

## Filter regulators MS-LFR, MS series

**FESTO**



Festo core product range  
Covers 80% of your automation tasks

Worldwide:

Always in stock

Superb:

Festo quality at an attractive price

Easy:

Reduces procurement and storing complexity



Ready for dispatch from the Festo factory in 24 hours  
Held in stock in 13 service centres worldwide  
More than 2200 products



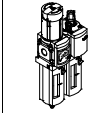
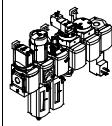
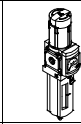
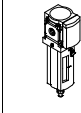
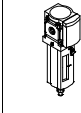
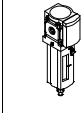
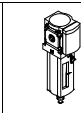
Ready for dispatch in 5 days maximum from stock  
Assembled for you in 4 service centres worldwide  
Up to  $6 \times 10^{12}$  variants per product series

Look for the star!

# Filter regulators MS-LFR, MS series

Product range overview – MS series service units

**FESTO**

| Type                                                                                                                          | Size | Pneumatic connection in housing | Connecting plate             | Pressure regulation range [bar] |                    |                 |                 |                  |                  | Grade of filtration [µm] |   |   |    |
|-------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------|------------------------------|---------------------------------|--------------------|-----------------|-----------------|------------------|------------------|--------------------------|---|---|----|
|                                                                                                                               |      |                                 |                              | 0.05<br>...<br>0.7              | 0.05<br>...<br>2.5 | 0.1<br>...<br>4 | 0.3<br>...<br>7 | 0.1<br>...<br>12 | 0.5<br>...<br>16 | 0.01                     | 1 | 5 | 40 |
| Code                                                                                                                          |      |                                 | AG.../AQ...                  | D2                              | D4                 | D5              | D6              | D7               | D8               | A                        | B | C | E  |
| <b>Service unit combinations</b>                                                                                              |      |                                 |                              |                                 |                    |                 |                 |                  |                  |                          |   |   |    |
| <b>MSB-FRC</b><br>                           | 4    | G1/8, G1/4                      | G1/8, G1/4, G3/8             | –                               | –                  | –               | ■               | ■                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 6    | G1/4, G3/8, G1/2                | G1/4, G3/8, G1/2, G3/4       | –                               | –                  | –               | ■               | ■                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 9    | –                               | –                            | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
|                                                                                                                               | 12   | –                               | –                            | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
| <b>Service unit combinations (further variants can be ordered using the configurator → Internet: msb4, msb6 or msb9)</b>      |      |                                 |                              |                                 |                    |                 |                 |                  |                  |                          |   |   |    |
| <b>MSB</b><br>                              | 4    | G1/4                            | G1/8, G1/4, G3/8             | –                               | –                  | –               | ■               | ■                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 6    | G1/2                            | G1/4, G3/8, G1/2, G3/4       | –                               | –                  | –               | ■               | ■                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 9    | –                               | –                            | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
|                                                                                                                               | 12   | –                               | –                            | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
| <b>Individual devices</b>                                                                                                     |      |                                 |                              |                                 |                    |                 |                 |                  |                  |                          |   |   |    |
| <b>Filter regulators MS-LFR</b><br>        | 4    | G1/8, G1/4                      | G1/8, G1/4, G3/8             | –                               | –                  | ■               | ■               | ■                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 6    | G1/4, G3/8, G1/2                | G1/4, G3/8, G1/2, G3/4       | –                               | –                  | ■               | ■               | ■                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 9    | G3/4, G1                        | G1/2, G3/4, G1, G11/4, G11/2 | –                               | –                  | ■               | ■               | ■                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 12   | –                               | G1, G11/4, G11/2, G2         | –                               | –                  | ■               | ■               | ■                | –                | –                        | – | ■ | ■  |
| <b>Filters MS-LF</b><br>                   | 4    | G1/8, G1/4                      | G1/8, G1/4, G3/8             | –                               | –                  | –               | –               | –                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 6    | G1/4, G3/8, G1/2                | G1/4, G3/8, G1/2, G3/4       | –                               | –                  | –               | –               | –                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 9    | G3/4, G1                        | G1/2, G3/4, G1, G11/4, G11/2 | –                               | –                  | –               | –               | –                | –                | –                        | – | ■ | ■  |
|                                                                                                                               | 12   | –                               | G1, G11/4, G11/2, G2         | –                               | –                  | –               | –               | –                | –                | –                        | – | ■ | ■  |
| <b>Fine and micro filters MS-LFM</b><br>   | 4    | G1/8, G1/4                      | G1/8, G1/4, G3/8             | –                               | –                  | –               | –               | –                | –                | ■                        | ■ | – | –  |
|                                                                                                                               | 6    | G1/4, G3/8, G1/2                | G1/4, G3/8, G1/2, G3/4       | –                               | –                  | –               | –               | –                | –                | ■                        | ■ | – | –  |
|                                                                                                                               | 9    | G3/4, G1                        | G1/2, G3/4, G1, G11/4, G11/2 | –                               | –                  | –               | –               | –                | –                | ■                        | ■ | – | –  |
|                                                                                                                               | 12   | –                               | G1, G11/4, G11/2, G2         | –                               | –                  | –               | –               | –                | –                | ■                        | ■ | – | –  |
| <b>Activated carbon filters MS-LFX</b><br> | 4    | G1/8, G1/4                      | G1/8, G1/4, G3/8             | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
|                                                                                                                               | 6    | G1/4, G3/8, G1/2                | G1/4, G3/8, G1/2, G3/4       | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
|                                                                                                                               | 9    | G3/4, G1                        | G1/2, G3/4, G1, G11/4, G11/2 | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
|                                                                                                                               | 12   | –                               | G1, G11/4, G11/2, G2         | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
| <b>Water separators MS-LWS</b><br>         | 4    | –                               | –                            | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
|                                                                                                                               | 6    | G1/4, G3/8, G1/2                | G1/4, G3/8, G1/2, G3/4       | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
|                                                                                                                               | 9    | G3/4, G1                        | G1/2, G3/4, G1, G11/4, G11/2 | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |
|                                                                                                                               | 12   | –                               | G1, G11/4, G11/2, G2         | –                               | –                  | –               | –               | –                | –                | –                        | – | – | –  |

# Filter regulators MS-LFR, MS series

FESTO

Product range overview – MS series service units

| Type                                           | Size | Bowl guard                           |            | Condensate drains |                |                 |                                       | Pressure indicator                   |                              |                                          |                                          |                 | Security                                          |                                  | Options  |                                   | → Page/<br>Internet |
|------------------------------------------------|------|--------------------------------------|------------|-------------------|----------------|-----------------|---------------------------------------|--------------------------------------|------------------------------|------------------------------------------|------------------------------------------|-----------------|---------------------------------------------------|----------------------------------|----------|-----------------------------------|---------------------|
|                                                |      | Plastic bowl with plastic bowl guard | Metal bowl | Manual rotary     | Semi-automatic | Fully automatic | External, fully automatic, electrical | Cover plate (without pressure gauge) | Integrated MS pressure gauge | Adapter plate for EN pressure gauge G1/8 | Adapter plate for EN pressure gauge G1/4 | Pressure sensor | Rotary knob with detent, lockable via accessories | Rotary knob with integrated lock | Silencer | Flow direction from right to left |                     |
| Code                                           |      | R                                    | U          | M                 | H              | V               | E...                                  | VS                                   | AG                           | A8                                       | A4                                       | AD...           | AS                                                | E11                              | S        | Z                                 |                     |
| <b>Service unit combinations</b>               |      |                                      |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| <b>MSB-FRC</b>                                 | 4    | ■                                    | –          | ■                 | –              | ■               | –                                     | –                                    | ■                            | –                                        | –                                        | –               | ■                                                 | –                                | –        | ■                                 | msb4                |
|                                                | 6    | ■                                    | ■          | ■                 | –              | ■               | –                                     | –                                    | ■                            | –                                        | –                                        | –               | ■                                                 | –                                | –        | ■                                 | msb6                |
|                                                | 9    | –                                    | –          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                | 12   | –                                    | –          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| <b>Service unit combinations</b>               |      |                                      |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| <b>MSB</b>                                     | 4    | ■                                    | ■          | ■                 | –              | ■               | –                                     | –                                    | ■                            | –                                        | –                                        | –               | ■                                                 | –                                | –        | ■                                 | msb4                |
|                                                | 6    | ■                                    | ■          | ■                 | –              | ■               | –                                     | –                                    | ■                            | –                                        | –                                        | –               | ■                                                 | –                                | –        | ■                                 | msb6                |
|                                                | 9    | –                                    | –          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                | 12   | –                                    | –          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| <b>Individual devices</b>                      |      |                                      |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| <b>Filter regulators<br/>MS-LFR</b>            | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 8                   |
|                                                | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 8                   |
|                                                | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 26                  |
|                                                | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | ■                                    | ■                            | –                                        | ■                                        | –               | ■                                                 | ■                                | –        | ■                                 | 40                  |
| <b>Filters<br/>MS-LF</b>                       | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lf              |
|                                                | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lf              |
|                                                | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lf              |
|                                                | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lf             |
| <b>Fine and micro<br/>filters<br/>MS-LFM</b>   | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lfm             |
|                                                | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lfm             |
|                                                | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lfm             |
|                                                | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lfm            |
| <b>Activated carbon<br/>filters<br/>MS-LFX</b> | 4    | ■                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lfx             |
|                                                | 6    | ■                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lfx             |
|                                                | 9    | –                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lfx             |
|                                                | 12   | –                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lfx            |
| <b>Water separators<br/>MS-LWS</b>             | 4    | –                                    | –          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                | 6    | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lws             |
|                                                | 9    | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lws             |
|                                                | 12   | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lws            |

# Filter regulators MS-LFR, MS series

Product range overview – MS series service units



| Type                                                      | Size | Pneumatic connection in housing | Connecting plate | Pressure regulation range [bar] |                    |                 |                 |                  |                  | Supply voltage                           |                                            |                                           |                                           |
|-----------------------------------------------------------|------|---------------------------------|------------------|---------------------------------|--------------------|-----------------|-----------------|------------------|------------------|------------------------------------------|--------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                                           |      |                                 |                  | 0.05<br>...<br>0.7              | 0.05<br>...<br>2.5 | 0.1<br>...<br>4 | 0.3<br>...<br>7 | 0.1<br>...<br>12 | 0.5<br>...<br>16 | 24 V DC, connection pattern to EN 175301 | 24 V DC, connection M12 to IEC 61076-2-101 | 110 V AC, connection pattern to EN 175301 | 230 V AC, connection pattern to EN 175301 |
| Code                                                      |      |                                 | AG.../AQ...      | D2                              | D4                 | D5              | D6              | D7               | D8               | V24                                      | V24P                                       | V110                                      | V230                                      |
| <b>Individual devices</b>                                 |      |                                 |                  |                                 |                    |                 |                 |                  |                  |                                          |                                            |                                           |                                           |
| Pressure regulators<br><b>MS-LR</b>                       |      | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 9                               | G3/4, G1         | G1/2, G3/4, G1, G11/4, G11/2    | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | G1, G11/4, G11/2, G2            | –                  | –               | –               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
| Pressure regulators<br><b>MS-LRB</b>                      |      | 4                               | G1/4             | G1/8, G1/4, G3/8                | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4          | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Precision pressure regulators<br><b>MS-LRP</b>            |      | 4                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | ■                  | ■               | ■               | –                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Precision pressure regulators<br><b>MS-LRPB</b>           |      | 4                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4          | ■                  | ■               | ■               | –                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Electrical pressure regulators<br><b>MS-LRE</b>           |      | 4                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Lubricators<br><b>MS-LOE</b>                              |      | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 9                               | G3/4, G1         | G1/2, G3/4, G1, G11/4, G11/2    | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | G1, G11/4, G11/2, G2            | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| On-off valves, manually actuated<br><b>MS-EM(1)</b>       |      | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 9                               | G3/4, G1         | G1/2, G3/4, G1, G11/4, G11/2    | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | G1, G11/4, G11/2, G2            | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| On-off valves, electrically actuated<br><b>MS-EE</b>      |      | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | ■                                        | –                                          | ■                                         | ■                                         |
|                                                           |      | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | ■                                        | –                                          | ■                                         | ■                                         |
|                                                           |      | 9                               | G3/4, G1         | G1/2, G3/4, G1, G11/4, G11/2    | –                  | –               | –               | –                | –                | ■                                        | ■                                          | ■                                         | ■                                         |
|                                                           |      | 12                              | –                | G1, G11/4, G11/2, G2            | –                  | –               | –               | –                | –                | ■                                        | ■                                          | ■                                         | ■                                         |
| Soft-start valves, pneumatically actuated<br><b>MS-DL</b> |      | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | G1, G11/4, G11/2, G2            | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Soft-start valves, electrically actuated<br><b>MS-DE</b>  |      | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | ■                                        | –                                          | ■                                         | ■                                         |
|                                                           |      | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | ■                                        | –                                          | ■                                         | ■                                         |
|                                                           |      | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |      | 12                              | –                | G1, G11/4, G11/2, G2            | –                  | –               | –               | –                | –                | ■                                        | ■                                          | ■                                         | ■                                         |

# Filter regulators MS-LFR, MS series

Product range overview – MS series service units

**FESTO**

| Type                                                      | Size | Bowl guard                           |            | Pressure indicator                   |                              |                                          |                                          |                 | Security                                          |                                  | Options  |                                   | → Page/<br>Internet |
|-----------------------------------------------------------|------|--------------------------------------|------------|--------------------------------------|------------------------------|------------------------------------------|------------------------------------------|-----------------|---------------------------------------------------|----------------------------------|----------|-----------------------------------|---------------------|
|                                                           |      | Plastic bowl with plastic bowl guard | Metal bowl | Cover plate (without pressure gauge) | Integrated MS pressure gauge | Adapter plate for EN pressure gauge G1/8 | Adapter plate for EN pressure gauge G1/4 | Pressure sensor | Rotary knob with detent, lockable via accessories | Rotary knob with integrated lock | Silencer | Flow direction from right to left |                     |
| Code                                                      |      | R                                    | U          | VS                                   | AG                           | A8                                       | A4                                       | AD...           | AS                                                | E11                              | S        | Z                                 |                     |
| <b>Individual devices</b>                                 |      |                                      |            |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| Pressure regulators<br><b>MS-LR</b>                       | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms4-lr              |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lr              |
|                                                           | 9    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms9-lr              |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | ■                                                 | ■                                | –        | ■                                 | ms12-lr             |
| Pressure regulators<br><b>MS-LRB</b>                      | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms4-lrb             |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lrb             |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Precision pressure regulators<br><b>MS-LRP</b>            | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | –                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lrp             |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Precision pressure regulators<br><b>MS-LRPB</b>           | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | –                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lrpb            |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Electrical pressure regulators<br><b>MS-LRE</b>           | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lre             |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Lubricators<br><b>MS-LOE</b>                              | 4    | ■                                    | ■          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-loe             |
|                                                           | 6    | ■                                    | ■          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-loe             |
|                                                           | 9    | –                                    | ■          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-loe             |
|                                                           | 12   | –                                    | ■          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-loe            |
| On-off valves, manually actuated<br><b>MS-EM(1)</b>       | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms4-em1             |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms6-em1             |
|                                                           | 9    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | ■        | ■                                 | ms9-em              |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | ■        | ■                                 | ms12-em             |
| On-off valves, electrically actuated<br><b>MS-EE</b>      | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms4-ee              |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms6-ee              |
|                                                           | 9    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms9-ee              |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | ■        | ■                                 | ms12-ee             |
| Soft-start valves, pneumatically actuated<br><b>MS-DL</b> | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | –                                                 | –                                | –        | ■                                 | ms4-dl              |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | –        | ■                                 | ms6-dl              |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-dl             |
| Soft-start valves, electrically actuated<br><b>MS-DE</b>  | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | –                                                 | –                                | –        | ■                                 | ms4-de              |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | –        | ■                                 | ms6-de              |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-de             |

# Filter regulators MS-LFR, MS series

Product range overview – MS series service units



| Type                                     | Size                                                                                |                                 |                  | Performance Level     |                       |                                            | Supply voltage        |                                          |                                            |                                               |                                                       |   |
|------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|------------------|-----------------------|-----------------------|--------------------------------------------|-----------------------|------------------------------------------|--------------------------------------------|-----------------------------------------------|-------------------------------------------------------|---|
|                                          |                                                                                     |                                 |                  | Category 1, 1-channel | Category 3, 2-channel | Category 4, 2-channel with self-monitoring | 24 V DC, Sub-D, 9-pin | 24 V DC, connection pattern to EN 175301 | 24 V DC, connection M12 to IEC 61076-2-101 | 110/230 V AC, connection pattern to EN 175301 | 22 ... 31.6 V DC, connection M12, AS-i Safety at Work |   |
| Code                                     |                                                                                     | Pneumatic connection in housing | Connecting plate | C                     | D                     | E                                          | 10V24                 | 10V24/V24                                | 10V24P                                     | V110/V230                                     | ASIS                                                  |   |
| Individual devices                       |                                                                                     |                                 |                  |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
| Soft start and exhaust valves<br>MS-SV-C |    | 4                               | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     | 6                               | G1½              | G¼, G¾, G½, G¾        | ■                     | –                                          | –                     | –                                        | ■                                          | ■                                             | –                                                     | – |
|                                          |                                                                                     | 9                               | G¾, G1           | G½, G¾, G1, G1¼, G1½  | ■                     | –                                          | –                     | –                                        | ■                                          | ■                                             | ■                                                     | – |
|                                          |                                                                                     | 12                              | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
| Soft start and exhaust valves<br>MS-SV-D |   | 4                               | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     | 6                               | G1½              | G¼, G¾, G½, G¾        | –                     | ■                                          | –                     | –                                        | ■                                          | ■                                             | –                                                     | – |
|                                          |                                                                                     | 9                               | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     | 12                              | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
| Soft start and exhaust valves<br>MS-SV-E |  | 4                               | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     | 6                               | G1½              | G¼, G¾, G½, G¾        | –                     | –                                          | ■                     | ■                                        | –                                          | –                                             | –                                                     | ■ |
|                                          |                                                                                     | 9                               | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     | 12                              | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     |                                 |                  |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
| Membrane air dryers<br>MS-LDM1           |  | 4                               | G⅛, G¼           | G⅛, G¼, G¾            | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 6                               | G¼, G¾, G½       | G¼, G¾, G½, G¾        | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 9                               | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     | 12                              | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     |                                 |                  |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
| Branching modules<br>MS-FRM              |  | 4                               | G⅛, G¼           | G⅛, G¼, G¾            | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 6                               | G¼, G¾, G½       | G¼, G¾, G½, G¾        | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 9                               | G¾, G1           | G½, G¾, G1, G1¼, G1½  | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 12                              | –                | G1, G1¼, G1½, G2      | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
| Distributor blocks<br>MS-FRM-FRZ         |  | 4                               | G¼               | –                     | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 6                               | G½               | –                     | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 9                               | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     | 12                              | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     |                                 |                  |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
| Flow sensors<br>SFAM                     |  | 4                               | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |
|                                          |                                                                                     | 6                               | G½               | G½                    | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 9                               | –                | G1, G1½               | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     | – |
|                                          |                                                                                     | 12                              | –                |                       |                       |                                            |                       |                                          |                                            |                                               |                                                       |   |

# Filter regulators MS-LFR, MS series

Product range overview – MS series service units

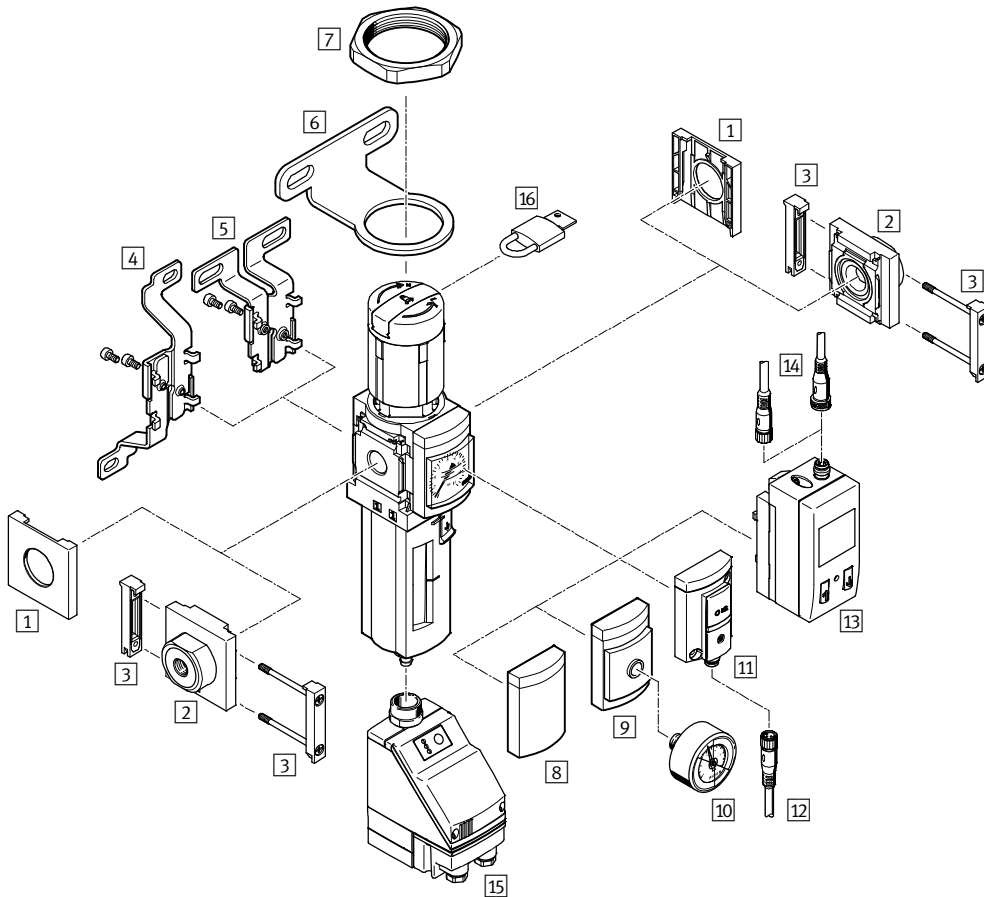
| Type                                     | Size | Bowl guard                           |            | Pressure indicator                   |                              |                                                     |                                                     |                 | Switch output                                   |                                                | Options  |                                   | → Page/<br>Internet |
|------------------------------------------|------|--------------------------------------|------------|--------------------------------------|------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------|-------------------------------------------------|------------------------------------------------|----------|-----------------------------------|---------------------|
| Code                                     |      | Plastic bowl with plastic bowl guard | Metal bowl | Cover plate (without pressure gauge) | Integrated MS pressure gauge | Adapter plate for EN pressure gauge G $\frac{1}{8}$ | Adapter plate for EN pressure gauge G $\frac{1}{4}$ | Pressure sensor | 2x PNP or NPN,<br>1 analogue output 4 ... 20 mA | 2x PNP or NPN,<br>1 analogue output 0 ... 10 V | Silencer | Flow direction from right to left |                     |
|                                          |      | R                                    | U          | VS                                   | AG                           | A8                                                  | A4                                                  | AD...           | 2SA                                             | 2SV                                            | S        | Z/R                               |                     |
| Individual devices                       |      |                                      |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   |                     |
| Soft start and exhaust valves<br>MS-SV-C | 4    | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          | 6    | -                                    | -          | ■                                    | ■                            | -                                                   | ■                                                   | ■               | -                                               | -                                              | ■        | ■                                 | ms6-sv              |
|                                          | 9    | -                                    | -          | ■                                    | ■                            | -                                                   | ■                                                   | ■               | -                                               | -                                              | ■        | ■                                 | ms9-sv              |
|                                          | 12   | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
| Soft start and exhaust valves<br>MS-SV-D | 4    | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          | 6    | -                                    | -          | ■                                    | ■                            | -                                                   | ■                                                   | ■               | -                                               | -                                              | ■        | ■                                 | ms6-sv              |
|                                          | 9    | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          | 12   | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
| Soft start and exhaust valves<br>MS-SV-E | 4    | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          | 6    | -                                    | -          | ■                                    | ■                            | -                                                   | ■                                                   | ■               | -                                               | -                                              | ■        | ■                                 | ms6-sv              |
|                                          | 9    | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          | 12   | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          |      |                                      |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   |                     |
| Membrane air dryers<br>MS-LDM1           | 4    | -                                    | ■          | -                                    | -                            | -                                                   | -                                                   | -               | -                                               | -                                              | -        | ■                                 | ms4-ldm1            |
|                                          | 6    | -                                    | ■          | -                                    | -                            | -                                                   | -                                                   | -               | -                                               | -                                              | -        | ■                                 | ms6-ldm1            |
|                                          | 9    | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          | 12   | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          |      |                                      |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   |                     |
| Branching modules<br>MS-FRM              | 4    | -                                    | -          | ■                                    | ■                            | ■                                                   | ■                                                   | ■               | -                                               | -                                              | -        | ■                                 | ms4-frm             |
|                                          | 6    | -                                    | -          | ■                                    | ■                            | -                                                   | ■                                                   | ■               | -                                               | -                                              | -        | ■                                 | ms6-frm             |
|                                          | 9    | -                                    | -          | ■                                    | ■                            | -                                                   | ■                                                   | ■               | -                                               | -                                              | -        | ■                                 | ms9-frm             |
|                                          | 12   | -                                    | -          | ■                                    | -                            | -                                                   | -                                                   | -               | -                                               | -                                              | -        | -                                 | ms12-frm            |
| Distributor blocks<br>MS-FRM-FRZ         | 4    | -                                    | -          | -                                    | -                            | -                                                   | -                                                   | -               | -                                               | -                                              | -        | ■                                 | ms4-frm             |
|                                          | 6    | -                                    | -          | -                                    | -                            | -                                                   | -                                                   | -               | -                                               | -                                              | -        | ■                                 | ms6-frm             |
|                                          | 9    | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          | 12   | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          |      |                                      |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   |                     |
| Flow sensors<br>SFAM                     | 4    | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |
|                                          | 6    | -                                    | -          | -                                    | -                            | -                                                   | -                                                   | -               | ■                                               | ■                                              | -        | ■                                 | sfam-62             |
|                                          | 9    | -                                    | -          | -                                    | -                            | -                                                   | -                                                   | -               | ■                                               | ■                                              | -        | ■                                 | sfam-90             |
|                                          | 12   | -                                    |            |                                      |                              |                                                     |                                                     |                 |                                                 |                                                |          |                                   | -                   |

# Filter regulators MS4/MS6-LFR, MS series

Peripherals overview

FESTO

## Filter regulator MS4/MS6-LFR



Note

Additional accessories:

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



## Filter regulators MS4/MS6-LFR, MS series

Peripherals overview

**FESTO**

| Mounting attachments and accessories |                                                                     |                             |                          |                             |                          |                     |
|--------------------------------------|---------------------------------------------------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|---------------------|
|                                      |                                                                     | Individual device           |                          | Combination                 |                          | ➔ Page/<br>Internet |
|                                      |                                                                     | Without connecting<br>plate | With connecting<br>plate | Without connecting<br>plate | With connecting<br>plate |                     |
| 1                                    | Cover cap<br>MS4/6-END                                              | ■                           | –                        | ■                           | –                        | ms4-end,<br>ms6-end |
| 2                                    | Connecting plate-SET<br>MS4/6-AG...                                 | –                           | ■                        | –                           | ■                        | ms4-ag,<br>ms6-ag   |
|                                      | Connecting plate-SET<br>MS4/6-AQ...                                 | –                           | ■                        | –                           | ■                        | ms4-aq,<br>ms6-aq   |
| 3                                    | Module connector<br>MS4/6-MV                                        | –                           | ■                        | ■                           | ■                        | ms4-mv,<br>ms6-mv   |
| 4                                    | Mounting bracket<br>MS4/6-WB                                        | ■                           | ■                        | –                           | –                        | ms4-wb,<br>ms6-wb   |
| 5                                    | Mounting bracket<br>MS4-WBM                                         | ■                           | ■                        | –                           | –                        | ms4-wbm             |
| 6                                    | Mounting bracket<br>MS4/6-WR                                        | ■                           | ■                        | –                           | –                        | ms4-wr,<br>ms6-wr   |
| 7                                    | Hex nut<br>MS4/6-WRS                                                | ■                           | ■                        | ■                           | ■                        | ms4-wrs,<br>ms6-wrs |
| 8                                    | Cover plate<br>VS                                                   | ■                           | ■                        | ■                           | ■                        | 24                  |
| 9                                    | Adapter plate for EN pressure gauge 1/8/1/4<br>A8/A4                | ■                           | ■                        | ■                           | ■                        | 24                  |
| 10                                   | Pressure gauge<br>MA                                                | ■                           | ■                        | ■                           | ■                        | 50                  |
| 11                                   | Pressure sensor without display<br>AD7 ... AD10                     | ■                           | ■                        | ■                           | ■                        | 24                  |
| 12                                   | Connecting cable<br>NEBU-M8...-LE3                                  | ■                           | ■                        | ■                           | ■                        | 50                  |
| 13                                   | Pressure sensor with display<br>AD1 ... AD4                         | ■                           | ■                        | ■                           | ■                        | 24                  |
| 14                                   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4                  | ■                           | ■                        | ■                           | ■                        | 50                  |
| 15                                   | Fully automatic condensate drain, electrically<br>actuated E2/E3/E4 | ■                           | ■                        | ■                           | ■                        | 24                  |
| 16                                   | Padlock<br>LRVS-D                                                   | ■                           | ■                        | ■                           | ■                        | 50                  |
| –                                    | Mounting bracket<br>MS4/6-WP/WPB/WPE/WPM                            | –                           | ■                        | ■                           | ■                        | ms4-wp,<br>ms6-wp   |

## Filter regulators MS4/MS6-LFR, MS series

Type codes

FESTO

|                                  |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
|----------------------------------|---------------------------------------------------|----|---|---|-----|---|-----|---|----|---|---|---|---|---|----|
|                                  |                                                   | MS | 6 | - | LFR | - | 1/2 | - | D7 | - | E | R | M | - | AS |
| <b>Series</b>                    |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| MS                               | Standard service unit                             |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| <b>Size</b>                      |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| 4                                | Grid dimension 40 mm                              |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| 6                                | Grid dimension 62 mm                              |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| <b>Service function</b>          |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| LFR                              | Filter regulator                                  |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| <b>Pneumatic connection</b>      |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| MS4                              |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| 1/8                              | Female thread G1/8                                |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| 1/4                              | Female thread G1/4                                |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| MS6                              |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| 1/4                              | Female thread G1/4                                |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| 3/8                              | Female thread G3/8                                |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| 1/2                              | Female thread G1/2                                |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| <b>Pressure regulation range</b> |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| D6                               | Pressure regulation range 0.3 ... 7 bar           |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| D7                               | Pressure regulation range 0.5 ... 12 bar          |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| <b>Grade of filtration</b>       |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| C                                | 5 µm                                              |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| E                                | 40 µm                                             |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| <b>Bowl guard</b>                |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| R                                | Plastic bowl guard                                |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| U                                | Integrated as metal bowl                          |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| <b>Condensate drain</b>          |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| M                                | Manual rotary                                     |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| V                                | Fully automatic                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| <b>Security</b>                  |                                                   |    |   |   |     |   |     |   |    |   |   |   |   |   |    |
| AS                               | Rotary knob with detent, lockable via accessories |    |   |   |     |   |     |   |    |   |   |   |   |   |    |

Additional variants can be ordered using the modular system → 24

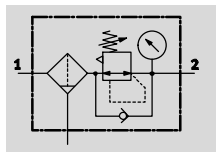
- Pneumatic connection
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob
- Security
- Type of mounting
- EU certification
- UL certification
- Flow direction

# Filter regulators MS4/MS6-LFR, MS series

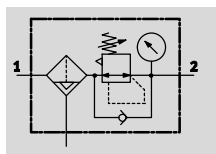
FESTO

Technical data

Manual rotary condensate drain,  
with pressure gauge



Semi or fully automatic condensate  
drain, with pressure gauge



With this device, the filter and pressure regulator are combined into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air.

- - Flow rate  
850 ... 7,200 l/min
- - Temperature range  
-10 ... +60 °C
- - Operating pressure  
0.8 ... 20 bar
- - [www.festo.com](http://www.festo.com)



- Good regulation characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- Available with or without secondary venting
- High flow rate
- Directly-actuated diaphragm regulator
- Four pressure regulation ranges:  
0.3 ... 4 bar, 0.3 ... 7 bar,  
0.5 ... 12 bar and 0.5 ... 16 bar
- Regulator lock for protecting the values against adjustment
- Two pressure gauge connections for different fitting options
- Return flow option for exhausting from output 2 to output 1 already integrated
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22
- Choice of filter cartridges:  
5 µm or 40 µm
- New filter cartridges → 49

| General technical data         |                                                                                                                                                                               |                                  |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Size                           | MS4                                                                                                                                                                           | MS6                              |
| Pneumatic connection 1, 2      |                                                                                                                                                                               |                                  |
| Female thread                  | G1/8 or G1/4                                                                                                                                                                  | G1/4, G3/8 or G1/2               |
| Connecting plate AG...         | G1/8, G1/4 or G3/8                                                                                                                                                            | G1/4, G3/8, G1/2 or G3/4         |
| Connecting plate AQ...         | NPT1/8, NPT1/4 or NPT3/8                                                                                                                                                      | NPT1/4, NPT3/8, NPT1/2 or NPT3/4 |
| Constructional design          | Filter regulator with/without pressure display                                                                                                                                |                                  |
| Regulating function            | Output pressure constant, with return flow action, with/without secondary venting                                                                                             |                                  |
| Type of mounting               | Via accessories<br>In-line installation<br>Front panel mounting                                                                                                               |                                  |
| Mounting position              | Vertical ±5°                                                                                                                                                                  |                                  |
| Grade of filtration [µm]       | 5<br>40                                                                                                                                                                       |                                  |
| Air purity class at the output | Compressed air in accordance with ISO 8573-1:2010 [6:4:4] (Grade of filtration 5 µm)<br>Compressed air in accordance with ISO 8573-1:2010 [7:4:4] (Grade of filtration 40 µm) |                                  |
| Bowl guard                     | Plastic bowl guard<br>Integrated as metal bowl                                                                                                                                |                                  |
| Condensate drain               | Manual rotary<br>Semi-automatic<br>Fully automatic<br>- Fully automatic, electrically actuated                                                                                |                                  |
| Regulator lock                 | Rotary knob with detent, lockable via accessories<br>Rotary knob with integrated lock                                                                                         |                                  |

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

# Filter regulators MS4/MS6-LFR, MS series

FESTO

Technical data

| General technical data    |                    |                                                                                                           |                                               |
|---------------------------|--------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Size                      |                    | MS4                                                                                                       | MS6                                           |
| Pressure regulation range | D5 [bar]           | 0.3 ... 4                                                                                                 |                                               |
|                           | D6 [bar]           | 0.3 ... 7                                                                                                 |                                               |
|                           | D7 [bar]           | 0.5 ... 12 (0.5 ... 10 with pressure sensor variant AD... or with UL certification)                       |                                               |
|                           | D8 [bar]           | –                                                                                                         | 0.5 ... 16 (0.5 ... 10 with UL certification) |
| Max. hysteresis           | [bar]              | 0.25                                                                                                      |                                               |
| Pressure display          |                    | Via pressure sensor for displaying output pressure via LCD display and electrical output                  |                                               |
|                           |                    | Via pressure sensor for displaying output pressure via operational status indicator and electrical output |                                               |
|                           |                    | Via pressure gauge for displaying output pressure                                                         |                                               |
|                           |                    | Via pressure gauge with red/green scale for displaying output pressure                                    |                                               |
|                           |                    | G $\frac{1}{8}$ prepared                                                                                  | –                                             |
|                           |                    | G $\frac{1}{4}$ prepared                                                                                  |                                               |
| Max. condensate volume    | [cm <sup>3</sup> ] | 19 (with plastic bowl guard)<br>25 (with metal bowl)                                                      | 38                                            |

| Standard nominal flow rate q <sub>N</sub> <sup>1)</sup> [l/min] |       |                     |                     |                     |                     |                     |
|-----------------------------------------------------------------|-------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Size                                                            |       | MS4                 |                     | MS6                 |                     |                     |
| Pneumatic connection                                            |       | G $\frac{1}{8}$     | G $\frac{1}{4}$     | G $\frac{1}{4}$     | G $\frac{3}{8}$     | G $\frac{1}{2}$     |
| D5 – Pressure regulation range 0.3 ... 4 bar                    |       |                     |                     |                     |                     |                     |
| Grade of filtration                                             | 5 µm  | 900 <sup>2)</sup>   | 1,800 <sup>2)</sup> | 2,000 <sup>2)</sup> | 5,500 <sup>2)</sup> | 6,900 <sup>2)</sup> |
|                                                                 | 40 µm | 1,100 <sup>2)</sup> | 1,900 <sup>2)</sup> | 2,200 <sup>2)</sup> | 6,000 <sup>2)</sup> | 7,200 <sup>2)</sup> |
| D6 – Pressure regulation range 0.3 ... 7 bar                    |       |                     |                     |                     |                     |                     |
| Grade of filtration                                             | 5 µm  | 900                 | 1,500               | 2,700               | 5,000               | 5,600               |
|                                                                 | 40 µm | 1,000               | 1,700               | 2,800               | 5,700               | 6,200               |
| D7 – Pressure regulation range 0.5 ... 12 bar                   |       |                     |                     |                     |                     |                     |
| Grade of filtration                                             | 5 µm  | 850                 | 1,200               | 2,200               | 3,500               | 4,000               |
|                                                                 | 40 µm | 900                 | 1,500               | 2,500               | 4,000               | 4,500               |
| D8 – Pressure regulation range 0.5 ... 16 bar                   |       |                     |                     |                     |                     |                     |
| Grade of filtration                                             | 5 µm  | –                   | –                   | 2,000               | 3,300               | 3,800               |
|                                                                 | 40 µm | –                   | –                   | 2,300               | 3,500               | 4,000               |

1) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 6 bar, Δp = 1 bar

2) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 3 bar, Δp = 1 bar

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

| Operating and environmental conditions       |                                                              |                                          |                                                              |                                          |                                                              |                                      |                                                              |
|----------------------------------------------|--------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------|
| Condensate drain                             | Manual rotary<br>M                                           |                                          | Semi-automatic<br>H                                          |                                          | Fully automatic<br>V                                         |                                      | Fully automatic, electrical<br>E2/E3/E4                      |
| Size                                         | MS4                                                          | MS6                                      | MS4                                                          | MS6                                      | MS4                                                          | MS6                                  | MS6                                                          |
| Operating pressure [bar]                     | 0.8 ... 14<br>(0.8 ... 10) <sup>1)</sup>                     | 0.8 ... 20<br>(0.8 ... 10) <sup>1)</sup> | 1.5 ... 12<br>(1.5 ... 10) <sup>1)</sup>                     | 1.5 ... 12<br>(1.5 ... 10) <sup>1)</sup> | 2 ... 12<br>(2 ... 10) <sup>1)</sup>                         | 2 ... 12<br>(2 ... 10) <sup>1)</sup> | 0.8 ... 16<br>(0.8 ... 10) <sup>1)</sup>                     |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010<br>[-:4:-] |                                          | Compressed air in accordance with ISO 8573-1:2010<br>[-:4:-] |                                          | Compressed air in accordance with ISO 8573-1:2010<br>[7:4:-] |                                      | Compressed air in accordance with ISO 8573-1:2010<br>[-:4:-] |
|                                              | Inert gases                                                  |                                          |                                                              |                                          |                                                              |                                      |                                                              |
| Ambient temperature [°C]                     | -10 ... +60 (0 ... +50) <sup>2)</sup>                        |                                          | +5 ... +60 (+5 ... +50) <sup>2)</sup>                        |                                          | +5 ... +60 (+5 ... +50) <sup>2)</sup>                        |                                      | +1 ... +60 (+1 ... +50) <sup>2)</sup>                        |
| Temperature of medium [°C]                   | -10 ... +60 (0 ... +50) <sup>2)</sup>                        |                                          | +5 ... +60 (+5 ... +50) <sup>2)</sup>                        |                                          | +5 ... +60 (+5 ... +50) <sup>2)</sup>                        |                                      | +1 ... +60 (+1 ... +50) <sup>2)</sup>                        |
| Storage temperature [°C]                     | -10 ... +60                                                  |                                          | -10 ... +60                                                  |                                          | -10 ... +60                                                  |                                      | +1 ... +60                                                   |
| Corrosion resistance class CRC <sup>3)</sup> | 2                                                            |                                          |                                                              |                                          |                                                              |                                      |                                                              |
| UL certification                             | cULus recognized (OL)                                        |                                          |                                                              |                                          |                                                              |                                      |                                                              |

1) Value in brackets applies to MS4/MS6-LFR with UL certification.

2) Value in brackets applies to MS4/MS6-LFR with pressure sensor AD...

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

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

## Filter regulators MS4/MS6-LFR, MS series

Technical data

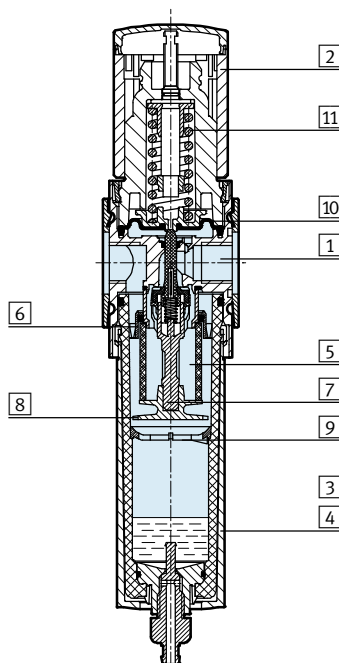
**FESTO**

| ATEX                                    |                                                                           |
|-----------------------------------------|---------------------------------------------------------------------------|
| EU certification                        | EX4                                                                       |
| ATEX category gas                       | II 2G                                                                     |
| Ex-ignition protection type gas         | c T6 X                                                                    |
| ATEX category dust                      | II 2D                                                                     |
| EX-ignition protection type dust        | c 60 °C X                                                                 |
| ATEX ambient temperature                | -10 °C ≤ Ta ≤ +60 °C (manual rotary condensate drain M)                   |
|                                         | +5 °C ≤ Ta ≤ +60 °C (semi-automatic/fully automatic condensate drain H/V) |
| CE mark (see declaration of conformity) | To EU Explosion Protection Directive (ATEX)                               |

| Weight [g]                                                                                              |                             |                          |                             |                          |
|---------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|
| Size                                                                                                    | MS4                         |                          | MS6                         |                          |
| Rotary knob                                                                                             | Without integrated lock E11 | With integrated lock E11 | Without integrated lock E11 | With integrated lock E11 |
| Filter regulator with plastic bowl guard R                                                              | 275                         | 400                      | 875                         | 1,145                    |
| Filter regulator with metal bowl U                                                                      | 475                         | 600                      | 1,087                       | 1,627                    |
| Filter regulator with metal bowl U and fully automatic condensate drain, electrically actuated E2/E3/E4 | –                           | –                        | 1,800                       | 2,070                    |

### Materials

Sectional view



| Filter regulator  |                                      |                                                  |
|-------------------|--------------------------------------|--------------------------------------------------|
| 1                 | Housing                              | Die-cast aluminium                               |
| 2                 | Rotary knob                          | PA/POM                                           |
|                   | Rotary knob with integrated lock E11 | Aluminium                                        |
| 3                 | Plastic bowl guard                   | PC                                               |
| 4                 | Metal bowl                           | Wrought aluminium alloy, die-cast aluminium      |
|                   | Inspection window                    | PA                                               |
| 5                 | Filter element                       | PE                                               |
| 6                 | Spin disc                            | POM                                              |
| 7                 | Filter holder                        | POM                                              |
| 8                 | Separating plate                     | POM                                              |
| 9                 | Stabilising disc                     | POM                                              |
| 10                | Diaphragm                            | NBR                                              |
| 11                | Spring                               | Steel                                            |
| –                 | Seals                                | NBR                                              |
| Note on materials |                                      | RoHS-compliant (not with variant E2, E3 or E4)   |
|                   |                                      | Free of copper and PTFE only with cover plate VS |

# Filter regulators MS4/MS6-LFR, MS series

Technical data

FESTO

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

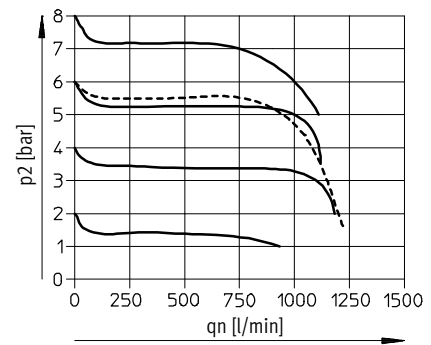
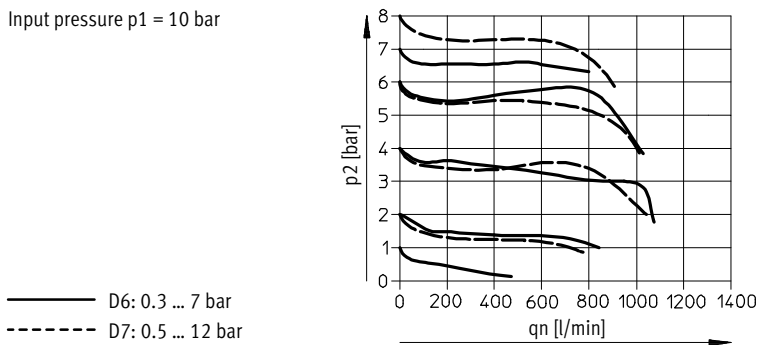
Pressure regulation range D6 or D7

Grade of filtration 5  $\mu\text{m}$

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

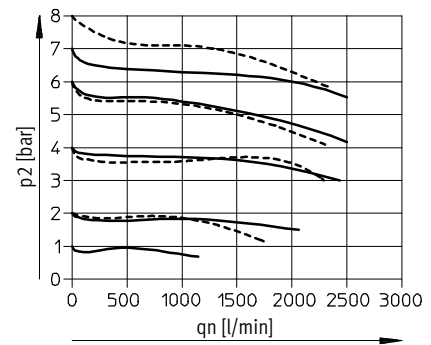
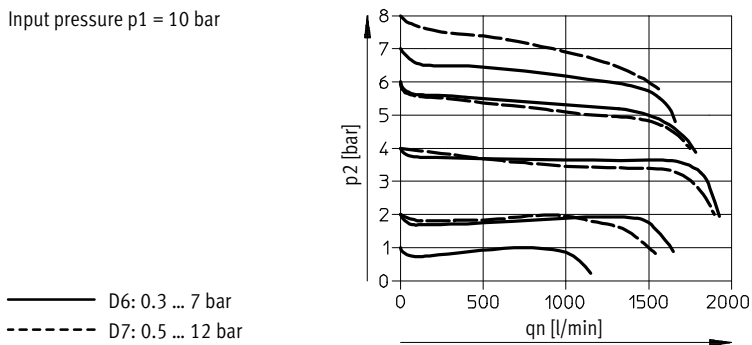
MS4-LFR-1/8

Input pressure  $p_1 = 10$  bar



MS4-LFR-1/4

Input pressure  $p_1 = 10$  bar



# Filter regulators MS4/MS6-LFR, MS series

FESTO

Technical data

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

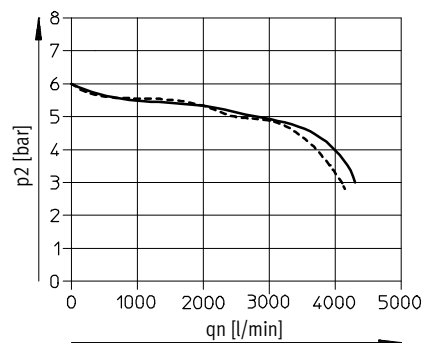
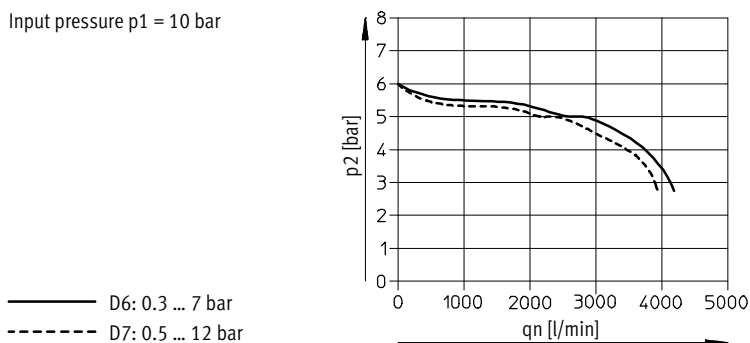
Pressure regulation range D6 or D7

Grade of filtration 5  $\mu\text{m}$

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

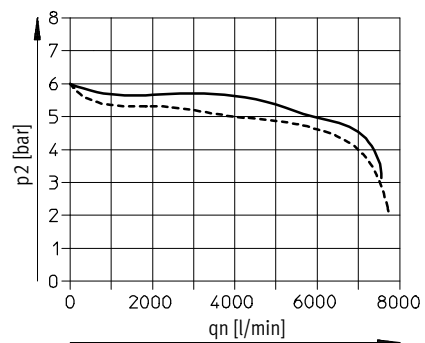
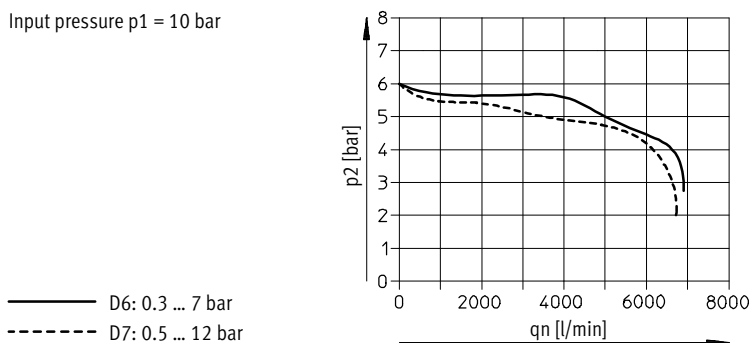
MS6-LFR-1/4

Input pressure  $p_1 = 10$  bar



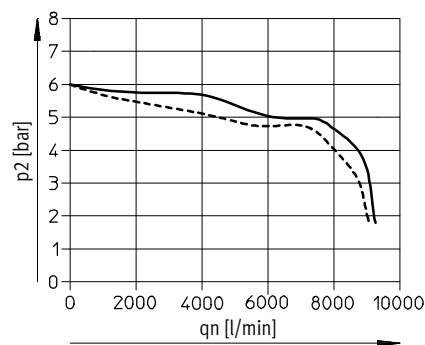
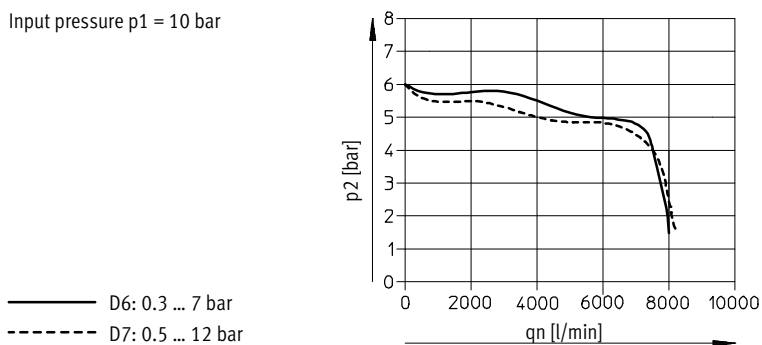
MS6-LFR-3/8

Input pressure  $p_1 = 10$  bar



MS6-LFR-1/2

Input pressure  $p_1 = 10$  bar



# Filter regulators MS4/MS6-LFR, MS series

Technical data

**FESTO**

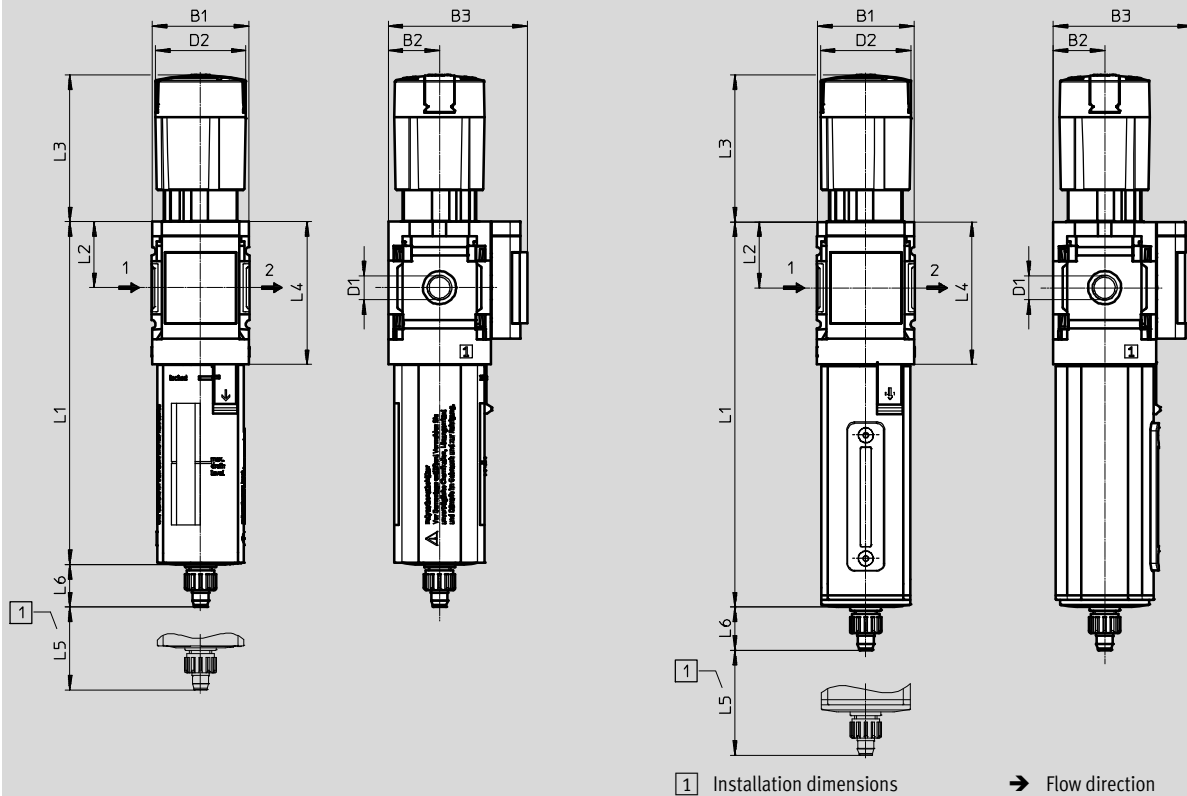
## Dimensions – Basic version MS4-LFR

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

Integrated MS pressure gauge with standard scale, manual rotary condensate drain, rotary knob with detent, lockable via accessories

With plastic bowl guard R

With metal bowl U



| Type        | B1 | B2 | B3 | D1   | D2   | L1                 |            | L2 | L3   | L4   | L5 | L6   |
|-------------|----|----|----|------|------|--------------------|------------|----|------|------|----|------|
|             |    |    |    |      |      | Plastic bowl guard | Metal bowl |    |      |      |    |      |
| MS4-LFR-1/8 | 40 | 21 | 57 | G1/8 | 37.2 | 140.6              | 158        | 27 | 60.2 | 58.5 | 25 | 17.7 |
| MS4-LFR-1/4 |    |    |    | G1/4 |      |                    |            |    |      |      |    |      |

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



# Filter regulators MS4/MS6-LFR, MS series

Technical data

**FESTO**

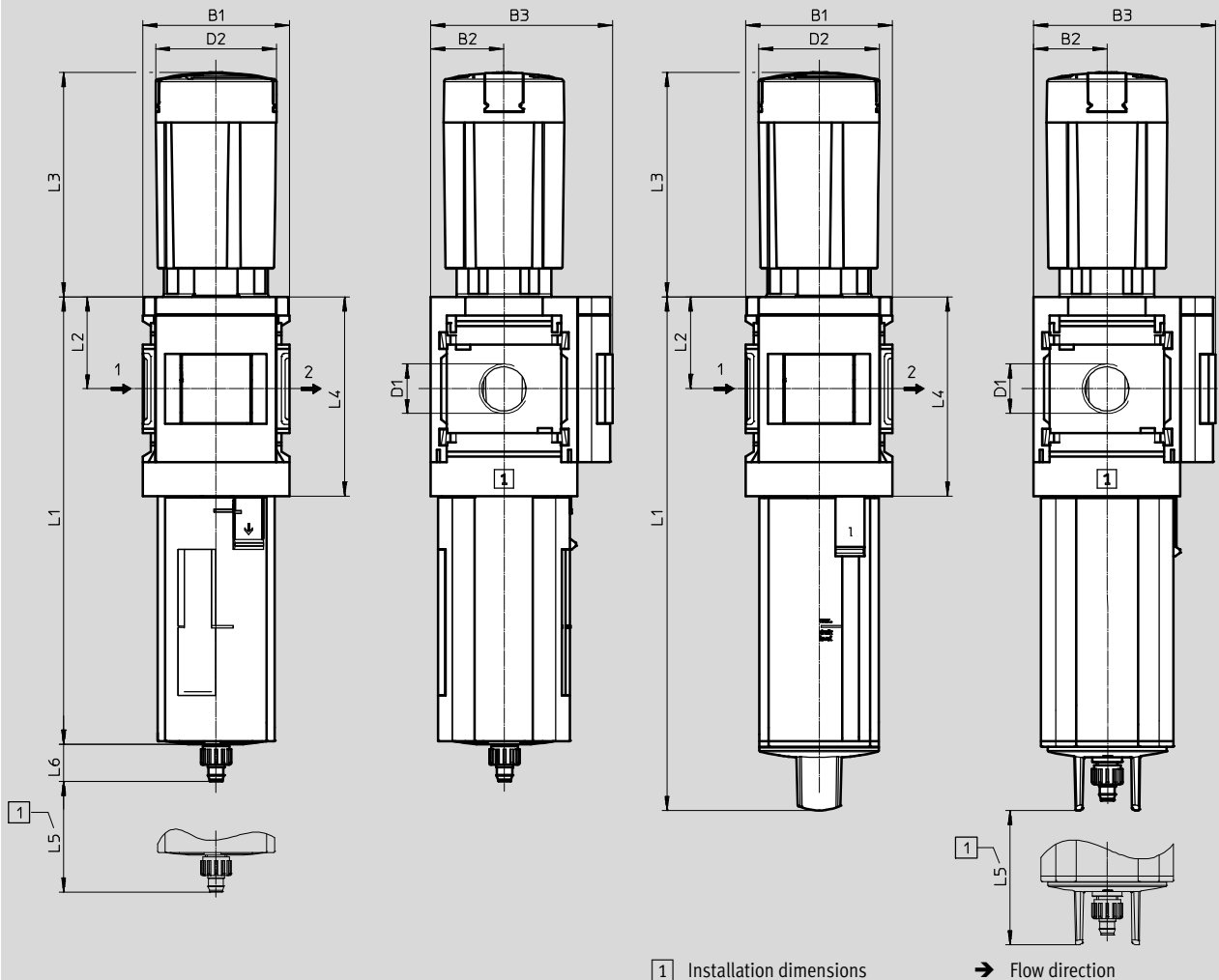
## Dimensions – Basic version MS6-LFR

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

Integrated MS pressure gauge with standard scale, manual rotary condensate drain, rotary knob with detent, lockable via accessories

With plastic bowl guard R

With metal bowl U



| Type        | B1 | B2 | B3 | D1   | D2   | L1                 |            | L2 | L3   | L4 | L5 | L6   |
|-------------|----|----|----|------|------|--------------------|------------|----|------|----|----|------|
|             |    |    |    |      |      | Plastic bowl guard | Metal bowl |    |      |    |    |      |
| MS6-LFR-1/4 | 62 | 31 | 77 | G1/4 | 51.2 | 190                | 218        | 39 | 95.1 | 85 | 68 | 15.8 |
| MS6-LFR-3/8 |    |    |    | G3/8 |      |                    |            |    |      |    |    |      |
| MS6-LFR-1/2 |    |    |    | G1/2 |      |                    |            |    |      |    |    |      |

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

# Filter regulators MS4/MS6-LFR, MS series

Technical data

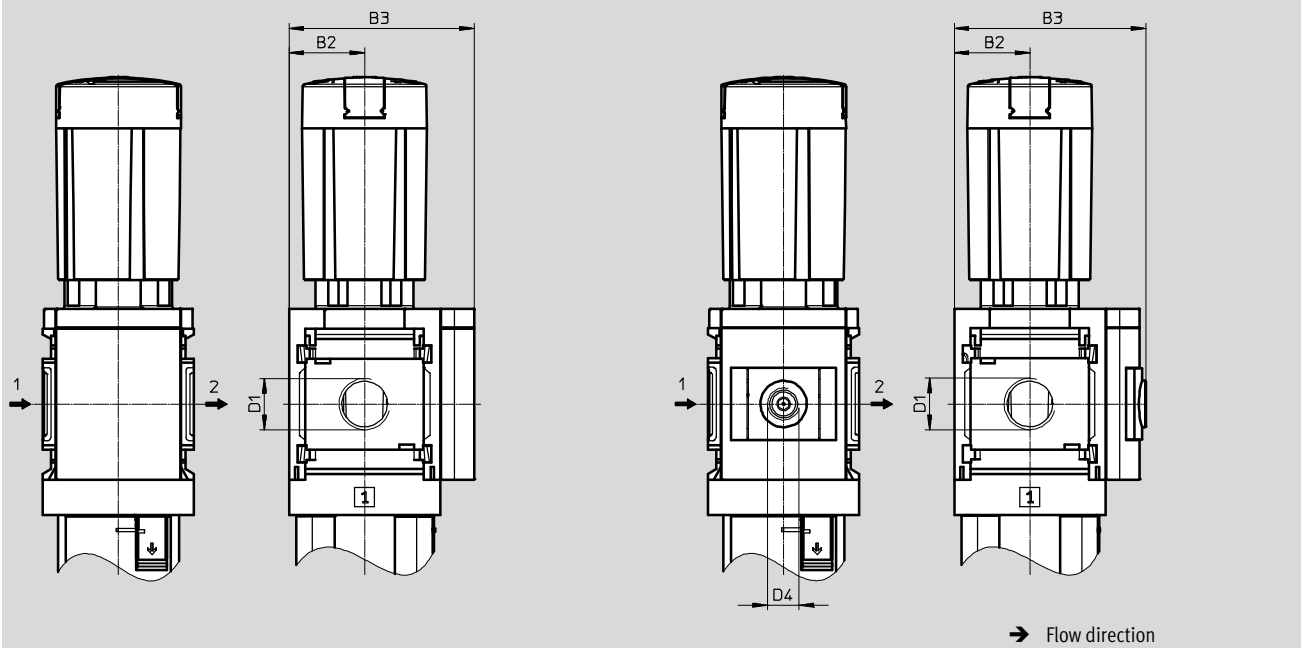
**FESTO**

## Dimensions – Pressure gauge alternatives

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

Cover plate VS

Adapter plate A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge



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

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

## Filter regulators MS4/MS6-LFR, MS series

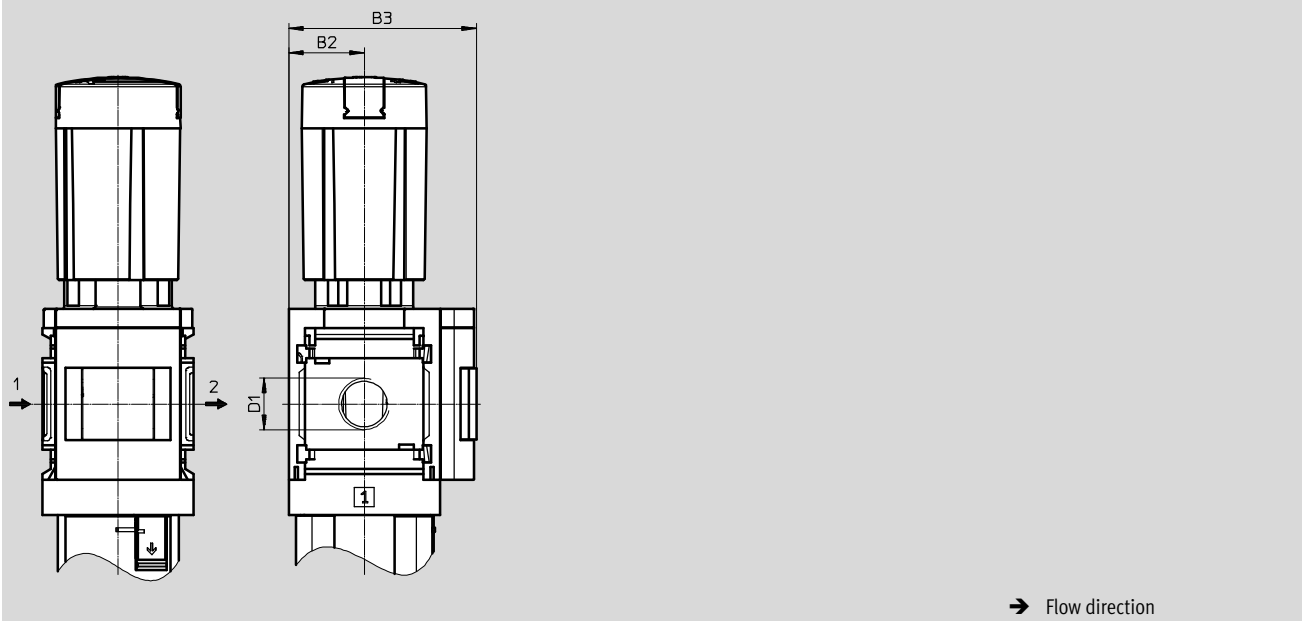
Technical data

**FESTO**

### Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge with red/green scale RG



| Type               | B2 | B3   | D1   |
|--------------------|----|------|------|
| MS4-LFR-1/8-...-RG | 21 | 58.5 | G1/8 |
| MS4-LFR-1/4-...-RG |    |      | G1/4 |
| MS6-LFR-1/4-...-RG | 31 | 78.5 | G1/4 |
| MS6-LFR-3/8-...-RG |    |      | G3/8 |
| MS6-LFR-1/2-...-RG |    |      | G1/2 |

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

# Filter regulators MS4/MS6-LFR, MS series

Technical data

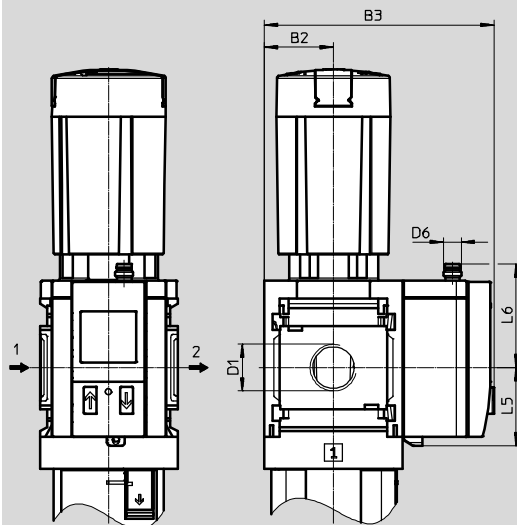
**FESTO**

## Dimensions – Pressure gauge alternatives

Pressure sensor with LCD display AD1 ... AD4

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

Technical data → Internet: sde1



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

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

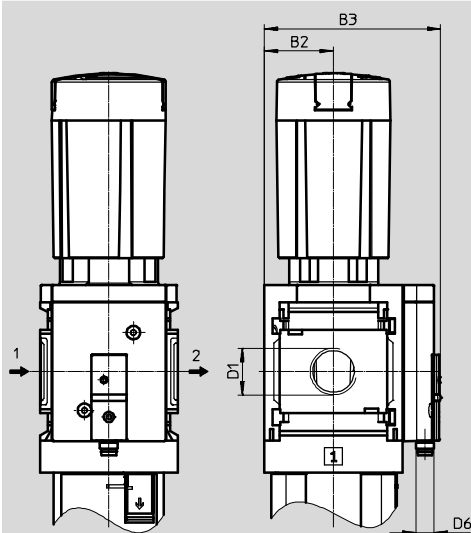
Variant AD3:  
SDE1-D10-G2-MS-L-PI-M12 with  
4-pin plug M12x1, 1 switching  
output PNP and 4 ... 20 mA  
analogue

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

→ Flow direction

## Pressure sensor without LCD display (operational status indicator only) AD7 ... AD10

Technical data → Internet: sde5



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

Variant AD8:  
SDE5-D10-C-...-P-M8 with 3-pin  
plug M8x1, threshold value  
comparator, 1 switching output PNP,  
N/C contact

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

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

→ Flow direction

| Type                             | B2 | B3   | D1   | D6    | L5   | L6   |
|----------------------------------|----|------|------|-------|------|------|
| MS4-LFR-1/8-...-AD1/AD2          | 21 | 82.6 | G1/8 | M8x1  | 35.1 | 46.7 |
| MS4-LFR-1/4-...-AD1/AD2          |    |      | G1/4 |       |      |      |
| MS4-LFR-1/8-...-AD3/AD4          | 21 | 82.6 | G1/8 | M12x1 | 35.1 | 55.8 |
| MS4-LFR-1/4-...-AD3/AD4          |    |      | G1/4 |       |      |      |
| MS4-LFR-1/8-...-AD7/AD8/AD9/AD10 | 21 | 59.1 | G1/8 | M8x1  | -    | -    |
| MS4-LFR-1/4-...-AD7/AD8/AD9/AD10 |    |      | G1/4 |       |      |      |
|                                  |    |      |      |       |      |      |
| MS6-LFR-1/4-...-AD1/AD2          | 31 | 103  | G1/4 | M8x1  | 35.1 | 46.7 |
| MS6-LFR-3/8-...-AD1/AD2          |    |      | G3/8 |       |      |      |
| MS6-LFR-1/2-...-AD1/AD2          |    |      | G1/2 |       |      |      |
| MS6-LFR-1/4-...-AD3/AD4          | 31 | 103  | G1/4 | M12x1 | 35.1 | 55.8 |
| MS6-LFR-3/8-...-AD3/AD4          |    |      | G3/8 |       |      |      |
| MS6-LFR-1/2-...-AD3/AD4          |    |      | G1/2 |       |      |      |
| MS6-LFR-1/4-...-AD7/AD8/AD9/AD10 | 31 | 79   | G1/4 | M8x1  | -    | -    |
| MS6-LFR-3/8-...-AD7/AD8/AD9/AD10 |    |      | G3/8 |       |      |      |
| MS6-LFR-1/2-...-AD7/AD8/AD9/AD10 |    |      | G1/2 |       |      |      |

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

# Filter regulators MS4/MS6-LFR, MS series

Technical data

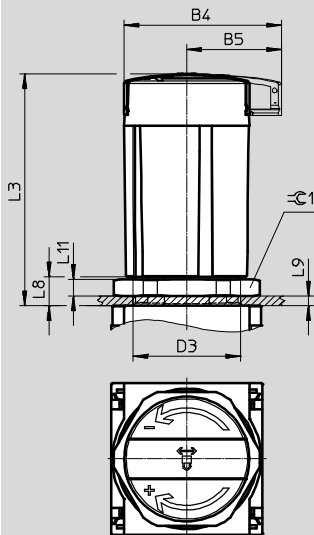
**FESTO**

## Dimensions – Rotary knob

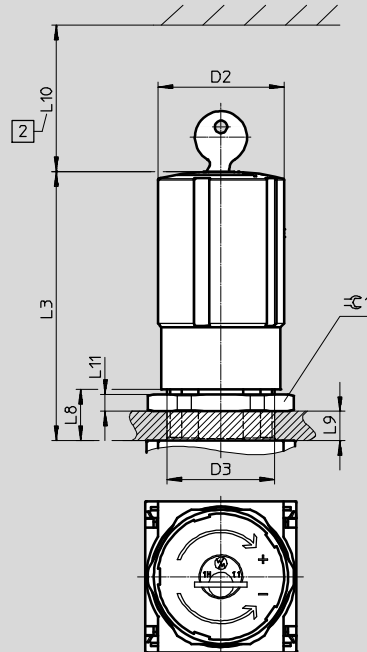
Download CAD data → [www.festo.com](http://www.festo.com)

For installation into control panel or attaching with hex nut MS4/6-WRS (not included in the scope of delivery)

Rotary knob with detent, lockable via accessories AS

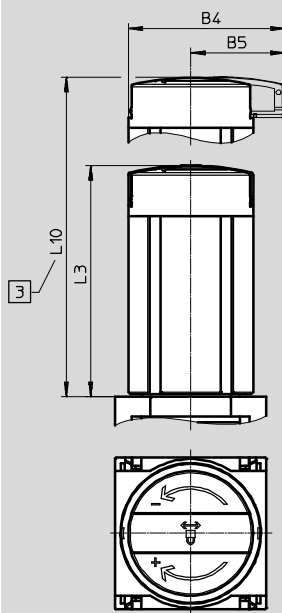


Rotary knob with integrated lock E11



2 Installation dimensions

Long rotary knob with detent, lockable via accessories LD-AS



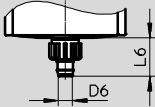
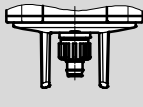
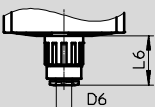
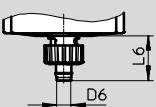
3 For pressure adjustment: pull out telescopic rotary knob fully

| Type              | B4   | B5   | D2   | D3      | L3   | L8   | L9 | L10   | L11 | ≙ 1 |
|-------------------|------|------|------|---------|------|------|----|-------|-----|-----|
| MS4-LFR-...-AS    | 48.6 | 30   | 37.2 | M30x1.5 | 60.2 | 13   | 6  | –     | 6   | 36  |
| MS4-LFR-...-E11   | –    | –    |      |         | 76   |      |    | 60    |     |     |
| MS4-LFR-...-LD-AS | 48.6 | 30   | 37.2 | –       | 60   | –    | –  | 85.7  | –   | –   |
| MS6-LFR-...-AS    | 64.4 | 38.8 | 51.2 | M44x1   | 95.1 | 12   | 5  | –     | 7   | 55  |
| MS6-LFR-...-E11   | –    | –    |      |         | 110  | 22.1 | 14 | 60    |     |     |
| MS6-LFR-...-LD-AS | 64.4 | 38.8 | 51.2 | –       | 95.5 | –    | –  | 148.5 | –   | –   |

# Filter regulators MS4/MS6-LFR, MS series

Technical data

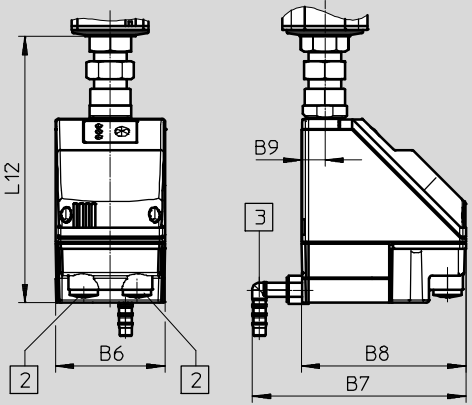
**FESTO**

| Dimensions – Condensate drain                                                     |                                                                                   | Download CAD data → <a href="http://www.festo.com">www.festo.com</a>              |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Manual rotary M                                                                   |                                                                                   | Semi-automatic H                                                                  | Fully automatic V                                                                   |
| MS4-...-R/U-M<br>MS6-...-R-M                                                      | MS6-...-U-M                                                                       | MS4-...-R/U-H<br>MS6-...-R-H                                                      | MS4-...-R/U-V<br>MS6-...-R-V                                                        |
|  |  |  |  |
| Barbed connector for plastic tubing PUN(H)-8x1,25                                 |                                                                                   | Push-in connector for plastic tubing PUN-6/PAN-6                                  |                                                                                     |
|                                                                                   |                                                                                   | Barbed connector for plastic tubing PUN(H)-8x1,25                                 |                                                                                     |

| Type                 | D6<br>Ø | L6   |
|----------------------|---------|------|
| Plastic bowl guard R |         |      |
| MS4-LFR-...-M        | 5.6     | 17.7 |
| MS6-LFR-...-M        |         | 15.8 |
|                      |         |      |
| Metal bowl U         |         |      |
| MS4-LFR-...-M        | 5.6     | 17.7 |
| MS6-LFR-...-M        |         | -    |

| Type                 | D6<br>Ø | L6   |
|----------------------|---------|------|
| Plastic bowl guard R |         |      |
| MS4-LFR-...-H        | 6.2     | 22.1 |
| MS6-LFR-...-H        |         | 20.4 |
|                      |         |      |
| Metal bowl U         |         |      |
| MS4-LFR-...-H        | 6.2     | 22.1 |
| MS6-LFR-...-H        |         | –    |

| Type                 | D6<br>Ø | L6   |
|----------------------|---------|------|
| Plastic bowl guard R |         |      |
| MS4-LFR-...-V        | 5.6     | 20.4 |
| MS6-LFR-...-V        |         | 18.5 |
|                      |         |      |
| Metal bowl U         |         |      |
| MS4-LFR-...-V        | 5.6     | 20.4 |
| MS6-LFR-...-V        |         | –    |

| Fully automatic, electrically actuated E2/E3/E4                                     |  | Technical data → Internet: <a href="http://pwea.festo.com">pwea</a>                                                                |  |
|-------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  | Condensate drain PWEA:<br>2 Electrical connection: Screw terminal PG9<br>3 Connection 360° rotatable for plastic tubing PUN-H-12x2 |  |

| Type                 | B6 | B7  | B8  | B9 | L12   |
|----------------------|----|-----|-----|----|-------|
| MS6-LFR-...-E2/E3/E4 | 72 | 140 | 108 | 15 | 174.5 |

# Filter regulators MS4/MS6-LFR, MS series

FESTO

Technical data

## ★ Core product range

| Ordering data                                                                                                                                                                               |            |                  |                          |                       |  |                           |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------|--------------------------|-----------------------|--|---------------------------|-----------------------|
| Size                                                                                                                                                                                        | Connection | Condensate drain | Grade of filtration 5 µm |                       |  | Grade of filtration 40 µm |                       |
|                                                                                                                                                                                             |            |                  | Part No.                 | Type                  |  | Part No.                  | Type                  |
| Pressure regulation range 0.3 ... 7 bar, plastic bowl guard, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories        |            |                  |                          |                       |  |                           |                       |
| MS4                                                                                                                                                                                         | G1/4       | Manual rotary    | ★ 529144                 | MS4-LFR-1/4-D6-CRM-AS |  | ★ 529148                  | MS4-LFR-1/4-D6-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | ★ 529146                 | MS4-LFR-1/4-D6-CRV-AS |  | ★ 529150                  | MS4-LFR-1/4-D6-ERV-AS |
| MS6                                                                                                                                                                                         | G1/2       | Manual rotary    | ★ 529176                 | MS6-LFR-1/2-D6-CRM-AS |  | ★ 529180                  | MS6-LFR-1/2-D6-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | ★ 529178                 | MS6-LFR-1/2-D6-CRV-AS |  | ★ 529182                  | MS6-LFR-1/2-D6-ERV-AS |
|                                                                                                                                                                                             |            |                  |                          |                       |  |                           |                       |
| Pressure regulation range 0.5 ... 12 bar, plastic bowl guard, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories       |            |                  |                          |                       |  |                           |                       |
| MS4                                                                                                                                                                                         | G1/4       | Manual rotary    | ★ 529152                 | MS4-LFR-1/4-D7-CRM-AS |  | ★ 529156                  | MS4-LFR-1/4-D7-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | ★ 529154                 | MS4-LFR-1/4-D7-CRV-AS |  | ★ 529158                  | MS4-LFR-1/4-D7-ERV-AS |
| MS6                                                                                                                                                                                         | G1/2       | Manual rotary    | ★ 529184                 | MS6-LFR-1/2-D7-CRM-AS |  | ★ 529188                  | MS6-LFR-1/2-D7-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | ★ 529186                 | MS6-LFR-1/2-D7-CRV-AS |  | ★ 529190                  | MS6-LFR-1/2-D7-ERV-AS |
|                                                                                                                                                                                             |            |                  |                          |                       |  |                           |                       |
| Pressure regulation range 0.5 ... 12 bar, integrated as metal bowl, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories |            |                  |                          |                       |  |                           |                       |
| MS4                                                                                                                                                                                         | G1/4       | Manual rotary    | –                        | –                     |  | ★ 535724                  | MS4-LFR-1/4-D7-EUM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | ★ 535720                 | MS4-LFR-1/4-D7-CUV-AS |  | ★ 535722                  | MS4-LFR-1/4-D7-EUV-AS |
| MS6                                                                                                                                                                                         | G1/2       | Manual rotary    | ★ 530338                 | MS6-LFR-1/2-D7-CUM-AS |  | ★ 529192                  | MS6-LFR-1/2-D7-EUM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | ★ 530340                 | MS6-LFR-1/2-D7-CUV-AS |  | ★ 529194                  | MS6-LFR-1/2-D7-EUV-AS |

| Ordering data                                                                                                                                                                               |            |                  |                          |                       |  |                           |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------|--------------------------|-----------------------|--|---------------------------|-----------------------|
| Size                                                                                                                                                                                        | Connection | Condensate drain | Grade of filtration 5 µm |                       |  | Grade of filtration 40 µm |                       |
|                                                                                                                                                                                             |            |                  | Part No.                 | Type                  |  | Part No.                  | Type                  |
| Pressure regulation range 0.3 ... 7 bar, plastic bowl guard, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories        |            |                  |                          |                       |  |                           |                       |
| MS4                                                                                                                                                                                         | G1/8       | Manual rotary    | 529160                   | MS4-LFR-1/8-D6-CRM-AS |  | 529164                    | MS4-LFR-1/8-D6-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | 529162                   | MS4-LFR-1/8-D6-CRV-AS |  | 529166                    | MS4-LFR-1/8-D6-ERV-AS |
| MS6                                                                                                                                                                                         | G1/4       | Manual rotary    | 529196                   | MS6-LFR-1/4-D6-CRM-AS |  | 529200                    | MS6-LFR-1/4-D6-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | —                        | —                     |  | 529202                    | MS6-LFR-1/4-D6-ERV-AS |
|                                                                                                                                                                                             | G3/8       | Manual rotary    | 529216                   | MS6-LFR-3/8-D6-CRM-AS |  | 529220                    | MS6-LFR-3/8-D6-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | 529218                   | MS6-LFR-3/8-D6-CRV-AS |  | 529222                    | MS6-LFR-3/8-D6-ERV-AS |
|                                                                                                                                                                                             |            |                  |                          |                       |  |                           |                       |
| Pressure regulation range 0.5 ... 12 bar, plastic bowl guard, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories       |            |                  |                          |                       |  |                           |                       |
| MS4                                                                                                                                                                                         | G1/8       | Manual rotary    | 529168                   | MS4-LFR-1/8-D7-CRM-AS |  | 529172                    | MS4-LFR-1/8-D7-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | 529170                   | MS4-LFR-1/8-D7-CRV-AS |  | 529174                    | MS4-LFR-1/8-D7-ERV-AS |
| MS6                                                                                                                                                                                         | G1/4       | Manual rotary    | 529204                   | MS6-LFR-1/4-D7-CRM-AS |  | 529208                    | MS6-LFR-1/4-D7-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | 529206                   | MS6-LFR-1/4-D7-CRV-AS |  | 529210                    | MS6-LFR-1/4-D7-ERV-AS |
|                                                                                                                                                                                             | G3/8       | Manual rotary    | 529224                   | MS6-LFR-3/8-D7-CRM-AS |  | 529228                    | MS6-LFR-3/8-D7-ERM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | 529226                   | MS6-LFR-3/8-D7-CRV-AS |  | 529230                    | MS6-LFR-3/8-D7-ERV-AS |
|                                                                                                                                                                                             |            |                  |                          |                       |  |                           |                       |
| Pressure regulation range 0.5 ... 12 bar, integrated as metal bowl, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories |            |                  |                          |                       |  |                           |                       |
| MS6                                                                                                                                                                                         | G3/8       | Manual rotary    | —                        | —                     |  | 529232                    | MS6-LFR-3/8-D7-EUM-AS |
|                                                                                                                                                                                             |            | Fully automatic  | 530348                   | MS6-LFR-3/8-D7-CUV-AS |  | 529234                    | MS6-LFR-3/8-D7-EUV-AS |

Festo core product range

- ★ Ready for dispatch from the Festo factory in 24 hours
- ☆ Ready for dispatch in 5 days maximum from stock

# Filter regulators MS4/MS6-LFR, MS series

Ordering data – Modular products

FESTO

| Ordering table            |                                       |                                    |               |                 |                   |               |
|---------------------------|---------------------------------------|------------------------------------|---------------|-----------------|-------------------|---------------|
| Grid dimension            | [mm]                                  | 40                                 | 62            | Condi-<br>tions | Code              | Enter<br>code |
| <b>M</b> Module No.       |                                       | <b>526489</b>                      | <b>526490</b> |                 |                   |               |
| Series                    |                                       | Standard                           |               |                 | <b>MS</b>         | MS            |
| Size                      | 4                                     | 6                                  |               |                 | ...               |               |
| Function                  |                                       | Filter regulator                   |               |                 | <b>-LFR</b>       | -LFR          |
| Pneumatic connection      | Female thread G $\frac{1}{8}$         | –                                  |               | 1               | - $\frac{1}{8}$   |               |
|                           | Female thread G $\frac{1}{4}$         | Female thread G $\frac{1}{4}$      |               | 1               | ★ - $\frac{1}{4}$ |               |
|                           | –                                     | Female thread G $\frac{3}{8}$      |               | 1               | - $\frac{3}{8}$   |               |
|                           | –                                     | Female thread G $\frac{1}{2}$      |               | 1               | ★ - $\frac{1}{2}$ |               |
|                           | Connecting plate G $\frac{1}{8}$      | –                                  |               |                 | -AGA              |               |
|                           | Connecting plate G $\frac{1}{4}$      | Connecting plate G $\frac{1}{4}$   |               |                 | ★ -AGB            |               |
|                           | Connecting plate G $\frac{3}{8}$      | Connecting plate G $\frac{3}{8}$   |               |                 | -AGC              |               |
|                           | –                                     | Connecting plate G $\frac{1}{2}$   |               |                 | ★ -AGD            |               |
|                           | –                                     | Connecting plate G $\frac{3}{4}$   |               |                 | -AGE              |               |
|                           | Connecting plate NPT $\frac{1}{8}$    | –                                  |               | 1               | -AQK              |               |
|                           | Connecting plate NPT $\frac{1}{4}$    | Connecting plate NPT $\frac{1}{4}$ |               | 1               | -AQN              |               |
|                           | Connecting plate NPT $\frac{3}{8}$    | Connecting plate NPT $\frac{3}{8}$ |               | 1               | -AQP              |               |
|                           | –                                     | Connecting plate NPT $\frac{1}{2}$ |               | 1               | -AQR              |               |
|                           | –                                     | Connecting plate NPT $\frac{3}{4}$ |               | 1               | -AQS              |               |
| Pressure regulation range | 0.3 ... 4 bar                         |                                    |               |                 | ★ -D5             |               |
|                           | 0.3 ... 7 bar                         |                                    |               |                 | ★ -D6             |               |
|                           | 0.5 ... 12 bar                        |                                    |               |                 | ★ -D7             |               |
|                           | –                                     | 0.5 ... 16 bar                     |               | 1               | -D8               |               |
| Grade of filtration       | 40 µm                                 |                                    |               |                 | ★ -E              |               |
|                           | 5 µm                                  |                                    |               |                 | ★ -C              |               |
| Bowl                      | Plastic bowl with plastic bowl guard  |                                    |               |                 | ★ -R              |               |
|                           | Metal bowl                            |                                    |               |                 | -U                |               |
| Condensate drain          | Manual                                |                                    |               |                 | ★ -M              |               |
|                           | Semi-automatic (P1 max. 12 bar)       |                                    |               | 2               | -H                |               |
|                           | Fully automatic (P1 max. 12 bar)      |                                    |               | 2               | ★ -V              |               |
|                           | External, fully automatic, electrical | 110 V AC, terminals                |               | 1 3             | -E2               |               |
|                           |                                       | 230 V AC, terminals                |               | 1 3             | -E3               |               |
|                           |                                       | 24 V DC, terminals                 |               | 1 3             | -E4               |               |

1  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ , **AQK, AQN, AQP, AQR, AQS, D8, E2, E3, E4, AD1 ... AD4, AD7 ... AD10**, 3 **E2, E3, E4** Only with metal bowl U

**E11, WPM**

Not with EU certification EX4

2 **H, V** Not with pressure regulation range D8

**M** Mandatory data

**O** Options

Transfer order code

**MS**  - **LFR** -  -  -  -  -

Festo core product range

★ Ready for dispatch from the Festo factory in 24 hours

★ Ready for dispatch in 5 days maximum from stock



# Filter regulators MS4/MS6-LFR, MS series

FESTO

Ordering data – Modular products

| Ordering table                  |                                                                                                          |                                                    |    |                 |       |               |
|---------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------|----|-----------------|-------|---------------|
| Grid dimension                  | [mm]                                                                                                     | 40                                                 | 62 | Condi-<br>tions | Code  | Enter<br>code |
| [O] Pressure gauge alternatives | Cover plate                                                                                              |                                                    |    |                 | ★ -VS |               |
|                                 | Adapter plate for EN pressure gauge 1/8, without pressure gauge                                          | –                                                  |    |                 | -A8   |               |
|                                 | Adapter plate for EN pressure gauge 1/4, without pressure gauge                                          |                                                    |    |                 | -A4   |               |
|                                 | Integrated pressure gauge, red-green scale                                                               |                                                    |    | 4               | -RG   |               |
|                                 | Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin                                 |                                                    |    | 1 5             | -AD1  |               |
|                                 | Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin                                 |                                                    |    | 1 5             | -AD2  |               |
|                                 | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA   |                                                    |    | 1 5             | -AD3  |               |
|                                 | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA   |                                                    |    | 1 5             | -AD4  |               |
|                                 | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact |                                                    |    | 1 5             | -AD7  |               |
|                                 | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact |                                                    |    | 1 5             | -AD8  |               |
|                                 | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact          |                                                    |    | 1 5             | -AD9  |               |
|                                 | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact          |                                                    |    | 1 5             | -AD10 |               |
|                                 | Alternative pressure gauge scale                                                                         |                                                    |    | 6               | -PSI  |               |
|                                 |                                                                                                          |                                                    |    | 6               | -MPa  |               |
| [M] Security                    | Without secondary venting                                                                                |                                                    |    |                 | -OS   |               |
|                                 | Long rotary knob                                                                                         |                                                    |    | 7               | -LD   |               |
| [O] Type of mounting            | Lockable via accessories                                                                                 |                                                    |    |                 | ★ -AS |               |
|                                 | With integrated lock                                                                                     |                                                    |    | 1               | -E11  |               |
|                                 | Mounting bracket with knurled nut for regulator head                                                     |                                                    |    | 8               | ★ -WR |               |
|                                 | Mounting bracket standard design                                                                         |                                                    |    | 9               | -WP   |               |
|                                 | Mounting bracket for attaching the service units                                                         |                                                    |    | 1 9             | -WPM  |               |
|                                 | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required        |                                                    |    |                 | ★ -WB |               |
|                                 | Mounting bracket centrally at rear (wall mounting top), connecting plates not required                   | –                                                  |    |                 | -WBM  |               |
|                                 | EU certification                                                                                         | II 2GD to EU Explosion Protection Directive (ATEX) |    |                 | -EX4  |               |
| UL certification                |                                                                                                          | cULus, ordinary location for Canada and USA        |    |                 | -UL1  |               |
| Flow direction                  |                                                                                                          | Flow direction from right to left                  |    |                 | -Z    |               |

4 RG Alternative pressure gauge scale PSI serves only as an auxiliary scale

5 AD1 ... AD4, AD7 ... AD10

Measuring range max. 10 bar

Not with pressure regulation range D8

6 PSI, MPa Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10

7 LD Not with security E11

8 WR Not with long rotary knob LD

9 WP, WPM Only with connecting plate AGA, AGB, AGC, AGD, AGE, AQK, AQN, AQP, AQR or AQS

[M] Mandatory data

[O] Options

Transfer order code

- [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Festo core product range

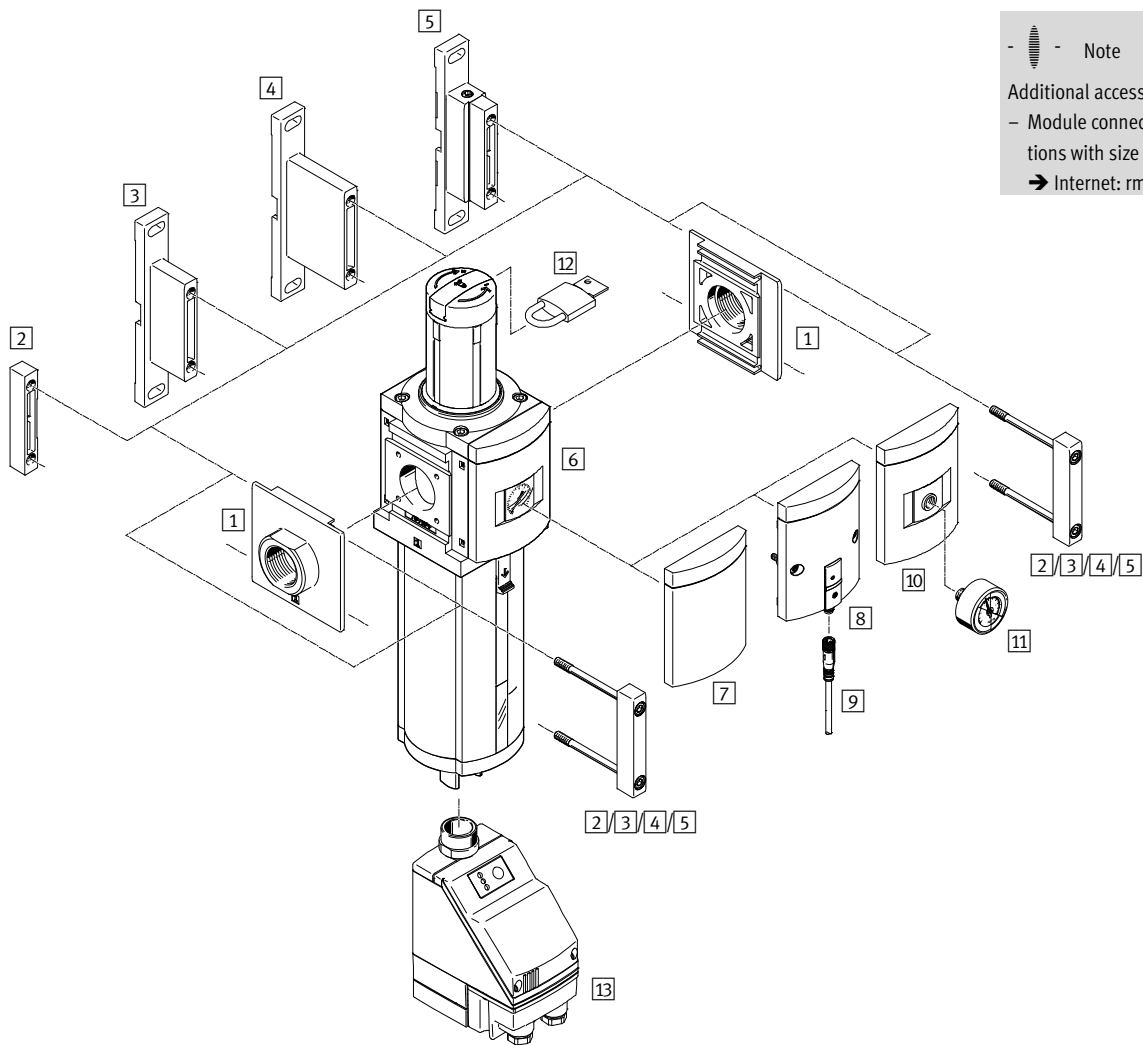
★ Ready for dispatch from the Festo factory in 24 hours

★ Ready for dispatch in 5 days maximum from stock

# Filter regulators MS9-LFR, MS series

Peripherals overview

**FESTO**



- - - Note

Additional accessories:

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

➔ Internet: rmv, armv

## Filter regulators MS9-LFR, MS series

Peripherals overview

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| Mounting attachments and accessories |                                                                      |                                     |                                                                      |                                                                                                         |                     |
|--------------------------------------|----------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------|
|                                      |                                                                      | Individual unit                     |                                                                      | Combination                                                                                             | → Page/<br>Internet |
|                                      |                                                                      | With female thread<br>3/4/1/N3/4/N1 | With connecting plate AG.../AQ...<br>Without EU<br>certification EX4 | With EU<br>certification EX4<br>Module without connect-<br>ing thread, without<br>connecting plate G/NG |                     |
| 1                                    | Connecting plate-SET<br>MS9-AG...                                    | –                                   | ■                                                                    | ■                                                                                                       | ms9-ag              |
|                                      | Connecting plate-SET<br>MS9-AQ...                                    | –                                   | ■                                                                    | –                                                                                                       | ms9-aq              |
| 2                                    | Module connector<br>MS9-MV                                           | –                                   | –                                                                    | –                                                                                                       | ms9-mv              |
| 3                                    | Mounting bracket<br>MS9-WP                                           | ■                                   | ■                                                                    | ■                                                                                                       | ms9-wp              |
| 4                                    | Mounting bracket<br>MS9-WPB                                          | ■                                   | ■                                                                    | ■                                                                                                       | ms9-wp              |
| 5                                    | Mounting bracket<br>MS9-WPM                                          | ■                                   | ■                                                                    | –                                                                                                       | ms9-wp              |
| 6                                    | MS pressure gauge<br>AG                                              | ■                                   | ■                                                                    | ■                                                                                                       | 38                  |
| 7                                    | Cover plate<br>VS                                                    | ■                                   | ■                                                                    | ■                                                                                                       | 38                  |
| 8                                    | Pressure sensor without display<br>AD7 ... AD10                      | ■                                   | ■                                                                    | –                                                                                                       | 38                  |
| 9                                    | Connecting cable<br>NEBU-M8...-LE3                                   | ■                                   | ■                                                                    | –                                                                                                       | 50                  |
| 10                                   | Adapter plate for EN pressure gauge 1/4<br>A4                        | ■                                   | ■                                                                    | ■                                                                                                       | 38                  |
| 11                                   | Pressure gauge<br>MA                                                 | ■                                   | ■                                                                    | ■                                                                                                       | 50                  |
| 12                                   | Padlock<br>LRVS-D                                                    | ■                                   | ■                                                                    | ■                                                                                                       | 50                  |
| 13                                   | Condensate drain, fully automatic, electrically<br>actuated E2/E3/E4 | ■                                   | ■                                                                    | –                                                                                                       | 38                  |

**FESTO**

### Type codes

|                                          |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
|------------------------------------------|-------------------------------------------------------------------|----|---|---|-----|---|---|---|----|---|---|---|---|---|----|---|----|---|-----|---|----|
|                                          |                                                                   | MS | 9 | - | LFR | - | G | - | D6 | - | E | U | M | - | DI | - | AG | - | BAR | - | AS |
| Series                                   |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| MS                                       | Standard service unit                                             |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Size                                     |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| 9                                        | Grid dimension 90 mm                                              |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Service function                         |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| LFR                                      | Filter regulator                                                  |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Pneumatic connection                     |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| G                                        | Module without connecting thread, without connecting plate        |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| NG                                       | Module without connecting thread, without connecting plate (inch) |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Pressure regulation range/operation mode |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| D6                                       | 0.5 ... 7 bar, manually operated                                  |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| D7                                       | 0.5 ... 12 bar, manually operated                                 |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Grade of filtration                      |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| C                                        | 5 µm                                                              |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| E                                        | 40 µm                                                             |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Bowl guard                               |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| U                                        | Integrated as metal bowl                                          |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Condensate drain                         |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| M                                        | Manual rotary                                                     |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| V                                        | Fully automatic                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Regulator type                           |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
|                                          | Piloted                                                           |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| DI                                       | Directly actuated                                                 |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Pressure gauge                           |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| AG                                       | MS pressure gauge                                                 |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Pressure gauge scale                     |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| BAR                                      | bar                                                               |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| PSI                                      | psi                                                               |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| Security                                 |                                                                   |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |
| AS                                       | Rotary knob with detent, can be locked using accessories          |    |   |   |     |   |   |   |    |   |   |   |   |   |    |   |    |   |     |   |    |

Additional variants can be ordered using the modular system → 38

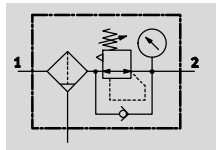
- Pneumatic connection
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Security lock
- Type of mounting
- EU certification
- UL certification
- Flow direction

# Filter regulators MS9-LFR, MS series

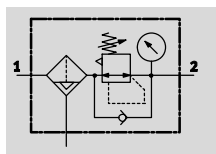
FESTO

Technical data

Manual rotary condensate drain, with pressure gauge



Semi or fully automatic condensate drain, with pressure gauge



With this component, the filter and pressure regulator are combined into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air.

-  Flow rate  
6,000 ... 23,000 l/min
-  Temperature range  
-10 ... +60 °C
-  Supply pressure  
1 ... 20 bar
-  [www.festo.com](http://www.festo.com)



- Good regulation characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- Piloted or directly actuated filter-diaphragm regulator
- High flow rates
- Available with or without secondary venting
- Four pressure regulation ranges:  
0.5 ... 4 bar, 0.5 ... 7 bar,  
0.5 ... 12 bar and 0.5 ... 16 bar
- Pressure gauge connection for different fitting options
- Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain
- Actuator lock to protect set values against adjustment
- Optional pressure sensor
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 49
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

| General technical data                   |                                             |                                                                                                               |
|------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Pneumatic connection 1, 2                |                                             |                                                                                                               |
|                                          | Female thread                               | G3/4, G1, NPT3/4 or NPT1                                                                                      |
|                                          | Connecting plate AG...                      | G1/2, G3/4, G1, G1 1/4 or G1 1/2                                                                              |
|                                          | Connecting plate AQ...                      | NPT1/2, NPT3/4, NPT1, NPT1 1/4 or NPT1 1/2                                                                    |
|                                          | Module without connecting thread/plate G/NG | –                                                                                                             |
| Design                                   |                                             |                                                                                                               |
|                                          | Piloted                                     | Piloted filter-diaphragm regulator                                                                            |
|                                          | Directly actuated                           | Directly actuated filter-diaphragm regulator                                                                  |
| Regulator type                           |                                             |                                                                                                               |
|                                          | Piloted                                     | Output pressure constant, with return flow action, with primary pressure compensation, with secondary venting |
|                                          | Directly actuated                           | Output pressure constant, with return flow action, with/without secondary venting                             |
| Type of mounting                         |                                             |                                                                                                               |
|                                          |                                             | Via accessories                                                                                               |
|                                          |                                             | In-line installation                                                                                          |
| Mounting position                        |                                             |                                                                                                               |
|                                          |                                             | Vertical ±5°                                                                                                  |
| Grade of filtration [µm]                 |                                             |                                                                                                               |
|                                          |                                             | 5 (air purity class at the output: compressed air in accordance with ISO 8573-1:2010 [6:4:4])                 |
|                                          |                                             | 40 (air purity class at the output: compressed air in accordance with ISO 8573-1:2010 [7:4:4])                |
| Bowl guard                               |                                             |                                                                                                               |
|                                          |                                             | Integrated as metal bowl                                                                                      |
| Condensate drain                         |                                             |                                                                                                               |
|                                          |                                             | Manual rotary                                                                                                 |
|                                          |                                             | Semi-automatic                                                                                                |
|                                          |                                             | Fully automatic                                                                                               |
|                                          |                                             | Fully automatic, electrically actuated                                                                        |
| Security                                 |                                             |                                                                                                               |
|                                          |                                             | Rotary knob with detent, lockable via accessories                                                             |
|                                          |                                             | Rotary knob with integrated lock                                                                              |
| Pressure regulation range/operation mode |                                             |                                                                                                               |
|                                          | D5 [bar]                                    | 0.5 ... 4, manually operated                                                                                  |
|                                          | D6 [bar]                                    | 0.5 ... 7, manually operated                                                                                  |
|                                          | D7 [bar]                                    | 0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor variant AD...)                                 |
|                                          | D8 [bar]                                    | 0.5 ... 16, manually operated (0.5 ... 10 with pressure sensor variant AD...)                                 |

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

# Filter regulators MS9-LFR, MS series

Technical data

**FESTO**

| General technical data   |                                                                                                           |     |
|--------------------------|-----------------------------------------------------------------------------------------------------------|-----|
| Max. pressure hysteresis | [bar]                                                                                                     | 0.4 |
| Pressure display         | Via pressure sensor for displaying output pressure via operational status indicator and electrical output |     |
|                          | Via pressure gauge for displaying output pressure                                                         |     |
|                          | Via pressure gauge with red/green scale for displaying output pressure                                    |     |
|                          | G $\frac{1}{4}$ prepared                                                                                  |     |
| Max. condensate volume   | [ml]                                                                                                      | 220 |

| Standard nominal flow rate $q_{nN}^{1)2)}$ [l/min] |                                    |                      |                      |                                                 |                      |
|----------------------------------------------------|------------------------------------|----------------------|----------------------|-------------------------------------------------|----------------------|
| Design                                             | Piloted filter-diaphragm regulator |                      |                      | Directly actuated filter-diaphragm regulator DI |                      |
| Pneumatic connection                               | G $\frac{3}{4}$ /NPT $\frac{3}{4}$ | G1/NPT1              |                      | G $\frac{3}{4}$ /NPT $\frac{3}{4}$              | G1/NPT1              |
| D5 – Pressure regulation range 0.5 ... 4 bar       |                                    |                      |                      |                                                 |                      |
| Grade of filtration                                | 5 $\mu$ m                          | 17,000 <sup>3)</sup> | 20,000 <sup>3)</sup> | 16,000 <sup>3)</sup>                            | 18,000 <sup>3)</sup> |
|                                                    | 40 $\mu$ m                         | 18,000 <sup>3)</sup> | 23,000 <sup>3)</sup> | 16,000 <sup>3)</sup>                            | 20,000 <sup>3)</sup> |
| D6 – Pressure regulation range 0.5 ... 7 bar       |                                    |                      |                      |                                                 |                      |
| Grade of filtration                                | 5 $\mu$ m                          | 15,000               | 18,000               | 12,000                                          | 10,000               |
|                                                    | 40 $\mu$ m                         | 16,000               | 20,000               | 12,000                                          | 10,000               |
| D7 – Pressure regulation range 0.5 ... 12 bar      |                                    |                      |                      |                                                 |                      |
| Grade of filtration                                | 5 $\mu$ m                          | 15,000               | 18,000               | –                                               | –                    |
|                                                    | 40 $\mu$ m                         | 16,000               | 20,000               | –                                               | –                    |
| D8 – Pressure regulation range 0.5 ... 16 bar      |                                    |                      |                      |                                                 |                      |
| Grade of filtration                                | 5 $\mu$ m                          | 15,000               | 18,000               | –                                               | –                    |
|                                                    | 40 $\mu$ m                         | 16,000               | 20,000               | –                                               | –                    |

1) All values  $\pm 15\%$

2) Measured at  $p_1 = 10$  bar and  $p_2 = 6$  bar,  $\Delta p = 1$  bar

3) Measured at  $p_1 = 10$  bar and  $p_2 = 4$  bar,  $\Delta p = 1$  bar

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

| Operating and environmental conditions        |                                                           |                |                 |                                        |
|-----------------------------------------------|-----------------------------------------------------------|----------------|-----------------|----------------------------------------|
| Condensate drain                              | Manual rotary                                             | Semi-automatic | Fully automatic | Fully automatic, electrically actuated |
|                                               | M                                                         | H              | V               | E2/E3/E4                               |
| Operating pressure                            | [bar]                                                     | 1 ... 20       | 1.5 ... 12      | 2 ... 12                               |
| Operating medium                              | Compressed air in accordance with ISO 8573-1:2010 [–:4:–] |                |                 |                                        |
| Ambient temperature                           | [°C]                                                      | –10 ... +60    | +5 ... +60      | +5 ... +60                             |
| Ambient temperature with pressure sensor AD   | [°C]                                                      | 0 ... +50      | +5 ... +50      | +5 ... +50                             |
| Temperature of medium                         | [°C]                                                      | –10 ... +60    | +5 ... +60      | +5 ... +60                             |
| Temperature of medium with pressure sensor AD | [°C]                                                      | 0 ... +50      | +5 ... +50      | +5 ... +50                             |
| Storage temperature                           | [°C]                                                      | –10 ... +60    | +5 ... +60      | +5 ... +60                             |
| Corrosion resistance class CRC <sup>1)</sup>  | 2                                                         |                |                 |                                        |
| Certification (variant UL1)                   | cULus recognized (OL)                                     |                |                 |                                        |

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

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

| ATEX                                    |                                                                                     |
|-----------------------------------------|-------------------------------------------------------------------------------------|
| EU certification                        | EX4                                                                                 |
| ATEX category gas                       | II 2G                                                                               |
| Ex-ignition protection type gas         | c T6 X                                                                              |
| ATEX category dust                      | II 2D                                                                               |
| Ex-ignition protection type dust        | c T60 °C X                                                                          |
| ATEX ambient temperature                | –10 °C $\leq$ Ta $\leq$ +60 °C (manual rotary condensate drain M)                   |
|                                         | +5 °C $\leq$ Ta $\leq$ +60 °C (semi-automatic/fully automatic condensate drain H/V) |
| CE mark (see declaration of conformity) | To EU Explosion Protection Directive (ATEX)                                         |

# Filter regulators MS9-LFR, MS series

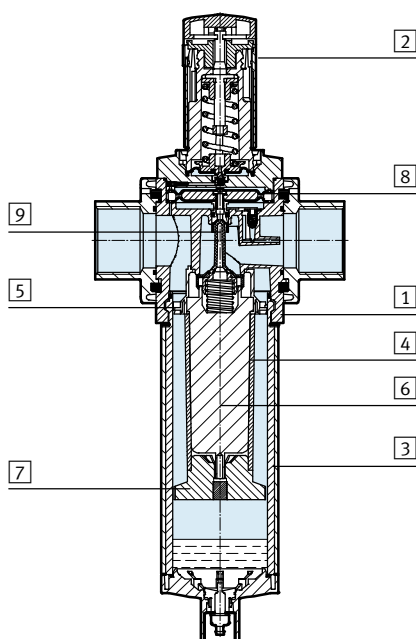
Technical data

**FESTO**

| Weight [g]                                                                                              |                             |                          |
|---------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|
| Rotary knob                                                                                             | Without integrated lock E11 | With integrated lock E11 |
| Filter regulator with metal bowl U                                                                      | 2,400                       | 2,700                    |
| Filter regulator with metal bowl U and fully automatic condensate drain, electrically actuated E2/E3/E4 | 2,800                       | 3,100                    |

## Materials

Sectional view

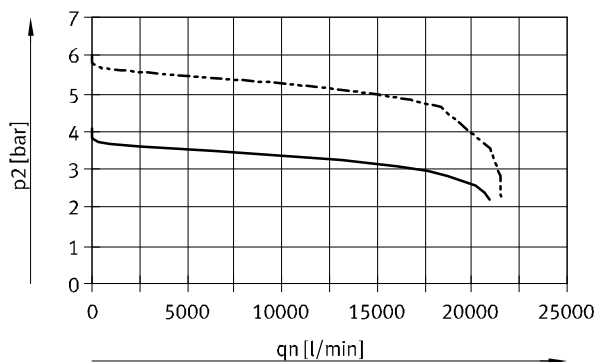


| Filter regulator  |                                                      |                                                |
|-------------------|------------------------------------------------------|------------------------------------------------|
| 1                 | Housing                                              | Die-cast aluminium                             |
| 2                 | Rotary knob                                          | PA                                             |
|                   | Rotary knob with integrated lock E11                 | Aluminium                                      |
| 3                 | Bowl                                                 | Wrought aluminium alloy                        |
|                   | Inspection window                                    | PA                                             |
| 4                 | Filter element                                       | PE                                             |
| 5                 | Spin disc                                            | POM                                            |
| 6                 | Filter holder                                        | POM                                            |
| 7                 | Separating plate                                     | POM                                            |
| 8                 | Diaphragm                                            | NBR                                            |
| 9                 | Valve stem                                           | Wrought aluminium alloy, NBR, POM              |
| –                 | Cover                                                | PA reinforced                                  |
| –                 | Connecting plate, module connector, mounting bracket | Die-cast aluminium                             |
| –                 | Seals                                                | NBR                                            |
| Note on materials |                                                      | RoHS-compliant (not with variant E2, E3 or E4) |

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

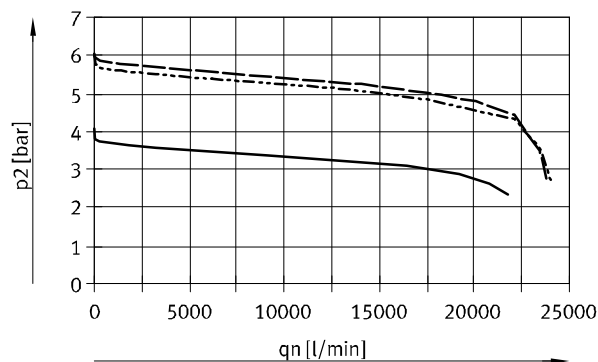
Piloted filter-diaphragm regulator

Grade of filtration 5  $\mu\text{m}$ , pneumatic connection  $G\frac{3}{4}/NPT\frac{3}{4}$



— MS9-LFR-...-D5  
 - - - MS9-LFR-...-D6/D7/D8

Grade of filtration 40  $\mu\text{m}$ , pneumatic connection  $G\frac{3}{4}/NPT\frac{3}{4}$



— MS9-LFR-...-D5  
 - - - MS9-LFR-...-D6/D8  
 - · - MS9-LFR-...-D7

# Filter regulators MS9-LFR, MS series

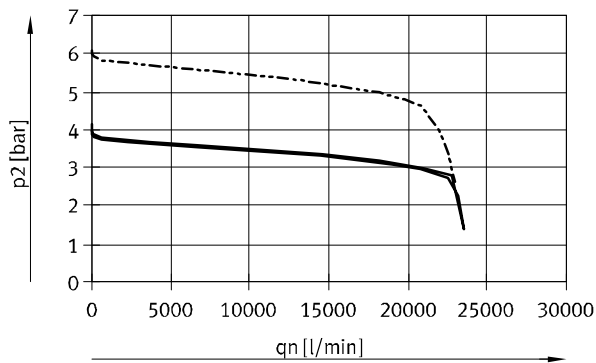
Technical data

FESTO

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

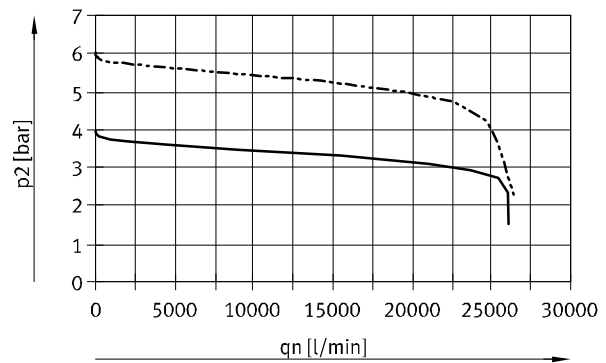
Piloted filter-diaphragm regulator

Grade of filtration 5  $\mu\text{m}$ , pneumatic connection G1/NPT1



— MS9-LFR-...-D5  
- - - MS9-LFR-...-D6/D7/D8

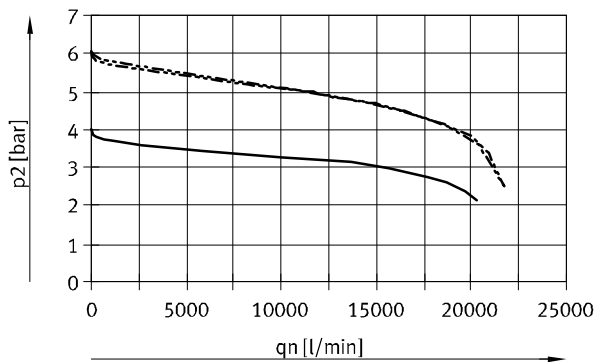
Grade of filtration 40  $\mu\text{m}$ , pneumatic connection G1/NPT1



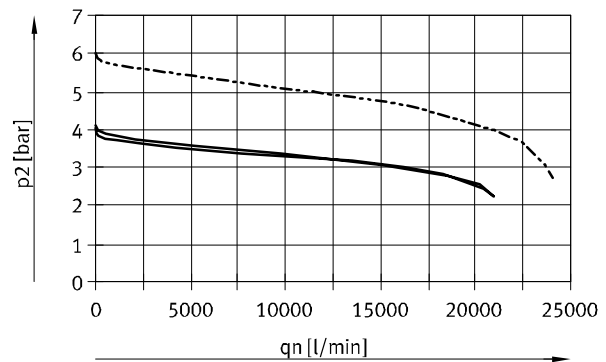
## Standard flow rate $q_n$ as a function of output pressure $p_2$ at operating pressure $p_1 = 10$ bar

Directly actuated filter-diaphragm regulator DI

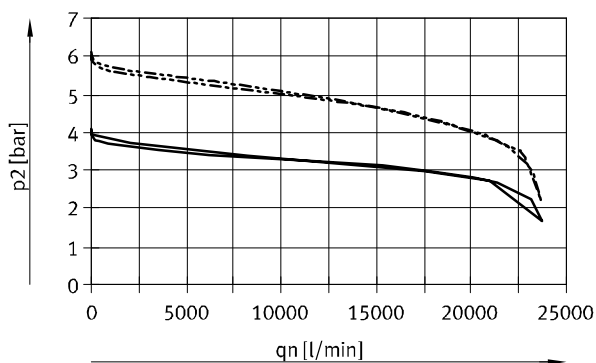
Grade of filtration 5  $\mu\text{m}$ , pneumatic connection G $\frac{3}{4}$ /NPT $\frac{3}{4}$



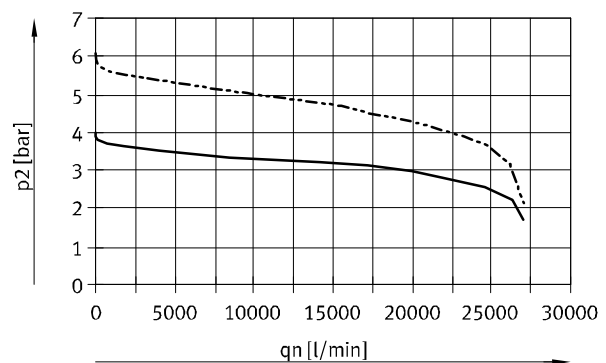
Grade of filtration 40  $\mu\text{m}$ , pneumatic connection G $\frac{3}{4}$ /NPT $\frac{3}{4}$



Grade of filtration 5  $\mu\text{m}$ , pneumatic connection G1/NPT1



Grade of filtration 40  $\mu\text{m}$ , pneumatic connection G1/NPT1



— MS9-LFR-...-D5  
- - - MS9-LFR-...-D6



# Filter regulators MS9-LFR, MS series

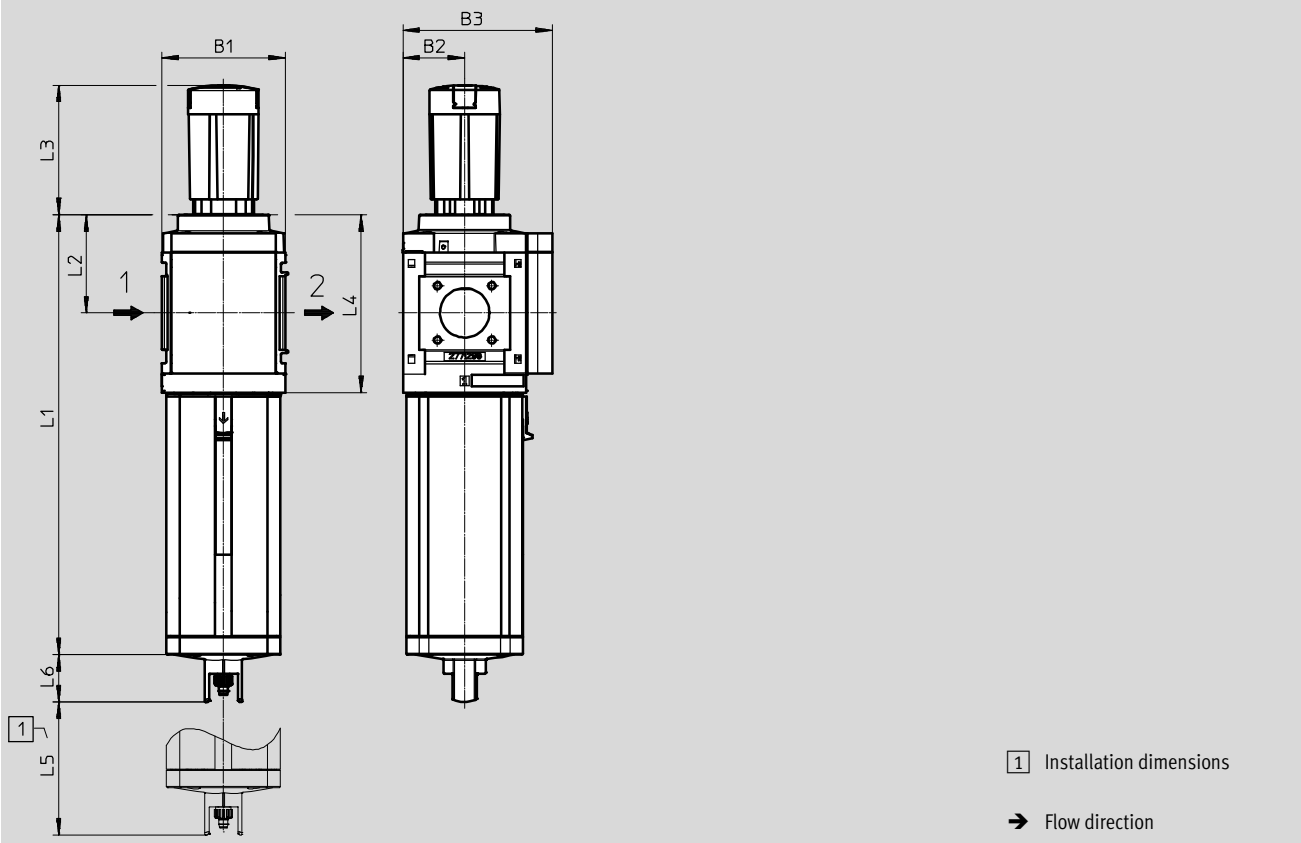
Technical data

**FESTO**

## Dimensions – Basic version

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

Module without connecting thread, without connecting plate G/NG, cover plate VS, rotary knob with detent, lockable via accessories



| Type         | B1 | B2 | B3  | L1    | L2   | L3   | L4  | L5  | L6   |
|--------------|----|----|-----|-------|------|------|-----|-----|------|
| MS9-LFR-G/NG | 90 | 45 | 109 | 320.5 | 71.5 | 94.5 | 127 | 150 | 34.5 |

# Filter regulators MS9-LFR, MS series

Technical data

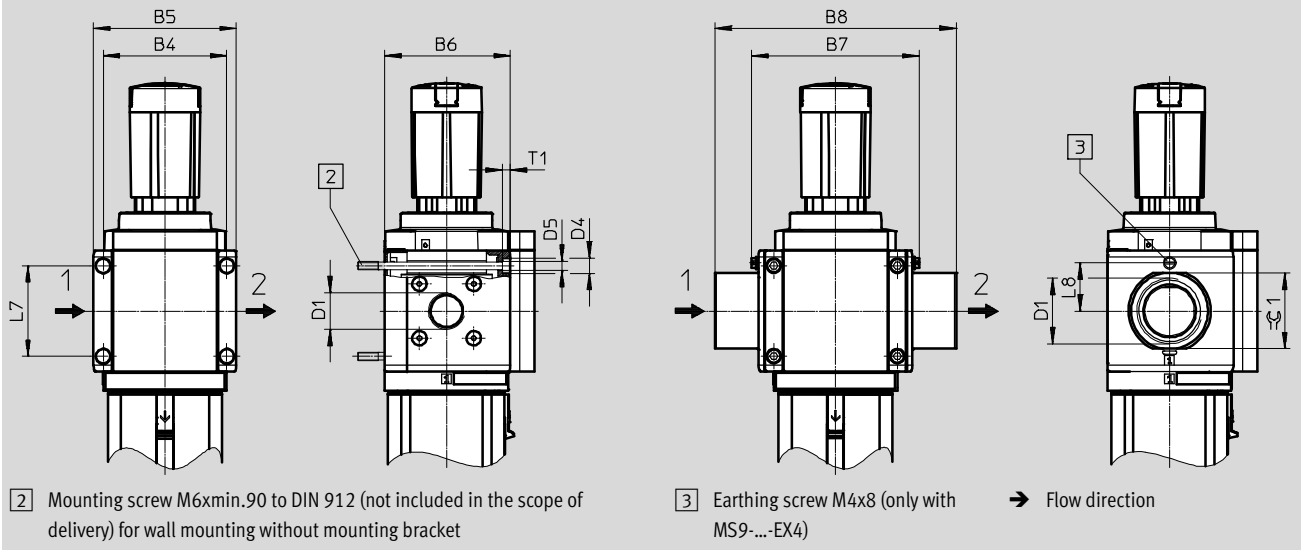
FESTO

## Dimensions – Connecting thread/connecting plate

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

With female thread 3/4"/1/N3/4"/N1

With connecting plate AG.../AQ...



| Type         | B4 | B5  | B6   | B7  |     | B8  | D1              | D4 | D5  | L7 | L8  | T1 | ≅  |
|--------------|----|-----|------|-----|-----|-----|-----------------|----|-----|----|-----|----|----|
|              |    |     |      |     | EX4 |     |                 |    |     |    | EX4 |    |    |
| MS9-LFR-3/4  | 90 | 104 | 91.5 | -   | -   | -   | G3/4            | 11 | 6.5 | 66 | -   | 6  | -  |
| MS9-LFR-1    |    |     |      |     |     |     | G1              |    |     |    |     |    |    |
| MS9-LFR-AGD  | -  | -   | -    | 112 | 122 | 132 | G1/2            | -  | -   | -  | 35  | -  | 30 |
| MS9-LFR-AGE  |    |     |      |     |     | 132 | G3/4            |    |     |    |     |    | 36 |
| MS9-LFR-AGF  |    |     |      |     |     | 142 | G1              |    |     |    |     |    | 41 |
| MS9-LFR-AGG  |    |     |      |     |     | 162 | G1 1/4          |    |     |    |     |    | 50 |
| MS9-LFR-AGH  |    |     |      |     |     | 176 | G1 1/2          |    |     |    |     |    | 55 |
| MS9-LFR-N3/4 | 90 | 104 | 91.5 | -   | -   | -   | NPT3/4-14       | 11 | 6.5 | 66 | -   | 6  | -  |
| MS9-LFR-N1   |    |     |      |     |     |     | NPT1-11 1/2     |    |     |    |     |    |    |
| MS9-LFR-AQR  | -  | -   | -    | 112 | -   | 132 | NPT1/2-14       | -  | -   | -  | -   | -  | 30 |
| MS9-LFR-AQS  |    |     |      |     |     | 132 | NPT3/4-14       |    |     |    |     |    | 36 |
| MS9-LFR-AQT  |    |     |      |     |     | 142 | NPT1-11 1/2     |    |     |    |     |    | 41 |
| MS9-LFR-AQU  |    |     |      |     |     | 162 | NPT1 1/4-11 1/2 |    |     |    |     |    | 50 |
| MS9-LFR-AQV  |    |     |      |     |     | 176 | NPT1 1/2-11 1/2 |    |     |    |     |    | 55 |

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

# Filter regulators MS9-LFR, MS series

Technical data

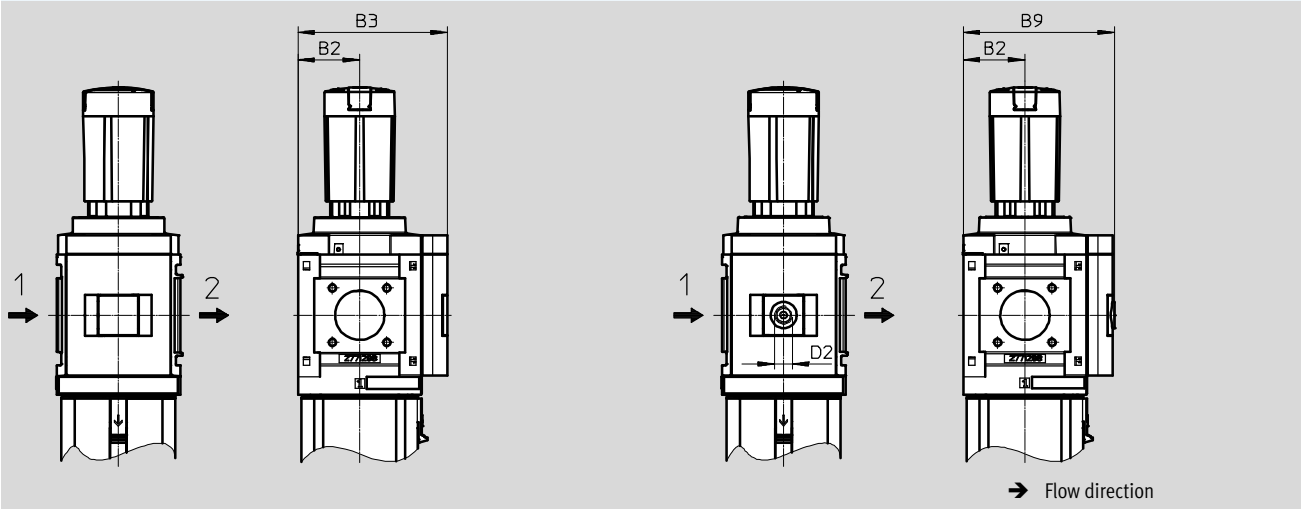
**FESTO**

## Dimensions – Pressure gauge alternatives

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

Integrated MS pressure gauge with standard scale AG or red/green scale RG

Adapter plate A4 for EN pressure gauge 1/4, without pressure gauge



| Type              | B2 | B3  | B9  | D2   |
|-------------------|----|-----|-----|------|
| MS9-LFR-...-AG/RG | 45 | 109 | –   | –    |
| MS9-LFR-...-A4    |    | –   | 110 | G1/4 |

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

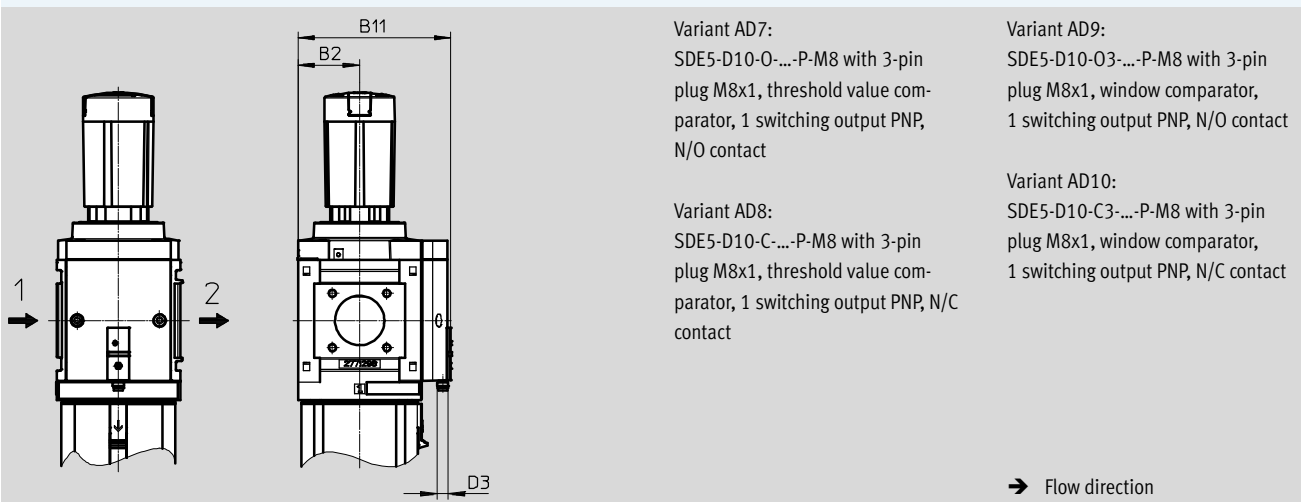
## Dimensions – Pressure gauge alternatives

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

Pressure sensor without LCD display (operational status indicator only)

Technical data → Internet: sde5

AD7 ... AD10



| Type                         | B2 | B11 | D3   |
|------------------------------|----|-----|------|
| MS9-LFR-...-AD7/AD8/AD9/AD10 | 45 | 112 | M8x1 |

# Filter regulators MS9-LFR, MS series

Technical data

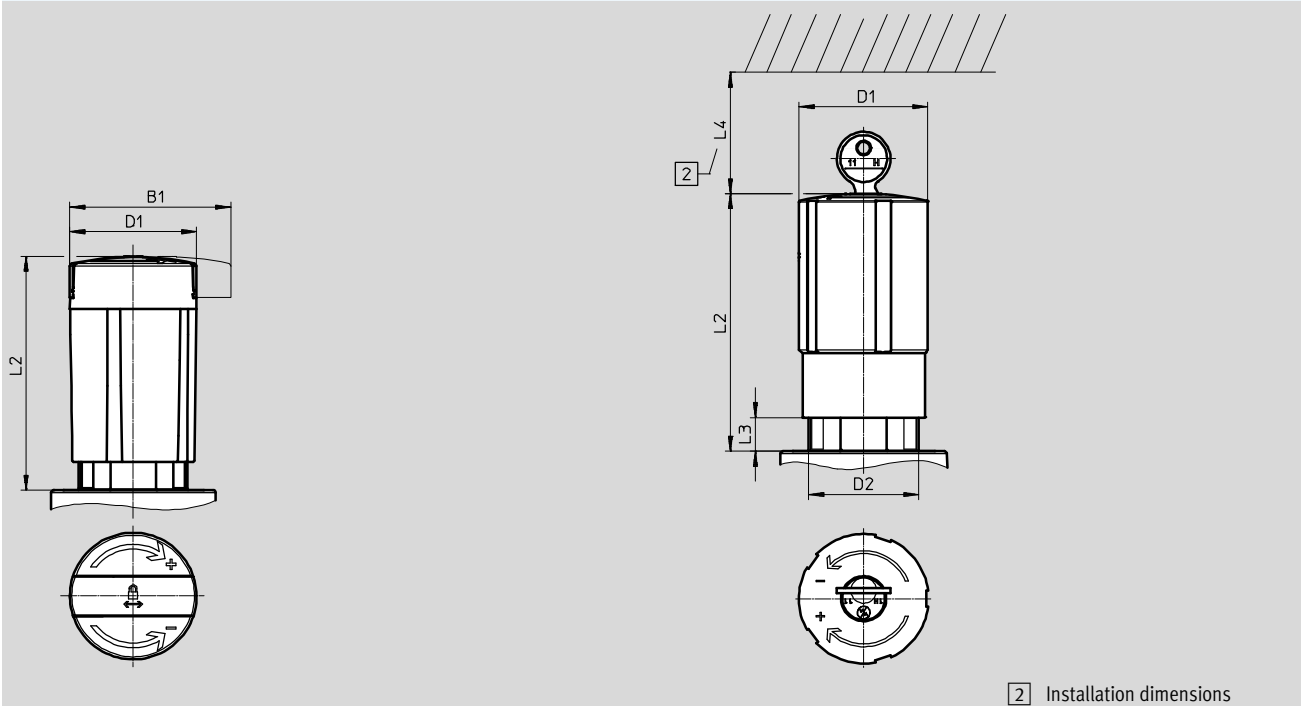
**FESTO**

## Dimensions – Rotary knob

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

Rotary knob with detent, lockable via accessories AS

Rotary knob with integrated lock E11

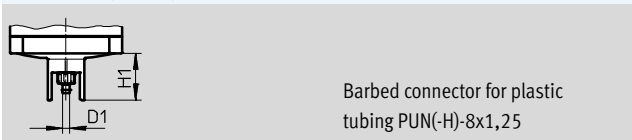


| Type            | B1   | D1   | D2    | L2    | L3   | L4 |
|-----------------|------|------|-------|-------|------|----|
| MS9-LFR-...-AS  | 64.4 | 51.2 | M44x1 | 94.5  | –    | –  |
| MS9-LFR-...-E11 | –    |      |       | 103.5 | 13.5 | 60 |

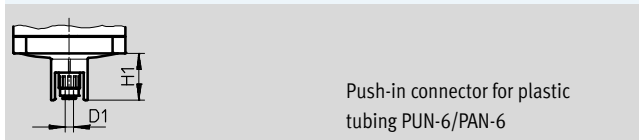
## Dimensions – Condensate drain

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

Manual rotary M/fully automatic V

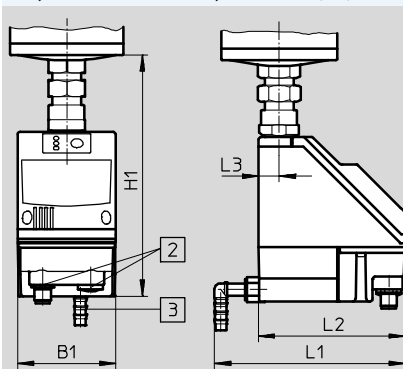


Semi-automatic H



Fully automatic, electrically actuated E2/E3/E4

Technical data → Internet: [pwea](http://pwea.com)



Condensate drain PWEA:

- 2 Electrical connection: Screw terminal PG9
- 3 Connection 360° rotatable for plastic tubing PUN-H-12x2

| Type                 | B1 | D1  | H1   | L1  | L2  | L3 |
|----------------------|----|-----|------|-----|-----|----|
| MS9-LFR-...-M/V      | –  | 5.6 | 34.5 | –   | –   | –  |
| MS9-LFR-...-H        |    | 6.2 |      |     |     |    |
| MS9-LFR-...-E2/E3/E4 | 72 | –   | 178  | 140 | 108 | 15 |

## Filter regulators MS9-LFR, MS series

Technical data

**FESTO**

| Ordering data                                                                                                                                                                                                     |                  |                          |                                |                           |                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|--------------------------------|---------------------------|--------------------------------|
| Size                                                                                                                                                                                                              | Condensate drain | Grade of filtration 5 µm |                                | Grade of filtration 40 µm |                                |
|                                                                                                                                                                                                                   |                  | Part No.                 | Type                           | Part No.                  | Type                           |
| Pressure regulation range 0.5 ... 7 bar, piloted filter-diaphragm regulator, integrated MS pressure gauge with standard scale AG, display unit [bar], rotary knob with detent, lockable via accessories           |                  |                          |                                |                           |                                |
| MS9                                                                                                                                                                                                               | Manual rotary    | 564114                   | MS9-LFR-G-D6-CUM-AG-BAR-AS     | 564110                    | MS9-LFR-G-D6-EUM-AG-BAR-AS     |
|                                                                                                                                                                                                                   | Fully automatic  | 564115                   | MS9-LFR-G-D6-CUV-AG-BAR-AS     | 564111                    | MS9-LFR-G-D6-EUV-AG-BAR-AS     |
| Pressure regulation range 0.5 ... 7 bar, directly actuated filter-diaphragm regulator, integrated MS pressure gauge with standard scale AG, display unit [bar], rotary knob with detent, lockable via accessories |                  |                          |                                |                           |                                |
| MS9                                                                                                                                                                                                               | Manual rotary    | 564116                   | MS9-LFR-G-D6-CUM-DI-AG-BAR-AS  | 564112                    | MS9-LFR-G-D6-EUM-DI-AG-BAR-AS  |
|                                                                                                                                                                                                                   | Fully automatic  | 564117                   | MS9-LFR-G-D6-CUV-DI-AG-BAR-AS  | 564113                    | MS9-LFR-G-D6-EUV-DI-AG-BAR-AS  |
| Pressure regulation range 0.5 ... 7 bar, directly actuated filter-diaphragm regulator, integrated MS pressure gauge with standard scale AG, display unit [psi], rotary knob with detent, lockable via accessories |                  |                          |                                |                           |                                |
| MS9                                                                                                                                                                                                               | Manual rotary    | 564128                   | MS9-LFR-NG-D6-CUM-DI-AG-PSI-AS | 564124                    | MS9-LFR-NG-D6-EUM-DI-AG-PSI-AS |
|                                                                                                                                                                                                                   | Fully automatic  | 564129                   | MS9-LFR-NG-D6-CUV-DI-AG-PSI-AS | 564125                    | MS9-LFR-NG-D6-EUV-DI-AG-PSI-AS |
| Pressure regulation range 0.5 ... 12 bar, piloted filter-diaphragm regulator, integrated MS pressure gauge with standard scale AG, display unit [bar], rotary knob with detent, lockable via accessories          |                  |                          |                                |                           |                                |
| MS9                                                                                                                                                                                                               | Manual rotary    | 564120                   | MS9-LFR-G-D7-CUM-AG-BAR-AS     | 564118                    | MS9-LFR-G-D7-EUM-AG-BAR-AS     |
|                                                                                                                                                                                                                   | Fully automatic  | 564121                   | MS9-LFR-G-D7-CUV-AG-BAR-AS     | 564119                    | MS9-LFR-G-D7-EUV-AG-BAR-AS     |

## Filter regulators MS9-LFR, MS series

Ordering data – Modular products

**FESTO**

| Ordering table                               |                                                                   |                                      |                 |                                   |               |
|----------------------------------------------|-------------------------------------------------------------------|--------------------------------------|-----------------|-----------------------------------|---------------|
| Grid dimension                               | [mm]                                                              | 90                                   | Condi-<br>tions | Code                              | Enter<br>code |
| <b>M</b> Module No.                          | <b>562531</b>                                                     |                                      |                 |                                   |               |
| Series                                       | Standard                                                          |                                      |                 | <b>MS</b>                         | MS            |
| Size                                         | 9                                                                 |                                      |                 | <b>9</b>                          | 9             |
| Function                                     | Filter regulator                                                  |                                      |                 | <b>-LFR</b>                       | -LFR          |
| Pneumatic connection                         | Female thread G $\frac{3}{4}$                                     |                                      | <b>1</b>        | <b>-<math>\frac{3}{4}</math></b>  |               |
|                                              | Female thread G1                                                  |                                      | <b>1</b>        | <b>-1</b>                         |               |
|                                              | Connecting plate G $\frac{1}{2}$                                  |                                      |                 | <b>-AGD</b>                       |               |
|                                              | Connecting plate G $\frac{3}{4}$                                  |                                      |                 | <b>-AGE</b>                       |               |
|                                              | Connecting plate G1                                               |                                      |                 | <b>-AGF</b>                       |               |
|                                              | Connecting plate G1 $\frac{1}{4}$                                 |                                      |                 | <b>-AGG</b>                       |               |
|                                              | Connecting plate G1 $\frac{1}{2}$                                 |                                      |                 | <b>-AGH</b>                       |               |
|                                              | Female thread NPT $\frac{3}{4}$                                   |                                      | <b>1</b>        | <b>-N<math>\frac{3}{4}</math></b> |               |
|                                              | Female thread NPT1                                                |                                      | <b>1</b>        | <b>-N1</b>                        |               |
|                                              | Connecting plate NPT $\frac{1}{2}$                                |                                      | <b>1</b>        | <b>-AQR</b>                       |               |
|                                              | Connecting plate NPT $\frac{3}{4}$                                |                                      | <b>1</b>        | <b>-AQS</b>                       |               |
|                                              | Connecting plate NPT1                                             |                                      | <b>1</b>        | <b>-AQT</b>                       |               |
|                                              | Connecting plate NPT1 $\frac{1}{4}$                               |                                      | <b>1</b>        | <b>-AQU</b>                       |               |
|                                              | Connecting plate NPT1 $\frac{1}{2}$                               |                                      | <b>1</b>        | <b>-AQV</b>                       |               |
|                                              | Module without connecting thread, without connecting plate        |                                      | <b>1</b>        | <b>-G</b>                         |               |
|                                              | Module without connecting thread, without connecting plate (inch) |                                      | <b>1</b>        | <b>-NG</b>                        |               |
| Pressure regulation range/<br>operation mode | 0.5 ... 4 bar, manually operated                                  |                                      |                 | <b>-D5</b>                        |               |
|                                              | 0.5 ... 7 bar, manually operated                                  |                                      |                 | <b>-D6</b>                        |               |
|                                              | 0.5 ... 12 bar, manually operated                                 |                                      |                 | <b>-D7</b>                        |               |
|                                              | 0.5 ... 16 bar, manually operated                                 |                                      | <b>1</b>        | <b>-D8</b>                        |               |
| Grade of filtration                          | 40 $\mu$ m                                                        |                                      |                 | <b>-E</b>                         |               |
|                                              | 5 $\mu$ m                                                         |                                      |                 | <b>-C</b>                         |               |
| Bowl                                         | Metal bowl                                                        |                                      |                 | <b>-U</b>                         | -U            |
| Condensate drain                             | Manual                                                            |                                      |                 | <b>-M</b>                         |               |
|                                              | Semi-automatic (P1 max. 12 bar)                                   |                                      |                 | <b>-H</b>                         |               |
|                                              | Fully automatic (P1 max. 12 bar)                                  |                                      |                 | <b>-V</b>                         |               |
|                                              | External, fully automatic, electric                               | 110 V AC, terminals (P1 max. 16 bar) | <b>1</b>        | <b>-E2</b>                        |               |
|                                              |                                                                   | 230 V AC, terminals (P1 max. 16 bar) | <b>1</b>        | <b>-E3</b>                        |               |
|                                              |                                                                   | 24 V DC, terminals (P1 max. 16 bar)  | <b>1</b>        | <b>-E4</b>                        |               |

**1**  $\frac{3}{4}$ , 1, N $\frac{3}{4}$ , N1, AQR, AQS, AQT, AQU, AQV, G, NG, D8, E2, E3, E4, AD7, AD8, AD9, AD10, E11, WPM

Not with EU certification EX4

**M** Mandatory data

**O** Options

Transfer order code

562531 MS 9 - LFR - - - - U -

# Filter regulators MS9-LFR, MS series

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Ordering data – Modular products

| Ordering table                                                      |                                                                                                          |                                                       |                                                       |       |               |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------|---------------|
| Grid dimension                                                      | [mm]                                                                                                     | 90                                                    | Condi-<br>tions                                       | Code  | Enter<br>code |
| <input type="checkbox"/> Regulator type                             |                                                                                                          | Directly actuated                                     | <input type="checkbox"/> 2                            | -DI   |               |
| <input type="checkbox"/> Pressure gauge/pressure gauge alternatives | MS pressure gauge                                                                                        |                                                       |                                                       | -AG   |               |
|                                                                     | Cover plate                                                                                              |                                                       |                                                       | -VS   |               |
|                                                                     | Adapter plate for EN pressure gauge 1/4, without pressure gauge                                          |                                                       |                                                       | -A4   |               |
|                                                                     | Integrated pressure gauge, red/green scale                                                               | <input type="checkbox"/> 3                            |                                                       | -RG   |               |
|                                                                     | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact | <input type="checkbox"/> 1 <input type="checkbox"/> 4 |                                                       | -AD7  |               |
|                                                                     | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact | <input type="checkbox"/> 1 <input type="checkbox"/> 4 |                                                       | -AD8  |               |
|                                                                     | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact          | <input type="checkbox"/> 1 <input type="checkbox"/> 4 |                                                       | -AD9  |               |
|                                                                     | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact          | <input type="checkbox"/> 1 <input type="checkbox"/> 4 |                                                       | -AD10 |               |
| <input type="checkbox"/> Alternative pressure gauge scale           | psi                                                                                                      |                                                       | <input type="checkbox"/> 5                            | -PSI  |               |
|                                                                     | MPa                                                                                                      |                                                       | <input type="checkbox"/> 5                            | -MPA  |               |
|                                                                     | bar                                                                                                      |                                                       | <input type="checkbox"/> 5                            | -BAR  |               |
|                                                                     | Secondary venting                                                                                        | Without secondary venting                             | <input type="checkbox"/> 6                            | -OS   |               |
| <input type="checkbox"/> Security                                   | Lockable via accessories                                                                                 |                                                       |                                                       | -AS   |               |
|                                                                     | With integrated lock                                                                                     |                                                       | <input type="checkbox"/> 1                            | -E11  |               |
| <input type="checkbox"/> Type of mounting                           | Mounting bracket standard design                                                                         |                                                       | <input type="checkbox"/> 7                            | -WP   |               |
|                                                                     | Mounting bracket for attaching the service units                                                         |                                                       | <input type="checkbox"/> 1 <input type="checkbox"/> 7 | -WPM  |               |
|                                                                     | Mounting bracket for large wall gap                                                                      |                                                       | <input type="checkbox"/> 7                            | -WPB  |               |
|                                                                     | EU certification                                                                                         | II 2GD to EU Explosion Protection Directive (ATEX)    |                                                       | -EX4  |               |
|                                                                     | UL certification                                                                                         | cULus, ordinary location for Canada and USA           |                                                       | -UL1  |               |
|                                                                     | Flow direction                                                                                           | Flow direction from right to left                     |                                                       | -Z    |               |

- ☐ 1 3/4, 1, N3/4, N1, AQR, AQS, AQT, AQU, AQV, G, NG, D8, E2, E3, E4, AD7, AD8, AD9, AD10, ☐ 6 OS Only with regulator type DI  
☐ 2 DI Not with pressure regulation range D7, D8  
☐ 3 RG Not with alternative pressure gauge scale PSI  
☐ 4 AD7 ... AD10 Measuring range max. 10 bar  
☐ 5 PSI, MPA, BAR Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10
- ☐ 7 WP, WPM, WPB Not with pneumatic connection G/NG

- ☐ Mandatory data  
☐ Options

## Transfer order code

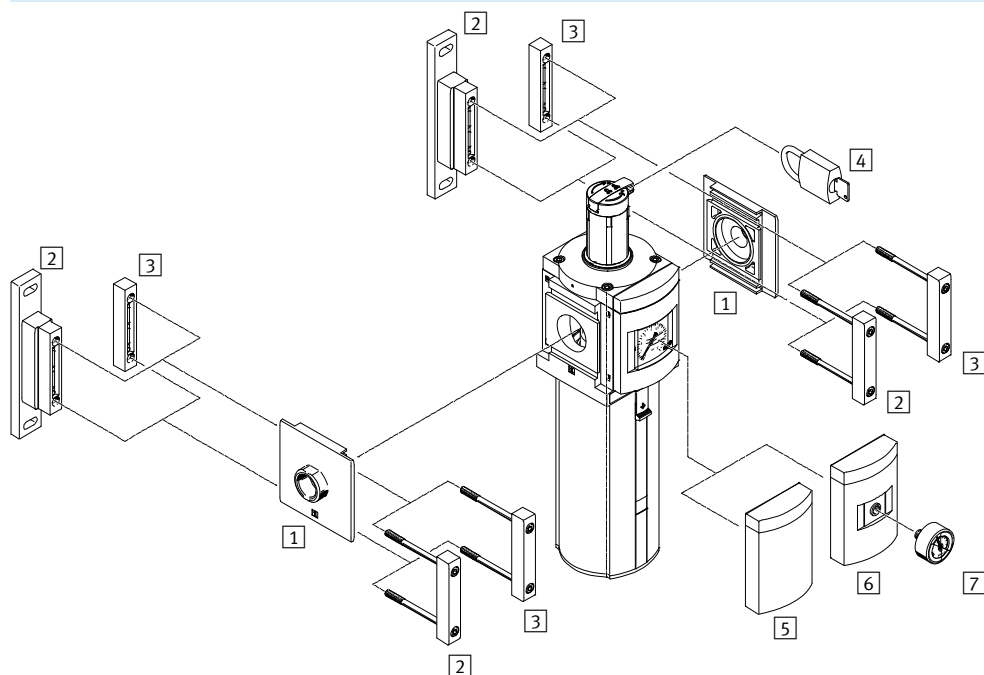
-  -  -  -  -  -  -  -  -  -

# Filter regulators MS12-LFR, MS series

Peripherals overview

**FESTO**

## Filter regulators MS12-LFR



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

### Mounting attachments and accessories

|   |                                         | → Page/Internet |
|---|-----------------------------------------|-----------------|
| 1 | Connecting plate-SET<br>MS12-AG...      | ms12-ag         |
| 2 | Mounting bracket<br>MS12-WP             | ms12-wp         |
| 3 | Module connector<br>MS12-MV             | ms12-mv         |
| 4 | Padlock<br>LRVS-D                       | 50              |
| 5 | Cover plate<br>VS                       | 48              |
| 6 | Adapter for EN pressure gauge 1/4<br>A4 | 48              |
| 7 | Pressure gauge<br>MA                    | 50              |



## Filter regulators MS12-LFR, MS series

FESTO

Type codes

|                                  |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
|----------------------------------|-----------------------------------------------------------------------------------------------|----|----|---|-----|---|---|---|----|---|---|---|---|---|----|---|----|
|                                  |                                                                                               | MS | 12 | - | LFR | - | G | - | D7 | - | C | U | V | - | LD | - | AS |
| <b>Series</b>                    |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| MS                               | Standard service unit                                                                         |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Size</b>                      |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| 12                               | Grid dimension 124 mm                                                                         |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Service function</b>          |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| LFR                              | Filter regulator                                                                              |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Pneumatic connection</b>      |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| G                                | Module without connecting thread, without connecting plate<br>Connecting plates → Accessories |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Pressure regulation range</b> |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| D7                               | Pressure regulation range 0.5 ... 12 bar                                                      |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Grade of filtration</b>       |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| C                                | 5 µm                                                                                          |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| E                                | 40 µm                                                                                         |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Bowl guard</b>                |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| U                                | Integrated as metal bowl                                                                      |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Condensate drain</b>          |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| V                                | Fully automatic                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Rotary knob</b>               |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| LD                               | Long rotary knob                                                                              |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| <b>Security</b>                  |                                                                                               |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |
| AS                               | Rotary knob with detent, lockable via accessories                                             |    |    |   |     |   |   |   |    |   |   |   |   |   |    |   |    |

Further variants can be ordered using the modular system → 48

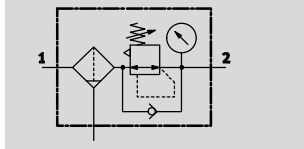
- Pneumatic connection
- Pressure regulation range
- Condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Security
- Type of mounting
- Flow direction

# Filter regulators MS12-LFR, MS series

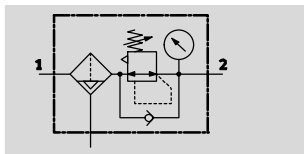
FESTO

Technical data

Function  
Condensate drain  
manual rotary  
with pressure gauge



Condensate drain  
fully automatic  
with pressure gauge



-  - Flow rate  
11,000 ... 17,000 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Operating pressure  
0.8 ... 20 bar
-  - [www.festo.com](http://www.festo.com)



With this device, the filter and pressure regulator are combined into a single unit. The sintered filter with water separator removes contamination, pipe sinter, rust and condensate from the compressed air.

- Good control characteristics with low hysteresis and primary pressure compensation
- Good particle and condensate separation
- High flow rates
- Pilot actuated diaphragm regulator without intrinsic air consumption
- Three pressure regulation ranges: 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Pressure gauge connection for different fitting options
- Available with manual, fully automatic or fully automatic, electrically actuated condensate drain
- Regulator lock for protecting the values against adjustment
- Choice of filter cartridges: 5 µm or 40 µm
- New filter cartridges → 49

| General technical data                   |          |                                                                                       |
|------------------------------------------|----------|---------------------------------------------------------------------------------------|
| Pneumatic connection 1, 2                |          |                                                                                       |
|                                          |          |                                                                                       |
| Connecting plate AG...                   |          | G1, G1¼, G1½ or G2                                                                    |
| Module without connecting thread/plate G |          | –                                                                                     |
| Design                                   |          | Filter regulator with/without pressure gauge                                          |
|                                          |          | Sintered filter with centrifugal separation                                           |
|                                          |          | Pilot actuated diaphragm regulator                                                    |
| Regulating function                      |          | Output pressure constant, with primary pressure compensation, with secondary venting  |
| Type of mounting                         |          | Via accessories                                                                       |
|                                          |          | In-line installation                                                                  |
| Assembly position                        |          | Vertical ±5°                                                                          |
| Grade of filtration                      | [µm]     | 5                                                                                     |
|                                          |          | 40                                                                                    |
| Air purity class at the output           |          | Compressed air in accordance with ISO 8573-1:2010 [6:4:4] (Grade of filtration 5 µm)  |
|                                          |          | Compressed air in accordance with ISO 8573-1:2010 [7:4:4] (Grade of filtration 40 µm) |
| Bowl guard                               |          | Integrated as metal bowl                                                              |
| Condensate drain                         |          | Manual rotary                                                                         |
|                                          |          | Fully automatic                                                                       |
|                                          |          | Fully automatic, electrical actuated                                                  |
| Regulator lock                           |          | Rotary knob with detent, lockable via accessories                                     |
|                                          |          | Rotary knob with integrated lock                                                      |
| Pressure regulation range                | D6 [bar] | 0.3 ... 7                                                                             |
|                                          | D7 [bar] | 0.5 ... 12                                                                            |
|                                          | D8 [bar] | 0.5 ... 16                                                                            |
| Max. hysteresis [bar]                    |          | 0.4                                                                                   |
| Pressure indicator                       |          | With pressure gauge                                                                   |
| Max. condensate volume [cm³]             |          | 400                                                                                   |

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

# Filter regulators MS12-LFR, MS series

FESTO

Technical data

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |       |        |        |        |        |
|--------------------------------------------------|-------|--------|--------|--------|--------|
| Pneumatic connection                             |       | G1     | G1¼    | G1½    | G2     |
| Grade of filtration                              | 5 µm  | 11,000 | 11,500 | 12,000 | 14,000 |
|                                                  | 40 µm | 12,000 | 12,500 | 13,000 | 17,000 |

- 1) Dependent on connecting plate selected, must be ordered separately as an accessory → Internet: ms12-ag  
 measured at  $p_1 = 10$  bar and  $p_2 = 6$  bar,  $\Delta p = 0.5$  bar  
 - 125 l/min must be available for the fully automatic condensate drain to close correctly.

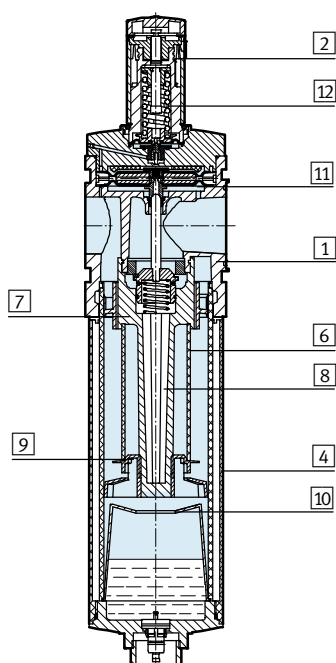
| Operating and environmental conditions       |                                                              |                                                              |                                                              |
|----------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| Condensate drain                             | Manual rotary<br>M                                           | Fully automatic<br>V                                         | Fully automatic, electrically actuated<br>E2/E3/E4           |
| Operating pressure [bar]                     | 0.8 ... 20                                                   | 2 ... 12                                                     | 0.8 ... 16                                                   |
| Operating medium                             | Compressed air in accordance with<br>ISO 8573-1:2010 [-:4:-] | Compressed air in accordance with<br>ISO 8573-1:2010 [7:4:-] | Compressed air in accordance with<br>ISO 8573-1:2010 [-:4:-] |
|                                              | Inert gases                                                  |                                                              |                                                              |
| Ambient temperature [°C]                     | -10 ... +60                                                  | +5 ... +60                                                   | +1 ... +60                                                   |
| Temperature of medium [°C]                   | -10 ... +60                                                  | +5 ... +60                                                   | +1 ... +60                                                   |
| Storage temperature [°C]                     | -10 ... +60                                                  | -10 ... +60                                                  | +1 ... +60                                                   |
| Corrosion resistance class CRC <sup>1)</sup> | 2                                                            |                                                              |                                                              |

- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070  
 Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

| Weights [g]                                                                                             |                             |                          |
|---------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|
| Rotary knob                                                                                             | Without integrated lock E11 | With integrated lock E11 |
| Filter regulator with metal bowl U                                                                      | 7,000                       | 7,300                    |
| Filter regulator with metal bowl U and fully automatic, electrically actuated condensate drain E2/E3/E4 | 7,700                       | 8,000                    |

## Materials

Sectional view



| Filter regulator |                                      |                         |
|------------------|--------------------------------------|-------------------------|
| 1                | Body                                 | Die-cast aluminium      |
| 2                | Rotary knob                          | PA                      |
|                  | Rotary knob with integrated lock E11 | Aluminium               |
| 4                | Metal bowl                           | Wrought aluminium alloy |
| 6                | Filter element                       | Sintered bronze         |
| 7                | Spin disc                            | POM                     |
| 8                | Filter holder                        | POM                     |
| 9                | Separating plate                     | POM                     |
| 10               | Stabilising disc                     | POM                     |
| 11               | Diaphragm                            | NBR                     |
| 12               | Spring                               | Steel                   |
| -                | Seals                                | NBR                     |

# Filter regulators MS12-LFR, MS series

Technical data

FESTO

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

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

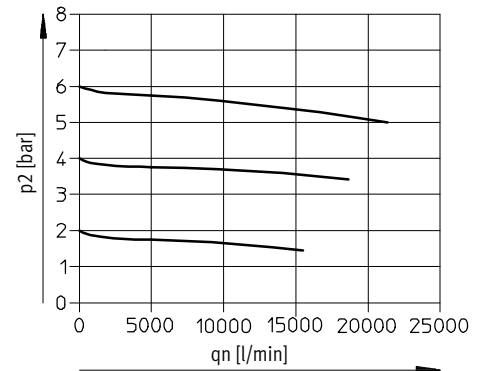
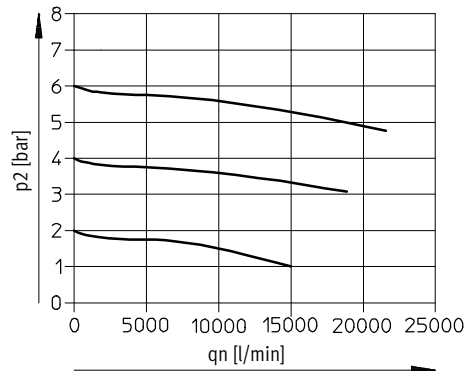
With connecting plate MS12-AGF

Pneumatic connection G1

With connecting plate MS12-AGG

Pneumatic connection G1 $\frac{1}{4}$

Input pressure  $p_1 = 10$  bar



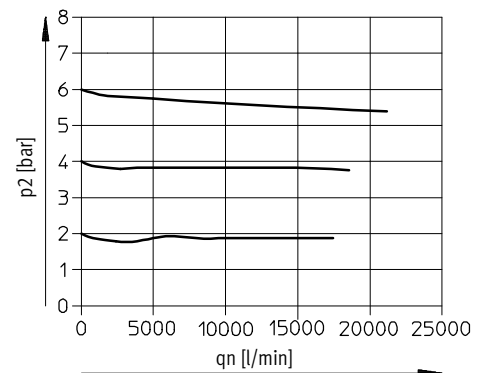
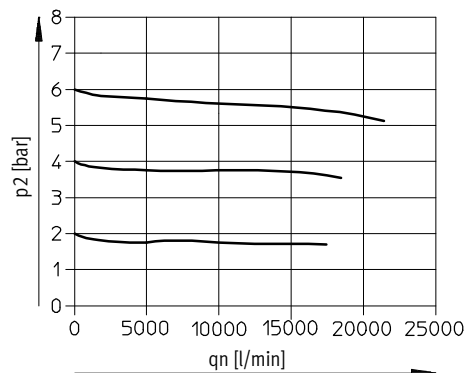
With connecting plate MS12-AGH

Pneumatic connection G1 $\frac{1}{2}$

With connecting plate MS12-AGI

Pneumatic connection G2

Input pressure  $p_1 = 10$  bar



# Filter regulators MS12-LFR, MS series

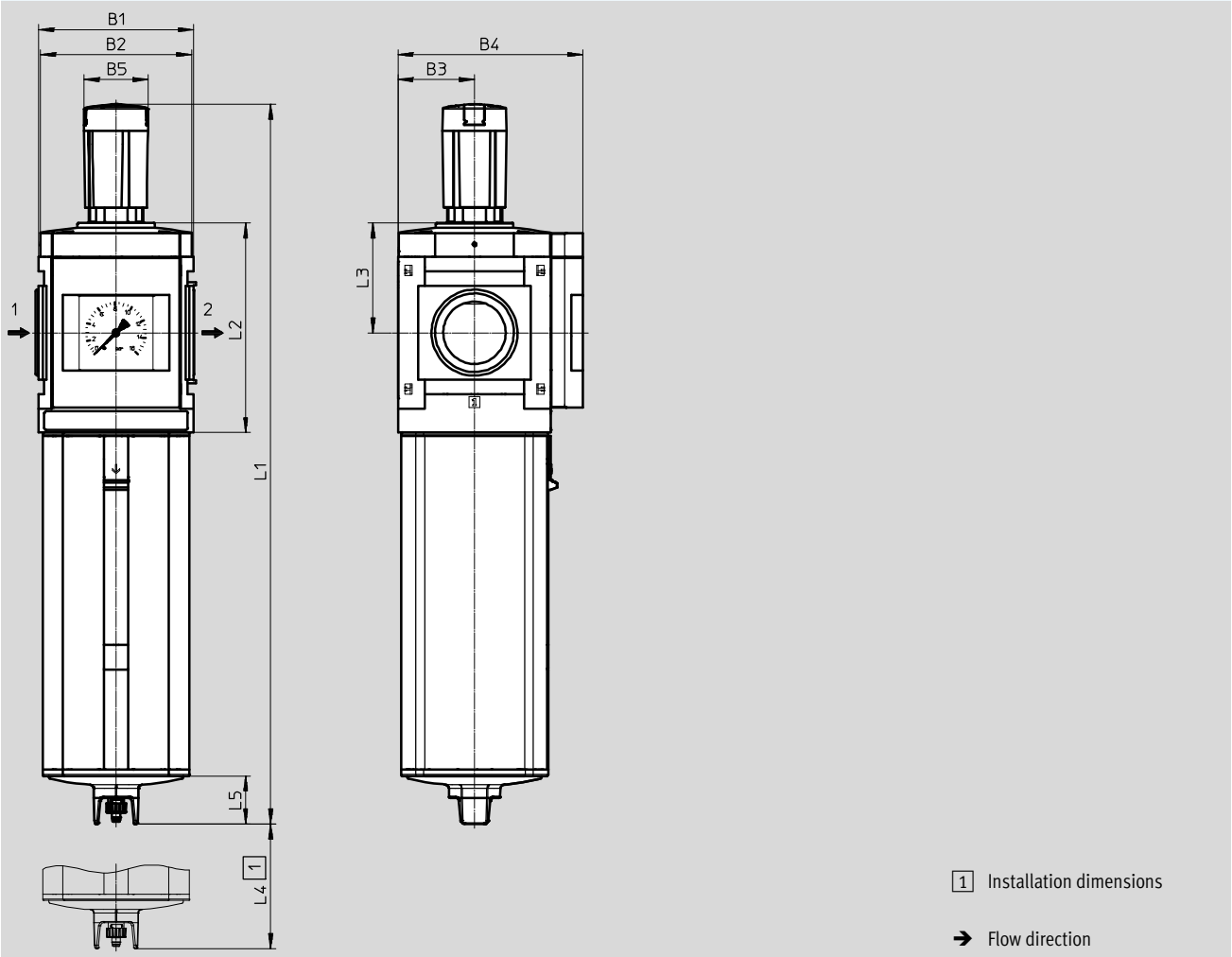
Technical data

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## Dimensions – Basic version

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

Module without connecting thread, without connecting plate, integrated MS pressure gauge with standard scale, long rotary knob with detent, lockable via accessories



| Type       | B1  | B2  | B3 | B4  | B5<br>Ø | L1  | L2  | L3 | L4  | L5 |
|------------|-----|-----|----|-----|---------|-----|-----|----|-----|----|
| MS12-LFR-G | 124 | 122 | 61 | 148 | 51.2    | 577 | 168 | 88 | 250 | 39 |

# Filter regulators MS12-LFR, MS series

Technical data

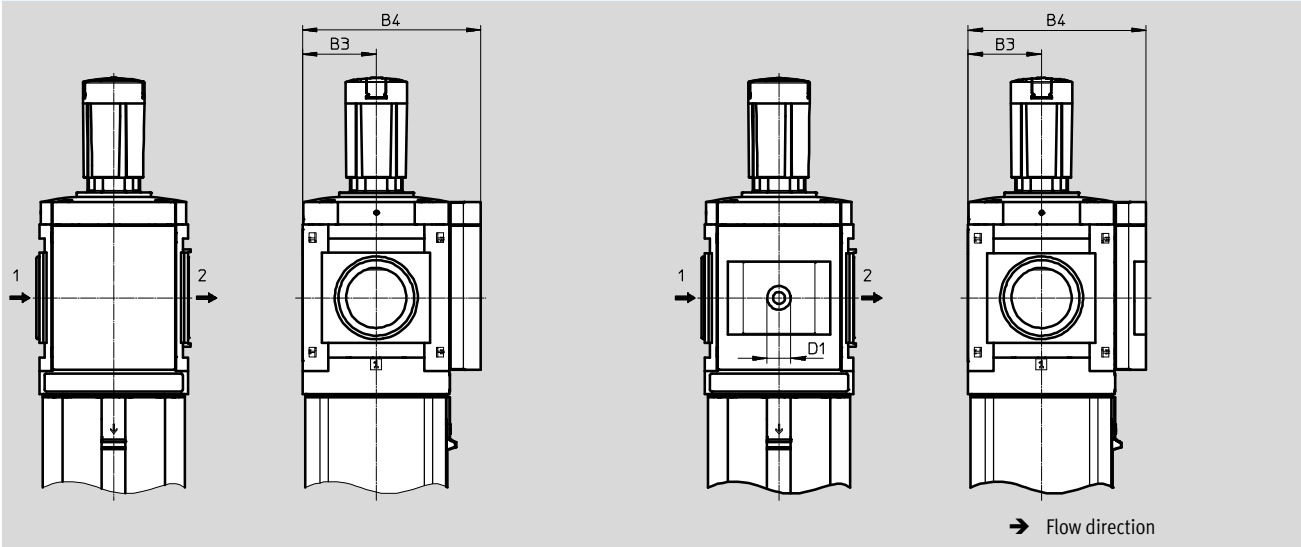
**FESTO**

## Dimensions – Pressure gauge alternatives

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

Cover plate VS

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



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

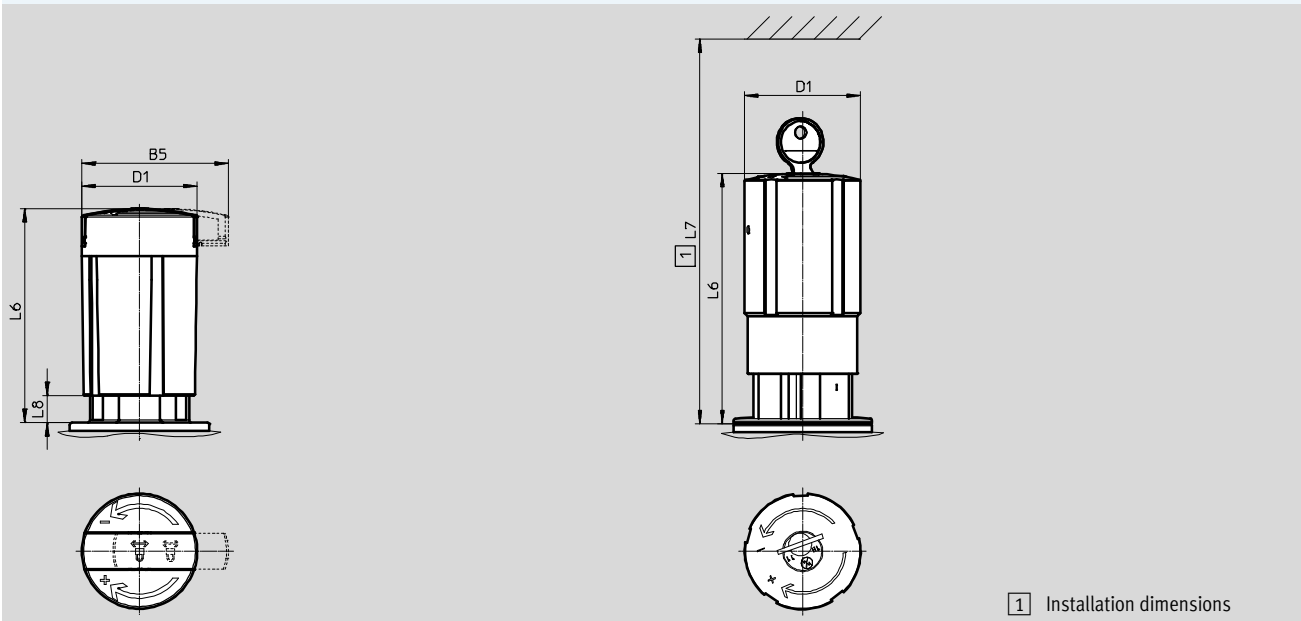
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

## Dimensions – Rotary knob

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

Long rotary knob with detent, lockable via accessories LD-AS

Rotary knob with integrated lock E11



| Type               | B5   | D1<br>Ø | L6  | L7  | L8 |
|--------------------|------|---------|-----|-----|----|
| MS12-LFR-...-LD-AS | 64.4 | 51.2    | 96  | –   | 12 |
| MS12-LFR-...-E11   | –    | 51.8    | 112 | 172 | –  |

# Filter regulators MS12-LFR, MS series

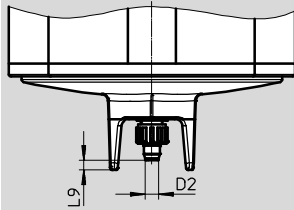
Technical data

**FESTO**

## Dimensions – Condensate drain

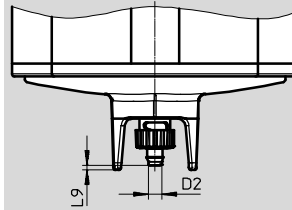
Download CAD data → [www.festo.com](http://www.festo.com)

### Manual rotary M



Barbed connector for plastic tubing PUN(-H)-8x1,25

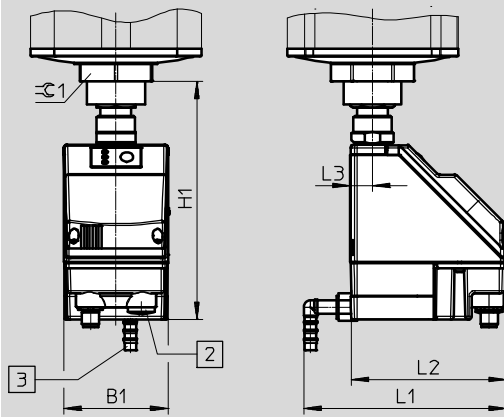
### Fully automatic V



Barbed connector for plastic tubing PUN(-H)-8x1,25

### Fully automatic, electrically actuated E2/E3/E4

Technical data → Internet: [pwea](http://pwea)



#### Condensate drain PWEA:

- 2 Electrical connection: Screw terminal PG9
- 3 Connection 360° rotatable for plastic tubing PUN-H-12x2

| Type                  | B1 | D2<br>Ø | H1  | L1  | L2  | L3 | L9 | 1  |
|-----------------------|----|---------|-----|-----|-----|----|----|----|
| MS12-LFR-...-M        | –  | 5.6     | –   | –   | –   | –  | 4  | –  |
| MS12-LFR-...-V        | –  | 5.6     | –   | –   | –   | –  | 2  | –  |
| MS12-LFR-...-E2/E3/E4 | 72 | –       | 164 | 140 | 108 | 15 | –  | 50 |

## Ordering data

| Size                                                                                                                                                                               | Condensate drain | Grade of filtration 5 µm |                         | Grade of filtration 40 µm |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|-------------------------|---------------------------|-------------------------|
|                                                                                                                                                                                    |                  | Part No.                 | Type                    | Part No.                  | Type                    |
| Pressure regulation range 0.5 ... 12 bar, metal bowl, integrated MS pressure gauge with standard scale, display unit [bar], long rotary knob with detent, lockable via accessories |                  |                          |                         |                           |                         |
| MS12                                                                                                                                                                               | Fully automatic  | 537150                   | MS12-LFR-G-D7-CUV-LD-AS | 537149                    | MS12-LFR-G-D7-EUV-LD-AS |

# Filter regulators MS12-LFR, MS series

FESTO

Ordering data – Modular products

| Ordering table                       |                                                                                 |               |                 |             |               |
|--------------------------------------|---------------------------------------------------------------------------------|---------------|-----------------|-------------|---------------|
| Grid dimension                       | [mm]                                                                            | 124           | Condi-<br>tions | Code        | Enter<br>code |
| <b>M</b> Module No.                  |                                                                                 | <b>535022</b> |                 |             |               |
| Series                               | Standard                                                                        |               |                 | <b>MS</b>   | MS            |
| Size                                 | 12                                                                              |               |                 | <b>12</b>   | 12            |
| Function                             | Filter regulator                                                                |               |                 | <b>-LFR</b> | -LFR          |
| Pneumatic connection                 | Connecting plate G1                                                             |               |                 | <b>-AGF</b> |               |
|                                      | Connecting plate G1¼                                                            |               |                 | <b>-AGG</b> |               |
|                                      | Connecting plate G1½                                                            |               |                 | <b>-AGH</b> |               |
|                                      | Connecting plate G2                                                             |               |                 | <b>-AGI</b> |               |
|                                      | Module without connecting thread, without connecting plate                      |               |                 | <b>-G</b>   |               |
| Pressure regulation range            | 0.3 ... 7 bar                                                                   |               |                 | <b>-D6</b>  |               |
|                                      | 0.5 ... 12 bar                                                                  |               |                 | <b>-D7</b>  |               |
|                                      | 0.5 ... 16 bar                                                                  |               |                 | <b>-D8</b>  |               |
| Grade of filtration                  | 40 µm                                                                           |               |                 | <b>-E</b>   |               |
|                                      | 5 µm                                                                            |               |                 | <b>-C</b>   |               |
| Bowl                                 | Metal bowl                                                                      |               |                 | <b>-U</b>   | -U            |
| Condensate drain                     | Manual                                                                          |               |                 | <b>-M</b>   |               |
|                                      | Fully automatic (P1 max. 12 bar)                                                | 1             |                 | <b>-V</b>   |               |
|                                      | External fully automatic condensate drain, electrical, 110 V AC, terminal strip |               |                 | <b>-E2</b>  |               |
|                                      | External fully automatic condensate drain, electrical, 230 V AC, terminal strip |               |                 | <b>-E3</b>  |               |
|                                      | External fully automatic condensate drain, electrical, 24 V DC, terminal strip  |               |                 | <b>-E4</b>  |               |
| <b>O</b> Pressure gauge alternatives | Cover plate                                                                     |               |                 | <b>-VS</b>  |               |
|                                      | Adapter plate for EN pressure gauge ¼, without pressure gauge                   |               |                 | <b>-A4</b>  |               |
| Alternative pressure gauge scale     | psi                                                                             | 2             |                 | <b>-PSI</b> |               |
|                                      | MPa                                                                             | 2             |                 | <b>-MPA</b> |               |
| Rotary knob                          | Long rotary knob                                                                | 3             |                 | <b>-LD</b>  |               |
| <b>M</b> Security                    | Lockable via accessories                                                        | 4             |                 | <b>-AS</b>  |               |
|                                      | With integrated lock                                                            |               |                 | <b>-E11</b> |               |
| <b>O</b> Type of mounting            | Mounting bracket standard design                                                | 5             |                 | <b>-WP</b>  |               |
| Flow direction                       | Flow direction from right to left                                               |               |                 | <b>-Z</b>   |               |

- 1 **V** Not with pressure regulation range D8  
2 **PSI, MPA** Not with pressure gauge alternatives VS, A4  
3 **LD** Not with security E11  
4 **AS** Only with rotary knob LD  
5 **WP** Only with connecting plate AGF, AGG, AGH or AGI

- M** Mandatory data  
**O** Options

## Transfer order code

535022 MS 12 - LFR - - - - U - - - - -



## Filter regulators MS-LFR, MS series

Accessories

**FESTO**

### Filter cartridges

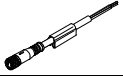
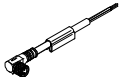


| Ordering data |                             |          |            |
|---------------|-----------------------------|----------|------------|
| Size          | Grade of filtration<br>[μm] | Part No. | Type       |
| MS4           | 5 (colour: blue)            | 534501   | MS4-LFP-C  |
|               | 40 (colour: white)          | 534502   | MS4-LFP-E  |
| MS6           | 5 (colour: blue)            | 534499   | MS6-LFP-C  |
|               | 40 (colour: white)          | 534500   | MS6-LFP-E  |
| MS9           | 5                           | 570309   | MS9-LFP-C  |
|               | 40                          | 570310   | MS9-LFP-E  |
| MS12          | 5                           | 537143   | MS12-LFP-C |
|               | 40                          | 537144   | MS12-LFP-E |

## Filter regulators MS-LFR, MS series

Accessories

**FESTO**

| Ordering data – Connecting cable NEBU-M8                                          |                       |                 |                  | Technical data → Internet: nebu |                     |
|-----------------------------------------------------------------------------------|-----------------------|-----------------|------------------|---------------------------------|---------------------|
|                                                                                   | Electrical connection | Number of wires | Cable length [m] | Part No.                        | Type                |
|  | M8x1, straight socket | 3               | 2.5              | ★ 541333                        | NEBU-M8G3-K-2.5-LE3 |
|                                                                                   |                       |                 | 5                | ★ 541334                        | NEBU-M8G3-K-5-LE3   |
|  | 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                                         |                        |                 |                  | Technical data → Internet: nebu |                      |
|-----------------------------------------------------------------------------------|------------------------|-----------------|------------------|---------------------------------|----------------------|
|                                                                                   | Electrical connection  | Number of wires | Cable length [m] | Part No.                        | Type                 |
|  | M12x1, straight socket | 4               | 2.5              | ★ 550326                        | NEBU-M12G5-K-2.5-LE4 |
|                                                                                   |                        |                 | 5                | ★ 541328                        | NEBU-M12G5-K-5-LE4   |
|  | M12x1, angled socket   | 4               | 2.5              | 550325                          | NEBU-M12W5-K-2.5-LE4 |
|                                                                                   |                        |                 | 5                | 541329                          | NEBU-M12W5-K-5-LE4   |

| Ordering data – Pressure gauge MA                                                   |                                                       |                      |                  |           |                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------|------------------|-----------|---------------------------------------|
|                                                                                     | Nominal size                                          | Pneumatic connection | Indicating range |           | Part No. Type                         |
|                                                                                     |                                                       |                      | [bar]            | [psi]     |                                       |
|  | Pressure gauge MA, DIN EN 837-1                       |                      |                  |           | Technical data → Internet: ma         |
|                                                                                     | 40                                                    | R $\frac{1}{4}$      | 0 ... 16         | 0 ... 232 | 187080 MA-40-16-R $\frac{1}{4}$ -EN   |
|                                                                                     |                                                       | G $\frac{1}{4}$      | 0 ... 16         | 0 ... 232 | 183901 MA-40-16-G $\frac{1}{4}$ -EN   |
|                                                                                     | Pressure gauge MA, DIN EN 837-1, with red-green range |                      |                  |           | Technical data → Internet: ma         |
|                                                                                     | 40                                                    | R $\frac{1}{8}$      | 0 ... 16         | –         | 525726 MA-40-16-R $\frac{1}{8}$ -E-RG |
|                                                                                     | 50                                                    | R $\frac{1}{4}$      | 0 ... 16         | –         | 525729 MA-50-16-R $\frac{1}{4}$ -E-RG |

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

Festo core product range

- ★ Ready for dispatch from the Festo factory in 24 hours
- ☆ Ready for dispatch in 5 days maximum from stock