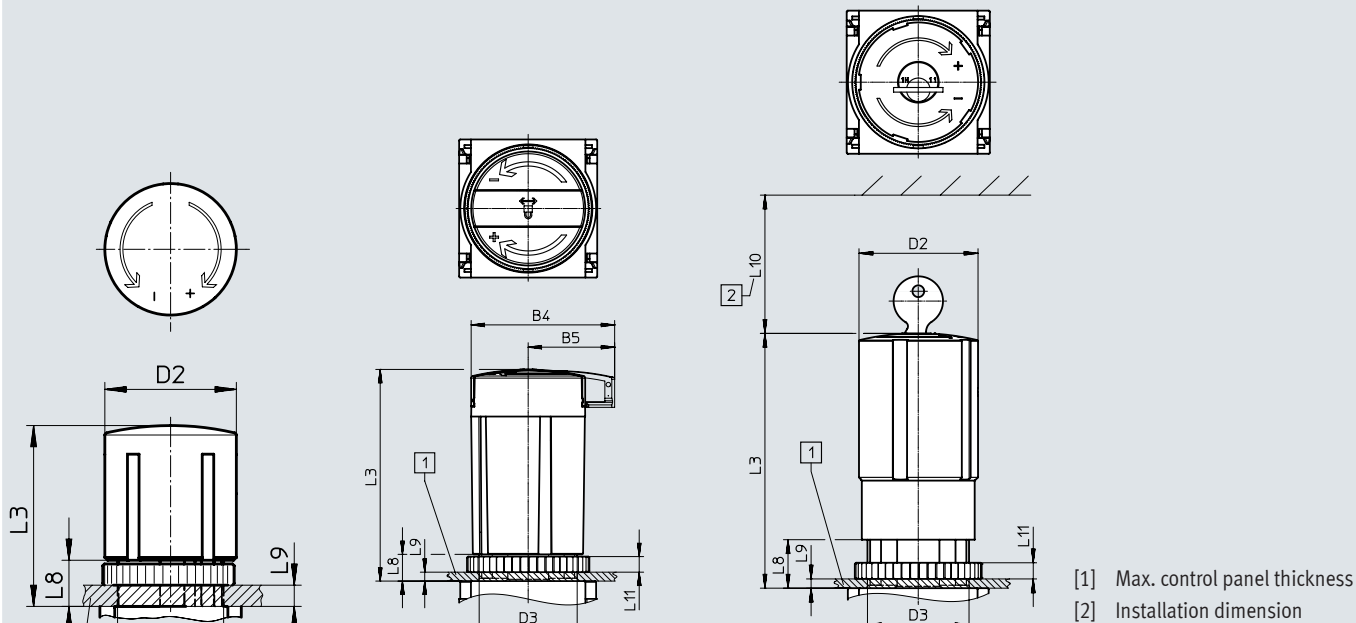
Download CAD data → [www.festo.com](http://www.festo.com)

For control panel installation

[ ] Rotary knob with latch

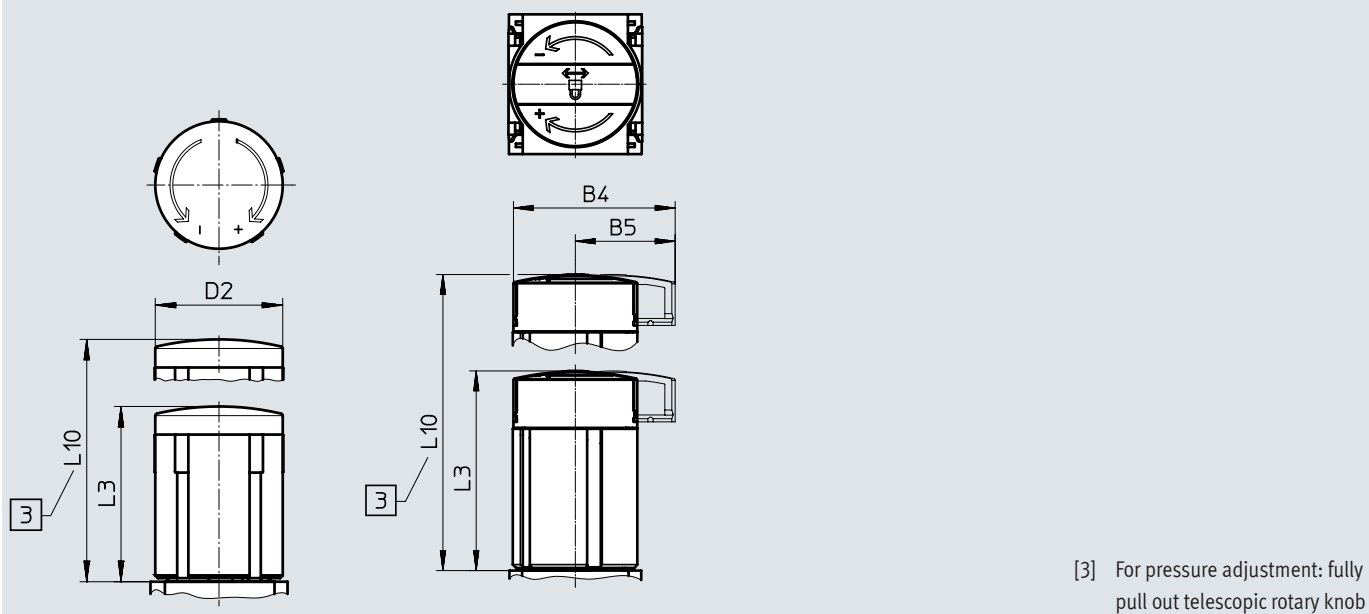
[AS] Rotary knob with latch, can be locked using accessories

[E11] Rotary knob with integrated lock



[LD] Rotary knob, long, with latch

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



| Type              | B4   | B5   | D2   | D3    | L3   | L8 | L9 | L10   |
|-------------------|------|------|------|-------|------|----|----|-------|
| MS6-LRP-...       | -    | -    | 51.2 | M44x1 | 86   | 21 | 14 | -     |
| MS6-LRP-...-AS    | 64.4 | 38.8 |      |       | 95.1 | 12 | 5  |       |
| MS6-LRP-...-E11   | -    | -    |      |       | 110  | 21 | 14 |       |
| MS6-LRP-...-LD    | -    | -    |      | -     | 86   | -  | -  | 139   |
| MS6-LRP-...-LD-AS | 64.4 | 38.8 |      |       | 95.5 |    |    | 148.5 |

## Datasheet

| Ordering data          |                           |                    |          |                   |
|------------------------|---------------------------|--------------------|----------|-------------------|
| Pneumatic connection 1 | Pressure regulation range | Flow direction     | Part no. | Type              |
| <b>MS6-LRP...</b>      |                           |                    |          |                   |
| G1/4                   | 0.05 ... 0.7 bar          | From left to right | 538004   | MS6-LRP-1/4-D2-A8 |
|                        | 0.05 ... 2.5 bar          | From left to right | 538006   | MS6-LRP-1/4-D4-A8 |
|                        | 0.1 ... 4 bar             | From left to right | 538008   | MS6-LRP-1/4-D5-A8 |
|                        | 0.1 ... 12 bar            | From left to right | 538010   | MS6-LRP-1/4-D7-A8 |
| G3/8                   | 0.05 ... 0.7 bar          | From left to right | 538012   | MS6-LRP-3/8-D2-A8 |
|                        | 0.05 ... 2.5 bar          | From left to right | 538014   | MS6-LRP-3/8-D4-A8 |
|                        | 0.1 ... 4 bar             | From left to right | 538016   | MS6-LRP-3/8-D5-A8 |
|                        | 0.1 ... 12 bar            | From left to right | 538018   | MS6-LRP-3/8-D7-A8 |
| G1/2                   | 0.05 ... 0.7 bar          | From left to right | 538020   | MS6-LRP-1/2-D2-A8 |
|                        | 0.05 ... 2.5 bar          | From left to right | 538022   | MS6-LRP-1/2-D4-A8 |
|                        | 0.1 ... 4 bar             | From left to right | 538024   | MS6-LRP-1/2-D5-A8 |
|                        | 0.1 ... 12 bar            | From left to right | 538026   | MS6-LRP-1/2-D7-A8 |

## Ordering data – Modular product system

| Ordering table                      |   | Conditions | Code         | Enter code |
|-------------------------------------|---|------------|--------------|------------|
| Grid dimension                      | [mm] 62   |            |              |            |
| Module no.                          | <b>538028</b>   |            |              |            |
| Series                              | Standard  |            | <b>MS</b>    | MS         |
| Size                                | 6   |            | <b>6</b>     | 6          |
| Function                            | Precision pressure regulator  |            | <b>-LRP</b>  | -LRP       |
| Pneumatic connection                | Female thread G1/4  | [1]        | <b>- 1/4</b> |            |
|                                     | Female thread G3/8  | [1]        | <b>-3/8</b>  |            |
|                                     | Female thread G1/2  | [1]        | <b>- 1/2</b> |            |
|                                     | Connecting plate G1/4   |            | <b>-AGB</b>  |            |
|                                     | Connecting plate G3/8   |            | <b>-AGC</b>  |            |
|                                     | Connecting plate G1/2   |            | <b>-AGD</b>  |            |
|                                     | Connecting plate G3/4   |            | <b>-AGE</b>  |            |
|                                     | Connecting plate NPT1/4   | [1]        | <b>-AQN</b>  |            |
|                                     | Connecting plate NPT3/8   | [1]        | <b>-AQP</b>  |            |
|                                     | Connecting plate NPT1/2   | [1]        | <b>-AQR</b>  |            |
|                                     | Connecting plate NPT3/4   | [1]        | <b>-AQS</b>  |            |
| Pressure regulation range/actuation | 0.05 ... 0.7 bar, manually actuated   |            | <b>-D2</b>   |            |
|                                     | 0.05 ... 2.5 bar, manually actuated   |            | <b>-D4</b>   |            |
|                                     | 0.1 ... 4 bar, manually actuated  |            | <b>-D5</b>   |            |
|                                     | 0.1 ... 12 bar, manually actuated   |            | <b>-D7</b>   |            |
|                                     | 0.1 ... 12 bar, pneumatically actuated<br>(pressure range determined by pilot regulator)                    | [1] [2]    | <b>-PO</b>   |            |
| Pressure gauge alternatives         | Cover plate   |            | <b>-VS</b>   |            |
|                                     | Adapter for EN pressure gauge 1/8, without pressure gauge   |            | <b>-A8</b>   |            |
|                                     | Adapter for EN pressure gauge 1/8, with precision pressure gauge  |            | <b>-A8M</b>  |            |
|                                     | Adapter for EN pressure gauge 1/4, without pressure gauge   |            | <b>-A4</b>   |            |
|                                     | Pressure sensor with LCD display, M8 plug, 1 switching output PNP, 3-pin                                    | [1] [3]    | <b>-AD1</b>  |            |
|                                     | Pressure sensor with LCD display, M8 plug, 1 switching output NPN, 3-pin                                    | [1] [3]    | <b>-AD2</b>  |            |
|                                     | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output<br>4 ... 20 mA   | [1] [3]    | <b>-AD3</b>  |            |
|                                     | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output<br>4 ... 20 mA   | [1] [3]    | <b>-AD4</b>  |            |
|                                     | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact                | [1] [4]    | <b>-AD7</b>  |            |
|                                     | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact                | [1] [4]    | <b>-AD8</b>  |            |
|                                     | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/O contact                         | [1] [4]    | <b>-AD9</b>  |            |
|                                     | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/C contact                         | [1] [4]    | <b>-AD10</b> |            |
|                                     | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V,<br>4 ... 20 mA | [3]        | <b>-AD11</b> |            |
|                                     | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA     | [3]        | <b>-AD12</b> |            |

[1] 1/4, 3/8, 1/2, Not with EU EX4 certification.

AQN, AQP, AQR,  
AQS, PO,  
AD1 ... AD4,  
AD7 ... AD10, KD,  
E11, WPM

[2] PO Not with rotary knob alternative LD.

Not with locking options AS, E11.

Not with type of mounting WR.

[3] AD1 ... AD4, Measuring range max. 10 bar.

AD11/AD12 Not with pressure regulation range/actuation D2, D4.

[4] AD7 ... AD10 Measuring range max. 10 bar.

Not with pressure regulation range/actuation D2.

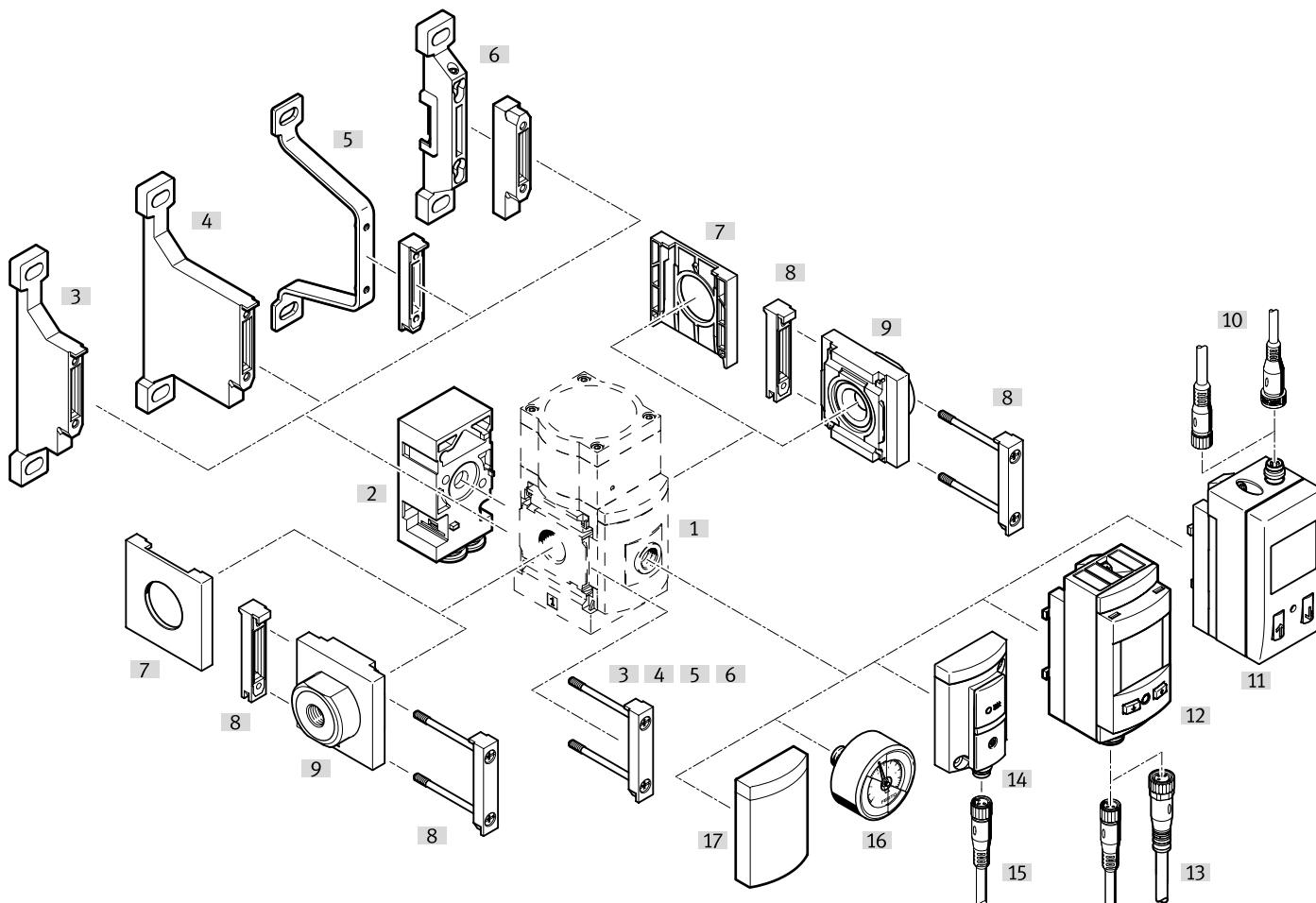
## Ordering data – Modular product system

| Ordering table                |   |    |            |      |            |
|-------------------------------|---|----|------------|------|------------|
| Grid dimension                | [mm]  | 62 | Conditions | Code | Enter code |
| Rotary knob alternatives      | None  |    |            |      |            |
|                               | Long rotary knob  |    | [5]        | -LD  |            |
| Alternative mounting position | None  |    |            |      |            |
|                               | Rotary knob underneath  |    | [1] [6]    | -KD  |            |
| Locking option                | None  |    |            |      |            |
|                               | Lockable using accessories  |    |            | -AS  |            |
|                               | With integrated lock  |    | [1]        | -E11 |            |
| Type of mounting              | Without mounting bracket  |    |            |      |            |
|                               | Mounting bracket with knurled nut for regulator head  |    | [7]        | -WR  |            |
|                               | Mounting bracket standard design  |    | [8]        | -WP  |            |
|                               | Mounting bracket for attaching service unit components  |    | [1] [8]    | -WPM |            |
|                               | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required |    |            | -WB  |            |
| EU certification              | None  |    |            |      |            |
|                               | II 2GD to EU Explosion Protection Directive (ATEX)  |    |            | -EX4 |            |
| UL certification              | None  |    |            |      |            |
|                               | cULus, ordinary location for Canada and USA   |    |            | -UL1 |            |
| Flow direction                | Flow direction from left to right   |    |            |      |            |
|                               | Flow direction from right to left   |    |            | -Z   |            |

- [5] LD Not with locking option E11.  
 [6] KD Not with type of mounting WP.  
 [7] WR Not with rotary knob alternative LD.  
 [8] WP, WPM Only with connecting plate AGB, AGC, AGD, AGE, AQN, AQP, AQR or AQS.

## Peripherals overview

### Precision pressure regulator MS6-LRPB with pressure output to the rear



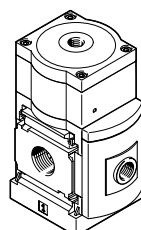
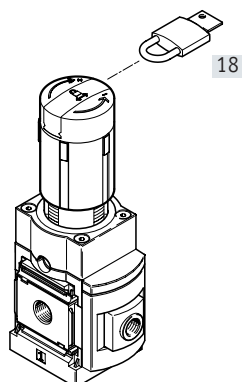
#### Note

Additional accessories:

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

Manually actuated

Pneumatically actuated



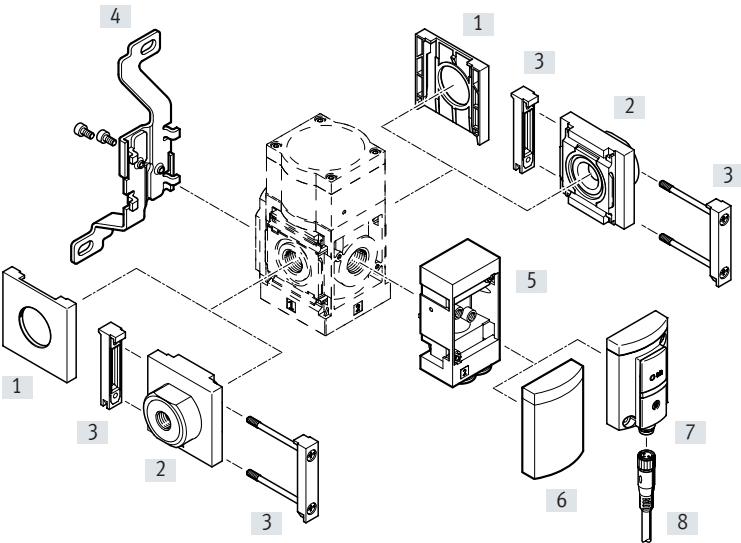


## Peripherals overview

| Mounting attachments and accessories |   | Single device            |                       | Combination              |                       | → Page/Internet |
|--------------------------------------|---|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|                                      |   | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| [1]                                  | Adapter for EN pressure gauge 1/8, 1/4 A8/A4    | ■                        | ■                     | ■                        | ■                     | 78              |
| [2]                                  | Angled outlet block B...                        | ■                        | ■                     | ■                        | ■                     | 78              |
| [3]                                  | Mounting bracket MS6-WP                         | –                        | ■                     | ■                        | ■                     | ms6-wp          |
| [4]                                  | Mounting bracket MS6-WPB                        | –                        | ■                     | ■                        | ■                     | ms6-wp          |
| [5]                                  | Mounting bracket MS6-WPE                        | –                        | ■                     | ■                        | ■                     | ms6-wp          |
| [6]                                  | Mounting bracket MS6-WPM                        | –                        | ■                     | ■                        | ■                     | ms6-wp          |
| [7]                                  | Cover cap MS6-END                               | ■                        | –                     | ■                        | –                     | ms6-end         |
| [8]                                  | Module connector MS6-MV                         | –                        | ■                     | ■                        | ■                     | ms6-mv          |
| [9]                                  | Connecting plate SET MS6-AG...                  | –                        | ■                     | –                        | ■                     | ms6-ag          |
| [10]                                 | Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4 | ■                        | ■                     | ■                        | ■                     | 110             |
| [11]                                 | Pressure sensor with display AD1 ... AD4        | ■                        | ■                     | ■                        | ■                     | 78              |
| [12]                                 | Pressure sensor with LCD display AD11/AD12      | ■                        | ■                     | ■                        | ■                     | 78              |
| [13]                                 | Connecting cable NEBU-M8...-LE4/NEBU-M12...-LE4 | ■                        | ■                     | ■                        | ■                     | 110             |
| [14]                                 | Pressure sensor without display AD7 ... AD10    | ■                        | ■                     | ■                        | ■                     | 78              |
| [15]                                 | Connecting cable NEBU-M8...-LE3                 | ■                        | ■                     | ■                        | ■                     | 110             |
| [16]                                 | Precision pressure gauge A8M/MAP                | ■                        | ■                     | ■                        | ■                     | 78, 110         |
| [17]                                 | Cover plate VS                                  | ■                        | ■                     | ■                        | ■                     | 78              |
| [18]                                 | Padlock LRVS-D                                  | ■                        | ■                     | ■                        | ■                     | 110             |

Peripherals overview

Precision pressure regulator MS6-LRPB with pressure output to the front

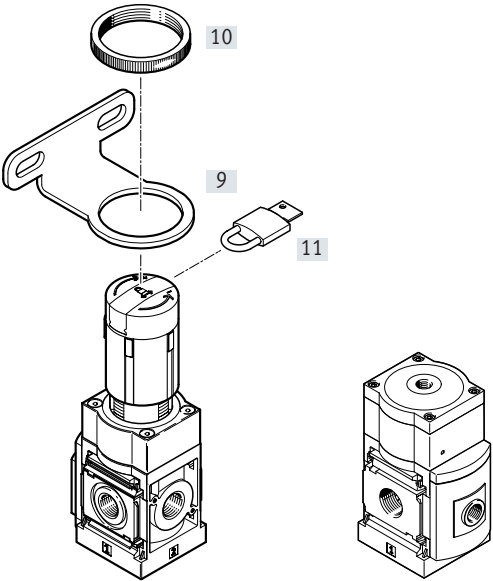


**Note**

Additional accessories:

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

Manually actuated      Pneumatically actuated



## Peripherals overview

| Mounting attachments and accessories |  | Single device            |                       | Combination              |                       | → Page/Internet |
|--------------------------------------|--|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|                                      |  | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| [1]                                  | Cover cap<br>MS6-END                                     | ■                        | –                     | ■                        | –                     | ms6-end         |
| [2]                                  | Connecting plate SET<br>MS6-AG...                        | –                        | ■                     | –                        | ■                     | ms6-ag          |
| [3]                                  | Module connector<br>MS6-MV                               | –                        | ■                     | ■                        | ■                     | ms6-mv          |
| [4]                                  | Mounting bracket<br>MS6-WB                               | ■                        | ■                     | –                        | –                     | ms6-wb          |
| [5]                                  | Angled outlet block<br>B...                              | ■                        | ■                     | ■                        | ■                     | 78              |
| [6]                                  | Cover plate<br>VS  | ■                        | ■                     | ■                        | ■                     | 78              |
| [7]                                  | Pressure sensor without display<br>AD7 ... AD10          | ■                        | ■                     | ■                        | ■                     | 78              |
| [8]                                  | Connecting cable<br>NEBU-M8...-LE3                       | ■                        | ■                     | ■                        | ■                     | 110             |
| [9]                                  | Mounting bracket<br>MS6-WR                               | ■                        | ■                     | –                        | –                     | ms6-wr          |
| [10]                                 | Knurled nut (included in the scope of delivery)<br>MS-LR | ■                        | ■                     | –                        | –                     | –               |
| [11]                                 | Padlock<br>LRVS-D  | ■                        | ■                     | ■                        | ■                     | 110             |

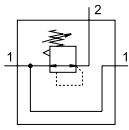
## Type codes

|             |   |  |
|-------------|---|--|
| <b>001</b>  | <b>Series</b>   |  |
| <b>MS</b>   | MS series   |  |
| <b>002</b>  | <b>Size</b>   |  |
| <b>6</b>    | Grid dimension 62 mm  |  |
| <b>003</b>  | <b>Function</b>   |  |
| <b>LRPB</b> | Precision pressure regulator for manifold installation  |  |
| <b>004</b>  | <b>Pneumatic connection</b>   |  |
| <b>1/2</b>  | Female thread G1/2  |  |
| <b>AGB</b>  | Sub-base G1/4   |  |
| <b>AGC</b>  | Sub-base G3/8   |  |
| <b>AGD</b>  | Sub-base G1/2   |  |
| <b>AGE</b>  | Sub-base G3/4   |  |
| <b>005</b>  | <b>Pressure regulation range</b>  |  |
| <b>D2</b>   | 0.05 ... 0.7 bar  |  |
| <b>D4</b>   | 0.05 ... 2.5 bar  |  |
| <b>D5</b>   | 0.1 ... 4 bar   |  |
| <b>D7</b>   | 0.1 ... 12 bar  |  |
| <b>P0</b>   | Max. 12 bar, pneumatically actuated (pressure range determined by pilot regulator)                  |  |
| <b>006</b>  | <b>Pressure gauge alternatives</b>  |  |
| <b>VS</b>   | Cover plate   |  |
| <b>A8</b>   | Adapter for EN pressure gauge 1/8, without pressure gauge   |  |
| <b>A8M</b>  | Adapter for EN pressure gauge 1/8, with precision pressure gauge                                    |  |
| <b>A4</b>   | Adapter for EN pressure gauge 1/4, without pressure gauge   |  |
| <b>AD1</b>  | Pressure sensor with LCD display, M8 plug, PNP, 3-pin   |  |
| <b>AD2</b>  | Pressure sensor with LCD display, M8 plug, NPN, 3-pin   |  |
| <b>AD3</b>  | Pressure sensor with LCD display, M12 plug, PNP, 4-pin, analogue output 4 ... 20 mA                 |  |
| <b>AD4</b>  | Pressure sensor with LCD display, M12 plug, NPN, 4-pin, analogue output 4 ... 20 mA                 |  |
| <b>AD7</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O               |  |
| <b>AD8</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C               |  |
| <b>AD9</b>  | Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O                        |  |
| <b>AD10</b> | Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C             |  |
| <b>AD11</b> | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA |  |
| <b>AD12</b> | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA  |  |

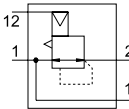
|            |   |  |
|------------|---|--|
| <b>007</b> | <b>Rotary knob alternative</b>  |  |
|            | None  |  |
| <b>LD</b>  | Long rotary knob  |  |
| <b>008</b> | <b>Alternative mounting position</b>  |  |
|            | None  |  |
| <b>KD</b>  | Rotary knob underneath  |  |
| <b>009</b> | <b>Lockability</b>  |  |
|            | None  |  |
| <b>AS</b>  | Can be locked using accessories   |  |
| <b>E11</b> | With integrated lock  |  |
| <b>010</b> | <b>Alternative pressure outlet</b>  |  |
|            | None  |  |
| <b>BD</b>  | Angled outlet block QS-8  |  |
| <b>BE</b>  | Angled outlet block QS-10   |  |
| <b>011</b> | <b>Type of mounting</b>   |  |
|            | Without mounting bracket  |  |
| <b>WR</b>  | Mounting bracket with knurled nut on regulator knob                                       |  |
| <b>WP</b>  | Mounting bracket basic design   |  |
| <b>WPM</b> | Mounting bracket for hooking in service unit components                                   |  |
| <b>WB</b>  | Mounting centrally at rear (wall mounting top and bottom), connecting plates not required |  |
| <b>WPB</b> | Mounting bracket for large wall gap   |  |
| <b>012</b> | <b>EU certification</b>   |  |
|            | None  |  |
| <b>EX4</b> | II 2GD  |  |
| <b>013</b> | <b>UL certification</b>   |  |
|            | None  |  |
| <b>UL1</b> | cULus ordinary location for Canada and USA  |  |
| <b>014</b> | <b>Flow direction</b>   |  |
|            | Pressure output to the rear   |  |
| <b>Z</b>   | Pressure output to the front  |  |

## Datasheet

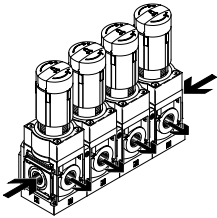
Pressure regulation range/actuation,  
manually actuated







Pressure regulation range/actuation,  
pneumatically actuated



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



The precision pressure regulator is  
suitable for sensitive applications re-  
quiring a hysteresis of 0.02 bar.

-  Flow rate  
1600 ... 5000 l/min
-  Temperature range  
-10 ... +60°C
-  Operating pressure  
1 ... 14 bar
-  [www.festo.com](http://www.festo.com)

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 switching off the in-  
put pressure p1, the output pressure  
p2 is exhausted via connection 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 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                            |      |       |  | MS6   |
|---|------|-------|--|---|
| Size  |      |       |  | MS6   |
| Pneumatic connection 1                            |      |       |  |   |
| Female thread                                     |      |       |  | G1/2  |
| Connecting plate [AG...]                          |      |       |  | G1/4, G3/8, G1/2 or G3/4  |
| Pneumatic connection 2                            |      |       |  |   |
| Female thread                                     |      |       |  | G1/2  |
| Angled outlet block [BD]                          |      |       |  | QS-8  |
| [BE]  |      |       |  | QS-10   |
| Pneumatic connection 3                            |      |       |  | G1/4  |
| Pilot air port 12                                 |      |       |  | G1/8 (MS6-LRPB-...-PO)  |
| Design  |      |       |  | Piloted precision diaphragm regulator with through pressure supply                                  |
| Regulator function                                |      |       |  | Output pressure constant, with secondary exhausting   |
| Type of mounting                                  |      |       |  | With 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 <sup>1)</sup> |      |       |  |   |
|   | [D2] | [bar] |  | 0.05 ... 0.7, manually actuated   |
|   | [D4] | [bar] |  | 0.05 ... 2.5, manually actuated   |
|   | [D5] | [bar] |  | 0.1 ... 4, manually actuated  |
|   | [D7] | [bar] |  | 0.1 ... 12, manually actuated (0.1 ... 10 with pressure sensor AD... or with UL certification)      |
|   | [PO] | [bar] |  | 0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor AD... or with UL certification) |
| Max. pressure hysteresis                          |      |       |  | 0.02  |

<sup>1)</sup> [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 |   |
|------------------------|---|
| Size                   | MS6   |
| Pressure indicator     | Via pressure sensor for indicating the output pressure via LCD display and electrical output      |
|                        | Via pressure sensor for indicating the output pressure via status indicator and electrical output |
|                        | Via pressure gauge for displaying the output pressure   |
|                        | Prepared for G1/8   |
|                        | Prepared for G1/4   |

| Flow rates                                  |                        |                          |                          |                           |
|---|------------------------|--------------------------|--------------------------|---------------------------|
| Pressure regulation range                   | [D2]: 0.05 ... 0.7 bar | [D4]: 0.05 ... 2.5 bar   | [D5]: 0.1 ... 4 bar      | [D7]/[P0]: 0.1 ... 12 bar |
| Standard nominal flow rate $q_{nN}$ [l/min] |                        |                          |                          |                           |
| $q_{nN} 1 \rightarrow 2$                    | G1/2                   | 1600 <sup>1)</sup>       | 2300 <sup>2)</sup>       | 3000 <sup>3)</sup>        |
| Secondary exhaust flow rate [l/min]         |                        |                          |                          |                           |
| $q_{n2} 2 \rightarrow 3$                    |                        | $\geq 220$ <sup>5)</sup> | $\geq 450$ <sup>6)</sup> | $\geq 650$ <sup>7)</sup>  |
|   |                        |                          |                          | $\geq 900$ <sup>8)</sup>  |

1) Measured at  $p_1 = 10$  bar and  $p_2 = 0.5$  bar,  $\Delta p = 0.1$  bar2) Measured at  $p_1 = 10$  bar and  $p_2 = 1.5$  bar,  $\Delta p = 0.1$  bar3) Measured at  $p_1 = 10$  bar and  $p_2 = 2.5$  bar,  $\Delta p = 0.1$  bar4) Measured at  $p_1 = 10$  bar and  $p_2 = 6.0$  bar,  $\Delta p = 0.1$  bar5) Measured at  $p_1 = 10$  bar and  $p_2 = 0.7$  bar,  $\Delta p_2 = 0.1$  bar6) Measured at  $p_1 = 10$  bar and  $p_2 = 2.5$  bar,  $\Delta p_2 = 0.1$  bar7) Measured at  $p_1 = 10$  bar and  $p_2 = 4.0$  bar,  $\Delta p_2 = 0.1$  bar8) Measured at  $p_1 = 10$  bar and  $p_2 = 6.0$  bar,  $\Delta p_2 = 0.1$  bar

| Operating and environmental conditions       |  |
|--|--|
| Operating pressure                           | [bar] 1 ... 14 (1 ... 10) <sup>1)</sup>    |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]  |
|  | Inert gases                                |
| Note on the operating/pilot medium           | Lubricated operation not possible          |
| Ambient temperature                          | [°C] -10 ... +60 (0 ... +50) <sup>2)</sup> |
| Temperature of medium                        | [°C] -10 ... +60 (0 ... +50) <sup>2)</sup> |
| Storage temperature                          | [°C] -10 ... +60                           |
| Corrosion resistance class CRC <sup>3)</sup> | 2  |
| UL certification <sup>4)</sup>               | c UL us - Recognized (OL)                  |

1) Value in brackets applies to MS6-LRPB with UL certification.

2) Value in brackets applies to MS6-LRPB with pressure sensor.

3) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

4) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| ATEX   |   |
|--|---|
| EU certification   | [EX4]                                       |
| 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 IIIC T60°C Db X                        |
| Explosion-proof ambient temperature                      | -10°C ≤ Ta ≤ +60°C                          |
| CE marking (see declaration of conformity) <sup>1)</sup> | To EU Explosion Protection Directive (ATEX) |

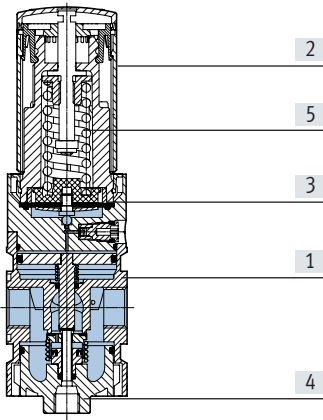
1) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| Weight [g]   |      |
|--|------|
| Precision pressure regulator                                       | 1000 |
| Precision pressure regulator with rotary knob with integrated lock | 1120 |

## Datasheet

## Materials

## Sectional view



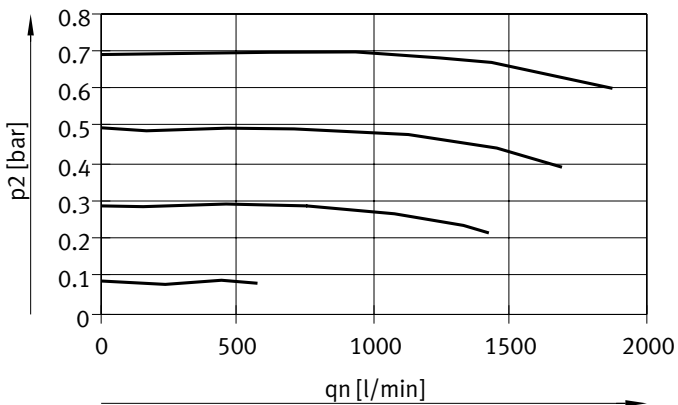
Precision pressure regulator (manifold assembly)

|                   |                                  |  |
|-------------------|----------------------------------|--|
| [1]               | Housing                          | Die-cast aluminium   |
| [2]               | Rotary knob                      | PA, POM  |
|                   | Rotary knob with integrated lock | Aluminium  |
| [3]               | Diaphragm                        | NBR  |
| [4]               | Bottom cover                     | PC   |
| [5]               | Springs                          | Steel  |
| -                 | Seals                            | NBR  |
| Note on materials |                                  | RoHS-compliant   |
|                   |                                  | Free of copper and PTFE (not with adapter for EN pressure gauge 1/8, with precision pressure gauge or pressure sensor) |

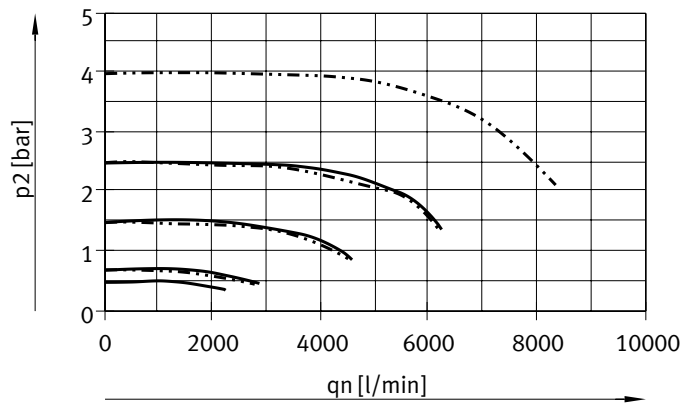
Standard flow rate  $q_n$  as a function of output pressure  $p_2$  ( $p_1 = 10$  bar)

## MS6-LRPB-1/2-D2

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



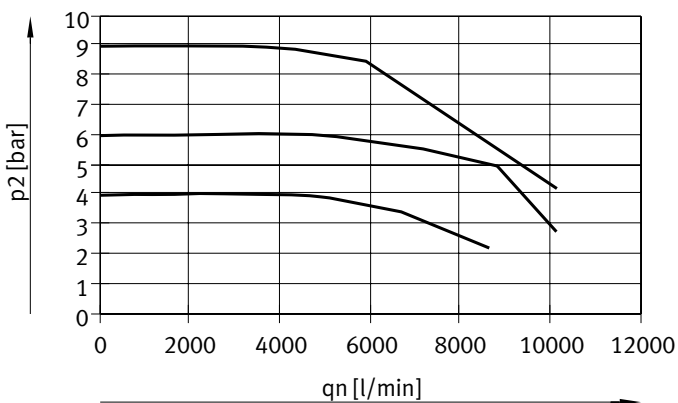
[D2]: 0.05 ... 0.7 bar



[D4]: 0.05 ... 2.5 bar

[D5]: 0.1 ... 4 bar

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



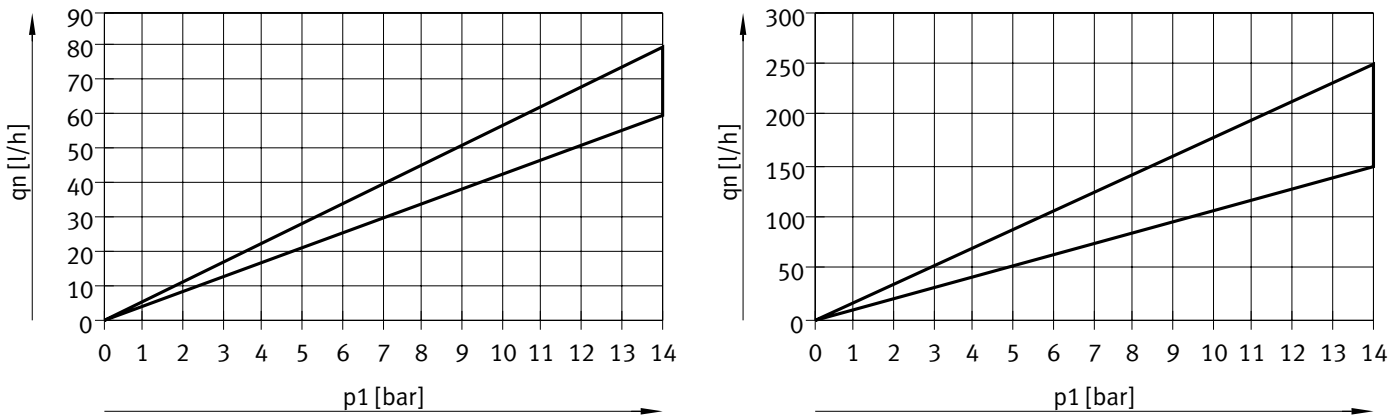
[D7]/[PO]: 0.1 ... 12 bar

Datasheet

Internal air consumption qn as a function of input pressure p1

MS6-LRPB-...-D2/D4

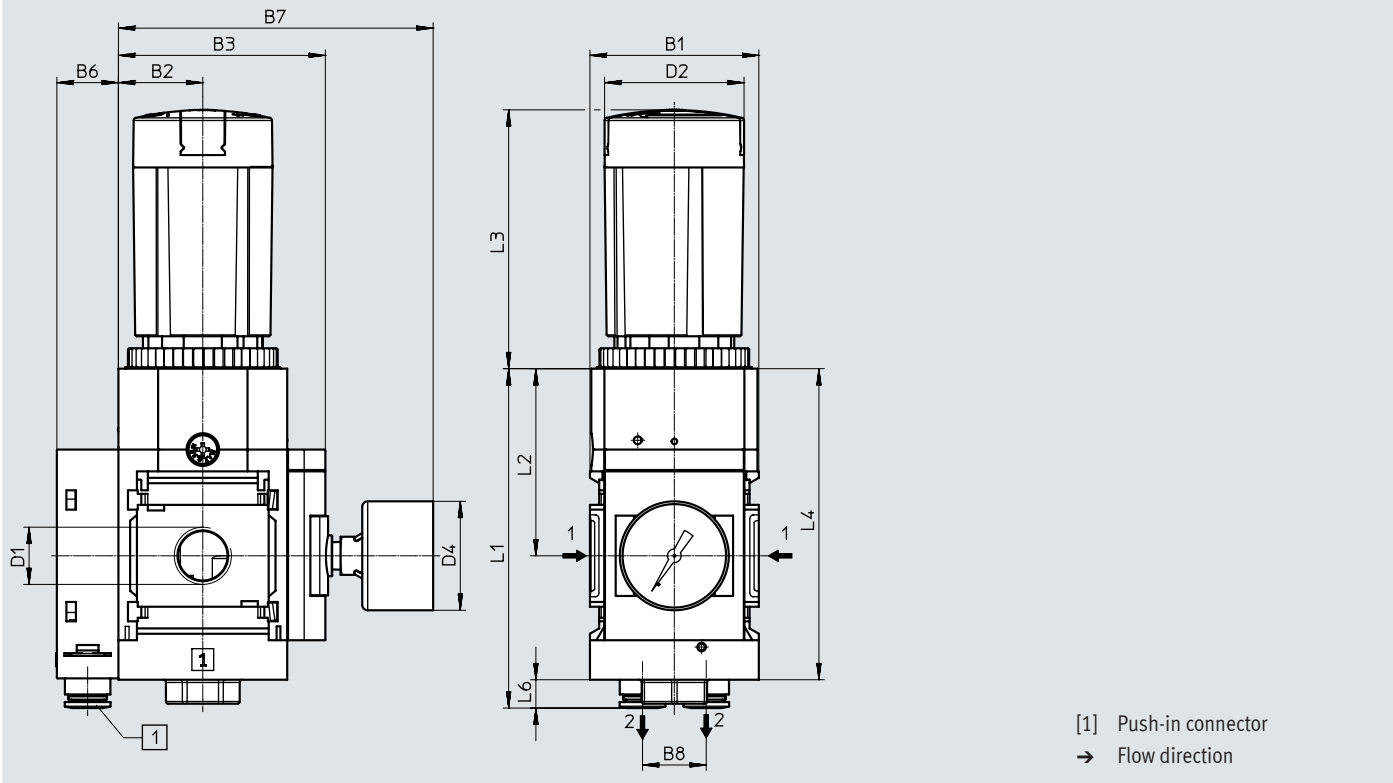
MS6-LRPB-...-D5/D7/P0



Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

- [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



| Type                                  | B1 | B2 | B3 | B6 | B7  | B8   | D1   | D2<br>Ø | D4<br>Ø | L1  | L2 | L3   | L4  | L6 |
|---------------------------------------|----|----|----|----|-----|------|------|---------|---------|-----|----|------|-----|----|
| MS6-LRPB-1/2-D2/D4/D5/D7-A8M-BD/BE-AS | 62 | 31 | 76 | 23 | 115 | 23.4 | G1/2 | 51.2    | 40      | 124 | 68 | 95.1 | 114 | 10 |

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



## Datasheet

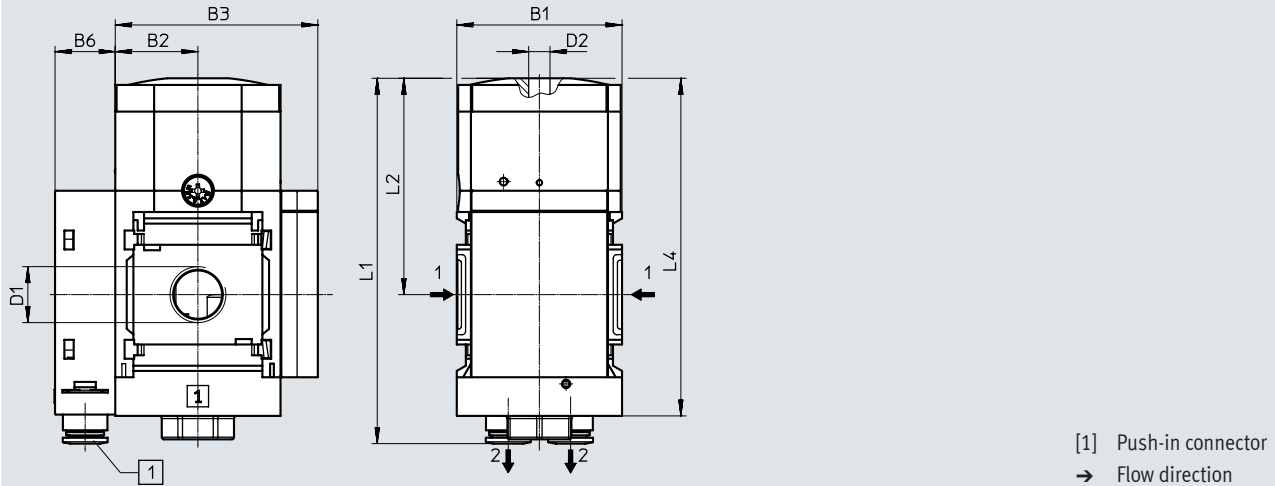
## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

[PO] Pressure regulation range, pneumatically actuated

[VS] Cover plate

[BD]/[BE] Angled outlet block



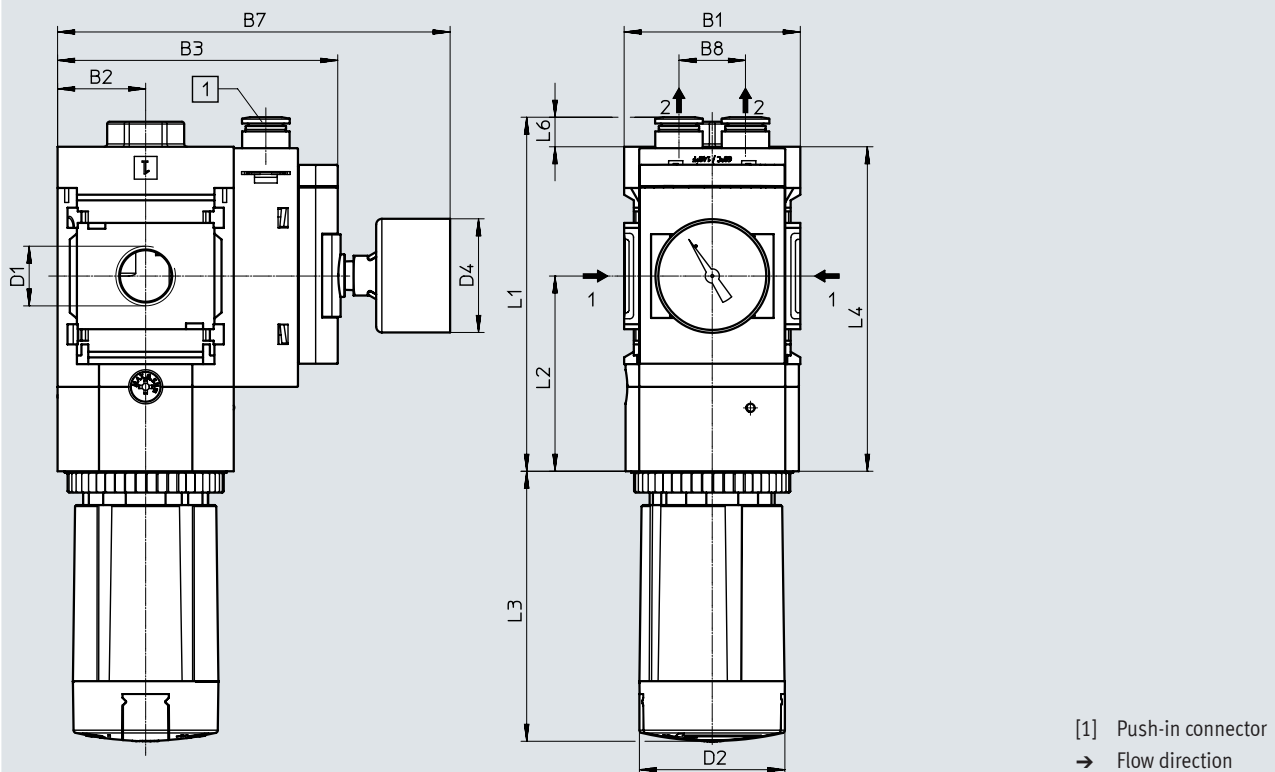
| Type                     | B1 | B2 | B3 | B6 | D1   | D2   | L1  | L2 | L4  |
|--------------------------|----|----|----|----|------|------|-----|----|-----|
| MS6-LRPB-1/2-PO-VS-BD/BE | 62 | 31 | 76 | 23 | G1/2 | G1/8 | 137 | 81 | 127 |

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

## Dimensions – Alternative mounting position

Download CAD data → [www.festo.com](http://www.festo.com)

[KD] Rotary knob underneath



| Type                | B1 | B2 | B3 | B7  | B8   | D1   | D2<br>Ø | D4<br>Ø | L1  | L2 | L3   | L4  | L6 |
|---------------------|----|----|----|-----|------|------|---------|---------|-----|----|------|-----|----|
| MS6-LRPB-1/2-...-KD | 62 | 31 | 99 | 138 | 23.4 | G1/2 | 51.2    | 40      | 124 | 68 | 95.1 | 114 | 10 |

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

Datasheet

Dimensions – Pressure gauge alternatives

[VS] Cover plate

Download CAD data → [www.festo.com](http://www.festo.com)

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

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

[1] Push-in connector

→ Flow direction

| Type                | B2 | B3   | B6 | D1   | D4   |
|---------------------|----|------|----|------|------|
| MS6-LRPB-1/2-...-VS | 31 | 76   | 23 | G1/2 | –    |
| MS6-LRPB-1/2-...-A8 |    | 78.5 |    |      | G1/8 |
| MS6-LRPB-1/2-...-A4 |    | 78.5 |    |      | G1/4 |

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

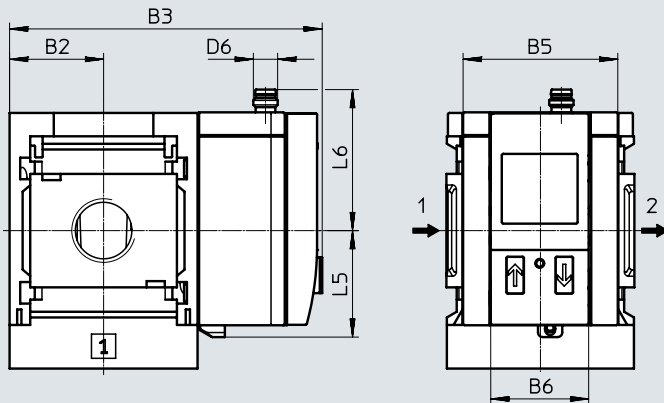
## Datasheet

## Dimensions – Pressure gauge alternatives

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

Download CAD data → [www.festo.com](http://www.festo.com)

Datasheets → Internet: sde1



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

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

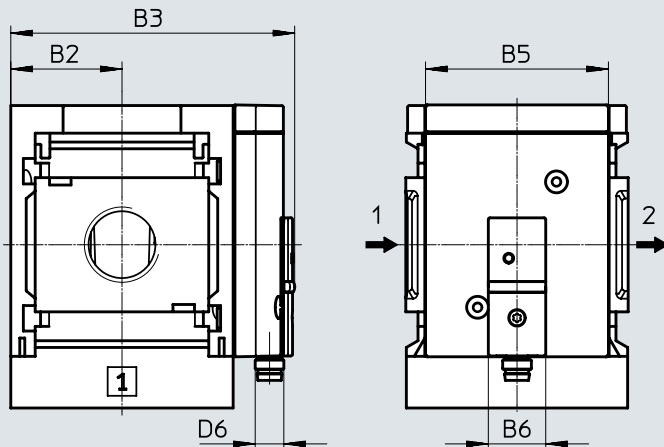
Variant AD3:  
SDE1-D10-G2-MS-L-PI-M12 with  
4-pin M12x1 plug, 1 switching out-  
put PNP and 4 ... 20 mA analogue

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

→ Flow direction

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

Datasheets → Internet: sde5



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

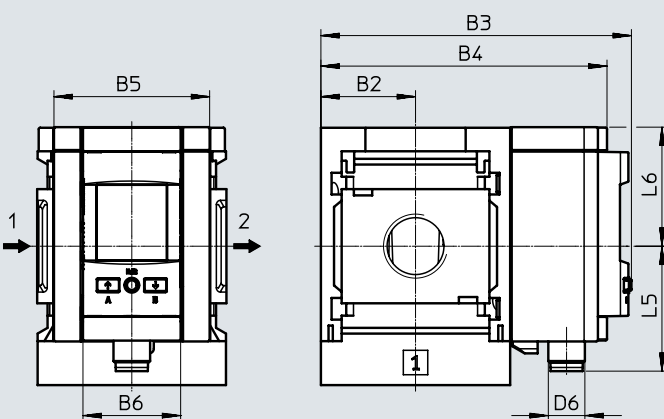
→ Flow direction

| 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  | –    | –    |

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

[AD11/AD12] Pressure sensor with LCD display

Datasheets → Internet: spau



Variant AD11:  
SPAUP10R-MS-L-PNLK-M12 with  
M12 plug, 4-pin, IO-Link, PNP, NPN,  
0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

Variant AD12:  
SPAUP10R-MS-L-PNLK-M8 with M8  
plug, 4-pin, IO-Link, PNP, NPN,  
0 ... 10 V, 1 ... 5 V, 4 ... 20 mA

→ Flow direction

| 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 |

## Datasheet

### Dimensions – Rotary knob

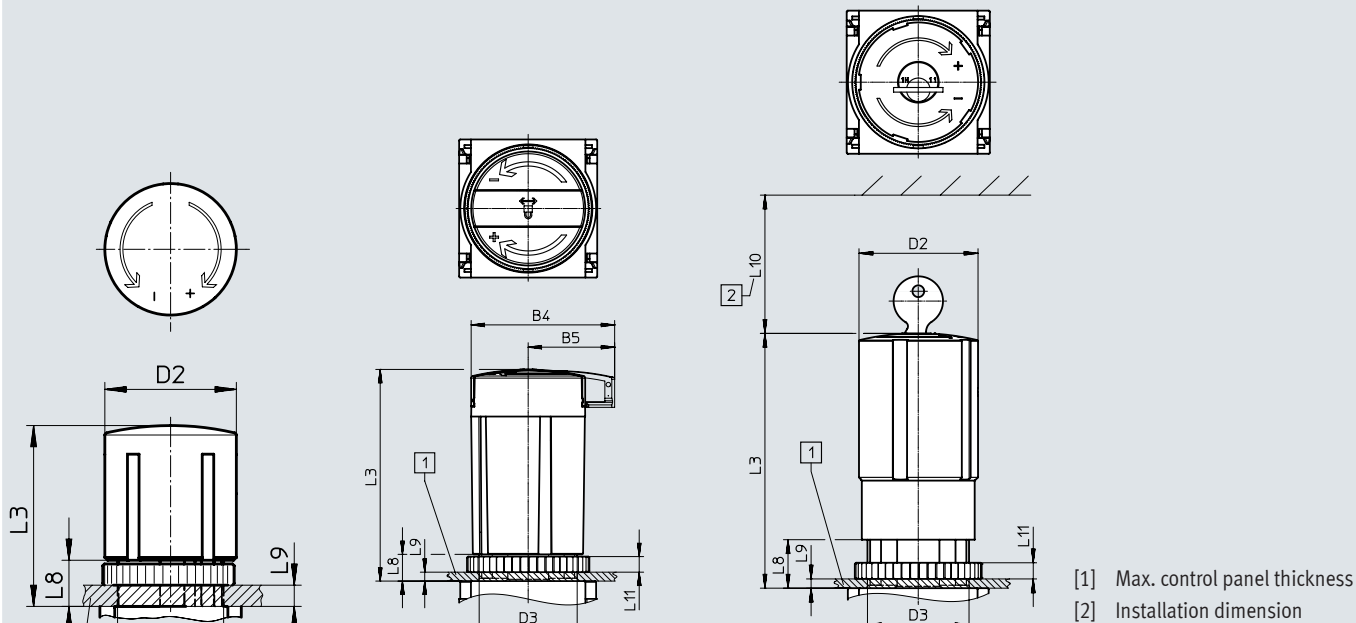
Download CAD data → [www.festo.com](http://www.festo.com)

For control panel installation

[ ] Rotary knob with latch

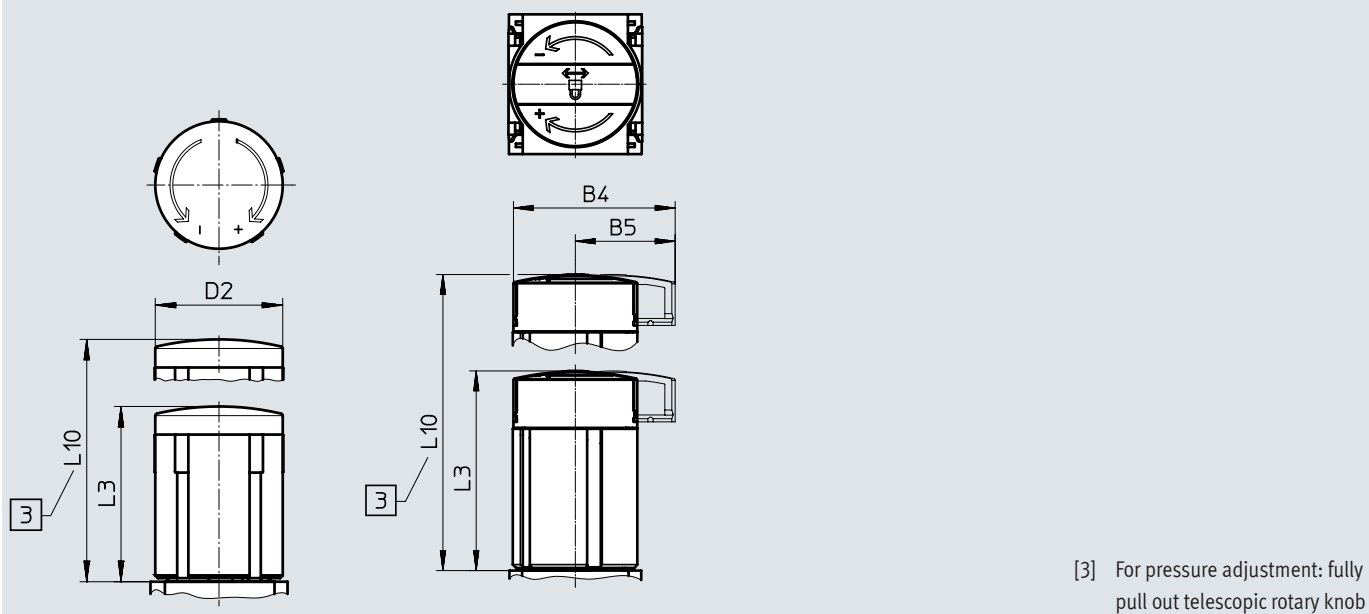
[AS] Rotary knob with latch, can be locked using accessories

[E11] Rotary knob with integrated lock



[LD] Rotary knob, long, with latch

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



| Type               | B4   | B5   | D2   | D3    | L3   | L8 | L9 | L10   |
|--------------------|------|------|------|-------|------|----|----|-------|
| MS6-LRPB-...       | -    | -    | 51.2 | M44x1 | 86   | 21 | 14 | -     |
| MS6-LRPB-...-AS    | 64.4 | 38.8 |      |       | 95.1 | 12 | 5  |       |
| MS6-LRPB-...-E11   | -    | -    |      |       | 110  | 21 | 14 |       |
| MS6-LRPB-...-LD    | -    | -    |      | -     | 86   | -  | -  | 139   |
| MS6-LRPB-...-LD-AS | 64.4 | 38.8 |      |       | 95.5 |    |    | 148.5 |

## Datasheet

| Ordering data          |                           |                    |          |                       |
|------------------------|---------------------------|--------------------|----------|-----------------------|
| Pneumatic connection 1 | Pressure regulation range | Flow direction     | Part no. | Type                  |
| <b>MS6-LRPB...</b>     |                           |                    |          |                       |
| G1/2                   | 0.05 ... 0.7 bar          | From left to right | 534865   | MS6-LRPB-1/2-D2-A8-BD |
|                        | 0.05 ... 2.5 bar          | From left to right | 534914   | MS6-LRPB-1/2-D4-A8    |
|                        | 0.1 ... 4 bar             | From left to right | 534917   | MS6-LRPB-1/2-D5-A8    |
|                        | 0.1 ... 12 bar            | From left to right | 534874   | MS6-LRPB-1/2-D7-A8-BD |

## Ordering data – Modular product system

| Ordering table                      |   |             |            |       |
|-------------------------------------|---|-------------|------------|-------|
| Grid dimension                      | [mm]  | 62          | Conditions | Code  |
| Module no.                          | 535007  |             |            |       |
| Series                              | Standard  |             |            | MS    |
| Size                                | 6   |             |            | 6     |
| Function                            | Precision pressure regulator for manifold assembly  |             |            | -LRPB |
| Pneumatic connection                | Female thread G1/2  | [1]         | - 1/2      |       |
|                                     | Connecting plate G1/4   |             | -AGB       |       |
|                                     | Connecting plate G3/8   |             | -AGC       |       |
|                                     | Connecting plate G1/2   |             | -AGD       |       |
|                                     | Connecting plate G3/4   |             | -AGE       |       |
| Pressure regulation range/actuation | 0.05 ... 0.7 bar, manually actuated   |             | -D2        |       |
|                                     | 0.05 ... 2.5 bar, manually actuated   |             | -D4        |       |
|                                     | 0.1 ... 4 bar, manually actuated  |             | -D5        |       |
|                                     | 0.1 ... 12 bar, manually actuated   |             | -D7        |       |
|                                     | 0.1 ... 12 bar, pneumatically actuated<br>(pressure range determined by pilot regulator)                    | [1] [2]     | -PO        |       |
| Pressure gauge alternatives         | Cover plate   | [3]         | -VS        |       |
|                                     | Adapter for EN pressure gauge 1/8, without pressure gauge   | [4]         | -A8        |       |
|                                     | Adapter for EN pressure gauge 1/8, with precision pressure gauge  | [4]         | -A8M       |       |
|                                     | Adapter for EN pressure gauge 1/4, without pressure gauge   | [4]         | -A4        |       |
|                                     | Pressure sensor with LCD display, M8 plug, 1 switching output PNP, 3-pin                                    | [1] [4] [5] | -AD1       |       |
|                                     | Pressure sensor with LCD display, M8 plug, 1 switching output NPN, 3-pin                                    | [1] [4] [5] | -AD2       |       |
|                                     | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output<br>4 ... 20 mA   | [1] [4] [5] | -AD3       |       |
|                                     | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output<br>4 ... 20 mA   | [1] [4] [5] | -AD4       |       |
|                                     | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact                | [1] [5] [6] | -AD7       |       |
|                                     | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact                | [1] [5] [6] | -AD8       |       |
|                                     | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/O contact                         | [1] [5] [6] | -AD9       |       |
|                                     | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/C contact                         | [1] [5] [6] | -AD10      |       |
|                                     | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V,<br>4 ... 20 mA | [1] [4] [5] | -AD11      |       |
|                                     | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link, PNP, NPN, 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA     | [1] [4] [5] | -AD12      |       |

[1] 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 options AS, E11.

[3] VS

Not with type of mounting WR.  
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, A4,  
AD1 ... AD4,  
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 D2, 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

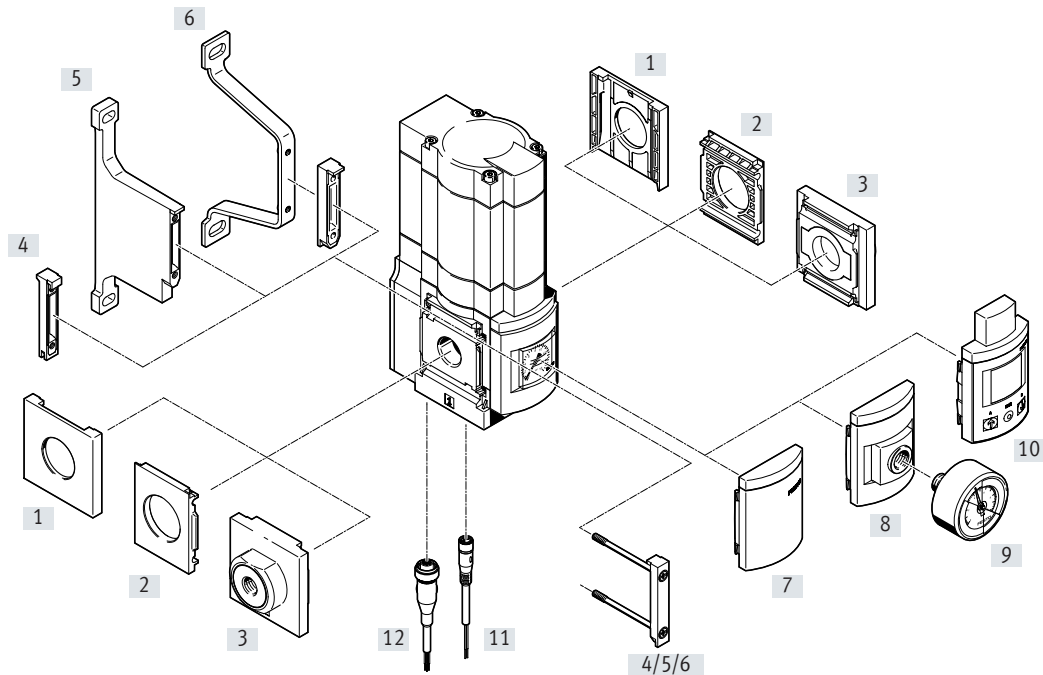
## Ordering data – Modular product system

| Ordering table                                  |   | Grid dimension | [mm] | 62 | Conditions   | Code | Enter code |
|---|---|----------------|------|----|--------------|------|------------|
| Rotary knob                                     | Standard  |                |      |    |              |      |            |
|   | Long rotary knob  |                |      |    | [7]          | -LD  |            |
| Alternative mounting position                   | None  |                |      |    |              |      |            |
|   | Rotary knob underneath  |                |      |    | [1] [8]      | -KD  |            |
| Locking option                                  | None  |                |      |    |              |      |            |
|   | Lockable using accessories  |                |      |    |              | -AS  |            |
|   | With integrated lock  |                |      |    | [1]          | -E11 |            |
| Alternative pressure output<br>(p max = 10 bar) | None  |                |      |    |              |      |            |
|   | Angled outlet block QS-8  |                |      |    |              | -BD  |            |
|   | Angled outlet block QS-10   |                |      |    |              | -BE  |            |
| Type of mounting                                | Without mounting bracket  |                |      |    |              |      |            |
|   | Mounting bracket with knurled nut for regulator head  |                |      |    | [9] [10]     | -WR  |            |
|   | Mounting bracket standard design  |                |      |    | [11] [12]    | -WP  |            |
|   | Mounting bracket for attaching service unit components  |                |      |    | [1] [9] [11] | -WPM |            |
|   | Mounting bracket for large wall gap   |                |      |    | [11] [13]    | -WPB |            |
|   | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required |                |      |    | [9]          | -WB  |            |
| 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 to the rear   |                |      |    |              |      |            |
|   | Pressure output to the front (without angled outlet block, no pressure gauge)                     |                |      |    |              | -Z   |            |

- [7] LD Not with locking option E11.
- [8] KD In combination with pressure gauge alternatives A8, A4, AD1 ... AD4, AD7 ... AD10 only with outlet direction Z.
- [9] WR, WB, WPM Only with outlet direction Z.  
Not with alternative mounting position KD.
- [10] WR Only with outlet direction Z.  
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.  
Either only with outlet direction Z or only with alternative pressure output BD, BE.
- [13] WPB Not with alternative mounting position KD.  
Not with alternative pressure output BD, BE.  
Not with outlet direction Z.

## Peripherals overview

### Electric pressure regulator MS6-LRE



#### Note

Additional accessories:

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

#### Mounting attachments and accessories

|      |   | Single device            |                       | Combination              |                       | → Page/Internet |
|------|---|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|      |   | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| [1]  | Cover cap<br>MS6-END                    | –                        | –                     | ■                        | –                     | ms6-end         |
| [2]  | Mounting plate<br>MS6-AEND              | ■ <sup>1)</sup>          | –                     | ■ <sup>2)</sup>          | –                     | ms6-aend        |
| [3]  | Connecting plate SET<br>MS6-AG...       | –                        | ■ <sup>1)</sup>       | –                        | ■ <sup>2)</sup>       | ms6-ag          |
|      | Connecting plate SET<br>MS6-AQ...       | –                        | ■ <sup>1)</sup>       | –                        | ■ <sup>2)</sup>       | ms6-aq          |
| [4]  | Module connector<br>MS6-MV              | –                        | –                     | ■                        | ■                     | ms6-mv          |
| [5]  | Mounting bracket<br>MS6-WPB             | ■                        | ■                     | ■                        | ■                     | ms6-wpb         |
| [6]  | Mounting bracket<br>MS6-WPE             | ■                        | ■                     | ■                        | ■                     | ms6-wpe         |
| [7]  | Cover plate<br>VS                       | ■                        | ■                     | ■                        | ■                     | 87              |
| [8]  | Adapter for EN pressure gauge 1/4<br>A4 | ■                        | ■                     | ■                        | ■                     | 87              |
| [9]  | Pressure gauge<br>MA                    | ■                        | ■                     | ■                        | ■                     | 110             |
| [10] | Operating unit with display<br>OP       | ■                        | ■                     | ■                        | ■                     | 87              |
| [11] | Connecting cable<br>NEBU-M8...-LE3      | ■                        | ■                     | ■                        | ■                     | 110             |
| [12] | Connecting cable<br>NEBU-M12...-LE5     | ■                        | ■                     | ■                        | ■                     | 110             |

1) Mounting bracket MS6-WPB/WPE is required for mounting.

2) Module connector MS6-MV or mounting bracket MS6-WPB/WPE is required for mounting.



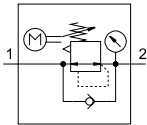
## Type codes

|            |   |  |
|------------|---|--|
| <b>001</b> | <b>Series</b>   |  |
| <b>MS</b>  | MS series   |  |
| <b>002</b> | <b>Size</b>   |  |
| <b>6</b>   | Grid dimension 62 mm                                      |  |
| <b>003</b> | <b>Function</b>   |  |
| <b>LRE</b> | Electric pressure regulator                               |  |
| <b>004</b> | <b>Pneumatic connection</b>                               |  |
| <b>1/4</b> | Female thread G1/4  |  |
| <b>3/8</b> | Female thread G3/8  |  |
| <b>1/2</b> | Female thread G1/2  |  |
| <b>AGB</b> | Sub-base G1/4   |  |
| <b>AGC</b> | Sub-base G3/8   |  |
| <b>AGD</b> | Sub-base G1/2   |  |
| <b>AGE</b> | Sub-base G3/4   |  |
| <b>AQN</b> | Sub-base NPT1/4   |  |
| <b>AQP</b> | Sub-base NPT3/8   |  |
| <b>AQR</b> | Sub-base NPT1/2   |  |
| <b>AQS</b> | Sub-base NPT3/4   |  |
| <b>005</b> | <b>Pressure regulation range</b>                          |  |
| <b>D5</b>  | 0.3 ... 4 bar   |  |
| <b>D6</b>  | 0.3 ... 7 bar   |  |
| <b>D7</b>  | 0.5 ... 12 bar  |  |
| <b>D8</b>  | 0.5 ... 16 bar  |  |
| <b>006</b> | <b>Pressure gauge alternatives</b>                        |  |
|            | None  |  |
| <b>VS</b>  | Cover plate   |  |
| <b>A4</b>  | Adapter for EN pressure gauge 1/4, without pressure gauge |  |
| <b>RG</b>  | Integrated pressure gauge, red/green scale                |  |
| <b>OP</b>  | Operating unit with display                               |  |

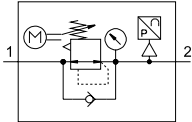
|            |  |  |
|------------|--|--|
| <b>007</b> | <b>Alternative pressure gauge scale</b>            |  |
|            | MS pressure gauge                                  |  |
| <b>PSI</b> | psi  |  |
| <b>MPA</b> | MPa  |  |
| <b>008</b> | <b>Secondary exhausting</b>                        |  |
|            | With secondary exhausting                          |  |
| <b>OS</b>  | Without secondary exhaust                          |  |
| <b>009</b> | <b>Electrically controlled pressure output</b>     |  |
|            | None   |  |
| <b>PI</b>  | Plug, M8, 3-pin, I out                             |  |
| <b>PU</b>  | Plug, M8, 3-pin, V out                             |  |
| <b>010</b> | <b>Sensor cable</b>                                |  |
|            | None   |  |
| <b>SK2</b> | Plug socket, M8, with cable, 2.5 m                 |  |
| <b>SK5</b> | Plug socket, M8, with cable, 5 m                   |  |
| <b>011</b> | <b>Supply cable</b>                                |  |
|            | None   |  |
| <b>VK2</b> | Plug socket, M12, with cable 2.5 m                 |  |
| <b>VK5</b> | Plug socket, M12, with cable, 5 m                  |  |
| <b>012</b> | <b>Type of mounting</b>                            |  |
|            | Without mounting bracket                           |  |
| <b>WBE</b> | Mounting bracket for large wall gap with low loads |  |
| <b>WPB</b> | Mounting bracket for large wall gap                |  |
| <b>013</b> | <b>UL certification</b>                            |  |
|            | None   |  |
| <b>UL1</b> | cULus ordinary location for Canada and USA         |  |
| <b>014</b> | <b>Flow direction</b>                              |  |
|            | Flow direction from left to right                  |  |
| <b>Z</b>   | Flow direction from right to left                  |  |


Datasheet




With pressure gauge



With pressure gauge and integrated pressure sensor



 **Note**  
The electric pressure regulator is not suitable for creating electrical control loops.

-  Flow rate  
2200 ... 7500 l/min
-  Temperature range  
0 ... +50°C
-  Operating pressure  
0.8 ... 20 bar




The electric pressure regulator maintains incoming compressed air at the set output pressure. The electric pressure regulator maintains a constant output pressure independent of pressure fluctuations and air consumption. The integrated electrical drive unit is used to set the output pressure indirectly. The drive unit can be controlled either via the digital inputs on the M12 plug or via the optional operator unit.

This determines the direction of rotation of the drive unit and enables the output pressure to be increased or decreased.  
In the event of a power failure, the last drive unit setting, or the output pressure, is saved. Pneumatic pressure regulation continues to function.

- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Optional operator unit with display
- Optional integrated pressure sensor with electrical output
- Constant output pressure even in the event of a power failure due to the fail-safe function
- Available with or without secondary exhausting

| General technical data    |         |   |            | MS6 |
|---------------------------|---------|---|------------|-----|
| Size                      |         |   |            |     |
| Pneumatic connection 1, 2 |         |   |            |     |
| Female thread             |         | G1/4, G3/8 or G1/2  |            |     |
| Connecting plate          | [AG...] | G1/4, G3/8, G1/2 or G3/4  |            |     |
|                           | [AQ...] | 1/4 NPT, 3/8 NPT, 1/2 NPT or 3/4 NPT  |            |     |
| Design                    |         | Electrically adjustable pressure regulator  |            |     |
| Regulator function        |         | Output pressure constant, with input pressure compensation, with/without secondary exhausting |            |     |
| Type of mounting          |         | With accessories  |            |     |
|                           |         | In-line installation  |            |     |
| Mounting position         |         | Any, preferably vertical  |            |     |
| Pressure regulation range | [D5]    | [bar]   | 0.3 ... 4  |     |
|                           | [D6]    | [bar]   | 0.3 ... 7  |     |
|                           | [D7]    | [bar]   | 0.5 ... 12 |     |
|                           | [D8]    | [bar]   | 0.5 ... 16 |     |
| Max. pressure hysteresis  |         | [bar]   | 0.25       |     |
| Pressure indicator        |         | With pressure gauge   |            |     |
|                           |         | With operator unit  |            |     |

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

## Datasheet

| Standard nominal flow rate $q_{N1}$ [l/min] |      |                    |                    |                    |
|---|------|--------------------|--------------------|--------------------|
| Pneumatic connection                        |      | G1/4               | G3/8               | G1/2               |
| Pressure regulation range                   | [D5] | 2400 <sup>2)</sup> | 5500 <sup>2)</sup> | 7500 <sup>2)</sup> |
|   | [D6] | 3000               | 5800               | 6500               |
|   | [D7] | 2700               | 4500               | 5500               |
|   | [D8] | 2200               | 4000               | 4500               |

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

| Electrical data                                  |         | Without integrated pressure sensor    | With integrated pressure sensor |              |
|--|---------|---------------------------------------|---------------------------------|--------------|
|  |         |                                       | [PI] (I out)                    | [PU] (U out) |
| Analogue output                                  | [V]     | –                                     | –                               | 0 ... 10     |
|  | [mA]    | –                                     | 4 ... 20                        | –            |
| Analogue outputs, absolute accuracy at 25°C      |         | [%]                                   | –                               | ±3           |
| Cable interface                                  | Inputs  | Plug M12x1, 5-pin                     |                                 |              |
|  | Outputs | –                                     |                                 |              |
| Design of inputs                                 |         | To IEC 61131-2, no galvanic isolation |                                 |              |
| Nominal operating voltage                        | [V DC]  | 24                                    |                                 |              |
| Permissible voltage fluctuations                 | [%]     | ±10                                   |                                 |              |
| Current consumption at nominal operating voltage | [A]     | Max. 1                                |                                 |              |
| Current consumption                              | [A]     | Max. 3.5 at 24 V DC                   |                                 |              |
| Control duration at 25°C                         | [s]     | max. 90 <sup>1)</sup>                 |                                 |              |
| Short circuit current rating                     |         | For all electrical connections        |                                 |              |
| Degree of protection                             |         | IP65                                  |                                 |              |

1) A ratio of control duration to interval of 1:3 must be maintained to prevent overheating of the drive.

| Operating and environmental conditions                   |  |
|--|--|
| Operating pressure                                       | [bar] 0.8 ... 20 (0.8 ... 10) <sup>1)</sup>  |
| Operating medium   | Compressed air to ISO 8573-1:2010 [7:4:4]  |
|  | Inert gases  |
| Note on the operating/pilot medium                       | Lubricated operation possible (in which case lubricated operation will always be required) |
| Ambient temperature                                      | [°C] 0 ... +50   |
| Temperature of medium                                    | [°C] 0 ... +50   |
| Storage temperature                                      | [°C] −10 ... +50   |
| Corrosion resistance class CRC <sup>2)</sup>             | 2  |
| CE marking (see declaration of conformity) <sup>3)</sup> | To EU EMC Directive  |
| Food-safe <sup>4)</sup>                                  | See supplementary material information   |
| UL certification <sup>4)</sup>                           | c UL us - Recognized (OL)  |

1) Value in brackets applies to MS6-LRE with UL certification.

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

3) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

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.

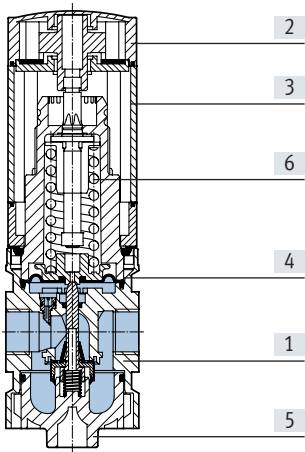
4) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

Datasheet

| Weight [g]                  |      |
|-----------------------------|------|
| Electric pressure regulator | 1280 |

Materials

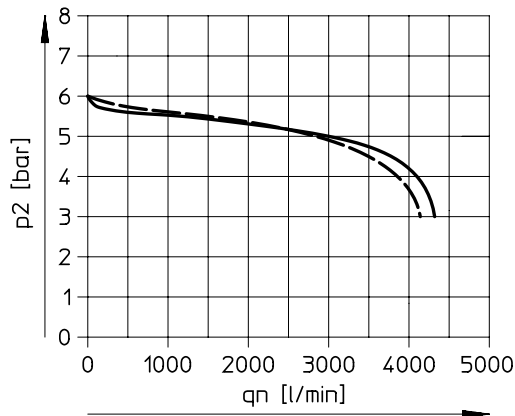
Sectional view



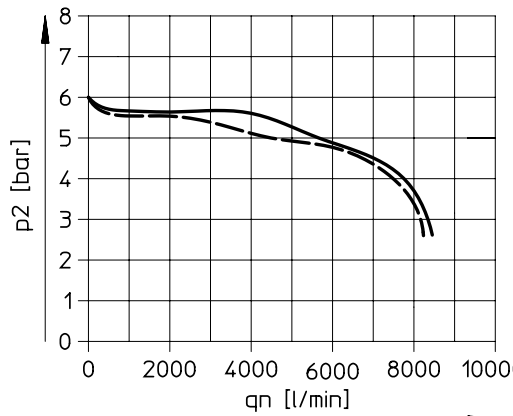
| Electric pressure regulator |                 |                           |
|-----------------------------|-----------------|---------------------------|
| [1]                         | Housing         | Die-cast aluminium        |
| [2]                         | Drive housing   | Reinforced PA             |
| [3]                         | Profile housing | Wrought aluminium alloy   |
| [4]                         | Diaphragm       | NBR                       |
| [5]                         | Bottom cover    | Fibreglass-reinforced PET |
| [6]                         | Springs         | Steel                     |
| -                           | Operator unit   | PA                        |
| -                           | Seals           | NBR                       |

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

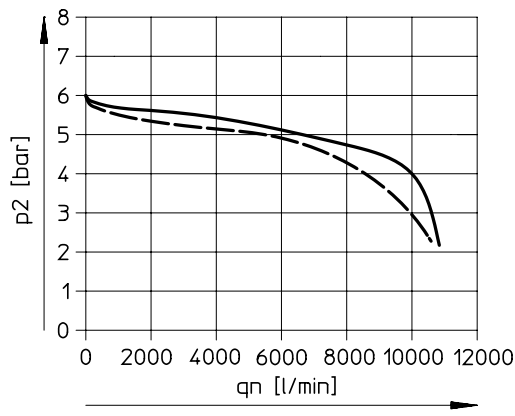
MS6-LRE-1/4



MS6-LRE-3/8



MS6-LRE-1/2

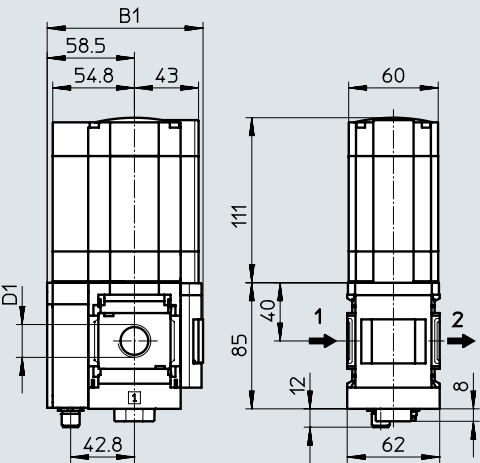


Datasheet

Dimensions – Basic version

Download CAD data → [www.festo.com](http://www.festo.com)

- [ ] Integrated MS pressure gauge with standard scale  
[RG] Integrated MS pressure gauge with red/green scale



→ Flow direction

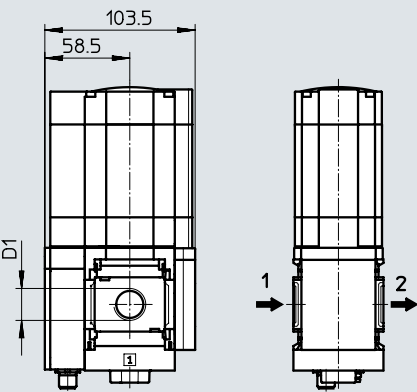
| Type        | B1<br>Pressure gauge |                 | D1   |
|-------------|----------------------|-----------------|------|
|             | Standard scale       | Red/green scale |      |
| MS6-LRE-1/4 | 104.5                | 106             | G1/4 |
| MS6-LRE-3/8 |                      |                 | G3/8 |
| MS6-LRE-1/2 |                      |                 | G1/2 |

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

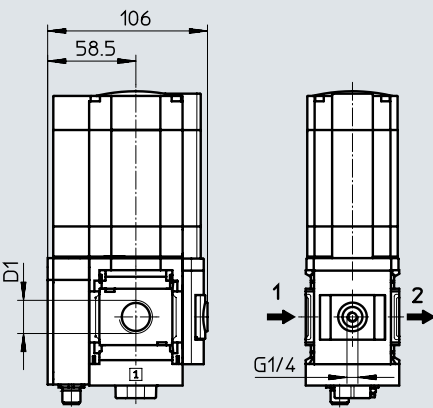
Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

- [VS] Cover plate [A4] Adapter for EN pressure gauge 1/4, without pressure gauge



→ Flow direction



→ Flow direction

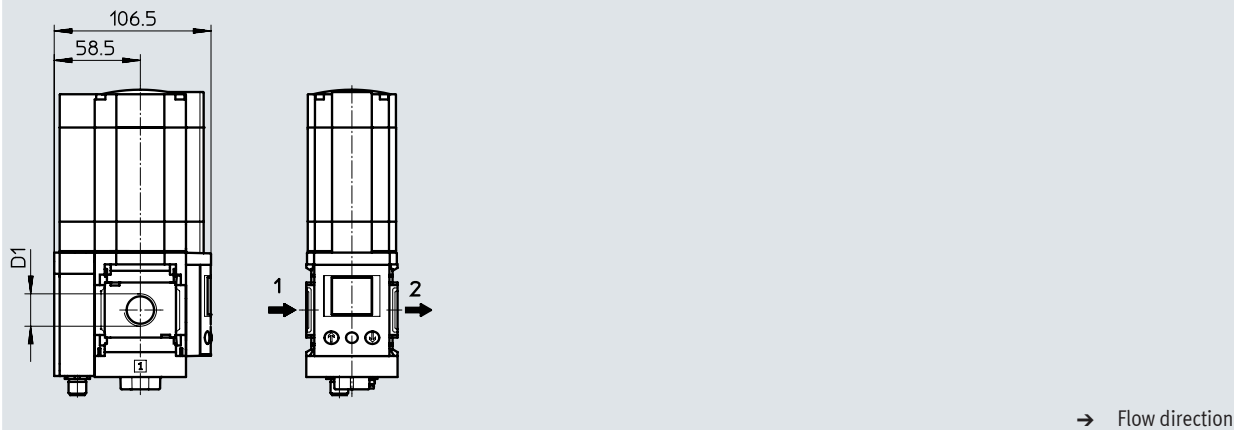
| Type        | D1   |
|-------------|------|
| MS6-LRE-1/4 | G1/4 |
| MS6-LRE-3/8 | G3/8 |
| MS6-LRE-1/2 | G1/2 |

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

Datasheet

Dimensions – Pressure gauge alternatives Download CAD data → [www.festo.com](http://www.festo.com)

[OP] Operator unit with display



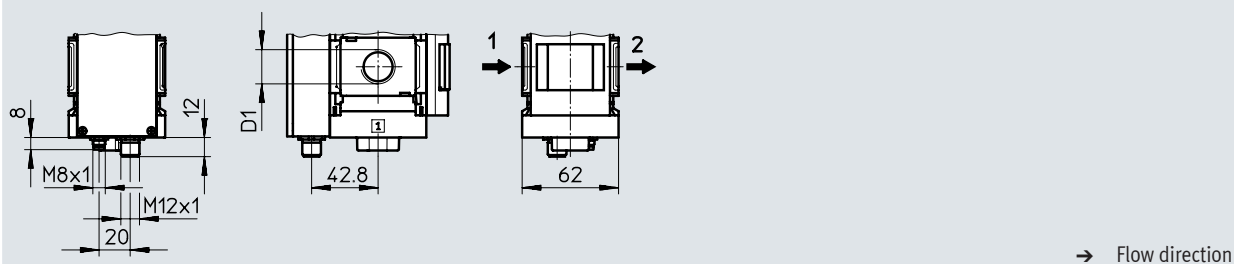
| Type        | D1   |
|-------------|------|
| MS6-LRE-1/4 | G1/4 |
| MS6-LRE-3/8 | G3/8 |
| MS6-LRE-1/2 | G1/2 |

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

Dimensions – Electric pressure output Download CAD data → [www.festo.com](http://www.festo.com)

[PI] Integrated pressure sensor with analogue current output

[PU] Integrated pressure sensor with analogue voltage output



| Ordering data          |                           |                    |          |                   |
|------------------------|---------------------------|--------------------|----------|-------------------|
| Pneumatic connection 1 | Pressure regulation range | Flow direction     | Part no. | Type              |
| <b>MS6-LRPB...</b>     |                           |                    |          |                   |
| G1/4                   | 0.3 ... 7 bar             | From left to right | 535362   | MS6-LRE-1/4-D6-PU |
|                        | 0.5 ... 12 bar            | From left to right | 535364   | MS6-LRE-1/4-D7    |
| G1/2                   | 0.3 ... 7 bar             | From left to right | 535348   | MS6-LRE-1/2-D6    |

## Ordering data – Modular product system

| Ordering table                   |   | Conditions | Code | Enter code |
|----------------------------------|---|------------|------|------------|
| Grid dimension                   | [mm] 62   |            |      |            |
| Module no.                       | 535191  |            |      |            |
| Series                           | Standard  |            | MS   | MS         |
| Size                             | 6   |            | 6    | 6          |
| Function                         | Electric pressure regulator                               |            | -LRE | -LRE       |
| Pneumatic connection             | Female thread G1/4  |            | -1/4 |            |
|                                  | Female thread G3/8  |            | -3/8 |            |
|                                  | Female thread G1/2  |            | -1/2 |            |
|                                  | Connecting plate G1/4                                     |            | -AGB |            |
|                                  | Connecting plate G3/8                                     |            | -AGC |            |
|                                  | Connecting plate G1/2                                     |            | -AGD |            |
|                                  | Connecting plate G3/4                                     |            | -AGE |            |
|                                  | Connecting plate 1/4 NPT                                  |            | -AQN |            |
|                                  | Connecting plate 3/8 NPT                                  |            | -AQP |            |
|                                  | Connecting plate 1/2 NPT                                  |            | -AQR |            |
|                                  | Connecting plate 3/4 NPT                                  |            | -AQS |            |
| Pressure regulation range        | 0.3 ... 4 bar   |            | -D5  |            |
|                                  | 0.3 ... 7 bar   |            | -D6  |            |
|                                  | 0.5 ... 12 bar  |            | -D7  |            |
|                                  | 0.5 ... 16 bar  |            | -D8  |            |
| Pressure gauge alternatives      | MS pressure gauge   |            |      |            |
|                                  | Cover plate   |            | -VS  |            |
|                                  | Adapter for EN pressure gauge 1/4, without pressure gauge |            | -A4  |            |
|                                  | Integrated pressure gauge, red/green scale                |            | -RG  |            |
|                                  | Operating unit with display                               | [1]        | -OP  |            |
| Alternative pressure gauge scale | MS pressure gauge, bar                                    |            |      |            |
|                                  | psi   | [2]        | -PSI |            |
|                                  | MPa   | [2]        | -MPA |            |
| Secondary exhausting             | With secondary exhausting                                 |            |      |            |
|                                  | Without secondary exhausting                              |            | -OS  |            |
| Electric pressure output         | None  |            |      |            |
|                                  | Plug, M8, 3-pin, analogue current output $I_{out}$        |            | -PI  |            |
|                                  | Plug, M8, 3-pin, analogue voltage output $U_{out}$        |            | -PU  |            |
| Sensor cable                     | None  |            |      |            |
|                                  | Plug socket, M8, with cable, 2.5 m                        | [1]        | -SK2 |            |
|                                  | Plug socket, M8, with cable, 5 m                          | [1]        | -SK5 |            |
| Supply cable                     | None  |            |      |            |
|                                  | Plug socket, M12, with cable, 2.5 m                       |            | -VK2 |            |
|                                  | Plug socket, M12, with cable, 5 m                         |            | -VK5 |            |
| Type of mounting                 | Without mounting bracket                                  |            |      |            |
|                                  | Mounting bracket for large wall gap with low loads        | [3]        | -WBE |            |
|                                  | Mounting bracket for large wall gap                       | [4]        | -WPB |            |
| UL certification                 | None  |            |      |            |
|                                  | cULus, ordinary location for Canada and USA               |            | -UL1 |            |
| Flow direction                   | Flow direction from left to right                         |            |      |            |
|                                  | Flow direction from right to left                         |            | -Z   |            |

[1] OP, SK2, SK5

Only with electric pressure output PI, PU.

[2] PSI, MPA

Not with pressure gauge alternatives VS, A4, RG, OP.

[3] WBE

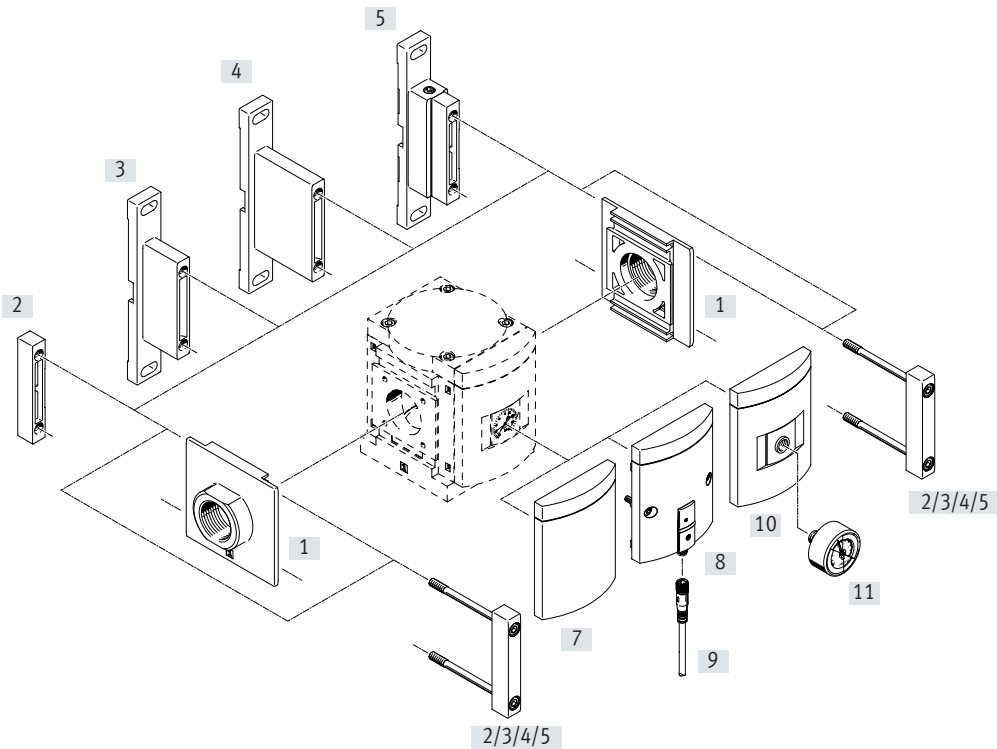
Only with female thread 1/4, 3/8, 1/2.

[4] WPB

Only with connecting plate AGB, AGC, AGD, AGE, AQN, AQP, AQR or AQS.

Peripherals overview

Pressure regulator MS9-LR



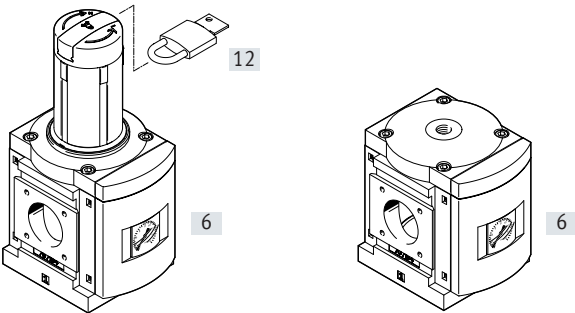
**Note**

Additional accessories:

- Module connector for combination with size MS6, MS9 or MS12

→ Internet: rmv, armv

Manually actuated      Pneumatically actuated





## Peripherals overview

| Mounting attachments and accessories |   | Single device      |                          |                       | Combination  | → Page/<br>Internet |
|--------------------------------------|---|--------------------|--------------------------|-----------------------|--|---------------------|
|                                      |   | With female thread | With connecting plate    |                       | Module without connecting thread, without connecting plate |                     |
|                                      |   |                    | Without EU certification | With EU certification |  |                     |
| [1]                                  | Connecting plate SET<br>MS9-AG...               | –                  | ■                        | ■                     | ■  | ms9-ag              |
|                                      | Connecting plate SET<br>MS9-AQ...               | –                  | ■                        | –                     | ■  | ms9-aq              |
| [2]                                  | Module connector<br>MS9-MV                      | –                  | –                        | –                     | ■  | ms9-mv              |
| [3]                                  | Mounting bracket<br>MS9-WP                      | ■                  | ■                        | ■                     | ■  | ms9-wp              |
| [4]                                  | Mounting bracket<br>MS9-WPB                     | ■                  | ■                        | ■                     | ■  | ms9-wp              |
| [5]                                  | Mounting bracket<br>MS9-WPM                     | ■                  | ■                        | –                     | ■  | ms9-wp              |
| [6]                                  | MS pressure gauge<br>AG                         | ■                  | ■                        | ■                     | ■  | 98                  |
| [7]                                  | Cover plate<br>VS                               | ■                  | ■                        | ■                     | ■  | 98                  |
| [8]                                  | Pressure sensor without display<br>AD7 ... AD10 | ■                  | ■                        | –                     | ■  | 98                  |
| [9]                                  | Connecting cable<br>NEBU-M8...-LE3              | ■                  | ■                        | –                     | ■  | 110                 |
| [10]                                 | Adapter for EN pressure gauge 1/4<br>A4         | ■                  | ■                        | ■                     | ■  | 98                  |
| [11]                                 | Pressure gauge<br>MA                            | ■                  | ■                        | ■                     | ■  | 110                 |
| [12]                                 | Padlock<br>LRVS-D                               | ■                  | ■                        | ■                     | ■  | 110                 |

## Type codes

| 001 | Series    |
|-----|-----------|
| MS  | MS series |

| 002 | Size                 |
|-----|----------------------|
| 9   | Grid dimension 90 mm |

| 003 | Function           |
|-----|--------------------|
| LR  | Pressure regulator |

| 004  | Pneumatic connection                                      |
|------|---|
| 3/4  | Female thread G3/4  |
| 1    | Female thread G1  |
| AGD  | Sub-base G1/2   |
| AGE  | Sub-base G3/4   |
| AGF  | Sub-base G1   |
| AGG  | Sub-base G11/4  |
| AGH  | Sub-base G11/2  |
| N3/4 | NPT3/4  |
| N1   | NPT1  |
| AQR  | Sub-base NPT1/2   |
| AQS  | Sub-base NPT3/4   |
| AQT  | Sub-base NPT1   |
| AQU  | Sub-base NPT11/4  |
| AQV  | Sub-base NPT11/2  |
| G    | Module without connecting thread, without sub-base        |
| NG   | Module without connecting thread, without sub-base (inch) |

| 005 | Pressure regulation range  |
|-----|--|
| D5  | 0.3 ... 4 bar  |
| D6  | 0.3 ... 7 bar  |
| D7  | 0.5 ... 12 bar   |
| D8  | 0.5 ... 16 bar   |
| PO  | Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator) |

| 006 | Regulator type    |
|-----|-------------------|
|     | Pilot actuated    |
| DI  | Directly actuated |

| 007  | Pressure gauge alternatives   |
|------|---|
| AG   | MS pressure gauge   |
| VS   | Cover plate   |
| A4   | Adapter for EN pressure gauge 1/4, without pressure gauge                               |
| RG   | Integrated pressure gauge, red/green scale  |
| 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 |

| 008 | Alternative pressure gauge scale |
|-----|----------------------------------|
|     | MS pressure gauge                |
| PSI | psi                              |
| MPA | MPa                              |
| BAR | bar                              |

| 009 | Secondary exhausting      |
|-----|---------------------------|
|     | With secondary exhausting |
| OS  | Without secondary exhaust |

| 010 | Alternative mounting position |
|-----|-------------------------------|
|     | None                          |
| KD  | Rotary knob underneath        |

| 011 | Lockability                     |
|-----|---------------------------------|
|     | None                            |
| AS  | Can be locked using accessories |
| E11 | With integrated lock            |

| 012 | Type of mounting  |
|-----|---|
|     | Without mounting bracket                                |
| WP  | Mounting bracket basic design                           |
| WPM | Mounting bracket for hooking in service unit components |
| WPB | Mounting bracket for large wall gap                     |

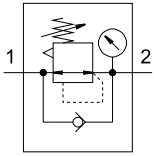
| 013 | EU certification |
|-----|------------------|
|     | None             |
| EX4 | II 2GD           |

| 014 | UL certification                           |
|-----|--|
|     | None                                       |
| UL1 | cULus ordinary location for Canada and USA |

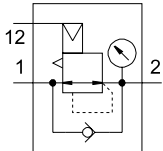
| 015 | Flow direction                    |
|-----|-----------------------------------|
|     | Flow direction from left to right |
| Z   | Flow direction from right to left |





## Datasheet

Pressure regulation range/actuation,  
manually actuated



Pressure regulation range/actuation,  
pneumatically actuated



-  - Flow rate  
11000 ... 26000 l/min
-  - Temperature range  
-10 ... +60°C
-  - Operating pressure  
1 ... 20 bar
-  - [www.festo.com](http://www.festo.com)

The pressure regulator maintains an essentially constant output pressure p2 independent 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 switching off the operating pressure, the output pressure p2 is exhausted via connection 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 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

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

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.

## Datasheet

| General technical data |   |
|------------------------|---|
| Pressure indicator     | Via pressure sensor for indicating the output pressure via status indicator and electrical output |
|                        | Via pressure gauge for displaying the output pressure   |
|                        | Via pressure gauge with red/green scale for indicating the output pressure                        |
|                        | Prepared for G1/4   |

| Standard nominal flow rate $q_{nN}^{1)2)}$ [l/min] |      |                             |                     |  |                     |
|--|------|-----------------------------|---------------------|--|---------------------|
| Design   |      | Piloted diaphragm regulator |                     | Directly actuated diaphragm regulator DI |                     |
| Pneumatic connection                               |      | G3/4, NPT3/4                | G1, NPT1            | G3/4, NPT3/4                             | G1, NPT1            |
| Pressure regulation range                          | [D5] | 19000 <sup>3)</sup>         | 26000 <sup>3)</sup> | 14000 <sup>3)</sup>                      | 20000 <sup>3)</sup> |
|  | [D6] | 17000                       | 20000               | 14000                                    | 11000               |
|  | [D7] | 17000                       | 20000               | –  | –                   |
|  | [D8] | 17000                       | 20000               | –  | –                   |
|  | [PO] | 21000                       | 25000               | –  | –                   |

1) All values  $\pm 15\%$ 2) Measured at  $p_1 = 10$  bar and  $p_2 = 6$  bar,  $\Delta p = 1$  bar3) Measured at  $p_1 = 10$  bar and  $p_2 = 4$  bar,  $\Delta p = 1$  bar

| Operating and environmental conditions       |  |                                   |
|--|--|-----------------------------------|
| EU certification                             | [ ]  | [EX4]                             |
| Operating pressure [bar]                     | 1 ... 20   |                                   |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]  |                                   |
|  | Inert gases  |                                   |
| Note on the operating/<br>pilot medium       | Lubricated operation possible (in which case lubricated operation will always be required) | Lubricated operation not possible |
| Ambient temperature [°C]                     | –10 ... +60 (0 ... +50) <sup>1)</sup>  |                                   |
| Temperature of medium [°C]                   | –10 ... +60 (0 ... +50) <sup>1)</sup>  |                                   |
| Storage temperature [°C]                     | –10 ... +60  |                                   |
| Corrosion resistance class CRC <sup>2)</sup> | 2  |                                   |
| UL certification <sup>3)</sup>               | c UL us - Recognized (OL)  |                                   |

1) Value in brackets applies to MS9-LR with pressure sensor.

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

3) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| ATEX   |   |
|--|---|
| EU certification   | [EX4]                                       |
| 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 IIIC T60°C Db X                        |
| Explosion-proof ambient temperature                      | –10°C ≤ Ta ≤ +60°C                          |
| CE marking (see declaration of conformity) <sup>1)</sup> | To EU Explosion Protection Directive (ATEX) |

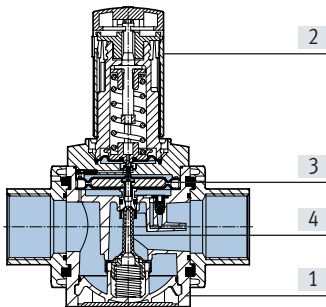
1) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| Weight [g]   |      |
|--|------|
| Pressure regulator                                       | 1400 |
| Pressure regulator with rotary knob with integrated lock | 1700 |

## Datasheet

## Materials

## Sectional view



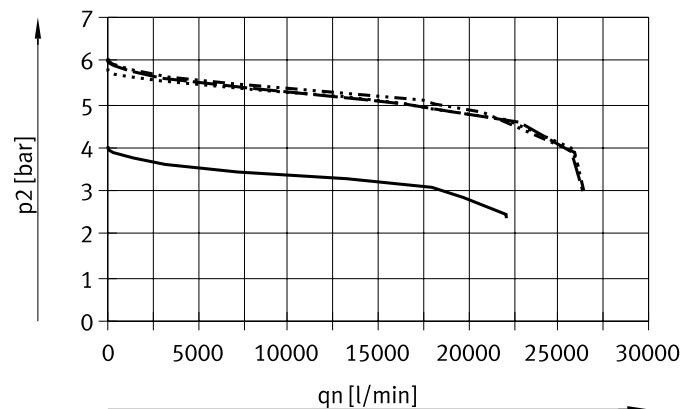
## Pressure regulator

|                   |  |                                   |
|-------------------|--|-----------------------------------|
| [1]               | Housing  | Die-cast aluminium                |
| [2]               | Rotary knob  | PA                                |
|                   | Rotary knob with integrated lock                     | Aluminium                         |
| [3]               | Diaphragm  | NBR                               |
| [4]               | Valve tappet   | Wrought aluminium alloy, NBR, POM |
| -                 | Covering   | Reinforced PA                     |
| -                 | Connecting plate, module connector, mounting bracket | Die-cast aluminium                |
| -                 | Seals  | NBR                               |
| Note on materials |  | RoHS-compliant                    |

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

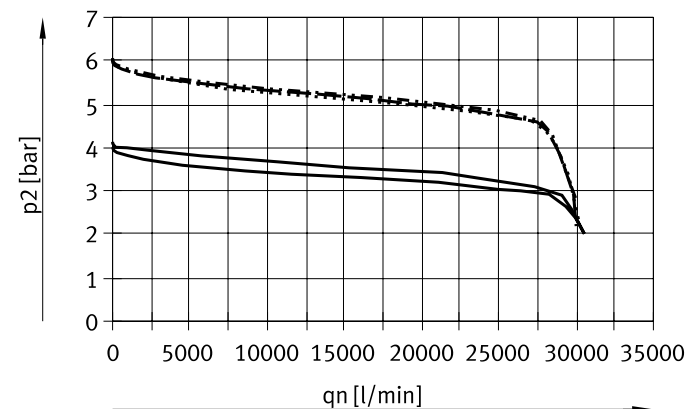
Pilot diaphragm regulator

Pneumatic connection G3/4, NPT3/4



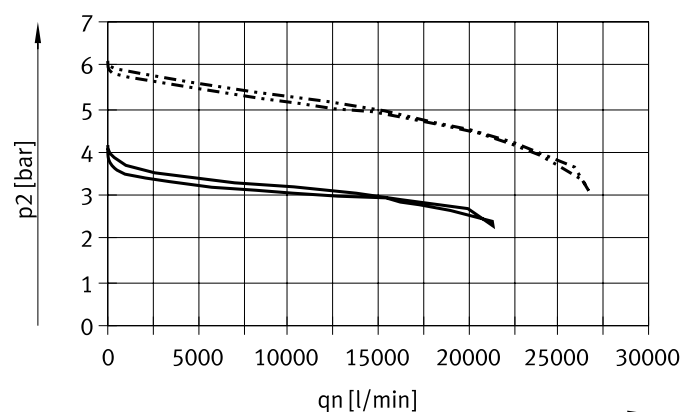
— [D5]: 0.5 ... 4 bar      - - - [D7]: 0.5 ... 12 bar  
 - · - · - [D6]: 0.5 ... 7 bar      · · · · · [D8]: 0.5 ... 16 bar

Pneumatic connection G1, NPT1



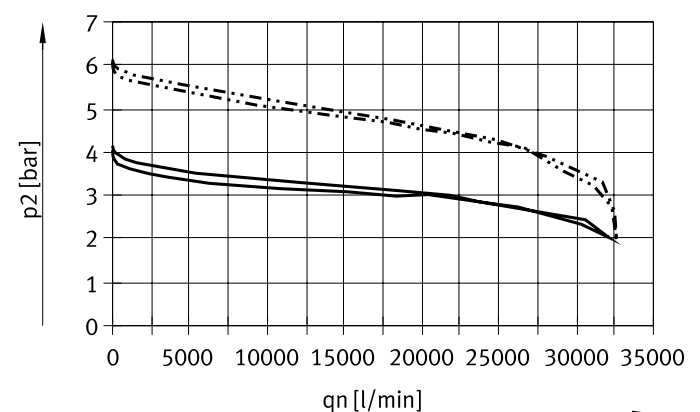
## Directly actuated diaphragm regulator

Pneumatic connection G3/4, NPT3/4



— [D5]: 0.5 ... 4 bar  
 - · - · - [D6]: 0.5 ... 7 bar

Pneumatic connection G1, NPT1



Datasheet

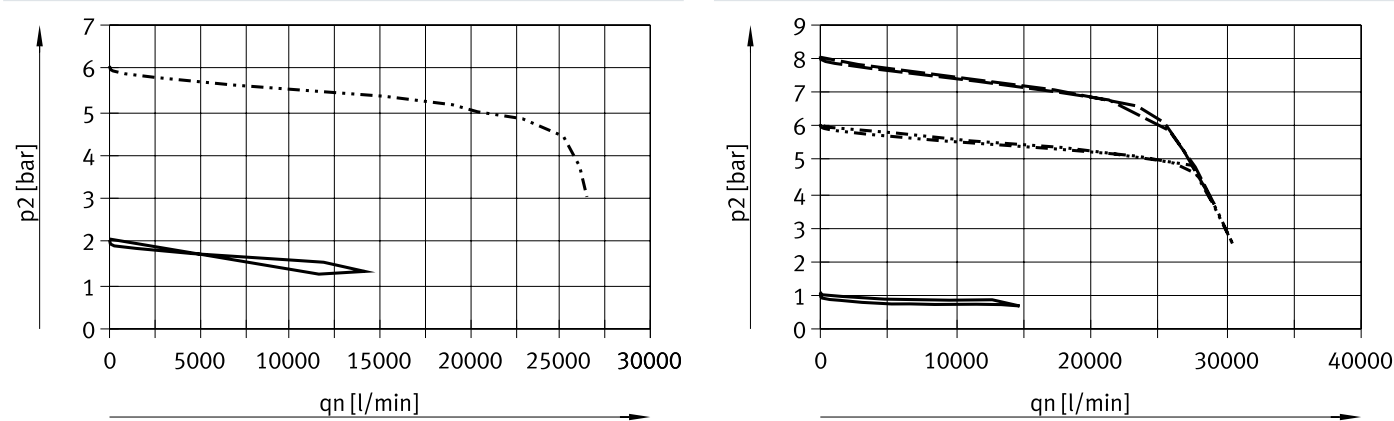
**Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar)**

External pilot regulator

Pressure regulation range, pneumatically actuated

Pneumatic connection G3/4, NPT3/4

Pneumatic connection G1, NPT1



**Dimensions – Basic version**

[D5]/[D6]/[D7]/[D8] Pressure regulation range, manually actuated

[G]/[NG] Module without connecting thread, without connecting plate

[VS] Cover plate

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

Download CAD data → [www.festo.com](http://www.festo.com)

[PO] Pressure regulation range, pneumatically actuated

[G]/[NG] Module without connecting thread, without connecting plate

[VS] Cover plate

→ Flow direction

| Type                    | B1 | B2 | B3  | D3   | L1      |                   | L2      |                   | L3   |
|-------------------------|----|----|-----|------|---------|-------------------|---------|-------------------|------|
|                         |    |    |     |      | Piloted | Directly actuated | Piloted | Directly actuated |      |
| MS9-LR-G/NG-D5/D6/D7/D8 | 90 | 45 | 109 | –    | 129     | 122               | 71.4    | 64                | 94.5 |
| MS9-LR-G/NG-PO          |    |    |     | G1/4 | 120     | –                 | 62      | –                 | –    |

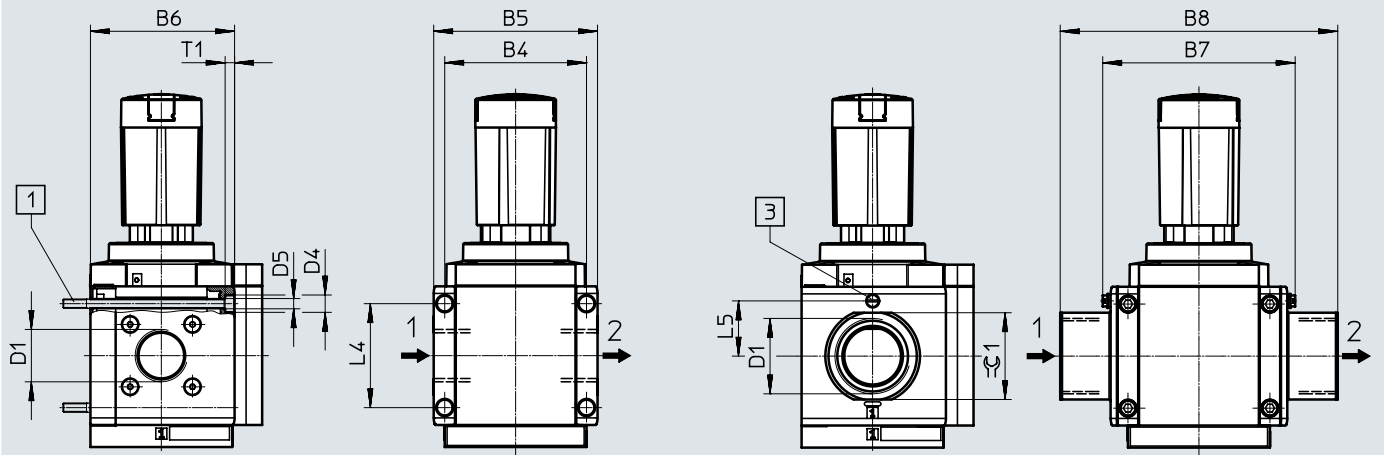
## Datasheet

## Dimensions – Connecting thread/connecting plate

Download CAD data → [www.festo.com](http://www.festo.com)

[3/4]/[1]/[N3/4]/[N1] Female thread

[AG...]/[AQ...] Connecting plate



[1] Retaining screw M6xmin. 90 to DIN 912 (not included in the scope of delivery) for wall mounting without mounting bracket

[3] Earthing screw M4x8 (only with MS9-...-EX4)

→ Flow direction

| Type        | B4 | B5  | B6   | B7  |       | B8  | D1        | D4 | D5  | L4 | L5    | T1 | ≧ 1 |
|-------------|----|-----|------|-----|-------|-----|-----------|----|-----|----|-------|----|-----|
|             |    |     |      |     | [EX4] |     |           |    |     |    | [EX4] |    |     |
| MS9-LR-3/4  | 90 | 104 | 91.5 | -   | -     | -   | G3/4      | 11 | 6.5 | 66 | -     | 6  | -   |
| MS9-LR-1    |    |     |      |     |       |     | G1        |    |     |    |       |    |     |
| MS9-LR-AGD  | -  | -   | -    | 112 | 122   | 132 | G1/2      | -  | -   | -  | 35    | -  | 30  |
| MS9-LR-AGE  |    |     |      |     |       | 132 | G3/4      |    |     |    |       |    | 36  |
| MS9-LR-AGF  |    |     |      |     |       | 142 | G1        |    |     |    |       |    | 41  |
| MS9-LR-AGG  |    |     |      |     |       | 162 | G1 1/4    |    |     |    |       |    | 50  |
| MS9-LR-AGH  |    |     |      |     |       | 176 | G1 1/2    |    |     |    |       |    | 55  |
| MS9-LR-N3/4 | 90 | 104 | 91.5 | -   | -     | -   | 3/4 NPT   | 11 | 6.5 | 66 | -     | 6  | -   |
| MS9-LR-N1   |    |     |      |     |       |     | 1 NPT     |    |     |    |       |    |     |
| MS9-LR-AQR  | -  | -   | -    | 112 | 122   | 132 | 1/2 NPT   | -  | -   | -  | 35    | -  | 30  |
| MS9-LR-AQS  |    |     |      |     |       | 132 | 3/4 NPT   |    |     |    |       |    | 36  |
| MS9-LR-AQT  |    |     |      |     |       | 142 | 1 NPT     |    |     |    |       |    | 41  |
| MS9-LR-AQU  |    |     |      |     |       | 162 | 1 1/4 NPT |    |     |    |       |    | 50  |
| MS9-LR-AQV  |    |     |      |     |       | 176 | 1 1/2 NPT |    |     |    |       |    | 55  |

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

Datasheet

Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

[AG] Integrated MS pressure gauge with standard scale

[RG] Integrated MS pressure gauge with red/green scale

→ Flow direction

| Type             | B2 | B3  | D2   |
|------------------|----|-----|------|
| MS9-LR-...-AG/RG | 45 | 109 | –    |
| MS9-LR-...-A4    |    | 110 | G1/4 |

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

Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

Datasheets → Internet: [sde5](http://sde5)

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

→ Flow direction

| Type                        | B2 | B3  | D3 |
|-----------------------------|----|-----|----|
| MS9-LR-...-AD7/AD8/AD9/AD10 | 45 | 112 | M8 |



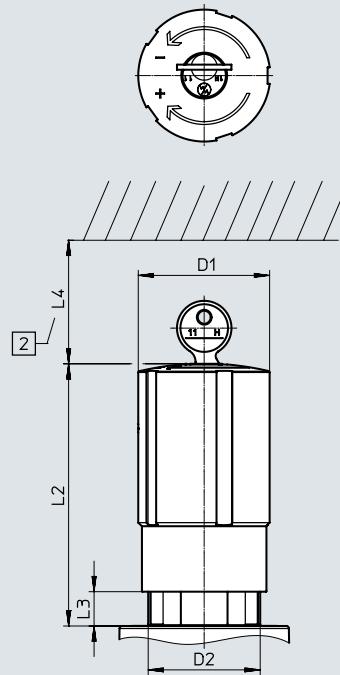
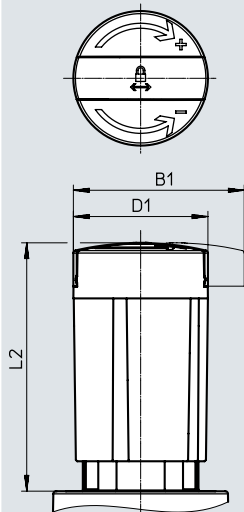
## Datasheet

## Dimensions – Rotary knob

Download CAD data → [www.festo.com](http://www.festo.com)

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

[E11] Rotary knob with integrated lock



[2] Installation dimension

| Type           | B1   | D1   | D2    | L2    | L3   | L4 |
|----------------|------|------|-------|-------|------|----|
| MS9-LR-...-AS  | 64.4 | 51.2 | –     | 94.5  | –    | –  |
| MS9-LR-...-E11 | –    |      | M44x1 | 103.5 | 13.5 | 60 |

## Ordering data

| Design                                | Pressure regulation range | Flow direction     | Part no. | Type                      |
|---------------------------------------|---------------------------|--------------------|----------|---------------------------|
| <b>MS9-LR...</b>                      |                           |                    |          |                           |
| Piloted diaphragm regulator           | 0.5 ... 4 bar             | From left to right | 564134   | MS9-LR-G-D5-AG-BAR-AS     |
|                                       | 0.5 ... 7 bar             | From left to right | 564136   | MS9-LR-G-D6-AG-BAR-AS     |
|                                       | 0.5 ... 12 bar            | From left to right | 564138   | MS9-LR-G-D7-AG-BAR-AS     |
| Directly actuated diaphragm regulator | 0.5 ... 4 bar             | From left to right | 564135   | MS9-LR-G-D5-DI-AG-BAR-AS  |
|                                       |                           | From left to right | 564140   | MS9-LR-NG-D5-DI-AG-PSI-AS |
|                                       | 0.5 ... 7 bar             | From left to right | 564137   | MS9-LR-G-D6-DI-AG-BAR-AS  |
|                                       |                           | From left to right | 564142   | MS9-LR-NG-D6-DI-AG-PSI-AS |

## Ordering data – Modular product system

| Ordering table                             |  | Grid dimension | [mm] | 90      | Conditions | Code  | Enter code |
|--|--|----------------|------|---------|------------|-------|------------|
| Module no.                                 | 562530   |                |      |         |            |       |            |
| Series                                     | Standard   |                |      |         |            | MS    | MS         |
| Size                                       | 9  |                |      |         |            | 9     | 9          |
| Function                                   | Pressure regulator   |                |      |         |            | -LR   | -LR        |
| Pneumatic connection                       | Female thread G3/4   |                |      | [1]     |            | -3/4  |            |
|  | Female thread G1   |                |      | [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   |                |      | [1]     |            | -AQR  |            |
|  | Connecting plate 3/4 NPT   |                |      | [1]     |            | -AQS  |            |
|  | Connecting plate 1 NPT   |                |      | [1]     |            | -AQT  |            |
|  | Connecting plate 1 1/4 NPT   |                |      | [1]     |            | -AQU  |            |
|  | 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        | 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 | MS pressure gauge  |                |      |         |            | -AG   |            |
|  | Cover plate  |                |      |         |            | -VS   |            |
|  | Adapter for EN pressure gauge 1/4, without pressure gauge                                    |                |      |         |            | -A4   |            |
|  | Integrated pressure gauge, red/green scale   |                |      | [4]     |            | -RG   |            |
|  | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact |                |      | [1] [5] |            | -AD7  |            |
|  | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact |                |      | [1] [5] |            | -AD8  |            |
|  | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/O contact          |                |      | [1] [5] |            | -AD9  |            |
|  | Pressure sensor with status indicator, plug M8, window comparator, PNP, N/C contact          |                |      | [1] [5] |            | -AD10 |            |

[1] 3/4, 1, N3/4, N1, Not with EU EX4 certification

AQR, AQS, AQT,  
AQU, AQV, G, NG,  
D8, AD7, AD8,  
AD9, AD10, E11,  
WPM

[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 serves only as an auxiliary scale.

[5] AD7 ... AD10 Measuring range max. 10 bar.

## Ordering data – Modular product system

| Ordering table                   |  | Grid dimension [mm] | 90 | Conditions | Code        | Enter code |
|----------------------------------|--|---------------------|----|------------|-------------|------------|
| Alternative pressure gauge scale | psi  |                     |    | [6]        | <b>-PSI</b> |            |
|                                  | MPa  |                     |    | [6]        | <b>-MPA</b> |            |
|                                  | bar  |                     |    | [6]        | <b>-BAR</b> |            |
| Secondary exhausting             | With secondary exhausting                              |                     |    |            |             |            |
|                                  | Without secondary exhausting                           |                     |    | [7]        | <b>-OS</b>  |            |
| Alternative mounting position    | None   |                     |    |            |             |            |
|                                  | Rotary knob underneath (connection underneath with PO) |                     |    |            | <b>-KD</b>  |            |
| Locking option                   | Without (locking option AS is predefined)              |                     |    |            |             |            |
|                                  | Lockable using accessories                             |                     |    |            | <b>-AS</b>  |            |
|                                  | With integrated lock                                   |                     |    | [1]        | <b>-E11</b> |            |
| Type of mounting                 | Without mounting bracket                               |                     |    |            |             |            |
|                                  | Mounting bracket standard design                       |                     |    | [8]        | <b>-WP</b>  |            |
|                                  | Mounting bracket for attaching service unit components |                     |    | [1] [8]    | <b>-WPM</b> |            |
|                                  | Mounting bracket for large wall gap                    |                     |    | [8]        | <b>-WPB</b> |            |
| EU certification                 | None   |                     |    |            |             |            |
|                                  | II 2GD to EU Explosion Protection Directive (ATEX)     |                     |    |            | <b>-EX4</b> |            |
| UL certification                 | None   |                     |    |            |             |            |
|                                  | cULus, ordinary location for Canada and USA            |                     |    |            | <b>-UL1</b> |            |
| Flow direction                   | Flow direction from left to right                      |                     |    |            |             |            |
|                                  | Flow direction from right to left                      |                     |    |            | <b>-Z</b>   |            |

[1] **3/4, 1, N3/4, N1, AQR, AQS, AQT, AQU, Aqv, G, NG, D8, 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

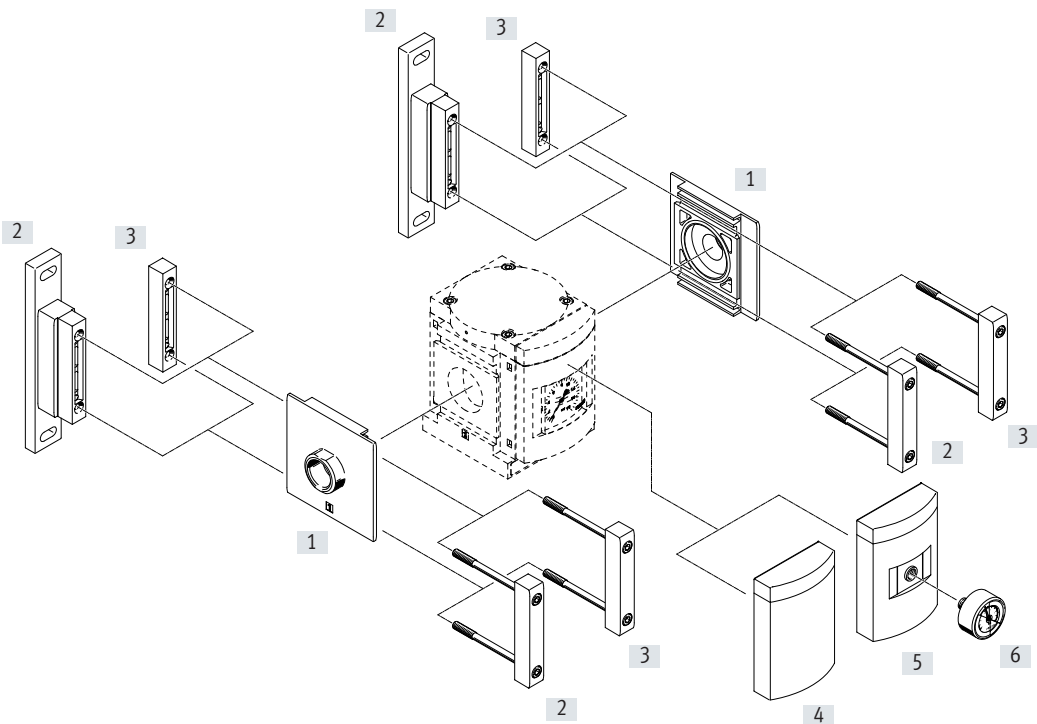
[7] **OS** Only with regulator type DI


[8] **WP, WPM, WPB**

Not with pneumatic connection G, NG

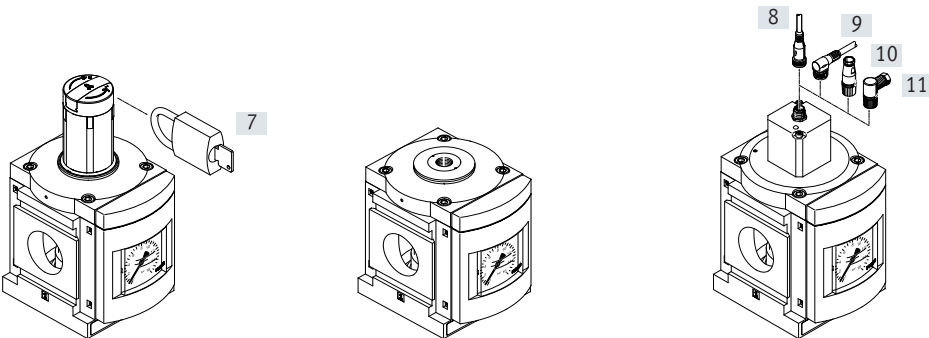
Peripherals overview

Pressure regulator MS12-LR



 **Note**  
Additional accessories:  
• Module connector for combination with size MS9 → Internet: armv

Manually actuated      Pneumatically actuated      Electrically actuated



## Peripherals overview

| Mounting attachments and accessories |   | → Page/Internet |
|--------------------------------------|---|-----------------|
| [1]                                  | Connecting plate SET<br>MS12-AG...      | ms12-ag         |
| [2]                                  | Mounting bracket<br>MS12-WP             | ms12-wp         |
| [3]                                  | Module connector<br>MS12-MV             | ms12-mv         |
| [4]                                  | Cover plate<br>VS                       | 109             |
| [5]                                  | Adapter for EN pressure gauge 1/4<br>A4 | 109             |
| [6]                                  | Pressure gauge<br>MA                    | 110             |
| [7]                                  | Padlock<br>LRVS-D                       | 110             |
| [8]                                  | Connecting cable<br>NEBU-M12G...-LE4    | 110             |
| [9]                                  | Connecting cable<br>NEBU-M12W...-LE4    | 110             |
| [10]                                 | Sensor socket<br>SIE-GD                 | 110             |
| [11]                                 | Angled plug socket<br>SIE-WD            | 110             |

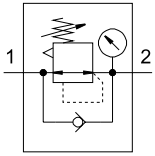
## Type codes

|            |  |  |
|------------|--|--|
| <b>001</b> | <b>Series</b>  |  |
| <b>MS</b>  | MS series  |  |
| <b>002</b> | <b>Size</b>  |  |
| <b>12</b>  | Grid dimension 124 mm  |  |
| <b>003</b> | <b>Function</b>  |  |
| <b>LR</b>  | Pressure regulator   |  |
| <b>004</b> | <b>Pneumatic connection</b>  |  |
| <b>AGF</b> | Sub-base G1  |  |
| <b>AGG</b> | Sub-base G11/4   |  |
| <b>AGH</b> | Sub-base G11/2   |  |
| <b>AGI</b> | Sub-base G2  |  |
| <b>G</b>   | Module without connecting thread, without sub-base                                   |  |
| <b>005</b> | <b>Pressure regulation range</b>   |  |
| <b>D6</b>  | 0.3 ... 7 bar  |  |
| <b>D7</b>  | 0.5 ... 12 bar   |  |
| <b>D8</b>  | 0.5 ... 16 bar   |  |
| <b>PO</b>  | Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)   |  |
| <b>PE6</b> | 0.15 ... 6 bar, solenoid actuated (pilot control by proportional-pressure regulator) |  |

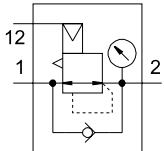
|            |   |  |
|------------|---|--|
| <b>006</b> | <b>Pressure gauge alternatives</b>                        |  |
|            | None  |  |
| <b>VS</b>  | Cover plate   |  |
| <b>A4</b>  | Adapter for EN pressure gauge 1/4, without pressure gauge |  |
| <b>007</b> | <b>Alternative pressure gauge scale</b>                   |  |
|            | MS pressure gauge   |  |
| <b>PSI</b> | psi   |  |
| <b>MPA</b> | MPa   |  |
| <b>008</b> | <b>Rotary knob alternative</b>                            |  |
|            | None  |  |
| <b>LD</b>  | Long rotary knob  |  |
| <b>009</b> | <b>Type of mounting</b>                                   |  |
|            | Without mounting bracket                                  |  |
| <b>WP</b>  | Mounting bracket basic design                             |  |
| <b>010</b> | <b>Flow direction</b>                                     |  |
|            | Flow direction from left to right                         |  |
| <b>Z</b>   | Flow direction from right to left                         |  |

## Datasheet

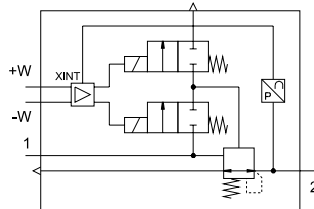
Pressure regulation range/actuation,  
manually actuated







Pressure regulation range/actuation,  
pneumatically actuated



Pressure regulation range/actuation,  
electrically actuated



-  - Flow rate  
12000 ... 22000 l/min
-  - Temperature range  
-10 ... +60°C
-  - Operating pressure  
0.8 ... 21 bar
-  - [www.festo.com](http://www.festo.com)

The pressure regulator maintains an essentially constant output pressure p2 independent 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 connection 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 set values from being adjusted
- With secondary exhausting
- Pressure gauge connection for different fitting options

### General technical data

|  |         |   |
|--|---------|---|
| Pneumatic connection 1, 2                          |         |   |
| Connecting plate                                   | [AG...] | G1, G1 1/4, G1 1/2 or G2  |
| Module without connecting thread/ connecting plate | [G]     | –   |
| Pilot air port 12                                  |         | G1/4 (MS12-LR-...-PO)   |
| Design   |         | Pressure regulator with/without pressure gauge  |
|  |         | Piloted diaphragm regulator (MS12-LR-...-D6/D7/D8/PE6)  |
|  |         | Diaphragm regulator (MS12-LR-...-PO)  |
| Regulator function                                 |         | Output pressure constant, with input pressure compensation, with return flow, with secondary exhausting |
| Type of mounting                                   |         | With accessories  |
|  |         | In-line installation  |
| Mounting position                                  |         | Any   |
| Actuator lock                                      |         | Rotary knob with latch, can be locked using accessories   |
|  |         | Rotary knob with integrated lock  |
| Pressure regulation range/ actuation               | [D6]    | [bar] 0.3 ... 7, manually actuated <sup>1)</sup>  |
|  | [D7]    | [bar] 0.5 ... 12, manually actuated <sup>1)</sup>   |
|  | [D8]    | [bar] 0.5 ... 16, manually actuated <sup>1)</sup>   |
|  | [PO]    | [bar] 0.5 ... 16, pneumatically actuated <sup>1)</sup>  |
|  | [PE6]   | [bar] 0.15 ... 6, electrically actuated   |
| Max. pressure hysteresis                           | [bar]   | 0.4 (MS12-LR-...-D6/D7/D8/PO)   |
|  |         | 0.04 (MS12-LR-...-PE6)  |
| Pressure indicator                                 |         | With pressure gauge   |

1) Prerequisite:  $P_1 = P_2 + 1$  bar.

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

## Datasheet

| Flow rates                                       |                                   |                     |
|--|-----------------------------------|---------------------|
| Pressure regulation range/actuation              | [D6]/[D7]/[D8]/[PO] <sup>1)</sup> | [PE6] <sup>2)</sup> |
| Standard nominal flow rate $q_{nN}^{3)}$ [l/min] |                                   |                     |
| $q_{nN} 1 \rightarrow 2$                         | G1                                | 13000               |
|  | G1 1/4                            | 13500               |
|  | G1 1/2                            | 16000               |
|  | G2                                | 22000               |
| Secondary exhaust flow rate [l/min]              |                                   |                     |
| $q_n 2 \rightarrow 3$                            | ≤ 600                             | ≤ 600               |

1) Measured at p1 = 10 bar and p2 = 6 bar, Δp = 0.5 bar

2) Measured at p1 = 7 bar and p2 = 6 bar, Δp = 0.5 bar

3) Dependent on the selected connecting plate; must be ordered separately as an accessory → Internet: ms12-ag

| Electrical data                     |        |               |
|-------------------------------------|--------|---------------|
| Pressure regulation range/actuation |        | [PE6]         |
| Operating voltage range             | [V DC] | 21.6 ... 26.4 |
| Nominal operating voltage           | [V DC] | 24            |
| Residual ripple                     | [%]    | 10            |
| Analogue input signal range         | [V]    | 0 ... 10      |
| Max. current consumption            | [A]    | 0.15          |
| Max. electrical power consumption   | [W]    | 3.6           |
| Degree of protection                |        | IP65          |

| Operating and environmental conditions                   |  |                                   |
|--|--|-----------------------------------|
| Pressure regulation range/actuation                      | [D6]/[D7]/[D8]/[PO]                                      | [PE6]                             |
| Operating pressure                                       | [bar]  | 0.8 ... 21                        |
| Operating medium   | Compressed air to ISO 8573-1:2010 [7:4:4]<br>Inert gases |                                   |
| Ambient temperature                                      | [°C]   | -10 ... +60                       |
| Temperature of medium                                    | [°C]   | -10 ... +60                       |
| Storage temperature                                      | [°C]   | -10 ... +60                       |
| Corrosion resistance class CRC <sup>1)</sup>             | 2  |                                   |
| CE marking (see declaration of conformity) <sup>3)</sup> | –  | To EU EMC Directive <sup>2)</sup> |
| KC mark  | –  | KC EMC                            |

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

2) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

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.

3) Additional information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

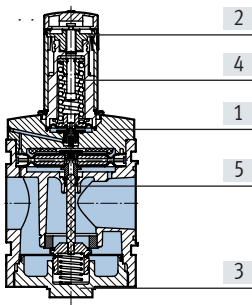
| Weight [g]   |      |
|--|------|
| Pressure regulator                                       | 4000 |
| Pressure regulator with rotary knob with integrated lock | 4300 |



## Datasheet

## Materials

## Sectional view

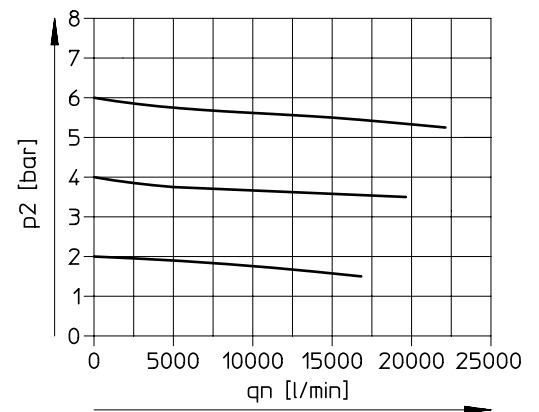
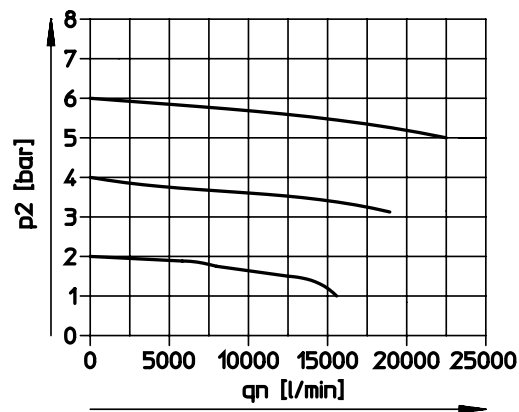


| Pressure regulator |                                  |  |
|--------------------|----------------------------------|--|
| [1]                | Housing                          | Die-cast aluminium                                       |
| [2]                | Rotary knob                      | Reinforced PA, POM                                       |
|                    | Rotary knob with integrated lock | Wrought aluminium alloy                                  |
| [3]                | Bottom cover                     | Wrought aluminium alloy                                  |
| [4]                | Spring                           | Spring steel   |
| [5]                | Valve tappet                     | Wrought aluminium alloy, NBR, high-alloy stainless steel |
| -                  | Seals, diaphragm                 | NBR  |
| Note on materials  |                                  | RoHS-compliant   |
|                    |                                  | Free of copper and PTFE only with cover plate            |

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

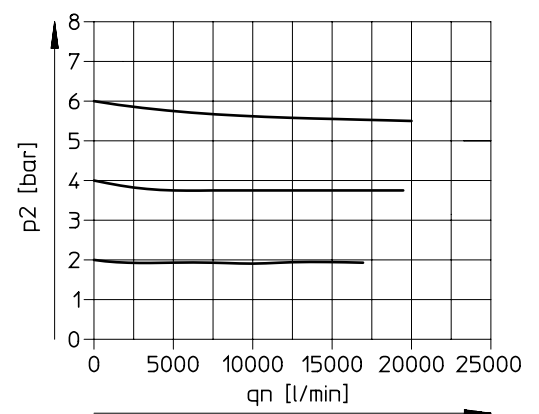
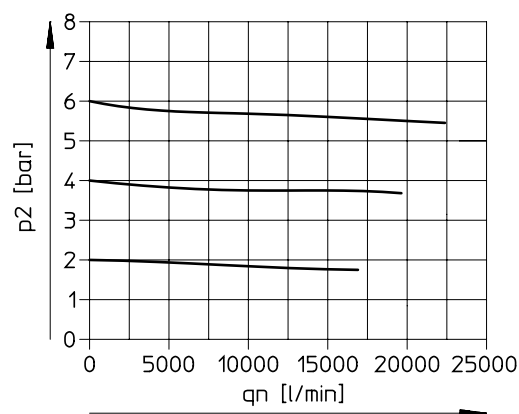
Pneumatic connection G1 with connecting plate MS12-AGF

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

Input pressure  $p_1 = 10$  bar

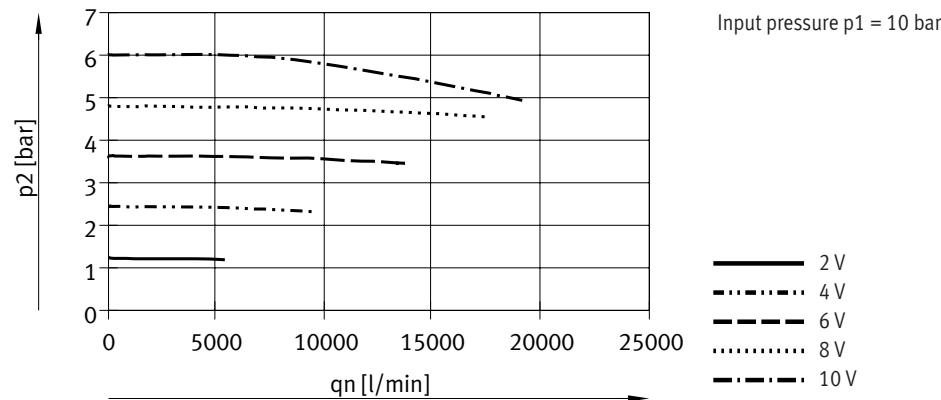
Pneumatic connection G1 1/2 with connecting plate MS12-AGH

Pneumatic connection G2 with connecting plate MS12-AGI

Input pressure  $p_1 = 10$  bar

Datasheet

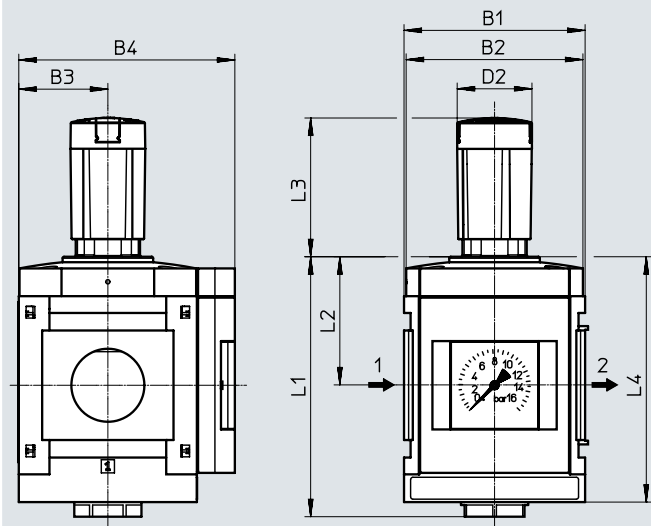
Standard flow rate qn as a function of output pressure p2 (p1 = 10 bar) (MS12-LR-...-PE6 only)  
Pneumatic connection G1 1/2 with connecting plate MS12-AGH



Dimensions – Basic version

Download CAD data → [www.festo.com](http://www.festo.com)

- [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



| Type                 | B1  | B2  | B3 | B4  | D2<br>∅ | L1  | L2 | L3 | L4  |
|----------------------|-----|-----|----|-----|---------|-----|----|----|-----|
| MS12-LR-...-D6/D7/D8 | 124 | 122 | 61 | 148 | 51.2    | 178 | 88 | 95 | 168 |

## Datasheet

## Dimensions – Pressure regulation range

Download CAD data → [www.festo.com](http://www.festo.com)

[PO] Pressure regulation range, pneumatically actuated

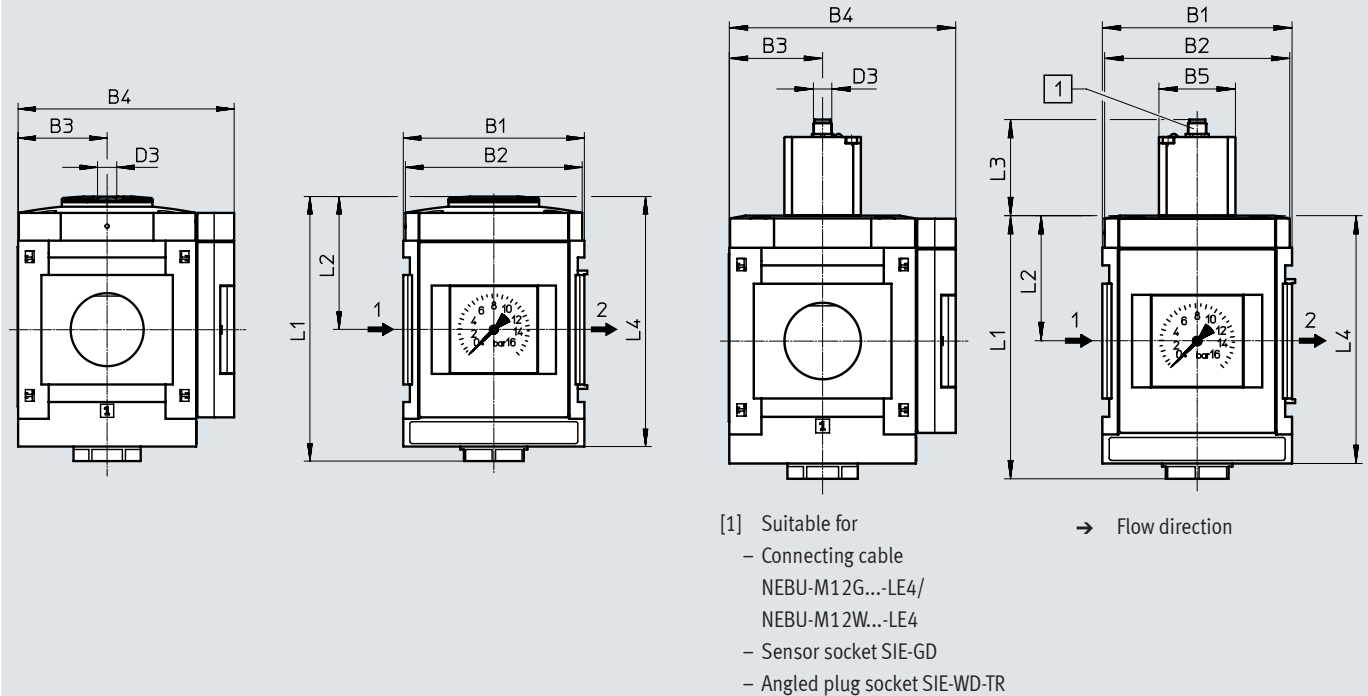
[G] Module without connecting thread, without connecting plate

[ ] Integrated MS pressure gauge with standard scale

[PE6] Pressure regulation range, electrically actuated

[G] Module without connecting thread, without connecting plate

[ ] Integrated MS pressure gauge with standard scale



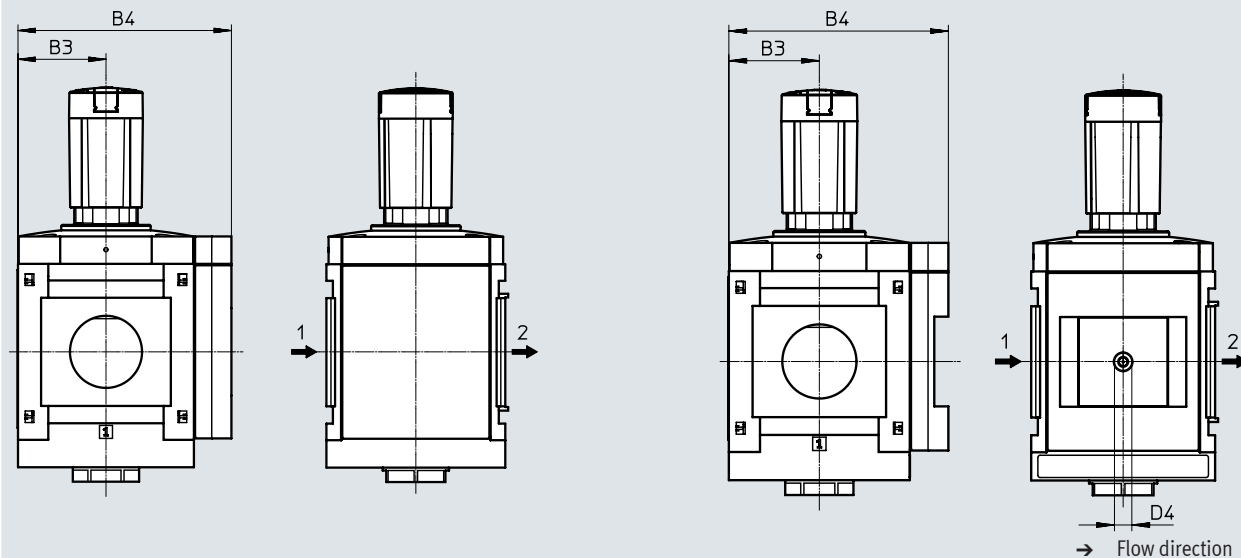
| Type            | B1  | B2  | B3 | B4  | B5 | D3   | L1  | L2 | L3   | L4  |
|-----------------|-----|-----|----|-----|----|------|-----|----|------|-----|
| MS12-LR....-PO  | 124 | 122 | 61 | 148 | –  | G1/4 | 181 | 91 | –    | 171 |
| MS12-LR....-PE6 |     |     |    |     | 50 | M12  | 172 | 82 | 62.7 | 162 |

## Dimensions – Pressure gauge alternatives

Download CAD data → [www.festo.com](http://www.festo.com)

[VS] Cover plate

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



| Type           | B3 | B4  | D4   |
|----------------|----|-----|------|
| MS12-LR....-VS | 61 | 148 | –    |
| MS12-LR....-A4 | 61 | 148 | G1/4 |

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

Datasheet

**Dimensions – Rotary knob**

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

[E11] Rotary knob with integrated lock

Technical drawing of a rotary knob with a latch. The drawing shows a side view with dimensions B4 (width), D2 (diameter), L3 (total height), and L8 (height to the top of the knob). A top view shows the knob's profile with a latch.

Technical drawing of a rotary knob with an integrated lock. The drawing shows a side view with dimensions D2 (diameter), L10 (height to the top of the knob), L3 (total height), and a callout [2] for the installation dimension. A top view shows the knob's profile with a lock.

[2] Installation dimension

| Type              | B4   | D2<br>ø | 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               |
| MS12-LR...                  |                           |                    |          |                    |
| 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       |

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→ Internet: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)


Subject to change – 2022/10



## Ordering data – Modular product system

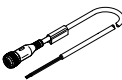

| Ordering table                      |  | Grid dimension     | [mm] | 124 | Conditions | Code        | Enter code |
|-------------------------------------|--|--------------------|------|-----|------------|-------------|------------|
| Module no.                          |  | <b>535021</b>      |      |     |            |             |            |
| Series                              |  | Standard           |      |     |            | <b>MS</b>   | MS         |
| Size                                |  | 12                 |      |     |            | <b>12</b>   | 12         |
| Function                            |  | Pressure regulator |      |     |            | <b>-LR</b>  | -LR        |
| Pneumatic connection                | Connecting plate G1  |                    |      |     |            | <b>-AGF</b> |            |
|                                     | Connecting plate G1 1/4  |                    |      |     |            | <b>-AGG</b> |            |
|                                     | Connecting plate G1 1/2  |                    |      |     |            | <b>-AGH</b> |            |
|                                     | Connecting plate G2  |                    |      |     |            | <b>-AGI</b> |            |
|                                     | Module without connecting thread, without connecting plate                               |                    |      |     |            | <b>-G</b>   |            |
| Pressure regulation range/actuation | 0.3 ... 7 bar, manually actuated   |                    |      |     |            | <b>-D6</b>  |            |
|                                     | 0.5 ... 12 bar, manually actuated  |                    |      |     |            | <b>-D7</b>  |            |
|                                     | 0.5 ... 16 bar, manually actuated  |                    |      |     |            | <b>-D8</b>  |            |
|                                     | Max. 16 bar, pneumatically actuated (pressure range determined by pilot regulator)       |                    |      |     | [1] [2]    | <b>-PO</b>  |            |
|                                     | 0.15... 6 bar, electrically actuated (pilot control via proportional pressure regulator) |                    |      |     | [1] [2]    | <b>-PE6</b> |            |
| Pressure gauge alternatives         | MS pressure gauge  |                    |      |     |            |             |            |
|                                     | Cover plate  |                    |      |     |            | <b>-VS</b>  |            |
|                                     | Adapter for EN pressure gauge 1/4, without pressure gauge                                |                    |      |     |            | <b>-A4</b>  |            |
| Alternative pressure gauge scale    | MS pressure gauge, bar   |                    |      |     |            |             |            |
|                                     | psi  |                    |      |     | [3]        | <b>-PSI</b> |            |
|                                     | MPa  |                    |      |     | [3]        | <b>-MPA</b> |            |
| Rotary knob alternatives            | None   |                    |      |     |            |             |            |
|                                     | Long rotary knob   |                    |      |     | [2]        | <b>-LD</b>  |            |
| Locking option                      | None   |                    |      |     | [4]        |             |            |
|                                     | Lockable using accessories   |                    |      |     | [5]        | <b>-AS</b>  |            |
|                                     | With integrated lock   |                    |      |     |            | <b>-E11</b> |            |
| Type of mounting                    | Without mounting bracket   |                    |      |     |            |             |            |
|                                     | Mounting bracket standard design   |                    |      |     | [6]        | <b>-WP</b>  |            |
| Flow direction                      | Flow direction from left to right  |                    |      |     |            |             |            |
|                                     | Flow direction from right to left  |                    |      |     |            | <b>-Z</b>   |            |


- [1] PO, PE6 Not with rotary knob alternative LD.  
Not with locking option AS.
- [2] PO, PE6, LD Not with locking option E11.
- [3] PSI, MPA Not with pressure gauge alternatives VS, A4.
- [4] Must be selected if pressure regulation range/actuation PO, PE6 is selected.  
Not with pressure regulation range/actuation D6, D7, D8.  
Not with rotary knob alternative LD.
- [5] AS Only with rotary knob alternative LD.
- [6] WP Only with connecting plate AGF, AGG, AGH or AGI.


## Accessories


| Ordering data – Pressure gauge MA  |   |                      |               |           |                            |                    |
|--|---|----------------------|---------------|-----------|----------------------------|--------------------|
|  | Nominal size                                      | Pneumatic connection | Display range |           | Part no.                   | Type               |
|  |   |                      | [bar]         | [psi]     |                            |                    |
|  | Pressure gauge MA, EN 837-1                       |                      |               |           | Datasheets → Internet: ma  |                    |
|  | 40  | R1/4                 | 0 ... 16      | 0 ... 232 | 187080                     | MA-40-16-R1/4-EN   |
|  |   | G1/4                 | 0 ... 16      | 0 ... 232 | 183901                     | MA-40-16-G1/4-EN   |
|  | Pressure gauge MA, EN 837-1, with red/green range |                      |               |           | Datasheets → Internet: ma  |                    |
|  | 40  | R1/8                 | 0 ... 16      | –         | 525726                     | MA-40-16-R1/8-E-RG |
|  | 50  | R1/4                 | 0 ... 16      | –         | 525729                     | MA-50-16-R1/4-E-RG |
|  | Precision pressure gauge MAP, EN 837-1            |                      |               |           | Datasheets → Internet: map |                    |
|  | 40  | R1/8                 | 0 ... 1       | 0 ... 15  | 161126                     | MAP-40-1-1/8-EN    |
|  |   |                      | 0 ... 4       | 0 ... 58  | 162842                     | MAP-40-4-1/8-EN    |
|  |   |                      | 0 ... 6       | 0 ... 87  | 161127                     | MAP-40-6-1/8-EN    |
|  |   |                      | 0 ... 16      | 0 ... 232 | 161128                     | MAP-40-16-1/8-EN   |

| Ordering data – Connecting cable NEBU-M8   |                       |                 |                  |          |                     |
|--|-----------------------|-----------------|------------------|----------|---------------------|
|  | Electrical connection | Number of wires | Cable length [m] | Part no. | Type                |
|  | M8x1, straight socket | 3               | 2.5              | ★ 541333 | NEBU-M8G3-K-2.5-LE3 |
|  |                       |                 | 5                | ★ 541334 | NEBU-M8G3-K-5-LE3   |
|  |                       | 4               | 2.5              | 541342   | NEBU-M8G4-K-2.5-LE4 |
|  | M8x1, angled socket   | 3               | 2.5              | ★ 541338 | NEBU-M8W3-K-2.5-LE3 |
|  |                       |                 | 5                | ★ 541341 | NEBU-M8W3-K-5-LE3   |
|  |                       | 4               | 2.5              | 541344   | NEBU-M8W4-K-2.5-LE4 |

| Ordering data – Connecting cable NEBU-M12  |                        |                 |                  |          |                      |
|--|------------------------|-----------------|------------------|----------|----------------------|
|  | Electrical connection  | Number of wires | Cable length [m] | Part no. | Type                 |
|  | M12x1, straight socket | 4               | 2.5              | ★ 550326 | NEBU-M12G5-K-2.5-LE4 |
|  |                        |                 | 5                | ★ 541328 | NEBU-M12G5-K-5-LE4   |
|  |                        | 5               | 2.5              | 541330   | NEBU-M12G5-K-2.5-LE5 |
|  |                        |                 | 5                | 541331   | NEBU-M12G5-K-5-LE5   |
|  | M12x1, angled socket   | 4               | 2.5              | 550325   | NEBU-M12W5-K-2.5-LE4 |
|  |                        |                 | 5                | 541329   | NEBU-M12W5-K-5-LE4   |

| Ordering data – Sensor socket SIE-GD   |                       |          |        |
|--|-----------------------|----------|--------|
|  | Electrical connection | Part no. | Type   |
|  | M12x1, 4-pin          | 18494    | SIE-GD |

| Ordering data – Angled plug socket SIE-WD  |                       |          |           |
|--|-----------------------|----------|-----------|
|  | Electrical connection | Part no. | Type      |
|  | M12x1, 4-pin          | 12956    | SIE-WD-TR |

| Ordering data – Padlock LRVS-D   |            |          |        |
|--|------------|----------|--------|
|  | Weight [g] | Part no. | Type   |
|  | 120        | 193786   | LRVS-D |

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