

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

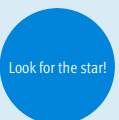
Reduces procurement and storing complexity



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



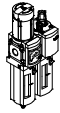
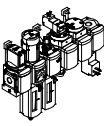
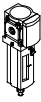
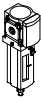
Ready for dispatch in 5 days maximum from stock  
Assembled for you in 4 service centres worldwide  
Up to  $6 \times 10^{12}$  variants per product series



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

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Product range overview – MS series service units

| Type                                                                                                                          | Size | Pneumatic connection in housing | Connecting plate             | Pressure regulation range [bar] |             |            |            |            |            | Grade of filtration [µm] |   |   |    |
|-------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------|------------------------------|---------------------------------|-------------|------------|------------|------------|------------|--------------------------|---|---|----|
|                                                                                                                               |      |                                 |                              | 0.05<br>...                     | 0.05<br>... | 0.1<br>... | 0.3<br>... | 0.1<br>... | 0.5<br>... | 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         | –                               | –           | –          | –          | –          | –          | –                        | – | – | –  |

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

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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>                 |      |                                      |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| Filter regulators<br><b>MS-LFR</b>        | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms4-lfr             |
|                                           | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lfr             |
|                                           | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms9-lfr             |
|                                           | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | ■                                    | ■                            | –                                        | ■                                        | –               | ■                                                 | ■                                | –        | ■                                 | ms12-lfr            |
| Filters<br><b>MS-LF</b>                   | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lf              |
|                                           | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lf              |
|                                           | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lf              |
|                                           | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lf             |
| Fine and micro filters<br><b>MS-LFM</b>   | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lfm             |
|                                           | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lfm             |
|                                           | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lfm             |
|                                           | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lfm            |
| Activated carbon filters<br><b>MS-LFX</b> | 4    | ■                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lfx             |
|                                           | 6    | ■                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lfx             |
|                                           | 9    | –                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lfx             |
|                                           | 12   | –                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lfx            |
| Water separators<br><b>MS-LWS</b>         | 4    | –                                    | –          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                           | 6    | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lws             |
|                                           | 9    | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lws             |
|                                           | 12   | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lws            |

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

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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, G1 1/4, G1 1/2  | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, 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, G1 1/4, G1 1/2  | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, 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, G1 1/4, G1 1/2  | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, 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, G1 1/4, G1 1/2  | –                  | –               | –               | –                | –                | ■                                        | ■                                          | ■                                         | ■                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, 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, G1 1/4, G1 1/2, 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, G1 1/4, G1 1/2, G2          | –                  | –               | –               | –                | –                | ■                                        | ■                                          | ■                                         | ■                                         |

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

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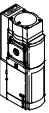
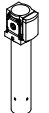
Product range overview – MS series service units

| 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    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 8                   |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 8                   |
|                                                           | 9    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 78                  |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | ■                                                 | ■                                | –        | ■                                 | 90                  |
| Pressure regulators<br><b>MS-LRB</b>                      | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 22                  |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 22                  |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Precision pressure regulators<br><b>MS-LRP</b>            | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | –                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 38                  |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Precision pressure regulators<br><b>MS-LRPB</b>           | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | –                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | 54                  |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Electrical pressure regulators<br><b>MS-LRE</b>           | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | –        | ■                                 | 70                  |
|                                                           | 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             |

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

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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                                                  |
| <b>Individual devices</b>                       |                                                                                     |                                 |                  |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Soft start and exhaust valves<br><b>MS-SV-C</b> |    | 4                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4         | ■                     | –                                          | –                     | –                                        | ■                                          | ■                                             | –                                                     |
|                                                 |                                                                                     | 9                               | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2 | ■                     | –                                          | –                     | –                                        | ■                                          | ■                                             | ■                                                     |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Soft start and exhaust valves<br><b>MS-SV-D</b> |   | 4                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4         | –                     | ■                                          | –                     | –                                        | ■                                          | ■                                             | –                                                     |
|                                                 |                                                                                     | 9                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Soft start and exhaust valves<br><b>MS-SV-E</b> |  | 4                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4         | –                     | –                                          | ■                     | ■                                        | –                                          | –                                             | ■                                                     |
|                                                 |                                                                                     | 9                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Membrane air dryers<br><b>MS-LDM1</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                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Branching modules<br><b>MS-FRM</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, G1 1/4, G1 1/2 | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, G2         | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
| Distributor blocks<br><b>MS-FRM-FRZ</b>         |  | 4                               | G1/4             | –                              | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 6                               | G1/2             | –                              | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 9                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Flow sensors<br><b>SFAM</b>                     |  | 4                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 6                               | G1/2             | G1/2                           | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 9                               | –                | G1, G1 1/2                     | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |

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

**FESTO**

Product range overview – MS series service units

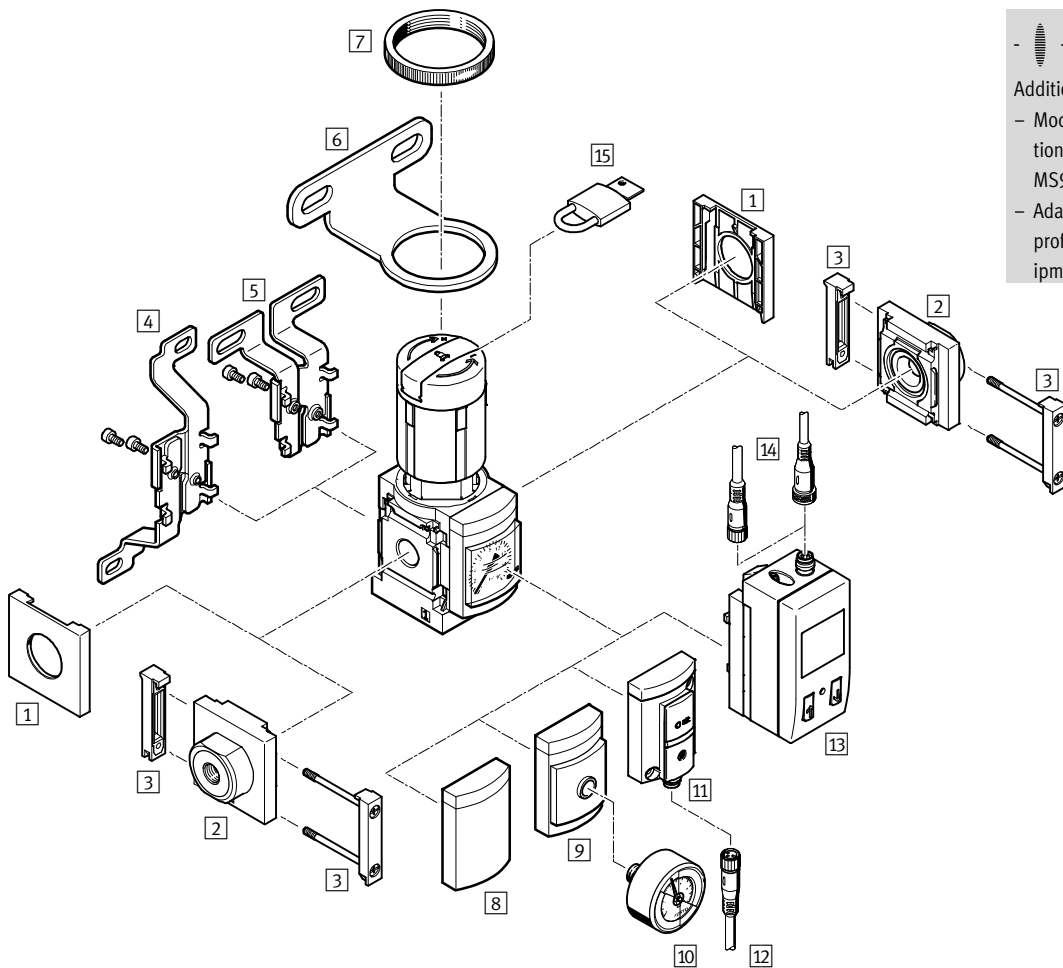
| Type                                            | Size | Bowl guard                           |            | Pressure indicator                   |                              |                                                     |                                                     |                 | 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, 1 analogue output 4 ... 20 mA | 2x PNP or NPN, 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                               |                     |
| <b>Individual devices</b>                       |      |                                      |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   |                     |
| Soft start and exhaust valves<br><b>MS-SV-C</b> | 4    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 6    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | ■        | ■                                 | ms6-sv              |
|                                                 | 9    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | ■        | ■                                 | ms9-sv              |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Soft start and exhaust valves<br><b>MS-SV-D</b> | 4    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 6    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | ■        | ■                                 | ms6-sv              |
|                                                 | 9    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Soft start and exhaust valves<br><b>MS-SV-E</b> | 4    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 6    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | ■        | ■                                 | ms6-sv              |
|                                                 | 9    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Membrane air dryers<br><b>MS-LDM1</b>           | 4    | –                                    | ■          | –                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | ■                                 | ms4-ldm1            |
|                                                 | 6    | –                                    | ■          | –                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | ■                                 | ms6-ldm1            |
|                                                 | 9    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Branching modules<br><b>MS-FRM</b>              | 4    | –                                    | –          | ■                                    | ■                            | ■                                                   | ■                                                   | ■               | –                                            | –                                           | –        | ■                                 | ms4-frm             |
|                                                 | 6    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | –        | ■                                 | ms6-frm             |
|                                                 | 9    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | –        | ■                                 | ms9-frm             |
|                                                 | 12   | –                                    | –          | ■                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | –                                 | ms12-frm            |
| Distributor blocks<br><b>MS-FRM-FRZ</b>         | 4    | –                                    | –          | –                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | ■                                 | ms4-frm             |
|                                                 | 6    | –                                    | –          | –                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | ■                                 | ms6-frm             |
|                                                 | 9    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Flow sensors<br><b>SFAM</b>                     | 4    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 6    | –                                    | –          | –                                    | –                            | –                                                   | –                                                   | –               | ■                                            | ■                                           | –        | ■                                 | sfam-62             |
|                                                 | 9    | –                                    | –          | –                                    | –                            | –                                                   | –                                                   | –               | ■                                            | ■                                           | –        | ■                                 | sfam-90             |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |

# Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

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## Pressure regulator MS4/MS6-LR



Note

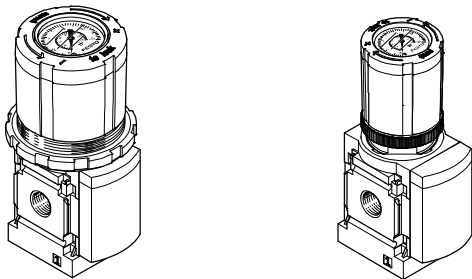
Additional accessories:

- 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

## Pressure regulator with rotary knob pressure gauge

MS4-LR-...-DM2

MS4-LR-...-DM1/MS6-LR-...-DM2





## Pressure regulators MS4/MS6-LR, MS series

Peripherals overview

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| Mounting attachments and accessories |                                                      |                          |                       |                          |                       |                     |
|--------------------------------------|------------------------------------------------------|--------------------------|-----------------------|--------------------------|-----------------------|---------------------|
|                                      |                                                      | Individual device        |                       | Combination              |                       | ➔ Page/Internet     |
|                                      |                                                      | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                     |
| 1                                    | Cover cap<br>MS4/6-END                               | ■                        | –                     | ■                        | –                     | ms4-end,<br>ms6-end |
| 2                                    | Connecting plate-SET<br>MS4/6-AG...                  | –                        | ■                     | –                        | ■                     | ms4-ag,<br>ms6-ag   |
|                                      | 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                                    | Knurled nut (included in scope of delivery)<br>MS-LR | ■                        | ■                     | –                        | –                     | –                   |
| 8                                    | Cover plate<br>VS                                    | ■                        | ■                     | ■                        | ■                     | 20                  |
| 9                                    | Adapter plate for EN pressure gauge 1/8/1/4<br>A8/A4 | ■                        | ■                     | ■                        | ■                     | 20                  |
| 10                                   | Pressure gauge<br>MA                                 | ■                        | ■                     | ■                        | ■                     | 100                 |
| 11                                   | Pressure sensor without display<br>AD7 ... AD10      | ■                        | ■                     | ■                        | ■                     | 20                  |
| 12                                   | Connecting cable<br>NEBU-M8...-LE3                   | ■                        | ■                     | ■                        | ■                     | 100                 |
| 13                                   | Pressure sensor with display<br>AD1 ... AD4          | ■                        | ■                     | ■                        | ■                     | 20                  |
| 14                                   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4   | ■                        | ■                     | ■                        | ■                     | 100                 |
| 15                                   | Padlock<br>LRVS-D                                    | ■                        | ■                     | ■                        | ■                     | 100                 |
| –                                    | Mounting bracket<br>MS4/6-WP/WPB/WPE/WPM             | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |

## Pressure regulators MS4/MS6-LR, MS series

FESTO

Type codes

|                                            |                                                   |    |   |   |    |   |     |   |    |   |    |
|--------------------------------------------|---------------------------------------------------|----|---|---|----|---|-----|---|----|---|----|
|                                            |                                                   | MS | 6 | - | LR | - | 1/2 | - | D5 | - | 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>                    |                                                   |    |   |   |    |   |     |   |    |   |    |
| LR                                         | Pressure 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/operation</b> |                                                   |    |   |   |    |   |     |   |    |   |    |
| D5                                         | 0.3 ... 4 bar, manually operated                  |    |   |   |    |   |     |   |    |   |    |
| D6                                         | 0.3 ... 7 bar, manually operated                  |    |   |   |    |   |     |   |    |   |    |
| D7                                         | 0.5 ... 12 bar, manually operated                 |    |   |   |    |   |     |   |    |   |    |
| <b>Security</b>                            |                                                   |    |   |   |    |   |     |   |    |   |    |
| AS                                         | Rotary knob with detent, lockable via accessories |    |   |   |    |   |     |   |    |   |    |

### Additional variants can be ordered using the modular system → 20

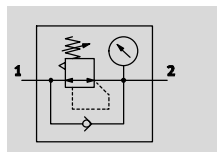
- Pneumatic connection
- Pressure regulation range/operation
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Type of mounting
- EU certification
- UL certification
- Flow direction

# Pressure regulators MS4/MS6-LR, MS series

FESTO

Technical data

With pressure gauge



-  Flow rate  
1,000 ... 7,500 l/min
-  Temperature range  
-10 ... +60 °C
-  Operating pressure  
0.8 ... 20 bar
-  [www.festo.com](http://www.festo.com)



The pressure regulator maintains a constant working pressure (secondary side), regardless of the pressure variations in the system (primary side) and the air consumption.

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Available with and without secondary venting
- Regulator lock for protecting the values against adjustment
- Four pressure regulation ranges: 0.3 ... 4 bar, 0.3 ... 7 bar, 0.5 ... 12 bar and 0.5 ... 16 bar
- Two pressure gauge connections for different fitting options
- Return flow option for exhausting from output 2 to output 1 already integrated
- Optional pressure sensor
- Optional rotary knob pressure gauge
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

| General technical data              |                        |                                                                                                                       |                                                                                |
|-------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Size                                |                        | MS4                                                                                                                   | MS6                                                                            |
| Pneumatic connection 1, 2           | Female thread          | G $\frac{1}{8}$ or G $\frac{1}{4}$                                                                                    | G $\frac{1}{4}$ , G $\frac{3}{8}$ or G $\frac{1}{2}$                           |
|                                     | Connecting plate AG... | G $\frac{1}{8}$ , G $\frac{1}{4}$ or G $\frac{3}{8}$                                                                  | G $\frac{1}{4}$ , G $\frac{3}{8}$ , G $\frac{1}{2}$ or G $\frac{3}{4}$         |
|                                     | Connecting plate AQ... | NPT $\frac{1}{8}$ , NPT $\frac{1}{4}$ or NPT $\frac{3}{8}$                                                            | NPT $\frac{1}{4}$ , NPT $\frac{3}{8}$ , NPT $\frac{1}{2}$ or NPT $\frac{3}{4}$ |
| Constructional design               |                        | Directly-actuated diaphragm regulator                                                                                 |                                                                                |
| Regulating function                 |                        | Output pressure constant, with primary pressure compensation, with return flow action, with/without secondary venting |                                                                                |
| Type of mounting                    |                        | Via accessories                                                                                                       |                                                                                |
|                                     |                        | In-line installation                                                                                                  |                                                                                |
|                                     |                        | Front panel mounting                                                                                                  |                                                                                |
| Mounting position                   |                        | Any                                                                                                                   |                                                                                |
| Regulator lock                      |                        | Rotary knob with detent                                                                                               |                                                                                |
|                                     |                        | Rotary knob with detent, lockable via accessories                                                                     |                                                                                |
|                                     |                        | Rotary knob with integrated lock                                                                                      |                                                                                |
| Pressure regulation range/operation | D5 [bar]               | 0.3 ... 4, manually operated <sup>1)</sup>                                                                            |                                                                                |
|                                     | D6 [bar]               | 0.3 ... 7, manually operated <sup>1)</sup>                                                                            |                                                                                |
|                                     | D7 [bar]               | 0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor AD... or with UL certification) <sup>1)</sup>          |                                                                                |
|                                     | D8 [bar]               | –                                                                                                                     | 0.5 ... 16, manually operated (0.5 ... 10 with UL certification)               |
| Max. hysteresis [bar]               |                        | 0.25 (0.4 with rotary knob pressure gauge DM1/DM2)                                                                    | 0.25 (0.4 with rotary knob pressure gauge DM2)                                 |
| 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                                                |                                                                                |
|                                     |                        | Via pressure gauge in rotary knob for displaying output pressure                                                      |                                                                                |
|                                     |                        | G $\frac{1}{8}$ prepared                                                                                              | –                                                                              |
|                                     |                        | G $\frac{1}{4}$ prepared                                                                                              |                                                                                |

1) MS4: For pressure regulators with rotary knob pressure gauge DM..., the pressure regulation range begins at 0.8 bar.

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

# Pressure regulators MS4/MS6-LR, MS series

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Technical data

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |    |                     |                     |                     |                     |                     |
|--------------------------------------------------|----|---------------------|---------------------|---------------------|---------------------|---------------------|
| Size                                             |    | MS4                 |                     | MS6                 |                     |                     |
| Pneumatic connection                             |    | G $\frac{1}{8}$     | G $\frac{1}{4}$     | G $\frac{1}{4}$     | G $\frac{3}{8}$     | G $\frac{1}{2}$     |
| Pressure regulation range                        | D5 | 1,200 <sup>2)</sup> | 2,100 <sup>2)</sup> | 2,400 <sup>2)</sup> | 5,500 <sup>2)</sup> | 7,500 <sup>2)</sup> |
|                                                  | D6 | 1,150               | 1,800               | 3,000               | 5,800               | 6,500               |
|                                                  | D7 | 1,000               | 1,700 <sup>3)</sup> | 2,700               | 4,500               | 5,500               |
|                                                  | D8 | –                   | –                   | 2,200               | 4,000               | 4,500               |

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

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

3) In the case of the DM1/DM2 pressure regulator/gauge with rotary knob,  $q_{nN}$  is equal to 800 litres per minute and  $q_{n \max}$  amounts to 2,200 litres per minute.

| Operating and environmental conditions       |                                                                                                        |                                       |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------|
| Size                                         | MS4                                                                                                    | MS6                                   |
| Operating pressure [bar]                     | 0.8 ... 14 (0.8 ... 10) <sup>1)</sup>                                                                  | 0.8 ... 20 (0.8 ... 10) <sup>1)</sup> |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |                                       |
|                                              | Inert gases                                                                                            |                                       |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |                                       |
| Ambient temperature [°C]                     | −10 ... +60 (0 ... +50) <sup>2)</sup>                                                                  |                                       |
| Temperature of medium [°C]                   | −10 ... +60 (0 ... +50) <sup>2)</sup>                                                                  |                                       |
| Storage temperature [°C]                     | −10 ... +60                                                                                            |                                       |
| Corrosion resistance class CRC <sup>3)</sup> | 2                                                                                                      |                                       |
| UL certification                             | cULus recognized (OL)                                                                                  |                                       |

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

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

| 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                        |
| CE mark (see declaration of conformity) | To EU Explosion Protection Directive (ATEX) |

| Weight [g]                                                   |     |       |
|--------------------------------------------------------------|-----|-------|
| Size                                                         | MS4 | MS6   |
| Pressure regulator                                           | 225 | 730   |
| Pressure regulator with rotary knob with integrated lock E11 | 350 | 1,000 |

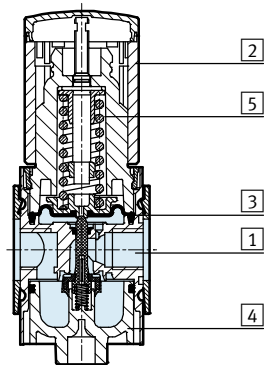
# Pressure regulators MS4/MS6-LR, MS series

FESTO

Technical data

## Materials

Sectional view



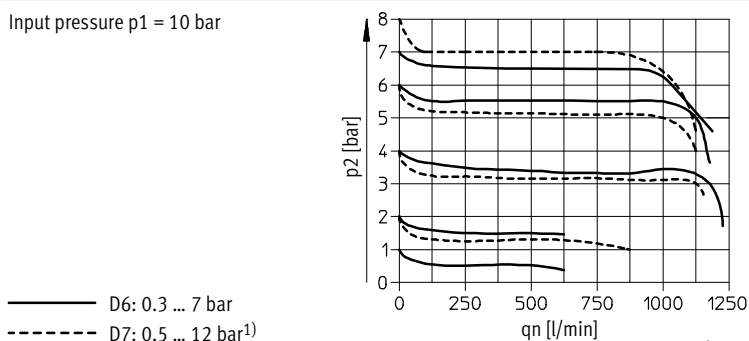
## Pressure regulator

|                   |                                      |                                                  |
|-------------------|--------------------------------------|--------------------------------------------------|
| 1                 | Housing                              | Die-cast aluminium                               |
| 2                 | Rotary knob                          | PA/POM                                           |
|                   | Rotary knob with integrated lock E11 | Aluminium                                        |
| 3                 | Diaphragm                            | NBR                                              |
| 4                 | Cap, bottom                          | PET                                              |
| 5                 | Springs                              | Steel                                            |
| –                 | Seals                                | NBR                                              |
| Note on materials |                                      | RoHS-compliant                                   |
|                   |                                      | Free of copper and PTFE only with cover plate VS |

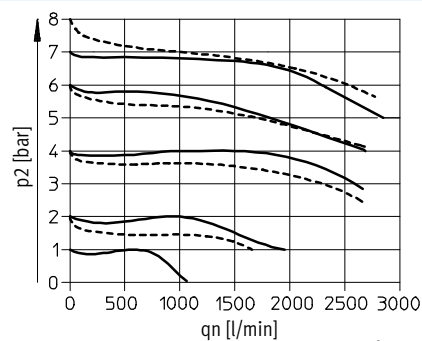
## Standard flow rate $q_n$ as a function of output pressure $p_2$

MS4-LR-1/8

Input pressure  $p_1 = 10$  bar



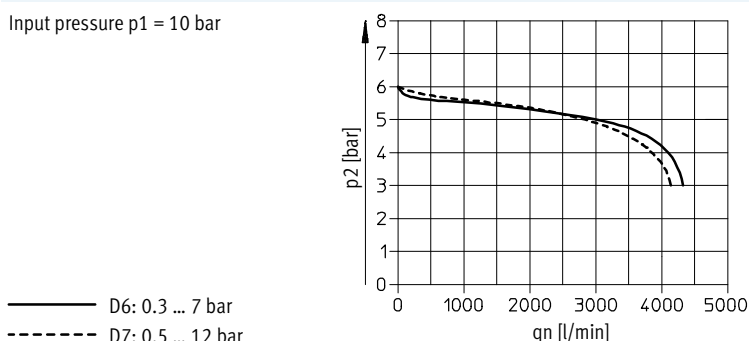
MS4-LR-1/4



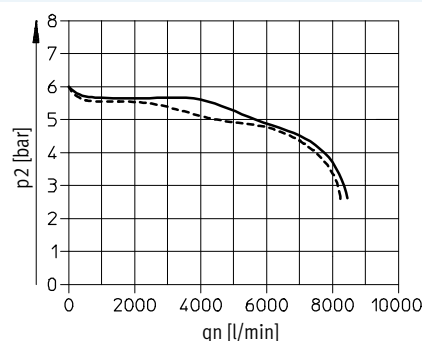
1) There is a higher initial pressure drop for the characteristic curve of the DM1/DM2 variant.

MS6-LR-1/4

Input pressure  $p_1 = 10$  bar

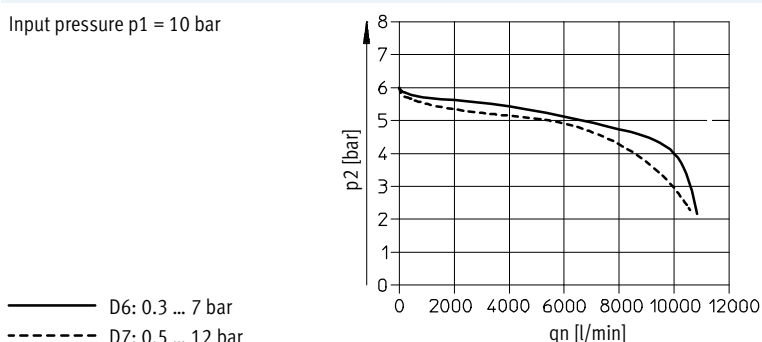


MS6-LR-3/8



MS6-LR-1/2

Input pressure  $p_1 = 10$  bar



# Pressure regulators MS4/MS6-LR, MS series

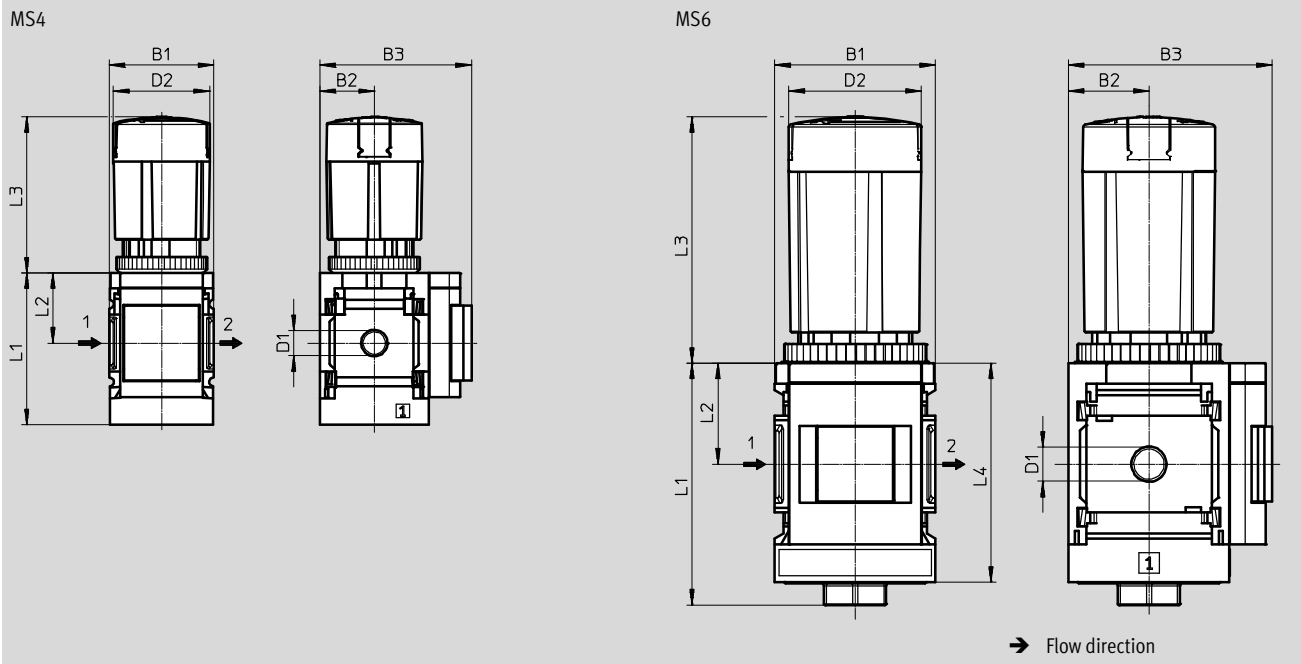
Technical data

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## Dimensions – Basic version

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

Integrated MS pressure gauge, rotary knob with detent, lockable via accessories AS



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

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

# Pressure regulators MS4/MS6-LR, MS series

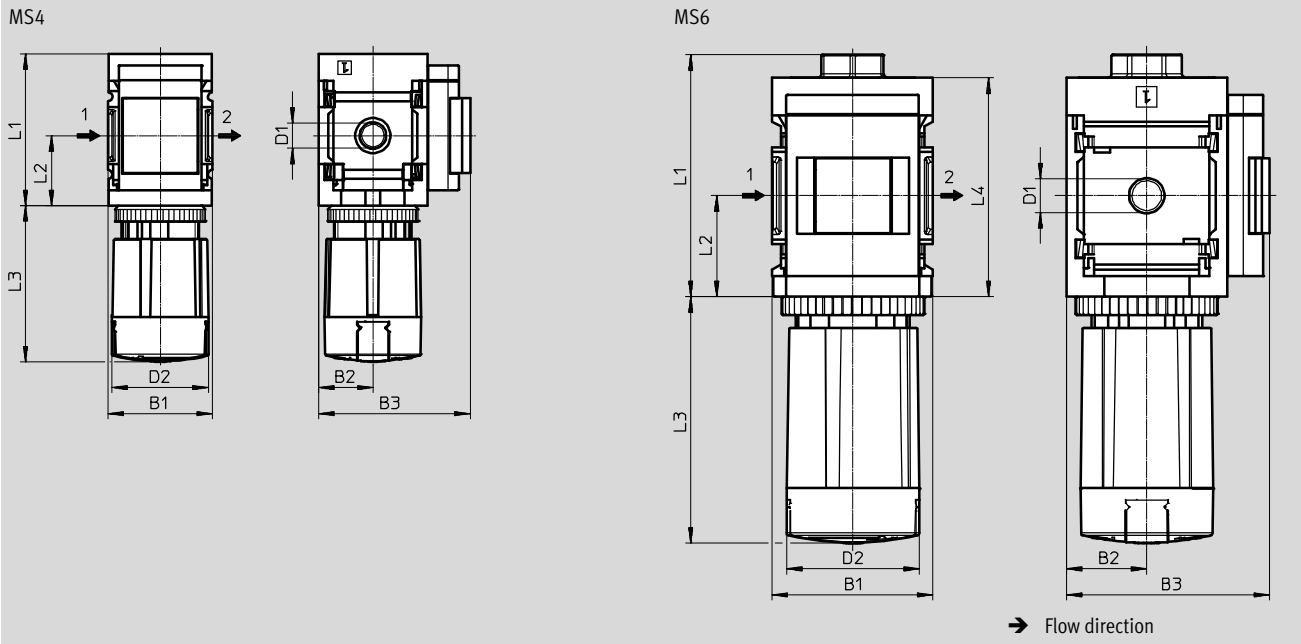
FESTO

Technical data

## Dimensions – Alternative mounting position

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

Rotary knob underneath KD



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

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

# Pressure regulators MS4/MS6-LR, MS series

Technical data

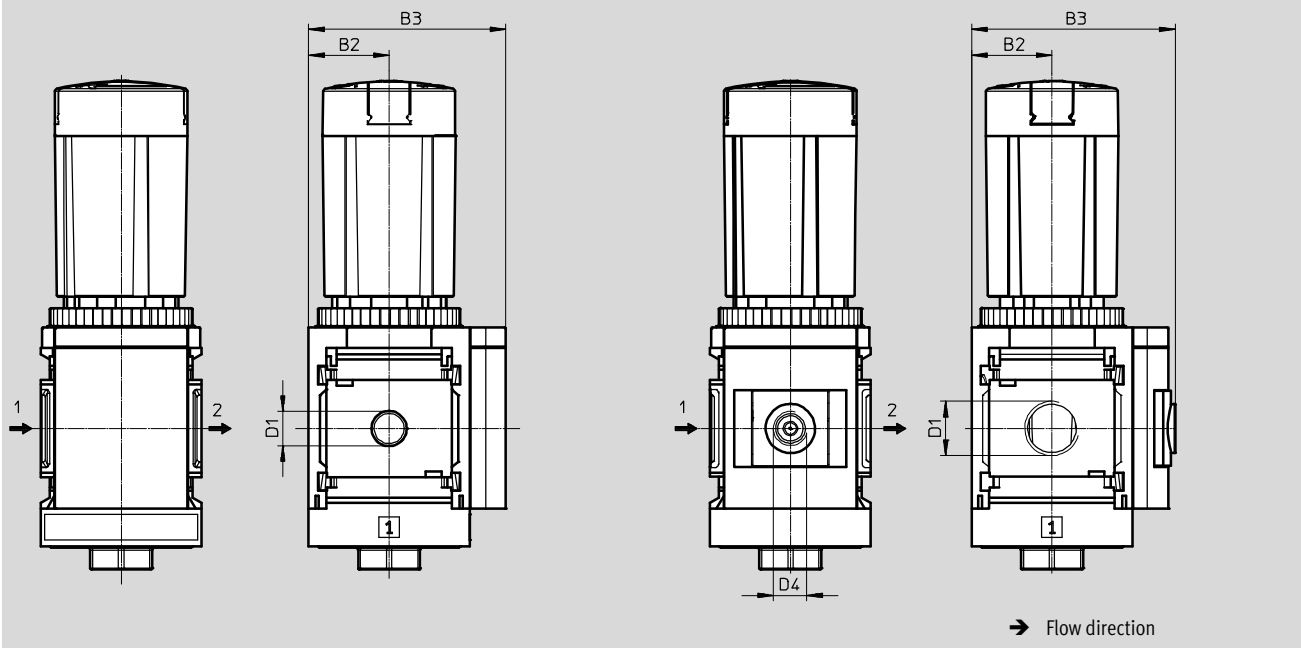
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## Dimensions – Pressure gauge alternatives

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

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



# Pressure regulators MS4/MS6-LR, MS series

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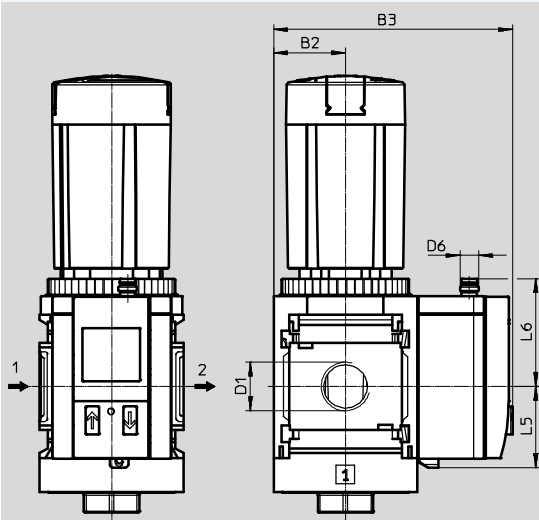
Technical data

## 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

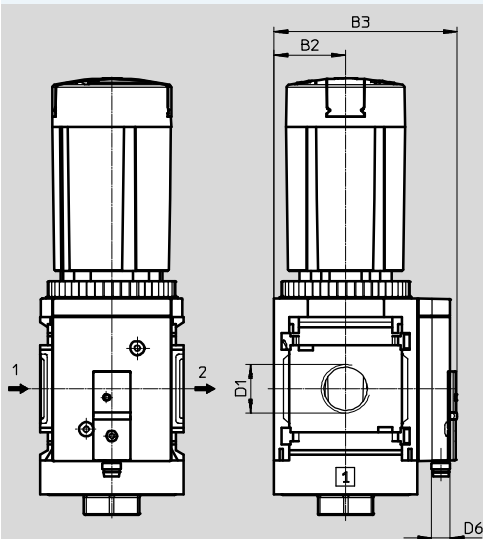
Variant AD3:  
SDE1-D10-G2-MS-L-PI-M12 with  
4-pin plug M12x1, 1 switching  
output PNP and 4 ... 20 mA  
analogue

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 con-  
tact

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-LR-1/8-...-AD1/AD2          | 21 | 82.6 | G1/8 | M8x1  | 35.1 | 46.7 |
| MS4-LR-1/4-...-AD1/AD2          |    |      | G1/4 |       |      |      |
| MS4-LR-1/8-...-AD3/AD4          | 21 | 82.6 | G1/8 | M12x1 | 35.1 | 55.8 |
| MS4-LR-1/4-...-AD3/AD4          |    |      | G1/4 |       |      |      |
| MS4-LR-1/8-...-AD7/AD8/AD9/AD10 | 21 | 59.1 | G1/8 | M8x1  | -    | -    |
| MS4-LR-1/4-...-AD7/AD8/AD9/AD10 |    |      | G1/4 |       |      |      |
| MS6-LR-1/4-...-AD1/AD2          | 31 | 103  | G1/4 | M8x1  | 35.1 | 46.7 |
| MS6-LR-3/8-...-AD1/AD2          |    |      | G3/8 |       |      |      |
| MS6-LR-1/2-...-AD1/AD2          |    |      | G1/2 |       |      |      |
| MS6-LR-1/4-...-AD3/AD4          | 31 | 103  | G1/4 | M12x1 | 35.1 | 55.8 |
| MS6-LR-3/8-...-AD3/AD4          |    |      | G3/8 |       |      |      |
| MS6-LR-1/2-...-AD3/AD4          |    |      | G1/2 |       |      |      |
| MS6-LR-1/4-...-AD7/AD8/AD9/AD10 | 31 | 79   | G1/4 | M8x1  | -    | -    |
| MS6-LR-3/8-...-AD7/AD8/AD9/AD10 |    |      | G3/8 |       |      |      |
| MS6-LR-1/2-...-AD7/AD8/AD9/AD10 |    |      | G1/2 |       |      |      |

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

2018/03 – Subject to change

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

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# Pressure regulators MS4/MS6-LR, MS series

Technical data

**FESTO**

## Dimensions – Rotary knob

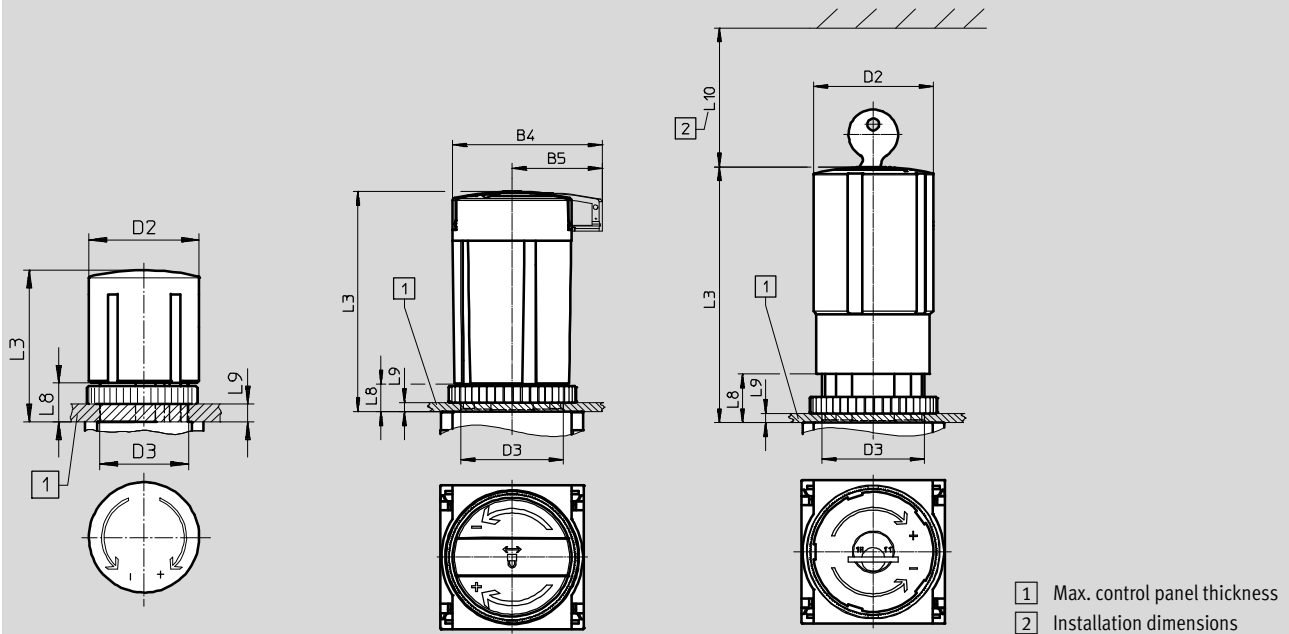
Download CAD data → [www.festo.com](http://www.festo.com)

For installation into control panel

Rotary knob with detent

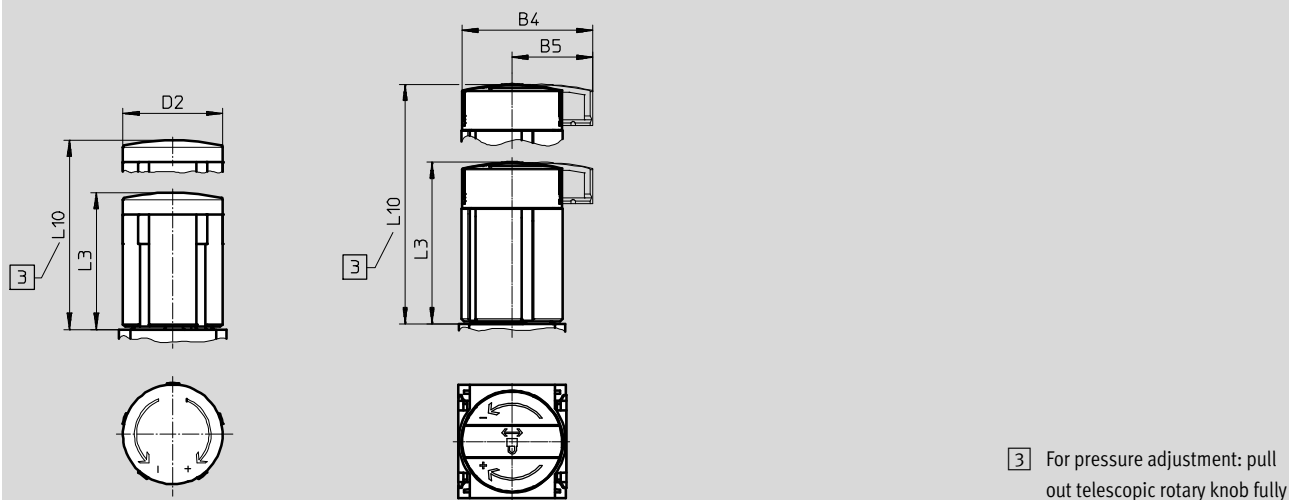
Rotary knob with detent, lockable  
via accessories AS

Rotary knob with integrated lock  
E11



Long rotary knob with detent LD

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



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

# Pressure regulators MS4/MS6-LR, MS series

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Technical data

## Dimensions – Rotary knob with pressure gauge

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

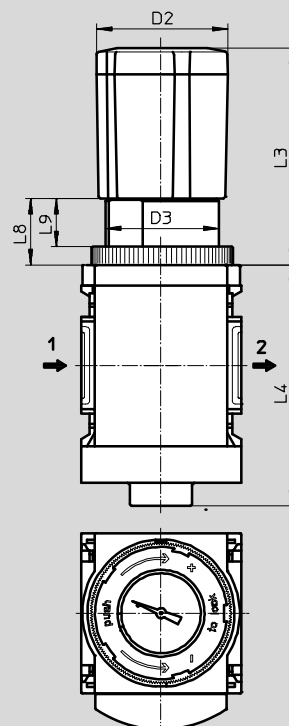
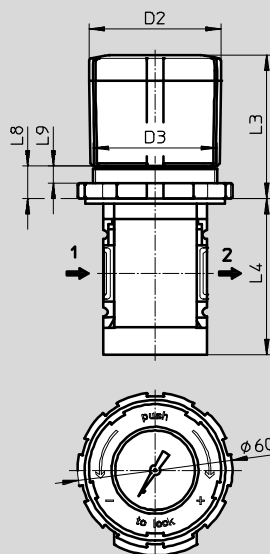
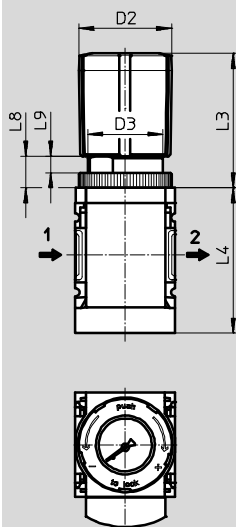
Small DM1

Large DM2

MS4

MS4

MS6



→ Flow direction

Note

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

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

## ★ Core product range

| Ordering data                                                                                                           |            |                                            |                |                                            |                |                                             |                |
|-------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------|----------------|--------------------------------------------|----------------|---------------------------------------------|----------------|
| Size                                                                                                                    | Connection | Pressure regulation range<br>0.3 ... 4 bar |                | Pressure regulation range<br>0.3 ... 7 bar |                | Pressure regulation range<br>0.5 ... 12 bar |                |
|                                                                                                                         |            | Part No.                                   | Type           | Part No.                                   | Type           | Part No.                                    | Type           |
| Integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories |            |                                            |                |                                            |                |                                             |                |
| MS4                                                                                                                     | G¼         | ★ 529415                                   | MS4-LR-¼-D5-AS | ★ 529417                                   | MS4-LR-¼-D6-AS | ★ 529419                                    | MS4-LR-¼-D7-AS |
| MS6                                                                                                                     | G½         | ★ 529989                                   | MS6-LR-½-D5-AS | ★ 529991                                   | MS6-LR-½-D6-AS | ★ 529993                                    | MS6-LR-½-D7-AS |

| Ordering data                                                                                                           |            |                                            |                  |  |                                            |                  |  |                                             |                  |
|-------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------|------------------|--|--------------------------------------------|------------------|--|---------------------------------------------|------------------|
| Size                                                                                                                    | Connection | Pressure regulation range<br>0.3 ... 4 bar |                  |  | Pressure regulation range<br>0.3 ... 7 bar |                  |  | Pressure regulation range<br>0.5 ... 12 bar |                  |
|                                                                                                                         |            | Part No.                                   | Type             |  | Part No.                                   | Type             |  | Part No.                                    | Type             |
| Integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories |            |                                            |                  |  |                                            |                  |  |                                             |                  |
| MS4                                                                                                                     | G1/8       | 529421                                     | MS4-LR-1/8-D5-AS |  | 529423                                     | MS4-LR-1/8-D6-AS |  | 529425                                      | MS4-LR-1/8-D7-AS |
| MS6                                                                                                                     | G1/4       | 529995                                     | MS6-LR-1/4-D5-AS |  | 529997                                     | MS6-LR-1/4-D6-AS |  | 529999                                      | MS6-LR-1/4-D7-AS |
|                                                                                                                         | G3/8       | 530001                                     | MS6-LR-3/8-D5-AS |  | 530003                                     | MS6-LR-3/8-D6-AS |  | 530005                                      | MS6-LR-3/8-D7-AS |

Festo core product range

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

# Pressure regulators MS4/MS6-LR, MS series

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Ordering data – Modular products

| Ordering table                          |                                                                                                             |                                    |               |                 |                   |               |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|-----------------|-------------------|---------------|
| Grid dimension                          | [mm]                                                                                                        | 40                                 | 62            | Condi-<br>tions | Code              | Enter<br>code |
| <b>M</b> Module No.                     |                                                                                                             | <b>527690</b>                      | <b>527663</b> |                 |                   |               |
| Series                                  |                                                                                                             | Standard                           |               |                 | <b>MS</b>         | MS            |
| Size                                    | 4                                                                                                           | 6                                  |               |                 | ...               |               |
| Function                                |                                                                                                             | Pressure regulator                 |               |                 | <b>-LR</b>        | -LR           |
| 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/<br>operation | 0.3 ... 4 bar, manually operated                                                                            |                                    |               |                 | ★ -D5             |               |
|                                         | 0.3 ... 7 bar, manually operated                                                                            |                                    |               |                 | ★ -D6             |               |
|                                         | 0.5 ... 12 bar, manually operated                                                                           |                                    |               |                 | ★ -D7             |               |
|                                         | –                                                                                                           | 0.5 ... 16 bar, manually operated  |               | 1 4             | -D8               |               |
| <b>O</b> Pressure gauge alternatives    | Cover plate                                                                                                 |                                    |               |                 | ★ -VS             |               |
|                                         | Adapter plate for EN pressure gauge $\frac{1}{8}$ ,<br>without pressure gauge                               | –                                  |               |                 | -A8               |               |
|                                         | Adapter plate for EN pressure gauge $\frac{1}{4}$ , without pressure gauge                                  |                                    |               |                 | -A4               |               |
|                                         | Integrated pressure gauge, red-green scale                                                                  |                                    |               | 2 3 4           | -RG               |               |
|                                         | Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin                                    |                                    |               | 1 2 5           | -AD1              |               |
|                                         | Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin                                    |                                    |               | 1 2 5           | -AD2              |               |
|                                         | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin,<br>analogue output 4 ... 20 mA   |                                    |               | 1 2 5           | -AD3              |               |
|                                         | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin,<br>analogue output 4 ... 20 mA   |                                    |               | 1 2 5           | -AD4              |               |
|                                         | Pressure sensor with operational status indicator, plug M8, threshold value<br>comparator, PNP, N/O contact |                                    |               | 1 2 5           | -AD7              |               |
|                                         | Pressure sensor with operational status indicator, plug M8, threshold value<br>comparator, PNP, N/C contact |                                    |               | 1 2 5           | -AD8              |               |
|                                         | Pressure sensor with operational status indicator, plug M8, window comparator,<br>PNP, N/O contact          |                                    |               | 1 2 5           | -AD9              |               |
|                                         | Pressure sensor with operational status indicator, plug M8, window comparator,<br>PNP, N/C contact          |                                    |               | 1 2 5           | -AD10             |               |

- 1  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ , AQK, AQN, AQP, AQR, AQS, D8, AD1 ... AD4, AD7 ... AD10, DM1, DM2, 2 RG, AD1 ... AD4, AD7 ... AD10, OS, KD, AS, WR, WB  
 KD, E11, WPM  
 Not with EU certification EX4  
 3 RG, OS, KD, AS  
 Not with rotary knob alternative DM1  
 4 D8, RG, OS, KD, AS  
 MS6: Not with rotary knob alternative DM2

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

## Transfer order code

**MS**  – **LR**  –  –

Festo core product range

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

# Pressure regulators MS4/MS6-LR, MS series

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Ordering data – Modular products

| Ordering table |                                  |                                                                                                   |    |                         |      |               |
|----------------|----------------------------------|---------------------------------------------------------------------------------------------------|----|-------------------------|------|---------------|
| Grid dimension | [mm]                             | 40                                                                                                | 62 | Condi-<br>tions         | Code | Enter<br>code |
| [O]            | Alternative pressure gauge scale | psi                                                                                               |    | [6]                     | -PSI |               |
|                |                                  | MPa                                                                                               |    | [7]                     | -MPA |               |
|                | Secondary venting                | Without secondary venting                                                                         |    | [2] [3] [4]             | -OS  |               |
|                | Rotary knob alternative          | Long rotary knob                                                                                  |    | [8]                     | -LD  |               |
|                |                                  | Rotary knob pressure gauge, small                                                                 | –  | [1] [8] [9]             | -DM1 |               |
|                |                                  | Rotary knob pressure gauge, large                                                                 |    | [1] [8] [9]             | -DM2 |               |
|                | Alternative mounting position    | Rotary knob underneath                                                                            |    | [1] [2] [3]<br>[4] [10] | -KD  |               |
| [M]            | Security                         | Without                                                                                           |    |                         |      |               |
|                |                                  | Lockable via accessories                                                                          |    | [2] [3] [4]             | ★-AS |               |
|                |                                  | With integrated lock                                                                              |    | [1]                     | -E11 |               |
| [O]            | Type of mounting                 | Mounting bracket with knurled nut for regulator head                                              |    | [2] [11]                | ★-WR |               |
|                |                                  | Mounting bracket standard design                                                                  |    | [12]                    | -WP  |               |
|                |                                  | Mounting bracket for attaching the service units                                                  |    | [1] [12]                | -WPM |               |
|                |                                  | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required |    | [2]                     | ★-WB |               |
|                |                                  | Mounting bracket centrally at rear (wall mounting top), connecting plates 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   |               |

## [5] AD1 ... AD4, AD7 ... AD10

Measuring range max. 10 bar

Not with pressure regulation range D8

[6] **PSI** Not with pressure gauge alternatives VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10

[7] **MPA** Not with pressure gauge alternatives VS, A8, A4, AD1 ... AD4, AD7 ... AD10

Not with rotary knob alternative DM1, DM2

## [8] LD, DM1, DM2

Not with integrated lock E11

## [9] DM1, DM2

Can only be combined with one pressure gauge alternative VS, A8, A4, AD1 ... AD4, AD7 ... AD10

## [10] KD

Not with pressure gauge alternative RG

Not with alternative pressure gauge scale MPA

Not with mounting type WP

## [11] WR

Not with long rotary knob LD

## [12] WP, WPM

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

[M] Mandatory data

[O] Options

## Transfer order code

– [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Festo core product range

★ Ready for dispatch from the Festo factory in 24 hours

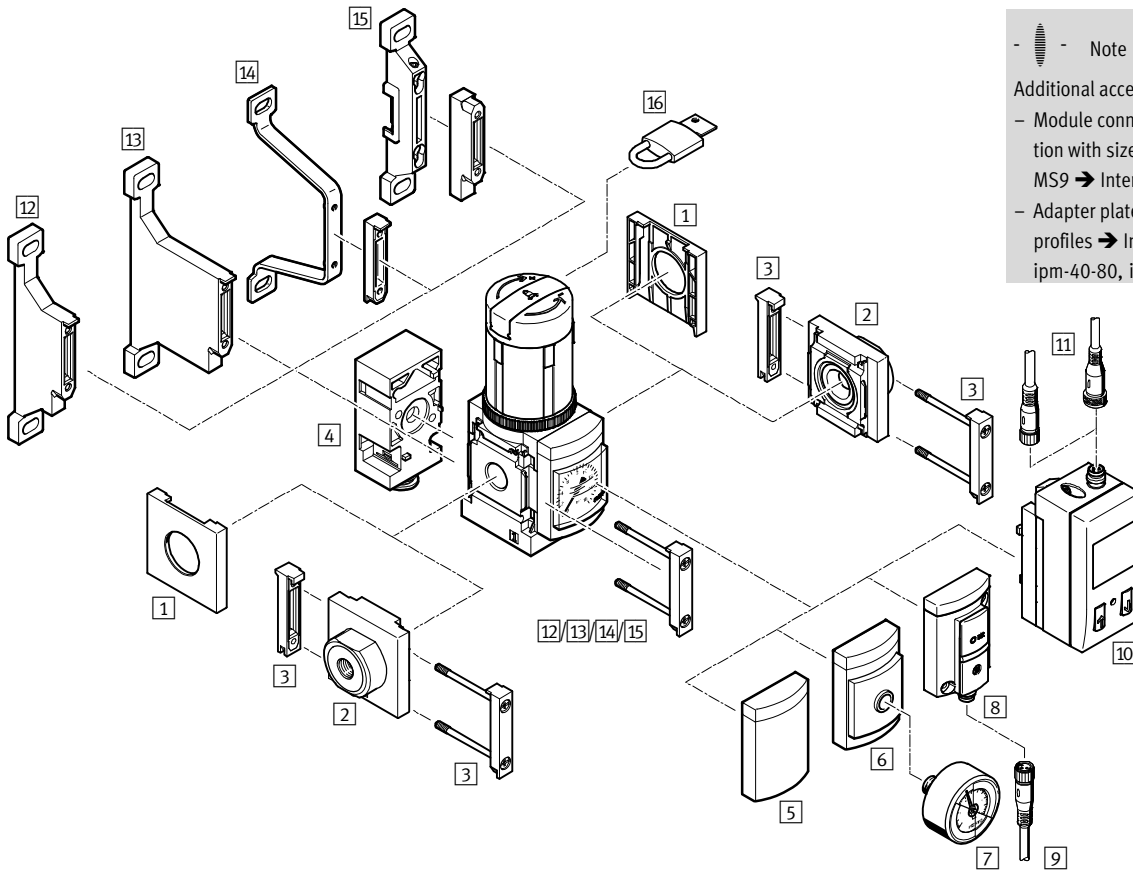
☆ Ready for dispatch in 5 days maximum from stock

## Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

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



Note

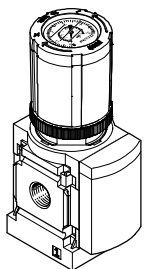
Additional accessories:

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

### Pressure regulator with rotary knob pressure gauge

MS4-LRB-...-DM1/

MS6-LRB-...-DM2



## Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

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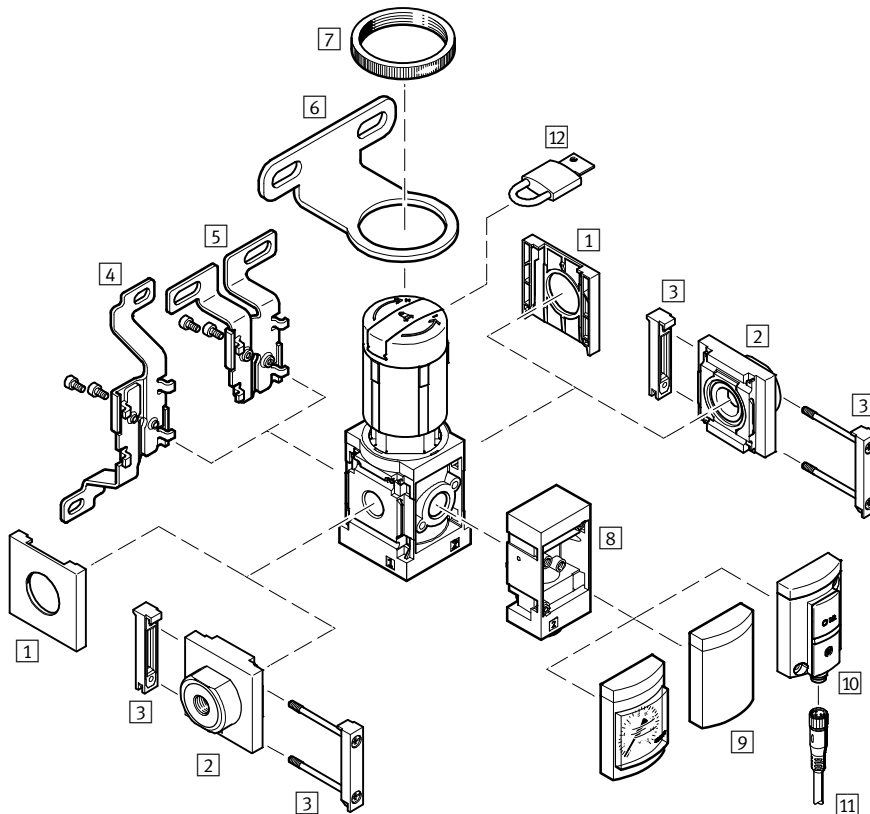
| Mounting attachments and accessories |                                                      |                          |                       |                          |                       |                     |
|--------------------------------------|------------------------------------------------------|--------------------------|-----------------------|--------------------------|-----------------------|---------------------|
|                                      |                                                      | Individual device        |                       | Combination              |                       | ➔ Page/Internet     |
|                                      |                                                      | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                     |
| 1                                    | Cover cap<br>MS4/6-END                               | ■                        | –                     | ■                        | –                     | ms4-end,<br>ms6-end |
| 2                                    | Connecting plate-SET<br>MS4/6-AG...                  | –                        | ■                     | –                        | ■                     | ms4-ag,<br>ms6-ag   |
| 3                                    | Module connector<br>MS4/6-MV                         | –                        | ■                     | ■                        | ■                     | ms4-mv,<br>ms6-mv   |
| 4                                    | Angled outlet block<br>B...                          | ■                        | ■                     | ■                        | ■                     | 36                  |
| 5                                    | Cover plate<br>VS                                    | ■                        | ■                     | ■                        | ■                     | 36                  |
| 6                                    | Adapter plate for EN pressure gauge 1/8/1/4<br>A8/A4 | ■                        | ■                     | ■                        | ■                     | 36                  |
| 7                                    | Pressure gauge<br>MA                                 | ■                        | ■                     | ■                        | ■                     | 100                 |
| 8                                    | Pressure sensor without display<br>AD7 ... AD10      | ■                        | ■                     | ■                        | ■                     | 36                  |
| 9                                    | Connecting cable<br>NEBU-M8...-LE3                   | ■                        | ■                     | ■                        | ■                     | 100                 |
| 10                                   | Pressure sensor with display<br>AD1 ... AD4          | ■                        | ■                     | ■                        | ■                     | 36                  |
| 11                                   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4   | ■                        | ■                     | ■                        | ■                     | 100                 |
| 12                                   | Mounting bracket<br>MS4/6-WP                         | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |
| 13                                   | Mounting bracket<br>MS4/6-WPB                        | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |
| 14                                   | Mounting bracket<br>MS4/6-WPE                        | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |
| 15                                   | Mounting bracket<br>MS4/6-WPM                        | –                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp   |
| 16                                   | Padlock<br>LRVS-D                                    | ■                        | ■                     | ■                        | ■                     | 100                 |

# Pressure regulators MS4/MS6-LRB, MS series

Peripherals overview

**FESTO**

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



 Note

Additional accessories:

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

| Mounting attachments and accessories |                                                      |                          |                       |                          |                       |                     |
|--------------------------------------|------------------------------------------------------|--------------------------|-----------------------|--------------------------|-----------------------|---------------------|
|                                      |                                                      | Individual device        |                       | Combination              |                       | ➔ Page/Internet     |
|                                      |                                                      | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                     |
| 1                                    | Cover cap<br>MS4/6-END                               | ■                        | –                     | ■                        | –                     | ms4-end,<br>ms6-end |
| 2                                    | Connecting plate-SET<br>MS4/6-AG...                  | –                        | ■                     | –                        | ■                     | ms4-ag,<br>ms6-ag   |
| 3                                    | Module connector<br>MS4/6-MV                         | –                        | ■                     | ■                        | ■                     | ms4-mv,<br>ms6-mv   |
| 4                                    | Mounting bracket<br>MS4/6-WB                         | ■                        | ■                     | –                        | –                     | ms4-wb,<br>ms6-wb   |
| 5                                    | Mounting bracket<br>MS4-WBM                          | ■                        | ■                     | –                        | –                     | ms4-wbm             |
| 6                                    | Mounting bracket<br>MS4/6-WR                         | ■                        | ■                     | –                        | –                     | ms4-wr,<br>ms6-wr   |
| 7                                    | Knurled nut (included in scope of delivery)<br>MS-LR | ■                        | ■                     | –                        | –                     | –                   |
| 8                                    | Angled outlet block<br>B...                          | ■                        | ■                     | ■                        | ■                     | 36                  |
| 9                                    | Cover plate<br>VS                                    | ■                        | ■                     | ■                        | ■                     | 36                  |
| 10                                   | Pressure sensor without display<br>AD7 ... AD10      | ■                        | ■                     | ■                        | ■                     | 36                  |
| 11                                   | Connecting cable<br>NEBU-M8...-LE3                   | ■                        | ■                     | ■                        | ■                     | 100                 |
| 12                                   | Padlock<br>LRVS-D                                    | ■                        | ■                     | ■                        | ■                     | 100                 |



## Pressure regulators MS4/MS6-LRB, MS series

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Type codes

|                                            |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
|--------------------------------------------|-----------------------------------------------------------------|----|---|---|-----|---|-----|---|----|---|--|---|----|---|----|
|                                            |                                                                 | MS | 6 | - | LRB | - | 1/2 | - | D7 | - |  | - | AS | - | BD |
| <b>Series</b>                              |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| MS                                         | Standard service unit                                           |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| <b>Size</b>                                |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| 4                                          | Grid dimension 40 mm                                            |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| 6                                          | Grid dimension 62 mm                                            |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| <b>Service function</b>                    |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| LRB                                        | Pressure regulator for manifold assembly                        |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| <b>Pneumatic connection</b>                |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| MS4                                        |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| 1/4                                        | Female thread G1/4                                              |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| MS6                                        |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| 1/2                                        | Female thread G1/2                                              |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| <b>Pressure regulation range/operation</b> |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| D5                                         | 0.3 ... 4 bar, manually operated                                |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| D6                                         | 0.3 ... 7 bar, manually operated                                |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| D7                                         | 0.5 ... 12 bar, manually operated                               |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| <b>Pressure gauge alternatives</b>         |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
|                                            | Integrated pressure gauge                                       |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| A8                                         | Adapter plate for EN pressure gauge 1/8, without pressure gauge |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| A4                                         | Adapter plate for EN pressure gauge 1/4, without pressure gauge |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| <b>Security</b>                            |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| AS                                         | Rotary knob with detent, lockable via accessories               |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| <b>Pressure output</b>                     |                                                                 |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
|                                            | Without angled outlet block                                     |    |   |   |     |   |     |   |    |   |  |   |    |   |    |
| BD                                         | Angled outlet block QS-8                                        |    |   |   |     |   |     |   |    |   |  |   |    |   |    |

Additional variants can be ordered using the modular system → 36

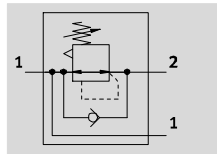
- Pneumatic connection
- Pressure regulation range/operation
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Rotary knob alternative
- Alternative mounting position
- Security
- Pressure output
- Type of mounting
- EU certification
- UL certification
- Flow direction

# Pressure regulators MS4/MS6-LRB, MS series

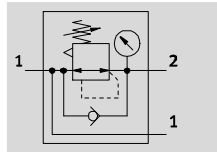
FESTO

Technical data

Without pressure gauge



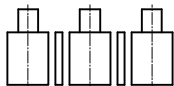
With pressure gauge



-  Flow rate  
300 ... 7,300 l/min
-  Temperature range  
-10 ... +60 °C
-  Operating pressure  
0.8 ... 20 bar
-  [www.festo.com](http://www.festo.com)



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



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

| General technical data              |                                                                                                                       |                                                                                                              |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Size                                | MS4                                                                                                                   | MS6                                                                                                          |
| Pneumatic connection 1              |                                                                                                                       |                                                                                                              |
| Female thread                       | G1/4                                                                                                                  | G1/2                                                                                                         |
| Connecting plate AG...              | G1/8, G1/4 or G3/8                                                                                                    | G1/4, G3/8, G1/2 or G3/4                                                                                     |
| Pneumatic connection 2              | G1/4                                                                                                                  | G1/2                                                                                                         |
|                                     | QS-6                                                                                                                  | QS-8                                                                                                         |
|                                     | QS-8                                                                                                                  | QS-10                                                                                                        |
| Constructional design               | Directly-actuated diaphragm regulator with through compressed air supply                                              |                                                                                                              |
| Regulating function                 | Output pressure constant, with primary pressure compensation, with return flow action, with/without secondary venting |                                                                                                              |
| Type of mounting                    | Via accessories                                                                                                       |                                                                                                              |
|                                     | In-line installation                                                                                                  |                                                                                                              |
|                                     | Front panel mounting                                                                                                  |                                                                                                              |
| Mounting position                   | Any                                                                                                                   |                                                                                                              |
| Regulator lock                      | Rotary knob with detent                                                                                               |                                                                                                              |
|                                     | Rotary knob with detent, lockable via accessories                                                                     |                                                                                                              |
|                                     | Rotary knob with integrated lock                                                                                      |                                                                                                              |
| Pressure regulation range/operation | D5 [bar]                                                                                                              | 0.3 ... 4, manually operated <sup>1)</sup>                                                                   |
|                                     | D6 [bar]                                                                                                              | 0.3 ... 7, manually operated <sup>1)</sup>                                                                   |
|                                     | D7 [bar]                                                                                                              | 0.5 ... 12, manually operated (0.5 ... 10 with pressure sensor AD... or with UL certification) <sup>1)</sup> |
|                                     | D8 [bar]                                                                                                              | –                                                                                                            |
|                                     |                                                                                                                       | 0.5 ... 16, manually operated (0.5 ... 10 with UL certification)                                             |
| Max. hysteresis [bar]               | 0.25                                                                                                                  | 0.25 (0.4 with rotary knob pressure gauge DM2)                                                               |
| 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                                                |                                                                                                              |
|                                     | Via pressure gauge in rotary knob for displaying output pressure                                                      |                                                                                                              |
|                                     | G1/8 prepared                                                                                                         | –                                                                                                            |
|                                     | G1/4 prepared                                                                                                         | –                                                                                                            |

1) MS4: For pressure regulators with rotary knob pressure gauge DM1, the pressure regulation range begins at 0.8 bar.

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

# Pressure regulators MS4/MS6-LRB, MS series

**FESTO**

Technical data

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |    |                     |                     |                   |                     |                     |                   |
|--------------------------------------------------|----|---------------------|---------------------|-------------------|---------------------|---------------------|-------------------|
| Size                                             |    | MS4                 |                     |                   | MS6                 |                     |                   |
|                                                  |    | Standard            | Angled outlet block |                   | Standard            | Angled outlet block |                   |
|                                                  |    |                     | QS-6                | QS-8              |                     | QS-8                | QS-10             |
| Pressure regulation range                        | D5 | 1,900 <sup>2)</sup> | 300 <sup>2)</sup>   | 650 <sup>2)</sup> | 7,300 <sup>2)</sup> | 600 <sup>2)</sup>   | 750 <sup>2)</sup> |
|                                                  | D6 | 1,700               | 350                 | 840               | 6,300               | 880                 | 1,000             |
|                                                  | D7 | 1,500 <sup>3)</sup> | 350                 | 640               | 5,500               | 800                 | 950               |
|                                                  | D8 | –                   | –                   | –                 | 4,500               | 750                 | 850               |

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

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

3) In the case of the DM1/DM2 pressure regulator/gauge with rotary knob,  $q_{nN}$  is equal to 800 litres per minute and  $q_{n \max}$  amounts to 2,200 litres per minute.

| Operating and environmental conditions       |                                                                                                        |                                       |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------|
| Size                                         | MS4                                                                                                    | MS6                                   |
| Operating pressure [bar]                     | 0.8 ... 14 (0.8 ... 10) <sup>1)</sup>                                                                  | 0.8 ... 20 (0.8 ... 10) <sup>1)</sup> |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |                                       |
|                                              | Inert gases                                                                                            |                                       |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |                                       |
| Ambient temperature [°C]                     | –10 ... +60 (0 ... +50) <sup>2)</sup>                                                                  |                                       |
| Temperature of medium [°C]                   | –10 ... +60 (0 ... +50) <sup>2)</sup>                                                                  |                                       |
| Storage temperature [°C]                     | –10 ... +60                                                                                            |                                       |
| Corrosion resistance class CRC <sup>3)</sup> | 2                                                                                                      |                                       |
| UL certification                             | cULus recognized (OL)                                                                                  |                                       |

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

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

| 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                        |
| CE mark (see declaration of conformity) | To EU Explosion Protection Directive (ATEX) |

| Weight [g]                                                   |     |       |
|--------------------------------------------------------------|-----|-------|
| Size                                                         | MS4 | MS6   |
| Pressure regulator                                           | 222 | 747   |
| Pressure regulator with rotary knob with integrated lock E11 | 347 | 1,017 |

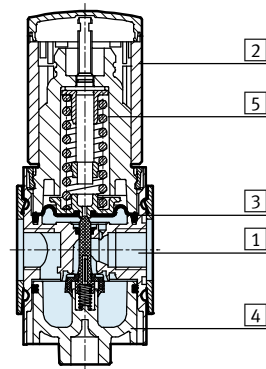
# Pressure regulators MS4/MS6-LRB, MS series



Technical data

## Materials

Sectional view



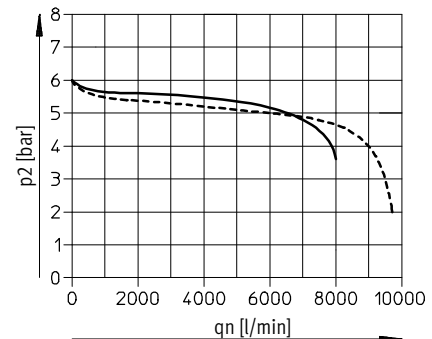
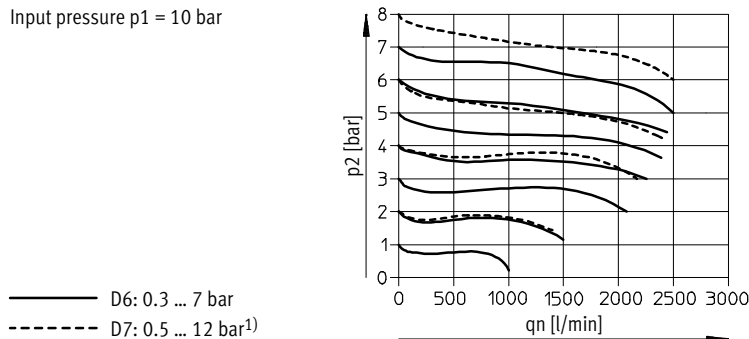
| Pressure regulator (manifold assembly) |                                      |                                                  |
|----------------------------------------|--------------------------------------|--------------------------------------------------|
| 1                                      | Housing                              | Die-cast aluminium                               |
| 2                                      | Rotary knob                          | PA/POM                                           |
|                                        | Rotary knob with integrated lock E11 | Aluminium                                        |
| 3                                      | Diaphragm                            | NBR                                              |
| 4                                      | Cap, bottom                          | PET                                              |
| 5                                      | Springs                              | Steel                                            |
| -                                      | Seals                                | NBR                                              |
| Note on materials                      |                                      | RoHS-compliant                                   |
|                                        |                                      | Free of copper and PTFE only with cover plate VS |

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

MS4-LRB-1/4

MS6-LRB-1/2

Input pressure  $p_1 = 10$  bar



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

# Pressure regulators MS4/MS6-LRB, MS series

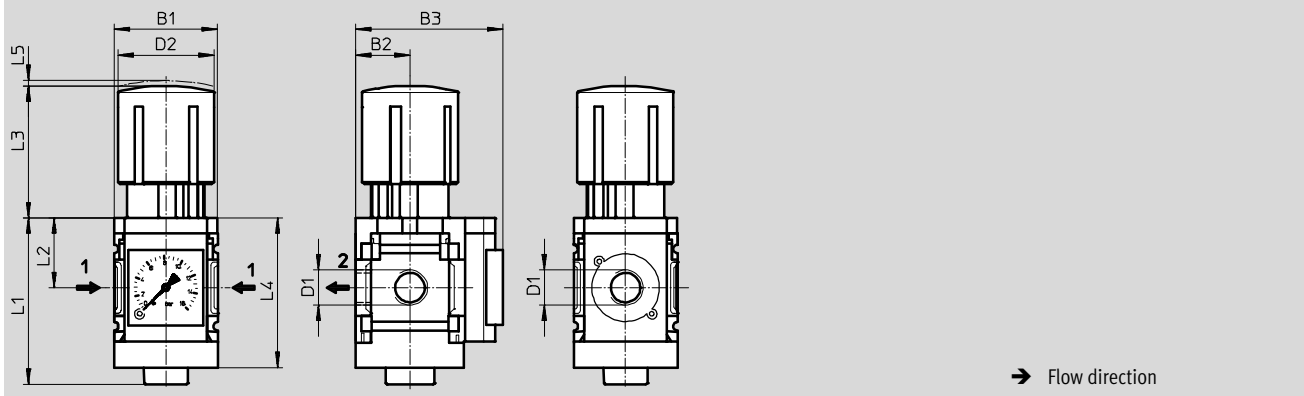
Technical data

**FESTO**

## Dimensions – Basic version

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

Integrated MS pressure gauge, rotary knob with detent



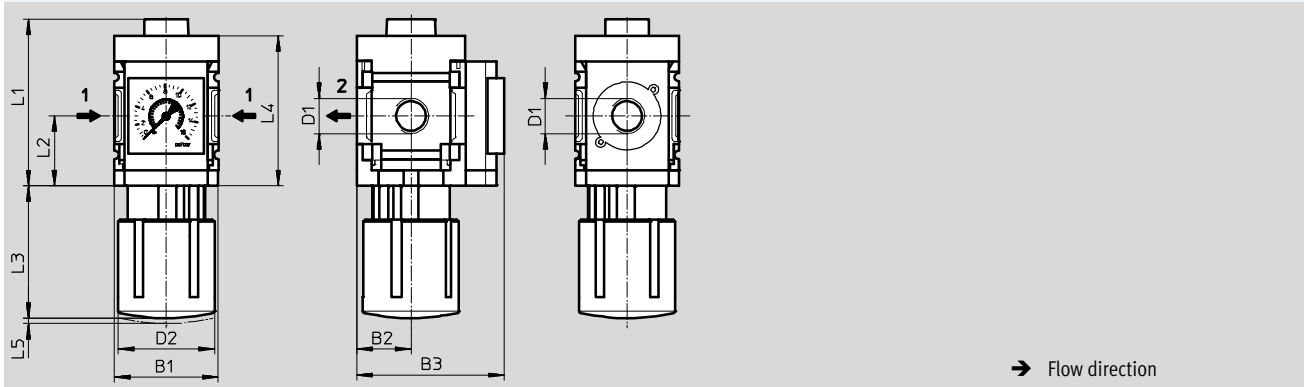
| Type        | B1 | B2 | B3             |                 | D1   | D2   | L1   | L2 | L3   | L4   | L5 |
|-------------|----|----|----------------|-----------------|------|------|------|----|------|------|----|
|             |    |    | Standard scale | Red-green scale |      |      |      |    |      |      |    |
| MS4-LRB-1/4 | 40 | 21 | 57             | 58.5            | G1/4 | 37.2 | 64.4 | 27 | 60.3 | 58.5 | 2  |
| MS6-LRB-1/2 | 62 | 31 | 77             | 78.5            | G1/2 | 51.3 | 94   | 39 | 95.1 | 85   | 5  |

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

## Dimensions – Alternative mounting position

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

Rotary knob underneath KD



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

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

# Pressure regulators MS4/MS6-LRB, MS series

Technical data

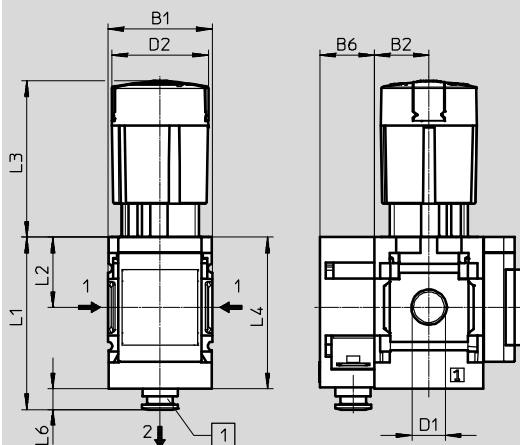
**FESTO**

## Dimensions – Angled outlet block BC/BD/BE

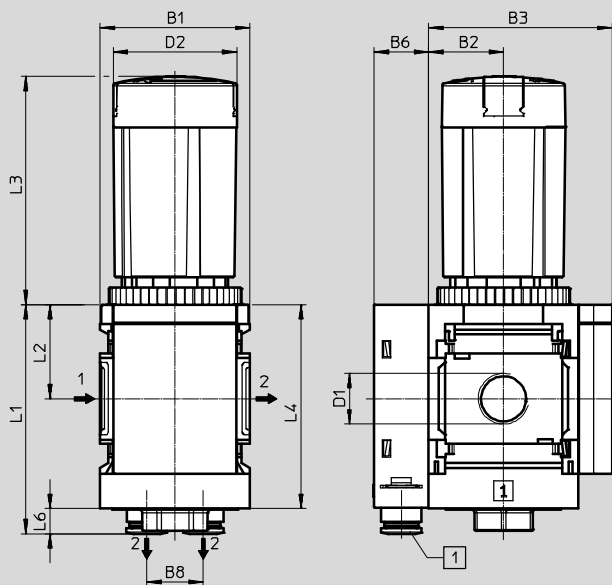
Download CAD data → [www.festo.com](http://www.festo.com)

Pressure output to rear

MS4



MS6



1 Push-in connector QS

→ Flow direction

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

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

# Pressure regulators MS4/MS6-LRB, MS series

FESTO

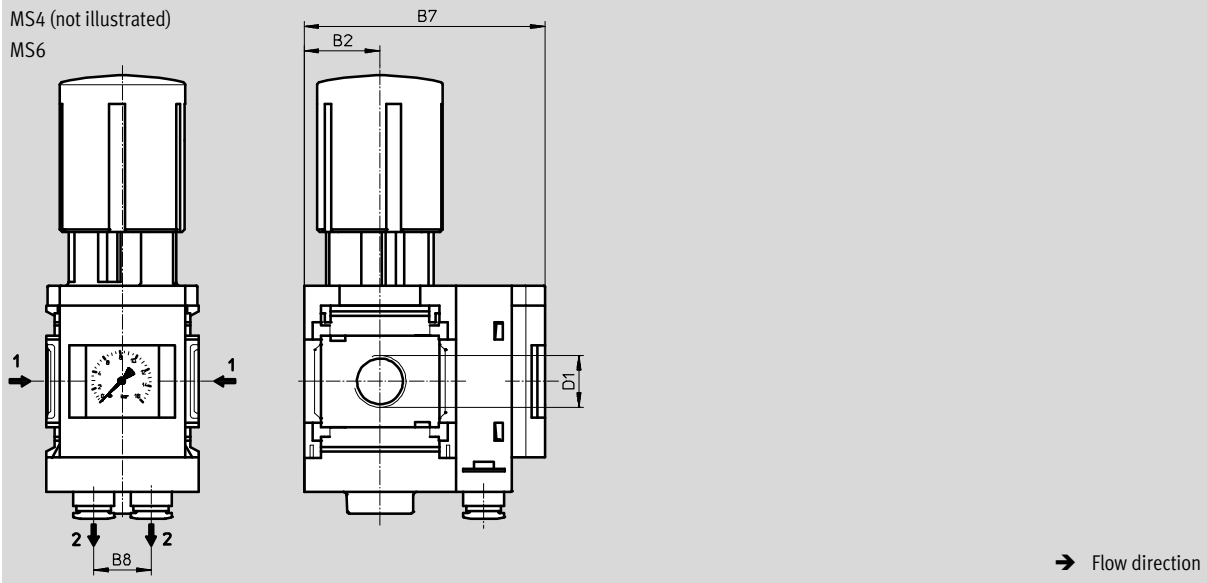
Technical data

## Dimensions – Angled outlet block BC/BD/BE

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

Pressure output to front Z

MS4 (not illustrated)  
MS6



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

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

# Pressure regulators MS4/MS6-LRB, MS series

Technical data

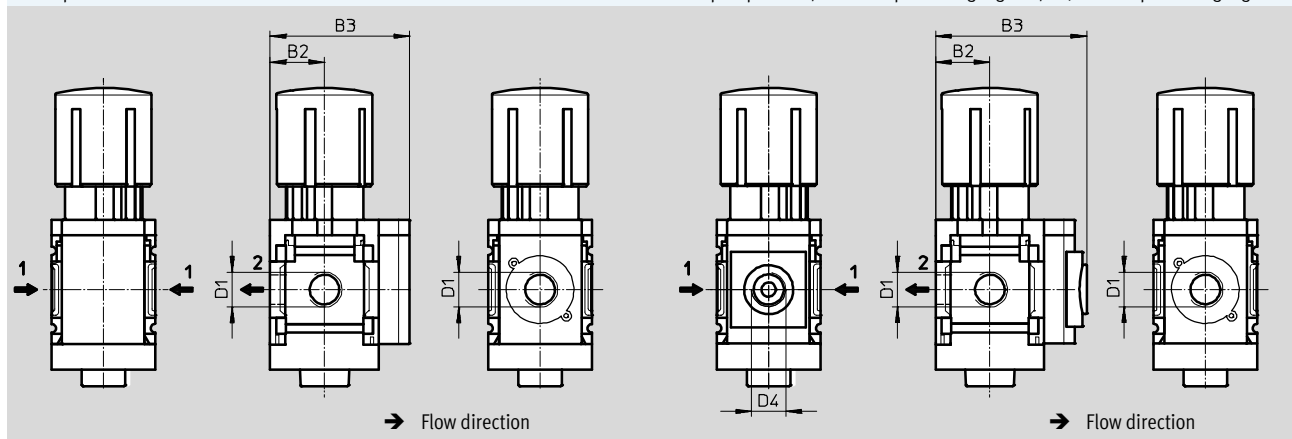
**FESTO**

## 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-LRB-1/4-...-VS | 21 | 54   | G1/4 | –    |
| MS4-LRB-1/4-...-A8 | 21 | 58.5 | G1/4 | G1/8 |
| MS4-LRB-1/4-...-A4 | 21 | 58.5 | G1/4 | G1/4 |
| MS6-LRB-1/2-...-VS | 31 | 76   | G1/2 | –    |
| MS6-LRB-1/2-...-A4 | 31 | 78.5 | G1/2 | G1/4 |

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



# Pressure regulators MS4/MS6-LRB, MS series

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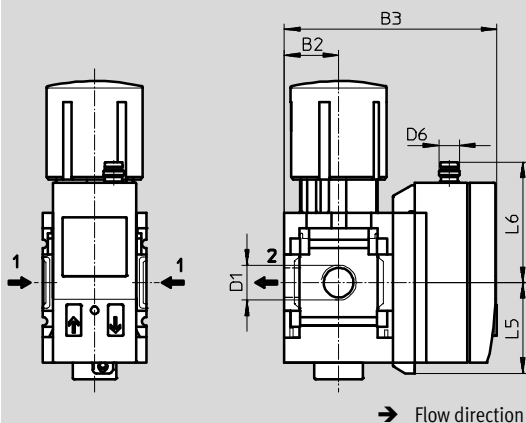
Technical data

## Dimensions – Pressure gauge alternatives

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

Pressure sensor with LCD display AD1 ... AD4

Technical data → Internet: [sde1](#)



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

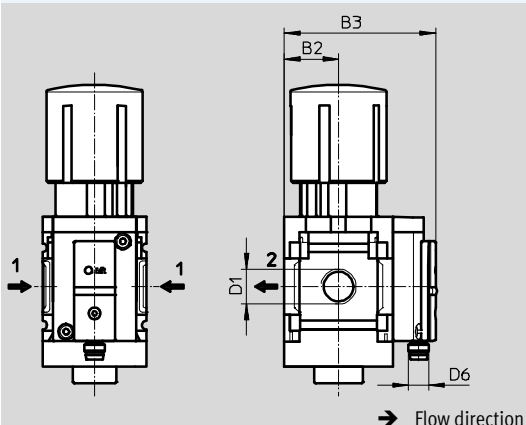
Variant AD2:  
SDE1-D10-G2-MS-L-N1-M8 with  
3-pin plug M8x1, 1 switching  
output NPN

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

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 con-  
tact

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

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

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

# Pressure regulators MS4/MS6-LRB, MS series

Technical data

**FESTO**

## Dimensions – Rotary knob

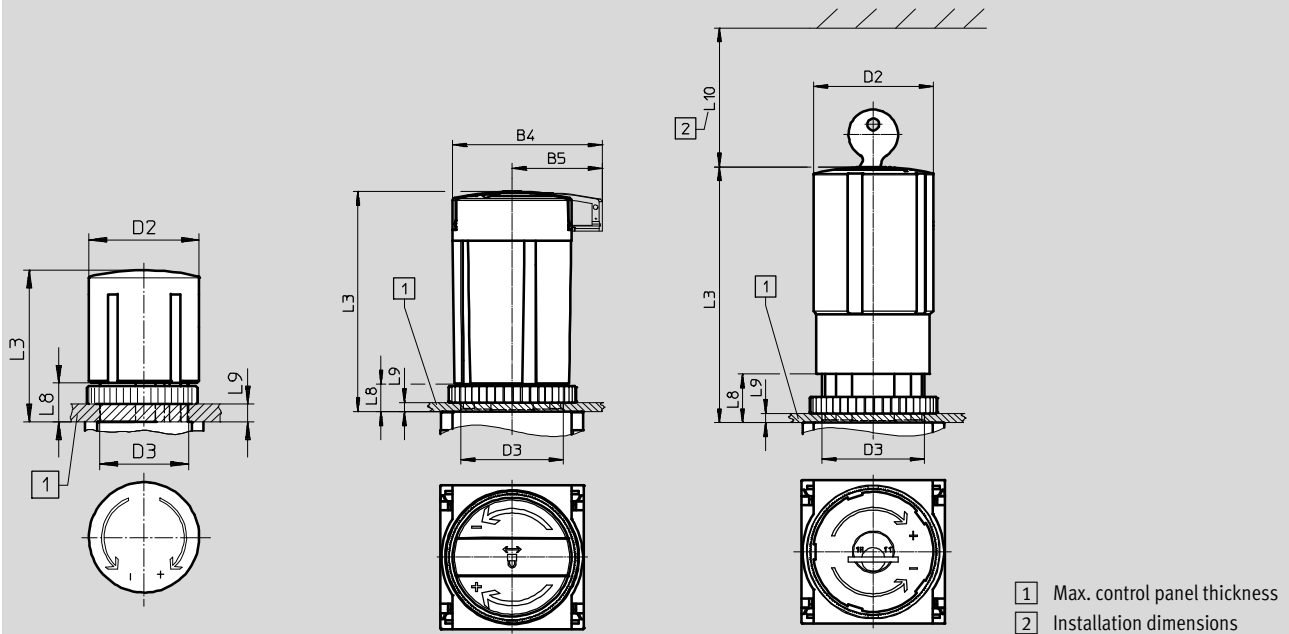
Download CAD data → [www.festo.com](http://www.festo.com)

For installation into control panel

Rotary knob with detent

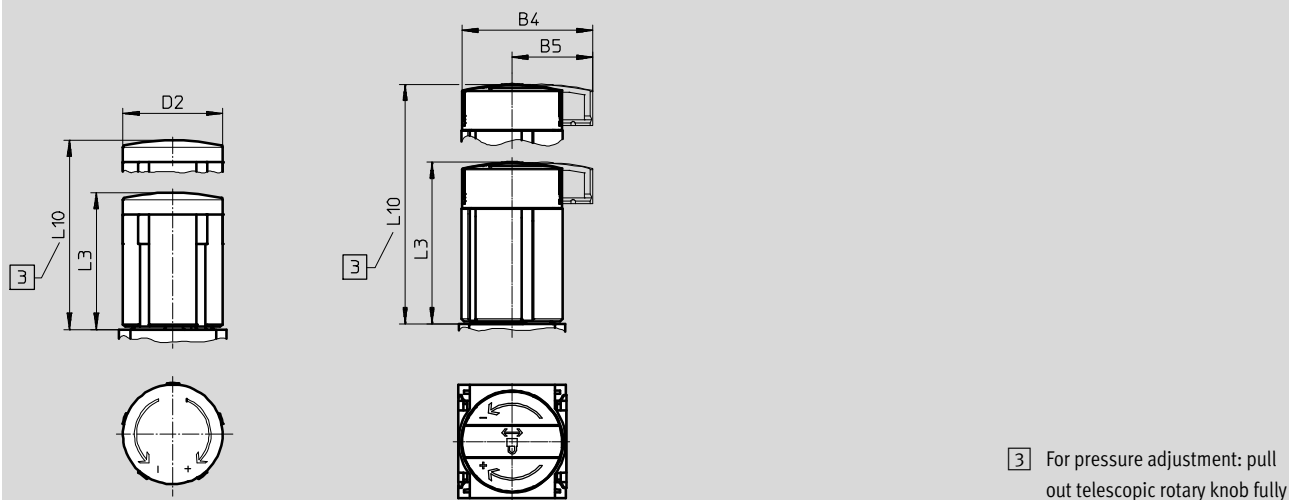
Rotary knob with detent, lockable  
via accessories AS

Rotary knob with integrated lock  
E11



Long rotary knob with detent LD

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



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

# Pressure regulators MS4/MS6-LRB, MS series

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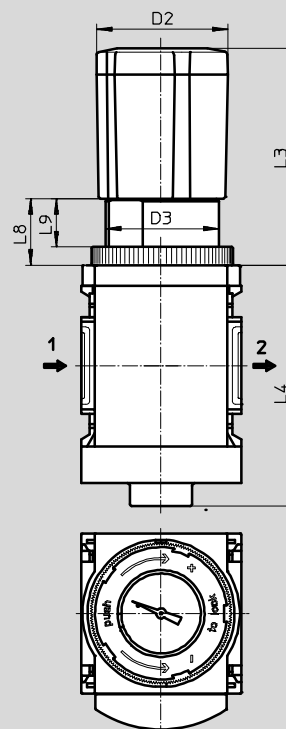
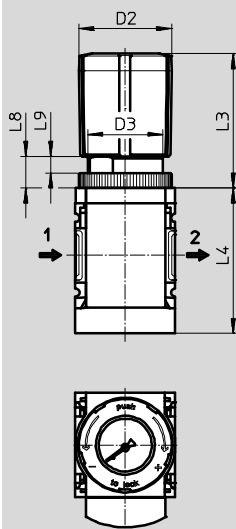
Technical data

## Dimensions – Rotary knob pressure gauge

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

Small DM1

Large DM2



→ Flow direction

| Type            | D2   | D3      | L3 | L4   | L8 | L9  |
|-----------------|------|---------|----|------|----|-----|
| MS4-LRB-...-DM1 | 37.2 | M30x1.5 | 56 | 58.5 | 13 | 6.7 |
| MS6-LRB-...-DM2 | 51   | M44x1   | 84 | 94   | 25 | 18  |

## Ordering data

Rotary knob with detent, lockable via accessories

| Size                                                                                                    | Connection | Pressure regulation range 0.3 ... 4 bar |                     | Pressure regulation range 0.3 ... 7 bar |                     | Pressure regulation range 0.5 ... 12 bar |                     |
|---------------------------------------------------------------------------------------------------------|------------|-----------------------------------------|---------------------|-----------------------------------------|---------------------|------------------------------------------|---------------------|
|                                                                                                         |            | Part No.                                | Type                | Part No.                                | Type                | Part No.                                 | Type                |
| Integrated MS pressure gauge, display unit [bar], pressure output to rear without angled outlet block   |            |                                         |                     |                                         |                     |                                          |                     |
| MS4                                                                                                     | G1¼        | 529473                                  | MS4-LRB-1¼-D5-AS    | 529479                                  | MS4-LRB-1¼-D6-AS    | 529485                                   | MS4-LRB-1¼-D7-AS    |
| MS6                                                                                                     | G½         | 530322                                  | MS6-LRB-½-D5-AS     | 530328                                  | MS6-LRB-½-D6-AS     | 530334                                   | MS6-LRB-½-D7-AS     |
| Integrated MS pressure gauge, display unit [bar], pressure output to rear with angled outlet block QS-8 |            |                                         |                     |                                         |                     |                                          |                     |
| MS4                                                                                                     | G1¼        | 529474                                  | MS4-LRB-1¼-D5-AS-BD | 529480                                  | MS4-LRB-1¼-D6-AS-BD | 529486                                   | MS4-LRB-1¼-D7-AS-BD |
| MS6                                                                                                     | G½         | –                                       | –                   | 530329                                  | MS6-LRB-½-D6-AS-BD  | 530335                                   | MS6-LRB-½-D7-AS-BD  |
| Adapter plate A8 for EN pressure gauge 1/8, pressure output to rear without angled outlet block         |            |                                         |                     |                                         |                     |                                          |                     |
| MS4                                                                                                     | G1¼        | 529471                                  | MS4-LRB-1¼-D5-A8-AS | 529477                                  | MS4-LRB-1¼-D6-A8-AS | 529483                                   | MS4-LRB-1¼-D7-A8-AS |
| Adapter plate A4 for EN pressure gauge 1/4, pressure output to rear without angled outlet block         |            |                                         |                     |                                         |                     |                                          |                     |
| MS6                                                                                                     | G½         | 530320                                  | MS6-LRB-½-D5-A4-AS  | 530326                                  | MS6-LRB-½-D6-A4-AS  | 530332                                   | MS6-LRB-½-D7-A4-AS  |

# Pressure regulators MS4/MS6-LRB, MS series

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Ordering data – Modular products

| Ordering table                          |                                                                                                             |                                          |               |                 |                                  |               |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------|-----------------|----------------------------------|---------------|
| Grid dimension                          | [mm]                                                                                                        | 40                                       | 62            | Condi-<br>tions | Code                             | Enter<br>code |
| <b>M</b> Module No.                     |                                                                                                             | <b>527692</b>                            | <b>527665</b> |                 |                                  |               |
| Series                                  |                                                                                                             | Standard                                 |               |                 | <b>MS</b>                        | MS            |
| Size                                    | 4                                                                                                           | 6                                        |               |                 | <b>...</b>                       |               |
| Function                                |                                                                                                             | Pressure regulator for manifold assembly |               |                 | <b>-LRB</b>                      | -LRB          |
| Pneumatic connection                    | Female thread G $\frac{1}{4}$                                                                               | –                                        |               | <b>1</b>        | <b>-<math>\frac{1}{4}</math></b> |               |
|                                         | –                                                                                                           | Female thread G $\frac{1}{2}$            |               | <b>1</b>        | <b>-<math>\frac{1}{2}</math></b> |               |
|                                         | Connecting plate G $\frac{1}{8}$                                                                            | –                                        |               |                 | <b>-AGA</b>                      |               |
|                                         | Connecting plate G $\frac{1}{4}$                                                                            | Connecting plate G $\frac{1}{4}$         |               |                 | <b>-AGB</b>                      |               |
|                                         | Connecting plate G $\frac{3}{8}$                                                                            | Connecting plate G $\frac{3}{8}$         |               |                 | <b>-AGC</b>                      |               |
|                                         | –                                                                                                           | Connecting plate G $\frac{1}{2}$         |               |                 | <b>-AGD</b>                      |               |
|                                         | –                                                                                                           | Connecting plate G $\frac{3}{4}$         |               |                 | <b>-AGE</b>                      |               |
| Pressure regulation range/<br>operation | 0.3 ... 4 bar, manually operated                                                                            |                                          |               |                 | <b>-D5</b>                       |               |
|                                         | 0.3 ... 7 bar, manually operated                                                                            |                                          |               |                 | <b>-D6</b>                       |               |
|                                         | 0.5 ... 12 bar, manually operated                                                                           |                                          |               |                 | <b>-D7</b>                       |               |
|                                         | –                                                                                                           | 0.5 ... 16 bar, manually operated        |               | <b>1 2</b>      | <b>-D8</b>                       |               |
| <b>O</b> Pressure gauge alternatives    | Cover plate                                                                                                 |                                          |               | <b>3</b>        | <b>-VS</b>                       |               |
|                                         | Adapter plate for EN pressure gauge $\frac{1}{8}$ ,<br>without pressure gauge                               | –                                        |               | <b>4</b>        | <b>-A8</b>                       |               |
|                                         | Adapter plate for EN pressure gauge $\frac{1}{4}$ , without pressure gauge                                  |                                          |               | <b>4</b>        | <b>-A4</b>                       |               |
|                                         | Integrated pressure gauge, red-green scale                                                                  |                                          |               | <b>2</b>        | <b>-RG</b>                       |               |
|                                         | Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin                                    |                                          |               | <b>1 4 5</b>    | <b>-AD1</b>                      |               |
|                                         | Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin                                    |                                          |               | <b>1 4 5</b>    | <b>-AD2</b>                      |               |
|                                         | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin,<br>analogue output 4 ... 20 mA   |                                          |               | <b>1 4 5</b>    | <b>-AD3</b>                      |               |
|                                         | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin,<br>analogue output 4 ... 20 mA   |                                          |               | <b>1 4 5</b>    | <b>-AD4</b>                      |               |
|                                         | Pressure sensor with operational status indicator, plug M8, threshold value<br>comparator, PNP, N/O contact |                                          |               | <b>1 5 6</b>    | <b>-AD7</b>                      |               |
|                                         | Pressure sensor with operational status indicator, plug M8, threshold value<br>comparator, PNP, N/C contact |                                          |               | <b>1 5 6</b>    | <b>-AD8</b>                      |               |
|                                         | Pressure sensor with operational status indicator, plug M8, window comparator,<br>PNP, N/O contact          |                                          |               | <b>1 5 6</b>    | <b>-AD9</b>                      |               |
|                                         | Pressure sensor with operational status indicator, plug M8, window comparator,<br>PNP, N/C contact          |                                          |               | <b>1 5 6</b>    | <b>-AD10</b>                     |               |
| Alternative pressure gauge scale        | psi                                                                                                         |                                          |               | <b>7</b>        | <b>-PSI</b>                      |               |
|                                         | MPa                                                                                                         |                                          |               | <b>8</b>        | <b>-MPA</b>                      |               |

**1**  $\frac{1}{4}$ ,  $\frac{1}{2}$ , **D8**, **AD1 ... AD4**, **AD7 ... AD10**, **DM1**, **DM2**, **KD**, **E11**, **WPM**

Not with EU certification EX4

**2** **D8**, **RG**, **OS**, **KD**, **AS**

Not with rotary knob pressure gauge DM1, DM2

**3** **VS**

Must be selected if flow direction Z is selected without alternative mounting position KD and without pressure output BC, BD, BE.

Must be selected if alternative mounting position KD is selected without flow direction Z and without pressure output BC, BD, BE

**M** Mandatory data

**O** Options

Transfer order code

**MS**  – **LRB** –  –  –  –

# Pressure regulators MS4/MS6-LRB, MS series

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Ordering data – Modular products

| Ordering table |                                                |                                                                                                   |                                   |                 |      |               |
|----------------|------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------|-----------------|------|---------------|
| Grid dimension | [mm]                                           | 40                                                                                                | 62                                | Condi-<br>tions | Code | Enter<br>code |
| O              | Secondary venting                              | Without secondary venting                                                                         |                                   | 2               | -OS  |               |
|                | Rotary knob alternative                        | Long rotary knob                                                                                  |                                   | 9               | -LD  |               |
|                |                                                | Rotary knob pressure gauge, small                                                                 | –                                 | 1 9 10          | -DM1 |               |
|                |                                                | –                                                                                                 | Rotary knob pressure gauge, large | 1 9 10          | -DM2 |               |
|                | Alternative mounting position                  | Rotary knob underneath                                                                            |                                   | 1 2 11          | -KD  |               |
| M              | Security                                       | Without                                                                                           |                                   |                 |      |               |
|                |                                                | Lockable via accessories                                                                          |                                   | 2               | -AS  |               |
|                |                                                | With integrated lock                                                                              |                                   | 1               | -E11 |               |
| O              | Pressure output<br>(p <sub>max</sub> = 10 bar) | Angled outlet block QS-6                                                                          | –                                 |                 | -BC  |               |
|                |                                                | Angled outlet block QS-8                                                                          | Angled outlet block QS-8          |                 | -BD  |               |
|                |                                                | –                                                                                                 | Angled outlet block QS-10         |                 | -BE  |               |
|                | Type of mounting                               | Mounting bracket with knurled nut for regulator head                                              |                                   | 12 13           | -WR  |               |
|                |                                                | Mounting bracket standard design                                                                  |                                   | 14 15           | -WP  |               |
|                |                                                | Mounting bracket for attaching the service units                                                  |                                   | 1 12 14         | -WPM |               |
|                |                                                | Mounting bracket for large wall gap                                                               |                                   | 14 16           | -WPB |               |
|                |                                                | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required |                                   | 12              | -WB  |               |
|                |                                                | Mounting bracket centrally at rear (wall mounting top), connecting plates not required            | –                                 | 12              | -WBM |               |
|                | EU certification                               | II 2GD to EU Explosion Protection Directive (ATEX)                                                |                                   |                 | -EX4 |               |
|                | UL certification                               | cULus, ordinary location for Canada and USA                                                       |                                   |                 | -UL1 |               |
|                | Flow direction                                 | Pressure output to front (without pressure output, no pressure gauge)                             |                                   |                 | -Z   |               |

4 A8, A4, AD1 ... AD4

Not with flow direction Z.

In combination with flow direction Z only with alternative mounting position KD

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

Measuring range max. 10 bar

Not with pressure regulation range D8

6 AD7 ... AD10 In combination with flow direction Z only with pressure output BC, BD, BE or

In combination with flow direction Z only with alternative mounting position KD

7 PSI

Not with pressure gauge alternatives VS, A8, A4, RG, AD1 ... AD4, AD7 ... AD10

In combination with flow direction Z only with pressure output BC, BD, BE

8 MPA

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

Not with alternative mounting position KD.

Not with rotary knob alternative DM1, DM2

In combination with flow direction Z only with pressure output BC, BD, BE

9 LD, DM1, DM2

Not with integrated lock E11

10 DM1, DM2 Can only be selected in combination with pressure gauge alternative VS, A4,

AD1 ... AD4, AD7 ... AD10

11 KD

Not with alternative pressure gauge scale MPA.

In combination with alternative pressure gauge scale PSI only with flow direction Z and/or only with pressure output BC, BD, BE

Not with mounting type WP, WPB.

In combination with mounting type WR, WPM, WB, WBM not with flow direction Z.

Not with pressure gauge alternative RG.

In combination with pressure gauge alternatives A8, A4, AD1, AD2, AD3, AD4 only with flow direction Z.

12 WR, WPM, WB, WBM

In combination with flow direction Z not with alternative mounting position KD

13 WR

Only with flow direction Z.

Not with rotary knob alternative LD

14 WP, WPM, WPB

Only with connecting plate AGA, AGB, AGC, AGD, AGE

15 WP

Only with flow direction Z and/or only with pressure output BC, BD, BE

16 WPB

Not with flow direction Z.

Not with pressure output BC, BD, BE

M Mandatory data

O Options

Transfer order code

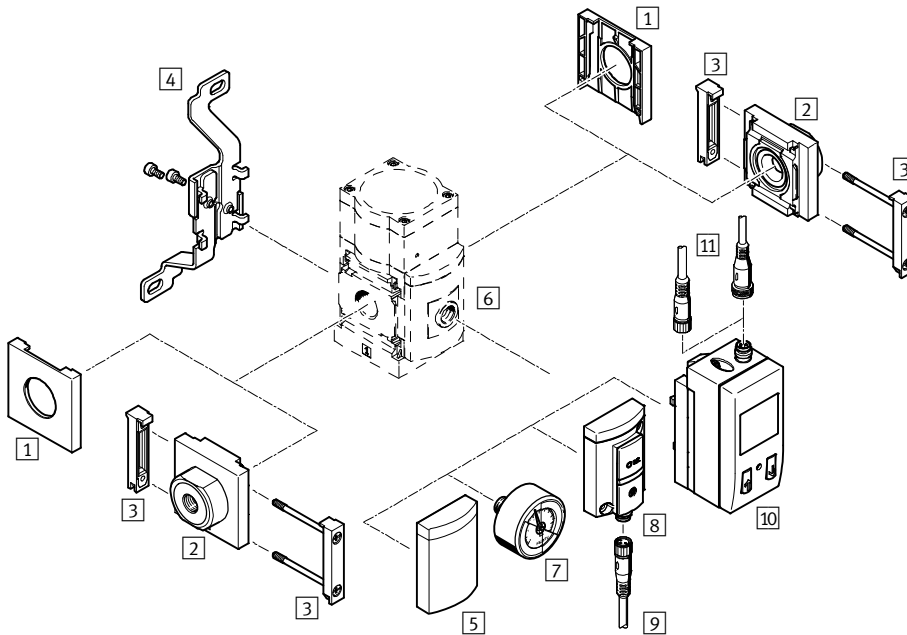
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# Precision pressure regulators MS6-LRP, MS series

Peripherals overview

**FESTO**

## Precision pressure regulator MS6-LRP



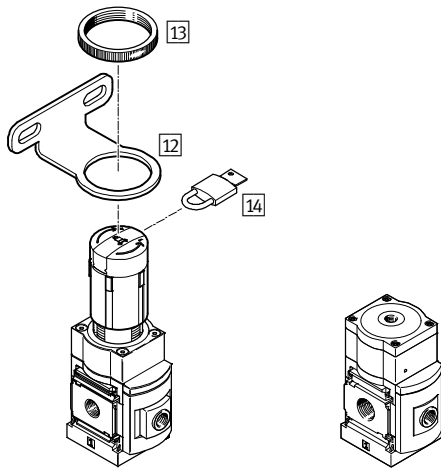
Note

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

Manually operated

Pneumatically actuated



## Precision pressure regulators MS6-LRP, MS series

Peripherals overview

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| Mounting attachments and accessories |                                                      | Individual device        |                       | Combination              |                       | ➔ Page/Internet |
|--------------------------------------|------------------------------------------------------|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|                                      |                                                      | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| 1                                    | Cover cap<br>MS6-END                                 | ■                        | –                     | ■                        | –                     | ms6-end         |
| 2                                    | Connecting plate-SET<br>MS6-AG...                    | –                        | ■                     | –                        | ■                     | ms6-ag          |
|                                      | Connecting plate-SET<br>MS6-AQ...                    | –                        | ■                     | –                        | ■                     | ms6-aq          |
| 3                                    | Module connector<br>MS6-MV                           | –                        | ■                     | ■                        | ■                     | ms6-mv          |
| 4                                    | Mounting bracket<br>MS6-WB                           | ■                        | ■                     | –                        | –                     | ms6-wb          |
| 5                                    | Cover plate<br>VS                                    | ■                        | ■                     | ■                        | ■                     | 52              |
| 6                                    | Adapter plate for EN pressure gauge 1/8/1/4<br>A8/A4 | ■                        | ■                     | ■                        | ■                     | 52              |
| 7                                    | Precision pressure gauge<br>A8M/MAP                  | ■                        | ■                     | ■                        | ■                     | 52, 100         |
| 8                                    | Pressure sensor without display<br>AD7 ... AD10      | ■                        | ■                     | ■                        | ■                     | 52              |
| 9                                    | Connecting cable<br>NEBU-M8...-LE3                   | ■                        | ■                     | ■                        | ■                     | 100             |
| 10                                   | Pressure sensor with display<br>AD1 ... AD4          | ■                        | ■                     | ■                        | ■                     | 52              |
| 11                                   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4   | ■                        | ■                     | ■                        | ■                     | 100             |
| 12                                   | Mounting bracket<br>MS6-WR                           | ■                        | ■                     | –                        | –                     | ms6-wr          |
| 13                                   | Knurled nut (included in scope of delivery)<br>MS-LR | ■                        | ■                     | –                        | –                     | –               |
| 14                                   | Padlock<br>LRVS-D                                    | ■                        | ■                     | ■                        | ■                     | 100             |
| –                                    | Mounting bracket<br>MS6-WP/WPB/WPE/WPM               | –                        | ■                     | ■                        | ■                     | ms6-wp          |

## Precision pressure regulators MS6-LRP, MS series

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Type codes

|                                            |                                                                 |    |   |   |     |   |     |   |    |   |    |
|--------------------------------------------|-----------------------------------------------------------------|----|---|---|-----|---|-----|---|----|---|----|
|                                            |                                                                 | MS | 6 | - | LRP | - | 1/2 | - | D7 | - | A8 |
| <b>Series</b>                              |                                                                 |    |   |   |     |   |     |   |    |   |    |
| MS                                         | Standard service unit                                           |    |   |   |     |   |     |   |    |   |    |
| <b>Size</b>                                |                                                                 |    |   |   |     |   |     |   |    |   |    |
| 6                                          | Grid dimension 62 mm                                            |    |   |   |     |   |     |   |    |   |    |
| <b>Service function</b>                    |                                                                 |    |   |   |     |   |     |   |    |   |    |
| LRP                                        | Precision pressure regulator                                    |    |   |   |     |   |     |   |    |   |    |
| <b>Pneumatic connection</b>                |                                                                 |    |   |   |     |   |     |   |    |   |    |
| 1/4                                        | Female thread G1/4                                              |    |   |   |     |   |     |   |    |   |    |
| 3/8                                        | Female thread G3/8                                              |    |   |   |     |   |     |   |    |   |    |
| 1/2                                        | Female thread G1/2                                              |    |   |   |     |   |     |   |    |   |    |
| <b>Pressure regulation range/operation</b> |                                                                 |    |   |   |     |   |     |   |    |   |    |
| D2                                         | 0.05 ... 0.7 bar, manually operated                             |    |   |   |     |   |     |   |    |   |    |
| D4                                         | 0.05 ... 2.5 bar, manually operated                             |    |   |   |     |   |     |   |    |   |    |
| D5                                         | 0.1 ... 4 bar, manually operated                                |    |   |   |     |   |     |   |    |   |    |
| D7                                         | 0.1 ... 12 bar, manually operated                               |    |   |   |     |   |     |   |    |   |    |
| <b>Pressure gauge alternatives</b>         |                                                                 |    |   |   |     |   |     |   |    |   |    |
| A8                                         | Adapter plate for EN pressure gauge 1/8, without pressure gauge |    |   |   |     |   |     |   |    |   |    |

Further variants can be ordered using the modular system → 52

- Pneumatic connection
- Pressure regulation range/operation
- Pressure gauge alternatives
- Rotary knob alternatives
- Alternative mounting position
- Security
- Type of mounting
- EU certification
- UL certification
- Flow direction

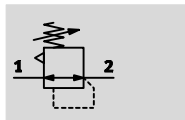


# Precision pressure regulators MS6-LRP, MS series

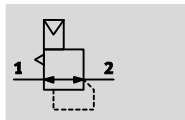
FESTO

Technical data

Pressure regulation range/operation manually operated D2/D4/D5/D7



pneumatically actuated PO



- Flow rate  
800 ... 5,000 l/min
- Temperature range  
-10 ... +60 °C
- Operating pressure  
1 ... 14 bar
- [www.festo.com](http://www.festo.com)



The precision pressure regulator is suitable for sensitive applications with a required hysteresis of 0.02 bar. The output pressure p2 can be set within the pressure regulation range either manually using the rotary knob or pneumatically via a pilot pressure p12

by an external pilot regulator (if possible using a precision pressure regulator). When switching off the input pressure p1, the output pressure p2 is vented via the connection 3 (secondary venting).

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- High secondary venting for fast response times
- Regulator lock for protecting the values against adjustment
- Four pressure regulation ranges: 0.05 ... 0.7 bar, 0.05 ... 2.5 bar, 0.1 ... 4 bar and 0.1 ... 12 bar
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

| General technical data                            |          |                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Size                                              |          | MS6                                                                                                                                                                                                                                                                                                                          |
| Pneumatic connection 1, 2                         |          |                                                                                                                                                                                                                                                                                                                              |
| Female thread                                     |          | G $\frac{1}{4}$ , G $\frac{3}{8}$ or G $\frac{1}{2}$                                                                                                                                                                                                                                                                         |
| Connecting plate AG...                            |          | G $\frac{1}{4}$ , G $\frac{3}{8}$ , G $\frac{1}{2}$ or G $\frac{3}{4}$                                                                                                                                                                                                                                                       |
| Connecting plate AQ...                            |          | NPT $\frac{1}{4}$ , NPT $\frac{3}{8}$ , NPT $\frac{1}{2}$ or NPT $\frac{3}{4}$                                                                                                                                                                                                                                               |
| Pneumatic connection 3 (secondary venting)        |          | G $\frac{1}{4}$                                                                                                                                                                                                                                                                                                              |
| Pilot air connection 12 with variant PO           |          | G $\frac{1}{8}$                                                                                                                                                                                                                                                                                                              |
| Constructional design                             |          | Piloted precision diaphragm regulator                                                                                                                                                                                                                                                                                        |
| Regulating function                               |          | Output pressure constant, via secondary venting                                                                                                                                                                                                                                                                              |
| Type of mounting                                  |          | Via accessories<br>In-line installation<br>Front panel mounting                                                                                                                                                                                                                                                              |
| Mounting position                                 |          | Any                                                                                                                                                                                                                                                                                                                          |
| Regulator lock                                    |          | Rotary knob with detent<br>Rotary knob with detent, lockable via accessories<br>Rotary knob with integrated lock                                                                                                                                                                                                             |
| Pressure regulation range/operation <sup>1)</sup> | D2 [bar] | 0.05 ... 0.7, manually operated                                                                                                                                                                                                                                                                                              |
|                                                   | D4 [bar] | 0.05 ... 2.5, manually operated                                                                                                                                                                                                                                                                                              |
|                                                   | D5 [bar] | 0.1 ... 4, manually operated                                                                                                                                                                                                                                                                                                 |
|                                                   | D7 [bar] | 0.1 ... 12, manually operated (0.1 ... 10 with pressure sensor AD... or with UL certification)                                                                                                                                                                                                                               |
|                                                   | PO [bar] | 0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor AD... or with UL certification)                                                                                                                                                                                                                          |
| Max. hysteresis                                   | [bar]    | 0.02                                                                                                                                                                                                                                                                                                                         |
| Pressure indication                               |          | Via pressure sensor for displaying output pressure via LCD display and electrical output<br>Via pressure sensor for displaying output pressure via operational status indicator and electrical output<br>Via precision pressure gauge for displaying output pressure<br>G $\frac{1}{8}$ prepared<br>G $\frac{1}{4}$ prepared |

1) Variant D2/D4/D5/D7: Supply pressure p1 ≥ output pressure p2 + 1 bar. Variant PO: Pilot pressure p12 = output pressure p2 + max. 0.5 bar.

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

# Precision pressure regulators MS6-LRP, MS series

Technical data

**FESTO**

| Flow rates                                        |                               |                       |                       |                     |                        |
|---------------------------------------------------|-------------------------------|-----------------------|-----------------------|---------------------|------------------------|
| Pressure regulation range                         |                               | D2 (0.05 ... 0.7 bar) | D4 (0.05 ... 2.5 bar) | D5 (0.1 ... 4 bar)  | D7/PO (0.1 ... 12 bar) |
| Standard nominal flow rate q <sub>N</sub> [l/min] |                               |                       |                       |                     |                        |
| q <sub>N</sub> 1 → 2                              | G <sup>1</sup> / <sub>4</sub> | 800 <sup>1)</sup>     | 1,100 <sup>2)</sup>   | 1,400 <sup>3)</sup> | 3,000 <sup>4)</sup>    |
|                                                   | G <sup>3</sup> / <sub>8</sub> | 1,100 <sup>1)</sup>   | 1,400 <sup>2)</sup>   | 1,700 <sup>3)</sup> | 3,300 <sup>4)</sup>    |
|                                                   | G <sup>1</sup> / <sub>2</sub> | 1,600 <sup>1)</sup>   | 2,300 <sup>2)</sup>   | 3,000 <sup>3)</sup> | 5,000 <sup>4)</sup>    |
| Secondary venting flow rate [l/min]               |                               |                       |                       |                     |                        |
| q <sub>N</sub> 2 → 3                              |                               | ≥ 220 <sup>5)</sup>   | ≥ 450 <sup>6)</sup>   | ≥ 650 <sup>7)</sup> | ≥ 900 <sup>8)</sup>    |

1) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 0.5 bar, Δp = 0.1 bar

2) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 1.5 bar, Δp = 0.1 bar

3) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 2.5 bar, Δp = 0.1 bar

4) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 6.0 bar, Δp = 0.1 bar

5) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 0.7 bar, Δp<sub>2</sub> = 0.1 bar

6) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 2.5 bar, Δp<sub>2</sub> = 0.1 bar

7) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 4.0 bar, Δp<sub>2</sub> = 0.1 bar

8) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 6.0 bar, Δp<sub>2</sub> = 0.1 bar

| Operating and environmental conditions       |                                                                          |
|----------------------------------------------|--------------------------------------------------------------------------|
| Operating pressure [bar]                     | 1 ... 14 (1 ... 10) <sup>1)</sup>                                        |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]<br>Inert gases |
| Note on operating/pilot medium               | Operation with lubricated medium not possible                            |
| Ambient temperature [°C]                     | −10 ... +60 (0 ... +50) <sup>2)</sup>                                    |
| Temperature of medium [°C]                   | −10 ... +60 (0 ... +50) <sup>2)</sup>                                    |
| Storage temperature [°C]                     | −10 ... +60                                                              |
| Corrosion resistance class CRC <sup>3)</sup> | 2                                                                        |
| UL certification                             | cULus recognized (OL)                                                    |

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

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

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

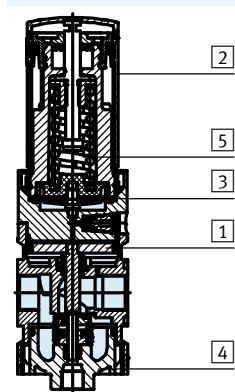
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

| 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                        |
| CE mark (see declaration of conformity) | To EU Explosion Protection Directive (ATEX) |

| Weight [g]                                                             |       |
|------------------------------------------------------------------------|-------|
| Precision pressure regulator                                           | 1,000 |
| Precision pressure regulator with rotary knob with integrated lock E11 | 1,120 |

## Materials

Sectional view



| Precision pressure regulator |                                      |                                                                              |
|------------------------------|--------------------------------------|------------------------------------------------------------------------------|
| 1                            | Housing                              | Die-cast aluminium                                                           |
| 2                            | Rotary knob                          | PA/POM                                                                       |
|                              | Rotary knob with integrated lock E11 | Aluminium                                                                    |
| 3                            | Diaphragm                            | NBR                                                                          |
| 4                            | Cap, bottom                          | PC                                                                           |
| 5                            | Springs                              | Steel                                                                        |
| –                            | Seals                                | NBR                                                                          |
| Note on materials            |                                      | RoHS-compliant<br>Free of copper and PTFE<br>(not with variant A8M or AD...) |

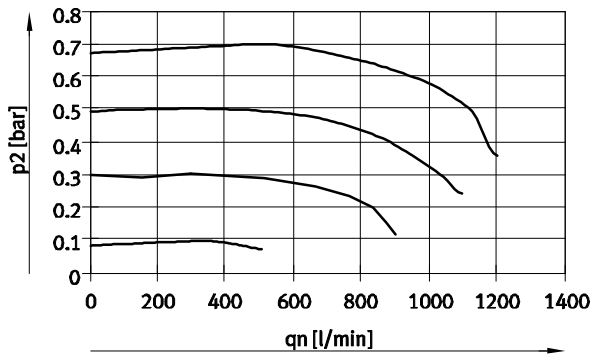
# Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

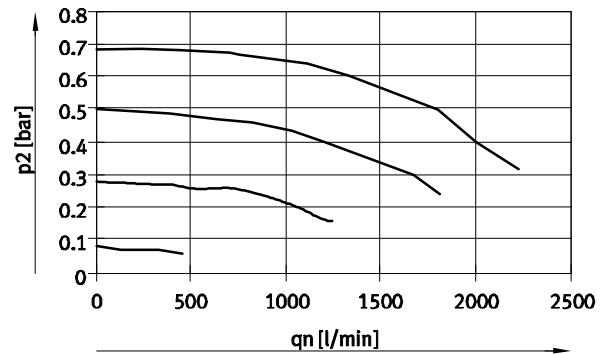
Standard flow rate  $q_n$  as a function of output pressure  $p_2$  ( $p_1 = 10$  bar)

MS6-LRP-1/4-D2



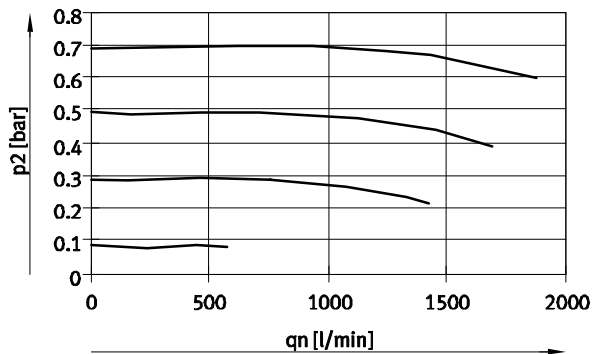
D2: 0.05...0.7 bar

MS6-LRP-3/8-D2



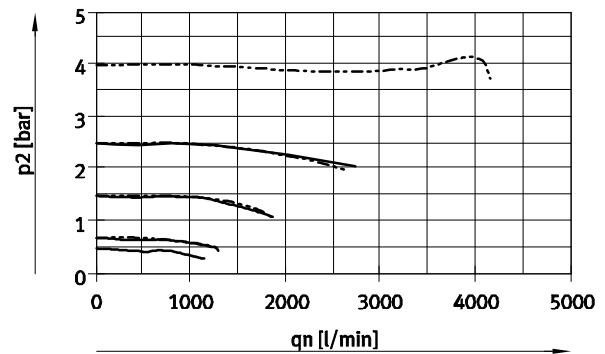
D2: 0.05...0.7 bar

MS6-LRP-1/2-D2



D2: 0.05...0.7 bar

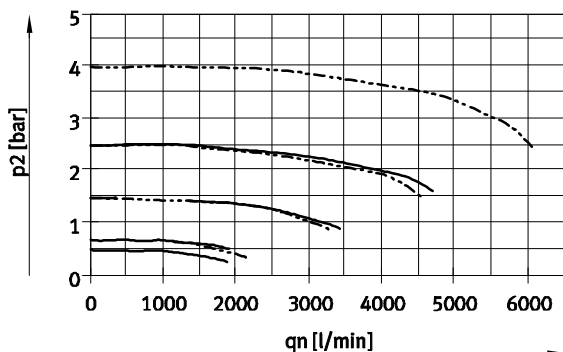
MS6-LRP-1/4-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

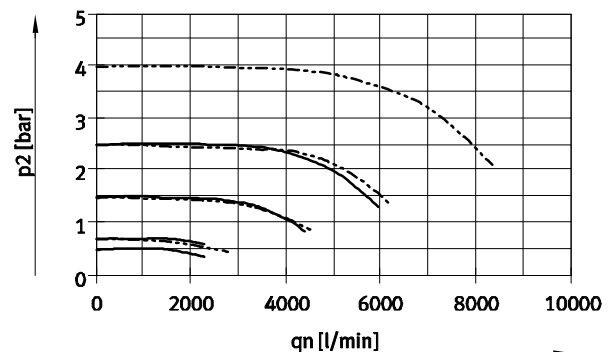
MS6-LRP-3/8-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

MS6-LRP-1/2-D4/D5



D4: 0.05...2.5 bar

D5: 0.1...4 bar

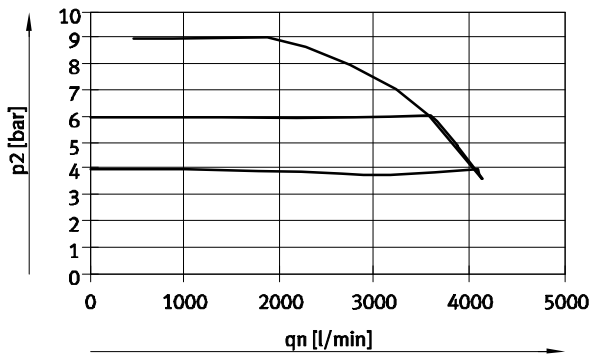
# Precision pressure regulators MS6-LRP, MS series

FESTO

Technical data

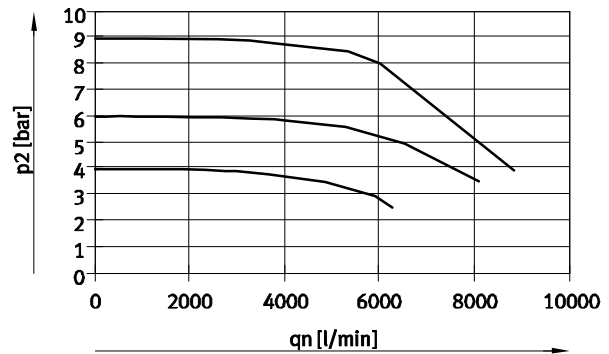
Standard flow rate  $q_n$  as a function of output pressure  $p_2$  ( $p_1 = 10$  bar)

MS6-LRP-1/4-D7/PO



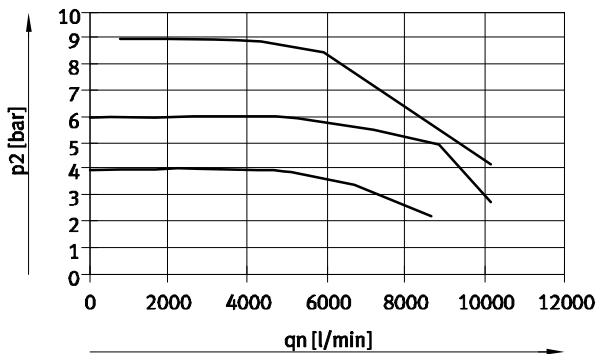
D7/PO: 0.1...12 bar

MS6-LRP-3/8-D7/PO



D7/PO: 0.1...12 bar

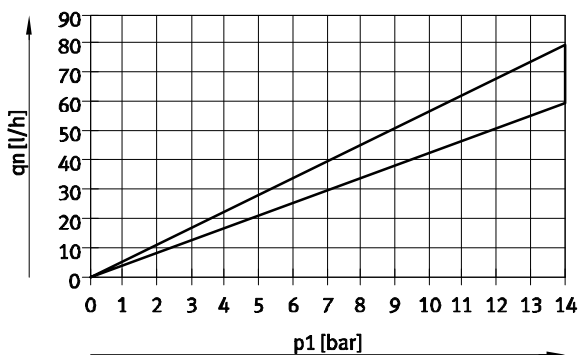
MS6-LRP-1/2-D7/PO



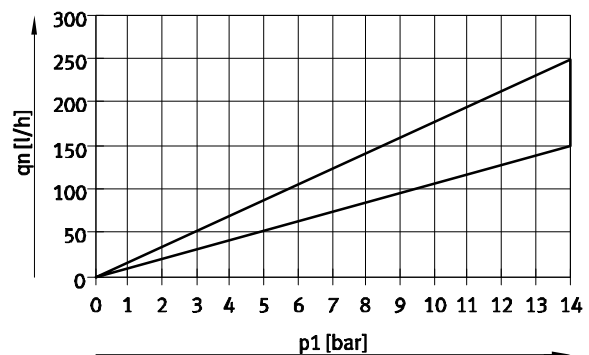
D7/PO: 0.1...12 bar

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

MS6-LRP-...-D2/D4



MS6-LRP-...-D5/D7/PO



# Precision pressure regulators MS6-LRP, MS series

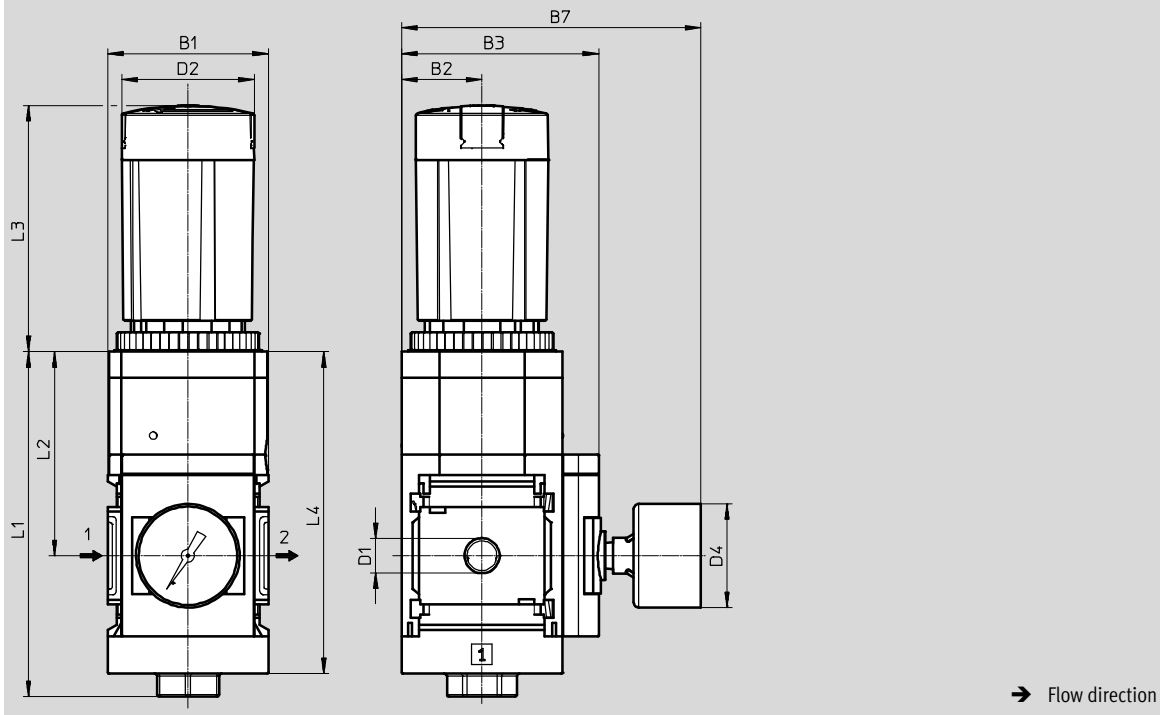
FESTO

Technical data

## Dimensions

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

Pressure regulation range D2/D4/D5/D7, manually operated,  
adapter plate for EN pressure gauge 1/8, with precision pressure gauge A8M,  
rotary knob with detent, lockable via accessories AS



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

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

# Precision pressure regulators MS6-LRP, MS series

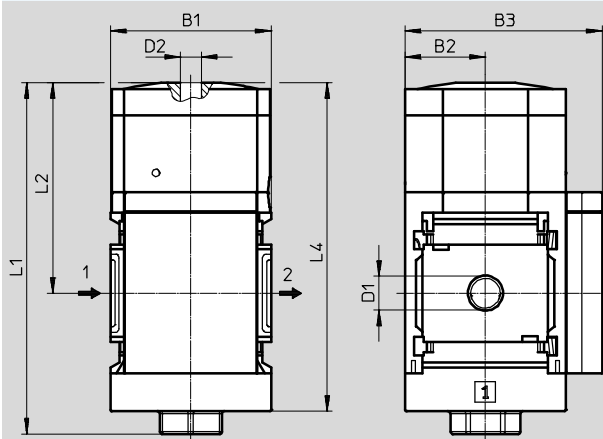
FESTO

Technical data

## Dimensions

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

Pressure regulation range PO, pneumatically actuated,  
cover plate VS



→ Flow direction

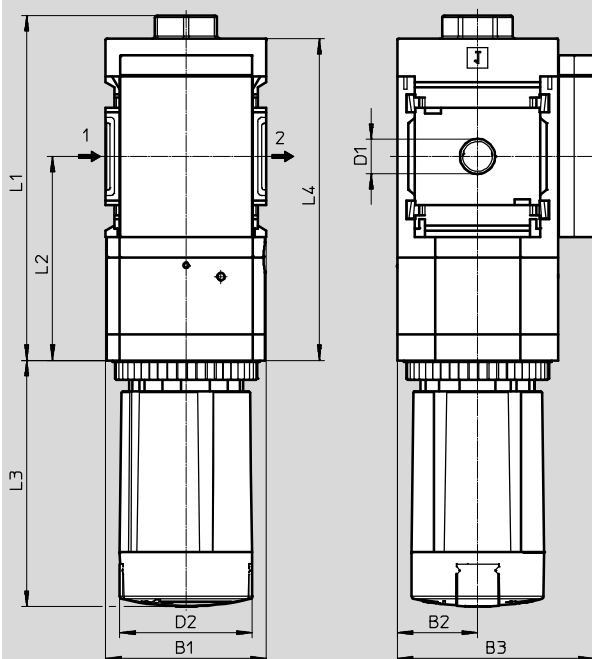
| Type              | B1 | B2 | B3 | D1   | D2   | L1  | L2 | L4  |
|-------------------|----|----|----|------|------|-----|----|-----|
| MS6-LRP-1/4-PO-VS | 62 | 31 | 76 | G1/4 | G1/8 | 136 | 81 | 127 |
| MS6-LRP-3/8-PO-VS |    |    |    | G3/8 |      |     |    |     |
| MS6-LRP-1/2-PO-VS |    |  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

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

## Dimensions – Alternative mounting position

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

Rotary knob at bottom KD



→ Flow direction

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

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

# Precision pressure regulators MS6-LRP, MS series

Technical data

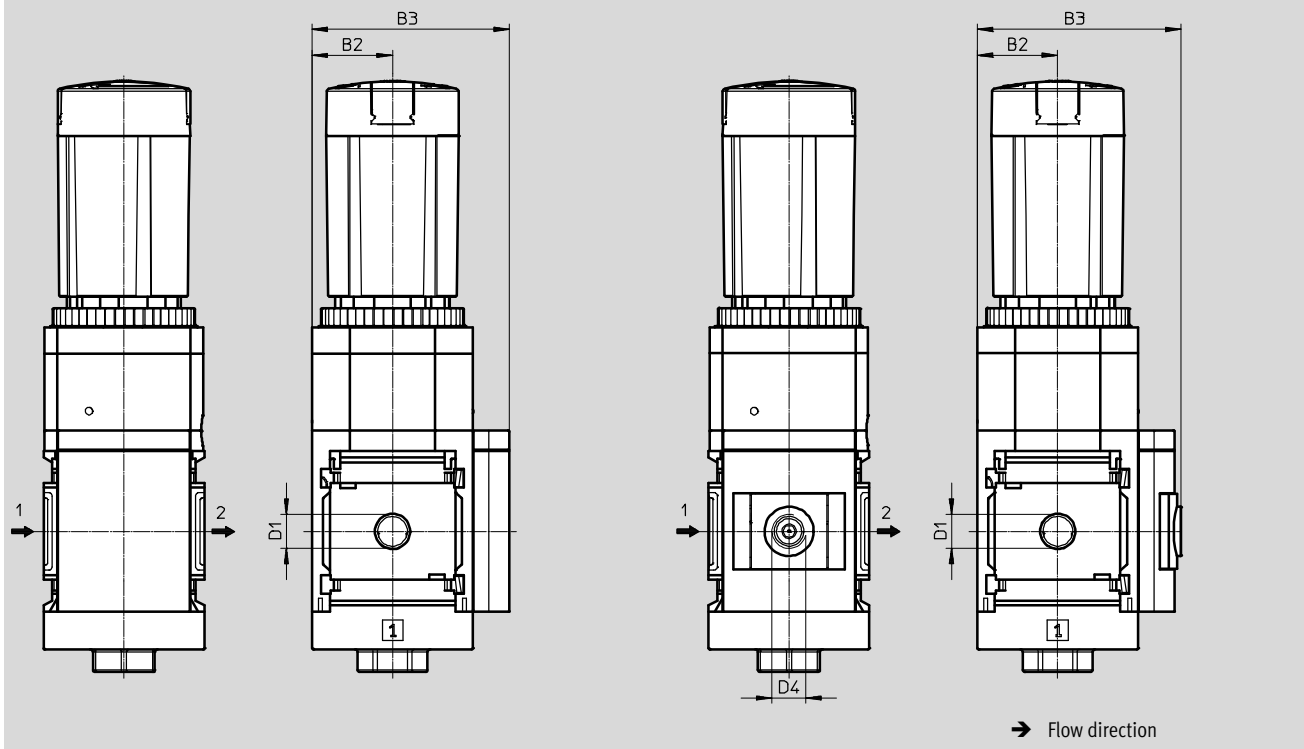
**FESTO**

## 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   |
|--------------------|----|------|------|------|
| MS6-LRP-1/4-...-VS | 31 | 76   | G1/4 | –    |
| MS6-LRP-3/8-...-VS |    |      | G3/8 |      |
| MS6-LRP-1/2-...-VS |    |      | G1/2 |      |
| MS6-LRP-1/4-...-A8 | 31 | 78.5 | G1/4 | G1/8 |
| MS6-LRP-3/8-...-A8 |    |      | G3/8 |      |
| MS6-LRP-1/2-...-A8 |    |      | G1/2 |      |
| MS6-LRP-1/4-...-A4 | 31 | 78.5 | G1/4 | G1/4 |
| MS6-LRP-3/8-...-A4 |    |      | G3/8 |      |
| MS6-LRP-1/2-...-A4 |    |      | G1/2 |      |

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

# Precision pressure regulators MS6-LRP, MS series

Technical data

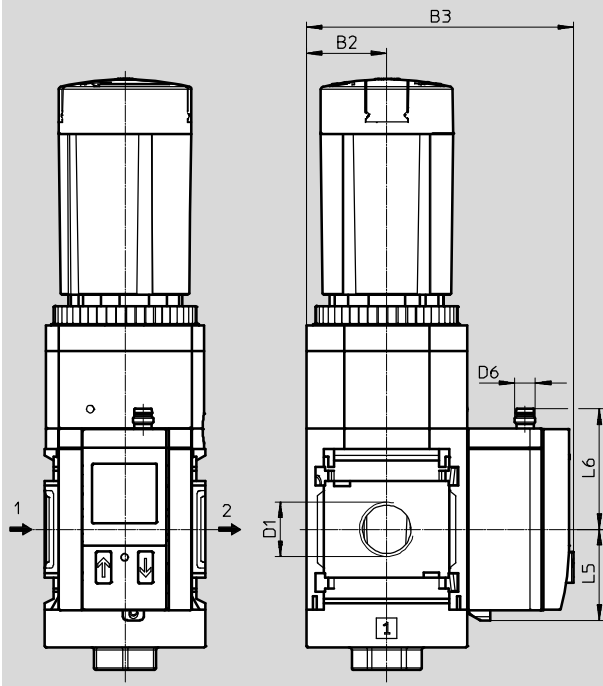
**FESTO**

## 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 out-  
put PNP and 4 ... 20 mA analogue

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

→ Flow direction

| Type                    | B2 | B3  | D1   | D6    | L5   | L6   |
|-------------------------|----|-----|------|-------|------|------|
| MS6-LRP-1/4-...-AD1/AD2 | 31 | 103 | G1/4 | M8x1  | 35.1 | 46.7 |
| MS6-LRP-3/8-...-AD1/AD2 |    |     | G3/8 |       |      |      |
| MS6-LRP-1/2-...-AD1/AD2 |    |     | G1/2 |       |      |      |
| MS6-LRP-1/4-...-AD3/AD4 | 31 | 103 | G1/4 | M12x1 | 35.1 | 55.8 |
| MS6-LRP-3/8-...-AD3/AD4 |    |     | G3/8 |       |      |      |
| MS6-LRP-1/2-...-AD3/AD4 |    |     | G1/2 |       |      |      |

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



# Precision pressure regulators MS6-LRP, MS series

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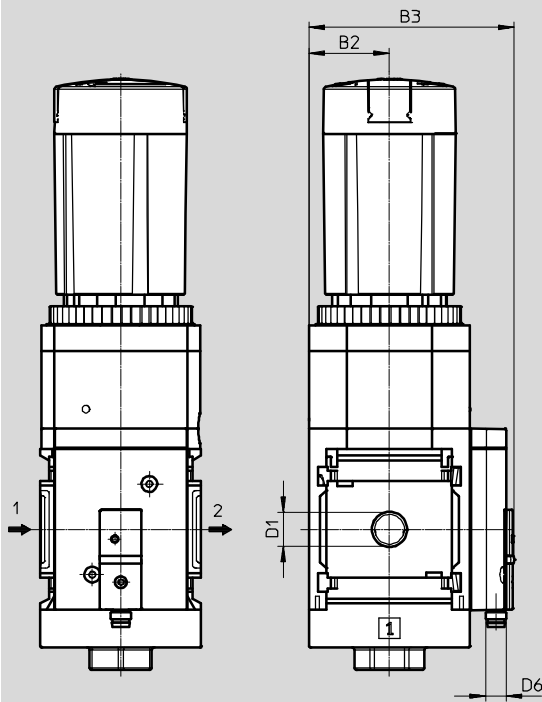
Technical data

## Dimensions – Pressure gauge alternatives

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

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

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

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

→ Flow direction

| Type                             | B2 | B3   | D1   | D6   |
|----------------------------------|----|------|------|------|
| MS6-LRP-1/4-...-AD7/AD8/AD9/AD10 | 31 | 79.1 | G1/4 | M8x1 |
| MS6-LRP-3/8-...-AD7/AD8/AD9/AD10 |    |      | G3/8 |      |
| MS6-LRP-1/2-...-AD7/AD8/AD9/AD10 |    |      | G1/2 |      |

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

# Precision pressure regulators MS6-LRP, MS series

Technical data

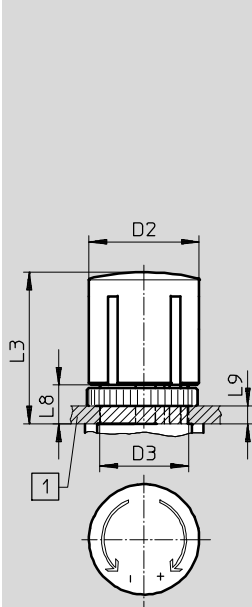
**FESTO**

## Dimensions – Rotary knob

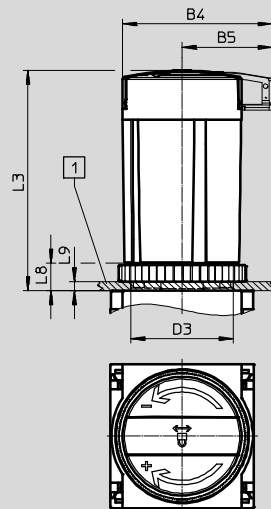
Download CAD data → [www.festo.com](http://www.festo.com)

For installation into control panel

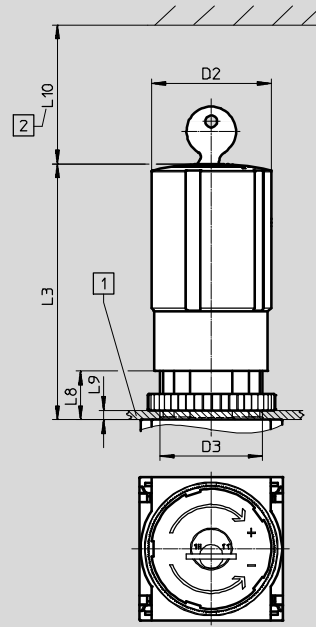
Rotary knob with detent



Rotary knob with detent, lockable via accessories AS

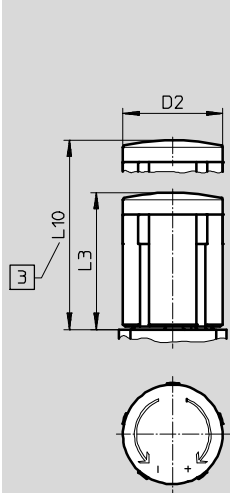


Rotary knob with integrated lock E11

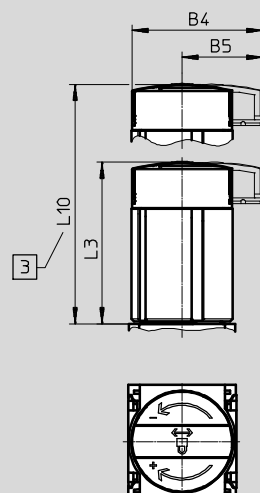


- 1 Max. control panel thickness
- 2 Installation dimensions

Long rotary knob with detent LD



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   |
|-------------------|------|------|------|-------|------|----|----|-------|
| MS6-LRP-...       | -    | -    | 51.2 | M44x1 | 86   | 21 | 14 | -     |
| MS6-LRP-...-AS    | 64.4 | 38.8 |      |       | 95.1 | 12 | 5  |       |
| MS6-LRP-...-E11   | -    | -    |      |       | 110  | 21 | 14 |       |
| MS6-LRP-...-LD    | -    | -    |      | -     | 86   | -  | -  | 139   |
| MS6-LRP-...-LD-AS | 64.4 | 38.8 |      |       | 95.5 |    |    | 148.5 |

## Precision pressure regulators MS6-LRP, MS series

**FESTO**

Technical data

| Ordering data                                                    |            |               |                          |
|------------------------------------------------------------------|------------|---------------|--------------------------|
| Adapter plate for EN pressure gauge 1/8, rotary knob with detent |            |               |                          |
| Size                                                             | Connection | Part No.      | Type                     |
| Pressure regulation range 0.05 ... 0.7 bar, manually operated    |            |               |                          |
| MS6                                                              | G1/4       | <b>538004</b> | <b>MS6-LRP-1/4-D2-A8</b> |
|                                                                  | G3/8       | <b>538012</b> | <b>MS6-LRP-3/8-D2-A8</b> |
|                                                                  | G1/2       | <b>538020</b> | <b>MS6-LRP-1/2-D2-A8</b> |
| Pressure regulation range 0.05 ... 2.5 bar, manually operated    |            |               |                          |
| MS6                                                              | G1/4       | <b>538006</b> | <b>MS6-LRP-1/4-D4-A8</b> |
|                                                                  | G3/8       | <b>538014</b> | <b>MS6-LRP-3/8-D4-A8</b> |
|                                                                  | G1/2       | <b>538022</b> | <b>MS6-LRP-1/2-D4-A8</b> |
| Pressure regulation range 0.1 ... 4 bar, manually operated       |            |               |                          |
| MS6                                                              | G1/4       | <b>538008</b> | <b>MS6-LRP-1/4-D5-A8</b> |
|                                                                  | G3/8       | <b>538016</b> | <b>MS6-LRP-3/8-D5-A8</b> |
|                                                                  | G1/2       | <b>538024</b> | <b>MS6-LRP-1/2-D5-A8</b> |
| Pressure regulation range 0.1 ... 12 bar, manually operated      |            |               |                          |
| MS6                                                              | G1/4       | <b>538010</b> | <b>MS6-LRP-1/4-D7-A8</b> |
|                                                                  | G3/8       | <b>538018</b> | <b>MS6-LRP-3/8-D7-A8</b> |
|                                                                  | G1/2       | <b>538026</b> | <b>MS6-LRP-1/2-D7-A8</b> |

# Precision pressure regulators MS6-LRP, MS series

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Ordering data – Modular products

| Ordering table                          |                                                                                                             |    |                 |                 |               |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------|----|-----------------|-----------------|---------------|
| Grid dimension                          | [mm]                                                                                                        | 62 | Condi-<br>tions | Code            | Enter<br>code |
| <b>M</b> Module No.                     | <b>538028</b>                                                                                               |    |                 |                 |               |
| Series                                  | Standard                                                                                                    |    |                 | <b>MS</b>       | MS            |
| Size                                    | 6                                                                                                           |    |                 | <b>6</b>        | 6             |
| Function                                | Precision pressure regulator                                                                                |    |                 | <b>-LRP</b>     | -LRP          |
| Pneumatic connection                    | Female thread G $\frac{1}{4}$                                                                               |    | <b>1</b>        | - $\frac{1}{4}$ |               |
|                                         | Female thread G $\frac{3}{8}$                                                                               |    | <b>1</b>        | - $\frac{3}{8}$ |               |
|                                         | Female thread G $\frac{1}{2}$                                                                               |    | <b>1</b>        | - $\frac{1}{2}$ |               |
|                                         | Connecting plate G $\frac{1}{4}$                                                                            |    |                 | <b>-AGB</b>     |               |
|                                         | Connecting plate G $\frac{3}{8}$                                                                            |    |                 | <b>-AGC</b>     |               |
|                                         | Connecting plate G $\frac{1}{2}$                                                                            |    |                 | <b>-AGD</b>     |               |
|                                         | Connecting plate G $\frac{3}{4}$                                                                            |    |                 | <b>-AGE</b>     |               |
|                                         | Connecting plate NPT $\frac{1}{4}$                                                                          |    | <b>1</b>        | <b>-AQN</b>     |               |
|                                         | Connecting plate NPT $\frac{3}{8}$                                                                          |    | <b>1</b>        | <b>-AQP</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>     |               |
| Pressure regulation range/<br>operation | 0.05 ... 0.7 bar, manually operated                                                                         |    |                 | <b>-D2</b>      |               |
|                                         | 0.05 ... 2.5 bar, manually operated                                                                         |    |                 | <b>-D4</b>      |               |
|                                         | 0.1 ... 4 bar, manually operated                                                                            |    |                 | <b>-D5</b>      |               |
|                                         | 0.1 ... 12 bar, manually operated                                                                           |    |                 | <b>-D7</b>      |               |
|                                         | 0.1 ... 12 bar, pneumatically actuated<br>(pressure range determined by means of pilot regulator)           |    | <b>1 2</b>      | <b>-PO</b>      |               |
| Pressure gauge alternatives             | Cover plate                                                                                                 |    |                 | <b>-VS</b>      |               |
|                                         | Adapter plate for EN pressure gauge $\frac{1}{8}$ , without pressure gauge                                  |    |                 | <b>-A8</b>      |               |
|                                         | Adapter plate for EN pressure gauge $\frac{1}{8}$ , with precision pressure gauge                           |    |                 | <b>-A8M</b>     |               |
|                                         | Adapter plate for EN pressure gauge $\frac{1}{4}$ , without pressure gauge                                  |    |                 | <b>-A4</b>      |               |
|                                         | Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin                                    |    | <b>1 3</b>      | <b>-AD1</b>     |               |
|                                         | Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin                                    |    | <b>1 3</b>      | <b>-AD2</b>     |               |
|                                         | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin,<br>analogue output 4 ... 20 mA   |    | <b>1 3</b>      | <b>-AD3</b>     |               |
|                                         | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin,<br>analogue output 4 ... 20 mA   |    | <b>1 3</b>      | <b>-AD4</b>     |               |
|                                         | Pressure sensor with operational status indicator, plug M8, threshold value<br>comparator, PNP, N/O contact |    | <b>1 4</b>      | <b>-AD7</b>     |               |
|                                         | Pressure sensor with operational status indicator, plug M8, threshold value<br>comparator, PNP, N/C contact |    | <b>1 4</b>      | <b>-AD8</b>     |               |
|                                         | Pressure sensor with operational status indicator, plug M8, window comparator,<br>PNP, N/O contact          |    | <b>1 4</b>      | <b>-AD9</b>     |               |
|                                         | Pressure sensor with operational status indicator, plug M8, window comparator,<br>PNP, N/C contact          |    | <b>1 4</b>      | <b>-AD10</b>    |               |
|                                         |                                                                                                             |    |                 |                 |               |

**1**  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ , **AQN, AQP, AQR, AQS, PO, AD1 ... AD4, AD7 ... AD10, KD, E11, WPM**

Not with EU certification EX4

**2** **PO**

Not with rotary knob alternative LD

Not with security AS, E11

Not with mounting type WR

**3** **AD1 ... AD4** Measuring range max. 10 bar.

Not with pressure regulation range/operation D2, D4

**4** **AD7 ... AD10** Measuring range max. 10 bar.

Not with pressure regulation range/operation D2

**M** Mandatory data

**O** Options

Transfer order code

**538028** **MS** **6** - **LRP** -  -  -

## Precision pressure regulators MS6-LRP, MS series

FESTO

Ordering data – Modular products

| Ordering table |                               |                                                                                                   |                 |      |               |
|----------------|-------------------------------|---------------------------------------------------------------------------------------------------|-----------------|------|---------------|
| Grid dimension | [mm]                          | 62                                                                                                | Condi-<br>tions | Code | Enter<br>code |
| O              | Rotary knob alternative       | Long rotary knob                                                                                  | 5               | -LD  |               |
|                | Alternative mounting position | Rotary knob underneath                                                                            | 1 6             | -KD  |               |
| M              | Security                      | Without                                                                                           |                 |      |               |
|                |                               | Lockable via accessories                                                                          |                 | -AS  |               |
|                |                               | With integrated lock                                                                              | 1               | -E11 |               |
| O              | Type of mounting              | Mounting bracket with knurled nut for regulator head                                              | 7               | -WR  |               |
|                |                               | Mounting bracket standard design                                                                  | 8               | -WP  |               |
|                |                               | Mounting bracket for attaching the service units                                                  | 1 8             | -WPM |               |
|                |                               | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required |                 | -WB  |               |
|                | 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 (without pressure output, no pressure gauge)                    |                 | -Z   |               |

5 LD Not with integrated lock E11

6 KD Not with mounting type WP

7 WR Not with rotary knob alternative LD

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

M Mandatory data

O Options

Transfer order code

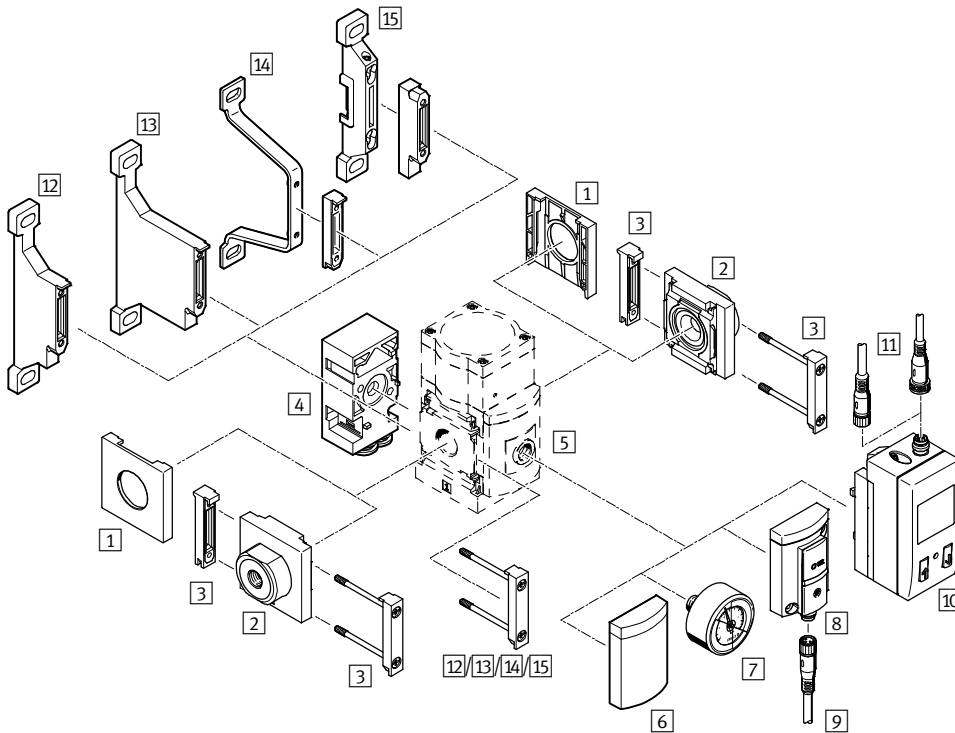
- [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

# Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

**FESTO**

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



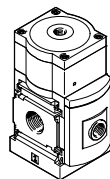
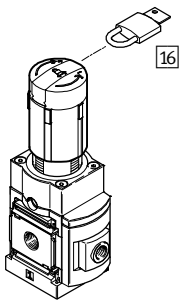
-  - Note

Additional accessories:

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

Manually operated

Pneumatically actuated



## Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

**FESTO**

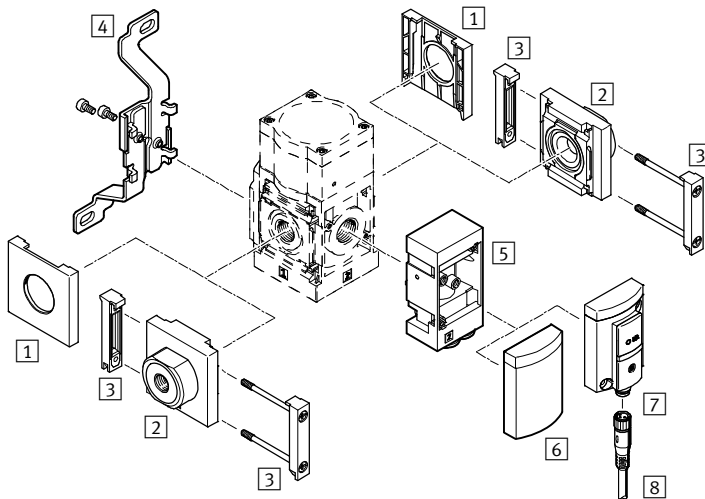
| Mounting attachments and accessories |                                                      |                          |                       |                          |                       |                 |
|--------------------------------------|------------------------------------------------------|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|                                      |                                                      | Individual device        |                       | Combination              |                       | ➔ Page/Internet |
|                                      |                                                      | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| 1                                    | Cover cap<br>MS6-END                                 | ■                        | –                     | ■                        | –                     | ms6-end         |
| 2                                    | Connecting plate-SET<br>MS6-AG...                    | –                        | ■                     | –                        | ■                     | ms6-ag          |
| 3                                    | Module connector<br>MS6-MV                           | –                        | ■                     | ■                        | ■                     | ms6-mv          |
| 4                                    | Angled outlet block<br>B...                          | ■                        | ■                     | ■                        | ■                     | 68              |
| 5                                    | Adapter plate for EN pressure gauge 1/8/1/4<br>A8/A4 | ■                        | ■                     | ■                        | ■                     | 68              |
| 6                                    | Cover plate<br>VS                                    | ■                        | ■                     | ■                        | ■                     | 68              |
| 7                                    | Precision pressure gauge<br>A8M/MAP                  | ■                        | ■                     | ■                        | ■                     | 68, 100         |
| 8                                    | Pressure sensor without display<br>AD7 ... AD10      | ■                        | ■                     | ■                        | ■                     | 68              |
| 9                                    | Connecting cable<br>NEBU-M8...-LE3                   | ■                        | ■                     | ■                        | ■                     | 100             |
| 10                                   | Pressure sensor with display<br>AD1 ... AD4          | ■                        | ■                     | ■                        | ■                     | 68              |
| 11                                   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4   | ■                        | ■                     | ■                        | ■                     | 100             |
| 12                                   | Mounting bracket<br>MS6-WP                           | –                        | ■                     | ■                        | ■                     | ms6-wp          |
| 13                                   | Mounting bracket<br>MS6-WPB                          | –                        | ■                     | ■                        | ■                     | ms6-wp          |
| 14                                   | Mounting bracket<br>MS6-WPE                          | –                        | ■                     | ■                        | ■                     | ms6-wp          |
| 15                                   | Mounting bracket<br>MS6-WPM                          | –                        | ■                     | ■                        | ■                     | ms6-wp          |
| 16                                   | Padlock<br>LRVS-D                                    | ■                        | ■                     | ■                        | ■                     | 100             |

# Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

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



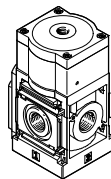
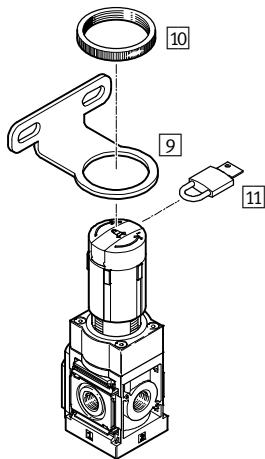
Note

Additional accessories:

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

Manually operated

Pneumatically actuated





## Precision pressure regulators MS6-LRPB, MS series

Peripherals overview

**FESTO**

| Mounting attachments and accessories |                                                      |                          |                       |                          |                       |                 |
|--------------------------------------|------------------------------------------------------|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|                                      |                                                      | Individual device        |                       | Combination              |                       | ➔ Page/Internet |
|                                      |                                                      | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| 1                                    | Cover cap<br>MS6-END                                 | ■                        | –                     | ■                        | –                     | ms6-end         |
| 2                                    | Connecting plate-SET<br>MS6-AG...                    | –                        | ■                     | –                        | ■                     | ms6-ag          |
| 3                                    | Module connector<br>MS6-MV                           | –                        | ■                     | ■                        | ■                     | ms6-mv          |
| 4                                    | Mounting bracket<br>MS6-WB                           | ■                        | ■                     | –                        | –                     | ms6-wb          |
| 5                                    | Angled outlet block<br>B...                          | ■                        | ■                     | ■                        | ■                     | 68              |
| 6                                    | Cover plate<br>VS                                    | ■                        | ■                     | ■                        | ■                     | 68              |
| 7                                    | Pressure sensor without display<br>AD7 ... AD10      | ■                        | ■                     | ■                        | ■                     | 68              |
| 8                                    | Connecting cable<br>NEBU-M8...-LE3                   | ■                        | ■                     | ■                        | ■                     | 100             |
| 9                                    | Mounting bracket<br>MS6-WR                           | ■                        | ■                     | –                        | –                     | ms6-wr          |
| 10                                   | Knurled nut (included in scope of delivery)<br>MS-LR | ■                        | ■                     | –                        | –                     | –               |
| 11                                   | Padlock<br>LRVS-D                                    | ■                        | ■                     | ■                        | ■                     | 100             |

# Precision pressure regulators MS6-LRPB, MS series

FESTO

Type codes

|                                            |                                                                 |    |   |   |      |   |     |   |    |   |    |   |    |
|--------------------------------------------|-----------------------------------------------------------------|----|---|---|------|---|-----|---|----|---|----|---|----|
|                                            |                                                                 | MS | 6 | - | LRPB | - | 1/2 | - | D7 | - | A8 | - | BD |
| <b>Series</b>                              |                                                                 |    |   |   |      |   |     |   |    |   |    |   |    |
| MS                                         | Standard service unit                                           |    |   |   |      |   |     |   |    |   |    |   |    |
| <b>Size</b>                                |                                                                 |    |   |   |      |   |     |   |    |   |    |   |    |
| 6                                          | Grid dimension 62 mm                                            |    |   |   |      |   |     |   |    |   |    |   |    |
| <b>Service function</b>                    |                                                                 |    |   |   |      |   |     |   |    |   |    |   |    |
| LRPB                                       | Precision pressure regulator for manifold assembly              |    |   |   |      |   |     |   |    |   |    |   |    |
| <b>Pneumatic connection</b>                |                                                                 |    |   |   |      |   |     |   |    |   |    |   |    |
| 1/2                                        | Female thread G1/2                                              |    |   |   |      |   |     |   |    |   |    |   |    |
| <b>Pressure regulation range/operation</b> |                                                                 |    |   |   |      |   |     |   |    |   |    |   |    |
| D2                                         | 0.05 ... 0.7 bar, manually operated                             |    |   |   |      |   |     |   |    |   |    |   |    |
| D4                                         | 0.05 ... 2.5 bar, manually operated                             |    |   |   |      |   |     |   |    |   |    |   |    |
| D5                                         | 0.1 ... 4 bar, manually operated                                |    |   |   |      |   |     |   |    |   |    |   |    |
| D7                                         | 0.1 ... 12 bar, manually operated                               |    |   |   |      |   |     |   |    |   |    |   |    |
| <b>Pressure gauge alternatives</b>         |                                                                 |    |   |   |      |   |     |   |    |   |    |   |    |
| A8                                         | Adapter plate for EN pressure gauge 1/8, without pressure gauge |    |   |   |      |   |     |   |    |   |    |   |    |
| <b>Pressure output</b>                     |                                                                 |    |   |   |      |   |     |   |    |   |    |   |    |
|                                            | Without angled outlet block                                     |    |   |   |      |   |     |   |    |   |    |   |    |
| BD                                         | Angled outlet block QS-8                                        |    |   |   |      |   |     |   |    |   |    |   |    |

Further variants can be ordered using the modular system → 68

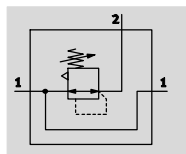
- Pneumatic connection
- Pressure regulation range/operation
- Pressure gauge alternatives
- Rotary knob alternatives
- Alternative mounting position
- Security
- Alternative pressure output
- Type of mounting
- EU certification
- UL certification
- Flow direction

# Precision pressure regulators MS6-LRPB, MS series

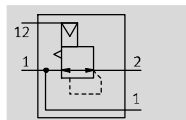
FESTO

Technical data

Pressure regulation range/operation manually operated D2/D4/D5/D7



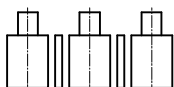
pneumatically actuated PO



-  Flow rate  
1,600 ... 5,000 l/min
-  Temperature range  
-10 ... +60 °C
-  Operating pressure  
1 ... 14 bar
-  [www.festo.com](http://www.festo.com)



Precision pressure regulator for manifold assembly:



The precision pressure regulator is suitable for sensitive applications requiring a hysteresis of 0.02 bar. The output pressure p2 can be set within

the pressure regulation range either manually using the rotary knob or pneumatically via a pilot pressure p12 by an external pilot regulator (if possible using a precision pressure regulator). When switching off the input pressure p1, the output pressure p2 is vented via connection 3 (secondary venting).

- Good regulation characteristics with low hysteresis and primary pressure compensation
- Manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- Regulator lock for protecting the values against adjustment
- Four pressure regulation ranges: 0.05 ... 0.7 bar, 0.05 ... 2.5 bar, 0.1 ... 4 bar and 0.1 ... 12 bar
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

| General technical data                            |                        |                                                                                                     |
|---------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|
| Size                                              |                        | MS6                                                                                                 |
| Pneumatic connection 1                            | Female thread          | G1/2                                                                                                |
|                                                   | Connecting plate AG... | G1/4, G3/8, G1/2 or G3/4                                                                            |
| Pneumatic connection 2                            |                        | G1/2                                                                                                |
|                                                   |                        | QS-8 with angled outlet block BD                                                                    |
|                                                   |                        | QS-10 with angled outlet block BE                                                                   |
| Pneumatic connection 3                            |                        | G1/4                                                                                                |
| Pilot air connection 12 with variant PO           |                        | G1/8                                                                                                |
| Constructional design                             |                        | Piloted precision diaphragm regulator with through pressure supply                                  |
| Regulating function                               |                        | Output pressure constant, via secondary venting                                                     |
| Type of mounting                                  |                        | Via accessories                                                                                     |
|                                                   |                        | In-line installation                                                                                |
|                                                   |                        | Front panel mounting                                                                                |
| Mounting position                                 |                        | Any                                                                                                 |
| Regulator lock                                    |                        | Rotary knob with detent                                                                             |
|                                                   |                        | Rotary knob with detent, lockable via accessories                                                   |
|                                                   |                        | Rotary knob with integrated lock                                                                    |
| Pressure regulation range/operation <sup>1)</sup> | D2 [bar]               | 0.05 ... 0.7, manually operated                                                                     |
|                                                   | D4 [bar]               | 0.05 ... 2.5, manually operated                                                                     |
|                                                   | D5 [bar]               | 0.1 ... 4, manually operated                                                                        |
|                                                   | D7 [bar]               | 0.1 ... 12, manually operated (0.1 ... 10 with pressure sensor AD... or with UL certification)      |
|                                                   | PO [bar]               | 0.1 ... 12, pneumatically actuated (0.1 ... 10 with pressure sensor AD... or with UL certification) |
| Max. hysteresis                                   | [bar]                  | 0.02                                                                                                |

1) Variant D2/D4/D5/D7: Supply pressure p1 ≥ output pressure p2 + 1 bar. Variant PO: Pilot pressure p12 = output pressure p2 + max. 0.5 bar.

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

# Precision pressure regulators MS6-LRPB, MS series

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Technical data

| General technical data |                                                                                                           |
|------------------------|-----------------------------------------------------------------------------------------------------------|
| Size                   | MS6                                                                                                       |
| Pressure indication    | 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                                                         |
|                        | G $\frac{1}{8}$ prepared                                                                                  |
|                        | G $\frac{1}{4}$ prepared                                                                                  |

| Flow rates                                        |                       |                       |                     |                        |
|---------------------------------------------------|-----------------------|-----------------------|---------------------|------------------------|
| Pressure regulation range                         | D2 (0.05 ... 0.7 bar) | D4 (0.05 ... 2.5 bar) | D5 (0.1 ... 4 bar)  | D7/PO (0.1 ... 12 bar) |
| Standard nominal flow rate q <sub>N</sub> [l/min] |                       |                       |                     |                        |
| q <sub>N</sub> 1 → 2                              | G $\frac{1}{2}$       | 1,600 <sup>1)</sup>   | 2,300 <sup>2)</sup> | 3,000 <sup>3)</sup>    |
| Secondary venting flow rate [l/min]               |                       |                       |                     |                        |
| q <sub>N</sub> 2 → 3                              | ≥ 220 <sup>5)</sup>   | ≥ 450 <sup>6)</sup>   | ≥ 650 <sup>7)</sup> | ≥ 900 <sup>8)</sup>    |

1) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 0.5 bar, Δp = 0.1 bar

2) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 1.5 bar, Δp = 0.1 bar

3) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 2.5 bar, Δp = 0.1 bar

4) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 6.0 bar, Δp = 0.1 bar

5) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 0.7 bar, Δp<sub>2</sub> = 0.1 bar

6) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 2.5 bar, Δp<sub>2</sub> = 0.1 bar

7) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 4.0 bar, Δp<sub>2</sub> = 0.1 bar

8) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 6.0 bar, Δp<sub>2</sub> = 0.1 bar

| Operating and environmental conditions       |                                                           |
|----------------------------------------------|-----------------------------------------------------------|
| Operating pressure [bar]                     | 1 ... 14 (1 ... 10) <sup>1)</sup>                         |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4] |
|                                              | Inert gases                                               |
| Note on operating/pilot medium               | Operation with lubricated medium not possible             |
| Ambient temperature [°C]                     | −10 ... +60 (0 ... +50) <sup>2)</sup>                     |
| Temperature of medium [°C]                   | −10 ... +60 (0 ... +50) <sup>2)</sup>                     |
| Storage temperature [°C]                     | −10 ... +60                                               |
| Corrosion resistance class CRC <sup>3)</sup> | 2                                                         |
| UL certification                             | cULus recognized (OL)                                     |

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

2) Value in brackets applies to MS6-LRPB 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.

| 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                        |
| CE mark (see declaration of conformity) | To EU Explosion Protection Directive (ATEX) |

| Weight [g]                                                             |       |
|------------------------------------------------------------------------|-------|
| Precision pressure regulator                                           | 1,000 |
| Precision pressure regulator with rotary knob with integrated lock E11 | 1,120 |

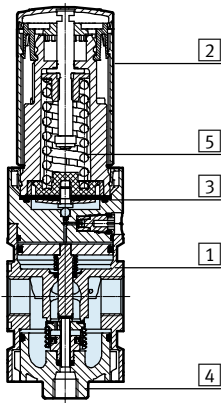
# Precision pressure regulators MS6-LRPB, MS series

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Technical data

## Materials

Sectional view

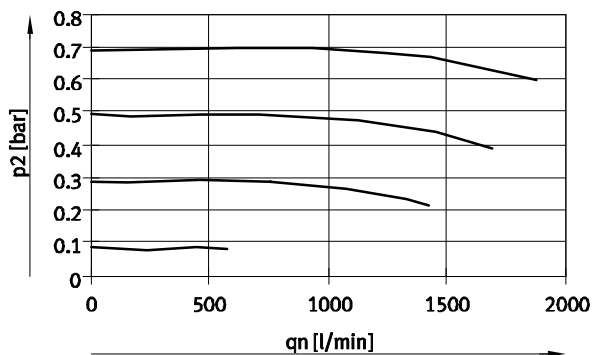


Precision pressure regulator (manifold assembly)

|                   |                                      |                                                         |
|-------------------|--------------------------------------|---------------------------------------------------------|
| 1                 | Housing                              | Die-cast aluminium                                      |
| 2                 | Rotary knob                          | PA/POM                                                  |
|                   | Rotary knob with integrated lock E11 | Aluminium                                               |
| 3                 | Diaphragm                            | NBR                                                     |
| 4                 | Cap, bottom                          | PC                                                      |
| 5                 | Springs                              | Steel                                                   |
| –                 | Seals                                | NBR                                                     |
| Note on materials |                                      | RoHS-compliant                                          |
|                   |                                      | Free of copper and PTFE (not with variant A8M or AD...) |

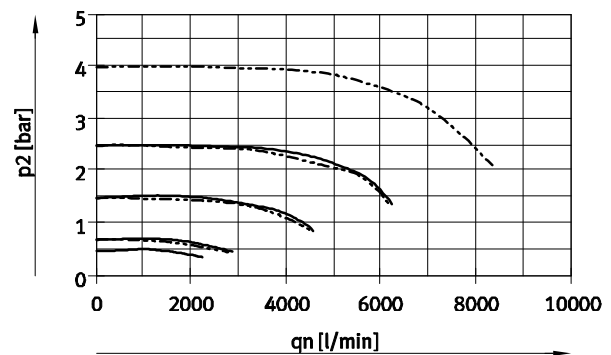
Standard flow rate  $q_n$  as a function of output pressure  $p_2$  ( $p_1 = 10$  bar)

MS6-LRPB-1/2-D2



— D2: 0.05...0.7 bar

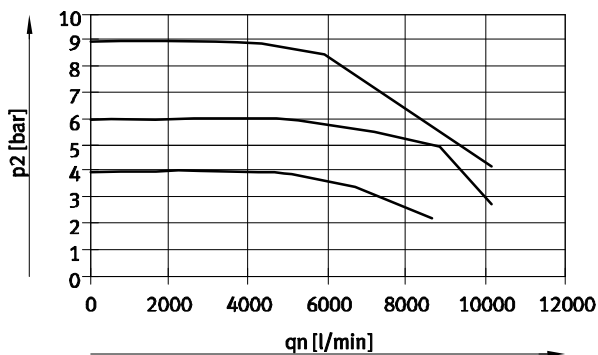
MS6-LRPB-1/2-D4/D5



— D4: 0.05...2.5 bar

- - - D5: 0.1...4 bar

MS6-LRPB-1/2-D7/PO



— D7/PO: 0.1...12 bar

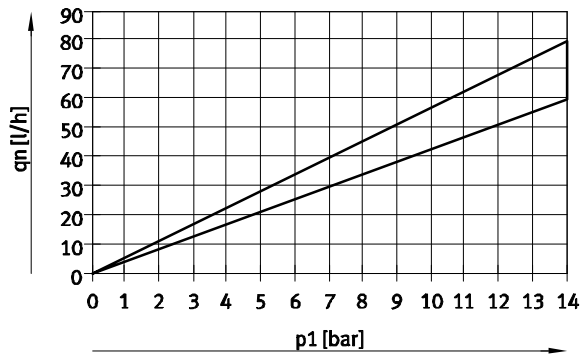
# Precision pressure regulators MS6-LRPB, MS series

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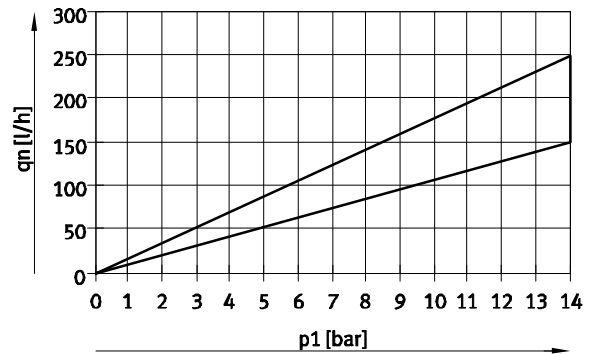
Technical data

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

MS6-LRPB-...-D2/D4



MS6-LRPB-...-D5/D7/PO

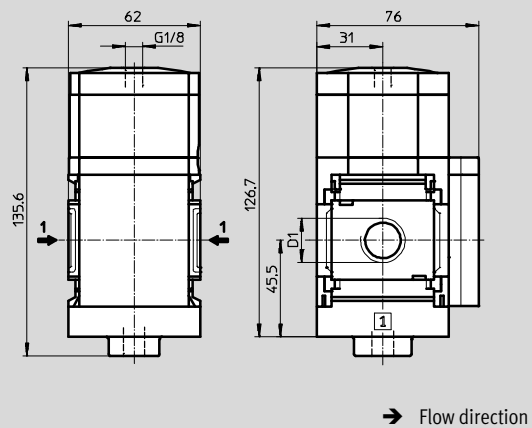
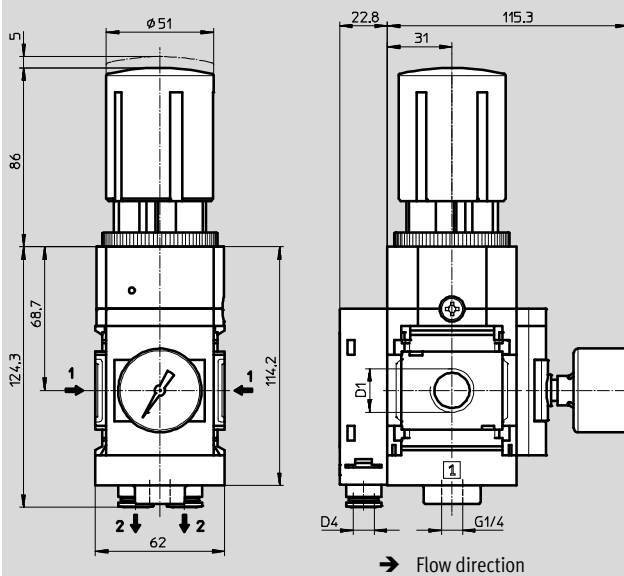


## Dimensions

Pressure regulation range D2/D4/D5/D7, manually operated, adapter plate for EN pressure gauge  $\frac{1}{8}$ , with precision pressure gauge A8M, angled outlet block BD/BE, rotary knob with detent

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

Pressure regulation range PO, pneumatically actuated, cover plate VS



| Type                            | D1              | D4    |
|---------------------------------|-----------------|-------|
| MS6-LRPB-1/2-D2/D4/D5/D7-A8M-BD | G $\frac{1}{2}$ | QS-8  |
| MS6-LRPB-1/2-D2/D4/D5/D7-A8M-BE |                 | QS-10 |

| Type               | D1              |
|--------------------|-----------------|
| MS6-LRPB-1/2-PO-VS | G $\frac{1}{2}$ |

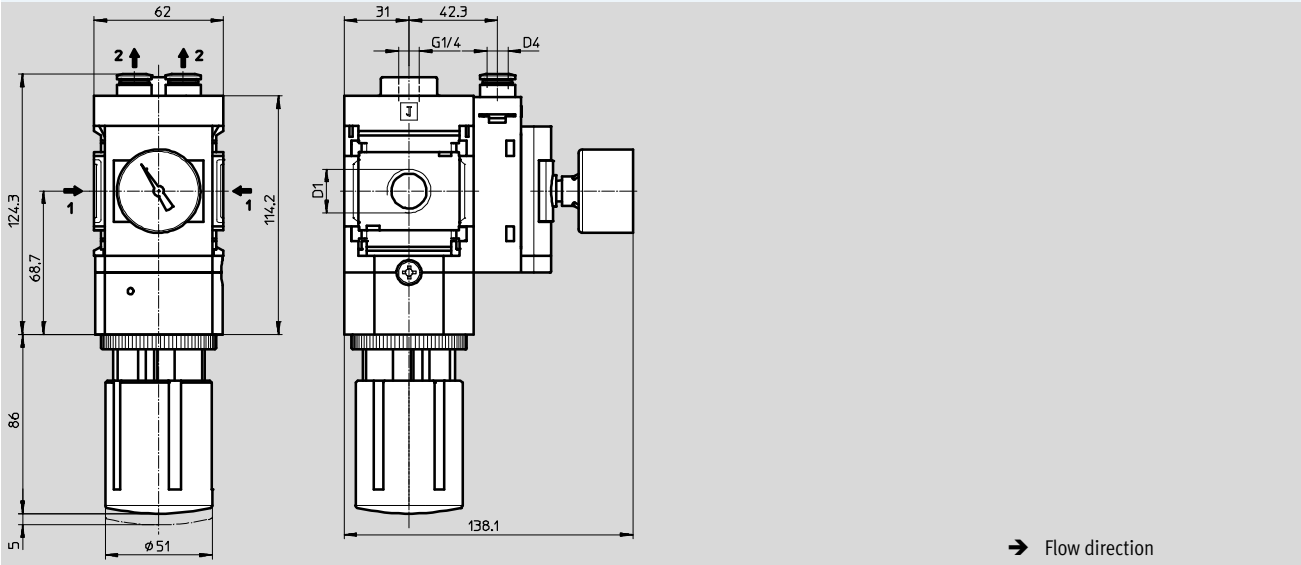
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Precision pressure regulators MS6-LRPB, MS series



Technical data

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



| Type                   | D1   | D4    |
|------------------------|------|-------|
| MS6-LRPB-1/2-...-KD-BD | G1/2 | QS-8  |
| MS6-LRPB-1/2-...-KD-BE |      | QS-10 |

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

# Precision pressure regulators MS6-LRPB, MS series

FESTO

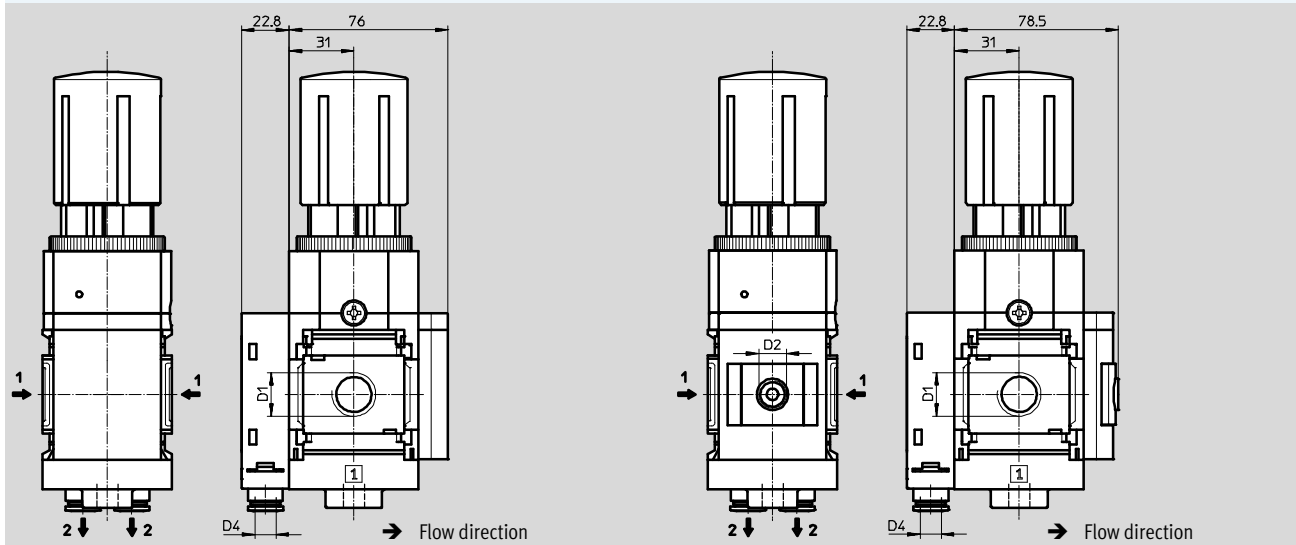
Technical data

## Dimensions – Pressure gauge alternatives

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

Cover plate VS, angled outlet block BD/BE

Adapter plate A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge, angled outlet block BD/BE



| Type                   | D1   | D2   | D4    |
|------------------------|------|------|-------|
| MS6-LRPB-1/2-...-VS-BD | G1/2 | –    | QS-8  |
| MS6-LRPB-1/2-...-VS-BE |      |      | QS-10 |
| MS6-LRPB-1/2-...-A8-BD | G1/2 | G1/8 | QS-8  |
| MS6-LRPB-1/2-...-A8-BE |      |      | QS-10 |
| MS6-LRPB-1/2-...-A4-BD | G1/2 | G1/4 | QS-8  |
| MS6-LRPB-1/2-...-A4-BE |      |      | QS-10 |

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



# Precision pressure regulators MS6-LRPB, MS series

**FESTO**

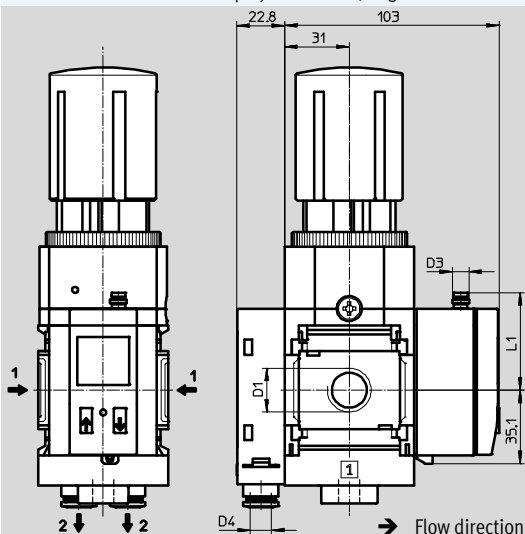
Technical data

## Dimensions – Pressure gauge alternatives

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

Pressure sensor with LCD display AD1 ... AD4, angled outlet block BD/BE

Technical data → Internet: [sde1](#)



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

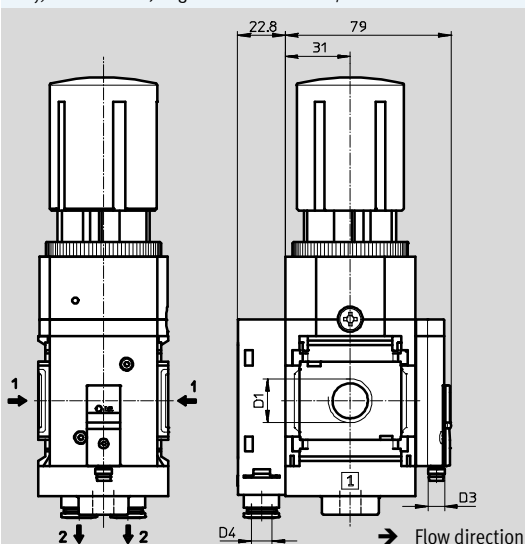
Variant AD3:  
SDE1-D10-G2-MS-L-PI-M12 with  
4-pin plug M12x1, 1 switching out-  
put PNP and 4 ... 20 mA analogue

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

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

Pressure sensor without LCD display (operational status indicator  
only) AD7 ... AD10, angled outlet block BD/BE

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

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

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

| Type                                 | D1              | D3    | D4    | L1   |
|--------------------------------------|-----------------|-------|-------|------|
| MS6-LRPB-1/2-...-AD1/AD2-BD          | G $\frac{1}{2}$ | M8x1  | QS-8  | 46.7 |
| MS6-LRPB-1/2-...-AD1/AD2-BE          |                 |       | QS-10 |      |
| MS6-LRPB-1/2-...-AD3/AD4-BD          | G $\frac{1}{2}$ | M12x1 | QS-8  | 55.8 |
| MS6-LRPB-1/2-...-AD3/AD4-BE          |                 |       | QS-10 |      |
| MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BD | G $\frac{1}{2}$ | M8x1  | QS-8  | –    |
| MS6-LRPB-1/2-...-AD7/AD8/AD9/AD10-BE |                 |       | QS-10 |      |

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

# Precision pressure regulators MS6-LRPB, MS series

Technical data

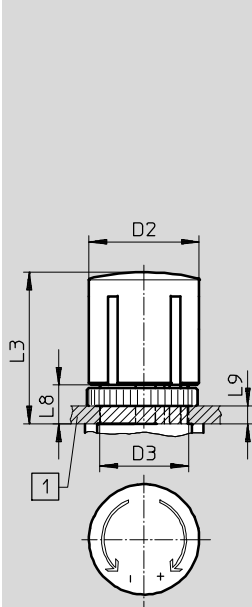
**FESTO**

## Dimensions – Rotary knob

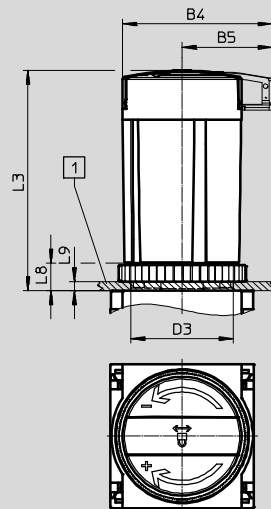
Download CAD data → [www.festo.com](http://www.festo.com)

For installation into control panel

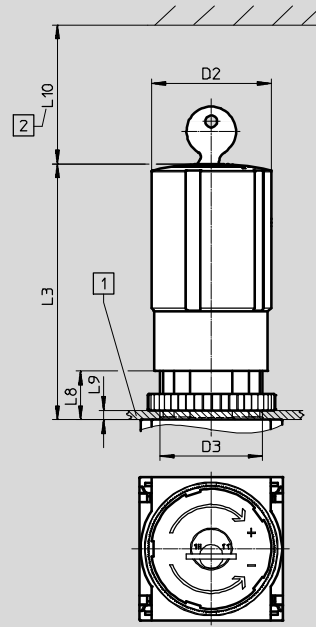
Rotary knob with detent



Rotary knob with detent, lockable via accessories AS

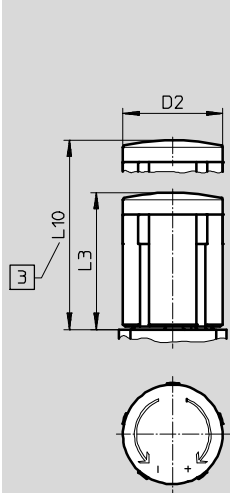


Rotary knob with integrated lock E11

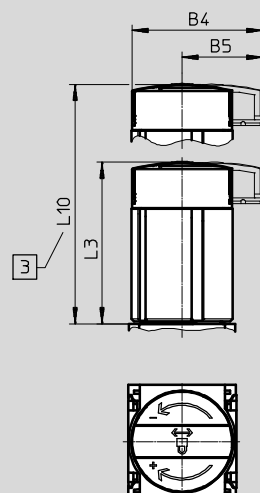


- 1 Max. control panel thickness
- 2 Installation dimensions

Long rotary knob with detent LD



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   |
|--------------------|------|------|------|-------|------|----|----|-------|
| MS6-LRPB-...       | -    | -    | 51.2 | M44x1 | 86   | 21 | 14 | -     |
| MS6-LRPB-...-AS    | 64.4 | 38.8 |      |       | 95.1 | 12 | 5  |       |
| MS6-LRPB-...-E11   | -    | -    |      |       | 110  | 21 | 14 |       |
| MS6-LRPB-...-LD    | -    | -    |      | -     | 86   | -  | -  | 139   |
| MS6-LRPB-...-LD-AS | 64.4 | 38.8 |      |       | 95.5 |    |    | 148.5 |

## Precision pressure regulators MS6-LRPB, MS series

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Technical data

| Ordering data                                                                                                         |            |               |                           |
|-----------------------------------------------------------------------------------------------------------------------|------------|---------------|---------------------------|
| Adapter plate for EN pressure gauge 1/8, rotary knob with detent, pressure output to rear without angled outlet block |            |               |                           |
| Size                                                                                                                  | Connection | Part No.      | Type                      |
| Pressure regulation range 0.05 ... 2.5 bar, manually operated                                                         |            |               |                           |
| MS6                                                                                                                   | G1/2       | <b>534914</b> | <b>MS6-LRPB-1/2-D4-A8</b> |
| Pressure regulation range 0.1 ... 4 bar, manually operated                                                            |            |               |                           |
| MS6                                                                                                                   | G1/2       | <b>534917</b> | <b>MS6-LRPB-1/2-D5-A8</b> |

| Ordering data                                                                                                           |            |               |                              |
|-------------------------------------------------------------------------------------------------------------------------|------------|---------------|------------------------------|
| Adapter plate for EN pressure gauge 1/8, rotary knob with detent, pressure output to rear with angled outlet block QS-8 |            |               |                              |
| Size                                                                                                                    | Connection | Part No.      | Type                         |
| Pressure regulation range 0.05 ... 0.7 bar, manually operated                                                           |            |               |                              |
| MS6                                                                                                                     | G1/2       | <b>534865</b> | <b>MS6-LRPB-1/2-D2-A8-BD</b> |
| Pressure regulation range 0.1 ... 12 bar, manually operated                                                             |            |               |                              |
| MS6                                                                                                                     | G1/2       | <b>534874</b> | <b>MS6-LRPB-1/2-D7-A8-BD</b> |

# Precision pressure regulators MS6-LRPB, MS series

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Ordering data – Modular products

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

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

Not with EU certification EX4

**2** **PO**

Not with long rotary knob LD

Not with security AS, E11

Not with mounting type WR

**3** **VS**

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

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

**4** **A8**, **A8M**, **A4**, **AD1 ... AD4**

In combination with flow direction Z only with alternative mounting position KD

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

Measuring range max. 10 bar

Not with pressure regulation range/operation D2, D4

**6** **AD7 ... AD10** In combination with flow direction Z only with alternative pressure output BD, BE or

In combination with flow direction Z only with alternative mounting position KD

**M** Mandatory data

**O** Options

Transfer order code

535007 MS 6 - LRPB - - -

# Precision pressure regulators MS6-LRPB, MS series

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Ordering data – Modular products

| Ordering table |                                                 |                                                                                                   |                 |      |               |
|----------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------|------|---------------|
| Grid dimension | [mm]                                            | 62                                                                                                | Condi-<br>tions | Code | Enter<br>code |
| O              | Rotary knob alternative                         | Long rotary knob                                                                                  | 7               | -LD  |               |
|                | Alternative mounting position                   | Rotary knob underneath                                                                            | 1 8             | -KD  |               |
| M              | Security                                        | Without                                                                                           |                 |      |               |
|                |                                                 | Lockable via accessories                                                                          |                 | -AS  |               |
|                |                                                 | With integrated lock                                                                              | 1               | -E11 |               |
| O              | Alternative pressure output<br>(p max = 10 bar) | Angled outlet block QS-8                                                                          |                 | -BD  |               |
|                |                                                 | Angled outlet block QS-10                                                                         |                 | -BE  |               |
|                | Type of mounting                                | Mounting bracket with knurled nut for regulator head                                              | 9 10            | -WR  |               |
|                |                                                 | Mounting bracket standard design                                                                  | 11 12           | -WP  |               |
|                |                                                 | Mounting bracket for attaching the service units                                                  | 1 9 11          | -WPM |               |
|                |                                                 | Mounting bracket for large wall gap                                                               | 11 13           | -WPB |               |
|                |                                                 | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required | 9               | -WB  |               |
|                | EU certification                                | II 2GD to EU Explosion Protection Directive (ATEX)                                                |                 | -EX4 |               |
|                | UL certification                                | cULus, ordinary location for Canada and USA                                                       |                 | -UL1 |               |
|                | Flow direction                                  | Pressure output to front (without pressure output, no pressure gauge)                             |                 | -Z   |               |

7 LD Not with integrated lock E11

8 KD In combination with pressure gauge alternatives A8, A4, AD1 ... AD4, AD7 ... AD10 only with flow direction Z

9 WR, WB, WPM Only with flow direction Z  
Not with alternative mounting position KD

10 WR Only with flow direction Z  
Not with long rotary knob LD

11 WP, WPM, WPB

Only with connecting plate AGB, AGC, AGD or AGE  
Not with alternative mounting position KD

12 WP Either only with flow direction Z  
or only with alternative pressure output BD, BE

13 WPB Not with alternative mounting position KD  
Not with alternative pressure output BD, BE  
Not with flow direction Z

M Mandatory data

O Options

Transfer order code

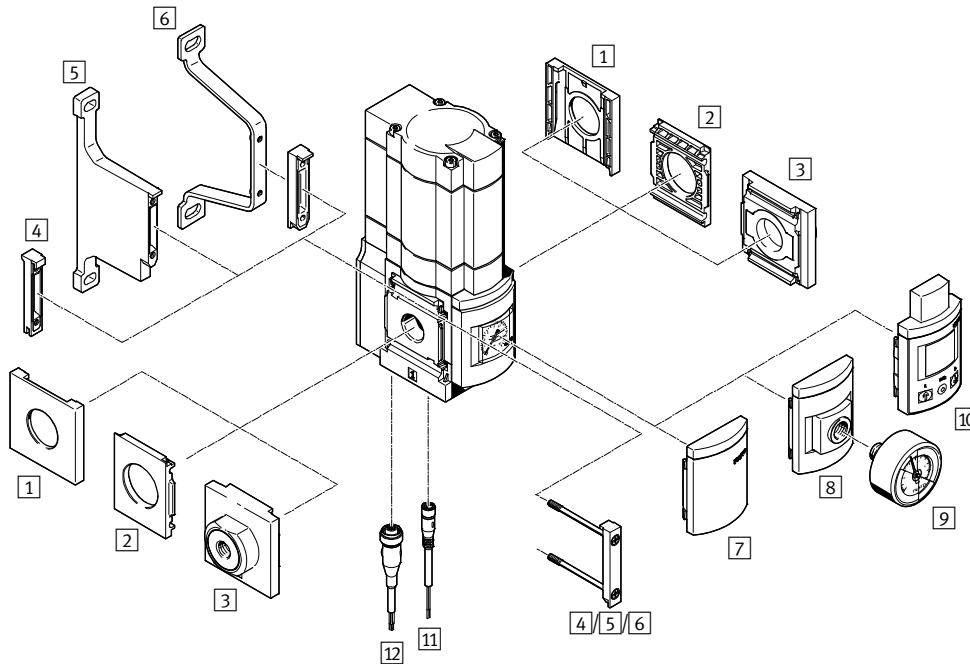
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# Electrical pressure regulators MS6-LRE, MS series

Peripherals overview

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## Electrical pressure regulators MS6-LRE



Note

Additional accessories:

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

## Mounting attachments and accessories

|    |                                               | Individual unit          |                       | Combination              |                       | → Page/Internet |
|----|-----------------------------------------------|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|    |                                               | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| 1  | Cover cap<br>MS6-END                          | –                        | –                     | ■                        | –                     | ms6-end         |
| 2  | Mounting plate<br>MS6-AEND                    | ■ <sup>1)</sup>          | –                     | ■ <sup>2)</sup>          | –                     | ms6-aend        |
| 3  | Connecting plate-SET<br>MS6-AG...             | –                        | ■ <sup>1)</sup>       | –                        | ■ <sup>2)</sup>       | ms6-ag          |
|    | Connecting plate-SET<br>MS6-AQ...             | –                        | ■ <sup>1)</sup>       | –                        | ■ <sup>2)</sup>       | ms6-aq          |
| 4  | Module connector<br>MS6-MV                    | –                        | –                     | ■                        | ■                     | ms6-mv          |
| 5  | Mounting bracket<br>MS6-WPB                   | ■                        | ■                     | ■                        | ■                     | ms6-wpb         |
| 6  | Mounting bracket<br>MS6-WPE                   | ■                        | ■                     | ■                        | ■                     | ms6-wpe         |
| 7  | Cover plate<br>VS                             | ■                        | ■                     | ■                        | ■                     | 77              |
| 8  | Adapter plate for EN pressure gauge 1/4<br>A4 | ■                        | ■                     | ■                        | ■                     | 77              |
| 9  | Pressure gauge<br>MA                          | ■                        | ■                     | ■                        | ■                     | 100             |
| 10 | Control unit with display<br>OP               | ■                        | ■                     | ■                        | ■                     | 77              |
| 11 | Connecting cable<br>NEBU-M8...-LE3            | ■                        | ■                     | ■                        | ■                     | 100             |
| 12 | Connecting cable<br>NEBU-M12...-LE5           | ■                        | ■                     | ■                        | ■                     | 100             |

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

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

## Electrical pressure regulators MS6-LRE, MS series

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Type codes

|                                                                                                    |                                          |    |   |   |     |   |     |   |    |   |    |
|----------------------------------------------------------------------------------------------------|------------------------------------------|----|---|---|-----|---|-----|---|----|---|----|
|                                                                                                    |                                          | MS | 6 | - | LRE | - | 1/4 | - | D6 | - | PU |
| <b>Series</b>                                                                                      |                                          |    |   |   |     |   |     |   |    |   |    |
| MS                                                                                                 | Standard service unit                    |    |   |   |     |   |     |   |    |   |    |
| <b>Size</b>                                                                                        |                                          |    |   |   |     |   |     |   |    |   |    |
| 6                                                                                                  | Grid dimension 62 mm                     |    |   |   |     |   |     |   |    |   |    |
| <b>Service function</b>                                                                            |                                          |    |   |   |     |   |     |   |    |   |    |
| LRE                                                                                                | Electrical pressure regulator            |    |   |   |     |   |     |   |    |   |    |
| <b>Pneumatic connection</b>                                                                        |                                          |    |   |   |     |   |     |   |    |   |    |
| 1/4                                                                                                | Female thread G1/4                       |    |   |   |     |   |     |   |    |   |    |
| 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>Electrically controlled pressure output (integrated pressure sensor with electrical output)</b> |                                          |    |   |   |     |   |     |   |    |   |    |
|                                                                                                    | None                                     |    |   |   |     |   |     |   |    |   |    |
| PU                                                                                                 | Plug, M8, 3-pin, V out                   |    |   |   |     |   |     |   |    |   |    |

Further variants can be ordered using the modular system → 77

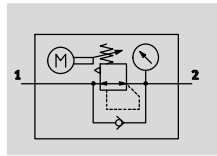
- Pneumatic connection
- Pressure regulation range
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Secondary venting
- Electrically controlled pressure output
- Sensor cables
- Supply cables
- Type of mounting
- UL certification
- Flow direction

# Electrical pressure regulators MS6-LRE, MS series

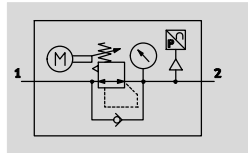
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Technical data

with pressure gauge



with pressure gauge and integrated pressure sensor



-  - Note

The electrical pressure regulator is not suitable for the set-up of closed control loops.

-  - Flow rate  
2,200 ... 7,500 l/min
-  - Temperature range  
0 ... +50 °C
-  - Operating pressure  
0.8 ... 20 bar



The electrical pressure regulator maintains incoming compressed air at the set output pressure. It also maintains a constant output pressure independent of pressure fluctuations and air consumption.

The output pressure is set indirectly via an integrated electrical drive unit. The drive unit can be operated either with digital inputs via the M12 plug or

using the optional control and display unit.

The direction of rotation of the drive unit is thus pre-set, which makes adjustment of the output pressure in the rising or falling direction possible. In the event of a power failure, the last drive unit or output pressure setting is saved. Pneumatic pressure regulation continues to function.

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

| General technical data    |          |                                                                                              |
|---------------------------|----------|----------------------------------------------------------------------------------------------|
| Size                      |          | MS6                                                                                          |
| Pneumatic connection 1, 2 |          |                                                                                              |
| Female thread             |          | G $\frac{1}{4}$ , G $\frac{3}{8}$ or G $\frac{1}{2}$                                         |
| Connecting plate AG...    |          | G $\frac{1}{4}$ , G $\frac{3}{8}$ , G $\frac{1}{2}$ or G $\frac{3}{4}$                       |
| Connecting plate AQ...    |          | NPT $\frac{1}{4}$ , NPT $\frac{3}{8}$ , NPT $\frac{1}{2}$ or NPT $\frac{3}{4}$               |
| Design                    |          | Electrically adjustable pressure regulator                                                   |
| Regulating function       |          | Output pressure constant, with primary pressure compensation, with/without secondary venting |
| Type of mounting          |          | Via accessories                                                                              |
|                           |          | In-line installation                                                                         |
| Assembly position         |          | Any, preferably vertical                                                                     |
| Pressure regulation range | D5 [bar] | 0.3 ... 4                                                                                    |
|                           | D6 [bar] | 0.3 ... 7                                                                                    |
|                           | D7 [bar] | 0.5 ... 12                                                                                   |
|                           | D8 [bar] | 0.5 ... 16                                                                                   |
| Max. hysteresis           | [bar]    | 0.25                                                                                         |
| Pressure indicator        |          | With pressure gauge                                                                          |
|                           |          | With control unit                                                                            |

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



# Electrical pressure regulators MS6-LRE, MS series

FESTO

Technical data

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |    |                     |                     |                     |
|--------------------------------------------------|----|---------------------|---------------------|---------------------|
| Pneumatic connection                             |    | G $\frac{1}{4}$     | G $\frac{3}{8}$     | G $\frac{1}{2}$     |
| Pressure regulation range                        | D5 | 2,400 <sup>2)</sup> | 5,500 <sup>2)</sup> | 7,500 <sup>2)</sup> |
|                                                  | D6 | 3,000               | 5,800               | 6,500               |
|                                                  | D7 | 2,700               | 4,500               | 5,500               |
|                                                  | D8 | 2,200               | 4,000               | 4,500               |

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

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

| Electrical data                              |         |                                         |                                 |            |
|----------------------------------------------|---------|-----------------------------------------|---------------------------------|------------|
|                                              |         | Without integrated pressure sensor      | With integrated pressure sensor |            |
|                                              |         |                                         | PI (I out)                      | PU (V out) |
| Analogue output                              | [V]     | –                                       | –                               | 0 ... 10   |
|                                              | [mA]    | –                                       | 4 ... 20                        | –          |
| Analogue outputs, absolute accuracy at 25 °C |         | –                                       | ±3                              | ±3         |
| Cable interface                              | Inputs  | Plug M12x1, 5-pin                       |                                 |            |
|                                              | Outputs | –                                       | Plug M8x1, 3-pin                |            |
| Design of inputs                             |         | To IEC 61131-2, no electrical isolation |                                 |            |
| Nominal operating voltage                    | [V DC]  | 24                                      |                                 |            |
| Permissible voltage fluctuations             | [%]     | ±10                                     |                                 |            |
| Nominal current consumption                  | [A]     | Max. 1                                  |                                 |            |
| Max. current consumption                     | [A]     | 3.5                                     |                                 |            |
| Duration of actuation at 25°C                | [s]     | Max. 90 <sup>1)</sup>                   |                                 |            |
| Protection against short circuit             |         | For all electrical connections          |                                 |            |
| Protection class                             |         | IP65                                    |                                 |            |

1) In order to prevent the drive from overheating, a control/pause ratio of 1:3 must be observed.

| Operating and environmental conditions       |                                                                                                        |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Operating pressure                           | [bar] 0.8 ... 20 (0.8 ... 10) <sup>1)</sup>                                                            |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |
|                                              | Inert gases                                                                                            |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |
| Ambient temperature                          | [°C] 0 ... +50                                                                                         |
| Temperature of medium                        | [°C] 0 ... +50                                                                                         |
| Storage temperature                          | [°C] –10 ... +50                                                                                       |
| Corrosion resistance class CRC <sup>2)</sup> | 2                                                                                                      |
| CE symbol (declaration of conformance)       | In accordance with EU EMC Directive <sup>3)</sup>                                                      |
| UL certification                             | cULus recognized (OL)                                                                                  |

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

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

Moderate corrosion stress. Indoor applications in which condensation 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.

3) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

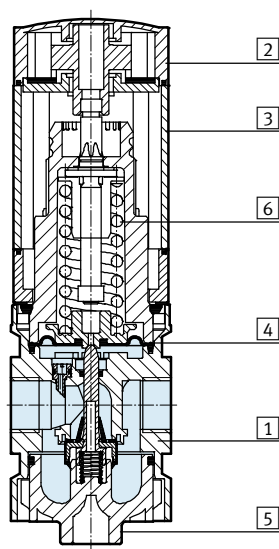
# Electrical pressure regulators MS6-LRE, MS series

Technical data

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| Weights [g]                   |       |
|-------------------------------|-------|
| Electrical pressure regulator | 1,280 |

| Materials      |  |
|----------------|--|
| Sectional view |  |

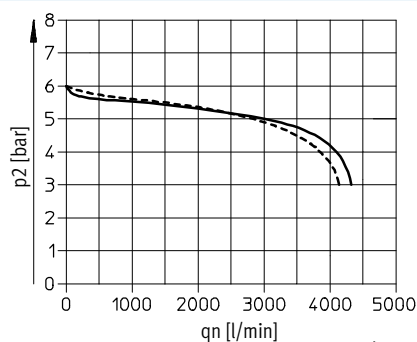


| Electrical pressure regulator |                          |                            |
|-------------------------------|--------------------------|----------------------------|
| 1                             | Body                     | Die-cast aluminium         |
| 2                             | Drive housing            | PA, reinforced             |
| 3                             | Profile housing          | Wrought aluminium alloy    |
| 4                             | Diaphragm                | NBR                        |
| 5                             | Bottom cap               | PET, fibreglass reinforced |
| 6                             | Springs                  | Steel                      |
| -                             | Display and control unit | PA                         |
| -                             | Seals                    | NBR                        |

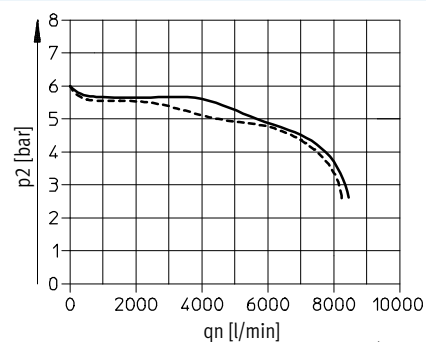
## Standard flow rate $q_n$ as a function of output pressure $p_2$

Input pressure  $p_1 = 10$  bar

MS6-LRE-1/4

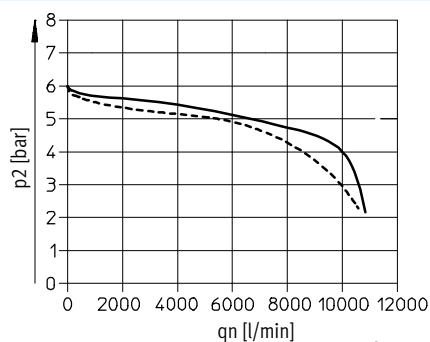


MS6-LRE-3/8



MS6-LRE-1/2

Input pressure  $p_1 = 10$  bar



# Electrical pressure regulators MS6-LRE, MS series

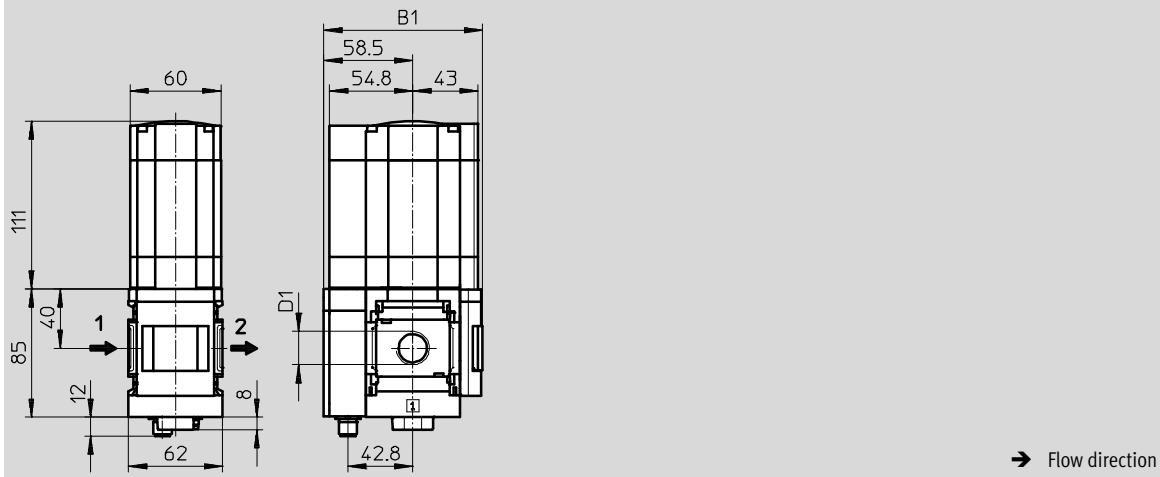
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Technical data

## Dimensions – Basic version

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

Integrated MS pressure gauge



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

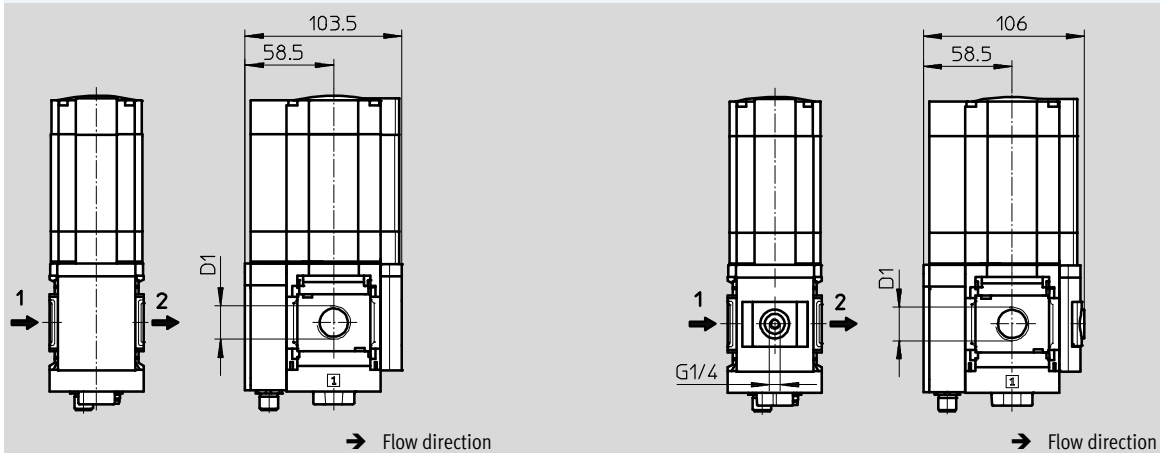
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

## Dimensions – Pressure gauge alternatives

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

Cover plate VS

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



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

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

# Electrical pressure regulators MS6-LRE, MS series

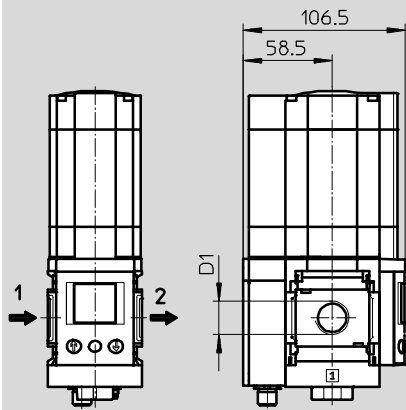
Technical data

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## Dimensions – Pressure gauge alternatives

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

Control unit with display OP



→ Flow direction

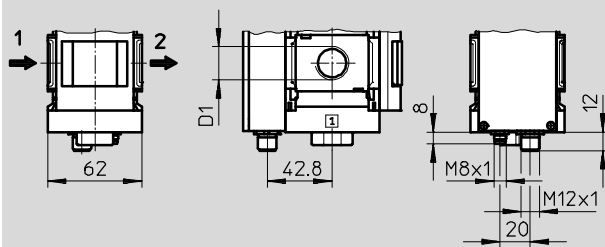
| Type        | D1   |
|-------------|------|
| MS6-LRE-1/4 | G1/4 |
| MS6-LRE-3/8 | G3/8 |
| MS6-LRE-1/2 | G1/2 |

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

## Dimensions – Electrically controlled pressure output

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

Integrated pressure sensor with electrical output PI/PU



→ Flow direction

| Ordering data                                                                                                                                                                    |            |                                        |                   |                                         |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------|-------------------|-----------------------------------------|----------------|
| Size                                                                                                                                                                             | Connection | Pressure regulation range 0.3... 7 bar |                   | Pressure regulation range 0.5... 12 bar |                |
|                                                                                                                                                                                  |            | Part No.                               | Type              | Part No.                                | Type           |
| Integrated MS pressure gauge with standard scale, display unit [bar]                                                                                                             |            |                                        |                   |                                         |                |
| MS6                                                                                                                                                                              | G1/4       | —                                      | —                 | 535364                                  | MS6-LRE-1/4-D7 |
|                                                                                                                                                                                  | G1/2       | 535348                                 | MS6-LRE-1/2-D6    | —                                       | —              |
| Integrated MS pressure gauge with standard scale, display unit [bar], electrically controlled pressure output (integrated pressure sensor with voltage output), M8x1 plug, 3-pin |            |                                        |                   |                                         |                |
| MS6                                                                                                                                                                              | G1/4       | 535362                                 | MS6-LRE-1/4-D6-PU | —                                       | —              |

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| Ordering table                                                  |                      |                                                           |                 |      |               |
|-----------------------------------------------------------------|----------------------|-----------------------------------------------------------|-----------------|------|---------------|
| Grid dimension [mm]                                             |                      | 62                                                        | Condi-<br>tions | Code | Enter<br>code |
| [M]                                                             | Module No.           | 535191                                                    |                 |      |               |
|                                                                 | Series               | Standard                                                  |                 | MS   |               |
|                                                                 | Size                 | 6                                                         |                 | 6    |               |
|                                                                 | Function             | Electrical pressure regulator                             |                 | -LRE |               |
|                                                                 | Pneumatic connection | Female thread G1/4                                        |                 | -1/4 |               |
|                                                                 |                      | Female thread G3/8                                        |                 | -3/8 |               |
|                                                                 |                      | Female thread G1/2                                        |                 | -1/2 |               |
|                                                                 |                      | Connecting plate G1/4                                     |                 | -AGB |               |
|                                                                 |                      | Connecting plate G3/8                                     |                 | -AGC |               |
|                                                                 |                      | Connecting plate G1/2                                     |                 | -AGD |               |
|                                                                 |                      | Connecting plate G3/4                                     |                 | -AGE |               |
|                                                                 |                      | Connecting plate NPT1/4                                   |                 | -AQN |               |
|                                                                 |                      | Connecting plate NPT3/8                                   |                 | -AQP |               |
|                                                                 |                      | Connecting plate NPT1/2                                   |                 | -AQR |               |
|                                                                 |                      | Connecting plate NPT3/4                                   |                 | -AQS |               |
|                                                                 |                      | Pressure regulation range                                 | 0.3 ... 4 bar   |      |               |
|                                                                 | 0.3 ... 7 bar        |                                                           |                 | -D6  |               |
|                                                                 | 0.5 ... 12 bar       |                                                           |                 | -D7  |               |
|                                                                 | 0.5 ... 16 bar       |                                                           |                 | -D8  |               |
|                                                                 | [O]                  | Pressure gauge alternatives                               | Cover plate     |      |               |
| Adapter plate for EN pressure gauge 1/4, without pressure gauge |                      |                                                           |                 | -A4  |               |
| Integrated pressure gauge, red-green scale                      |                      |                                                           |                 | -RG  |               |
| Control unit with display                                       |                      |                                                           | [1]             | -OP  |               |
| Alternative pressure gauge scale                                |                      | psi                                                       | [2]             | -PSI |               |
|                                                                 |                      | MPa                                                       | [2]             | -MPA |               |
| Secondary venting                                               |                      | Without secondary venting                                 |                 | -OS  |               |
| Electrically controlled pressure output                         |                      | Plug, M8, 3-pin, analogue current output I <sub>out</sub> |                 | -PI  |               |
|                                                                 |                      | Plug, M8, 3-pin, analogue voltage output V <sub>out</sub> |                 | -PU  |               |
| Sensor cables                                                   |                      | Plug socket, M8, with cable, 2.5 m                        | [1]             | -SK2 |               |
|                                                                 |                      | Plug socket, M8, with cable, 5 m                          | [1]             | -SK5 |               |
| Supply cable                                                    |                      | Plug socket, M12, with cable, 2.5 m                       |                 | -VK2 |               |
|                                                                 |                      | Plug socket, M12, with cable, 5 m                         |                 | -VK5 |               |
| Type of mounting                                                |                      | Mounting bracket for large wall gap at low loads          | [3]             | -WBE |               |
|                                                                 |                      | Mounting bracket for large wall gap                       | [4]             | -WPB |               |
| UL certification                                                |                      | cULus, ordinary location for Canada and USA               |                 | -UL1 |               |
| Flow direction                                                  |                      | Flow direction from right to left                         |                 | -Z   |               |

- |   |                     |                                                                     |
|---|---------------------|---------------------------------------------------------------------|
| 1 | <b>OP, SK2, SK5</b> | Only with electrical pressure output PI, PU                         |
| 2 | <b>PSI, MPA</b>     | Not with pressure gauge alternatives VS, A4, RG, OP                 |
| 3 | <b>WBE</b>          | Only with female thread 1/4, 3/8, 1/2                               |
| 4 | <b>WPB</b>          | Only with connecting plate AGB, AGC, AGD, AGE, AQN, AQP, AQR or AQS |

0 Options

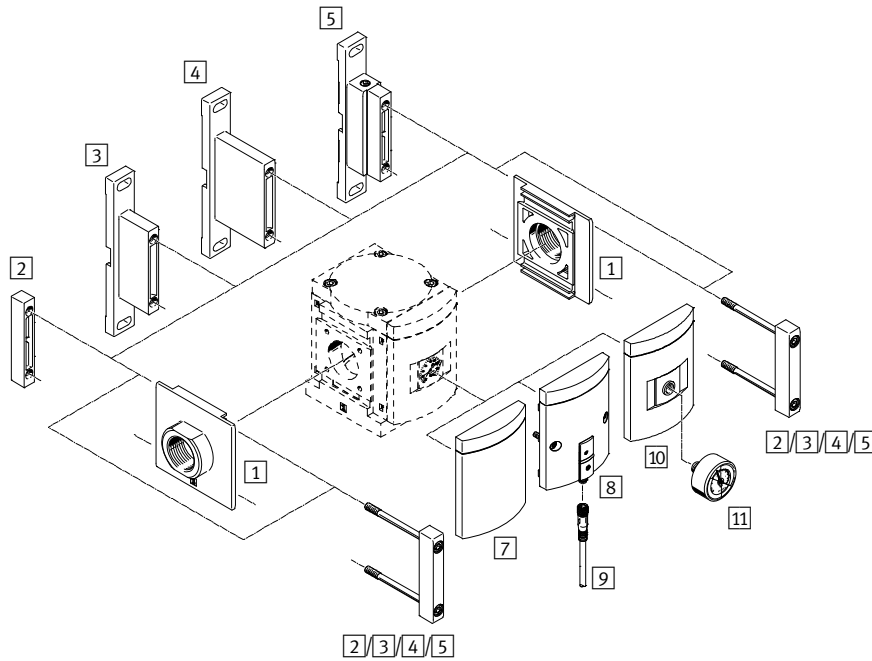
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# Pressure regulators MS9-LR, MS series

Peripherals overview

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## Pressure regulator MS9-LR



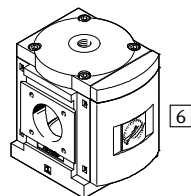
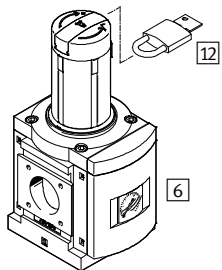
Note

Additional accessories:

- Module connector for combinations with size MS6, MS9 or MS12 → Internet: rmv, armv

manually operated

pneumatically actuated



## Pressure regulators MS9-LR, 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                         | ■                                   | ■                                                                    | ■                                                                                                       | 88                  |
| 7                                    | Cover plate<br>VS                               | ■                                   | ■                                                                    | ■                                                                                                       | 88                  |
| 8                                    | Pressure sensor without display<br>AD7 ... AD10 | ■                                   | ■                                                                    | –                                                                                                       | 88                  |
| 9                                    | Connecting cable<br>NEBU-M8...-LE3              | ■                                   | ■                                                                    | –                                                                                                       | 100                 |
| 10                                   | Adapter plate for EN pressure gauge 1/4<br>A4   | ■                                   | ■                                                                    | ■                                                                                                       | 88                  |
| 11                                   | Pressure gauge<br>MA                            | ■                                   | ■                                                                    | ■                                                                                                       | 100                 |
| 12                                   | Padlock<br>LRVS-D                               | ■                                   | ■                                                                    | ■                                                                                                       | 100                 |

# Pressure regulators MS9-LR, MS series

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Type codes

|                                            |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
|--------------------------------------------|-------------------------------------------------------------------|----|---|---|----|---|---|---|----|---|----|---|----|---|-----|---|----|
|                                            |                                                                   | MS | 9 | - | LR | - | G | - | D5 | - | DI | - | AG | - | BAR | - | AS |
| <b>Series</b>                              |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| MS                                         | Standard service unit                                             |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| <b>Size</b>                                |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| 9                                          | Grid dimension 90 mm                                              |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| <b>Service function</b>                    |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| LR                                         | Pressure regulator                                                |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| <b>Pneumatic connection</b>                |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| G                                          | Module without connecting thread, without connecting plate        |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| NG                                         | Module without connecting thread, without connecting plate (inch) |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| <b>Pressure regulation range/operation</b> |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| D5                                         | 0.5 ... 4 bar, manually operated                                  |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| D6                                         | 0.5 ... 7 bar, manually operated                                  |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| D7                                         | 0.5 ... 12 bar, manually operated                                 |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| <b>Alternative actuation principle</b>     |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
|                                            | Piloted                                                           |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| DI                                         | Directly actuated (only with pressure regulation range D5/D6)     |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| <b>Pressure gauge</b>                      |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| AG                                         | MS pressure gauge                                                 |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| <b>Pressure gauge scale</b>                |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| BAR                                        | bar                                                               |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| PSI                                        | psi                                                               |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| <b>Security</b>                            |                                                                   |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |
| AS                                         | Rotary knob with detent, lockable via accessories                 |    |   |   |    |   |   |   |    |   |    |   |    |   |     |   |    |

Additional variants can be ordered using the modular product system → 88

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

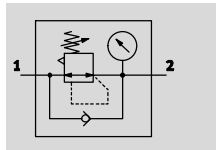


# Pressure regulators MS9-LR, MS series

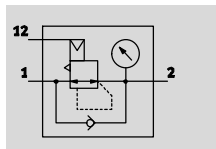
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Technical data

Pressure regulation range/operation  
D5/D6/D7/D8, manually operated



P0, pneumatically actuated



-  - Flow rate  
6,500 ... 33,000 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Operating pressure  
1 ... 20 bar
-  - [www.festo.com](http://www.festo.com)



The pressure regulator maintains an essentially constant output pressure p2 independent of pressure fluctuations in the system and air consumption. The output pressure p2 can be set within the pressure regulation range either manually using the rotary

knob or pneumatically via a pilot pressure p12 by an external pilot regulator. When switching off the operating pressure, the output pressure p2 is vented via connection 3 (secondary venting).

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

| General technical data                                              |                   |                                                                                                               |
|---------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|
| Pneumatic connection 1, 2                                           |                   |                                                                                                               |
| Female thread                                                       |                   | G3/4 or G1                                                                                                    |
| Connecting plate AG...                                              |                   | G1/2, G3/4, G1, G1 1/4 or G1 1/2                                                                              |
| Connecting plate AQ...                                              |                   | NPT1/2, NPT3/4, NPT1, NPT1 1/4 or NPT1 1/2                                                                    |
| Module without connecting thread/plate G/NG                         |                   | –                                                                                                             |
| Pilot air connection 12 with pressure regulation range/operation P0 |                   | G1/4                                                                                                          |
| Design                                                              |                   | Piloted diaphragm regulator<br>Directly actuated 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<br>In-line installation<br>Front panel mounting                                               |
| Mounting position                                                   |                   | Any <sup>1)</sup>                                                                                             |
| Actuation security                                                  |                   | Rotary knob with detent, lockable via accessories<br>Rotary knob with integrated lock                         |
| Pressure regulation range/operation                                 | 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...)                                 |
|                                                                     | P0 [bar]          | 0.5 ... 16, pneumatically actuated <sup>2)</sup>                                                              |
| Max. pressure hysteresis [bar]                                      |                   | 0.4                                                                                                           |

1) The pressure regulator must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.

2) Output pressure p2 corresponds roughly to the applied pilot pressure p12.

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

# Pressure regulators MS9-LR, MS series

FESTO

Technical data

| General technical data |                                                                                                           |
|------------------------|-----------------------------------------------------------------------------------------------------------|
| 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 $\frac{3}{4}$ prepared                                                                                  |

| Standard nominal flow rate $q_{nN}^{1)2)}$ [l/min] |    |                                    |                      |                                            |
|----------------------------------------------------|----|------------------------------------|----------------------|--------------------------------------------|
| Design                                             |    | Piloted diaphragm regulator        |                      | Directly actuated 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 |
| Pressure regulation range                          | D5 | 19,000 <sup>3)</sup>               | 26,000 <sup>3)</sup> | 14,000 <sup>3)</sup> 20,000 <sup>3)</sup>  |
|                                                    | D6 | 17,000                             | 20,000               | 14,000 11,000                              |
|                                                    | D7 | 17,000                             | 20,000               | – –                                        |
|                                                    | D8 | 17,000                             | 20,000               | – –                                        |
|                                                    | P0 | 21,000                             | 25,000               | – –                                        |

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

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

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

2) 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 $\leq T_a \leq$ +60 °C               |
| CE mark (see declaration of conformity) | To EU Explosion Protection Directive (ATEX) |

| Weight [g]                                                   |       |
|--------------------------------------------------------------|-------|
| Pressure regulator                                           | 1,400 |
| Pressure regulator with rotary knob with integrated lock E11 | 1,700 |

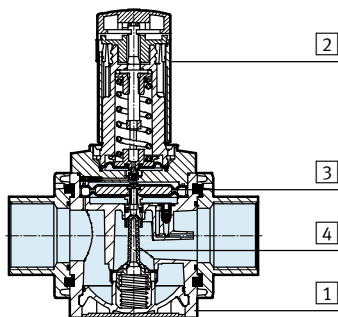
# Pressure regulators MS9-LR, MS series

Technical data

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## Materials

Sectional view



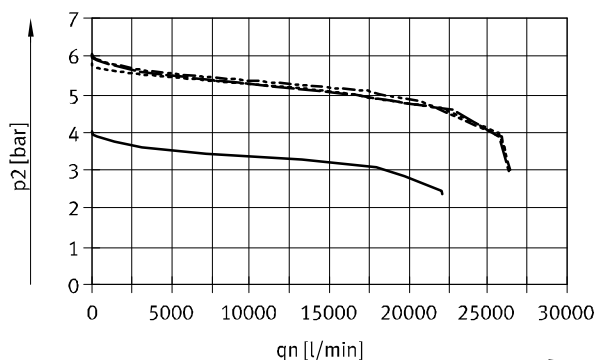
## Pressure regulator

|                   |                                                      |                                   |
|-------------------|------------------------------------------------------|-----------------------------------|
| 1                 | Housing                                              | Die-cast aluminium                |
| 2                 | Rotary knob                                          | PA                                |
|                   | Rotary knob with integrated lock E11                 | Aluminium                         |
| 3                 | Diaphragm                                            | NBR                               |
| 4                 | 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                    |

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

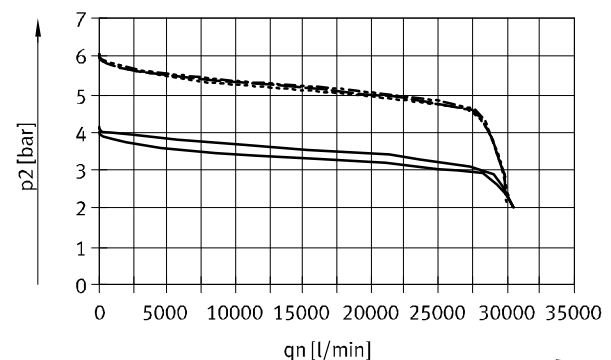
Piloted diaphragm regulator

Pneumatic connection G $\frac{3}{4}$ /NPT $\frac{3}{4}$



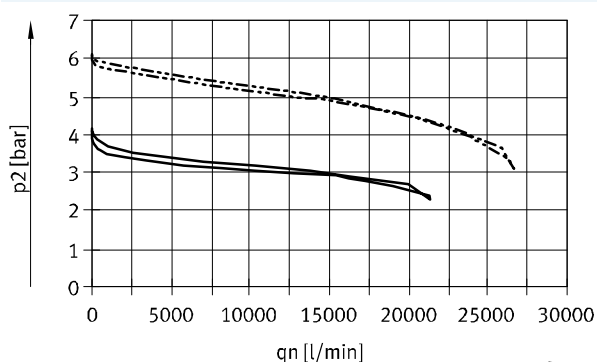
— D5: 0.5 ... 4 bar      - · - · - D7: 0.5 ... 12 bar  
 - - - - D6: 0.5 ... 7 bar      · · · · · D8: 0.5 ... 16 bar

Pneumatic connection G1/NPT1



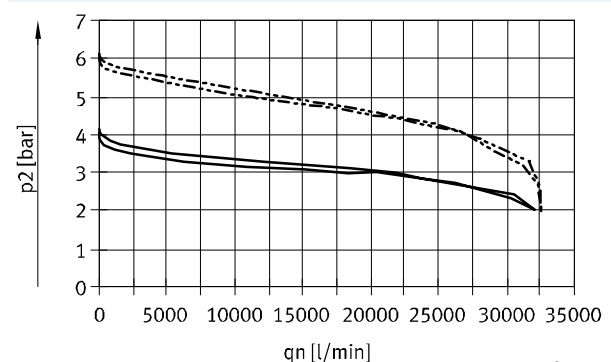
## Directly actuated diaphragm regulator DI

Pneumatic connection G $\frac{3}{4}$ /NPT $\frac{3}{4}$



— D5: 0.5 ... 4 bar  
 - - - - D6: 0.5 ... 7 bar

Pneumatic connection G1/NPT1



# Pressure regulators MS9-LR, MS series

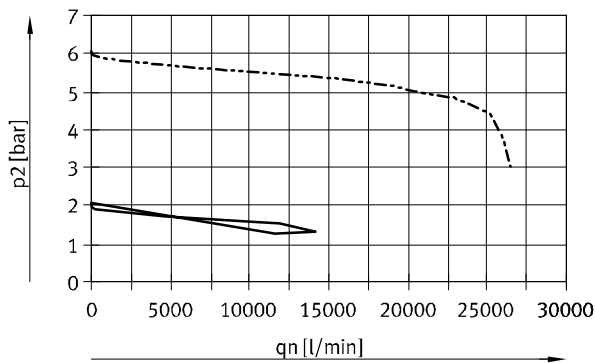
Technical data

FESTO

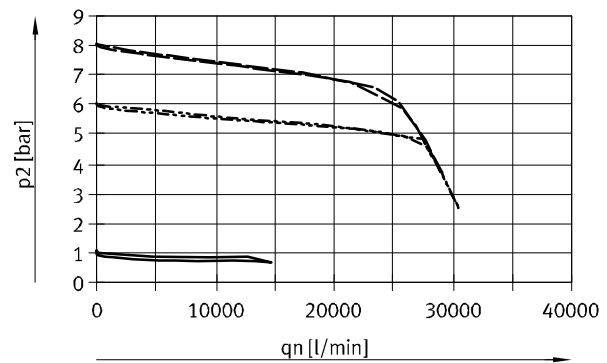
## Standard flow rate $q_n$ as a function of output pressure $p_2$ at operating pressure $p_1 = 10$ bar

External pilot regulator, pressure regulation range/operation PO

Pneumatic connection  $G\frac{3}{4}/NPT\frac{3}{4}$



Pneumatic connection  $G1/NPT1$

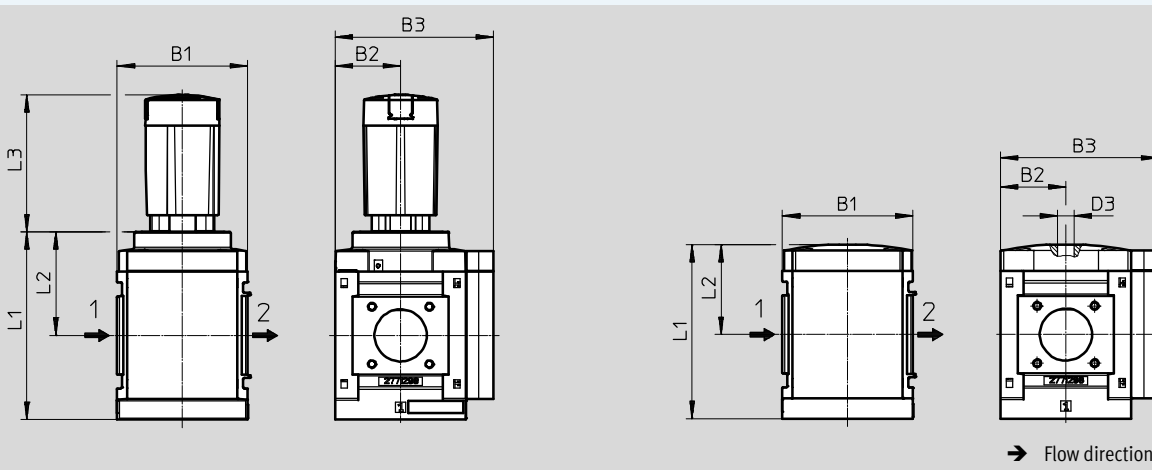


## Dimensions – Basic version

Pressure regulation range D5/D6/D7/D8, manually operated, module without connecting thread, without connecting plate G/NG, cover plate VS, rotary knob with detent, lockable via accessories AS

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

Pressure regulation range PO, pneumatically actuated, module without connecting thread, without connecting plate G/NG, cover plate VS



| Type                    | B1 | B2 | B3  | D3             | L1      |                      | L2      |                      | L3   |
|-------------------------|----|----|-----|----------------|---------|----------------------|---------|----------------------|------|
|                         |    |    |     |                | Piloted | Directly actuated DI | Piloted | Directly actuated DI |      |
| MS9-LR-G/NG-D5/D6/D7/D8 | 90 | 45 | 109 | –              | 129     | 122                  | 71.4    | 64                   | 94.5 |
| MS9-LR-G/NG-PO          |    |    |     | $G\frac{1}{4}$ | 120     | –                    | 62      | –                    | –    |

# Pressure regulators MS9-LR, MS series

Technical data

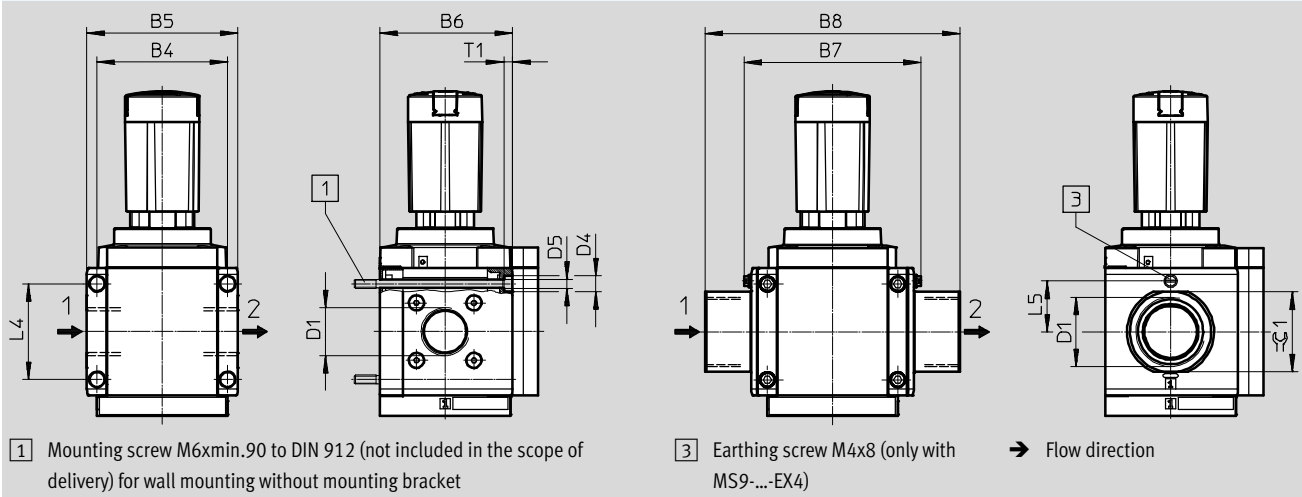
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## Dimensions – Connecting thread/connecting plate

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  | L4 | L5 |     | T1 | ≈ 1 |
|-------------|----|-----|------|-----|-----|-----|-----------------|----|-----|----|----|-----|----|-----|
|             |    |     |      |     | EX4 |     |                 |    |     |    |    | EX4 |    |     |
| MS9-LR-3/4  | 90 | 104 | 91.5 | -   | -   | -   | G3/4            | 11 | 6.5 | 66 | -  | -   | 6  | -   |
| MS9-LR-1    |    |     |      |     |     |     | G1              |    |     |    |    |     |    |     |
| MS9-LR-AGD  | -  | -   | -    | 112 | 122 | 132 | G1/2            | -  | -   | -  | 35 | -   | -  | 30  |
| MS9-LR-AGE  |    |     |      |     |     | 132 | G3/4            |    |     |    |    |     |    | 36  |
| MS9-LR-AGF  |    |     |      |     |     | 142 | G1              |    |     |    |    |     |    | 41  |
| MS9-LR-AGG  |    |     |      |     |     | 162 | G1 1/4          |    |     |    |    |     |    | 50  |
| MS9-LR-AGH  |    |     |      |     |     | 176 | G1 1/2          |    |     |    |    |     |    | 55  |
| MS9-LR-N3/4 | 90 | 104 | 91.5 | -   | -   | -   | NPT3/4-14       | 11 | 6.5 | 66 | -  | -   | 6  | -   |
| MS9-LR-N1   |    |     |      |     |     |     | NPT1-11 1/2     |    |     |    |    |     |    |     |
| MS9-LR-AQR  | -  | -   | -    | 112 | 122 | 132 | NPT1/2-14       | -  | -   | -  | 35 | -   | -  | 30  |
| MS9-LR-AQS  |    |     |      |     |     | 132 | NPT3/4-14       |    |     |    |    |     |    | 36  |
| MS9-LR-AQT  |    |     |      |     |     | 142 | NPT1-11 1/2     |    |     |    |    |     |    | 41  |
| MS9-LR-AQU  |    |     |      |     |     | 162 | NPT1 1/4-11 1/2 |    |     |    |    |     |    | 50  |
| MS9-LR-AQV  |    |     |      |     |     | 176 | NPT1 1/2-11 1/2 |    |     |    |    |     |    | 55  |

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

# Pressure regulators MS9-LR, MS series

Technical data

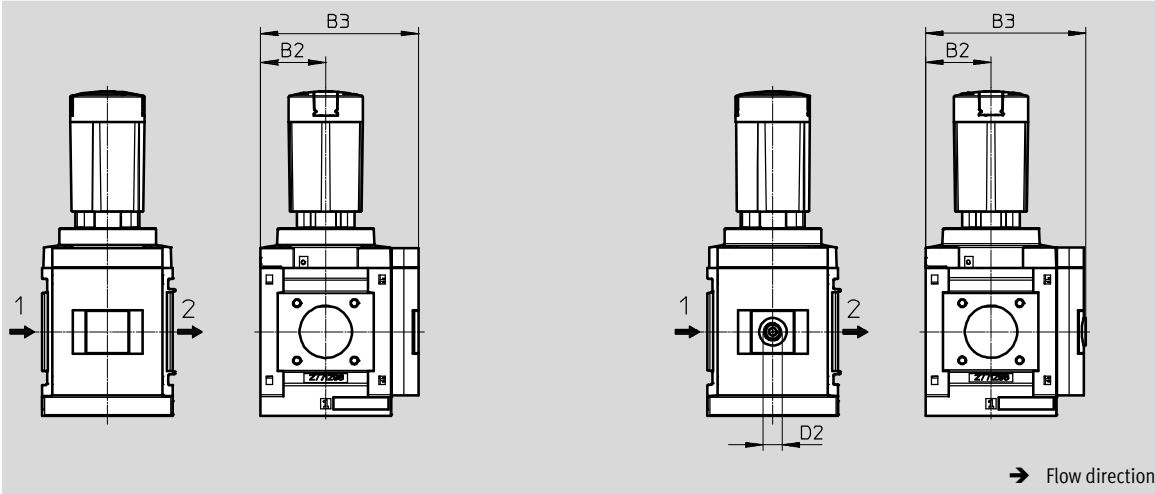
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## Dimensions – Pressure gauge alternatives

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-LR-...-AG/RG | 45 | 109 | –   | –    |
| MS9-LR-...-A4    |    | –   | 110 | G1/4 |

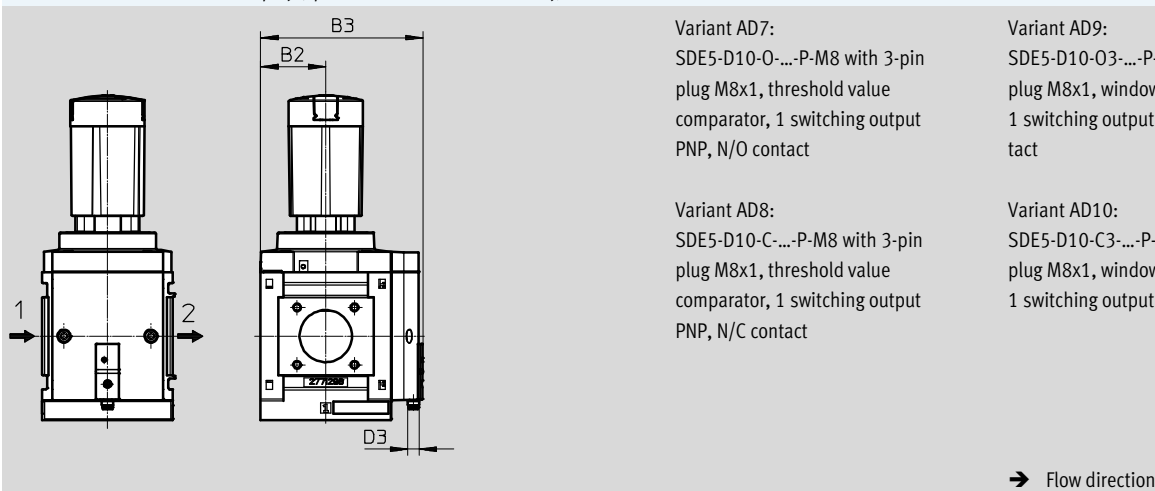
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

## Dimensions – Pressure gauge alternatives

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

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

Technical data → Internet: [sde5](http://sde5)



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

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

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

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

| Type                        | B2 | B11 | D3 |
|-----------------------------|----|-----|----|
| MS9-LR-...-AD7/AD8/AD9/AD10 | 45 | 112 | M8 |

# Pressure regulators MS9-LR, MS series

Technical data

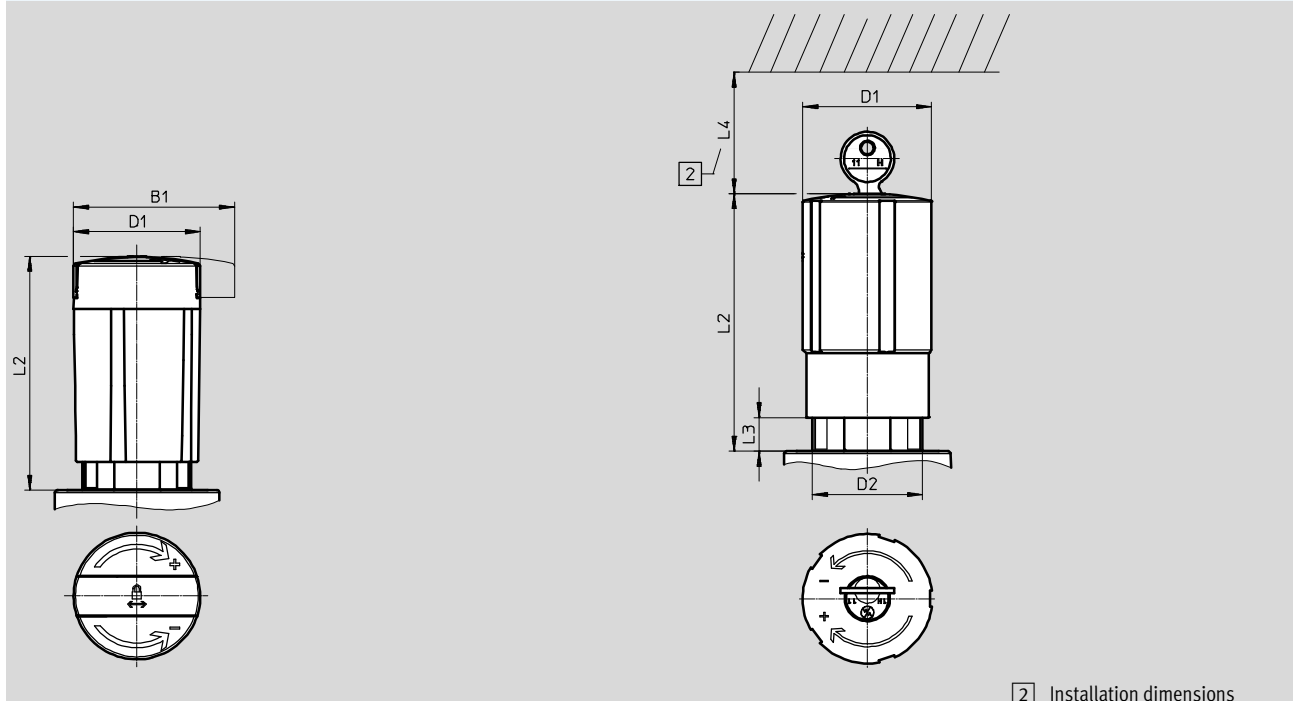
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## Dimensions – Rotary knob

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-LR-...-AS  | 64.4 | 51.2 | –     | 94.5  | –    | –  |
| MS9-LR-...-E11 | –    |      | M44x1 | 103.5 | 13.5 | 60 |

## Ordering data

| Size                                                                                                                                                                                 | Piloted diaphragm regulator |                              | Directly actuated diaphragm regulator |                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------|---------------------------------------|----------------------------------|
|                                                                                                                                                                                      | Part No.                    | Type                         | Part No.                              | Type                             |
| Pressure regulation range 0.5 ... 4 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories  |                             |                              |                                       |                                  |
| MS9                                                                                                                                                                                  | <b>564134</b>               | <b>MS9-LR-G-D5-AG-BAR-AS</b> | <b>564135</b>                         | <b>MS9-LR-G-D5-DI-AG-BAR-AS</b>  |
| Pressure regulation range 0.5 ... 4 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [psi], rotary knob with detent, lockable via accessories  |                             |                              |                                       |                                  |
| MS9                                                                                                                                                                                  | –                           | –                            | <b>564140</b>                         | <b>MS9-LR-NG-D5-DI-AG-PSI-AS</b> |
| Pressure regulation range 0.5 ... 7 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories  |                             |                              |                                       |                                  |
| MS9                                                                                                                                                                                  | <b>564136</b>               | <b>MS9-LR-G-D6-AG-BAR-AS</b> | <b>564137</b>                         | <b>MS9-LR-G-D6-DI-AG-BAR-AS</b>  |
| Pressure regulation range 0.5 ... 7 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [psi], rotary knob with detent, lockable via accessories  |                             |                              |                                       |                                  |
| MS9                                                                                                                                                                                  | –                           | –                            | <b>564142</b>                         | <b>MS9-LR-NG-D6-DI-AG-PSI-AS</b> |
| Pressure regulation range 0.5 ... 12 bar, manually operated, integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with detent, lockable via accessories |                             |                              |                                       |                                  |
| MS9                                                                                                                                                                                  | <b>564138</b>               | <b>MS9-LR-G-D7-AG-BAR-AS</b> | –                                     | –                                |

# Pressure regulators MS9-LR, MS series

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Ordering data – Modular products

| Ordering table                                      |                                                                                                          |                    |                   |                                   |               |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------|-------------------|-----------------------------------|---------------|
| Grid dimension                                      | [mm]                                                                                                     | 90                 | Condi-<br>tions   | Code                              | Enter<br>code |
| <b>M</b> Module No.                                 |                                                                                                          | <b>562530</b>      |                   |                                   |               |
| Series                                              |                                                                                                          | Standard           |                   | <b>MS</b>                         | MS            |
| Size                                                |                                                                                                          | 9                  |                   | <b>9</b>                          | 9             |
| Function                                            |                                                                                                          | Pressure regulator |                   | <b>-LR</b>                        | -LR           |
| 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             | 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>                        |               |
|                                                     | Max. 16 bar, pneumatically actuated (pressure range defined by means of pilot regulator)                 |                    | <b>2</b>          | <b>-PO</b>                        |               |
| <b>O</b> Regulator type                             | Directly actuated                                                                                        |                    | <b>3</b>          | <b>-DI</b>                        |               |
| <b>M</b> Pressure gauge/pressure gauge alternatives | MS pressure gauge                                                                                        |                    |                   | <b>-AG</b>                        |               |
|                                                     | Cover plate                                                                                              |                    |                   | <b>-VS</b>                        |               |
|                                                     | Adapter plate for EN pressure gauge $\frac{1}{4}$ , without pressure gauge                               |                    |                   | <b>-A4</b>                        |               |
|                                                     | Integrated pressure gauge, red/green scale                                                               |                    | <b>4</b>          | <b>-RG</b>                        |               |
|                                                     | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact |                    | <b>1</b> <b>5</b> | <b>-AD7</b>                       |               |
|                                                     | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact |                    | <b>1</b> <b>5</b> | <b>-AD8</b>                       |               |
|                                                     | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact          |                    | <b>1</b> <b>5</b> | <b>-AD9</b>                       |               |
|                                                     | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact          |                    | <b>1</b> <b>5</b> | <b>-AD10</b>                      |               |

- 1**  $\frac{3}{4}$ , 1, N $\frac{3}{4}$ , N1, AQR, AQS, AQT, AQU, AQV, G, NG, D8, AD7, AD8, AD9, AD10, E11, WPM  
 Not with EU certification EX4  
**2** PO  
 Not with regulator type DI  
 Not with security AS, E11  
**3** DI  
**4** RG  
**5** AD7 ... AD10

Not with pressure regulation range D7, D8  
 Not with alternative pressure gauge scale PSI,  
 PSI scale serves only as an auxiliary scale  
 Measuring range max. 10 bar

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

## Transfer order code

562530 MS 9 - LR - - - - -



# Pressure regulators MS9-LR, MS series

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Ordering data – Modular products

| Ordering table |                                  |                                                        |                 |      |               |
|----------------|----------------------------------|--------------------------------------------------------|-----------------|------|---------------|
| Grid dimension | [mm]                             | 90                                                     | Condi-<br>tions | Code | Enter<br>code |
| [O]            | Alternative pressure gauge scale | psi                                                    | [6]             | -PSI |               |
|                |                                  | MPa                                                    | [6]             | -MPA |               |
|                |                                  | bar                                                    | [6]             | -BAR |               |
|                | Secondary venting                | Without secondary venting                              | [7]             | -OS  |               |
|                | Alternative mounting position    | Rotary knob underneath (connection underneath with P0) |                 | -KD  |               |
| [M]            | Security                         | Without (security AS is pre-assigned)                  |                 |      |               |
|                |                                  | Lockable via accessories                               |                 | -AS  |               |
|                |                                  | With integrated lock                                   | [1]             | -E11 |               |
| [O]            | Type of mounting                 | Mounting bracket standard design                       | [8]             | -WP  |               |
|                |                                  | Mounting bracket for attaching the service units       | [1] [8]         | -WPM |               |
|                |                                  | Mounting bracket for large wall gap                    | [8]             | -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] ¾, 1, N¾, N1, AQR, AQS, AQT, AQU, AQV, G, NG, D8, AD7, AD8, AD9, AD10, E11, WPM [7] OS Only with regulator type DI  
 Not with EU certification EX4  
 [6] PSI, MPA, BAR Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10 [8] WP, WPM, WPB Not with pneumatic connection G, NG

- [M] Mandatory data  
 [O] Options

Transfer order code

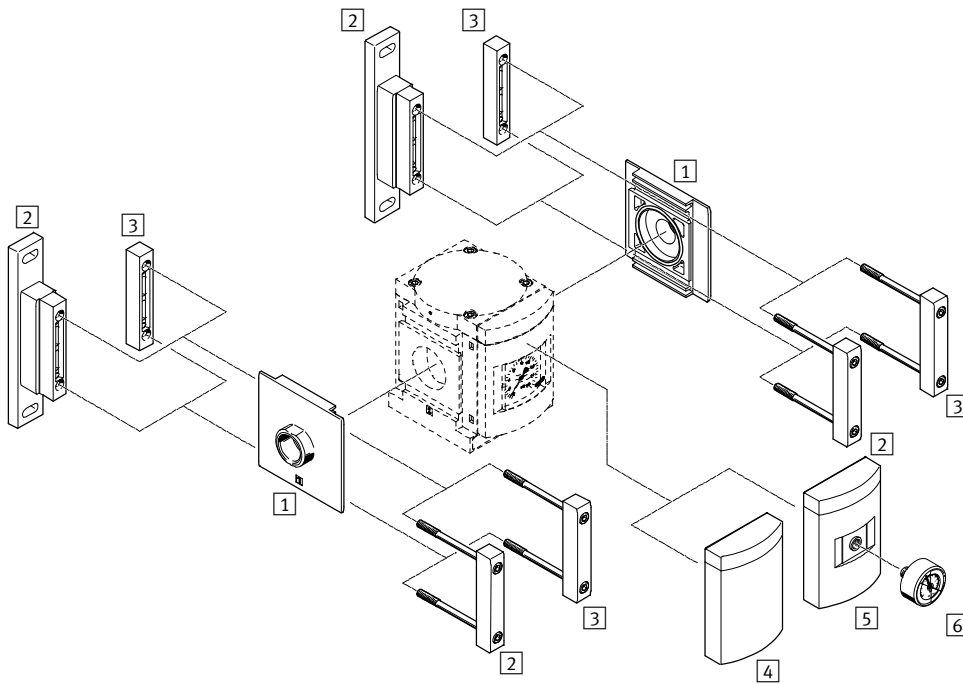
- [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

# Pressure regulators MS12-LR, MS series

Peripherals overview

**FESTO**

## Pressure regulator MS12-LR



-  - Note

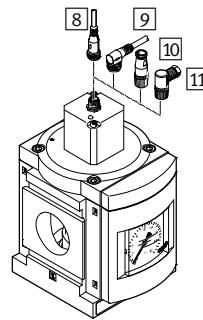
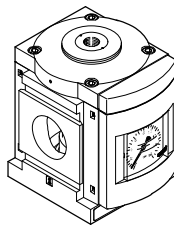
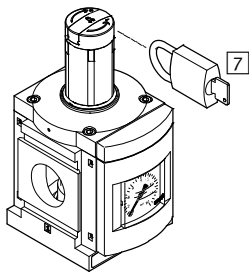
Additional accessories:

- Module connector for combination with size MS9
- Internet: armv

manually operated

pneumatically actuated

solenoid actuated



## Pressure regulators MS12-LR, MS series

Peripherals overview

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| Mounting attachments and accessories |                                               | → Page/Internet |
|--------------------------------------|-----------------------------------------------|-----------------|
| 1                                    | Connecting plate-SET<br>MS12-AG...            | ms12-ag         |
| 2                                    | Mounting bracket<br>MS12-WP                   | ms12-wp         |
| 3                                    | Module connector<br>MS12-MV                   | ms12-mv         |
| 4                                    | Cover plate<br>VS                             | 99              |
| 5                                    | Adapter plate for EN pressure gauge 1/4<br>A4 | 99              |
| 6                                    | Pressure gauge<br>MA                          | 100             |
| 7                                    | Padlock<br>LRVS-D                             | 100             |
| 8                                    | Connecting cable<br>NEBU-M12G...-LE4          | 100             |
| 9                                    | Connecting cable<br>NEBU-M12W...-LE4          | 100             |
| 10                                   | Sensor socket<br>SIE-GD                       | 100             |
| 11                                   | Angled plug socket<br>SIE-WD                  | 100             |

# Pressure regulators MS12-LR, MS series

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Type codes

|                                                 |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------|----|----|---|----|---|---|---|----|---|----|---|----|
|                                                 |                                                                                               | MS | 12 | - | LR | - | G | - | D7 | - | LD | - | AS |
| <b>Series</b>                                   |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| MS                                              | Standard service unit                                                                         |    |    |   |    |   |   |   |    |   |    |   |    |
| <b>Size</b>                                     |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| 12                                              | Grid dimension 124 mm                                                                         |    |    |   |    |   |   |   |    |   |    |   |    |
| <b>Service function</b>                         |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| LR                                              | Pressure regulator                                                                            |    |    |   |    |   |   |   |    |   |    |   |    |
| <b>Pneumatic connection</b>                     |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| G                                               | Module without connecting thread, without connecting plate<br>Connecting plates → Accessories |    |    |   |    |   |   |   |    |   |    |   |    |
| <b>Pressure regulation range/actuation mode</b> |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| D7                                              | 0.5 ... 12 bar, manually operated                                                             |    |    |   |    |   |   |   |    |   |    |   |    |
| PO                                              | 0.5 ... 16 bar, pneumatically actuated                                                        |    |    |   |    |   |   |   |    |   |    |   |    |
| PE6                                             | 0.15 ... 6 bar, solenoid actuated                                                             |    |    |   |    |   |   |   |    |   |    |   |    |
| <b>Rotary knob</b>                              |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| Pressure regulation range/actuation mode D7     |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| LD                                              | Long rotary knob                                                                              |    |    |   |    |   |   |   |    |   |    |   |    |
| Pressure regulation range/actuation mode PO/PE6 |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
|                                                 | No rotary knob                                                                                |    |    |   |    |   |   |   |    |   |    |   |    |
| <b>Security</b>                                 |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| Pressure regulation range/actuation mode D7     |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
| AS                                              | Rotary knob with detent, lockable via accessories                                             |    |    |   |    |   |   |   |    |   |    |   |    |
| Pressure regulation range/actuation mode PO/PE6 |                                                                                               |    |    |   |    |   |   |   |    |   |    |   |    |
|                                                 | No rotary knob                                                                                |    |    |   |    |   |   |   |    |   |    |   |    |

Further variants can be ordered using the modular system → 99

- Pneumatic connection
- Pressure regulation range/actuation mode
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Security
- Type of mounting
- Flow direction

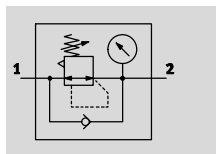
# Pressure regulators MS12-LR, MS series

FESTO

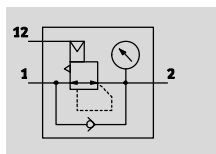
Technical data

Pressure regulation range/actuation mode

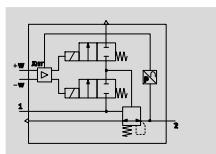
D6/D7/D8, manually operated



PO, pneumatically actuated



PE6, solenoid actuated



-  Flow rate  
12,000 ... 22,000 l/min
-  Temperature range  
-10 ... +60 °C
-  Operating pressure  
0.8 ... 21 bar
-  [www.festo.com](http://www.festo.com)



The pressure regulator maintains an essentially constant output pressure p2 independent of pressure fluctuations in the system and air consumption. The output pressure p2 can be set within the pressure regulation range either manually using the rotary knob, pneumatically via a pilot

pressure p12 by an external pilot regulator or electrically via setpoint signals. When the operating pressure or the voltage for the setpoint signals is switched off, the output pressure p2 is vented via connection 3 (secondary venting).

- Good regulation characteristics with low hysteresis and primary pressure compensation
- High flow rate with minimal pressure drop
- Regulator lock for protecting the values against adjustment
- With secondary venting
- Pressure gauge connection for different fitting options

| General technical data                                                   |     |                                          |                                                                                                              |
|--------------------------------------------------------------------------|-----|------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Pneumatic connection 1, 2                                                |     | Connecting plate AG...                   | G1, G1¼, G1½ or G2                                                                                           |
|                                                                          |     | Module without connecting thread/plate G | –                                                                                                            |
| Pilot air connection 12 with pressure regulation range/actuation mode PO |     |                                          | G¼                                                                                                           |
| Constructional design                                                    |     |                                          | Pressure regulator with/without pressure gauge                                                               |
|                                                                          |     |                                          | Pilot actuated diaphragm regulator (except pressure regulation range/actuation mode PO)                      |
|                                                                          |     |                                          | Diaphragm regulator (with pressure regulation range/actuation mode PO)                                       |
| Regulating function                                                      |     |                                          | Output pressure constant, via primary pressure compensation, via return flow function, via secondary venting |
| Type of mounting                                                         |     |                                          | Via accessories                                                                                              |
|                                                                          |     |                                          | In-line installation                                                                                         |
| Mounting position                                                        |     |                                          | Any                                                                                                          |
| Regulator lock                                                           |     |                                          | Rotary knob with detent, lockable via accessories                                                            |
|                                                                          |     |                                          | Rotary knob with integrated lock                                                                             |
| Pressure regulation range/operation                                      | D6  | [bar]                                    | 0.3 ... 7, manually operated <sup>1)</sup>                                                                   |
|                                                                          | D7  | [bar]                                    | 0.5 ... 12, manually operated <sup>1)</sup>                                                                  |
|                                                                          | D8  | [bar]                                    | 0.5 ... 16, manually operated <sup>1)</sup>                                                                  |
|                                                                          | PO  | [bar]                                    | 0.5 ... 16, pneumatically actuated <sup>1)</sup>                                                             |
|                                                                          | PE6 | [bar]                                    | 0.15 ... 6, solenoid actuated                                                                                |
| Max. hysteresis                                                          |     | [bar]                                    | 0.4 with pressure regulation range/actuation mode D6/D7/D8/PO                                                |
|                                                                          |     | [bar]                                    | 0.04 with pressure regulation range/actuation mode PE6                                                       |
| Pressure display                                                         |     |                                          | Via pressure gauge                                                                                           |

1) Required  $p_1 = p_2 + 1$  bar

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

# Pressure regulators MS12-LR, MS series

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Technical data

| Flow rates                                                      |                           |                   |
|-----------------------------------------------------------------|---------------------------|-------------------|
| Pressure regulation range/<br>actuation mode                    | D6/D7/D8/PO <sup>1)</sup> | PE6 <sup>2)</sup> |
| Standard nominal flow rate q <sub>N</sub> <sup>3)</sup> [l/min] |                           |                   |
| q <sub>N</sub> 1 → 2                                            | G1                        | 13,000            |
|                                                                 | G1¼                       | 13,500            |
|                                                                 | G1½                       | 16,000            |
|                                                                 | G2                        | 22,000            |
| Secondary venting flow rate [l/min]                             |                           |                   |
| q <sub>N</sub> 2 → 3                                            | ≤ 600                     | ≤ 600             |

1) Measured at p<sub>1</sub> = 10 bar and p<sub>2</sub> = 6 bar, Δp = 0.5 bar

2) Measured at p<sub>1</sub> = 7 bar and p<sub>2</sub> = 6 bar, Δp = 0.5 bar

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

| Electrical data (pressure regulation range/actuation mode PE6 only) |        |               |
|---------------------------------------------------------------------|--------|---------------|
| Operating voltage range                                             | [V DC] | 21.6 ... 26.4 |
| Nominal operating voltage                                           | [V DC] | 24            |
| Residual ripple                                                     | [%]    | 10            |
| Analogue input signal range                                         | [V]    | 0 ... 10      |
| Max. current consumption                                            | [A]    | 0.15          |
| Max. electrical power<br>consumption                                | [W]    | 3.6           |
| Protection class                                                    |        | IP65          |

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

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.

| Weight [g]                                                      |       |
|-----------------------------------------------------------------|-------|
| Pressure regulator                                              | 4,000 |
| Pressure regulator with rotary knob<br>with integrated lock E11 | 4,300 |

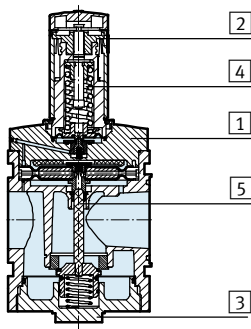
# Pressure regulators MS12-LR, MS series

FESTO

Technical data

## Materials

Sectional view



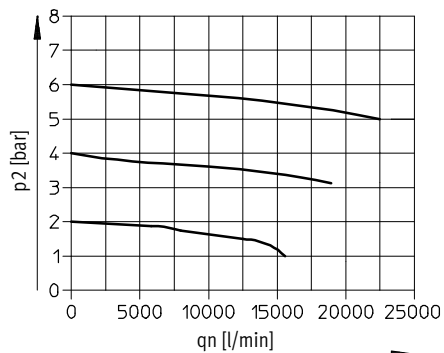
## Pressure regulator

|   |                                      |                                                              |
|---|--------------------------------------|--------------------------------------------------------------|
| 1 | Housing                              | Die-cast aluminium                                           |
| 2 | Rotary knob                          | PA-reinforced, POM                                           |
|   | Rotary knob with integrated lock E11 | Wrought aluminium alloy                                      |
| 3 | Cap (bottom)                         | Wrought aluminium alloy                                      |
| 4 | Spring                               | Spring steel                                                 |
| 5 | Valve stem                           | Wrought aluminium alloy, NBR, high alloy steel non-corrosive |
| – | Seals, diaphragm                     | NBR                                                          |
|   | Note on materials                    | RoHS-compliant                                               |
|   |                                      | Free of copper and PTFE only with cover plate VS             |

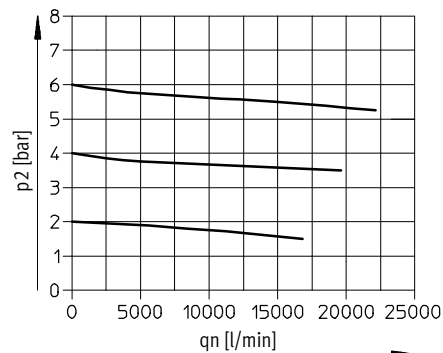
## Standard flow rate $q_n$ as a function of output pressure $p_2$ (MS12-LR-...-D6/D7/D8/PO only)

With connecting plate MS12-AGF  
Pneumatic connection G1

Input pressure  $p_1 = 10$  bar

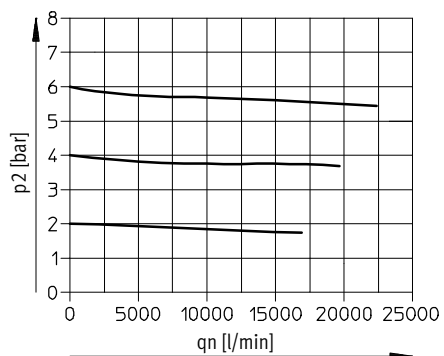


With connecting plate MS12-AGG  
Pneumatic connection G1¼

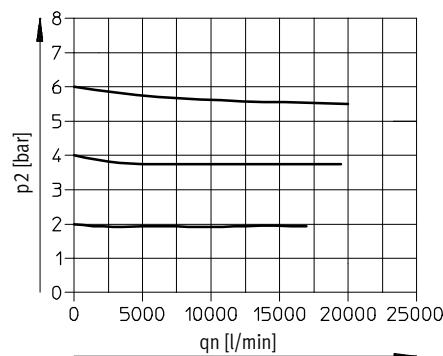


With connecting plate MS12-AGH  
Pneumatic connection G1½

Input pressure  $p_1 = 10$  bar



With connecting plate MS12-AGI  
Pneumatic connection G2



# Pressure regulators MS12-LR, MS series

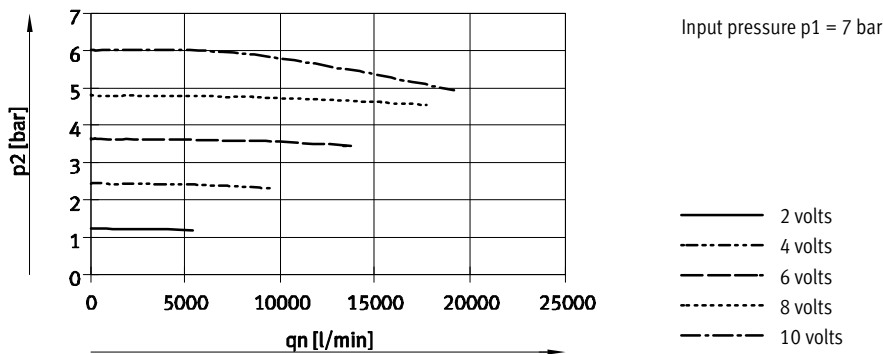
Technical data

FESTO

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

With connecting plate MS12-AGH

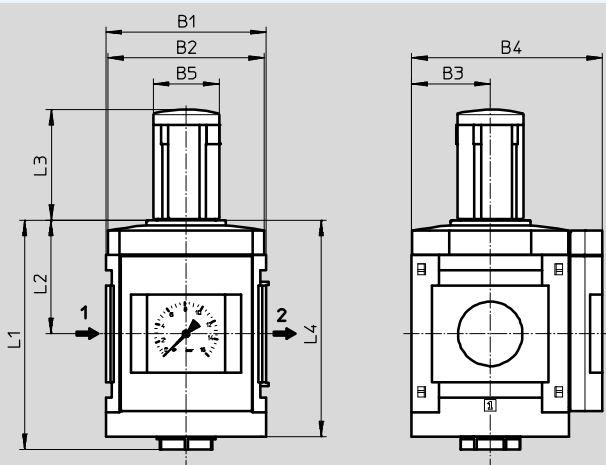
Pneumatic connection G1½



## Dimensions – Basic version

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

Pressure regulation range D6/D7/D8, manually operated,  
module without connecting thread, without connecting plate G,  
integrated MS pressure gauge with standard scale,  
long rotary knob with detent, lockable via accessories LD-AS



| Type                 | B1  | B2  | B3 | B4  | B5 | L1  | L2 | L3 | L4  |
|----------------------|-----|-----|----|-----|----|-----|----|----|-----|
| MS12-LR-...-D6/D7/D8 | 124 | 122 | 61 | 148 | 52 | 178 | 88 | 95 | 168 |



# Pressure regulators MS12-LR, MS series

Technical data

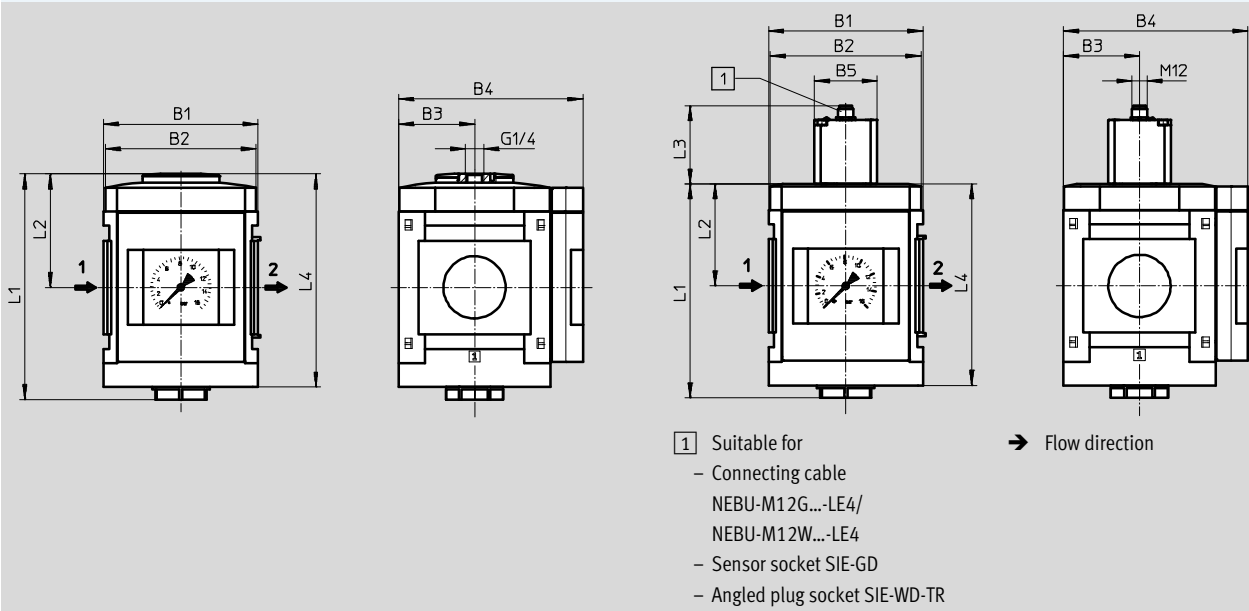
**FESTO**

## Dimensions – Pressure regulation range

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

Pressure regulation range PO, pneumatically actuated,  
module without connecting thread, without connecting plate G,  
integrated MS pressure gauge with standard scale

Pressure regulation range PE6, solenoid actuated,  
module without connecting thread, without connecting plate G,  
integrated MS pressure gauge with standard scale



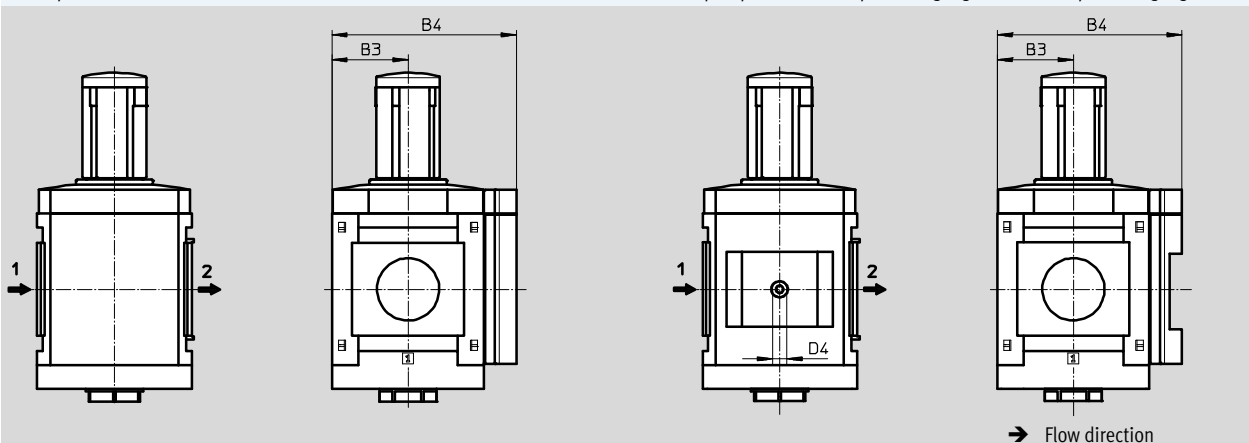
| Type            | B1  | B2  | B3 | B4  | B5 | L1  | L2 | L3   | L4  |
|-----------------|-----|-----|----|-----|----|-----|----|------|-----|
| MS12-LR-...-PO  | 124 | 122 | 61 | 148 | –  | 181 | 91 | –    | 171 |
| MS12-LR-...-PE6 |     |     |    |     | 50 | 172 | 82 | 62.7 | 162 |

## Dimensions – Pressure gauge alternatives

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

Cover plate VS

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



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

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

# Pressure regulators MS12-LR, MS series

Technical data

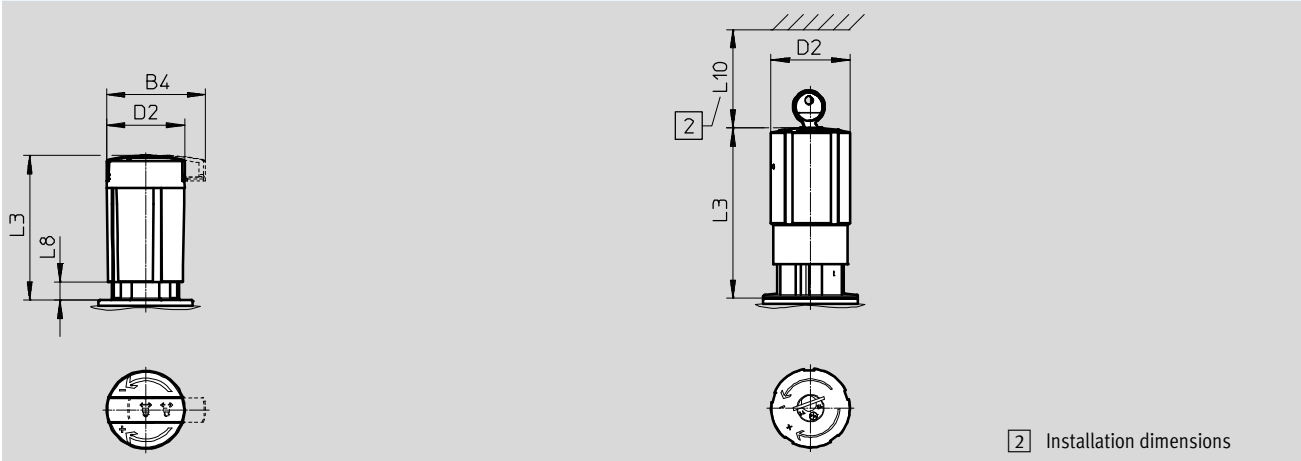
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## Dimensions – Rotary knob

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



2 Installation dimensions

| Type              | B4   | D2<br>Ø | L3  | L8 | L10 |
|-------------------|------|---------|-----|----|-----|
| MS12-LR-...-LD-AS | 64.4 | 51.2    | 95  | 12 | –   |
| MS12-LR-...-E11   | –    | 51.8    | 112 | –  | 60  |

## Ordering data

| Size                                                                                                                                                                                      | Part No.      | Type                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------|
| Pressure regulation range 0.5 ... 12 bar, manually actuated, integrated MS pressure gauge with standard scale, display unit [bar], long rotary knob with detent, lockable via accessories |               |                           |
| MS12                                                                                                                                                                                      | <b>537148</b> | <b>MS12-LR-G-D7-LD-AS</b> |
| Pressure regulation range 0.5 ... 16 bar, pneumatically actuated, integrated MS pressure gauge with standard scale, display unit [bar]                                                    |               |                           |
| MS12                                                                                                                                                                                      | <b>541680</b> | <b>MS12-LR-G-PO</b>       |
| Pressure regulation range 0.15 ... 6 bar, solenoid actuated, integrated MS pressure gauge with standard scale, display unit [bar]                                                         |               |                           |
| MS12                                                                                                                                                                                      | <b>564888</b> | <b>MS12-LR-G-PE6</b>      |

# Pressure regulators MS12-LR, MS series

Ordering data – Modular products

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| Ordering table                               |                                                                                          |                    |                 |             |               |
|----------------------------------------------|------------------------------------------------------------------------------------------|--------------------|-----------------|-------------|---------------|
| Grid dimension                               | [mm]                                                                                     | 124                | Condi-<br>tions | Code        | Enter<br>code |
| <b>M</b> Module No.                          |                                                                                          | <b>535021</b>      |                 |             |               |
| Series                                       |                                                                                          | Standard           |                 | <b>MS</b>   | MS            |
| Size                                         |                                                                                          | 12                 |                 | <b>12</b>   | 12            |
| Function                                     |                                                                                          | Pressure regulator |                 | <b>-LR</b>  | -LR           |
| Pneumatic connection                         | Connecting plate G1                                                                      |                    |                 | <b>-AGF</b> |               |
|                                              | Connecting plate 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/<br>actuation mode | 0.3 ... 7 bar, manually operated                                                         |                    |                 | <b>-D6</b>  |               |
|                                              | 0.5 ... 12 bar, manually operated                                                        |                    |                 | <b>-D7</b>  |               |
|                                              | 0.5 ... 16 bar, manually operated                                                        |                    |                 | <b>-D8</b>  |               |
|                                              | Max. 16 bar, pneumatically actuated (pressure range defined by means of pilot regulator) | <b>1</b> <b>2</b>  |                 | <b>-PO</b>  |               |
|                                              | 0.15 ... 6 bar, solenoid actuated (pilot control via proportional pressure regulator)    | <b>1</b> <b>2</b>  |                 | <b>-PE6</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                                                         |                    | <b>3</b>        | <b>-PSI</b> |               |
|                                              |                                                                                          |                    | <b>3</b>        | <b>-MPA</b> |               |
|                                              | Rotary knob alternative                                                                  |                    | <b>2</b>        | <b>-LD</b>  |               |
| <b>M</b> Security                            | Without                                                                                  |                    | <b>4</b>        |             |               |
|                                              | Lockable via accessories                                                                 |                    | <b>5</b>        | <b>-AS</b>  |               |
|                                              | With integrated lock                                                                     |                    |                 | <b>-E11</b> |               |
| <b>O</b> Type of mounting                    | Mounting bracket standard design                                                         |                    | <b>6</b>        | <b>-WP</b>  |               |
| Flow direction                               | Flow direction from right to left                                                        |                    |                 | <b>-Z</b>   |               |

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

- M** Mandatory data
- O** Options

## Transfer order code

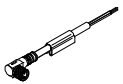
535021 MS 12 - LR - - - - - - - - - - - - - - - -

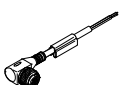
# Pressure regulators MS-LR/LRB/LRP/LRPB/LRE, MS series

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Accessories

| Ordering data – Pressure gauge MA                                                 |                                                   |                      |                  |           |                                |                  |
|-----------------------------------------------------------------------------------|---------------------------------------------------|----------------------|------------------|-----------|--------------------------------|------------------|
|                                                                                   | Nominal size                                      | Pneumatic connection | Indicating range |           | Part No.                       | Type             |
|                                                                                   |                                                   |                      | [bar]            | [psi]     |                                |                  |
|  | Pressure gauge MA, EN 837-1                       |                      |                  |           | Technical data ➔ Internet: ma  |                  |
|                                                                                   | 40                                                | R¼                   | 0 ... 16         | 0 ... 232 | 187080                         | MA-40-16-R¼-EN   |
|                                                                                   |                                                   | G¼                   | 0 ... 16         | 0 ... 232 | 183901                         | MA-40-16-G¼-EN   |
|                                                                                   |                                                   |                      |                  |           |                                |                  |
|                                                                                   | Pressure gauge MA, EN 837-1, with red/green range |                      |                  |           | Technical data ➔ Internet: ma  |                  |
|                                                                                   | 40                                                | R⅛                   | 0 ... 16         | –         | 525726                         | MA-40-16-R⅛-E-RG |
|                                                                                   | 50                                                | R¼                   | 0 ... 16         | –         | 525729                         | MA-50-16-R¼-E-RG |
|                                                                                   |                                                   |                      |                  |           |                                |                  |
|                                                                                   | Precision pressure gauge MAP, EN 837-1            |                      |                  |           | Technical data ➔ Internet: map |                  |
|                                                                                   | 40                                                | R⅛                   | 0 ... 1          | 0 ... 15  | 161126                         | MAP-40-1-⅛-EN    |
|                                                                                   |                                                   |                      | 0 ... 4          | 0 ... 58  | 162842                         | MAP-40-4-⅛-EN    |
| 0 ... 6                                                                           |                                                   |                      | 0 ... 87         | 161127    | MAP-40-6-⅛-EN                  |                  |
| 0 ... 16                                                                          |                                                   |                      | 0 ... 232        | 161128    | MAP-40-16-⅛-EN                 |                  |

| 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              | ★ <b>541333</b> | NEBU-M8G3-K-2.5-LE3             |
|                                                                                     |                       |                 | 5                | ★ <b>541334</b> | NEBU-M8G3-K-5-LE3               |
|  | M8x1, angled socket   | 3               | 2.5              | ★ <b>541338</b> | NEBU-M8W3-K-2.5-LE3             |
|                                                                                     |                       |                 | 5                | ★ <b>541341</b> | 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              | ★ <b>550326</b> | NEBU-M12G5-K-2.5-LE4            |
|                                                                                     |                        |                 | 5                | ★ <b>541328</b> | NEBU-M12G5-K-5-LE4              |
|                                                                                     |                        | 5               | 2.5              | <b>541330</b>   | NEBU-M12G5-K-2.5-LE5            |
|                                                                                     |                        |                 | 5                | <b>541331</b>   | NEBU-M12G5-K-5-LE5              |
|  | M12x1, angled socket   | 4               | 2.5              | <b>550325</b>   | NEBU-M12W5-K-2.5-LE4            |
|                                                                                     |                        |                 | 5                | <b>541329</b>   | NEBU-M12W5-K-5-LE4              |

| Ordering data – Sensor socket SIE-GD                                                |                       |              | Technical data → Internet: sie-gd |  |
|-------------------------------------------------------------------------------------|-----------------------|--------------|-----------------------------------|--|
|                                                                                     | Electrical connection | Part No.     | Type                              |  |
|  | M12x1, 4-pin          | <b>18494</b> | <b>SIE-GD</b>                     |  |

| Ordering data – Angled plug socket SIE-WD                                           |                       |              | Technical data → Internet: sie-wd |  |
|-------------------------------------------------------------------------------------|-----------------------|--------------|-----------------------------------|--|
|                                                                                     | Electrical connection | Part No.     | Type                              |  |
|  | M12x1, 4-pin          | <b>12956</b> | <b>SIE-WD-TR</b>                  |  |

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

Festo core product range

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