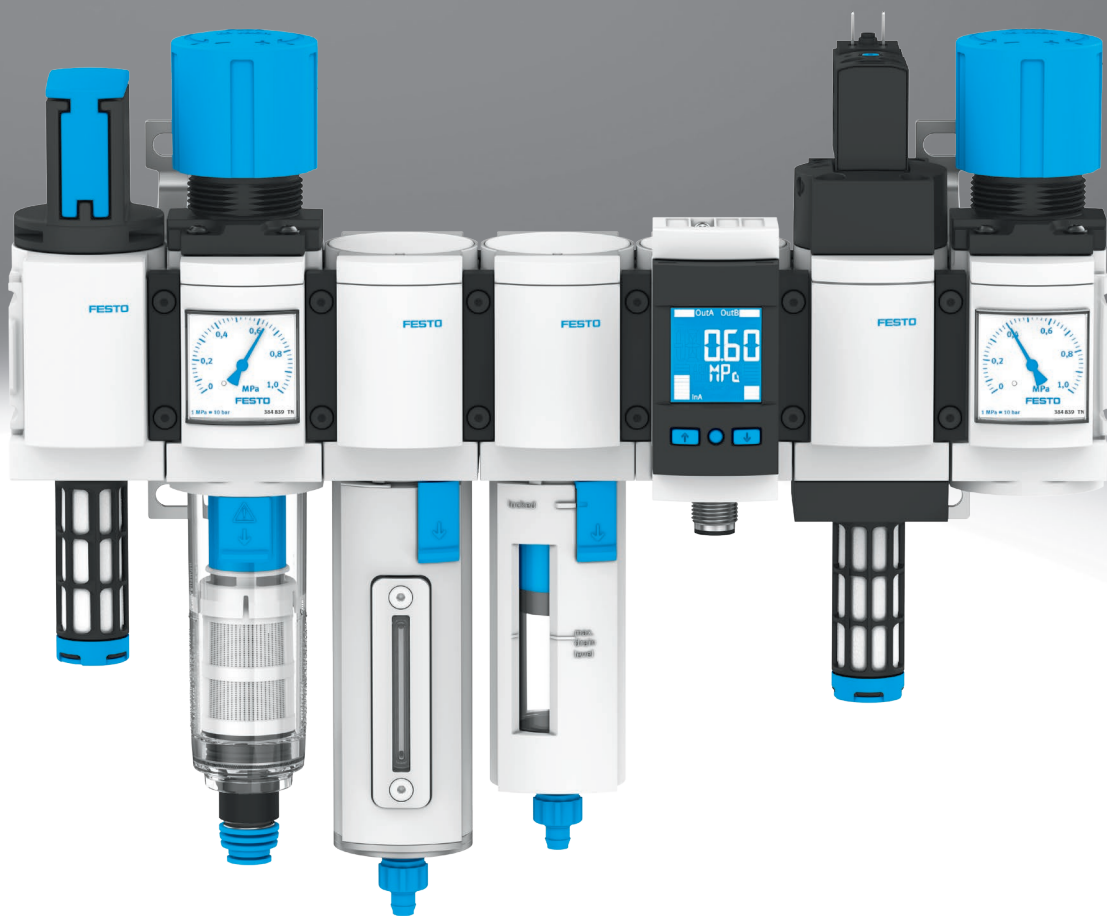


# Service unit combinations MSB4/MSB6, MS series



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.

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

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



## Key features

### Service unit components of the MS series

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.

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. Thanks to the modular structure the components can be combined as required. The simple connection system saves time because there is no need to disassemble the entire combi-

nation when replacing individual modules. Many of the components are also UL and ATEX certified.

CAD models and configurator

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

Engineering tools

Selection tool for choosing the right combination of service unit components without oversizing, and with the right air purity class:  
→ [www.festo.com/engineering/service-unit](http://www.festo.com/engineering/service-unit)

#### Air quality

The 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 <math>< 0.5 \text{ mg/m}^3</math>
- painting, powder coating, air bearing application with residual oil content <math>< 0.01 \text{ mg/m}^3</math>
- food and beverage industry, optics application with residual oil content <math>< 0.003 \text{ mg/m}^3</math> 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

**ISO**

\* Downstream from the compressor the water content is assumed to be ISO class 4. Better classes can be achieved by applying an adsorption dryer PDND or a membrane dryer LDM1

**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

\* 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



- 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

### Safety functions

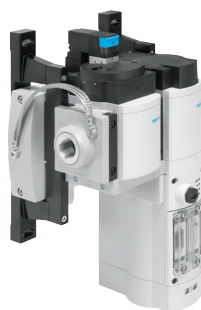
Soft-start/quick exhaust valves  
MS6-SV/MS9-SV



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

### Saving energy

Service unit combinations MSE6



- Fully automatic monitoring and regulation of the compressed air supply
- Automatic shut-off of the compressed air in stand-by mode
- Detection and notification of leaks
- Condition monitoring of relevant process data

Intelligent mix of sizes



- 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   | MS2      | MS4              | MS6                    | MS9                            | MS12                   |
|--|----------|------------------|------------------------|--------------------------------|------------------------|
| Grid dimension [mm]                              | 25       | 40               | 62                     | 90                             | 124                    |
| Connection sizes                                 | M5, QS-6 | 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 $q_{nN}^{1)}$ [l/min] | 350      | 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 combination







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

The configurator for the service unit MSB is a reliable and convenient way of combining individual service unit components and ensures compliance with the applicable rules. As a result, you get a fully assembled combination with UL or ATEX certification, if necessary. When combining a unit from individually configured and ordered service unit components, the following points 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 service unit components of the MS series                          |   |      |                      |               |               |        |                              |                             |
|---|---|------|----------------------|---------------|---------------|--------|------------------------------|-----------------------------|
| Type  | Description   | Size | Pneumatic connection |               |               |        |                              |                             |
|   |   |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                             |
|   |   |      |                      | M             | G             | NPT    | G                            | NPT                         |
| <b>Combinations</b>   |   |      |                      |               |               |        |                              |                             |
| <b>Service unit combinations MSB-FRC</b>  |   |      |                      |               |               |        |                              | Datasheets → Internet: msb  |
|  | Combinations of filter regulator and lubricator   | 4    | –                    | –             | 1/8, 1/4      | –      | –                            | –                           |
|   |   | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | –                            | –                           |
| <b>Service unit combinations MSB</b>  |   |      |                      |               |               |        |                              |                             |
| <b>Service unit combinations MSB</b>  |   |      |                      |               |               |        |                              | Datasheets → Internet: msb  |
|  | Certain predefined combinations   | 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   |
| <b>Service unit combinations MSE6</b>   |   |      |                      |               |               |        |                              |                             |
| <b>Service unit combinations MSE6</b>   |   |      |                      |               |               |        |                              | Datasheets → Internet: mse6 |
|  | Combinations with fieldbus connection for measuring pressure, flow rate and consumption | 6    | –                    | –             | –             | –      | 1/2                          | –                           |
|   |   |      |                      |               |               |        |                              |                             |









## Key features

| Product range for service unit components of the MS series                          |   |      |   |               |               |        |                           |                              |  |
|---|---|------|---|---------------|---------------|--------|---------------------------|------------------------------|--|
| Type  | Description   | Size | Pneumatic connection  |               |               |        |                           | Connecting plate with thread |  |
|   |   |      | Push-in connector   | Female thread |               |        | G                         | NPT                          |  |
|   |   |      |   | M             | G             | NPT    |                           |                              |  |
| <b>Individual devices</b>   |   |      |   |               |               |        |                           |                              |  |
| <b>Filter regulators MS-LFR</b>   |   |      | Datasheets → Internet: ms2-lfr; ms4-lfr; ms6-lfr; ms9-lfr; ms12-lfr |               |               |        |                           |                              |  |
|    | Filter and pressure regulator in a single device, grade of filtration 5 or 40 µm                    | 2    | QS-6  | M5            | –             | –      | –                         | –                            |  |
|   |   | 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        | –                            |  |
| <b>Filter regulators MS-LFR-B</b>   |   |      | Datasheets → Internet: ms4-lfr-b; ms6-lfr-b                         |               |               |        |                           |                              |  |
|    | Filter and pressure regulator in a single device in polymer housing, grade of filtration 5 or 40 µm | 4    | –   | –             | 1/4           | –      | –                         | –                            |  |
|   |   | 6    | –   | –             | 1/2           | –      | –                         | –                            |  |
| <b>Filters MS-LF</b>  |   |      | Datasheets → Internet: ms4-lf; ms6-lf; ms9-lf; ms12-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        | –                            |  |
| <b>Fine and micro filters MS-LFM</b>  |   |      | Datasheets → Internet: ms4-lfm; ms6-lfm; ms9-lfm; ms12-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        | –                            |  |
| <b>Activated carbon filters MS-LFX</b>  |   |      | Datasheets → Internet: ms4-lfx; ms6-lfx; ms9-lfx; ms12-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        | –                            |  |
| <b>Water separators MS-LWS</b>  |   |      | Datasheets → Internet: ms6-lws; ms9-lws; ms12-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 service unit components of the MS series   |   |      |                      |               |               |        |                              |                           |
|--|---|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
| Type   | Description   | Size | Pneumatic connection |               |               |        |                              |                           |
|  |   |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                           |
|  |   |      |                      | M             | G             | NPT    | G                            | NPT                       |
| <b>Individual devices</b>  |   |      |                      |               |               |        |                              |                           |
| <b>Pressure regulators MS-LR</b> <span style="float: right;">Datasheets → Internet: ms2-lr; ms4-lr; ms6-lr; ms9-lr; ms12-lr</span> |   |      |                      |               |               |        |                              |                           |
|   | For setting the required operating pressure, 4 pressure regulation ranges   | 2    | QS-6                 | M5            | –             | –      | –                            | –                         |
|  |   | 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           | –                         |
| <b>Pressure regulators MS-LR-B</b> <span style="float: right;">Datasheets → Internet: ms4-lr-b; ms6-lr-b</span>                    |   |      |                      |               |               |        |                              |                           |
|   | For setting the required operating pressure, in polymer housing   | 4    | –                    | –             | 1/4           | –      | –                            | –                         |
|  |   | 6    | –                    | –             | 1/2           | –      | –                            | –                         |
| <b>Pressure regulators MS-LRB</b> <span style="float: right;">Datasheets → Internet: ms4-lrb; ms6-lrb</span>                       |   |      |                      |               |               |        |                              |                           |
|   | For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is at the front or rear.              | 4    | –                    | –             | 1/4           | –      | 1/8, 1/4, 3/8                | –                         |
|  |   | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                         |
| <b>Precision pressure regulators MS-LRP</b> <span style="float: right;">Datasheets → Internet: ms6-lrp</span>                      |   |      |                      |               |               |        |                              |                           |
|   | For precisely setting 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        |
|  |   |      |                      |               |               |        |                              |                           |
| <b>Precision pressure regulators MS-LRPB</b> <span style="float: right;">Datasheets → Internet: ms6-lrpb</span>                    |   |      |                      |               |               |        |                              |                           |
|   | For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is at the front or rear.              | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                         |
|  |   |      |                      |               |               |        |                              |                           |
| <b>Lubricators MS-LOE</b> <span style="float: right;">Datasheets → Internet: ms4-loe; ms6-loe; ms9-loe; ms12-loe</span>            |   |      |                      |               |               |        |                              |                           |
|   | 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           | –                         |
|  |   |      |                      |               |               |        |                              |                           |

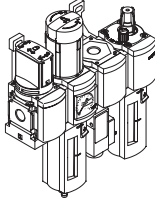
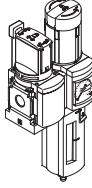
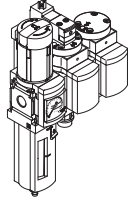
## Key features

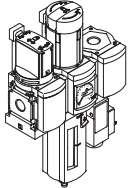
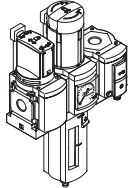
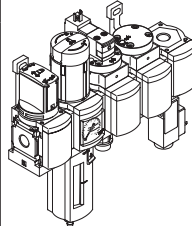
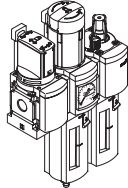
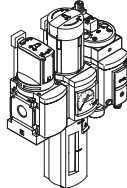
| Product range for service unit components of the MS series                          |   |      |                      |               |               |  |                           |                           |
|---|---|------|----------------------|---------------|---------------|--|---------------------------|---------------------------|
| Type  | Description   | Size | Pneumatic connection |               |               | Connecting plate with thread                           |                           |                           |
|   |   |      | Push-in connector    | Female thread |               | G  |                           | NPT                       |
|   |   |      | M                    | G             | NPT           | G  | NPT                       |                           |
| <b>Individual devices</b>   |   |      |                      |               |               |  |                           |                           |
| <b>On/off valves MS-EM</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-em; ms6-em; ms9-em; ms12-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        | –                         |
| <b>On/off valves MS-EE</b>  |   |      |                      |               |               |  |                           |                           |
| <b>On/off valves MS-EE</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-ee; ms6-ee; ms9-ee; ms12-ee |                           |                           |
|    | Electrically 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        | –                         |
| <b>On/off valves MS-EE-B</b>  |   |      |                      |               |               |  |                           |                           |
| <b>On/off valves MS-EE-B</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-ee-b; ms6-ee-b              |                           |                           |
|    | Electrically actuated on/off valve in polymer housing for pressurising and exhausting pneumatic systems.                        | 4    | –                    | –             | 1/4           | –  | –                         | –                         |
|   |   | 6    | –                    | –             | 1/2           | –  | –                         | –                         |
| <b>Soft-start valves MS-DL</b>  |   |      |                      |               |               |  |                           |                           |
| <b>Soft-start valves MS-DL</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-dl; ms6-dl; ms12-dl         |                           |                           |
|  | Pneumatically actuated soft-start valve for slowly 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        |
|   |   | 12   | –                    | –             | –             | –  | 1, 1 1/4, 1 1/2, 2        | –                         |
| <b>Soft-start valves MS-DE</b>  |   |      |                      |               |               |  |                           |                           |
| <b>Soft-start valves MS-DE</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-de; ms6-de; ms12-de         |                           |                           |
|  | Electrically actuated soft-start valve for slowly 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        |
|   |   | 12   | –                    | –             | –             | –  | 1, 1 1/4, 1 1/2, 2        | –                         |
| <b>On/off valves MS-EDE-B</b>   |   |      |                      |               |               |  |                           |                           |
| <b>On/off valves MS-EDE-B</b>   |   |      |                      |               |               | Datasheets → Internet: ms4-ed-e-b; ms6-ed-e-b          |                           |                           |
|  | Electrically actuated soft-start valve in polymer housing for slowly pressurising and exhausting pneumatic systems.             | 4    | –                    | –             | 1/4           | –  | –                         | –                         |
|   |   | 6    | –                    | –             | 1/2           | –  | –                         | –                         |
| <b>Soft-start/quick exhaust valves MS-SV</b>  |   |      |                      |               |               |  |                           |                           |
| <b>Soft-start/quick exhaust valves MS-SV</b>  |   |      |                      |               |               | Datasheets → Internet: ms6-sv; ms9-sv                  |                           |                           |
|  | For gradually increasing pressurisation and quick, safe pressure reduction 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 service unit components of the MS series                           |  |      |                      |               |               |  |                              |                           |
|--|--|------|----------------------|---------------|---------------|--|------------------------------|---------------------------|
| Type   | Description  | Size | Pneumatic connection |               |               |  | Connecting plate with thread |                           |
|  |  |      | Push-in connector    | Female thread |               |  | G                            | NPT                       |
|  |  |      |                      | M             | G             | NPT  |                              |                           |
| <b>Individual devices</b>  |  |      |                      |               |               |  |                              |                           |
| <b>Membrane air dryers MS-LDM1</b>   |  |      |                      |               |               | Datasheets → Internet: ms4-ldm; ms6-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        |
| <b>Branching modules MS-FRM</b>  |  |      |                      |               |               |  |                              |                           |
| <b>Compressed air distributors with 4 connections</b>                                |  |      |                      |               |               | Datasheets → Internet: ms4-frm; ms6-frm; ms9-frm; ms12-frm |                              |                           |
|     |  | 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           | –                         |
| <b>Distributor blocks MS-FRM-FRZ</b>   |  |      |                      |               |               |  |                              |                           |
| <b>Compressed air distributors with 4 connections and half the grid width</b>        |  |      |                      |               |               | Datasheets → Internet: ms4-frm-frz; ms6-frm-frz            |                              |                           |
|     |  | 4    | –                    | –             | –             | –  | –                            | –                         |
|  |  | 6    | –                    | –             | –             | –  | –                            | –                         |
| <b>Flow sensors SFAM</b>   |  |      |                      |               |               |  |                              |                           |
| <b>For absolute flow rate information and cumulative air consumption measurement</b> |  |      |                      |               |               | Datasheets → Internet: sfam                                |                              |                           |
|   |  | 6    | –                    | –             | –             | –  | 1/2                          | 1/2                       |
|  |  | 9    | –                    | –             | –             | –  | 1, 1 1/2                     | 1, 1 1/2                  |

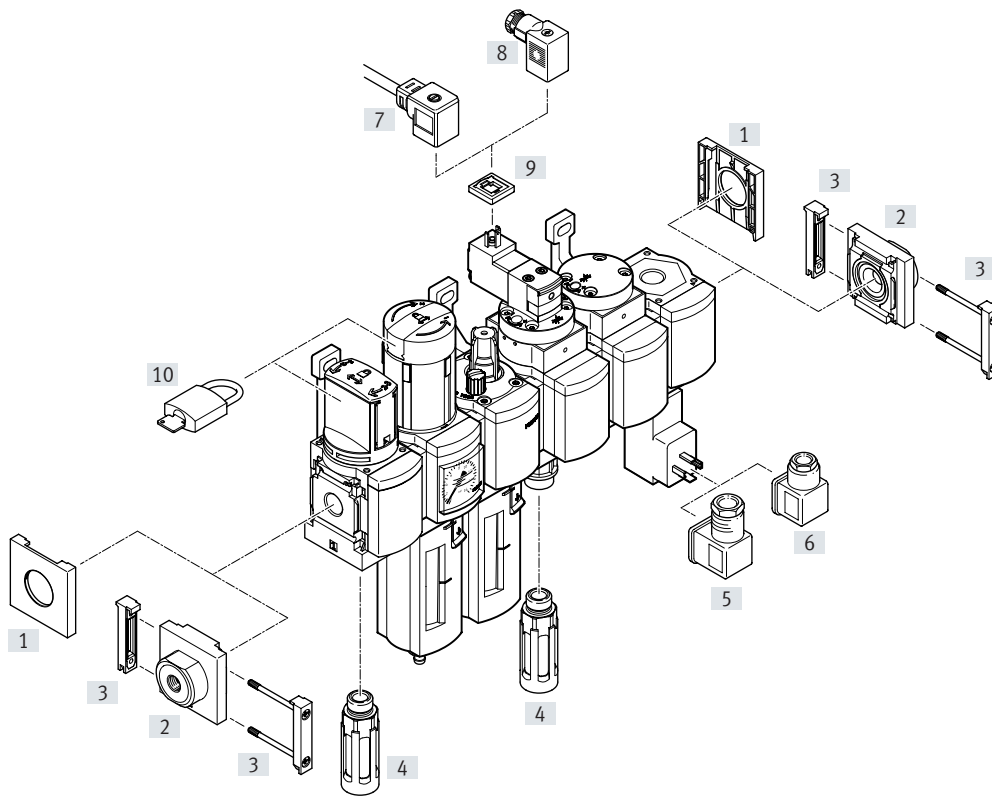
Product range overview

| Combinations   |            | Combination 1   | Combination 2  | Combination 3   |
|--|------------|---|--|---|
|  |            |  |  |  |
| Comprising:  |            |   |  |   |
| Manually operated on/off valve                           | EM1        | ■   | ■  | -   |
| Filter regulator with pressure gauge                     | LFR/ LFR-B | ■   | ■  | ■   |
| Lubricators  | LOE        | ■   | -  | -   |
| Electrically actuated on/off valve                       | EE         | -   | -  | ■   |
| Electrically actuated on/off valve, with pressure sensor | EE         | -   | -  | -   |
| Pneumatically actuated soft-start valve                  | DL         | -   | -  | ■   |
| Branching module with pressure switch                    | FRM        | ■   | -  | -   |
| Branching module with pressure sensor                    | FRM        | -   | -  | -   |
| Mounting bracket   | WP         | ■   | ■  | ■   |
| <b>Datasheet → page</b>                                  |            | <b>10</b>   | <b>13</b>  | <b>20</b>   |

| Combinations   |            | Combination 4   |   | Combination 5  | Combination 6   | Combination 7   |
|--|------------|---|---|--|---|---|
|  |            |  |  |  |  |  |
| Comprising:  |            |   |   |  |   |   |
| Manually operated on/off valve                           | EM1        | ■   | ■   | ■  | ■   | ■   |
| Filter regulator with pressure gauge                     | LFR/ LFR-B | ■   | ■   | ■  | ■   | ■   |
| Lubricators  | LOE        | -   | -   | -  | ■   | -   |
| Electrically actuated on/off valve                       | EE         | -   | -   | ■  | -   | -   |
| Electrically actuated on/off valve, with pressure sensor | EE         | -   | -   | -  | -   | ■   |
| Pneumatically actuated soft-start valve                  | DL         | -   | -   | ■  | -   | -   |
| Branching module with pressure switch                    | FRM        | ■   | -   | ■  | -   | -   |
| Branching module with pressure sensor                    | FRM        | -   | ■   | -  | -   | -   |
| Mounting bracket   | WP         | ■   | ■   | ■  | ■   | ■   |
| <b>Datasheet → page</b>                                  |            | <b>23</b>   | <b>23</b>   | <b>28</b>  | <b>31</b>   | <b>34</b>   |



## Peripherals overview



**Note**  
 The range of accessories depends on the service unit selected.  
 Range of accessories  
 → Pages with peripherals for the individual devices

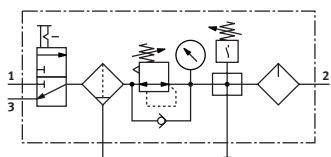
| Mounting attachments and accessories |  | → Page/<br>Internet |
|--------------------------------------|--|---------------------|
| [1]                                  | Cover cap<br>MS4/6-END   | ms4-end,<br>ms6-end |
| [2]                                  | Connecting plate set<br>MS4/6-AG...                            | ms4-ag,<br>ms6-ag   |
| [3]                                  | Module connector<br>MS4/6-MV1                                  | ms4-mv1,<br>ms6-mv1 |
| [4]                                  | Silencer<br>U  | 38                  |
| [5]                                  | Angled plug socket<br>PEV-1/4-WD-LED                           | 38                  |
| [6]                                  | Plug socket<br>MSSD-C-4P                                       | 38                  |
| [7]                                  | Plug socket with cable<br>KMEB                                 | 38                  |
| [8]                                  | Plug socket<br>MSSD-EB   | 38                  |
| [9]                                  | Illuminating seal<br>MEB-LD                                    | 38                  |
| [10]                                 | Padlock<br>LRVS-D  | 38                  |
| –                                    | Mounting bracket<br>MS4/6-WP/WPB/WPE/ WPE-B <sup>1)</sup> /WPM | ms4-wp,<br>ms6-wp   |

1) Valid for EM1FR-B

## Datasheet – Combination 1

### Function

With manual condensate drain



- On/off valve MS...-EM1, manually operated
- Filter regulator MS...-LFR-D7 with pressure gauge
- Branching module MS...-FRM-Y with pressure switch without display
- Lubricator MS...-LOE-R
- Mounting bracket MS...-WP

- Flow rate  
950 l/min
- Temperature range  
-10 ... +60°C
- Pressure regulation range  
1 ... 12 bar
- Spare parts service



- For filtered and lubricated compressed air
- Supply pressure can be opened and closed
- Output pressure is infinitely adjustable within the pressure regulation range
- The unit is exhausted when switched off
- Electrical pressure monitoring with adjustable switching pressure
- Removal of filtered and unlubricated compressed air at the ports of the branching module

### General technical data

|                                 |   |
|---------------------------------|---|
| Size                            | MSB4  |
| Pneumatic connection 1, 2, 3    | G1/4  |
| Regulator function              | Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting |
| Type of mounting                | Via accessories   |
| Mounting position               | Vertical ±5°  |
| Grade of filtration [µm]        | 40  |
| Air purity class at the output  | Compressed air to ISO 8573-1:2010 [7:4:-]   |
| Bowl guard                      | Plastic bowl guard  |
| Condensate drain                | Manual  |
| Actuator lock                   | Rotary knob with latch, can be locked using accessories   |
| Pressure regulation range [bar] | 1 ... 12  |
| Pressure indication             | With pressure gauge   |

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

### Standard nominal flow rate qnN [l/min]

|                     |       |     |
|---------------------|-------|-----|
| Size                | MSB4  |     |
| Grade of filtration | 40 µm | 950 |

## Datasheet – Combination 1

| Operating and environmental conditions       |  |
|--|--|
| Condensate drain                             | Manual   |
| Size   | MSB4   |
| Operating pressure [bar]                     | 1.5 ... 14   |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]<br>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  |
| Temperature of medium [°C]                   | -10 ... +60  |
| Storage temperature [°C]                     | -10 ... +60  |
| LABS (PWIS) conformity                       | VDMA24364-B1/B2-L  |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |
| Food-safe <sup>2)</sup>                      | See supplementary material information   |

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) More information: [www.festo.com/catalogue/msb](http://www.festo.com/catalogue/msb) → Support/Downloads.

| Weight [g]               |      |
|--------------------------|------|
| Size                     | MSB4 |
| Service unit combination | 1700 |
| Mounting bracket         | 40   |



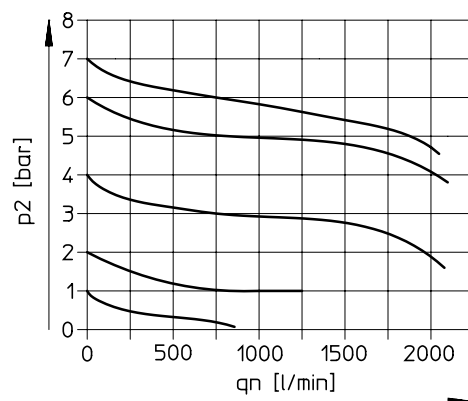
### Note

Materials → Datasheet for the individual devices

### Standard flow rate $q_n$ as a function of output pressure $p_2$

Pressure regulation range 1 ... 12 bar    Grade of filtration 40  $\mu\text{m}$   
MSB4-1/4

Input pressure  $p_1 = 10$  bar

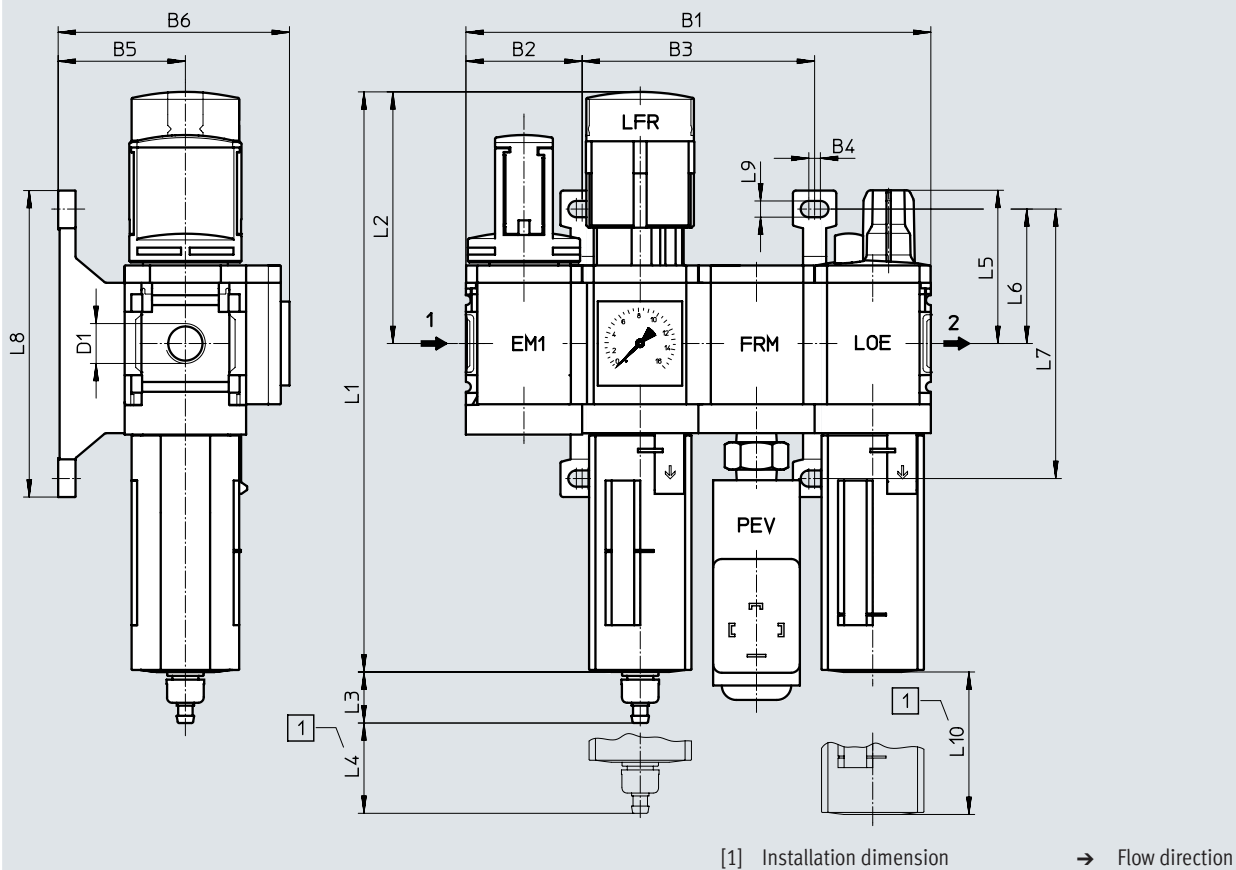


## Datasheet – Combination 1

### Dimensions

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

Manually operated on/off valve, filter regulator with pressure gauge, branching module with pressure switch, lubricator



| Type | B1    | B2   | B3   | B4 | B5 | B6 | D1   | L1  | L2 |
|------|-------|------|------|----|----|----|------|-----|----|
| MSB4 | 160.8 | 40.2 | 80.4 | 4  | 44 | 80 | G1/4 | 201 | 87 |

| Type | L3   | L4 | L5 | L6   | L7   | L8  | L9  | L10 |
|------|------|----|----|------|------|-----|-----|-----|
| MSB4 | 17.7 | 25 | 53 | 46.5 | 93.2 | 106 | 5.6 | 80  |

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

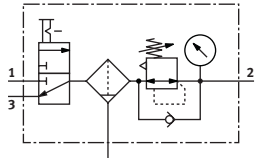
### Ordering data

| Size   | Connection | Condensate drain | Grade of filtration [µm] | Part no. | Type                 |
|--|------------|------------------|--------------------------|----------|----------------------|
| <b>Pressure regulation range 1 ... 12 bar, pressure gauge with outer scale in bar and inner scale in psi</b> |            |                  |                          |          |                      |
| MSB4   | G1/4       | Manual           | 40                       | 542295   | MSB4-1/4:C3J1F3M1-WP |

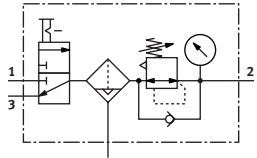
## Datasheet – Combination 2

## Function

## With manual condensate drain



## Fully automatic condensate drain



- On/off valve MS...-EM1, manually operated
- Filter regulator MS...-LFR with pressure gauge
- Mounting bracket MS...-WP

- Flow rate  
950 ... 5500 l/min
- Temperature range  
-10 ... +60°C
- Pressure regulation range  
0.5 ... 12 bar
- Spare parts service



- For filtered and unlubricated compressed air
- Supply pressure can be opened and closed
- Output pressure is infinitely adjustable within the pressure regulation range

**General technical data – MS4/6-EM1FR-...-B**

|                               |                       |
|-------------------------------|-----------------------|
| Type of mounting (select one) | In-line installation  |
|                               | With mounting bracket |
|                               | Via accessories       |
| Mounting position             | Vertical ±5°          |
| Pressure indication           | Prepared for G1/8"    |
|                               | With pressure gauge   |

**General technical data – MSB4/6**

| Size                            | MSB4  | MSB6 |
|---------------------------------|---|------|
| Pneumatic connection 1, 2, 3    | G1/4  | G1/2 |
| Regulator function              | Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting |      |
| Type of mounting                | Via accessories   |      |
| Mounting position               | Vertical ±5°  |      |
| Grade of filtration [µm]        | 5   |      |
|                                 | 40  |      |
| Bowl guard                      | Plastic bowl guard  |      |
| Condensate drain                | Manual  |      |
|                                 | Fully automatic   |      |
| Actuator lock                   | Rotary knob with latch, can be locked using accessories   |      |
| Pressure regulation range [bar] | 0.5 ... 7   |      |
|                                 | 0.5 ... 12  |      |
| Pressure indication             | With pressure gauge   |      |

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

## Datasheet – Combination 2

| Characteristic flow rate values – MS4/6-EM1FR...-B [l/min] |                |                |      |
|--|----------------|----------------|------|
| Size   | MS4-EM1FR...-B | MS6-EM1FR...-B |      |
| <b>Standard flow rate qn (exhaust) <sup>1)</sup></b>       |                |                |      |
| Grade of filtration  | 40 µm          | 1400           | 3600 |
| <b>Standard nominal flow rate qnN</b>                      |                |                |      |
| Grade of filtration  | 5 µm           | 1500           | 4750 |
|  | 40 µm          | 1700           | 5300 |

1) 0.6 → 0 MPa (6 → 0 bar, 87 → 0 psi)

‡ 125 l/min must be available for the fully automatic condensate drain to close correctly.

| Characteristic flow rate values – MSB4/6 [l/min]                                 |        |      |                 |      |      |
|--|--------|------|-----------------|------|------|
| Condensate drain   | Manual |      | Fully automatic |      |      |
| Size   | MSB4   | MSB6 | MSB4            | MSB6 |      |
| <b>Standard nominal flow rate qnN (pressure regulation range 0.5 ... 7 bar)</b>  |        |      |                 |      |      |
| Grade of filtration  | 40 µm  | 1150 | 5500            | –    | –    |
| <b>Standard nominal flow rate qnN (pressure regulation range 0.5 ... 12 bar)</b> |        |      |                 |      |      |
| Grade of filtration  | 5 µm   | 950  | 4800            | 950  | 4800 |
|  | 40 µm  | 1700 | 5100            | 1000 | 5100 |

‡ 125 l/min must be available for the fully automatic condensate drain to close correctly.

| Operating and environmental conditions – MS4/6-EM1FR...-B |   |                |                 |                |
|---|---|----------------|-----------------|----------------|
| Condensate drain  | Manual                                      |                | Fully automatic |                |
| Size  | MS4-EM1FR...-B                              | MS6-EM1FR...-B | MS4-EM1FR...-B  | MS6-EM1FR...-B |
| Operating pressure  | [MPa]                                       | 0.1 ... 1      |                 |                |
|   | [bar]                                       | 1 ... 10       |                 |                |
| Operating medium  | Compressed air to ISO 8573-1:2010 [7:4:4]   |                |                 |                |
| Note on the operating/pilot medium                        | Compatibility with ester oil not guaranteed |                |                 |                |
| Ambient temperature                                       | [°C]  | –5 ... +50     |                 | +5 ... +50     |
| Temperature of medium                                     | [°C]  | –5 ... +50     |                 | +5 ... +50     |
| Storage temperature                                       | [°C]  | –5 ... +50     |                 |                |
| Corrosion resistance class CRC <sup>1)</sup>              | 1 - Low corrosion stress                    |                |                 |                |

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

| Operating and environmental conditions – MSB4/6 |  |  |                 |            |   |            |                 |      |
|---|--|--|-----------------|------------|---|------------|-----------------|------|
| Grade of filtration                             | 5  |  |                 | 40         |   |            |                 |      |
| Condensate drain                                | Manual   |  | Fully automatic |            | Manual                                    |            | Fully automatic |      |
| Size  | MSB4   | MSB6                                     | MSB4            | MSB6       | MSB4                                      | MSB6       | MSB4            | MSB6 |
| Operating pressure                              | [bar]  | 0.8 ... 14<br>(1.5 ... 14) <sup>1)</sup> | 0.8 ... 18      | 2 ... 12   | 0.8 ... 14<br>(1.5 ... 14) <sup>1)</sup>  | 0.8 ... 18 | 2 ... 12        |      |
| 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) |  |                 |            |   |            |                 |      |
| Air purity class at the output                  | Compressed air to ISO 8573-1:2010 [6:4:4]  |  |                 |            | Compressed air to ISO 8573-1:2010 [7:4:4] |            |                 |      |
| Ambient temperature                             | [°C]   | –10 ... +60                              |                 | +5 ... +60 | –10 ... +60                               |            | +5 ... +60      |      |
| Temperature of medium                           | [°C]   | –10 ... +60                              |                 | +5 ... +60 | –10 ... +60                               |            | +5 ... +60      |      |
| Storage temperature                             | [°C]   | –10 ... +60                              |                 |            |   |            |                 |      |
| Corrosion resistance class CRC <sup>2)</sup>    | 2 - Moderate corrosion stress  |  |                 |            |   |            |                 |      |
| Food-safe <sup>3)</sup>                         | See supplementary material information   |  |                 |            |   |            |                 |      |

1) For pressure regulation range 0.5 ... 7 bar


2) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)3) More information: [www.festo.com/catalogue/msb](http://www.festo.com/catalogue/msb) → Support/Downloads.

## Datasheet – Combination 2

| Weight [g]               |                |      |                |      |
|--------------------------|----------------|------|----------------|------|
| Size                     | MS4-EM1FR...-B | MSB4 | MS6-EM1FR...-B | MSB6 |
| Service unit combination | 450            | 1300 | 1250           | 1100 |
| Mounting bracket         | 40             |      | 76             |      |

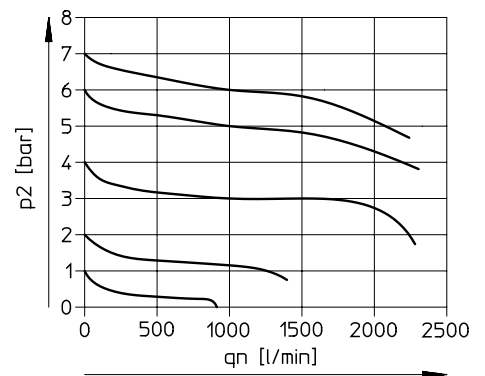
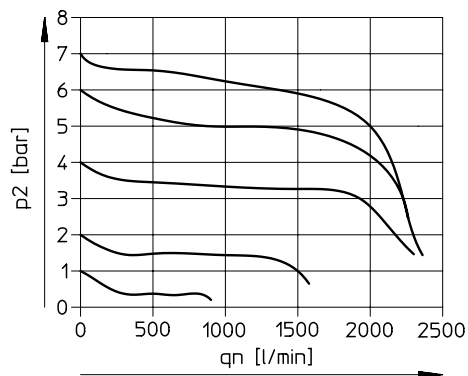
| Materials              |                   |                    |                |                    |
|------------------------|-------------------|--------------------|----------------|--------------------|
| Size                   | MS4-EM1FR...-B    | MSB4               | MS6-EM1FR...-B | MSB6               |
| Housing material       | –                 | Die-cast aluminium | –              | Die-cast aluminium |
| Bowl material          | –                 | PC                 | –              | PC, PE             |
| Note on materials      | RoHS-compliant    | –                  | RoHS-compliant | –                  |
| LABS (PWIS) conformity | VDMA24364-B1/B2-L |                    |                |                    |

| Special material properties – Products for battery production |   |                    |
|---|---|--------------------|
| Size  | MS4-EM1FR...-F1A-B  | MS6-EM1FR...-F1A-B |
| Suitability for the production of Li-ion batteries            | Metals with more than 1% by mass of copper, zinc or nickel are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, printed circuit boards, cables, electrical plug connectors and coils |                    |

 **Note**  
 Materials → Datasheet for the individual devices

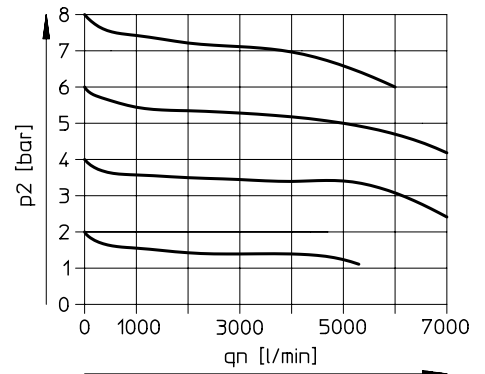
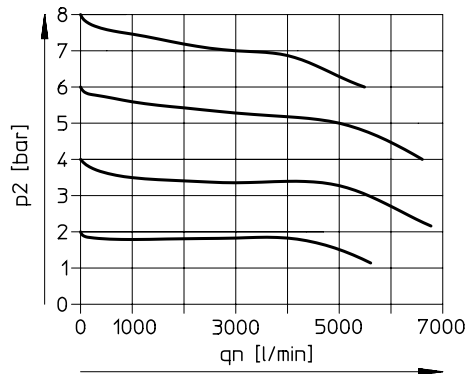
**Standard flow rate  $q_n$  as a function of output pressure  $p_2$**   
 Pressure regulation range 0.5 ... 12 bar  
 MSB4-1/4

Input pressure  $p_1 = 10$  bar



**MSB6-1/2**

Input pressure  $p_1 = 10$  bar

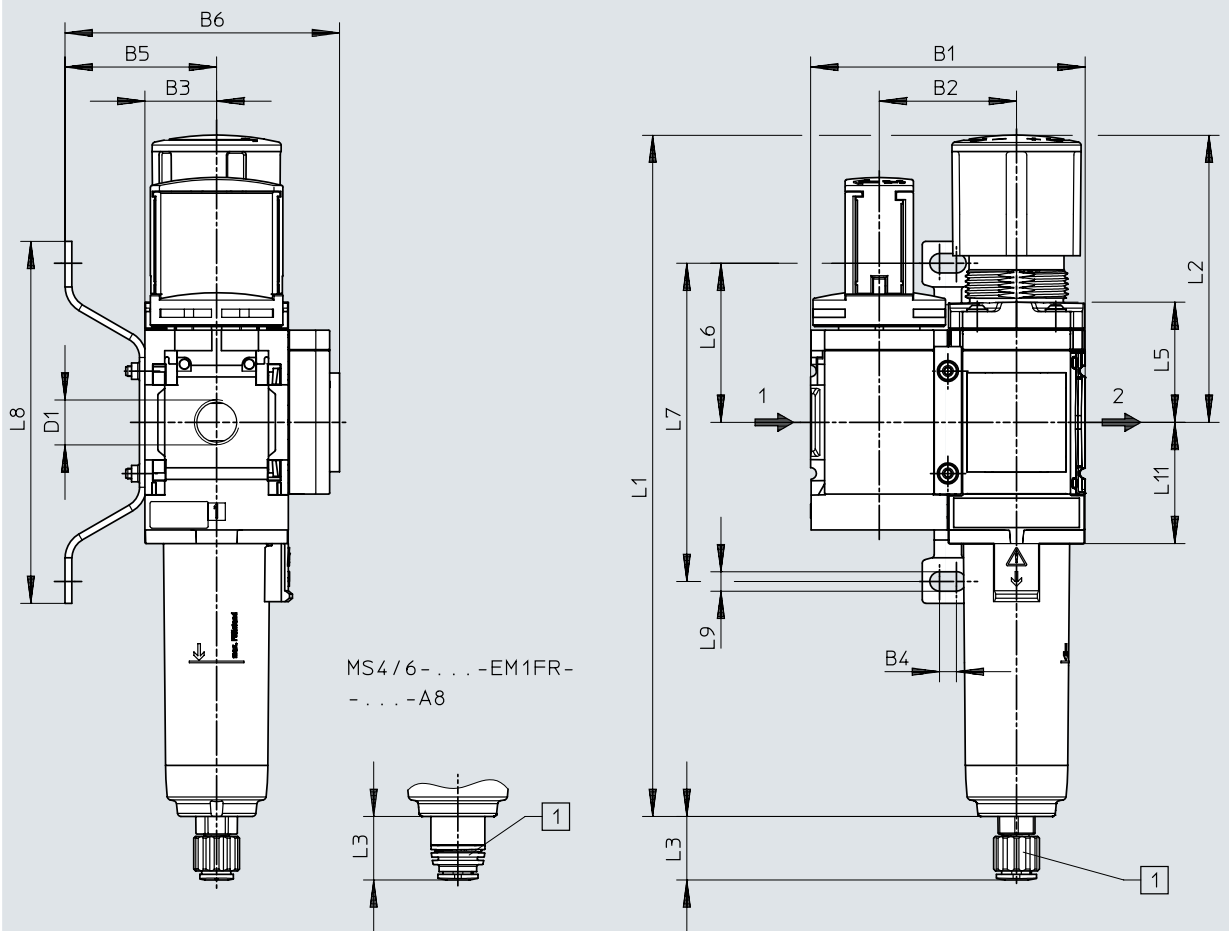


## Datasheet – Combination 2

### Dimensions

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

MS4/6-EM1FR – Manually operated on/off valve, filter regulator with pressure gauge



[1] MS4-EM1FR-...: Condensate drain manual  
MS4-EM1FR-...-A8: Condensate drain, automatic

→ Flow direction

| Type             | B1   | B2   | B3 | B4  | B5   | B6   | D1   | L1    |
|------------------|------|------|----|-----|------|------|------|-------|
| MS4-EM1FR        | 80.4 | 40.2 | 21 | 5   | 44.4 | 80.4 | G1/4 | 199.8 |
| MS4-EM1FR-...-A8 |      |      |    |     |      |      |      |       |
| MS6-EM1FR        | 124  | 62   | 31 | 4.3 | 53.9 | 99.9 | G1/2 | 288.9 |
| MS6-EM1FR-...-A8 |      |      |    |     |      |      |      |       |

| Type             | L2    | L3   | L5   | L6   | L7   | L8  | L9  | L11  |
|------------------|-------|------|------|------|------|-----|-----|------|
| MS4-EM1FR        | 84.4  | 18.6 | 35.2 | 46.6 | 93.2 | 106 | 5.7 | 35.5 |
| MS4-EM1FR-...-A8 |       | 20.8 |      |      |      |     |     |      |
| MS6-EM1FR        | 141.3 | 20.8 | 49.4 | 72   | 142  | 158 | 6.6 | 53.5 |
| MS6-EM1FR-...-A8 |       | 22.4 |      |      |      |     |     |      |

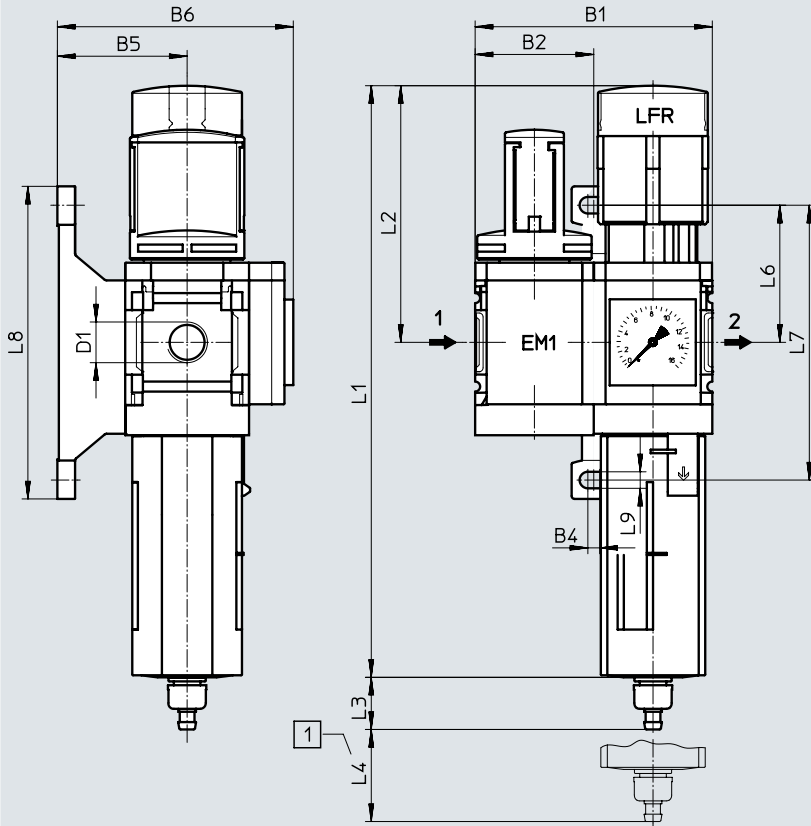


Datasheet – Combination 2

Dimensions

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

MSB4/6 – Manually operated on/off valve, filter regulator with pressure gauge



[1] Installation dimension

→ Flow direction

| Type | B1   | B2   | B4  | B5 | B6  | D1   | L1  | L2    |
|------|------|------|-----|----|-----|------|-----|-------|
| MSB4 | 80.4 | 40.2 | 4   | 44 | 80  | G1/4 | 201 | 87    |
| MSB6 | 124  | 62   | 4.5 | 54 | 100 | G1/2 | 285 | 134.5 |

| Type | L3<br>Condensate drain |                 | L4 | L6   | L7   | L8  | L9  |
|------|------------------------|-----------------|----|------|------|-----|-----|
|      | Manual                 | Fully automatic |    |      |      |     |     |
| MSB4 | 17.7                   | 20.4            | 25 | 46.5 | 93.2 | 106 | 5.6 |
| MSB6 | 15.8                   | 18.5            | 68 | 71   | 142  | 158 | 6.6 |

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

## Datasheet – Combination 2

### ★ Core Range

| Ordering data – MSB4/6-EM1FR...-B                                    |            |                  |                          |           |  |
|--|------------|------------------|--------------------------|-----------|--|
| Size   | Connection | Condensate drain | Grade of filtration [µm] | Part no.  | Type                                   |
| <b>Pressure indication: G1/8" prepared</b>                           |            |                  |                          |           |  |
| MS4-EM1FR...-B   | G1/4       | Manual           | 5                        | ★ 8130947 | MS4-EM1FR-1/4-D6-C-P-M-A8-WPE-B        |
|  |            | Fully automatic  | 5                        | ★ 8130949 | MS4-EM1FR-1/4-D6-C-P-VC-A8-WPE-B       |
|  |            | Manual           | 40                       | ★ 8130950 | MS4-EM1FR-1/4-D6-E-P-M-A8-WPE-B        |
|  |            | Fully automatic  | 40                       | ★ 8130948 | MS4-EM1FR-1/4-D6-E-P-VC-A8-WPE-B       |
| MS6-EM1FR...-B   | G1/2       | Manual           | 5                        | ★ 8130912 | MS6-EM1FR-1/2-D6-C-P-M-A8-WPE-B        |
|  |            | Fully automatic  | 5                        | ★ 8130911 | MS6-EM1FR-1/2-D6-C-P-VC-A8-WPE-B       |
|  |            | Manual           | 40                       | ★ 8130913 | MS6-EM1FR-1/2-D6-E-P-M-A8-WPE-B        |
|  |            | Fully automatic  | 40                       | ★ 8130914 | MS6-EM1FR-1/2-D6-E-P-VC-A8-WPE-B       |
| <b>Pressure gauge with outer scale in MPa</b>                        |            |                  |                          |           |  |
| MS4-EM1FR...-B   | G1/4       | Manual           | 5                        | ★ 8098378 | MS4-EM1FR-1/4-D6-C-P-M-AG-MPA-WPE-B    |
|  |            | Fully automatic  | 5                        | ★ 8098377 | MS4-EM1FR-1/4-D6-C-P-VC-AG-MPA-WPE-B   |
|  |            | Manual           | 40                       | ★ 8098374 | MS4-EM1FR-1/4-D6-E-P-M-AG-MPA-WPE-B    |
|  |            | Fully automatic  | 40                       | ★ 8098380 | MS4-EM1FR-1/4-D6-E-P-VC-AG-MPA-WPE-B   |
| MS6-EM1FR...-B   | G1/2       | Manual           | 5                        | ★ 8098371 | MS6-EM1FR-1/2-D6-C-P-M-AG-MPA-WPE-B    |
|  |            | Fully automatic  | 5                        | ★ 8098368 | MS6-EM1FR-1/2-D6-C-P-VC-AG-MPA-WPE-B   |
|  |            | Manual           | 40                       | ★ 8098369 | MS6-EM1FR-1/2-D6-E-P-M-AG-MPA-WPE-B    |
|  |            | Fully automatic  | 40                       | ★ 8098364 | MS6-EM1FR-1/2-D6-E-P-VC-AG-MPA-WPE-B   |
| <b>Pressure gauge with outer scale in bar and inner scale in psi</b> |            |                  |                          |           |  |
| MS4-EM1FR...-B   | G1/4       | Manual           | 5                        | ★ 8098373 | MS4-EM1FR-1/4-D6-C-P-M-AG-BAR-WPE-B    |
|  |            | Fully automatic  | 5                        | ★ 8098372 | MS4-EM1FR-1/4-D6-C-P-VC-AG-BAR-WPE-B   |
|  |            | Manual           | 40                       | ★ 8098376 | MS4-EM1FR-1/4-D6-E-P-M-AG-BAR-WPE-B    |
|  |            | Fully automatic  | 40                       | ★ 8098379 | MS4-EM1FR-1/4-D6-E-P-VC-AG-BAR-WPE-B   |
| MS6-EM1FR...-B   | G1/2       | Manual           | 5                        | ★ 8098363 | MS6-EM1FR-1/2-D6-C-P-M-AG-BAR-WPE-B    |
|  |            | Fully automatic  | 5                        | ★ 8098370 | MS6-EM1FR-1/2-D6-C-P-VC-AG-BAR-WPE-B   |
|  |            | Manual           | 40                       | ★ 8098365 | MS6-EM1FR-1/2-D6-E-P-M-AG-BAR-WPE-B    |
|  |            | Fully automatic  | 40                       | ★ 8098367 | MS6-EM1FR-1/2-D6-E-P-VC-AG-BAR-WPE-B   |
| <b>Ordering data – MSB4-EM1FR...-F1A-B<sup>1)</sup></b>              |            |                  |                          |           |  |
| Size   | Connection | Condensate drain | Grade of filtration [µm] | Part no.  | Type                                   |
| MS4-EM1FR...-B   | G1/4       | Manual           | 5                        | 8176521   | MS4-EM1FR-1/4-D6-C-P-M-AG-BAR-WP-F1A-B |
|  |            |                  | 5                        | 8176522   | MS4-EM1FR-1/4-D6-C-P-M-AG-MPA-WP-F1A-B |
|  |            |                  | 40                       | 8176523   | MS4-EM1FR-1/4-D6-E-P-M-AG-BAR-WP-F1A-B |
|  |            |                  | 40                       | 8176524   | MS4-EM1FR-1/4-D6-E-P-M-AG-MPA-WP-F1A-B |
|  |            |                  | 5                        | 8176525   | MS4-EM1FR-1/4-D6-C-P-M-A8-WP-F1A-B     |
|  |            |                  | 40                       | 8176526   | MS4-EM1FR-1/4-D6-E-P-M-A8-WP-F1A-B     |
| MS6-EM1FR...-B   | G1/2       | Manual           | 5                        | 8176527   | MS6-EM1FR-1/2-D6-C-P-M-AG-BAR-WP-F1A-B |
|  |            |                  | 5                        | 8176528   | MS6-EM1FR-1/2-D6-C-P-M-AG-MPA-WP-F1A-B |
|  |            |                  | 40                       | 8176529   | MS6-EM1FR-1/2-D6-E-P-M-AG-BAR-WP-F1A-B |
|  |            |                  | 40                       | 8176530   | MS6-EM1FR-1/2-D6-E-P-M-AG-MPA-WP-F1A-B |
|  |            |                  | 5                        | 8176531   | MS6-EM1FR-1/2-D6-C-P-M-A8-WP-F1A-B     |
|  |            |                  | 40                       | 8176532   | MS6-EM1FR-1/2-D6-E-P-M-A8-WP-F1A-B     |

1) F1A: Products for battery production

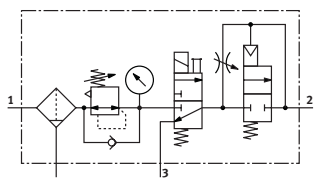
## Datasheet – Combination 2

| Ordering data – MSB4/6   |            |                  |                                       |           |                     |
|--|------------|------------------|---------------------------------------|-----------|---------------------|
| Size   | Connection | Condensate drain | Grade of filtration [ $\mu\text{m}$ ] | Part no.  | Type                |
| <b>Pressure regulation range 0.5 ... 12 bar, pressure gauge with outer scale in bar and inner scale in psi</b> |            |                  |                                       |           |                     |
| MSB4   | G1/4       | Manual           | 40                                    | ★ 8025354 | MSB4-1/4:C3:J1-WP   |
| MSB6   | G1/2       | Manual           | 40                                    | ★ 8025355 | MSB6-1/2:C3:J1-WP   |
| <b>Ordering data – MSB4/6</b>  |            |                  |                                       |           |                     |
| Size   | Connection | Condensate drain | Grade of filtration [ $\mu\text{m}$ ] | Part no.  | Type                |
| <b>Pressure regulation range 0.5 ... 7 bar, pressure gauge with outer scale in MPa</b>                         |            |                  |                                       |           |                     |
| MSB4   | G1/4       | Manual           | 40                                    | 8042668   | MSB4-1/4:C3:J120-WP |
| MSB6   | G1/2       | Manual           | 40                                    | 8042672   | MSB6-1/2:C3:J120-WP |
| <b>Pressure regulation range 0.5 ... 12 bar, pressure gauge with outer scale in bar and inner scale in psi</b> |            |                  |                                       |           |                     |
| MSB4   | G1/4       | Manual           | 5                                     | 542304    | MSB4-1/4:C3J3-WP    |
|  |            | Fully automatic  | 40                                    | 542298    | MSB4-1/4:C3J2-WP    |
|  |            |                  | 5                                     | 542310    | MSB4-1/4:C3J4-WP    |
| MSB6   | G1/2       | Manual           | 5                                     | 542280    | MSB6-1/2:C3J3-WP    |
|  |            | Fully automatic  | 40                                    | 542274    | MSB6-1/2:C3J2-WP    |
|  |            |                  | 5                                     | 542286    | MSB6-1/2:C3J4-WP    |

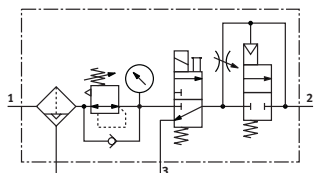
## Datasheet – Combination 3

### Function

#### With manual condensate drain



#### Fully automatic condensate drain



- Filter regulator MS...-LFR-D7 with pressure gauge
- On/off valve MS...-EE-V24, electrically actuated
- Soft-start valve MS...-DL, pneumatically actuated
- Mounting bracket MS...-WP

- - Flow rate  
750 ... 3100 l/min
- - Temperature range  
-10 ... +60°C
- - Pressure regulation range  
4 ... 12 bar
- - Spare parts service



- For filtered and unlubricated compressed air
- Output pressure is infinitely adjustable within the pressure regulation range
- Gradual pressure build-up prevents sudden, unpredictable movements
- When the unit is switched off, quick exhausting ensures rapid pressure reduction

| General technical data          |   |                 |
|---------------------------------|---|-----------------|
| Size                            | MSB4  | MSB6            |
| Pneumatic connection 1, 2, 3    | G1/4  | G1/2            |
| Regulator function              | Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting |                 |
| Type of mounting                | Via accessories   |                 |
| Mounting position               | Vertical ±5°  |                 |
| Grade of filtration [µm]        | 40  |                 |
| Air purity class at the output  | Compressed air to ISO 8573-1:2010 [7:4:4] (grade of filtration 40 µm)                                     |                 |
| Bowl guard                      | Plastic bowl guard  |                 |
| Condensate drain                | Manual  |                 |
|                                 | -   | Fully automatic |
| Actuator lock                   | Rotary knob with latch, can be locked using accessories   |                 |
| Pressure regulation range [bar] | 4 ... 12  |                 |
| Pressure indication             | With pressure gauge   |                 |
| Characteristic coil data        | 24 V DC: 1.5 W  | 24 V DC: 1.5 W  |

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

| Standard nominal flow rate qnN [l/min] |      |      |
|--|------|------|
| Size                                   | MSB4 | MSB6 |
| Grade of filtration 40 µm              | 750  | 3100 |

† 125 l/min must be available for the fully automatic condensate drain to close correctly.

## Datasheet – Combination 3

| Operating and environmental conditions       |  |            |   |
|--|--|------------|---|
| Condensate drain                             | Manual   |            | Fully automatic                           |
| Size   | MSB4   | MSB6       | MSB6                                      |
| Operating pressure [bar]                     | 4.5 ... 14   | 4.5 ... 18 | 4.5 ... 12                                |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [-:4:-]  |            | Compressed air to ISO 8573-1:2010 [7:4:-] |
|  | 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  |            | +5 ... +60                                |
| Temperature of medium [°C]                   | -10 ... +60  |            | +5 ... +60                                |
| Storage temperature [°C]                     | -10 ... +60  |            | -10 ... +60                               |
| LABS (PWIS) conformity                       | VDMA24364-B1/B2-L  |            |   |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |            |   |
| Food-safe <sup>2)</sup>                      | See supplementary material information   |            |   |

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) More information: [www.festo.com/catalogue/msb](http://www.festo.com/catalogue/msb) → Support/Downloads.

| Weight [g]               |      |      |
|--------------------------|------|------|
| Size                     | MSB4 | MSB6 |
| Service unit combination | 1600 | 2400 |
| Mounting bracket         | 40   | 76   |

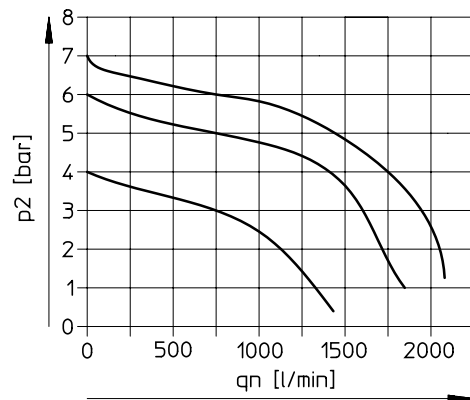
**Note**

Materials → Datasheet for the individual devices

### Standard flow rate $q_n$ as a function of output pressure $p_2$

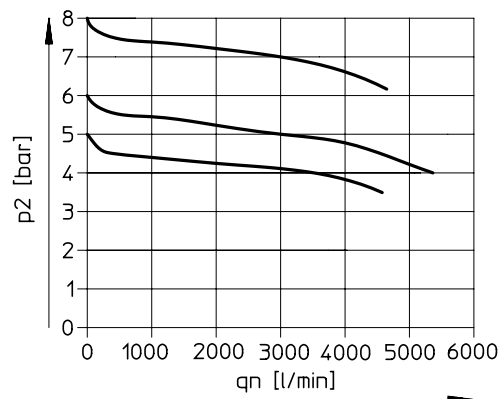
Pressure regulation range 4 ... 12 bar    Grade of filtration 40  $\mu\text{m}$   
MSB4-1/4

Input pressure  $p_1 = 10$  bar



### MSB6-1/2

Input pressure  $p_1 = 10$  bar

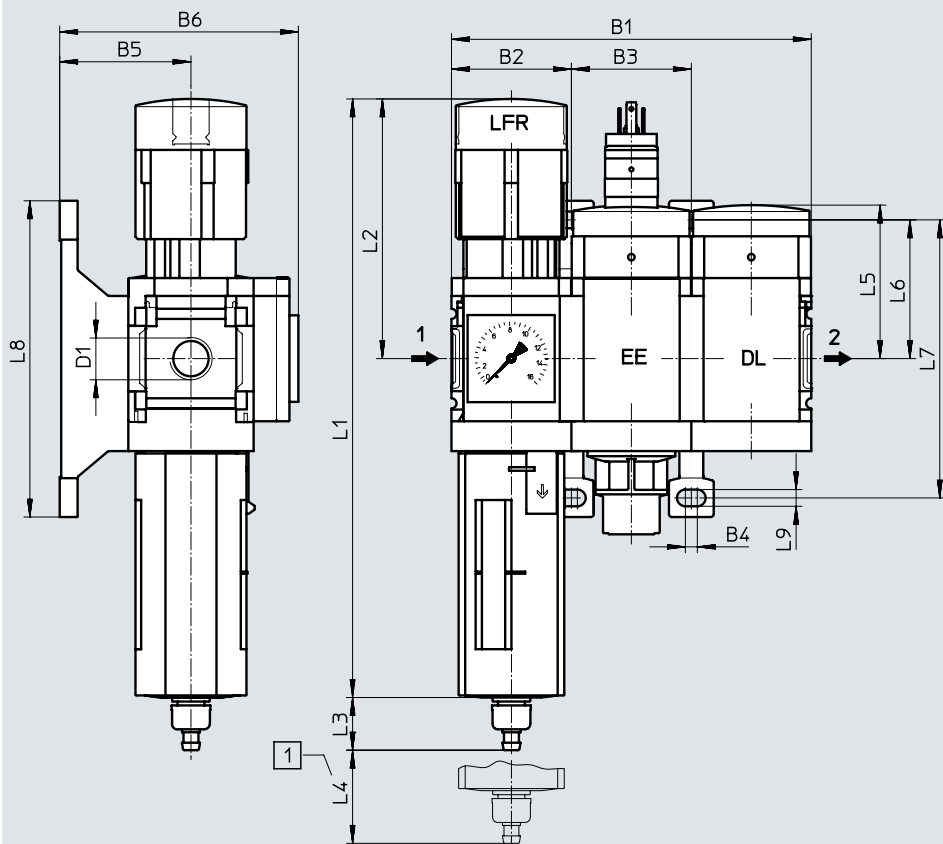


## Datasheet – Combination 3

### Dimensions

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

Filter regulator with pressure gauge, electrically actuated on/off valve, pneumatically actuated soft-start valve



[1] Installation dimension

→ Flow direction

| Type | B1    | B2   | B3   | B4  | B5 | B6  | D1   | L1  | L2    |
|------|-------|------|------|-----|----|-----|------|-----|-------|
| MSB4 | 120.6 | 40.2 | 40.2 | 4   | 44 | 80  | G1/4 | 201 | 87    |
| MSB6 | 186   | 62   | 62   | 4.5 | 54 | 100 | G1/2 | 285 | 134.5 |

| Type | L3<br>Condensate drain |                 | L4 | L5   | L6   | L7   | L8  | L9  |
|------|------------------------|-----------------|----|------|------|------|-----|-----|
|      | Manual                 | Fully automatic |    |      |      |      |     |     |
| MSB4 | 17.7                   | –               | 25 | 51.7 | 46.5 | 93.2 | 106 | 5.6 |
| MSB6 | 15.8                   | 18.5            | 68 | 71   | 71   | 142  | 158 | 6.6 |

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

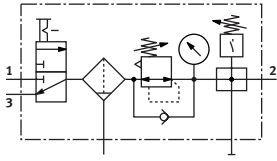
### Ordering data

| Size   | Connection | Condensate drain | Grade of filtration [µm] | Part no. | Type              |
|--|------------|------------------|--------------------------|----------|-------------------|
| <b>Pressure regulation range 4 ... 12 bar, pressure gauge with outer scale in bar and inner scale in psi</b> |            |                  |                          |          |                   |
| MSB4   | G1/4       | Manual           | 40                       | 531101   | MSB4-1/4:1D1A1-WP |
| MSB6   | G1/2       | Manual           | 40                       | 530222   | MSB6-1/2:1D1A1-WP |
|  |            | Fully automatic  | 40                       | 530224   | MSB6-1/2:2D1A1-WP |

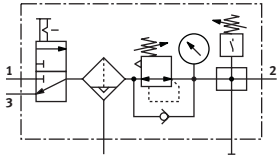
## Datasheet – Combination 4

### Function

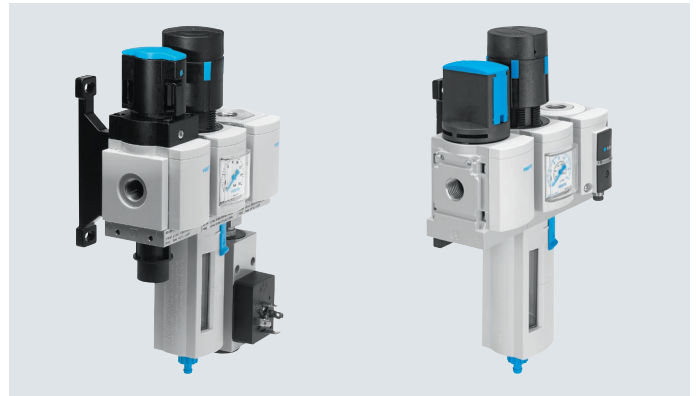
With manual condensate drain



Fully automatic condensate drain



- - Flow rate  
1300 ... 5300 l/min
- - Temperature range  
-10 ... +60°C
- - Pressure regulation range  
0.5 ... 12 bar
- - Spare parts service



- On/off valve MS...-EM1, manually operated
- Filter regulator MS...-LFR with pressure gauge
- Branching module MS...-FRM-Y with pressure switch or MS...-FRM-AD7 with pressure sensor for status indication
- Mounting bracket MS...-WP
- For filtered and unlubricated compressed air
- Supply pressure can be opened and closed
- Output pressure is infinitely adjustable within the pressure regulation range
- Electrical pressure monitoring with adjustable switching pressure

### General technical data

| Size                            | MSB4  |                 | MSB6            |                 |
|---------------------------------|---|-----------------|-----------------|-----------------|
|                                 | Pressure switch   | Pressure sensor | Pressure switch | Pressure sensor |
| Branching module with           |   |                 |                 |                 |
| Pneumatic connection 1, 2, 3    | G1/4  |                 | G1/2            |                 |
| Regulator function              | Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting |                 |                 |                 |
| Type of mounting                | Via accessories   |                 |                 |                 |
| Mounting position               | Vertical ±5°  |                 |                 |                 |
| Grade of filtration [µm]        | 40  |                 |                 |                 |
| Air purity class at the output  | Compressed air to ISO 8573-1:2010 [7:4:4] (grade of filtration 40 µm)                                     |                 |                 |                 |
| Bowl guard                      | Plastic bowl guard  |                 |                 |                 |
| Condensate drain                | Manual  | Manual          | Manual          | Manual          |
|                                 | Fully automatic   | –               | Fully automatic | –               |
| Actuator lock                   | Rotary knob with latch, can be locked using accessories   |                 |                 |                 |
| Pressure regulation range [bar] | –   | 0.5 ... 7       | –               | 0.5 ... 7       |
|                                 | 0.5 ... 12  | 0.5 ... 10      | 0.5 ... 12      | 0.5 ... 10      |
| Pressure indication             | Via pressure gauge for displaying the output pressure   |                 |                 |                 |

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

### Standard nominal flow rate qnN [l/min]

| Size  | MSB4            |                 | MSB6            |                 |
|---|-----------------|-----------------|-----------------|-----------------|
|   | Pressure switch | Pressure sensor | Pressure switch | Pressure sensor |
| <b>Pressure regulation range 0.5 ... 7 bar</b>  |                 |                 |                 |                 |
| Grade of filtration 40 µm                       | –               | 1750            | –               | 5300            |
| <b>Pressure regulation range 0.5 ... 10 bar</b> |                 |                 |                 |                 |
| Grade of filtration 40 µm                       | –               | 1600            | –               | 4500            |
| <b>Pressure regulation range 0.5 ... 12 bar</b> |                 |                 |                 |                 |
| Grade of filtration 40 µm                       | 1300            | –               | 4500            | –               |

† 125 l/min must be available for the fully automatic condensate drain to close correctly.


## Datasheet – Combination 4

| Operating and environmental conditions       |  |                 |                 |                 |                 |                 |
|--|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Condensate drain                             | Manual   |                 |                 |                 | Fully automatic |                 |
| Size   | MSB4   |                 | MSB6            |                 | MSB4            | MSB6            |
| Branching module with                        | Pressure switch  | Pressure sensor | Pressure switch | Pressure sensor | Pressure switch | Pressure switch |
| Operating pressure [bar]                     | 0.8 ... 14   |                 | 0.8 ... 18      |                 | 2 ... 12        | 2 ... 12        |
| 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       | -10 ... +60     | 0 ... +50       | +5 ... +60      |                 |
| Temperature of medium [°C]                   | -10 ... +60  | 0 ... +50       | -10 ... +60     | 0 ... +50       | +5 ... +60      |                 |
| Storage temperature [°C]                     | -10 ... +60  |                 |                 |                 | -10 ... +60     |                 |
| LABS (PWS) conformity                        | VDMA24364-B1/B2-L  |                 |                 |                 |                 |                 |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |                 |                 |                 |                 |                 |
| Food-safe <sup>2)</sup>                      | See supplementary material information   |                 |                 |                 |                 |                 |

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) More information: [www.festo.com/catalogue/msb](http://www.festo.com/catalogue/msb) → Support/Downloads.

| Weight [g]               |      |      |
|--------------------------|------|------|
| Size                     | MSB4 | MSB6 |
| Service unit combination | 1500 | 2000 |
| Mounting bracket         | 40   | 76   |

 **Note**

Materials → Datasheet for the individual devices

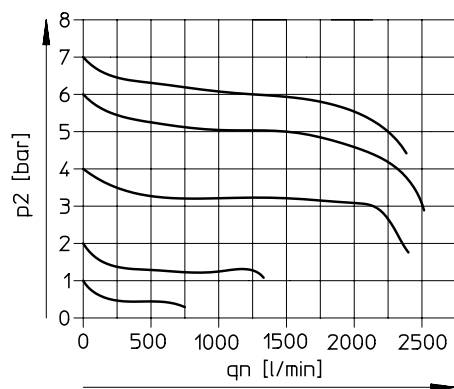
### Standard flow rate $q_n$ as a function of output pressure $p_2$

Pressure regulation range      Grade of filtration 40  $\mu\text{m}$

0.5 ... 12 bar

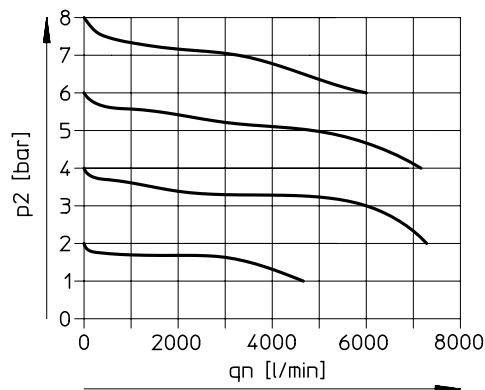
MSB4-1/4

Input pressure  $p_1 = 10$  bar



MSB6-1/2

Input pressure  $p_1 = 10$  bar



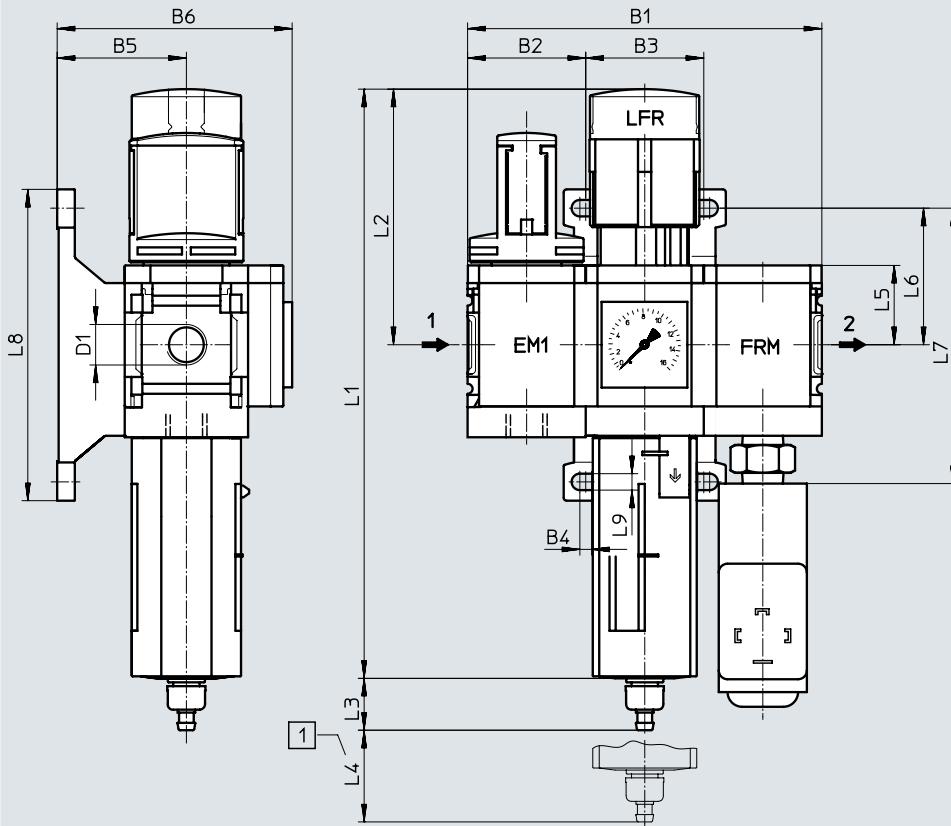


Datasheet – Combination 4

Dimensions

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

Manually operated on/off valve, filter regulator with pressure gauge, branching module with pressure switch



[1] Installation dimension

→ Flow direction

| Type | B1    | B2   | B3   | B4  | B5 | B6  | D1   | L1  | L2    |
|------|-------|------|------|-----|----|-----|------|-----|-------|
| MSB4 | 120.6 | 40.2 | 40.2 | 4   | 44 | 80  | G1/4 | 201 | 87    |
| MSB6 | 186   | 62   | 62   | 4.5 | 54 | 100 | G1/2 | 285 | 134.5 |

| Type | L3<br>Condensate drain |                 | L4 | L5 | L6   | L7   | L8  | L9  |
|------|------------------------|-----------------|----|----|------|------|-----|-----|
|      | Manual                 | Fully automatic |    |    |      |      |     |     |
| MSB4 | 17.7                   | 20.4            | 25 | 27 | 46.5 | 93.2 | 106 | 5.6 |
| MSB6 | 15.8                   | 18.5            | 68 | 39 | 71   | 142  | 158 | 6.6 |

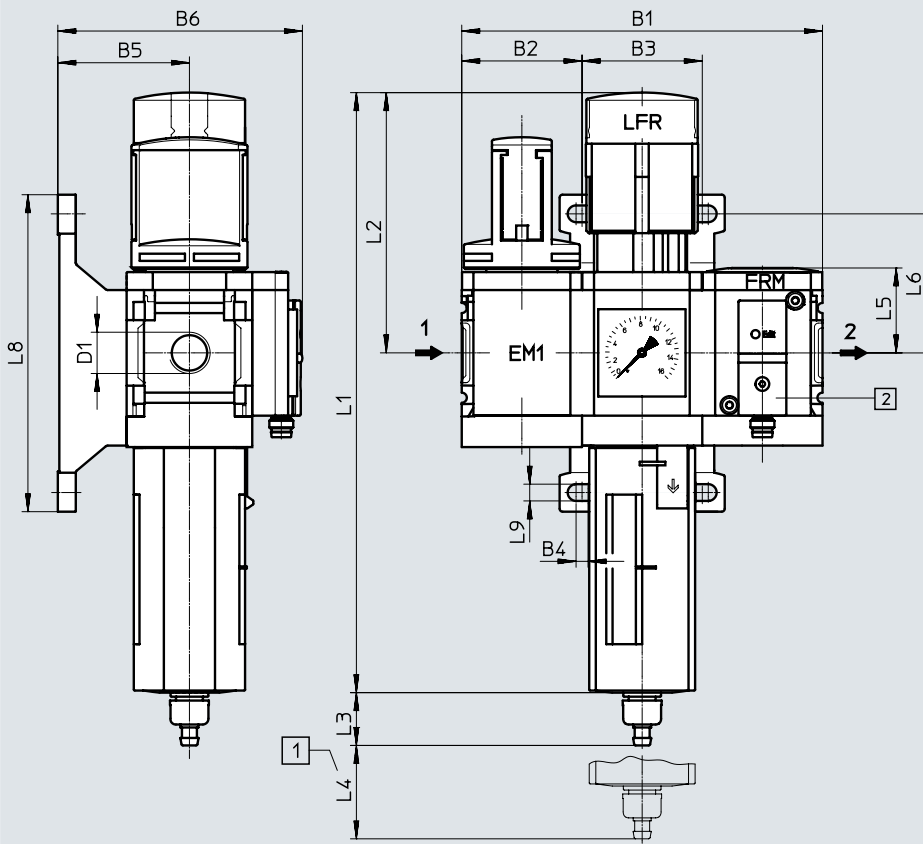
† Note: This product conforms to ISO 1179-1 and ISO 228-1.

## Datasheet – Combination 4

### Dimensions

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

Manually operated on/off valve, filter regulator with pressure gauge, branching module with pressure sensor



- [1] Installation dimension
- [2] Pressure sensor SDE5-D10-0-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact  
→ Internet: sde5
- Flow direction

| Type | B1    | B2   | B3   | B4  | B5 | B6  | D1   |
|------|-------|------|------|-----|----|-----|------|
| MSB4 | 120.6 | 40.2 | 40.2 | 4   | 44 | 82  | G1/4 |
| MSB6 | 186   | 62   | 62   | 4.5 | 54 | 102 | G1/2 |

| Type | L1  | L2    | L3   | L4 | L5   | L6   | L8  | L9  |
|------|-----|-------|------|----|------|------|-----|-----|
| MSB4 | 201 | 87    | 17.7 | 25 | 29.4 | 46.5 | 106 | 5.6 |
| MSB6 | 285 | 134.5 | 15.8 | 68 | 41.7 | 71   | 158 | 6.6 |

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

## Datasheet – Combination 4

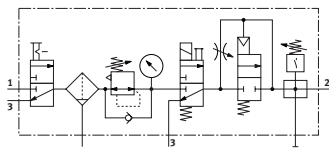
## ★ Core Range

| Ordering data   |            |                  |                          |           |                         |
|---|------------|------------------|--------------------------|-----------|-------------------------|
| Size  | Connection | Condensate drain | Grade of filtration [µm] | Part no.  | Type                    |
| <b>Pressure regulation range 0.5 ... 10 bar, pressure gauge with outer scale in bar and inner scale in psi, branching module with pressure sensor</b> |            |                  |                          |           |                         |
| MSB4  | G1/4       | Manual           | 40                       | ★ 8025356 | MSB4-1/4:C3:J1:F12-WP   |
| MSB6  | G1/2       | Manual           | 40                       | ★ 8025357 | MSB6-1/2:C3:J1:F12-WP   |
| <b>Ordering data</b>  |            |                  |                          |           |                         |
| Size  | Connection | Condensate drain | Grade of filtration [µm] | Part no.  | Type                    |
| <b>Pressure regulation range 0.5 ... 7 bar, pressure gauge with outer scale in MPa, branching module with pressure sensor</b>                         |            |                  |                          |           |                         |
| MSB4  | G1/4       | Manual           | 40                       | 8042667   | MSB4-1/4:C3:J120:F12-WP |
| MSB6  | G1/2       | Manual           | 40                       | 8042671   | MSB6-1/2:C3:J120:F12-WP |
| <b>Pressure regulation range 0.5 ... 12 bar, pressure gauge with outer scale in bar and inner scale in psi, branching module with pressure switch</b> |            |                  |                          |           |                         |
| MSB4  | G1/4       | Manual           | 40                       | 542294    | MSB4-1/4:C3:J1F3-WP     |
|   |            | Fully automatic  | 40                       | 542300    | MSB4-1/4:C3:J2F3-WP     |
| MSB6  | G1/2       | Manual           | 40                       | 542270    | MSB6-1/2:C3:J1F3-WP     |
|   |            | Fully automatic  | 40                       | 542276    | MSB6-1/2:C3:J2F3-WP     |

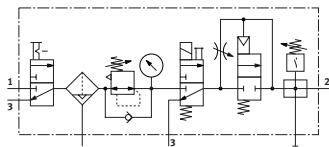
## Datasheet – Combination 5

### Function

#### With manual condensate drain



#### Fully automatic condensate drain



- - Flow rate  
750 ... 3100 l/min
- - Temperature range  
-10 ... +60°C
- - Pressure regulation range  
4 ... 12 bar
- - Spare parts service



- On/off valve MS...-EM1, manually operated
- Filter regulator MS...-LFR-D7 with pressure gauge
- On/off valve MS...-EE-V24, electrically actuated
- Soft-start valve MS...-DL, pneumatically actuated
- Branching module MS...-FRM-Y with pressure switch without display
- Mounting bracket MS...-WP
- For filtered and unlubricated compressed air
- Supply pressure can be opened and closed
- Output pressure is infinitely adjustable within the pressure regulation range
- Gradual pressure build-up prevents sudden, unpredictable movements
- To shut-off and exhaust the following device or the system
- Electrical pressure monitoring with adjustable switching pressure

### General technical data

| Size                            | MSB4  | MSB6           |
|---------------------------------|---|----------------|
| Pneumatic connection 1, 2, 3    | G1/4  | G1/2           |
| Regulator function              | Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting                                     |                |
| Type of mounting                | Via accessories   |                |
| Mounting position               | Vertical ±5°  |                |
| Grade of filtration [µm]        | -<br>40   | 5              |
| Air purity class at the output  | Compressed air to ISO 8573-1:2010 [6:4:4] (grade of filtration 5 µm)<br>Compressed air to ISO 8573-1:2010 [7:4:4] (grade of filtration 40 µm) |                |
| Bowl guard                      | Plastic bowl guard  |                |
| Condensate drain                | Manual<br>Fully automatic   |                |
| Actuator lock                   | Rotary knob with latch, can be locked using accessories   |                |
| Pressure regulation range [bar] | 4 ... 12  |                |
| Pressure indication             | With pressure gauge   |                |
| Characteristic coil data        | 24 V DC: 1.5 W  | 24 V DC: 1.5 W |

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

### Standard nominal flow rate qnN [l/min]

| Size                      | MSB4 | MSB6 |
|---------------------------|------|------|
| Grade of filtration 5 µm  | -    | 3000 |
| Grade of filtration 40 µm | 750  | 3100 |

† 125 l/min must be available for the fully automatic condensate drain to close correctly.

## Datasheet – Combination 5

| Operating and environmental conditions       |  |            |             |                 |
|--|--|------------|-------------|-----------------|
| Condensate drain                             |  | Manual     |             | Fully automatic |
| Size   | MSB4   | MSB6       | MSB4        | MSB6            |
| Operating pressure [bar]                     | 4.5 ... 14   | 4.5 ... 18 | 4.5 ... 12  | 4.5 ... 12      |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]<br>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  |            | +5 ... +60  |                 |
| Temperature of medium [°C]                   | -10 ... +60  |            | +5 ... +60  |                 |
| Storage temperature [°C]                     | -10 ... +60  |            | -10 ... +60 |                 |
| LABS (PWIS) conformity                       | VDMA24364-B1/B2-L  |            |             |                 |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |            |             |                 |
| Food-safe <sup>2)</sup>                      | See supplementary material information   |            |             |                 |

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)  
 2) More information: [www.festo.com/catalogue/msb](http://www.festo.com/catalogue/msb) → Support/Downloads.

| Weight [g]               |      |      |
|--------------------------|------|------|
| Size                     | MSB4 | MSB6 |
| Service unit combination | 2200 | 3500 |
| Mounting bracket         | 40   | 76   |

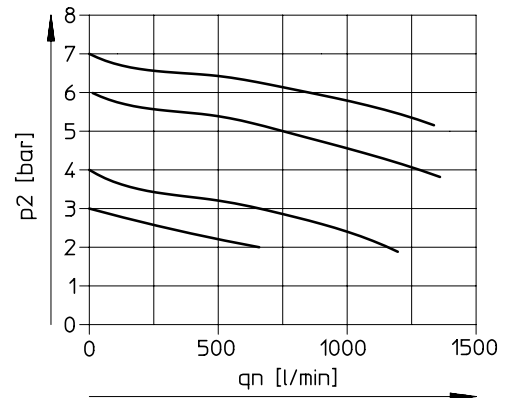
**Note**  
 Materials → Datasheet for the individual devices

### Standard flow rate $q_n$ as a function of output pressure $p_2$

Pressure regulation range 4 ... 12 bar    Grade of filtration 5  $\mu\text{m}$   
 MSB4-1/4

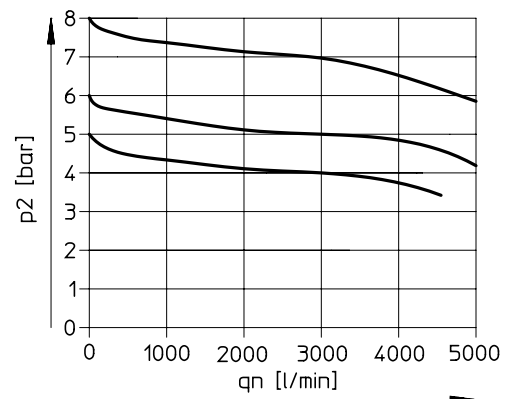
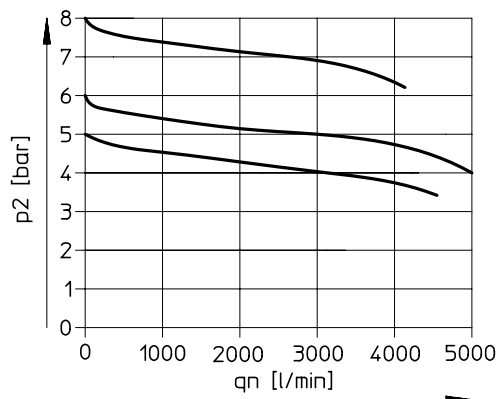
Grade of filtration 40  $\mu\text{m}$

Input pressure  $p_1 = 10$  bar



### MSB6-1/2

Input pressure  $p_1 = 10$  bar

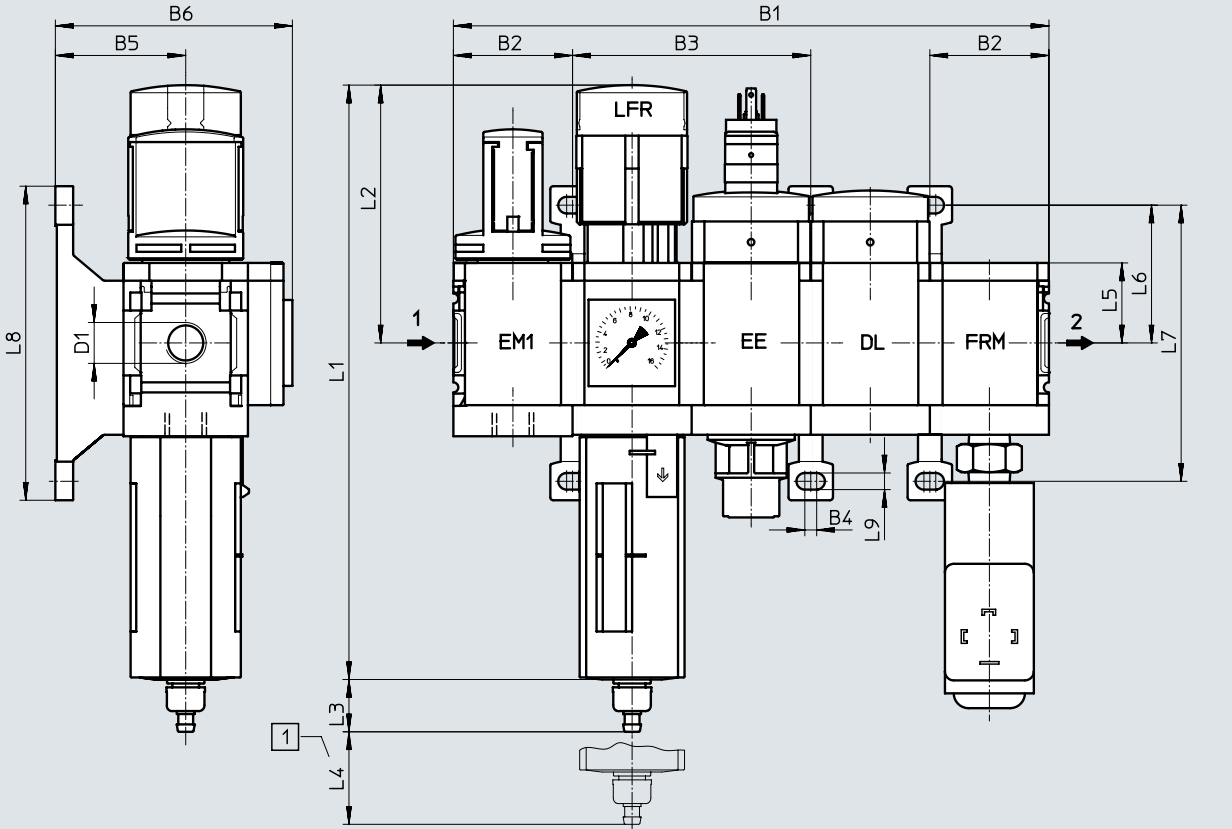


## Datasheet – Combination 5

### Dimensions

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

Manually operated on/off valve, filter regulator with pressure gauge, electrically actuated on/off valve, pneumatically actuated soft-start valve, branching module with pressure switch



[1] Installation dimension

→ Flow direction

| Type | B1  | B2   | B3   | B4  | B5 | B6  | D1   | L1  | L2    |
|------|-----|------|------|-----|----|-----|------|-----|-------|
| MSB4 | 201 | 40.2 | 80.4 | 4   | 44 | 80  | G1/4 | 201 | 87    |
| MSB6 | 310 | 62   | 124  | 4.5 | 54 | 100 | G1/2 | 285 | 134.5 |

| Type | L3<br>Condensate drain |                 | L4 | L5 | L6   | L7   | L8  | L9  |
|------|------------------------|-----------------|----|----|------|------|-----|-----|
|      | Manual                 | Fully automatic |    |    |      |      |     |     |
| MSB4 | 17.7                   | 20.4            | 25 | 27 | 46.5 | 93.2 | 106 | 5.6 |
| MSB6 | 15.8                   | 18.5            | 68 | 39 | 71   | 142  | 158 | 6.6 |

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

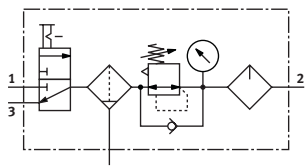
### Ordering data

| Size   | Connection | Condensate drain | Grade of filtration [µm] | Part no. | Type                   |
|--|------------|------------------|--------------------------|----------|------------------------|
| <b>Pressure regulation range 4 ... 12 bar, pressure gauge with outer scale in bar and inner scale in psi</b> |            |                  |                          |          |                        |
| MSB4   | G1/4       | Manual           | 40                       | 542293   | MSB4-1/4:C3J1D1A1F3-WP |
|  |            | Fully automatic  | 40                       | 542299   | MSB4-1/4:C3J2D1A1F3-WP |
| MSB6   | G1/2       | Manual           | 40                       | 542269   | MSB6-1/2:C3J1D1A1F3-WP |
|  |            |                  | 5                        | 542281   | MSB6-1/2:C3J3D1A1F3-WP |
|  |            | Fully automatic  | 40                       | 542275   | MSB6-1/2:C3J2D1A1F3-WP |
|  |            |                  | 5                        | 542287   | MSB6-1/2:C3J4D1A1F3-WP |

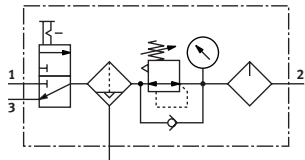
## Datasheet – Combination 6

### Function

With manual condensate drain



Fully automatic condensate drain



- On/off valve MS...-EM1, manually operated
- Filter regulator MS...-LFR-D7 with pressure gauge
- Lubricator MS...-LOE-R
- Mounting bracket MS...-WP

- Flow rate  
750 ... 3100 l/min
- Temperature range  
-10 ... +60°C
- Pressure regulation range  
1 ... 12 bar
- Spare parts service



- For filtered and lubricated compressed air
- Supply pressure can be opened and closed
- Output pressure is infinitely adjustable within the pressure regulation range

| General technical data          |   |                 |
|---------------------------------|---|-----------------|
| Size                            | MSB4  | MSB6            |
| Pneumatic connection 1, 2, 3    | G1/4  | G1/2            |
| Regulator function              | Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting |                 |
| Type of mounting                | Via accessories   |                 |
| Mounting position               | Vertical ±5°  |                 |
| Grade of filtration [µm]        | 40  |                 |
| Air purity class at the output  | Compressed air to ISO 8573-1:2010 [7:4:-] (grade of filtration 40 µm)                                     |                 |
| Bowl guard                      | Plastic bowl guard  |                 |
| Condensate drain                | Manual  |                 |
|                                 | -   | Fully automatic |
| Actuator lock                   | Rotary knob with latch, can be locked using accessories   |                 |
| Pressure regulation range [bar] | 1 ... 12  |                 |
| Pressure indication             | With pressure gauge   |                 |

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

| Standard nominal flow rate qnN [l/min] |       |      |
|--|-------|------|
| Size                                   | MSB4  | MSB6 |
| Grade of filtration                    | 40 µm | 750  |
|  |       | 3100 |

† - 125 l/min must be available for the fully automatic condensate drain to close correctly.


## Datasheet – Combination 6

| Operating and environmental conditions       |  |            |                 |
|--|--|------------|-----------------|
| Condensate drain                             | Manual   |            | Fully automatic |
| Size   | MSB4   | MSB6       | MSB6            |
| Operating pressure [bar]                     | 1.5 ... 14   | 1.5 ... 18 | 2 ... 12        |
| 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  |            | +5 ... +60      |
| Temperature of medium [°C]                   | -10 ... +60  |            | +5 ... +60      |
| Storage temperature [°C]                     | -10 ... +60  |            | -10 ... +60     |
| LABS (PWIS) conformity                       | VDMA24364-B1/B2-L  |            |                 |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |            |                 |
| Food-safe <sup>2)</sup>                      | See supplementary material information   |            |                 |

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) More information: [www.festo.com/catalogue/msb](http://www.festo.com/catalogue/msb) → Support/Downloads.

| Weight [g]               |      |      |
|--------------------------|------|------|
| Size                     | MSB4 | MSB6 |
| Service unit combination | 1500 | 1750 |
| Mounting bracket         | 40   | 76   |

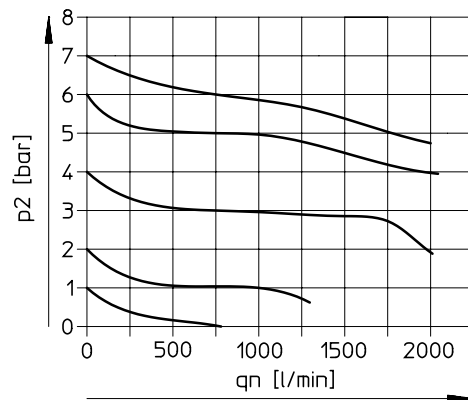
 **Note**

Materials → Datasheet for the individual devices

### Standard flow rate $q_n$ as a function of output pressure $p_2$

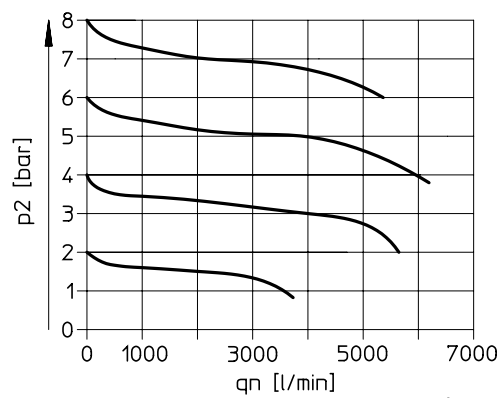
Pressure regulation range 1 ... 12 bar      Grade of filtration 40  $\mu\text{m}$   
MSB4-1/4

Input pressure  $p_1 = 10$  bar



MSB6-1/2

Input pressure  $p_1 = 10$  bar



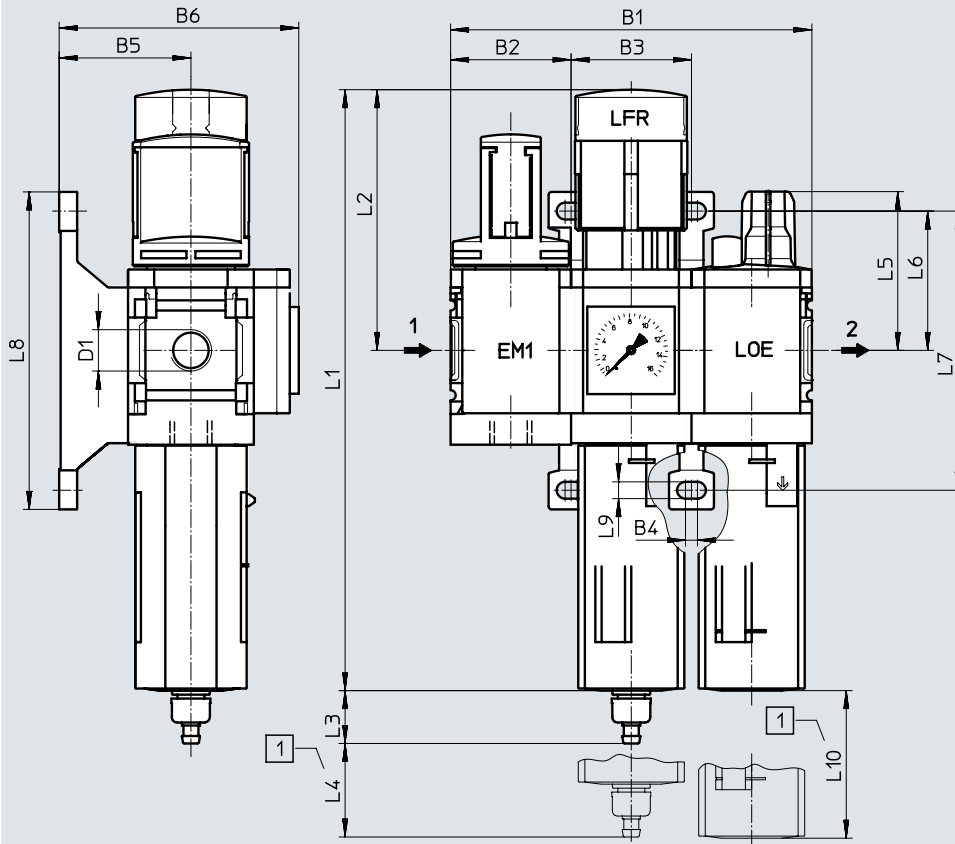


Datasheet – Combination 6

Dimensions

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

Manually operated on/off valve, filter regulator with pressure gauge, lubricator



[1] Installation dimension

→ Flow direction

| Type | B1    | B2   | B3   | B4  | B5 | B6  | D1   | L1  | L2    |
|------|-------|------|------|-----|----|-----|------|-----|-------|
| MSB4 | 120.6 | 40.2 | 40.2 | 4   | 44 | 80  | G1/4 | 201 | 87    |
| MSB6 | 186   | 62   | 62   | 4.5 | 54 | 100 | G1/2 | 285 | 134.5 |

| Type | L3<br>Condensate drain |                 | L4 | L5 | L6   | L7   | L8  | L9  | L10 |
|------|------------------------|-----------------|----|----|------|------|-----|-----|-----|
|      | Manual                 | Fully automatic |    |    |      |      |     |     |     |
| MSB4 | 17.7                   | –               | 25 | 53 | 46.5 | 93.2 | 106 | 5.6 | 80  |
| MSB6 | 15.8                   | 18.5            | 68 | 66 | 71   | 142  | 158 | 6.6 | 130 |

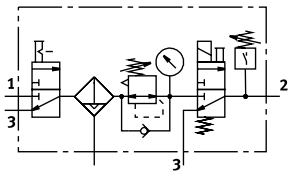
† Note: This product conforms to ISO 1179-1 and ISO 228-1.

Ordering data

| Size   | Connection | Condensate drain | Grade of filtration [µm] | Part no. | Type               |
|--|------------|------------------|--------------------------|----------|--------------------|
| <b>Pressure regulation range 1 ... 12 bar, pressure gauge with outer scale in bar and inner scale in psi</b> |            |                  |                          |          |                    |
| MSB4   | G1/4       | Manual           | 40                       | 542296   | MSB4-1/4:C3J1M1-WP |
| MSB6   | G1/2       | Manual           | 40                       | 542272   | MSB6-1/2:C3J1M1-WP |
|  |            | Fully automatic  | 40                       | 542278   | MSB6-1/2:C3J2M1-WP |

## Datasheet – Combination 7

Function  
With manual condensate drain



- On/off valve MS...-EM1, manually operated
- Filter regulator MS...-LFR with pressure gauge
- On/off valve MS...-EE-10V24P-AD7, electrically actuated, with pressure sensor for status indication
- Mounting bracket MS...-WP

- Flow rate  
1400 ... 4400 l/min
- Temperature range  
0 ... +50°C
- Pressure regulation range  
4 ... 10 bar
- Spare parts service



- For filtered and unlubricated compressed air
- Supply pressure can be opened and closed
- Output pressure is infinitely adjustable within the pressure regulation range
- When the unit is switched off, quick exhausting ensures rapid pressure reduction
- Electrical pressure monitoring with adjustable switching pressure

### General technical data

| Size                            | MSB4  | MSB6 |
|---------------------------------|---|------|
| Pneumatic connection 1, 2, 3    | G1/4  | G1/2 |
| Regulator function              | Output pressure constant, with primary pressure compensation, with return flow, with secondary exhausting |      |
| Type of mounting                | Via accessories   |      |
| Mounting position               | Vertical ±5°  |      |
| Grade of filtration [µm]        | 40  |      |
| Air purity class at the output  | Compressed air to ISO 8573-1:2010 [7:4:4]   |      |
| Bowl guard                      | Plastic bowl guard  |      |
| Condensate drain                | Manual  |      |
| Actuator lock                   | Rotary knob with latch, can be locked using accessories   |      |
| Pressure regulation range [bar] | 4 ... 7   |      |
|                                 | 4 ... 10  |      |
| Pressure indication             | Via pressure sensor for indicating the output pressure via status indicator and electrical output         |      |
|                                 | Via pressure gauge for displaying the output pressure   |      |

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

### Electrical data – On/off valve MS...-EE-10V24P-AD7

|  |  |
|--|--|
| Characteristic coil data               | 24 V DC: 1.8 W; permissible voltage fluctuations –15%/+10% |
| Electrical connection                  | M12x1 to IEC 61076-2-101                                   |
| Degree of protection for solenoid coil | IP65   |
| Duty cycle [%]                         | 100  |


## Datasheet – Combination 7

| Standard nominal flow rate qnN [l/min]       |  |          |
|--|--|----------|
| Size   | MSB4   | MSB6     |
| Pressure regulation range 4 ... 7 bar        |  |          |
| Grade of filtration                          | 40 µm  | 1600     |
|  |  | 4400     |
| Pressure regulation range 4 ... 10 bar       |  |          |
| Grade of filtration                          | 40 µm  | 1400     |
|  |  | 4000     |
| Operating and environmental conditions       |  |          |
| Condensate drain                             | Manual   |          |
| Size   | MSB4   | MSB6     |
| Operating pressure [bar]                     | 4 ... 14   | 4 ... 18 |
| 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 ... +60  |          |
| LABS (PWIS) conformity                       | VDMA24364-B1/B2-L  |          |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |          |
| Food-safe <sup>2)</sup>                      | See supplementary material information   |          |

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) More information: [www.festo.com/catalogue/msb](http://www.festo.com/catalogue/msb) → Support/Downloads.

| Weight [g]               |      |      |
|--------------------------|------|------|
| Size                     | MSB4 | MSB6 |
| Service unit combination | 1600 | 2000 |
| Mounting bracket         | 40   | 76   |

 **Note**

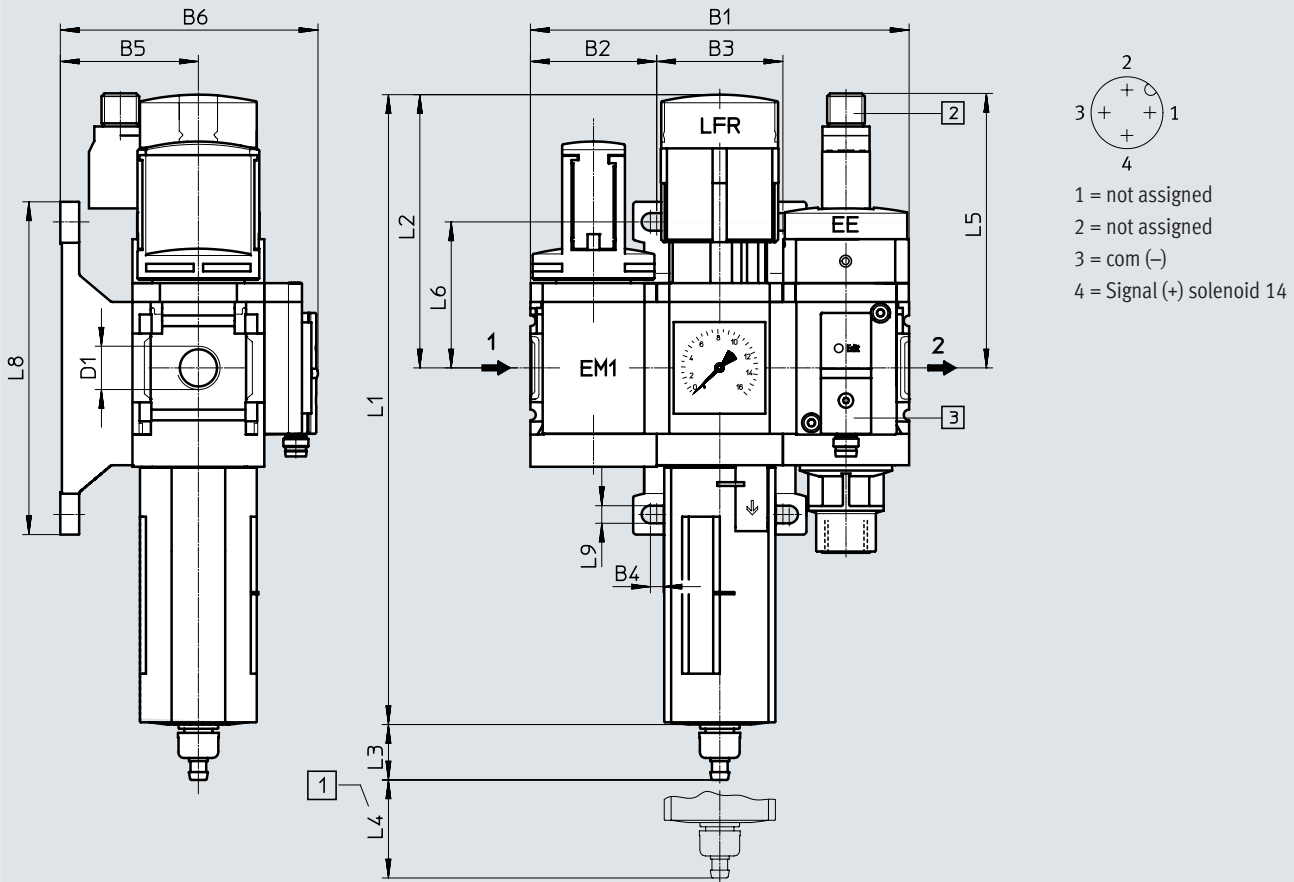
Materials → Datasheet for the individual devices

## Datasheet – Combination 7

### Dimensions

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

Manually operated on/off valve, filter regulator with pressure gauge, electrically actuated on/off valve with pressure sensor



[1] Installation dimension  
[2] Electrical connection to IEC 61076-2-101, M12x1 plug, 2-pin, for NEBU-M12

[3] Pressure sensor SDE5-D10-0-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact  
→ Internet: sde5

→ Flow direction

| Type | B1    | B2   | B3   | B4  | B5 | B6  | D1   |
|------|-------|------|------|-----|----|-----|------|
| MSB4 | 120.6 | 40.2 | 40.2 | 4   | 44 | 82  | G1/4 |
| MSB6 | 186   | 62   | 62   | 4.5 | 54 | 102 | G1/2 |

| Type | L1  | L2    | L3   | L4 | L5   | L6   | L8  | L9  |
|------|-----|-------|------|----|------|------|-----|-----|
| MSB4 | 201 | 87    | 17.7 | 25 | 86.3 | 46.5 | 106 | 5.6 |
| MSB6 | 285 | 134.5 | 15.8 | 68 | 104  | 71   | 158 | 6.6 |

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

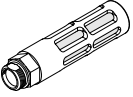
## Datasheet – Combination 7


## ★ Core Range


| Ordering data  |            |                  |                          |           |                         |
|--|------------|------------------|--------------------------|-----------|-------------------------|
| Size   | Connection | Condensate drain | Grade of filtration [µm] | Part no.  | Type                    |
| <b>Pressure regulation range 4 ... 10 bar, pressure gauge with outer scale in bar and inner scale in psi</b> |            |                  |                          |           |                         |
| MSB4   | G1/4       | Manual           | 40                       | ★ 8025358 | MSB4-1/4:C3:j1:D14-WP   |
| MSB6   | G1/2       | Manual           | 40                       | ★ 8025359 | MSB6-1/2:C3:j1:D14-WP   |
| Ordering data  |            |                  |                          |           |                         |
| Size   | Connection | Condensate drain | Grade of filtration [µm] | Part no.  | Type                    |
| <b>Pressure regulation range 4 ... 7 bar, pressure gauge with outer scale in MPa</b>                         |            |                  |                          |           |                         |
| MSB4   | G1/4       | Manual           | 40                       | 8042666   | MSB4-1/4:C3:j120:D14-WP |
| MSB6   | G1/2       | Manual           | 40                       | 8042670   | MSB6-1/2:C3:j120:D14-WP |

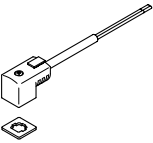
## Accessories


### ★ Core Range

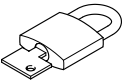
| Ordering data – Silencer U   |                            |                      |             | Datasheets → Internet: u |  |
|--|----------------------------|----------------------|-------------|--------------------------|--|
|  | Description                | Pneumatic connection | Part no.    | Type                     |  |
|  | For MS4-EM1/EE             | G1/4                 | <b>6842</b> | U-1/4-B                  |  |
|  | For MS6-EM1/EE             | G1/2                 | <b>6844</b> | U-1/2-B                  |  |
|  | For MS4-EE-B/EDE-B/EM1FR-B | G1/4                 | <b>2316</b> | U-1/4                    |  |
|  | For MS6-EE-B/EDE-B/EM1FR-B | G1/2                 | <b>2310</b> | U-1/2                    |  |

| Ordering data – Angled plug socket PEV   |                    |                          |                       |                             | Datasheets → Internet: pev |                    |
|--|--------------------|--------------------------|-----------------------|-----------------------------|----------------------------|--------------------|
|  | Description        | Operating voltage range  | Electrical connection | Switching status indication | Part no.                   | Type               |
|  | For PEV-1/4-...-OD | 15 ... 30 V DC           | 4-pin                 | Yellow LED                  | <b>164274</b>              | PEV-1/4-WD-LED-24  |
|  |                    | ≤ 230 V AC<br>≤ 180 V DC | 4-pin                 | Yellow LED                  | <b>164275</b>              | PEV-1/4-WD-LED-230 |

| Ordering data – Plug socket MSSD   |                    |                         |                       |                                       | Datasheets → Internet: mssd |               |
|--|--------------------|-------------------------|-----------------------|---------------------------------------|-----------------------------|---------------|
|  | Description        | Operating voltage range | Electrical connection | Type of mounting for cable connection | Part no.                    | Type          |
|  | For PEV-1/4-...-OD | ≤ 250 V AC/DC           | 3-pin                 | Clamping screws                       | <b>171157</b>               | MSSD-C-4P     |
|  | For MS4/6-EE/DE    |                         | 3-pin                 | Clamping screws                       | ★ <b>151687</b>             | MSSD-EB       |
|  |                    | ≤ 250 V AC/DC           | 4-pin                 | Insulation displacement technology    | <b>192745</b>               | MSSD-EB-S-M14 |

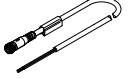

| Ordering data – Plug socket with cable KMEB  |                 |                   |                       |                             |                  | Datasheets → Internet: kmeb |                   |
|--|-----------------|-------------------|-----------------------|-----------------------------|------------------|-----------------------------|-------------------|
|  | Description     | Operating voltage | Electrical connection | Switching status indication | Cable length [m] | Part no.                    | Type              |
|  | For MS4/6-EE/DE | 24 V DC           | 2-pin                 | LED                         | 2.5              | <b>547268</b>               | KMEB-3-24-2.5-LED |
|  |                 |                   |                       |                             | 5                | <b>547269</b>               | KMEB-3-24-5-LED   |
|  |                 |                   |                       | 2.5                         | <b>547270</b>    | KMEB-3-24-2.5               |                   |
|  |                 |                   | 5                     | <b>547271</b>               | KMEB-3-24-5      |                             |                   |
|  |                 |                   | 3-pin                 | LED                         | 2.5              | ★ <b>151688</b>             | KMEB-1-24-2.5-LED |
|  |                 |                   |                       |                             | 5                | <b>151689</b>               | KMEB-1-24-5-LED   |
|  |                 | 230 V AC          | 3-pin                 | -                           | 10               | <b>193457</b>               | KMEB-1-24-10-LED  |
|  |                 |                   |                       |                             | 2.5              | <b>151690</b>               | KMEB-1-230AC-2.5  |
|  |                 |                   |                       |                             | 5                | <b>151691</b>               | KMEB-1-230AC-5    |
|  |                 |                   |                       |                             |                  |                             |                   |

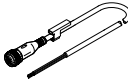
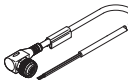
| Ordering data – Illuminating seal MEB-LD   |   |                         |               | Datasheets → Internet: meb |  |
|--|---|-------------------------|---------------|----------------------------|--|
|  | Description   | Operating voltage range | Part no.      | Type                       |  |
|  | For plug socket with cable KMEB and plug socket MSSD-EB | 12 ... 24 V DC          | <b>151717</b> | MEB-LD-12-24DC             |  |
|  |   | 230 V DC/AC ±10%        | <b>151718</b> | MEB-LD-230AC               |  |

| Ordering data – Padlock LRVS-D   |                                    |            |                        |
|--|------------------------------------|------------|------------------------|
|  | Description                        | Weight [g] | Part no. / Type        |
|  | For filter and pressure regulators | 120        | <b>193786</b> / LRVS-D |

## Accessories

## ★ Core Range

| Ordering data – Connecting cable NEBU-M8  |                       |                 |                  |          | Datasheets → Internet: nebu |
|---|-----------------------|-----------------|------------------|----------|-----------------------------|
|   | Electrical connection | Number of cores | 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           |
|  | M8x1, angled socket   | 3               | 2.5              | ★ 541338 | NEBU-M8W3-K-2.5-LE3         |
|   |                       |                 | 5                | ★ 541341 | NEBU-M8W3-K-5-LE3           |

| Ordering data – Connecting cable NEBU-M12   |                        |                 |                  |          | Datasheets → Internet: nebu |
|---|------------------------|-----------------|------------------|----------|-----------------------------|
|   | Electrical connection  | Number of cores | 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          |
|  | M12x1, angled socket   | 4               | 2.5              | 550325   | NEBU-M12W5-K-2.5-LE4        |
|   |                        |                 | 5                | 541329   | NEBU-M12W5-K-5-LE4          |