




# Air Preparation Units, D Series – Overview

Service Units FRC, Filter Regulators LFR, Pressure Regulators LR

| Service Units FRC   |                      |                      |         |         |         |         |       |                    |                  |                         |        |     |        |
|---|----------------------|----------------------|---------|---------|---------|---------|-------|--------------------|------------------|-------------------------|--------|-----|--------|
|   | Flow Rate            | Pneumatic Connection |         |         |         |         |       | Operating Pressure | Filtration Grade | Lead Time <sup>1)</sup> |        |     | → Page |
|   |                      |                      |         |         |         |         |       |                    |                  | Same Day/Next Day       | 3 Days |     |        |
|  | <b>Inch Series</b>   |                      |         |         |         |         |       |                    |                  |                         |        |     |        |
|   | [scfm]               | 1/8 NPT              | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT | [psi]              | [µm]             |                         |        |     |        |
|   | 25 ... 46            | ■                    | ■       | –       | –       | –       | –     | 7 ... 103,         | 40               | –                       | ■      | 210 |        |
|   | 71 ... 99            | –                    | –       | ■       | ■       | –       | –     | 7 ... 176          |                  | –                       | ■      |     |        |
|   | 293 ... 307          | –                    | –       | –       | –       | ■       | ■     |                    |                  | –                       | ■      |     |        |
|   | <b>Metric Series</b> |                      |         |         |         |         |       |                    |                  |                         |        |     |        |
|   | [l/min]              | G1/8                 | G1/4    | G3/8    | G1/2    | G3/4    | G1    | [bar]              | [µm]             |                         |        |     |        |
|   | 700 ... 1,300        | ■                    | ■       | –       | –       | –       | –     | 0.5 ... 7,         | 40               | –                       | ■      | 234 |        |
|   | 2,000 ... 2,800      | –                    | –       | ■       | ■       | –       | –     | 0.5 ... 12         |                  | –                       | ■      |     |        |
|   | 8,300 ... 8,700      | –                    | –       | –       | –       | ■       | ■     |                    |                  | –                       | ■      |     |        |


| Filter Regulators LFR  |                      |                      |         |         |         |         |         |                    |                  |                         |        |   |        |
|--|----------------------|----------------------|---------|---------|---------|---------|---------|--------------------|------------------|-------------------------|--------|---|--------|
|  | Flow Rate            | Pneumatic Connection |         |         |         |         |         | Operating Pressure | Filtration Grade | Lead Time <sup>1)</sup> |        |   | → Page |
|  |                      |                      |         |         |         |         |         |                    |                  | Same Day/Next Day       | 3 Days |   |        |
|  | <b>Inch Series</b>   |                      |         |         |         |         |         |                    |                  |                         |        |   |        |
|  | [scfm]               | –                    | 1/8 NPT | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT              | [psi]            | [µm]                    |        |   |        |
|  | 23 ... 53            | –                    | ■       | ■       | –       | –       | –       | –                  | 7 ... 103,       | 5, 40                   | –      | ■ | 212    |
|  | 85 ... 138           | –                    | –       | –       | ■       | ■       | –       | –                  | 7 ... 176        |                         | –      | ■ |        |
|  | 268 ... 388          | –                    | –       | –       | –       | –       | ■       | ■                  |                  |                         | –      | ■ |        |
|  | <b>Metric Series</b> |                      |         |         |         |         |         |                    |                  |                         |        |   |        |
|  | [l/min]              | M5                   | G1/8    | G1/4    | G3/8    | G1/2    | G3/4    | G1                 | [bar]            | [µm]                    |        |   |        |
|  | 110 ... 410          | ■                    | ■       | –       | –       | –       | –       | –                  | 0.5 ... 7        | 5                       | ■      | – | 236    |
|  | 650 ... 1,500        | –                    | ■       | ■       | –       | –       | –       | –                  | 0.5 ... 7,       | 5, 40                   | –      | ■ |        |
|  | 2,400 ... 3,900      | –                    | –       | –       | ■       | ■       | ■       | –                  | 0.5 ... 12       |                         | –      | ■ |        |
| 7,600 ... 11,000   | –                    | –                    | –       | –       | ■       | ■       | ■       |                    |                  | –                       | ■      |   |        |


| Pressure Regulators LR  |                      |                      |         |         |         |         |         |                    |                         |        |   |        |     |
|---|----------------------|----------------------|---------|---------|---------|---------|---------|--------------------|-------------------------|--------|---|--------|-----|
|   | Flow Rate            | Pneumatic Connection |         |         |         |         |         | Operating Pressure | Lead Time <sup>1)</sup> |        |   | → Page |     |
|   |                      |                      |         |         |         |         |         |                    | Same Day/Next Day       | 3 Days |   |        |     |
|  | <b>Inch Series</b>   |                      |         |         |         |         |         |                    |                         |        |   |        |     |
|   | [scfm]               | –                    | 1/8 NPT | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT              | [psi]                   |        |   |        |     |
|   | 28 ... 56            | –                    | ■       | ■       | –       | –       | –       | –                  | 7 ... 103,              |        | – | ■      | 215 |
|   | 113 ... 141          | –                    | –       | –       | ■       | ■       | –       | –                  | 7 ... 176               |        | – | ■      |     |
|   | 388 ... 441          | –                    | –       | –       | –       | –       | ■       | ■                  |                         |        | – | ■      |     |
|   | <b>Metric Series</b> |                      |         |         |         |         |         |                    |                         |        |   |        |     |
|   | [l/min]              | M5                   | G1/8    | G1/4    | G3/8    | G1/2    | G3/4    | G1                 | [bar]                   |        |   |        |     |
|   | 120 ... 230          | ■                    | ■       | –       | –       | –       | –       | –                  | 0.5 ... 7               |        | ■ | –      | 239 |
|   | 800 ... 1,600        | –                    | ■       | ■       | –       | –       | –       | –                  | 0.5 ... 7,              |        | – | ■      |     |
|   | 3,200 ... 4,000      | –                    | –       | –       | ■       | ■       | –       | –                  | 0.5 ... 12              |        | – | ■      |     |
| 11,000 ... 12,500   | –                    | –                    | –       | –       | ■       | ■       | ■       |                    |                         | –      | ■ |        |     |


1) Same day lead time when product is purchased with port blocks, seals, and screws as separate items. 3 day lead time when product is purchased with port blocks mounted. The lead time, from order placement until the item will ship, is approximate only. Actual shipping date to be confirmed upon order placement.

# Air Preparation Units, D Series – Overview

Pressure Regulators LRB, Standard Filters LF, Fine and Micro Filters LFMB/LFMA

| Pressure Regulators LRB (Manifold Assembly)                                       |                |                      |      |      |      |      |      |    |                    |                         |        |     |        |
|---|----------------|----------------------|------|------|------|------|------|----|--------------------|-------------------------|--------|-----|--------|
|   | Flow Rate      | Pneumatic Connection |      |      |      |      |      |    | Operating Pressure | Lead Time <sup>1)</sup> |        |     | → Page |
|   |                |                      |      |      |      |      |      |    |                    | Same Day/Next Day       | 3 Days |     |        |
|  | Metric Series  |                      |      |      |      |      |      |    |                    |                         |        |     |        |
|   | [l/min]        | M5                   | G1/8 | G1/4 | G3/8 | G1/2 | G3/4 | G1 | [bar]              |                         |        |     |        |
|   | 1,600... 1,800 | –                    | –    | ■    | ■    | –    | –    | –  | 0.5 ... 7,         | –                       | ■      | 241 |        |
|   | 3,200... 3,800 | –                    | –    | –    | ■    | ■    | –    | –  | 0.5 ... 12         | –                       | ■      |     |        |


| Standard Filters LF   |                 |                      |         |         |         |         |         |       |                    |                  |                         |        |        |
|---|-----------------|----------------------|---------|---------|---------|---------|---------|-------|--------------------|------------------|-------------------------|--------|--------|
|   | Flow Rate       | Pneumatic Connection |         |         |         |         |         |       | Operating Pressure | Filtration Grade | Lead Time <sup>1)</sup> |        | → Page |
|   |                 |                      |         |         |         |         |         |       |                    |                  | Same Day/Next Day       | 3 Days |        |
|  | Inch Series     |                      |         |         |         |         |         |       |                    |                  |                         |        |        |
|   | [scfm]          | –                    | 1/8 NPT | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT | [psi]              | [µm]             |                         |        |        |
|   | 28 ... 42       | –                    | ■       | ■       | –       | –       | –       | –     | 0 ... 235          | 5,               | –                       | ■      | 217    |
|   | 64 ... 106      | –                    | –       | –       | ■       | ■       | –       | –     |                    | 40               | –                       | ■      |        |
|   | 127 ... 187     | –                    | –       | –       | –       | –       | ■       | ■     |                    |                  | –                       | ■      |        |
|   | Metric Series   |                      |         |         |         |         |         |       |                    |                  |                         |        |        |
|   | [l/min]         | M5                   | G1/8    | G1/4    | G3/8    | G1/2    | G3/4    | G1    | [bar]              | [µm]             |                         |        |        |
|   | 170 ... 290     | ■                    | ■       | –       | –       | –       | –       | –     | 0 ... 16           | 5                | ■                       | –      | 243    |
|   | 800 ... 1,200   | –                    | ■       | ■       | –       | –       | –       | –     |                    | 5,               | –                       | ■      |        |
|   | 1,800 ... 3,000 | –                    | –       | –       | ■       | ■       | –       | –     |                    | 40               | –                       | ■      |        |
| 3,600 ... 5,300   | –               | –                    | –       | –       | –       | ■       | ■       |       |                    | –                | ■                       |        |        |


| Fine and Micro Filters LFMB/LFMA  |               |                      |         |         |         |         |          |                    |                  |                         |        |        |
|---|---------------|----------------------|---------|---------|---------|---------|----------|--------------------|------------------|-------------------------|--------|--------|
|   | Flow Rate     | Pneumatic Connection |         |         |         |         |          | Operating Pressure | Filtration Grade | Lead Time <sup>1)</sup> |        | → Page |
|   |               |                      |         |         |         |         |          |                    |                  | Same Day/Next Day       | 3 Days |        |
|  | Inch Series   |                      |         |         |         |         |          |                    |                  |                         |        |        |
|   | [scfm]        | 1/8 NPT              | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT    | [psi]              | [µm]             |                         |        |        |
|   | 5 ... 11      | ■                    | ■       | –       | –       | –       | –        | 15 ... 235         | 0.01,            | –                       | ■      | 219    |
|   | 13 ... 32     | –                    | –       | ■       | ■       | –       | –        |                    | 1                | –                       | ■      |        |
|   | 32 ... 44     | –                    | –       | –       | –       | ■       | ■        |                    |                  | –                       | ■      |        |
|   | Metric Series |                      |         |         |         |         |          |                    |                  |                         |        |        |
|   | [l/min]       | G1/8                 | G1/4    | G3/8    | G1/2    | G3/4    | G1       | [bar]              | [µm]             |                         |        |        |
| 130 ... 300   | ■             | ■                    | –       | –       | –       | –       | 1 ... 16 | 0.01,              | –                | ■                       | 245    |        |
| 380 ... 900   | –             | –                    | ■       | ■       | –       | –       |          | 1                  | –                | ■                       |        |        |
| 900 ... 1,250   | –             | –                    | –       | –       | ■       | ■       |          |                    | –                | ■                       |        |        |


1) Same day lead time when product is purchased with port blocks, seals, and screws as separate items. 3 day lead time when product is purchased with port blocks mounted. The lead time, from order placement until the item will ship, is approximate only. Actual shipping date to be confirmed upon order placement.

# Air Preparation Units, D Series – Overview

Lubricators LOE, Manual On/Off Valves HE, Electric On/Off Valves HEE

| Lubricators LOE   |                      |                      |         |         |         |         |         |       |                    |                         |        |        |
|---|----------------------|----------------------|---------|---------|---------|---------|---------|-------|--------------------|-------------------------|--------|--------|
|   | Flow Rate            | Pneumatic Connection |         |         |         |         |         |       | Operating Pressure | Lead Time <sup>1)</sup> |        | → Page |
|   |                      |                      |         |         |         |         |         |       |                    | Same Day/Next Day       | 3 Days |        |
|  | <b>Inch Series</b>   |                      |         |         |         |         |         |       |                    |                         |        |        |
|   | [scfm]               | –                    | 1/8 NPT | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT | [psi]              |                         |        |        |
|   | 46 ... 81            | –                    | ■       | ■       | –       | –       | –       | –     | 0 ... 235          | –                       | ■      | 221    |
|   | 194 ... 215          | –                    | –       | –       | ■       | ■       | –       | –     |                    | –                       | ■      |        |
|   | 297 ... 318          | –                    | –       | –       | –       | –       | ■       | ■     |                    | –                       | ■      |        |
|   | <b>Metric Series</b> |                      |         |         |         |         |         |       |                    |                         |        |        |
|   | [l/min]              | M5                   | G1/8    | G1/4    | G3/8    | G1/2    | G3/4    | G1    | [bar]              |                         |        |        |
|   | 200 ... 410          | ■                    | ■       | –       | –       | –       | –       | –     | 0 ... 16           | ■                       | –      | 247    |
|   | 1,300 ... 2,300      | –                    | ■       | ■       | –       | –       | –       | –     |                    | –                       | ■      |        |
|   | 5,500 ... 6,100      | –                    | –       | –       | ■       | ■       | –       | –     |                    | –                       | ■      |        |
| 8,400 ... 9,000   | –                    | –                    | –       | –       | –       | ■       | ■       | –     |                    | ■                       |        |        |

| Manual On/Off Valves HE  |                      |                      |         |         |         |         |         |       |                    |                         |        |        |
|--|----------------------|----------------------|---------|---------|---------|---------|---------|-------|--------------------|-------------------------|--------|--------|
|  | Flow Rate            | Pneumatic Connection |         |         |         |         |         |       | Operating Pressure | Lead Time <sup>1)</sup> |        | → Page |
|  |                      |                      |         |         |         |         |         |       |                    | Same Day/Next Day       | 3 Days |        |
|  | <b>Inch Series</b>   |                      |         |         |         |         |         |       |                    |                         |        |        |
|  | [scfm]               |                      | 1/8 NPT | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT | [psi]              |                         |        |        |
|  | 35 ... 53            | ■                    | ■       | –       | –       | –       | –       | –     | 0 ... 235          | –                       | ■      | 223    |
|  | 113 ... 127          | –                    | –       | ■       | ■       | –       | –       | –     |                    | –                       | ■      |        |
|  | 212 ... 229          | –                    | –       | –       | –       | ■       | ■       | –     |                    | –                       | ■      |        |
|  | <b>Metric Series</b> |                      |         |         |         |         |         |       |                    |                         |        |        |
|  | [l/min]              |                      | G1/8    | G1/4    | G3/8    | G1/2    | G3/4    | G1    | [bar]              |                         |        |        |
|  | 1,000 ... 1,500      | ■                    | ■       | –       | –       | –       | –       | –     | 0 ... 16           | –                       | ■      | 249    |
|  | 3,200 ... 3,600      | –                    | –       | ■       | ■       | –       | –       | –     |                    | –                       | ■      |        |
|  | 6,000 ... 6,500      | –                    | –       | –       | –       | ■       | ■       | –     |                    | –                       | ■      |        |


| Electric On/Off Valves HEE  |                      |                      |         |         |         |         |         |       |                    |                                   |                         |        |        |
|---|----------------------|----------------------|---------|---------|---------|---------|---------|-------|--------------------|-----------------------------------|-------------------------|--------|--------|
|   | Flow Rate            | Pneumatic Connection |         |         |         |         |         |       | Operating Pressure | Supply Voltage                    | Lead Time <sup>1)</sup> |        | → Page |
|   |                      |                      |         |         |         |         |         |       |                    |                                   | Same Day/Next Day       | 3 Days |        |
|  | <b>Inch Series</b>   |                      |         |         |         |         |         |       |                    |                                   |                         |        |        |
|   | [scfm]               |                      | 1/8 NPT | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT | [psi]              | [µm]                              |                         |        |        |
|   | 35 ... 53            | ■                    | ■       | –       | –       | –       | –       | –     | 37 ... 235         | 24 V DC,<br>110 V AC              | –                       | ■      | 225    |
|   | 113 ... 127          | –                    | –       | ■       | ■       | –       | –       | –     |                    |                                   | –                       | ■      |        |
|   | 212 ... 229          | –                    | –       | –       | –       | ■       | ■       | –     |                    |                                   | –                       | ■      |        |
|   | <b>Metric Series</b> |                      |         |         |         |         |         |       |                    |                                   |                         |        |        |
|   | [l/min]              |                      | G1/8    | G1/4    | G3/8    | G1/2    | G3/4    | G1    | [bar]              | [µm]                              |                         |        |        |
|   | 1,000 ... 1,500      | ■                    | ■       | –       | –       | –       | –       | –     | 2.5 ... 16         | 24 V DC,<br>110 V AC,<br>230 V DC | –                       | ■      | 251    |
|   | 3,200 ... 3,600      | –                    | –       | ■       | ■       | –       | –       | –     |                    |                                   | –                       | ■      |        |
|   | 6,000 ... 6,500      | –                    | –       | –       | –       | ■       | ■       | –     |                    |                                   | –                       | ■      |        |


1) Same day lead time when product is purchased with port blocks, seals, and screws as separate items. 3 day lead time when product is purchased with port blocks mounted. The lead time, from order placement until the item will ship, is approximate only. Actual shipping date to be confirmed upon order placement.


# Air Preparation Units, D Series – Overview



Soft-start Valves HEL, Distributor Blocks FRM/FRZ, Pressure Gauges MA

| Soft-start Valves HEL   |                      |                      |         |         |         |         |       |                    |                         |        |     |        |
|---|----------------------|----------------------|---------|---------|---------|---------|-------|--------------------|-------------------------|--------|-----|--------|
|   | Flow Rate            | Pneumatic Connection |         |         |         |         |       | Operating Pressure | Lead Time <sup>1)</sup> |        |     | → Page |
|   |                      |                      |         |         |         |         |       |                    | Same Day/Next Day       | 3 Days |     |        |
|  | <b>Inch Series</b>   |                      |         |         |         |         |       |                    |                         |        |     |        |
|   | [scfm]               | 1/8 NPT              | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT | [psi]              |                         |        |     |        |
|   | 35 ... 53            | ■                    | ■       | –       | –       | –       | –     | 44 ... 235         | –                       | ■      | 227 |        |
|   | 113 ... 127          | –                    | –       | ■       | ■       | –       | –     |                    | –                       | ■      |     |        |
|   | 212 ... 229          | –                    | –       | –       | –       | ■       | ■     |                    | –                       | ■      |     |        |
|   | <b>Metric Series</b> |                      |         |         |         |         |       |                    |                         |        |     |        |
|   | [l/min]              | G1/8                 | G1/4    | G3/8    | G1/2    | G3/4    | G1    | [bar]              |                         |        |     |        |
|   | 1,000 ... 1,500      | ■                    | ■       | –       | –       | –       | –     | 3 ... 16           | –                       | ■      | 253 |        |
|   | 3,200 ... 3,600      | –                    | –       | ■       | ■       | –       | –     |                    | –                       | ■      |     |        |
|   | 6,000 ... 6,500      | –                    | –       | –       | –       | ■       | ■     |                    | –                       | ■      |     |        |

| Distributor Blocks FRM/FRZ  |                      |                      |         |         |         |         |       |                    |                         |        |     |        |
|---|----------------------|----------------------|---------|---------|---------|---------|-------|--------------------|-------------------------|--------|-----|--------|
|   | Flow Rate            | Pneumatic Connection |         |         |         |         |       | Operating Pressure | Lead Time <sup>1)</sup> |        |     | → Page |
|   |                      |                      |         |         |         |         |       |                    | Same Day/Next Day       | 3 Days |     |        |
|  | <b>Inch Series</b>   |                      |         |         |         |         |       |                    |                         |        |     |        |
|   | [scfm]               | 1/8 NPT              | 1/4 NPT | 3/8 NPT | 1/2 NPT | 3/4 NPT | 1 NPT | [psi]              |                         |        |     |        |
|   | 7.5 ... 20.5         | ■                    | –       | –       | –       | –       | –     | 0 ... 235          | –                       | ■      | 229 |        |
|   | 46 ... 117           | ■                    | ■       | –       | –       | –       | –     |                    | –                       | ■      |     |        |
|   | 194 ... 290          | –                    | –       | ■       | ■       | –       | –     |                    | –                       | ■      |     |        |
|   | 473 ... 706          | –                    | –       | –       | –       | ■       | ■     |                    | –                       | ■      |     |        |
|   | <b>Metric Series</b> |                      |         |         |         |         |       |                    |                         |        |     |        |
|   | [l/min]              | G1/8                 | G1/4    | G3/8    | G1/2    | G3/4    | G1    | [bar]              |                         |        |     |        |
|   | 210 ... 580          | ■                    | –       | –       | –       | –       | –     | 0 ... 16           | –                       | ■      | 255 |        |
|   | 1,300 ... 3,300      | ■                    | ■       | –       | –       | –       | –     |                    | –                       | ■      |     |        |
| 5,500 ... 8,200   | –                    | –                    | ■       | ■       | –       | –       | –     |                    | ■                       |        |     |        |
| 13,400 ... 20,000   | –                    | –                    | –       | –       | ■       | ■       | –     |                    | ■                       |        |     |        |

| Pressure Gauges MA  |                               |      |      |                   |                                       |          |                   |        |     |        |  |  |
|---|-------------------------------|------|------|-------------------|---------------------------------------|----------|-------------------|--------|-----|--------|--|--|
|   | Pneumatic Connection          |      |      | Housing ∅<br>[mm] | Operating Pressure / Indicating Range |          | Lead Time         |        |     | → Page |  |  |
|   | M5                            | G1/8 | G1/4 |                   | [psi]                                 | [bar]    | Same Day/Next Day | 3 Days |     |        |  |  |
|  | <b>Metric and Inch Series</b> |      |      |                   |                                       |          |                   |        |     |        |  |  |
|   | ■                             | –    | –    | 27                | 0 ... 160                             | 0 ... 10 | ■                 | –      | 231 |        |  |  |
|   | –                             | ■    | –    | 40                | 0 ... 145                             | 0 ... 10 | ■                 | –      |     |        |  |  |
|   | –                             | ■    | –    | 40                | 0 ... 240                             | 0 ... 16 | ■                 | –      |     |        |  |  |
|   | –                             | –    | ■    | 50                | 0 ... 145                             | 0 ... 10 | ■                 | –      |     |        |  |  |
|   | –                             | –    | ■    | 50                | 0 ... 240                             | 0 ... 16 | ■                 | –      |     |        |  |  |

1) Same day lead time when product is purchased with port blocks, seals, and screws as separate items. 3 day lead time when product is purchased with port blocks mounted. The lead time, from order placement until the item will ship, is approximate only. Actual shipping date to be confirmed upon order placement.

# Air Preparation Units – Inch and Metric Series

Overview



- Sturdy and versatile metal series
- 4 sizes: Micro (Metric Series only), Mini, Midi and Maxi
- 13 connection sizes:  
 Inch Series: 1/8NPT, 1/4NPT, 3/8NPT, 1/2NPT, 3/4NPT, 1NPT  
 Metric Series: M5, G1/8, G1/4, G3/8, G1/2, G3/4, G1
- 2 pressure ranges:  
 7 ... 103 psi / 0.5 ... 7 bar or 7 ... 176 psi / 0.5 ... 12 bar
- Flow rates up to 307 scfm / 8.700 l/min
- Broad range of functions:  
 Individual devices or pre-assembled and tested combinations

Detailed product information → [www.festo.com/catalog/⟨type⟩](http://www.festo.com/catalog/⟨type⟩)

## Features

- High-quality and sturdy product
- Metal bowl guard standard
- Wide range of functions in four sizes
- Wealth of options ensures the right solution for every task
- Compressed air qualities to DIN ISO 8573-1
- Reduced maintenance overheads, long service life and easy servicing save time and money

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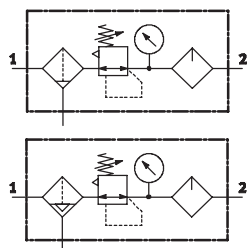
### Metric Series

- Service Units FRC → 234
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- Pressure Regulators LR → 239
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- LFMB/LFMA
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# Service Units FRC – Inch Series

Technical Data



**Materials**  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



The following oils are recommended for Festo components:

Viscosity range to ISO 3448 ,  
 ISO class VG 32  
 32 mm<sup>2</sup>/s (= cSt) at 104 °F

- Festo special oil OFSW-32
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

| Technical Data                  |                                       | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                         |        |   |      |
|---------------------------------|---------------------------------------|--|-------------------------|--------|---|------|
| Size                            | Mini                                  |  | Midi                    |        | Maxi  |      |
| Pneumatic connection            | 1/8NPT                                | 1/4NPT   | 3/8NPT                  | 1/2NPT | 3/4NPT  | 1NPT |
| Design                          | Filter regulator                      |  |                         |        |   |      |
|                                 | Proportional standard mist lubricator |  |                         |        |   |      |
| Type of mounting                | Via accessories                       |  |                         |        |   |      |
|                                 | In-line installation                  |  |                         |        |   |      |
| Mounting position               | Vertical ±5°                          |  |                         |        |   |      |
| Grade of filtration [µm]        | 40                                    |  |                         |        |   |      |
| Pressure regulation range [psi] | 7.5 ... 103                           |  |                         |        |   |      |
|                                 | 7.5 ... 176                           |  |                         |        |   |      |
| Pressure indication             | With pressure gauge                   |  |                         |        |   |      |
| Length [in]                     | 3.0                                   |  | 3.7                     |        | 4.2   |      |
| Width [in]                      | 3.1 (4.1) <sup>1)</sup>               |  | 4.3 (5.5) <sup>1)</sup> |        | 5.1 (6.4) <sup>1)</sup> 5.2 (7.2) <sup>1)</sup> |      |
| Height [in]                     | 8.3                                   |  | 10.6                    |        | 10.7  |      |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> q <sub>N</sub> [scfm] |        |        |        |        |        |      |
|--|--------|--------|--------|--------|--------|------|
| Size   | Mini   |        | Midi   |        | Maxi   |      |
| Pneumatic connection   | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |
| Pressure regulation range 7.5 ... 103 psi                      |        |        |        |        |        |      |
| Grade of filtration 40 µm                                      | 28     | 46     | 71     | 99     | 300    | 307  |
| Pressure regulation range 7.5 ... 176 psi                      |        |        |        |        |        |      |
| Grade of filtration 40 µm                                      | 25     | 35     | 71     | 92     | 293    | 300  |

1) Measured at p<sub>1</sub> = 147 psi, p<sub>2</sub> = 88 psi and Δp = 15 psi. A minimum flow rate of 4 scfm is required for flawless functioning.

| Operating Conditions     |                               |  |
|--------------------------|-------------------------------|--|
| Condensate drain         | Manual rotary Fully automatic |  |
| Supply pressure [psi]    | 15 ... 235 29 ... 176         |  |
| Ambient temperature [°F] | 14 ... 140                    |  |

# Service Units FRC – Inch Series

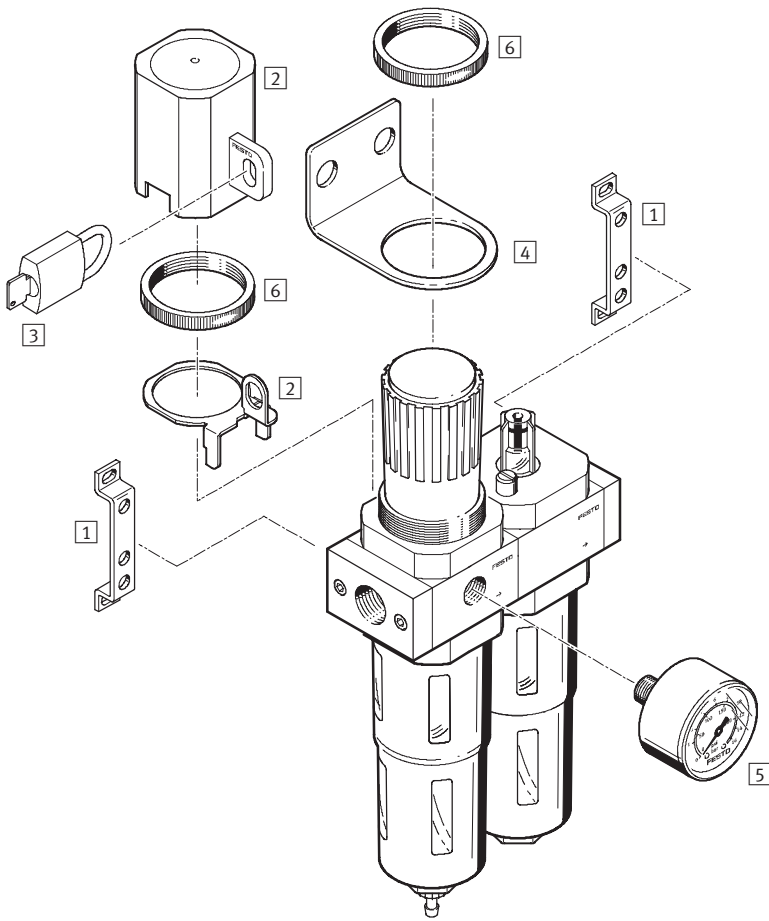
Ordering Data, Accessories



| Ordering Data    |      |            |   |    |   |    |  |
|------------------|------|------------|---|----|---|----|--|
| Condensate drain | Size | Connection | Pressure regulation range 7.5 ... 103 psi |    | Pressure regulation range 7.5 ... 176 psi |    |  |
|                  |      |            | Type                                      | LT | Type                                      | LT |  |
| Turned manually  | Mini | 1/8NPT     | FRC-1/8-D-7-MINI-NPT                      | 3D | FRC-1/8-D-MINI-NPT                        | 3D |  |
|                  |      | 1/4NPT     | FRC-1/4-D-7-MINI-NPT                      | 3D | FRC-1/4-D-MINI-NPT                        | 3D |  |
|                  | Midi | 3/8NPT     | FRC-3/8-D-7-MIDI-NPT                      | 3D | FRC-3/8-D-MIDI-NPT                        | 3D |  |
|                  |      | 1/2NPT     | FRC-1/2-D-7-MIDI-NPT                      | 3D | FRC-1/2-D-MIDI-NPT                        | 3D |  |
|                  | Maxi | 3/4NPT     | FRC-3/4-D-7-MAXI-NPT                      | 3D | FRC-3/4-D-MAXI-NPT                        | 3D |  |
|                  |      | 1NPT       | FRC-1-D-7-MAXI-NPT                        | 3D | FRC-1-D-MAXI-NPT                          | 3D |  |
| Fully automatic  | Mini | 1/8NPT     | FRC-1/8-D-7-MINI-A-NPT                    | 3D | FRC-1/8-D-MINI-A-NPT                      | 3D |  |
|                  |      | 1/4NPT     | FRC-1/4-D-7-MINI-A-NPT                    | 3D | FRC-1/4-D-MINI-A-NPT                      | 3D |  |
|                  | Midi | 3/8NPT     | FRC-3/8-D-7-MIDI-A-NPT                    | 3D | FRC-3/8-D-MIDI-A-NPT                      | 3D |  |
|                  |      | 1/2NPT     | FRC-1/2-D-7-MIDI-A-NPT                    | 3D | FRC-1/2-D-MIDI-A-NPT                      | 3D |  |
|                  | Maxi | 3/4NPT     | FRC-3/4-D-7-MAXI-A-NPT                    | 3D | FRC-3/4-D-MAXI-A-NPT                      | 3D |  |
|                  |      | 1NPT       | FRC-1-D-7-MAXI-A-NPT                      | 3D | FRC-1-D-MAXI-A-NPT                        | 3D |  |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

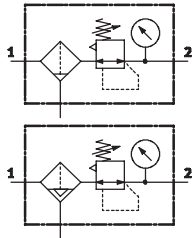


| Mounting attachments and accessories | → Page |
|--------------------------------------|--------|
| 1 Mounting bracket HFOE              | 232    |
| 2 Regulator lock LRVS                | 232    |
| 3 Padlock LRVS-D                     | -      |

| Mounting attachments and accessories                | → Page |
|---|--------|
| 4 Mounting bracket HR-D                             | 232    |
| 5 Pressure gauge MA (included in scope of delivery) | 231    |
| 6 Knurled nut HMR (included in scope of delivery)   | -      |

# Filter Regulators LFR – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data                  |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                         |        |   |      |
|---------------------------------|---|--|-------------------------|--------|---|------|
| Size                            | Mini                                    |  | Midi                    |        | Maxi  |      |
| Pneumatic connection            | 1/8NPT                                  | 1/4NPT   | 3/8NPT                  | 1/2NPT | 3/4NPT  | 1NPT |
| Design                          | Filter regulator with pressure gauge    |  |                         |        |   |      |
|                                 | Filter regulator without pressure gauge |  |                         |        |   |      |
| Type of mounting                | Via accessories                         |  |                         |        |   |      |
|                                 | In-line installation                    |  |                         |        |   |      |
|                                 | Front panel mounting                    |  |                         |        |   |      |
| Mounting position               | Vertical ±5°                            |  |                         |        |   |      |
| Grade of filtration [µm]        | 5 or 40                                 |  |                         |        |   |      |
| Pressure regulation range [psi] | 7.5 ... 103                             |  |                         |        |   |      |
|                                 | 7.5 ... 176                             |  |                         |        |   |      |
| Pressure indication             | Via pressure gauge                      |  |                         |        |   |      |
| Length [in]                     | 3.0                                     |  | 3.7                     |        | 4.2   |      |
| Width [in]                      | 1.6 (2.5) <sup>1)</sup>                 |  | 2.2 (3.3) <sup>1)</sup> |        | 2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup> |      |
| Height [in]                     | 8.3                                     |  | 10.6                    |        | 10.7  |      |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |        |        |        |        |        |      |     |
|---|--------|--------|--------|--------|--------|------|-----|
| Size  | Mini   |        | Midi   |        | Maxi   |      |     |
| Pneumatic connection                                | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |     |
| Pressure regulation range 7.5 ... 103 psi           |        |        |        |        |        |      |     |
|   | 40 µm  | 32     | 53     | 113    | 138    | 353  | 388 |
| Pressure regulation range 7.5 ... 176 psi           |        |        |        |        |        |      |     |
| Grade of filtration                                 | 5 µm   | 23     | 42     | 85     | 92     | 268  | 282 |
|   | 40 µm  | 26     | 49     | 109    | 120    | 342  | 353 |

1) Measured at p1 = 147 psi, p2 = 88 psi and Δp = 15 psi.

| Operating Conditions     |                               |  |
|--------------------------|-------------------------------|--|
| Condensate drain         | Manual rotary Fully automatic |  |
| Supply pressure [psi]    | 15 ... 235 29 ... 176         |  |
| Ambient temperature [°F] | 14 ... 140                    |  |



# Filter Regulators LFR – Inch Series

Ordering Data

| Ordering Data – Filtration Grade 40µm |      |            |   |  |   |                      |    |    |
|---------------------------------------|------|------------|---|--|---|----------------------|----|----|
| Condensate drain                      | Size | Connection | Pressure regulation range 7.5 ... 103 psi |  | Pressure regulation range 7.5 ... 176 psi |                      | LT |    |
|                                       |      |            | Type                                      |  | Type                                      |                      |    |    |
| Directly actuated diaphragm regulator |      |            |   |  |   |                      |    |    |
| Turned manually                       | Mini | 1/8NPT     | LFR-1/8-D-7-MINI-NPT                      |  | 3D  | LFR-1/8-D-MINI-NPT   |    | 3D |
|                                       |      | 1/4NPT     | LFR-1/4-D-7-MINI-NPT                      |  | 3D  | LFR-1/4-D-MINI-NPT   |    | 3D |
|                                       | Midi | 3/8NPT     | LFR-3/8-D-7-MIDI-NPT                      |  | 3D  | LFR-3/8-D-MIDI-NPT   |    | 3D |
|                                       |      | 1/2NPT     | LFR-1/2-D-7-MIDI-NPT                      |  | 3D  | LFR-1/2-D-MIDI-NPT   |    | 3D |
|                                       | Maxi | 3/4NPT     | LFR-3/4-D-7-MAXI-NPT                      |  | 3D  | LFR-3/4-D-MAXI-NPT   |    | 3D |
|                                       |      | 1NPT       | LFR-1-D-7-MAXI-NPT                        |  | 3D  | LFR-1-D-MAXI-NPT     |    | 3D |
| Fully automatic                       | Mini | 1/8NPT     | LFR-1/8-D-7-MINI-A-NPT                    |  | 3D  | LFR-1/8-D-MINI-A-NPT |    | 3D |
|                                       |      | 1/4NPT     | LFR-1/4-D-7-MINI-A-NPT                    |  | 3D  | LFR-1/4-D-MINI-A-NPT |    | 3D |
|                                       | Midi | 3/8NPT     | LFR-3/8-D-7-MIDI-A-NPT                    |  | 3D  | LFR-3/8-D-MIDI-A-NPT |    | 3D |
|                                       |      | 1/2NPT     | LFR-1/2-D-7-MIDI-A-NPT                    |  | 3D  | LFR-1/2-D-MIDI-A-NPT |    | 3D |
|                                       | Maxi | 3/4NPT     | LFR-3/4-D-7-MAXI-A-NPT                    |  | 3D  | LFR-3/4-D-MAXI-A-NPT |    | 3D |
|                                       |      | 1NPT       | LFR-1-D-7-MAXI-A-NPT                      |  | 3D  | LFR-1-D-MAXI-A-NPT   |    | 3D |

| Ordering Data – Basic Units without Threaded Connecting Plates, Filtration Grade 5µm |      |            |   |  |   |   |    |
|--|------|------------|---|--|---|---|----|
| Condensate drain   | Size | Connection | Pressure regulation range 7.5 ... 103 psi |  | Pressure regulation range 7.5 ... 176 psi |   | LT |
|  |      |            | Type                                      |  | Type                                      |   |    |
| Basic Unit without pressure gauge  |      |            |   |  |   |   |    |
| Turned manually  | Mini | –          | LFR-D-5M-MINI                             |  | 1D  | – |    |
|  | Midi | –          | LFR-D-5M-MIDI                             |  | 1D  | – |    |
|  | Maxi | –          | LFR-D-5M-MAXI                             |  | 1D  | – |    |
| Fully automatic  | Mini | –          | LFR-D-5M-MINI-A                           |  | 1D  | – |    |
|  | Midi | –          | LFR-D-5M-MIDI-A                           |  | 1D  | – |    |
|  | Maxi | –          | LFR-D-5M-MAXI-A                           |  | 1D  | – |    |

| Ordering Data – Basic Units without Threaded Connecting Plates, Filtration Grade 40µm |      |            |   |  |   |                 |    |    |
|---|------|------------|---|--|---|-----------------|----|----|
| Condensate drain  | Size | Connection | Pressure regulation range 7.5 ... 103 psi |  | Pressure regulation range 7.5 ... 176 psi |                 | LT |    |
|   |      |            | Type                                      |  | Type                                      |                 |    |    |
| Basic Unit without pressure gauge   |      |            |   |  |   |                 |    |    |
| Turned manually   | Mini | –          | LFR-D-7-MINI                              |  | 1D  | LFR-D-MINI      |    | 1D |
|   | Midi | –          | LFR-D-7-MIDI                              |  | 1D  | LFR-D-MIDI      |    | 1D |
|   | Maxi | –          | LFR-D-7-MAXI                              |  | 1D  | LFR-D-MAXI      |    | 1D |
| Fully automatic   | Mini | –          | LFR-D-7-MINI-A                            |  | 1D  | LFR-D-MINI-A    |    | 1D |
|   | Midi | –          | LFR-D-7-MIDI-A                            |  | 1D  | LFR-D-MIDI-A    |    | 1D |
|   | Maxi | –          | LFR-D-7-MAXI-A                            |  | 1D  | LFR-D-MAXI-A    |    | 1D |
| Basic Unit without pressure gauge, with integrated return flow function               |      |            |   |  |   |                 |    |    |
| Turned manually   | Maxi | –          | LFR-D-7-DI-MAXI                           |  | 1D  | LFR-D-DI-MAXI   |    | 1D |
| Fully automatic   | Maxi | –          | LFR-D-7-DI-MAXI-A                         |  | 1D  | LFR-D-DI-MAXI-A |    | 1D |

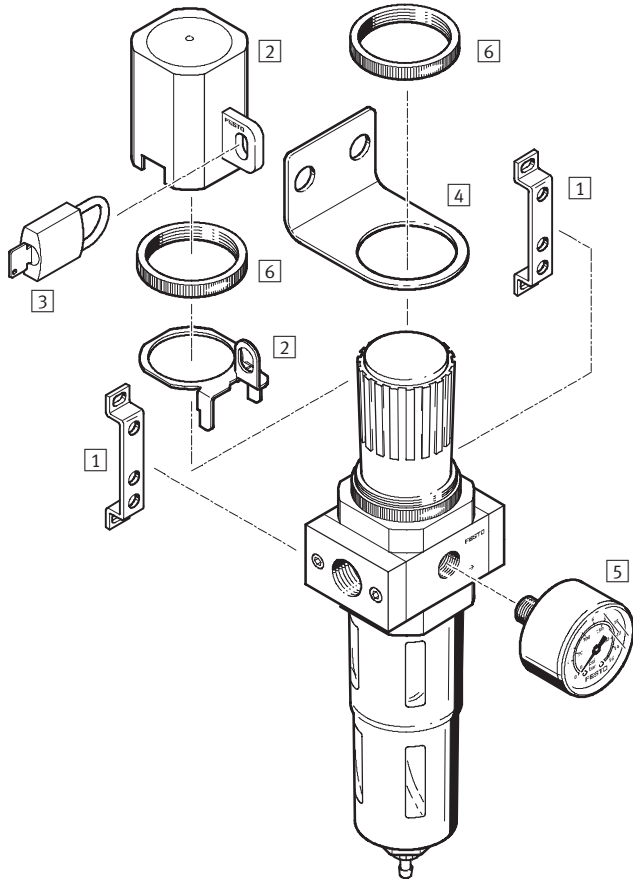
LT = Lead time                      1D typically ships same day/next day                      3D typically ships within 3 days

# Filter Regulators LFR – Inch Series

Accessories



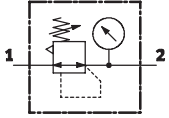
## Accessories Overview



| Mounting attachments and accessories |   | → Page |
|--------------------------------------|---|--------|
| 1                                    | Mounting bracket HFOE                           | 232    |
| 2                                    | Regulator lock LRVS                             | 232    |
| 3                                    | Padlock LRVS-D                                  | –      |
| 4                                    | Mounting bracket HR-D                           | 232    |
| 5                                    | Pressure gauge MA                               | 231    |
| 6                                    | Knurled nut HMR (included in scope of delivery) | –      |

# Pressure Regulators LR – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc/aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data                  |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                         |        |   |      |
|---------------------------------|---|--|-------------------------|--------|---|------|
| Size                            | Mini  |  | Midi                    |        | Maxi  |      |
| Pneumatic connection            | 1/8NPT  | 1/4NPT   | 3/8NPT                  | 1/2NPT | 3/4NPT  | 1NPT |
| Design                          | Directly actuated diaphragm regulator                           |  |                         |        | Pilot actuated piston regulator                 |      |
| Type of mounting                | Via accessories<br>In-line installation<br>Front panel mounting |  |                         |        |   |      |
| Mounting position               | Any   |  |                         |        |   |      |
| Max. hysteresis [psi]           | 1.5   |  |                         |        | 2.9   |      |
| Pressure regulation range [psi] | 7.5 ... 103<br>7.5 ... 176                                      |  |                         |        |   |      |
| Pressure indication             | Via pressure gauge  |  |                         |        |   |      |
|                                 | G1/8 port   |  | G1/4 port               |        | G1/4 port                                       |      |
| Length [in]                     | 3.0   |  | 3.7                     |        | 4.2   |      |
| Width [in]                      | 1.6 (2.5) <sup>1)</sup>   |  | 2.2 (3.3) <sup>1)</sup> |        | 2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup> |      |
| Height [in]                     | 3.8   |  | 5.3                     |        | 4.9   |      |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |        |        |        |        |        |      |
|---|--------|--------|--------|--------|--------|------|
| Size  | Mini   |        | Midi   |        | Maxi   |      |
| Pneumatic connection                                | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |
| Pressure regulation range 7.5 ... 103 psi           | 35     | 56     | 116    | 141    | 424    | 441  |
| Pressure regulation range 7.5 ... 176 psi           | 28     | 53     | 113    | 124    | 388    | 406  |

1) Measured at p1 = 147 psi, p2 = 88 psi and Δp = 15 psi.

| Operating Conditions     |  |
|--------------------------|--|
| Operating medium         | Filtered compressed air, lubricated or unlubricated, grade of filtration 40 μm |
| Supply pressure [psi]    | 15 ... 235   |
| Ambient temperature [°F] | 14 ... 140   |

# Pressure Regulators LR – Inch Series

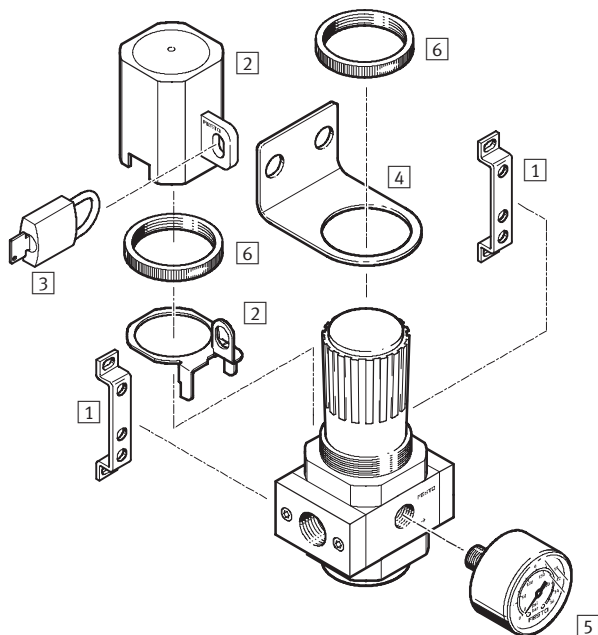
Ordering Data, Accessories

| Ordering Data                         |            |   |    |                   |   |  |
|---------------------------------------|------------|---|----|-------------------|---|--|
| Size                                  | Connection | Pressure regulation range 7.5 ... 103 psi |    | LT                | Pressure regulation range 7.5 ... 176 psi |  |
|                                       |            | Type                                      |    |                   | Type                                      |  |
| Directly actuated diaphragm regulator |            |   |    |                   |   |  |
| Mini                                  | 1/8NPT     | LR-1/8-D-7-MINI-NPT                       | 3D | LR-1/8-D-MINI-NPT | 3D  |  |
|                                       | 1/4NPT     | LR-1/4-D-7-MINI-NPT                       | 3D | LR-1/4-D-MINI-NPT | 3D  |  |
| Midi                                  | 3/8NPT     | LR-3/8-D-7-MIDI-NPT                       | 3D | LR-3/8-D-MIDI-NPT | 3D  |  |
|                                       | 1/2NPT     | LR-1/2-D-7-MIDI-NPT                       | 3D | LR-1/2-D-MIDI-NPT | 3D  |  |
| Pilot actuated piston regulator       |            |   |    |                   |   |  |
| Maxi                                  | 3/4NPT     | LR-3/4-D-7-MAXI-NPT                       | 3D | LR-3/4-D-MAXI-NPT | 3D  |  |
|                                       | 1NPT       | LR-1-D-7-MAXI-NPT                         | 3D | LR-1-D-MAXI-NPT   | 3D  |  |

| Ordering Data – Basic Units, without Threaded Connecting Plates         |            |   |    |              |  |  |
|---|------------|---|----|--------------|--|--|
| Size  | Connection | Pressure regulation range 7.5 ... 103 psi |    | LT           | Pressure regulation range 07.5 ... 176 psi |  |
|   |            | Type                                      |    |              | Type                                       |  |
| Basic Unit without pressure gauge                                       |            |   |    |              |  |  |
| Mini  | –          | LR-D-7-MINI                               | 1D | LR-D-MINI    | 1D   |  |
| Midi  | –          | LR-D-7-MIDI                               | 1D | LR-D-MIDI    | 1D   |  |
| Maxi  | –          | LR-D-7-MAXI                               | 1D | LR-D-MAXI    | 1D   |  |
| Basic Unit without pressure gauge, with integrated return flow function |            |   |    |              |  |  |
| Maxi  | –          | LR-D-7-DI-MAXI                            | 1D | LR-D-DI-MAXI | 1D   |  |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

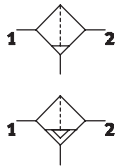
## Accessories Overview



| Mounting attachments and accessories |   | → Page |
|--------------------------------------|---|--------|
| 1                                    | Mounting bracket HFOE                           | 232    |
| 2                                    | Regulator lock LRVS                             | 232    |
| 3                                    | Padlock LRVS-D                                  | –      |
| 4                                    | Mounting bracket HR-D                           | 232    |
| 5                                    | Pressure gauge MA                               | 231    |
| 6                                    | Knurled nut HMR (included in scope of delivery) | –      |

# Filters LF – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data           |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                         |        |                         |      |
|--------------------------|---|--|-------------------------|--------|-------------------------|------|
| Size                     | Mini  |  | Midi                    |        | Maxi                    |      |
| Pneumatic connection     | 1/8NPT                                      | 1/4NPT   | 3/8NPT                  | 1/2NPT | 3/4NPT                  | 1NPT |
| Design                   | Sintered filter with centrifugal separation |  |                         |        |                         |      |
| Type of mounting         | Via accessories                             |  |                         |        |                         |      |
|                          | In-line installation                        |  |                         |        |                         |      |
| Mounting position        | Vertical ±5°                                |  |                         |        |                         |      |
| Grade of filtration [µm] | 5 or 40                                     |  |                         |        |                         |      |
| Length [in]              | 1.6   |  | 2.2                     |        | 2.6                     |      |
| Width [in]               | 1.6 (2.5) <sup>1)</sup>                     |  | 2.2 (3.3) <sup>1)</sup> |        | 2.6 (3.8) <sup>1)</sup> |      |
| Height [in]              | 6.4   |  | 7.8                     |        | 8.7                     |      |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |        |        |        |        |        |      |     |
|---|--------|--------|--------|--------|--------|------|-----|
| Size  | Mini   |        | Midi   |        | Maxi   |      |     |
| Pneumatic connection                                | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |     |
| Grade of filtration                                 | 5 µm   | 28     | 34     | 64     | 71     | 127  | 134 |
|   | 40 µm  | 35     | 42     | 95     | 106    | 177  | 187 |

1) Measured at p<sub>1</sub> = 147 psi, p<sub>2</sub> = 88 psi and Δp = 15 psi.  
 A minimum flow rate of 4.4 scfm is required for flawless functioning.

| Operating Conditions     |                 |  |
|--------------------------|-----------------|--|
| Condensate drain         | Manual rotary   |  |
|                          | Fully automatic |  |
| Supply pressure [psi]    | 0 ... 235       |  |
| Ambient temperature [°F] | 14 ... 140      |  |

# Filters LF – Inch Series

Ordering Data, Accessories

| Ordering Data    |      |            |                          |  |    |                           |    |
|------------------|------|------------|--------------------------|--|----|---------------------------|----|
| Condensate drain | Size | Connection | Grade of filtration 5 µm |  | LT | Grade of filtration 40 µm |    |
|                  |      |            | Type                     |  |    | Type                      | LT |
| Turned manually  | Mini | 1/8NPT     | LF-1/8-D-5M-MINI-NPT     |  | 3D | LF-1/8-D-MINI-NPT         | 3D |
|                  |      | 1/4NPT     | LF-1/4-D-5M-MINI-NPT     |  | 3D | LF-1/4-D-MINI-NPT         | 3D |
|                  | Midi | 3/8NPT     | LF-3/8-D-5M-MIDI-NPT     |  | 3D | LF-3/8-D-MIDI-NPT         | 3D |
|                  |      | 1/2NPT     | LF-1/2-D-5M-MIDI-NPT     |  | 3D | LF-1/2-D-MIDI-NPT         | 3D |
|                  | Maxi | 3/4NPT     | LF-3/4-D-5M-MAXI-NPT     |  | 3D | LF-3/4-D-MAXI-NPT         | 3D |
|                  |      | 1NPT       | LF-1-D-5M-MAXI-NPT       |  | 3D | LF-1-D-MAXI-NPT           | 3D |
| Fully automatic  | Mini | 1/8NPT     | LF-1/8-D-5M-MINI-A-NPT   |  | 3D | LF-1/8-D-MINI-A-NPT       | 3D |
|                  |      | 1/4NPT     | LF-1/4-D-5M-MINI-A-NPT   |  | 3D | LF-1/4-D-MINI-A-NPT       | 3D |
|                  | Midi | 3/8NPT     | LF-3/8-D-5M-MIDI-A-NPT   |  | 3D | LF-3/8-D-MIDI-A-NPT       | 3D |
|                  |      | 1/2NPT     | LF-1/2-D-5M-MIDI-A-NPT   |  | 3D | LF-1/2-D-MIDI-A-NPT       | 3D |
|                  | Maxi | 3/4NPT     | LF-3/4-D-5M-MAXI-A-NPT   |  | 3D | LF-3/4-D-MAXI-A-NPT       | 3D |
|                  |      | 1NPT       | LF-1-D-5M-MAXI-A-NPT     |  | 3D | LF-1-D-MAXI-A-NPT         | 3D |

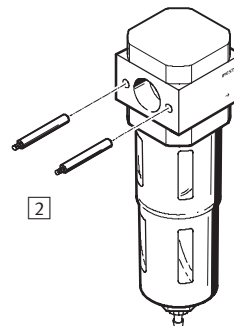
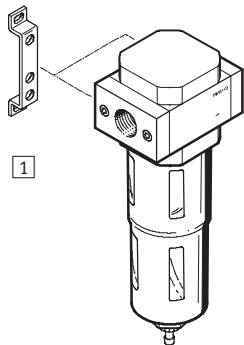
| Ordering Data – Basic Units, without Threaded Connecting Plates |      |            |                          |  |    |                           |    |
|---|------|------------|--------------------------|--|----|---------------------------|----|
| Condensate drain  | Size | Connection | Grade of filtration 5 µm |  | LT | Grade of filtration 40 µm |    |
|   |      |            | Type                     |  |    | Type                      | LT |
| Turned manually   | Mini | –          | LF-D-5M-MINI-U           |  | 1D | LF-D-MINI-U               | 1D |
|   | Midi | –          | LF-D-5M-MIDI-U           |  | 1D | LF-D-MIDI-U               | 1D |
|   | Maxi | –          | LF-D-5M-MAXI-U           |  | 1D | LF-D-MAXI-U               | 1D |
| Fully automatic   | Mini | –          | LF-D-5M-MINI-A-U         |  | 1D | LF-D-MINI-A-U             | 1D |
|   | Midi | –          | LF-D-5M-MIDI-A-U         |  | 1D | LF-D-MIDI-A-U             | 1D |
|   | Maxi | –          | LF-D-5M-MAXI-A-U         |  | 1D | LF-D-MAXI-A-U             | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device

Basic unit for manifold assembly

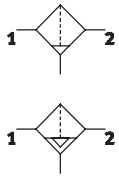


| Mounting attachments and accessories | → Page |
|--------------------------------------|--------|
| 1 Mounting bracket HFOE              | 232    |

| Mounting attachments and accessories               | → Page |
|--|--------|
| 2 Threaded pin FRB (included in scope of delivery) | 232    |

# Fine and Micro Filters LFMB/LFMA – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Filter: Borosilicate fibre  
 Seals: Nitrile rubber  
 Free of copper and PTFE



LFMA  
 DIN ISO class 1 for particles:  
 max. particle density 0.1 mg/m<sup>3</sup>  
 DIN ISO class 2 for oil aerosols:  
 max. oil concentration 0.1 mg/m<sup>3</sup>

LFMB  
 DIN ISO class 2 for particles:  
 max. particle density 1 mg/m<sup>3</sup>  
 DIN ISO class 3 for oil aerosols:  
 max. oil concentration 1 mg/m<sup>3</sup>

| Technical Data       |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                         |        |   |      |
|----------------------|---|--|-------------------------|--------|---|------|
| Size                 | Mini                                    |  | Midi                    |        | Maxi  |      |
| Pneumatic connection | 1/8NPT                                  | 1/4NPT   | 3/8NPT                  | 1/2NPT | 3/4NPT  | 1NPT |
| Design               | Fibre filter                            |  |                         |        |   |      |
| Type of mounting     | Via accessories<br>In-line installation |  |                         |        |   |      |
| Mounting position    | Vertical ±5°                            |  |                         |        |   |      |
| Length [in]          | 3.0                                     |  | 3.7                     |        | 4.2   |      |
| Width [in]           | 1.6 (2.5) <sup>1)</sup>                 |  | 2.2 (3.3) <sup>1)</sup> |        | 2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup> |      |
| Height [in]          | 6.4                                     |  | 7.8                     |        | 8.7   |      |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |        |        |        |        |        |      |
|---|--------|--------|--------|--------|--------|------|
| Size  | Mini   |        | Midi   |        | Maxi   |      |
| Pneumatic connection                                | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |
| Micro filter LFMA                                   | 5      | 6      | 13     | 14     | 32     | 34   |
| Fine filter LFMB                                    | 9      | 11     | 25     | 32     | 42     | 44   |

1) Measured at p<sub>1</sub> = 88 psi and Δp = 70 mbar.  
 A minimum flow rate of 4.4 scfm is required for flawless functioning.

| Operating Conditions                      |   |  |   |  |
|---|---|--|---|--|
| Type                                      | LFMA  |  | LFMB  |  |
| Condensate drain                          | Manual rotary   |  | Fully automatic   |  |
| Operating medium                          | Filtered compressed air, lubricated or unlubricated, grade of filtration 1 µm |  | Filtered compressed air, lubricated or unlubricated, grade of filtration 5 µm |  |
| Grade of filtration [µm]                  | 0.01  |  | 1   |  |
| Residual oil content [mg/m <sup>3</sup> ] | ≤ 0.01  |  | ≤ 0.5   |  |
| Supply pressure [psi]                     | 15 ... 235  |  | 22 ... 176  |  |
| Ambient temperature [°F]                  | 14 ... 140  |  | 14 ... 140  |  |

# Fine and Micro Filters LFMB/LFMA – Inch Series

Ordering Data, Accessories

| Ordering Data – Fine filters LFMB               |            |                                  |    |                       |                                  |  |
|---|------------|----------------------------------|----|-----------------------|----------------------------------|--|
| Grade of filtration 1 µm, metal bowl guard      |            |                                  |    |                       |                                  |  |
| Size  | Connection | Input pressure 15 ... 235 psi    |    | LT                    | Input pressure 22 ... 176 psi    |  |
|   |            | Condensate drain turned manually |    |                       | Condensate drain fully automatic |  |
|   |            | Type                             |    |                       | Type                             |  |
| With threaded connecting plates                 |            |                                  |    |                       |                                  |  |
| Mini  | 1/8NPT     | LFMB-1/8-D-MINI-NPT              | 3D | LFMB-1/8-D-MINI-A-NPT | 3D                               |  |
|   | 1/4NPT     | LFMB-1/4-D-MINI-NPT              | 3D | LFMB-1/4-D-MINI-A-NPT | 3D                               |  |
| Midi  | 3/8NPT     | LFMB-3/8-D-MIDI-NPT              | 3D | LFMB-3/8-D-MIDI-A-NPT | 3D                               |  |
|   | 1/2NPT     | LFMB-1/2-D-MIDI-NPT              | 3D | LFMB-1/2-D-MIDI-A-NPT | 3D                               |  |
| Maxi  | 3/4NPT     | LFMB-3/4-D-MAXI-NPT              | 3D | LFMB-3/4-D-MAXI-A-NPT | 3D                               |  |
|   | 1NPT       | LFMB-1-D-MAXI-NPT                | 3D | LFMB-1-D-MAXI-A-NPT   | 3D                               |  |
| Basic Units, without Threaded Connecting Plates |            |                                  |    |                       |                                  |  |
| Mini  | –          | LFMB-D-MINI-U                    | 1D | LFMB-D-MINI-A-U       | 1D                               |  |
| Midi  | –          | LFMB-D-MIDI-U                    | 1D | LFMB-D-MIDI-A-U       | 1D                               |  |
| Maxi  | –          | LFMB-D-MAXI-U                    | 1D | LFMB-D-MAXI-A-U       | 1D                               |  |

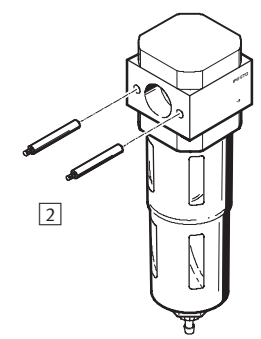
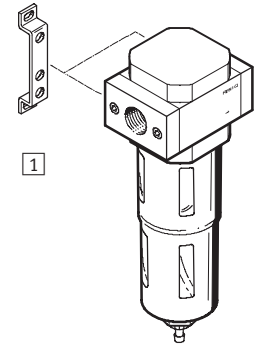
| Ordering Data – Micro filters LFMA              |            |                                  |    |                       |                                  |  |
|---|------------|----------------------------------|----|-----------------------|----------------------------------|--|
| Grade of filtration 0.01 µm, metal bowl guard   |            |                                  |    |                       |                                  |  |
| Size  | Connection | Input pressure 15 ... 235 psi    |    | LT                    | Input pressure 22 ... 176 psi    |  |
|   |            | Condensate drain turned manually |    |                       | Condensate drain fully automatic |  |
|   |            | Type                             |    |                       | Type                             |  |
| With threaded connecting plates                 |            |                                  |    |                       |                                  |  |
| Mini  | 1/8NPT     | LFMA-1/8-D-MINI-NPT              | 3D | LFMA-1/8-D-MINI-A-NPT | 3D                               |  |
|   | 1/4NPT     | LFMA-1/4-D-MINI-NPT              | 3D | LFMA-1/4-D-MINI-A-NPT | 3D                               |  |
| Midi  | 3/8NPT     | LFMA-3/8-D-MIDI-NPT              | 3D | LFMA-3/8-D-MIDI-A-NPT | 3D                               |  |
|   | 1/2NPT     | LFMA-1/2-D-MIDI-NPT              | 3D | LFMA-1/2-D-MIDI-A-NPT | 3D                               |  |
| Maxi  | 3/4NPT     | LFMA-3/4-D-MAXI-NPT              | 3D | LFMA-3/4-D-MAXI-A-NPT | 3D                               |  |
|   | 1NPT       | LFMA-1-D-MAXI-NPT                | 3D | LFMA-1-D-MAXI-A-NPT   | 3D                               |  |
| Basic Units, without Threaded Connecting Plates |            |                                  |    |                       |                                  |  |
| Mini  | –          | LFMA-D-MINI-U                    | 1D | LFMA-D-MINI-A-U       | 1D                               |  |
| Midi  | –          | LFMA-D-MIDI-U                    | 1D | LFMA-D-MIDI-A-U       | 1D                               |  |
| Maxi  | –          | LFMA-D-MAXI-U                    | 1D | LFMA-D-MAXI-A-U       | 1D                               |  |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device

Basic unit for manifold assembly



| Mounting attachments and accessories | → Page |
|--------------------------------------|--------|
| 1 Mounting bracket HFOE              | 232    |

| Mounting attachments and accessories               | → Page |
|--|--------|
| 2 Threaded pin FRB (included in scope of delivery) | 232    |

Air Preparation Units

4



# Lubricators LOE – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc/aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



The following oils are recommended for Festo components:  
 Viscosity range to ISO 3448, ISO class VG 32  
 32 mm<sup>2</sup>/s (= cSt) at 40 °C

- Festo special oil OFSW-32
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

| Technical Data                               |   |        |                         |        |   |      |
|--|---|--------|-------------------------|--------|---|------|
| Size   | Mini                                    |        | Midi                    |        | Maxi  |      |
| Pneumatic connection                         | 1/8NPT                                  | 1/4NPT | 3/8NPT                  | 1/2NPT | 3/4NPT  | 1NPT |
| Design                                       | Proportional standard mist lubricator   |        |                         |        |   |      |
| Type of mounting                             | Via accessories<br>In-line installation |        |                         |        |   |      |
| Mounting position                            | Vertical ±5°                            |        |                         |        |   |      |
| Minimum flow for lubricator operation [scfm] | 0.1                                     |        | 0.3                     |        | 0.4   |      |
| Max. oil capacity [in <sup>3</sup> ]         | 2.7                                     |        | 6.7                     |        | 11.6  |      |
| Length [in]                                  | 1.6                                     |        | 2.2                     |        | 2.6   |      |
| Width [in]                                   | 1.6 (2.5) <sup>1)</sup>                 |        | 2.2 (3.3) <sup>1)</sup> |        | 2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup> |      |
| Height [in]                                  | 6.7                                     |        | 8                       |        | 9   |      |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |        |        |        |        |        |      |
|---|--------|--------|--------|--------|--------|------|
| Size  | Mini   |        | Midi   |        | Maxi   |      |
| Pneumatic connection                                | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |
| Lubricator LOE                                      | 46     | 81     | 194    | 215    | 297    | 318  |

1) Measured at p1 = 6 bar and Δp = 1 bar.

| Operating Conditions     |  |
|--------------------------|--|
| Operating medium         | Filtered compressed air, unlubricated, grade of filtration 40 μm |
| Supply pressure [psi]    | 0 ... 235  |
| Ambient temperature [°F] | 14 ... 140   |

# Lubricators LOE – Inch Series

Ordering Data, Accessories

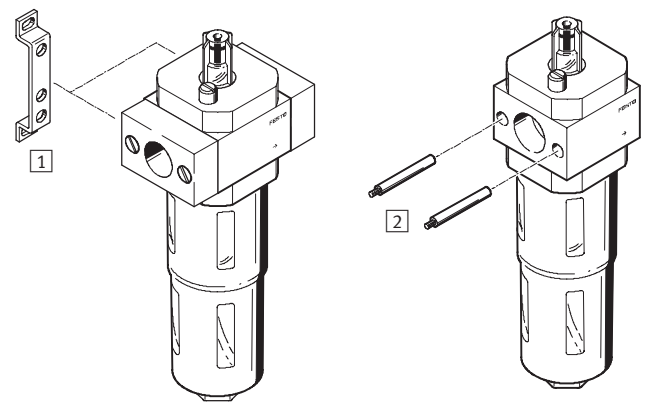
| Ordering Data |            |                    |    |
|---------------|------------|--------------------|----|
| Size          | Connection | Type               | LT |
| Mini          | 1/8NPT     | LOE-1/8-D-MINI-NPT | 3D |
|               | 1/4NPT     | LOE-1/4-D-MINI-NPT | 3D |
| Midi          | 3/8NPT     | LOE-3/8-D-MIDI-NPT | 3D |
|               | 1/2NPT     | LOE-1/2-D-MIDI-NPT | 3D |
| Maxi          | 3/4NPT     | LOE-3/4-D-MAXI-NPT | 3D |
|               | 1NPT       | LOE-1-D-MAXI-NPT   | 3D |

| Ordering Data – Basic Units, without Threaded Connecting Plates |            |              |    |
|---|------------|--------------|----|
| Size  | Connection | Type         | LT |
| Mini  | –          | LOE-D-MINI-U | 1D |
| Midi  | –          | LOE-D-MIDI-U | 1D |
| Maxi  | –          | LOE-D-MAXI-U | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

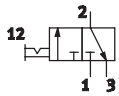
Individual device      Basic unit for manifold assembly



| Mounting attachments and accessories |  | → Page |
|--------------------------------------|--|--------|
| 1                                    | Mounting bracket HFOE                            | 232    |
| 2                                    | Threaded pin FRB (included in scope of delivery) | 232    |

# Manual On-off Valves HE – Inch Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data       |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                         |        |   |      |
|----------------------|---|--|-------------------------|--------|---|------|
| Size                 | Mini                                    |  | Midi                    |        | Maxi  |      |
| Pneumatic connection | 1/8NPT                                  | 1/4NPT   | 3/8NPT                  | 1/2NPT | 3/4NPT  | 1NPT |
| Design               | Piston spool                            |  |                         |        |   |      |
| Type of mounting     | Via accessories<br>In-line installation |  |                         |        |   |      |
| Mounting position    | Any                                     |  |                         |        |   |      |
| Valve function       | 3/2-way                                 |  |                         |        |   |      |
| Exhaust port         | G1/8                                    |  | G1/4                    |        | G3/8  |      |
| Reset method         | Mechanical spring                       |  |                         |        |   |      |
| Direction of flow    | Non-reversible                          |  |                         |        |   |      |
| Length [in]          | 1.6                                     |  | 2.2                     |        | 2.6   |      |
| Width [in]           | 1.6 (2.5) <sup>1)</sup>                 |  | 2.2 (3.3) <sup>1)</sup> |        | 2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup> |      |
| Height [in]          | 3.9                                     |  | 4.8                     |        | 5.3   |      |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |        |        |        |        |        |      |
|---|--------|--------|--------|--------|--------|------|
| Size  | Mini   |        | Midi   |        | Maxi   |      |
| Pneumatic connection                                | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |
| On-off valve HE                                     | 35     | 53     | 113    | 127    | 212    | 229  |

1) Measured at p1 = 88 psi and Δp = 15 psi

| Operating Conditions     |  |
|--------------------------|--|
| Operating medium         | Filtered compressed air, lubricated or unlubricated, grade of filtration 50 μm |
| Operating pressure [psi] | 0 ... 235  |
| Ambient temperature [°F] | 14 ... 140   |

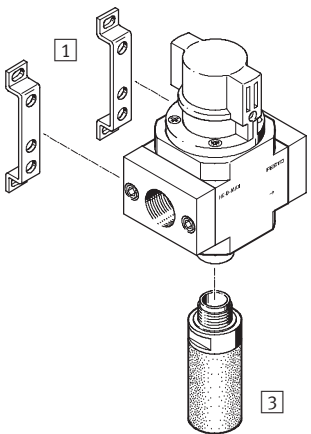
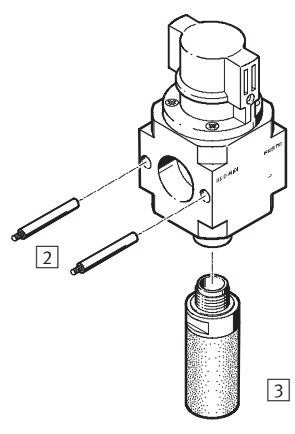
# Manual On-off Valves HE – Inch Series

Ordering Data, Accessories



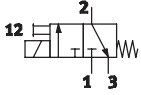
| Ordering Data  |            |                   |    |
|--|------------|-------------------|----|
| 3/2-way valve, operating pressure 0 ... 235 psi, normally closed |            |                   |    |
| Size   | Connection | Type              | LT |
| With threaded connecting plates                                  |            |                   |    |
| Mini   | 1/8NPT     | HE-1/8-D-MINI-NPT | 3D |
|  | 1/4NPT     | HE-1/4-D-MINI-NPT | 3D |
| Midi   | 3/8NPT     | HE-3/8-D-MIDI-NPT | 3D |
|  | 1/2NPT     | HE-1/2-D-MIDI-NPT | 3D |
| Maxi   | 3/4NPT     | HE-3/4-D-MAXI-NPT | 3D |
|  | 1NPT       | HE-1-D-MAXI-NPT   | 3D |
| Basic Unit, without threaded connecting plates                   |            |                   |    |
| Mini   | –          | HE-D-MINI         | 1D |
| Midi   | –          | HE-D-MIDI         | 1D |
| Maxi   | –          | HE-D-MAXI         | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

| Accessories Overview   |  |  |        |
|--|--|--|--------|
| Individual device  | Basic unit for manifold assembly   | Mounting attachments and accessories               | → Page |
|  |  | 1 Mounting bracket HFOE                            | 232    |
|  |  | 2 Threaded pin FRB (included in scope of delivery) | 232    |
|  |  | 3 Silencer U                                       | 233    |

# Electric On-off valves HEE – Inch Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data       |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |        |                         |        |   |
|----------------------|---|--|--------|-------------------------|--------|---|
| Size                 | Mini                                    |  | Midi   |                         | Maxi   |   |
| Pneumatic connection | 1/8NPT                                  | 1/4NPT   | 3/8NPT | 1/2NPT                  | 3/4NPT | 1NPT  |
| Design               | Piston spool                            |  |        |                         |        |   |
| Type of mounting     | Via accessories<br>In-line installation |  |        |                         |        |   |
| Mounting position    | Any                                     |  |        |                         |        |   |
| Valve function       | 3/2-way, single solenoid                |  |        |                         |        |   |
| Exhaust port         | G1/8                                    |  | G1/4   |                         | G3/8   |   |
| Reset method         | Mechanical spring                       |  |        |                         |        |   |
| Direction of flow    | Non-reversible                          |  |        |                         |        |   |
| Operating voltage    | [V DC]                                  | 24   |        |                         |        |   |
|                      | [V AC]                                  | 110, 230   |        |                         |        |   |
| Length               | [in]                                    | 1.6  |        | 2.2                     |        | 2.6   |
| Width                | [in]                                    | 1.6 (2.5) <sup>1)</sup>  |        | 2.2 (3.3) <sup>1)</sup> |        | 2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup> |
| Height               | [in]                                    | 4.1  |        | 4.8                     |        | 5.3   |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |        |        |        |        |        |      |
|---|--------|--------|--------|--------|--------|------|
| Size  | Mini   |        | Midi   |        | Maxi   |      |
| Pneumatic connection                                | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |
| On-off valve HE                                     | 35     | 53     | 113    | 127    | 212    | 229  |

1) Measured at p1 = 88 psi and Δp = 15 psi

| Operating Conditions |  |
|----------------------|--|
| Operating medium     | Filtered compressed air, lubricated or unlubricated, grade of filtration 50 μm |
| Operating pressure   | [psi] 37 ... 235   |
| Ambient temperature  | [°F] 14 ... 140  |

# Electric On-off valves HEE – Inch Series

Ordering Data, Accessories

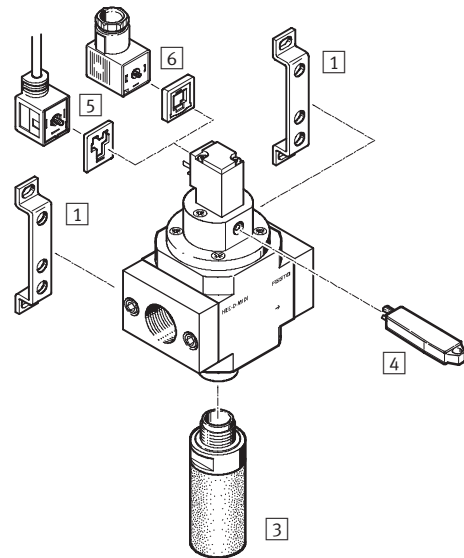


| Ordering Data   |            |                       |    |                        |          |                |    |
|---|------------|-----------------------|----|------------------------|----------|----------------|----|
| 3/2-way valve, operating pressure 37 ... 235 psi, normally closed |            |                       |    |                        |          |                |    |
| Size  | Connection | 24 V DC               |    | LT                     | 110 V AC |                | LT |
|   |            | Type                  |    |                        | Type     |                |    |
|   |            | 230 V AC              |    |                        |          | LT             |    |
|   |            | Type                  |    |                        |          | Type           |    |
| With threaded connecting plates                                   |            |                       |    |                        |          |                |    |
| Mini  | 1/8NPT     | HEE-1/8-D-MINI-24-NPT | 3D | HEE-1/8-D-MINI-110-NPT | 3D       | –              |    |
|   | 1/4NPT     | HEE-1/4-D-MINI-24-NPT | 3D | HEE-1/4-D-MINI-110-NPT | 3D       | –              |    |
| Midi  | 3/8NPT     | HEE-3/8-D-MIDI-24-NPT | 3D | HEE-3/8-D-MIDI-110-NPT | 3D       | –              |    |
|   | 1/2NPT     | HEE-1/2-D-MIDI-24-NPT | 3D | HEE-1/2-D-MIDI-110-NPT | 3D       | –              |    |
| Maxi  | 3/4NPT     | HEE-3/4-D-MAXI-24-NPT | 3D | HEE-3/4-D-MAXI-110-NPT | 3D       | –              |    |
|   | 1NPT       | HEE-1-D-MAXI-24-NPT   | 3D | HEE-1-D-MAXI-110-NPT   | 3D       | –              |    |
| Without threaded connecting plates                                |            |                       |    |                        |          |                |    |
| Mini  | –          | HEE-D-MINI-24         | 1D | HEE-D-MINI-110         | 1D       | HEE-D-MINI-230 | 1D |
| Midi  | –          | HEE-D-MIDI-24         | 1D | HEE-D-MIDI-110         | 1D       | HEE-D-MIDI-230 | 1D |
| Maxi  | –          | HEE-D-MAXI-24         | 1D | HEE-D-MAXI-110         | 1D       | HEE-D-MAXI-230 | 1D |

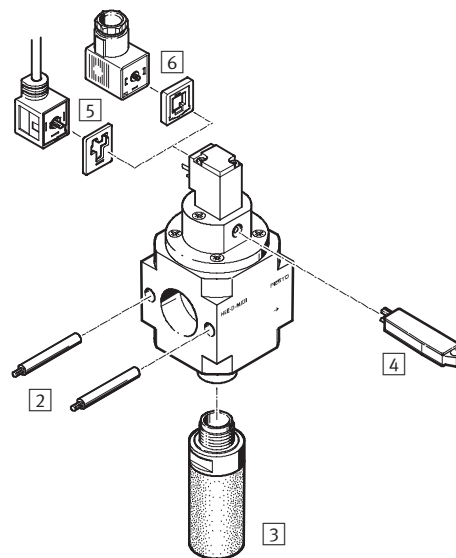
LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

### Individual device



### Basic unit for manifold assembly

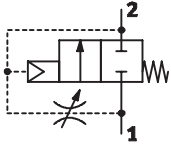


| Mounting attachments and accessories              | → Page        |
|---|---------------|
| 1 Mounting bracket HFOE                           | 232           |
| 3 Silencer U                                      | 233           |
| 4 Non-detenting manual override tool AHB-MD/MF/MY | 233           |
| 5 Plug socket with cable KMEB                     | www.festo.com |
| 6 Plug socket MSSD-EB                             | www.festo.com |

| Mounting attachments and accessories               | → Page        |
|--|---------------|
| 2 Threaded pin FRB (included in scope of delivery) | 232           |
| 3 Silencer U                                       | 233           |
| 4 Non-detenting manual override tool AHB-MD/MF/MY  | 233           |
| 5 Plug socket with cable KMEB                      | www.festo.com |
| 6 Plug socket MSSD-EB                              | www.festo.com |

# Soft-start Valves HEL – Inch Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data       |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                         |        |   |      |
|----------------------|---|--|-------------------------|--------|---|------|
| Size                 | Mini                                      |  | Midi                    |        | Maxi  |      |
| Pneumatic connection | 1/8NPT                                    | 1/4NPT   | 3/8NPT                  | 1/2NPT | 3/4NPT  | 1NPT |
| Design               | Piston spool                              |  |                         |        |   |      |
| Type of mounting     | Via accessories<br>In-line installation   |  |                         |        |   |      |
| Mounting position    | Any                                       |  |                         |        |   |      |
| Valve function       | 2/2-way, closed, air operated, adjustable |  |                         |        |   |      |
| Reset method         | Mechanical spring                         |  |                         |        |   |      |
| Actuation method     | Direct                                    |  |                         |        |   |      |
| Direction of flow    | Non-reversible                            |  |                         |        |   |      |
| Length [in]          | 1.6                                       |  | 2.2                     |        | 2.6   |      |
| Width [in]           | 1.6 (2.5) <sup>1)</sup>                   |  | 2.2 (3.3) <sup>1)</sup> |        | 2.6 (3.8) <sup>1)</sup> 2.6 (4.6) <sup>1)</sup> |      |
| Height [in]          | 2.6                                       |  | 3                       |        | 3.5   |      |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |        |        |        |        |        |      |
|---|--------|--------|--------|--------|--------|------|
| Size  | Mini   |        | Midi   |        | Maxi   |      |
| Pneumatic connection                                | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |
| On-off valve HE                                     | 35     | 53     | 113    | 127    | 212    | 229  |

1) Measured at p1 = 88 psi and Δp = 15 psi

| Operating Conditions     |  |
|--------------------------|--|
| Operating medium         | Filtered compressed air, lubricated or unlubricated, grade of filtration 50 μm |
| Operating pressure [psi] | 44 ... 235   |
| Ambient temperature [°F] | 14 ... 140   |

# Soft-start Valves HEL – Inch Series

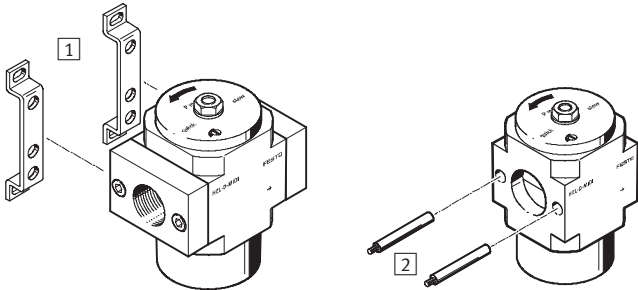
Ordering Data, Accessories

| Ordering Data  |            |                    |    |
|--|------------|--------------------|----|
| Gradual pressure build-up, 2/2-way valve, normally closed, operating pressure 44 ... 235 psi |            |                    |    |
| Size   | Connection | Type               | LT |
| With threaded connecting plates  |            |                    |    |
| Mini   | 1/8NPT     | HEL-1/8-D-MINI-NPT | 3D |
|  | 1/4NPT     | HEL-1/4-D-MINI-NPT | 3D |
| Midi   | 3/8NPT     | HEL-3/8-D-MIDI-NPT | 3D |
|  | 1/2NPT     | HEL-1/2-D-MIDI-NPT | 3D |
| Maxi   | 3/4NPT     | HEL-3/4-D-MAXI-NPT | 3D |
|  | 1NPT       | HEL-1-D-MAXI-NPT   | 3D |
| Basic Unit, without threaded connecting plates   |            |                    |    |
| Mini   | –          | HEL-D-MINI         | 1D |
| Midi   | –          | HEL-D-MIDI         | 1D |
| Maxi   | –          | HEL-D-MAXI         | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

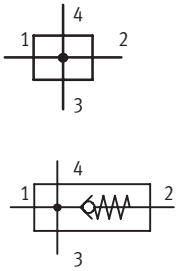
| Individual device | Basic unit for manifold assembly | Mounting attachments and accessories               | → Page |
|-------------------|----------------------------------|--|--------|
|                   |                                  | 1 Mounting bracket HFOE                            | 232    |
|                   |                                  | 2 Threaded pin FRB (included in scope of delivery) | 232    |





# Branching Modules FRM/FRZ – Inch Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Seals: Nitrile rubber, polyvinyl chloride  
 Free of copper and PTFE



| Technical Data                          |                      | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |        |                         |        |   |      |
|---|----------------------|--|--------|-------------------------|--------|---|------|
| Size                                    | Micro                | Mini   |        | Midi                    |        | Maxi  |      |
| Pneumatic connection 1, 2 <sup>1)</sup> | 1/8NPT               | 1/8NPT   | 1/4NPT | 3/8NPT                  | 1/2NPT | 3/4NPT  | 1NPT |
| Pneumatic connection 3                  | 1/8NPT               | 1/4NPT   |        | 1/2NPT                  |        | 3/4NPT  |      |
| Pneumatic connection 4                  | 10/32 UNF            | 1/4NPT   |        |                         |        |   |      |
| Design                                  | Branching module     |  |        |                         |        |   |      |
| Type of mounting                        | With accessories     |  |        |                         |        |   |      |
|   | In-line installation |  |        |                         |        |   |      |
| Mounting position                       | Any                  |  |        |                         |        |   |      |
| Length [in]                             | 1                    | 1.6  |        | 2.2                     |        | 2.6   |      |
| Width [in]                              | 1                    | 1.6 (2.5) <sup>2)</sup>  |        | 2.2 (3.3) <sup>2)</sup> |        | 2.6 (3.8) <sup>2)</sup> 2.6 (4.6) <sup>2)</sup> |      |
| Height [in]                             | 1.2                  | 1.9  |        | 2.6                     |        | 3.1   |      |

- 1) With connecting plates.
- 2) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [scfm] |       |                                      |                        |        |        |        |        |      |
|---|-------|--------------------------------------|------------------------|--------|--------|--------|--------|------|
| Connection  |       | Basic Unit Without Connecting Plates | With connecting plates |        |        |        |        |      |
|   |       |                                      | 1/8NPT                 | 1/4NPT | 3/8NPT | 1/2NPT | 3/4NPT | 1NPT |
| Standard  |       |                                      |                        |        |        |        |        |      |
| In main flow direction                              | Micro | 7.4                                  | –                      | –      | –      | –      | –      | –    |
|   | Mini  | 117                                  | 53                     | 117    | –      | –      | –      | –    |
|   | Midi  | 290                                  | –                      | –      | 247    | 290    | –      | –    |
|   | Maxi  | 706                                  | –                      | –      | –      | –      | 706    | 614  |
| With non-return function                            |       |                                      |                        |        |        |        |        |      |
| In main flow direction                              | Mini  | 71                                   | 46                     | 71     | –      | –      | –      | –    |
|   | Midi  | 198                                  | –                      | –      | 194    | 198    | –      | –    |
|   | Maxi  | 530                                  | –                      | –      | –      | –      | 530    | 473  |

- 1) Measured at p1 = 6 bar and Δp = 1 bar.

| Operating Conditions     |                         |             |      |                         |
|--------------------------|-------------------------|-------------|------|-------------------------|
| Size                     | Micro                   | Mini        | Midi | Maxi                    |
| Operating medium         | Filtered compressed air |             |      |                         |
| Ambient temperature [°F] | 14 ... 140              |             |      |                         |
| Operating pressure [psi] |                         |             |      |                         |
| Standard                 | 0 ... 235               |             |      |                         |
| With non-return function | –                       | 2.2 ... 235 |      | 2.9 ... 235 3.7 ... 235 |

# Branching Modules FRM/FRZ – Inch Series

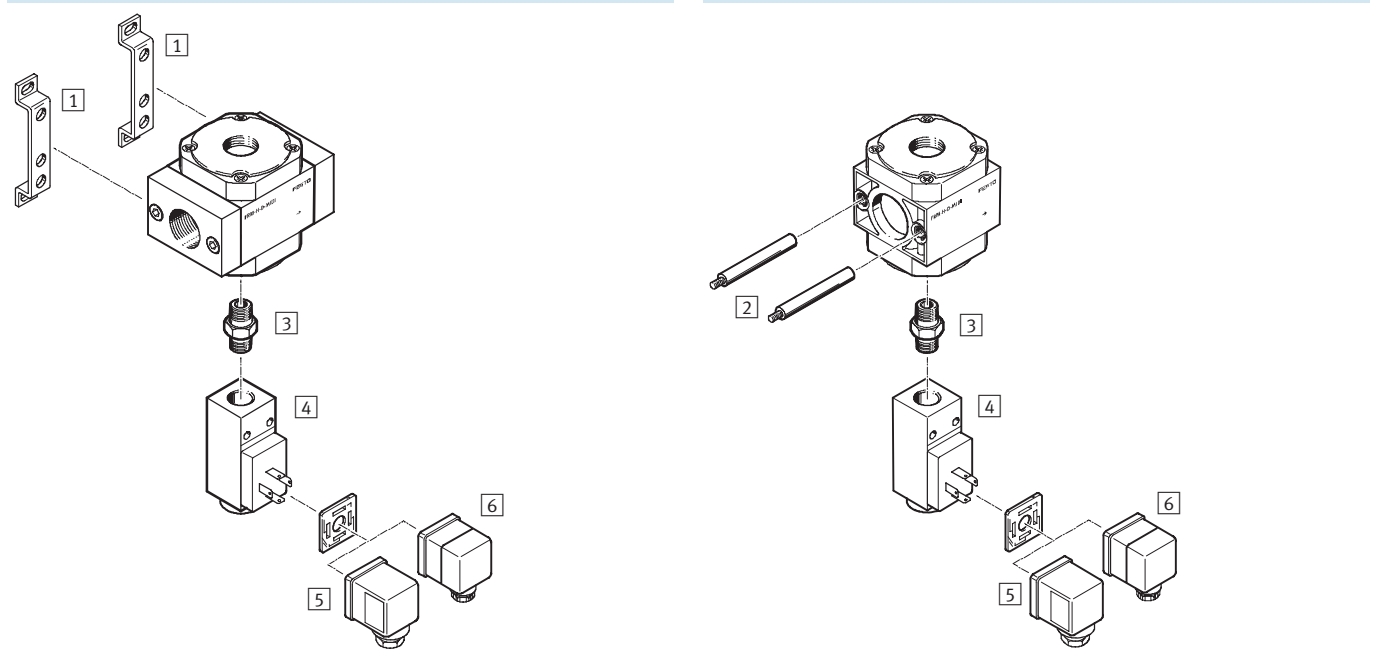
Ordering Data, Accessories

| Ordering Data – With Connecting Plates |        |                                     |    |
|--|--------|-------------------------------------|----|
| Size                                   | Port   | With integrated non-return function | LT |
|  |        | Type                                |    |
| Mini                                   | 1/8NPT | FRM-H-1/8-D-MINI-NPT                | 3D |
|  | 1/4NPT | FRM-H-1/4-D-MINI-NPT                | 3D |
| Midi                                   | 3/8NPT | FRM-H-3/8-D-MIDI-NPT                | 3D |
|  | 1/2NPT | FRM-H-1/2-D-MIDI-NPT                | 3D |
| Maxi                                   | 3/4NPT | FRM-H-3/4-D-MAXI-NPT                | 3D |
|  | 1NPT   | FRM-H-1-D-MAXI-NPT                  | 3D |

| Ordering Data – Basic Unit Without Connecting Plates |                 |    |                                     |    |
|--|-----------------|----|-------------------------------------|----|
| Size   | Standard        | LT | With integrated non-return function | LT |
|  | Type            |    | Type                                |    |
| Micro  | FRZ-D-MICRO-NPT | 1D | –                                   |    |
| Mini   | FRM-D-MINI      | 1D | FRM-H-D-MINI                        | 1D |
| Midi   | FRM-D-MIDI      | 1D | FRM-H-D-MIDI                        | 1D |
| Maxi   | FRM-D-MAXI      | 1D | FRM-H-D-MAXI                        | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview



| Mounting attachments and accessories | → Page |
|--------------------------------------|--------|
| 1 Mounting bracket HFOE              | 232    |
| 3 Double nipple ESK                  | –      |
| 4 Pressure switch PEV                | 233    |
| 5 Plug socket MSSD-C                 | –      |
| 6 Angled plug socket PEV-...-WD-LED  | –      |

| Mounting attachments and accessories               | → Page |
|--|--------|
| 2 Threaded pin FRB (included in scope of delivery) | –      |
| 3 Double nipple ESK                                | –      |
| 4 Pressure switch PEV                              | 233    |
| 5 Plug socket MSSD-C                               | –      |
| 6 Angled plug socket PEV-...-WD-LED                | –      |

# Pressure Gauges MA

Technical Data, Ordering Data

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Materials  
 Housing:  
 MA-23: Brass  
 MA-27/40/50: Acrylic butadiene  
 styrene/plastic  
 MA-63: Steel  
 Dial cover: Polystyrene/plastic  
 Threaded plug: Brass



| Technical Data             |                                  | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                 |
|----------------------------|----------------------------------|--|-----------------|
| Nominal size               | 27                               | 40   | 50              |
| Pneumatic connection       | M5                               | G $\frac{1}{8}$  | G $\frac{1}{4}$ |
| Operating medium           | Liquid and gaseous media         |  |                 |
|                            | Not permitted: Oxygen, Acetylene |  |                 |
| Constructional design      | Bourdon tube pressure gauge      |  |                 |
| Type of mounting           | Screw-in                         |  |                 |
| Connection position        | Rear side, center                |  |                 |
| Ambient temperature        | [°F]                             | 32 ... 140   | -4 ... +140     |
|                            | [°C]                             | 0 ... +60  | -20 ... +60     |
| Measurement accuracy class | 4                                | 2.5  |                 |
| Continuous load factor     | 0.75                             |  |                 |
| Intermittent load factor   | 0.66                             |  |                 |
| Protection class           | IP43                             |  |                 |

| Ordering Data |                            |                      |                  |           |                  |    |
|---------------|----------------------------|----------------------|------------------|-----------|------------------|----|
| Nominal size  | For D Series service units | Pneumatic connection | Indicating range |           | Order code       | LT |
|               |                            |                      | [bar]            | [psi]     |                  |    |
| 27            | MICRO                      | M5                   | 0 ... 10         | -         | MA-27-10-M5      | 1D |
|               |                            |                      | -                | 0 ... 160 | MA-27-160-M5-PSI | 1D |
| 40            | MINI                       | G $\frac{1}{8}$      | 0 ... 10         | 0 ... 145 | MA-40-10-1/8-U   | 1D |
|               |                            |                      | 0 ... 16         | 0 ... 240 | MA-40-16-1/8-U   | 1D |
| 50            | MIDI/MAXI                  | G $\frac{1}{4}$      | 0 ... 10         | 0 ... 160 | MA-50-10-1/4-U   | 1D |
|               |                            |                      | 0 ... 16         | 0 ... 240 | MA-50-16-1/4-U   | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

# Accessories – Inch Series

Ordering Data



| Ordering Data – Mounting attachments |           |                  |
|--------------------------------------|-----------|------------------|
| Designation                          | Size      | Order code       |
| <b>Mounting bracket HFOE</b>         |           |                  |
|                                      | Mini      | HFOE-D-MINI      |
|                                      | Midi/Maxi | HFOE-D-MIDI/MAXI |
| <b>Mounting bracket HRBK</b>         |           |                  |
|                                      | Mini      | HRBK-D-MINI      |
|                                      | Midi      | HRBK-D-MIDI      |
| <b>Mounting bracket HRB</b>          |           |                  |
|                                      | Mini      | HRB-D-MINI       |
|                                      | Midi      | HRB-D-MIDI       |
| <b>Mounting bracket HR-D</b>         |           |                  |
|                                      | Mini      | HR-D-MINI        |
|                                      | Midi      | HR-D-MIDI        |
|                                      | Maxi      | HR-D-MAXI        |
| <b>Threaded pin FRB</b>              |           |                  |
|                                      | Mini      | FRB-D-MINI-U     |
|                                      | Midi      | FRB-D-MIDI-U     |
|                                      | Maxi      | FRB-D-MAXI-U     |
| <b>Threaded pin LF/LOE</b>           |           |                  |
|                                      | Mini      | LF/LOE-D-MINI    |
|                                      | Midi      | LF/LOE-D-MIDI    |
|                                      | Maxi      | LF/LOE-D-MAXI    |
| <b>Connecting kit HRBC</b>           |           |                  |
|                                      | Mini      | HRBC-D-MINI      |
|                                      | Midi      | HRBC-D-MIDI      |

| Ordering Data – Connecting plates |                 |                 |                      |                      |
|-----------------------------------|-----------------|-----------------|----------------------|----------------------|
| Designation                       | Size            | Connection      | Position             | Order code           |
| <b>Connecting plates PBL</b>      |                 |                 |                      |                      |
|                                   | Micro           | G $\frac{1}{8}$ | Either               | PBL-N1/8-D-MICRO     |
|                                   | Mini            | G $\frac{1}{8}$ | Left                 | PBL-1/8-D-MINI-L-NPT |
|                                   |                 |                 | Right                | PBL-1/8-D-MINI-R-NPT |
|                                   |                 | G $\frac{1}{4}$ | Left                 | PBL-1/4-D-MINI-L-NPT |
|                                   |                 |                 | Right                | PBL-1/4-D-MINI-R-NPT |
|                                   |                 | G $\frac{3}{8}$ | Left                 | PBL-3/8-D-MINI-L-NPT |
|                                   |                 |                 | Right                | PBL-3/8-D-MINI-R-NPT |
|                                   | Midi            | G $\frac{1}{4}$ | Left                 | PBL-1/4-D-MIDI-L-NPT |
|                                   |                 |                 | Right                | PBL-1/4-D-MIDI-R-NPT |
|                                   |                 | G $\frac{3}{8}$ | Left                 | PBL-3/8-D-MIDI-L-NPT |
|                                   |                 |                 | Right                | PBL-3/8-D-MIDI-R-NPT |
|                                   |                 | G $\frac{1}{2}$ | Left                 | PBL-1/2-D-MIDI-L-NPT |
|                                   |                 |                 | Right                | PBL-1/2-D-MIDI-R-NPT |
|                                   |                 | G $\frac{3}{4}$ | Left                 | PBL-3/4-D-MIDI-L-NPT |
|                                   |                 |                 | Right                | PBL-3/4-D-MIDI-R-NPT |
| Maxi                              | G $\frac{1}{2}$ | Left            | PBL-1/2-D-MAXI-L-NPT |                      |
|                                   |                 | Right           | PBL-1/2-D-MAXI-R-NPT |                      |
|                                   | G $\frac{3}{4}$ | Left            | PBL-3/4-D-MAXI-NPT-L |                      |
|                                   |                 | Right           | PBL-3/4-D-MAXI-NPT-R |                      |
|                                   | G1              | Left            | PBL-1-D-MAXI-NPT-L   |                      |
|                                   |                 | Right           | PBL-1-D-MAXI-NPT-R   |                      |


| Ordering Data – Safety components |      |             |
|-----------------------------------|------|-------------|
| Designation                       | Size | Order code  |
| <b>Regulator lock LRVS</b>        |      |             |
|                                   | Mini | LRVS-D-MINI |
|                                   | Midi | LRVS-D-MIDI |
|                                   | Maxi | LRVS-D-MAXI |

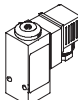
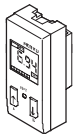
Lead Time LT for all products on this page: **1D** typically ships same day/next day


## Accessories – Inch Series



Ordering Data



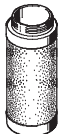
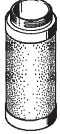
FESTO

| Ordering Data – Pressure gauges   |            |                  | Technical Data → 231 |                  |
|---|------------|------------------|----------------------|------------------|
| Connection  | Connection | Indicating range |                      | Order code       |
|   |            | [bar]            | [psi]                |                  |
|  | M5         | 0 ... 10         | –                    | MA-27-10-M5      |
|   |            | –                | 0 ... 160            | MA-27-160-M5-PSI |
|   | G1/8       | 0 ... 10         | 0 ... 145            | MA-40-10-1/8-U   |
|   |            | 0 ... 16         | 0 ... 240            | MA-40-16-1/8-U   |
|   | G1/4       | 0 ... 10         | 0 ... 160            | MA-50-10-1/4-U   |
|   |            | 0 ... 16         | 0 ... 240            | MA-50-16-1/4-U   |

| Ordering Data – Sensors  |            |                         |
|--|------------|-------------------------|
| Designation  | Connection | Order code              |
| Pressure switch PEV <span style="float: right;">Technical Data → 167</span>        |            |                         |
|   | G1/4       | PEV-1/4-B               |
| Pressure sensor SDE1 <span style="float: right;">Technical Data → 175</span>       |            |                         |
|  | R1/4       | SDE1-D10-G2-R14-C-P1-M8 |
|  | R1/8       | SDE1-D10-G2-R18-C-P1-M8 |

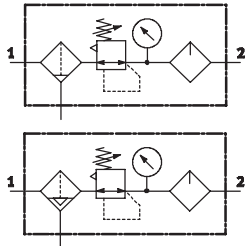
| Ordering Data – Electrical connection technology                                    |             |                     |
|---|-------------|---------------------|
| Designation   | Description | Order code          |
| Connecting cable NEBU   |             |                     |
|  | M8x1, 3-pin | NEBU-M8G3-K-2.5-LE3 |
|   | M8x1, 4-pin | NEBU-M8G4-K-2.5-LE4 |

| Ordering Data – Accessories   |             |              |
|---|-------------|--------------|
| Designation   | Description | Order code   |
| Silencer U <span style="float: right;">Technical Data → 295</span>                |             |              |
|  | G1/8        | U-1/8-B      |
|   | G1/4        | U-1/4-B      |
|   | G3/8        | U-3/8-B      |
| Manual override AHB   |             |              |
|  | –           | AHB-MD/MF/MV |

| Ordering Data – Filter cartridges   |       |                  |
|---|-------|------------------|
| Designation   | Size  | Order code       |
| Grade of filtration 5 µm  |       |                  |
|    | Micro | LFP-D-MICRO-5M   |
|   | Mini  | LFP-D-MINI-5M    |
|   | Midi  | LFP-D-MIDI-5M    |
|   | Maxi  | LFP-D-MAXI-5M    |
| Grade of filtration 40 µm   |       |                  |
|   | Mini  | LFP-D-MINI-40M-U |
|   | Midi  | LFP-D-MIDI-40M-U |
|   | Maxi  | LFP-D-MAXI-40M-U |
| Grade of filtration 1 µm  |       |                  |
|  | Mini  | MS4/D-MINI-LFM-B |
|   | Midi  | LFMBP-D-MIDI     |
|   | Maxi  | LFMBP-D-MAXI     |
| Grade of filtration 0.01 µm   |       |                  |
|  | Mini  | MS4/D-MINI-LFM-A |
|   | Midi  | LFMAP-D-MIDI     |
|   | Maxi  | LFMAP-D-MAXI     |

# Service Units FRC – Metric Series

Technical Data



**Materials**  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



The following oils are recommended for Festo components:

Viscosity range to ISO 3448 ,  
 ISO class VG 32  
 32 mm<sup>2</sup>/s (= cSt) at 104 °F

- Festo special oil OFSW-32
  - ARAL Vitam GF 32
  - BP Energol HLP 32
- Esso Nuto H 32
  - Mobil DTE 24
  - Shell Tellus Oil DO 32

| Technical Data                  |                                       | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                         |      |   |    |
|---------------------------------|---------------------------------------|--|-------------------------|------|---|----|
| Size                            | Mini                                  |  | Midi                    |      | Maxi  |    |
| Pneumatic connection            | G1/8                                  | G1/4   | G3/8                    | G1/2 | G3/4  | G1 |
| Design                          | Filter regulator                      |  |                         |      |   |    |
|                                 | Proportional standard mist lubricator |  |                         |      |   |    |
| Type of mounting                | Via accessories                       |  |                         |      |   |    |
|                                 | In-line installation                  |  |                         |      |   |    |
| Mounting position               | Vertical ±5°                          |  |                         |      |   |    |
| Grade of filtration [µm]        | 40                                    |  |                         |      |   |    |
| Pressure regulation range [bar] | 0.5 ... 7                             |  |                         |      |   |    |
|                                 | 0.5 ... 12                            |  |                         |      |   |    |
| Pressure indication             | With pressure gauge                   |  |                         |      |   |    |
| Length [mm]                     | 76                                    |  | 95                      |      | 107   |    |
| Width [mm]                      | 80 (104) <sup>1)</sup>                |  | 110 (140) <sup>1)</sup> |      | 130 (162) <sup>1)</sup> 132 (182) <sup>1)</sup> |    |
| Height [mm]                     | 212                                   |  | 269                     |      | 271   |    |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> q <sub>nN</sub> [l/min] |      |       |       |       |       |       |  |
|--|------|-------|-------|-------|-------|-------|--|
| Size   | Mini |       | Midi  |       | Maxi  |       |  |
| Pneumatic connection   | G1/8 | G1/4  | G3/8  | G1/2  | G3/4  | G1    |  |
| Pressure regulation range 0.5 ... 7 bar                          |      |       |       |       |       |       |  |
| Grade of filtration 40 µm  | 800  | 1,300 | 2,000 | 2,800 | 8,500 | 8,700 |  |
| Pressure regulation range 0.5 ... 12 bar                         |      |       |       |       |       |       |  |
| Grade of filtration 40 µm  | 700  | 1 000 | 2 000 | 2 600 | 8 300 | 8 500 |  |

1) Measured at p<sub>1</sub> = 10 bar, p<sub>2</sub> = 6 bar and Δp = 1 bar. A minimum flow rate of 125 l/min is required for flawless functioning.

| Operating Conditions     |                               |  |
|--------------------------|-------------------------------|--|
| Condensate drain         | Manual rotary Fully automatic |  |
| Supply pressure [bar]    | 1 ... 16 2 ... 12             |  |
| Ambient temperature [°C] | −10 ... +60                   |  |

# Service Units FRC – Metric Series

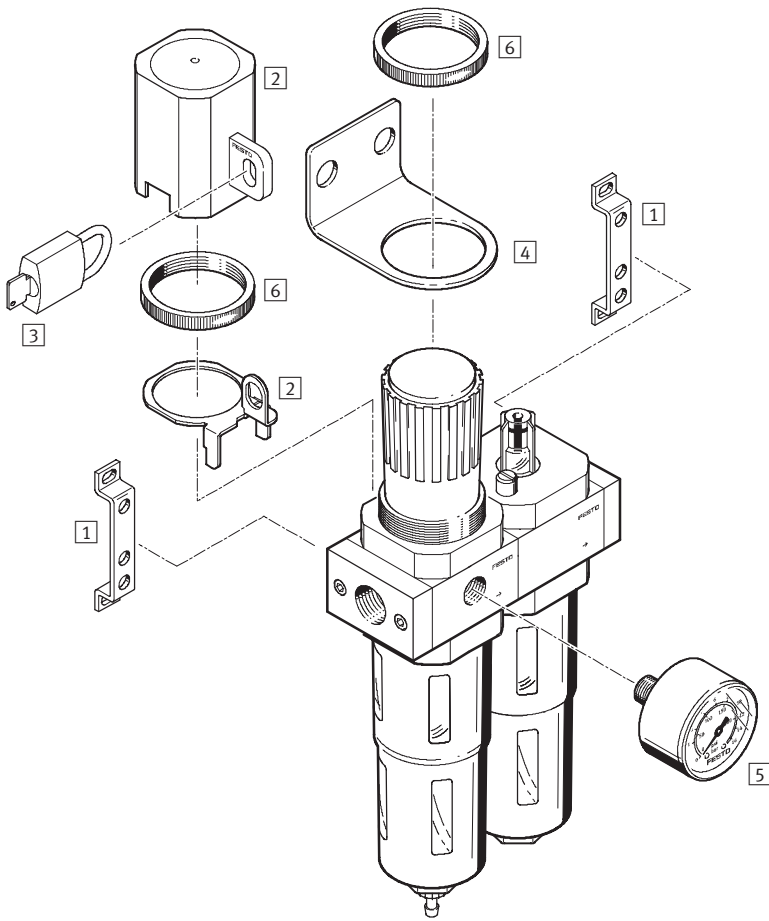
Ordering Data, Accessories



| Ordering Data    |      |                 |   |    |  |    |  |
|------------------|------|-----------------|---|----|--|----|--|
| Condensate drain | Size | Connection      | Pressure regulation range 0.5 ... 7 bar |    | Pressure regulation range 0.5 ... 12 bar |    |  |
|                  |      |                 | Type                                    | LT | Type                                     | LT |  |
| Turned manually  | Mini | G $\frac{1}{8}$ | FRC- $\frac{1}{8}$ -D-7-MINI            | 3D | FRC- $\frac{1}{8}$ -D-MINI               | 3D |  |
|                  |      | G $\frac{1}{4}$ | FRC- $\frac{1}{4}$ -D-7-MINI            | 3D | FRC- $\frac{1}{4}$ -D-MINI               | 3D |  |
|                  | Midi | G $\frac{3}{8}$ | FRC- $\frac{3}{8}$ -D-7-MIDI            | 3D | FRC- $\frac{3}{8}$ -D-MIDI               | 3D |  |
|                  |      | G $\frac{1}{2}$ | FRC- $\frac{1}{2}$ -D-7-MIDI            | 3D | FRC- $\frac{1}{2}$ -D-MIDI               | 3D |  |
|                  | Maxi | G $\frac{3}{4}$ | FRC- $\frac{3}{4}$ -D-7-MAXI            | 3D | FRC- $\frac{3}{4}$ -D-MAXI               | 3D |  |
|                  |      | G1              | FRC-1-D-7-MAXI                          | 3D | FRC-1-D-MAXI                             | 3D |  |
| Fully automatic  | Mini | G $\frac{1}{8}$ | FRC- $\frac{1}{8}$ -D-7-MINI-A          | 3D | FRC- $\frac{1}{8}$ -D-MINI-A             | 3D |  |
|                  |      | G $\frac{1}{4}$ | FRC- $\frac{1}{4}$ -D-7-MINI-A          | 3D | FRC- $\frac{1}{4}$ -D-MINI-A             | 3D |  |
|                  | Midi | G $\frac{3}{8}$ | FRC- $\frac{3}{8}$ -D-7-MIDI-A          | 3D | FRC- $\frac{3}{8}$ -D-MIDI-A             | 3D |  |
|                  |      | G $\frac{1}{2}$ | FRC- $\frac{1}{2}$ -D-7-MIDI-A          | 3D | FRC- $\frac{1}{2}$ -D-MIDI-A             | 3D |  |
|                  | Maxi | G $\frac{3}{4}$ | FRC- $\frac{3}{4}$ -D-7-MAXI-A          | 3D | FRC- $\frac{3}{4}$ -D-MAXI-A             | 3D |  |
|                  |      | G1              | FRC-1-D-7-MAXI-A                        | 3D | FRC-1-D-MAXI-A                           | 3D |  |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

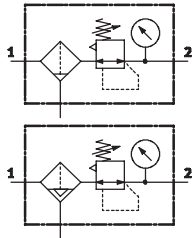


| Mounting attachments and accessories | → Page |
|--------------------------------------|--------|
| 1 Mounting bracket HFOE              | 258    |
| 2 Regulator lock LRVS                | 258    |
| 3 Padlock LRVS-D                     | -      |

| Mounting attachments and accessories                | → Page |
|---|--------|
| 4 Mounting bracket HR-D                             | 258    |
| 5 Pressure gauge MA (included in scope of delivery) | 231    |
| 6 Knurled nut HMR (included in scope of delivery)   | -      |

# Filter Regulators LFR – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data                  |                                      | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                       |      |                       |      |                       |   |  |
|---------------------------------|--------------------------------------|--|-----------------------|------|-----------------------|------|-----------------------|---|--|
| Size                            | Micro                                |  | Mini                  |      | Midi                  |      | Maxi                  |   |  |
| Pneumatic connection            | M5                                   | G1/8   | G1/8                  | G1/4 | G3/8                  | G1/2 | G3/4                  | G1                                      |  |
| Design                          | Filter regulator with pressure gauge |  |                       |      |                       |      |                       | Filter regulator without pressure gauge |  |
| Type of mounting                | Via accessories                      |  |                       |      |                       |      |                       |   |  |
|                                 | In-line installation                 |  |                       |      |                       |      |                       |   |  |
|                                 | Front panel mounting                 |  |                       |      |                       |      |                       |   |  |
| Mounting position               | Vertical ±5°                         |  |                       |      |                       |      |                       |   |  |
| Grade of filtration [µm]        | 5                                    |  | 5 or 40               |      |                       |      |                       |   |  |
| Pressure regulation range [bar] | 0,5 ... 7                            |  | 0,5 ... 12            |      |                       |      |                       |   |  |
| Pressure indication             | Via pressure gauge                   |  |                       |      |                       |      |                       |   |  |
| Length [mm]                     | 50                                   |  | 76                    |      | 95                    |      | 107                   |   |  |
| Width [mm]                      | 25                                   | 45   | 40 (64) <sup>1)</sup> |      | 55 (85) <sup>1)</sup> |      | 66 (96) <sup>1)</sup> | 66 (116) <sup>1)</sup>                  |  |
| Height [mm]                     | 120                                  |  | 212                   |      | 269                   |      | 271                   |   |  |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min] |       |      |      |      |       |       |       |        |        |
|--|-------|------|------|------|-------|-------|-------|--------|--------|
| Size   | Micro |      | Mini |      | Midi  |       | Maxi  |        |        |
| Pneumatic connection                                 | M5    | G1/8 | G1/8 | G1/4 | G3/8  | G1/2  | G3/4  | G1     |        |
| Pressure regulation range 0.5 ... 7 bar              |       |      |      |      |       |       |       |        |        |
| Grade of filtration                                  | 5 µm  | 110  | 410  | –    | –     | –     | –     | –      | –      |
|  | 40 µm | –    | –    | 900  | 1,500 | 3,200 | 3,900 | 10,000 | 11,000 |
| Pressure regulation range 0.5 ... 12 bar             |       |      |      |      |       |       |       |        |        |
| Grade of filtration                                  | 5 µm  | –    | –    | 650  | 1,200 | 2,400 | 2,600 | 7,600  | 8,000  |
|  | 40 µm | –    | –    | 750  | 1,400 | 3,100 | 3,400 | 9,700  | 10,000 |

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

| Operating Conditions     |               |  |                    |
|--------------------------|---------------|--|--------------------|
| Size                     | Micro         |  | Mini / Midi / Maxi |
| Condensate drain         | Manual rotary |  | Semi-automatic     |
|                          |               |  | Manual rotary      |
|                          |               |  | Fully automatic    |
| Supply pressure [bar]    | 1 ... 10      |  | 1 ... 16           |
| Ambient temperature [°C] | –10 ... +60   |  | –10 ... +60        |



# Filter Regulators LFR – Metric Series



Ordering Data

| Ordering Data – Filtration Grade 5µm                                       |       |                 |   |  |    |  |  |
|--|-------|-----------------|---|--|----|--|--|
| Condensate drain   | Size  | Connection      | Pressure regulation range 0.5 ... 7 bar |  | LT | Pressure regulation range 0.5 ... 12 bar |  |
|  |       |                 | Type                                    |  |    | Type                                     |  |
| Directly actuated diaphragm regulator                                      |       |                 |   |  |    |  |  |
| Turned manually  | Micro | M5              | LFR-M5-D-7-5M-MICRO                     |  | 1D | –  |  |
|  |       | G $\frac{1}{8}$ | LFR- $\frac{1}{8}$ -D-7-5M-MICRO        |  | 1D | –  |  |
| Semi-automatic   | Micro | M5              | LFR-M5-D-7-5M-MICRO-H                   |  | 1D | –  |  |
|  |       | G $\frac{1}{8}$ | LFR- $\frac{1}{8}$ -D-7-5M-MICRO-H      |  | 1D | –  |  |
| Directly actuated diaphragm regulator with integrated return flow function |       |                 |   |  |    |  |  |
| Turned manually  | Maxi  | G $\frac{1}{2}$ | LFR- $\frac{1}{2}$ -D-5M-DI-MAXI        |  | 3D | –  |  |
|  |       | G $\frac{3}{4}$ | LFR- $\frac{3}{4}$ -D-5M-DI-MAXI        |  | 3D | –  |  |
|  |       | G1              | LFR-1-D-5M-DI-MAXI                      |  | 3D | –  |  |
| Fully automatic  | Maxi  | G $\frac{1}{2}$ | LFR- $\frac{1}{2}$ -D-5M-DI-MAXI-A      |  | 3D | –  |  |
|  |       | G $\frac{3}{4}$ | LFR- $\frac{3}{4}$ -D-5M-DI-MAXI-A      |  | 3D | –  |  |
|  |       | G1              | LFR-1-D-5M-DI-MAXI-A                    |  | 3D | –  |  |

| Ordering Data – Filtration Grade 40µm                                      |      |                 |   |  |    |  |    |
|--|------|-----------------|---|--|----|--|----|
| Condensate drain   | Size | Connection      | Pressure regulation range 0.5 ... 7 bar |  | LT | Pressure regulation range 0.5 ... 12 bar |    |
|  |      |                 | Type                                    |  |    | Type                                     |    |
| Directly actuated diaphragm regulator                                      |      |                 |   |  |    |  |    |
| Turned manually  | Mini | G $\frac{1}{8}$ | LFR- $\frac{1}{8}$ -D-7-MINI            |  | 3D | LFR- $\frac{1}{8}$ -D-MINI               | 3D |
|  |      | G $\frac{1}{4}$ | LFR- $\frac{1}{4}$ -D-7-MINI            |  | 3D | LFR- $\frac{1}{4}$ -D-MINI               | 3D |
|  | Midi | G $\frac{3}{8}$ | LFR- $\frac{3}{8}$ -D-7-MIDI            |  | 3D | LFR- $\frac{3}{8}$ -D-MIDI               | 3D |
|  |      | G $\frac{1}{2}$ | LFR- $\frac{1}{2}$ -D-7-MIDI            |  | 3D | LFR- $\frac{1}{2}$ -D-MIDI               | 3D |
|  | Maxi | G $\frac{3}{4}$ | LFR- $\frac{3}{4}$ -D-7-MAXI            |  | 3D | LFR- $\frac{3}{4}$ -D-MAXI               | 3D |
|  |      | G1              | LFR-1-D-7-MAXI                          |  | 3D | LFR-1-D-MAXI                             | 3D |
| Fully automatic  | Mini | G $\frac{1}{8}$ | LFR- $\frac{1}{8}$ -D-7-MINI-A          |  | 3D | LFR- $\frac{1}{8}$ -D-MINI-A             | 3D |
|  |      | G $\frac{1}{4}$ | LFR- $\frac{1}{4}$ -D-7-MINI-A          |  | 3D | LFR- $\frac{1}{4}$ -D-MINI-A             | 3D |
|  | Midi | G $\frac{3}{8}$ | LFR- $\frac{3}{8}$ -D-7-MIDI-A          |  | 3D | LFR- $\frac{3}{8}$ -D-MIDI-A             | 3D |
|  |      | G $\frac{1}{2}$ | LFR- $\frac{1}{2}$ -D-7-MIDI-A          |  | 3D | LFR- $\frac{1}{2}$ -D-MIDI-A             | 3D |
|  | Maxi | G $\frac{3}{4}$ | LFR- $\frac{3}{4}$ -D-7-MAXI-A          |  | 3D | LFR- $\frac{3}{4}$ -D-MAXI-A             | 3D |
|  |      | G1              | LFR-1-D-7-MAXI-A                        |  | 3D | LFR-1-D-MAXI-A                           | 3D |
| Directly actuated diaphragm regulator with integrated return flow function |      |                 |   |  |    |  |    |
| Turned manually  | Maxi | G $\frac{1}{2}$ | LFR- $\frac{1}{2}$ -D-7-DI-MAXI         |  | 3D | LFR- $\frac{1}{2}$ -D-DI-MAXI            | 3D |
|  |      | G $\frac{3}{4}$ | LFR- $\frac{3}{4}$ -D-7-DI-MAXI         |  | 3D | LFR- $\frac{3}{4}$ -D-DI-MAXI            | 3D |
|  |      | G1              | LFR-1-D-7-DI-MAXI                       |  | 3D | LFR-1-D-DI-MAXI                          | 3D |
| Fully automatic  | Maxi | G $\frac{1}{2}$ | LFR- $\frac{1}{2}$ -D-7-DI-MAXI-A       |  | 3D | LFR- $\frac{1}{2}$ -D-DI-MAXI-A          | 3D |
|  |      | G $\frac{3}{4}$ | LFR- $\frac{3}{4}$ -D-7-DI-MAXI-A       |  | 3D | LFR- $\frac{3}{4}$ -D-DI-MAXI-A          | 3D |
|  |      | G1              | LFR-1-D-7-DI-MAXI-A                     |  | 3D | LFR-1-D-DI-MAXI-A                        | 3D |

| Ordering Data – Basic Units without Threaded Connecting Plates, Filtration Grade 5µm |      |            |   |  |    |  |  |
|--|------|------------|---|--|----|--|--|
| Condensate drain   | Size | Connection | Pressure regulation range 0.5 ... 7 bar |  | LT | Pressure regulation range 0.5 ... 12 bar |  |
|  |      |            | Type                                    |  |    | Type                                     |  |
| Basic Unit without pressure gauge  |      |            |   |  |    |  |  |
| Turned manually  | Mini | –          | LFR-D-5M-MINI                           |  | 1D | –  |  |
|  | Midi | –          | LFR-D-5M-MIDI                           |  | 1D | –  |  |
|  | Maxi | –          | LFR-D-5M-MAXI                           |  | 1D | –  |  |
| Fully automatic  | Mini | –          | LFR-D-5M-MINI-A                         |  | 1D | –  |  |
|  | Midi | –          | LFR-D-5M-MIDI-A                         |  | 1D | –  |  |
|  | Maxi | –          | LFR-D-5M-MAXI-A                         |  | 1D | –  |  |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

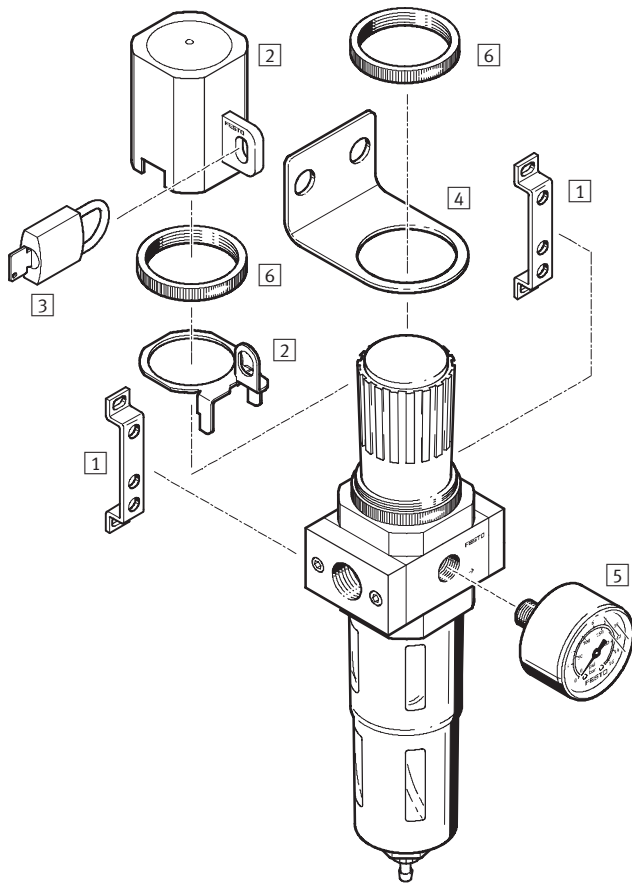
# Filter Regulators LFR – Metric Series

Ordering Data, Accessories

| Ordering Data – Basic Units without Threaded Connecting Plates, Filtration Grade 40µm |      |            |   |    |  |    |
|---|------|------------|---|----|--|----|
| Condensate drain  | Size | Connection | Pressure regulation range 0.5 ... 7 bar | LT | Pressure regulation range 0.5 ... 12 bar | LT |
|   |      |            | Type                                    |    | Type                                     |    |
| Basic Unit without pressure gauge   |      |            |   |    |  |    |
| Turned manually   | Mini | –          | LFR-D-7-MINI                            | 1D | LFR-D-MINI                               | 1D |
|   | Midi | –          | LFR-D-7-MIDI                            | 1D | LFR-D-MIDI                               | 1D |
|   | Maxi | –          | LFR-D-7-MAXI                            | 1D | LFR-D-MAXI                               | 1D |
| Fully automatic   | Mini | –          | LFR-D-7-MINI-A                          | 1D | LFR-D-MINI-A                             | 1D |
|   | Midi | –          | LFR-D-7-MIDI-A                          | 1D | LFR-D-MIDI-A                             | 1D |
|   | Maxi | –          | LFR-D-7-MAXI-A                          | 1D | LFR-D-MAXI-A                             | 1D |
| Basic Unit without pressure gauge, with integrated return flow function               |      |            |   |    |  |    |
| Turned manually   | Maxi | –          | LFR-D-7-DI-MAXI                         | 1D | LFR-D-DI-MAXI                            | 1D |
| Fully automatic   | Maxi | –          | LFR-D-7-DI-MAXI-A                       | 1D | LFR-D-DI-MAXI-A                          | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

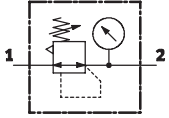
## Accessories Overview



| Mounting attachments and accessories |   | → Page |
|--------------------------------------|---|--------|
| 1                                    | Mounting bracket HFOE                           | 258    |
| 2                                    | Regulator lock LRVS                             | 258    |
| 3                                    | Padlock LRVS-D                                  | –      |
| 4                                    | Mounting bracket HR-D                           | 258    |
| 5                                    | Pressure gauge MA                               | 231    |
| 6                                    | Knurled nut HMR (included in scope of delivery) | –      |

# Pressure Regulators LR – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc/aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data                  |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                       |                 |                       |                 |                                 |                        |
|---------------------------------|---|--|-----------------------|-----------------|-----------------------|-----------------|---------------------------------|------------------------|
| Size                            | Micro   |  | Mini                  |                 | Midi                  |                 | Maxi                            |                        |
| Pneumatic connection            | M5  | G $\frac{1}{8}$  | G $\frac{1}{8}$       | G $\frac{1}{4}$ | G $\frac{3}{8}$       | G $\frac{1}{2}$ | G $\frac{3}{4}$                 | G1                     |
| Design                          | Directly actuated diaphragm regulator                           |  |                       |                 |                       |                 | Pilot actuated piston regulator |                        |
| Type of mounting                | Via accessories<br>In-line installation<br>Front panel mounting |  |                       |                 |                       |                 |                                 |                        |
| Mounting position               | Any   |  |                       |                 |                       |                 |                                 |                        |
| Max. hysteresis [bar]           | 0.2   |  | 0.2                   |                 |                       |                 | 0.4                             |                        |
| Pressure regulation range [bar] | 0.5 ... 7   |  | 0.5 ... 7             |                 |                       |                 | 0.5 ... 12                      |                        |
| Pressure indication             | Via pressure gauge  |  |                       |                 |                       |                 |                                 |                        |
|                                 | M5 port   |  | G $\frac{1}{8}$ port  |                 | G $\frac{1}{4}$ port  |                 | G $\frac{1}{4}$ port            |                        |
| Length [mm]                     | 50  |  | 76                    |                 | 95                    |                 | 107                             |                        |
| Width [mm]                      | 25  | 45   | 40 (64) <sup>1)</sup> |                 | 55 (85) <sup>1)</sup> |                 | 66 (96) <sup>1)</sup>           | 66 (116) <sup>1)</sup> |
| Height [mm]                     | 65  |  | 96                    |                 | 135                   |                 | 125                             |                        |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> q <sub>N</sub> [l/min] |       |                 |                 |                 |                 |                 |                 |        |
|---|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------|
| Size  | Micro |                 | Mini            |                 | Midi            |                 | Maxi            |        |
| Pneumatic connection  | M5    | G $\frac{1}{8}$ | G $\frac{1}{8}$ | G $\frac{1}{4}$ | G $\frac{3}{8}$ | G $\frac{1}{2}$ | G $\frac{3}{4}$ | G1     |
| Pressure regulation range 0.5 ... 7 bar                         | 120   | 230             | 1,000           | 1,600           | 3,300           | 4,000           | 12,000          | 12,500 |
| Pressure regulation range 0.5 ... 12 bar                        | –     |                 | 800             | 1,500           | 3,200           | 3,500           | 11,000          | 11,500 |

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

| Operating Conditions     |  |
|--------------------------|--|
| Operating medium         | Filtered compressed air, lubricated or unlubricated, grade of filtration 40 μm |
| Supply pressure [bar]    | 1 ... 16 (Micro: 1 ... 10)   |
| Ambient temperature [°C] | –10 ... +60  |

# Pressure Regulators LR – Metric Series

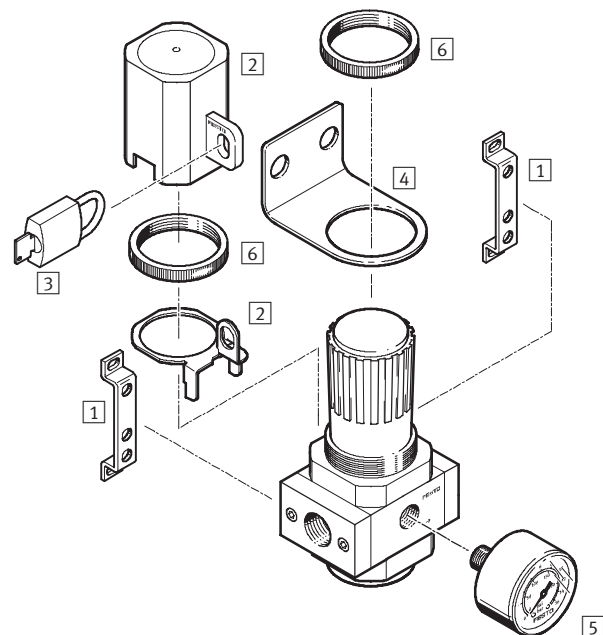
Ordering Data, Accessories

| Ordering Data  |            |   |  |  |                  |
|--|------------|---|--|--|------------------|
| Size   | Connection | Pressure regulation range 0.5 ... 7 bar |  | Pressure regulation range 0.5 ... 12 bar |                  |
|  |            | Type                                    |  | Type                                     |                  |
| Directly actuated diaphragm regulator                                      |            |   |  |  |                  |
| Micro  | M5         | LR-M5-D-7-MICRO                         |  | 1D                                       | –                |
|  | G1/8       | LR-1/8-D-7-MICRO                        |  | 1D                                       | –                |
| Mini   | G1/8       | LR-1/8-D-7-MINI                         |  | 3D                                       | LR-1/8-D-MINI    |
|  | G1/4       | LR-1/4-D-7-MINI                         |  | 3D                                       | LR-1/4-D-MINI    |
| Midi   | G3/8       | LR-3/8-D-7-MIDI                         |  | 3D                                       | LR-3/8-D-MIDI    |
|  | G1/2       | LR-1/2-D-7-MIDI                         |  | 3D                                       | LR-1/2-D-MIDI    |
| Pilot actuated piston regulator  |            |   |  |  |                  |
| Maxi   | G3/4       | LR-3/4-D-7-MAXI                         |  | 3D                                       | LR-3/4-D-MAXI    |
|  | G1         | LR-1-D-7-MAXI                           |  | 3D                                       | LR-1-D-MAXI      |
| Directly actuated diaphragm regulator with integrated return flow function |            |   |  |  |                  |
| Maxi   | G1/2       | LR-1/2-D-7-DI-MAXI                      |  | 3D                                       | LR-1/2-D-DI-MAXI |
|  | G3/4       | LR-3/4-D-7-DI-MAXI                      |  | 3D                                       | LR-3/4-D-DI-MAXI |
|  | G1         | LR-1-D-7-DI-MAXI                        |  | 3D                                       | LR-1-D-DI-MAXI   |

| Ordering Data – Basic Units, without Threaded Connecting Plates         |            |   |  |  |              |
|---|------------|---|--|--|--------------|
| Size  | Connection | Pressure regulation range 0.5 ... 7 bar |  | Pressure regulation range 0.5 ... 12 bar |              |
|   |            | Type                                    |  | Type                                     |              |
| Basic Unit without pressure gauge                                       |            |   |  |  |              |
| Mini  | –          | LR-D-7-MINI                             |  | 1D                                       | LR-D-MINI    |
| Midi  | –          | LR-D-7-MIDI                             |  | 1D                                       | LR-D-MIDI    |
| Maxi  | –          | LR-D-7-MAXI                             |  | 1D                                       | LR-D-MAXI    |
| Basic Unit without pressure gauge, with integrated return flow function |            |   |  |  |              |
| Maxi  | –          | LR-D-7-DI-MAXI                          |  | 1D                                       | LR-D-DI-MAXI |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

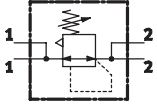
## Accessories Overview



| Mounting attachments and accessories |   | → Page |
|--------------------------------------|---|--------|
| 1                                    | Mounting bracket HFOE                           | 258    |
| 2                                    | Regulator lock LRVS                             | 258    |
| 3                                    | Padlock LRVS-D                                  | –      |
| 4                                    | Mounting bracket HR-D                           | 258    |
| 5                                    | Pressure gauge MA                               | 231    |
| 6                                    | Knurled nut HMR (included in scope of delivery) | –      |

# Pressure Regulators LRB – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data                       |  | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |   |
|--------------------------------------|--|--|---|
| Size                                 | Mini   | Midi   |   |
| Pneumatic connection 1 <sup>1)</sup> | G <sup>1</sup> / <sub>4</sub>                                      | G <sup>3</sup> / <sub>8</sub>  | G <sup>3</sup> / <sub>8</sub> G <sup>1</sup> / <sub>2</sub> |
| Pneumatic connection 2 (rear outlet) | G <sup>1</sup> / <sub>4</sub>                                      | G <sup>3</sup> / <sub>8</sub>  |   |
| Design                               | Directly actuated diaphragm regulator with through pressure supply |  |   |
| Type of mounting                     | Via accessories<br>In-line installation                            |  |   |
| Mounting position                    | Any  |  |   |
| Max. hysteresis [bar]                | 0.2  |  |   |
| Pressure regulation range [bar]      | 0.5 ... 7<br>0.5 ... 12  |  |   |
| Pressure indication                  | G <sup>1</sup> / <sub>8</sub> port                                 | G <sup>1</sup> / <sub>4</sub> port   |   |
| Length [mm]                          | 40   | 55   |   |
| Width [mm]                           | 40   | 55   |   |
| Height [mm]                          | 96   | 136  |   |

1) Dependent on connecting plate selected, must be ordered separately as an accessory → 258

| Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min] |       |       |
|--|-------|-------|
| Size   | Mini  | Midi  |
| Pressure regulation range 0.5 ... 7 bar              | 1,800 | 3,800 |
| Pressure regulation range 0.5 ... 12 bar             | 1,600 | 3,200 |

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

| Operating Conditions     |  |
|--------------------------|--|
| Operating medium         | Filtered compressed air, grade of filtration 40 μm |
| Supply pressure [bar]    | 1 ... 16   |
| Ambient temperature [°C] | -10 ... +60  |

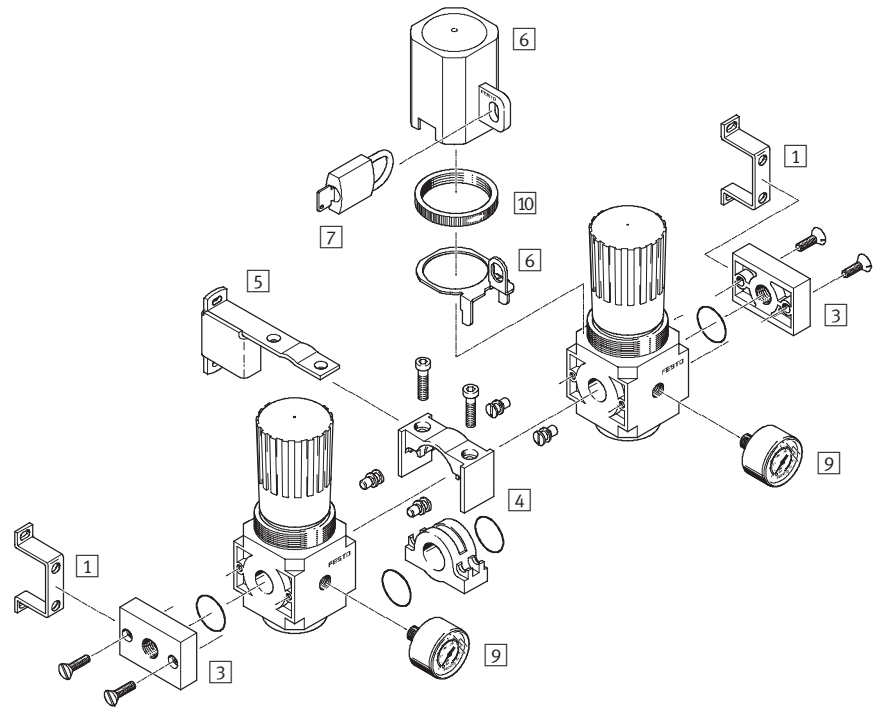
# Pressure Regulators LRB – Metric Series

Ordering Data, Accessories

| Ordering Data                            |   |    |  |    |
|--|---|----|--|----|
| Pressure regulator for manifold assembly |   |    |  |    |
| Size                                     | Pressure regulation range 0.5 ... 7 bar | LT | Pressure regulation range 0.5 ... 12 bar | LT |
|  | Type                                    |    | Type                                     |    |
| Mini                                     | <b>LRB-D-7-O-MINI</b>                   | 1D | <b>LRB-D-O-MINI</b>                      | 1D |
| Midi                                     | <b>LRB-D-7-O-MIDI</b>                   | 1D | <b>LRB-D-O-MIDI</b>                      | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview



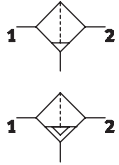
| Mounting attachments and accessories  | → Page |
|---------------------------------------|--------|
| 1 Mounting bracket HRB                | 258    |
| 3 Connecting plates LRBAS             | -      |
| 4 Connecting kit HRBC                 | 258    |
| 5 Mounting bracket HRBK <sup>1)</sup> | 258    |

| Mounting attachments and accessories               | → Page |
|--|--------|
| 6 Regulator lock LRVS                              | 258    |
| 7 Padlock LRVS-D                                   | -      |
| 9 Pressure gauge MA                                | 231    |
| 10 Knurled nut HMR (included in scope of delivery) | -      |

1) The mounting bracket must be mounted after every second pressure regulator.

# Filters LF – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data           |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                       |      |                       |      |                       |                        |
|--------------------------|---|--|-----------------------|------|-----------------------|------|-----------------------|------------------------|
| Size                     | Micro                                       |  | Mini                  |      | Midi                  |      | Maxi                  |                        |
| Pneumatic connection     | M5  | G1/8   | G1/8                  | G1/4 | G3/8                  | G1/2 | G3/4                  | G1                     |
| Design                   | Sintered filter with centrifugal separation |  |                       |      |                       |      |                       |                        |
| Type of mounting         | Via accessories<br>In-line installation     |  |                       |      |                       |      |                       |                        |
| Mounting position        | Vertical ±5°                                |  |                       |      |                       |      |                       |                        |
| Grade of filtration [µm] | 5   |  | 5 or 40               |      |                       |      |                       |                        |
| Length [mm]              | 25  |  | 40                    |      | 55                    |      | 66                    |                        |
| Width [mm]               | 25  | 45   | 40 (64) <sup>1)</sup> |      | 55 (85) <sup>1)</sup> |      | 66 (96) <sup>1)</sup> | 66 (116) <sup>1)</sup> |
| Height [mm]              | 88  |  | 163                   |      | 198                   |      | 222                   |                        |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min] |       | Micro |      | Mini  |       | Midi  |       | Maxi  |       |
|--|-------|-------|------|-------|-------|-------|-------|-------|-------|
| Size   |       | M5    | G1/8 | G1/8  | G1/4  | G3/8  | G1/2  | G3/4  | G1    |
| Grade of filtration                                  | 5 µm  | 170   | 290  | 800   | 950   | 1,800 | 2,000 | 3,600 | 3,800 |
|  | 40 µm | –     |      | 1,000 | 1,200 | 2,700 | 3,000 | 5,000 | 5,300 |

1) Measured at p1 = 6 bar and Δp = 1 bar.  
 A minimum flow rate of 125 l/min. is required for flawless functioning.

| Operating Conditions     |  | Micro         |  | Mini / Midi / Maxi |                                 |
|--------------------------|--|---------------|--|--------------------|---------------------------------|
| Condensate drain         |  | Manual rotary |  | Semi-automatic     | Manual rotary / Fully automatic |
| Supply pressure [bar]    |  | 0 ... 10      |  | 1 ... 10           | 0 ... 16 / 2 ... 12             |
| Ambient temperature [°C] |  | –10 ... +60   |  |                    |                                 |

# Filters LF – Metric Series

Ordering Data, Accessories

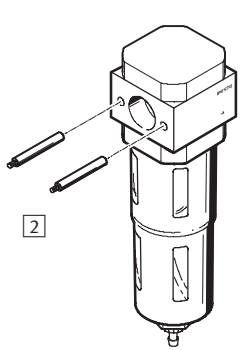
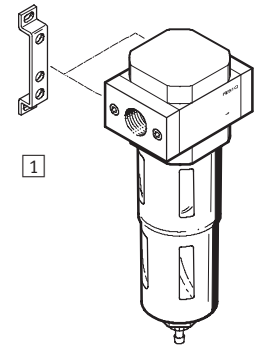
| Ordering Data                                 |       |            |                          |  |    |                           |    |
|---|-------|------------|--------------------------|--|----|---------------------------|----|
| Condensate drain                              | Size  | Connection | Grade of filtration 5 µm |  | LT | Grade of filtration 40 µm |    |
|   |       |            | Type                     |  |    | Type                      |    |
| Input pressure 0 ... 10 bar                   |       |            |                          |  |    |                           |    |
| Turned manually                               | Micro | M5         | LF-M5-D-5M-MICRO         |  | 1D | -                         |    |
|   |       | G1/8       | LF-1/8-D-5M-MICRO        |  | 1D | -                         |    |
| Semi-automatic                                | Micro | M5         | LF-M5-D-5M-MICRO-H       |  | 1D | -                         |    |
|   |       | G1/8       | LF-1/8-D-5M-MICRO-H      |  | 1D | -                         |    |
| Input pressure 0 ... 16 bar, metal bowl guard |       |            |                          |  |    |                           |    |
| Turned manually                               | Mini  | G1/8       | LF-1/8-D-5M-MINI         |  | 3D | LF-1/8-D-MINI             | 3D |
|   |       | G1/4       | LF-1/4-D-5M-MINI         |  | 3D | LF-1/4-D-MINI             | 3D |
|   | Midi  | G3/8       | LF-3/8-D-5M-MIDI         |  | 3D | LF-3/8-D-MIDI             | 3D |
|   |       | G1/2       | LF-1/2-D-5M-MIDI         |  | 3D | LF-1/2-D-MIDI             | 3D |
|   | Maxi  | G3/4       | LF-3/4-D-5M-MAXI         |  | 3D | LF-3/4-D-MAXI             | 3D |
|   |       | G1         | LF-1-D-5M-MAXI           |  | 3D | LF-1-D-MAXI               | 3D |
| Fully automatic                               | Mini  | G1/8       | LF-1/8-D-5M-MINI-A       |  | 3D | LF-1/8-D-MINI-A           | 3D |
|   |       | G1/4       | LF-1/4-D-5M-MINI-A       |  | 3D | LF-1/4-D-MINI-A           | 3D |
|   | Midi  | G3/8       | LF-3/8-D-5M-MIDI-A       |  | 3D | LF-3/8-D-MIDI-A           | 3D |
|   |       | G1/2       | LF-1/2-D-5M-MIDI-A       |  | 3D | LF-1/2-D-MIDI-A           | 3D |
|   | Maxi  | G3/4       | LF-3/4-D-5M-MAXI-A       |  | 3D | LF-3/4-D-MAXI-A           | 3D |
|   |       | G1         | LF-1-D-5M-MAXI-A         |  | 3D | LF-1-D-MAXI-A             | 3D |

| Ordering Data – Basic Units, without Threaded Connecting Plates |      |            |                          |  |    |                           |    |
|---|------|------------|--------------------------|--|----|---------------------------|----|
| Input pressure 0 ... 16 bar, metal bowl guard                   |      |            |                          |  |    |                           |    |
| Condensate drain  | Size | Connection | Grade of filtration 5 µm |  | LT | Grade of filtration 40 µm |    |
|   |      |            | Type                     |  |    | Type                      |    |
| Input pressure 0 ... 16 bar, metal bowl guard                   |      |            |                          |  |    |                           |    |
| Turned manually   | Mini | -          | LF-D-5M-MINI-U           |  | 1D | LF-D-MINI-U               | 1D |
|   | Midi | -          | LF-D-5M-MIDI-U           |  | 1D | LF-D-MIDI-U               | 1D |
|   | Maxi | -          | LF-D-5M-MAXI-U           |  | 1D | LF-D-MAXI-U               | 1D |
| Fully automatic   | Mini | -          | LF-D-5M-MINI-A-U         |  | 1D | LF-D-MINI-A-U             | 1D |
|   | Midi | -          | LF-D-5M-MIDI-A-U         |  | 1D | LF-D-MIDI-A-U             | 1D |
|   | Maxi | -          | LF-D-5M-MAXI-A-U         |  | 1D | LF-D-MAXI-A-U             | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device      Basic unit for manifold assembly



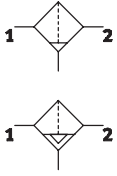
| Mounting attachments and accessories | → Page |
|--------------------------------------|--------|
| 1 Mounting bracket HFOE              | 258    |

| Mounting attachments and accessories               | → Page |
|--|--------|
| 2 Threaded pin FRB (included in scope of delivery) | 258    |



# Fine and Micro Filters LFMB/LFMA – Metric Series

Technical Data



**Materials**  
 Housing: Die-cast zinc  
 Bowl: Polycarbonate  
 Filter: Borosilicate fibre  
 Seals: Nitrile rubber  
 Free of copper and PTFE



**LFMA**  
 DIN ISO class 1 for particles:  
 max. particle density 0.1 mg/m<sup>3</sup>  
 DIN ISO class 2 for oil aerosols:  
 max. oil concentration 0.1 mg/m<sup>3</sup>

**LFMB**  
 DIN ISO class 2 for particles:  
 max. particle density 1 mg/m<sup>3</sup>  
 DIN ISO class 3 for oil aerosols:  
 max. oil concentration 1 mg/m<sup>3</sup>

| Technical Data       |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                       |      |  |    |
|----------------------|---|--|-----------------------|------|--|----|
| Size                 | Mini                                    |  | Midi                  |      | Maxi   |    |
| Pneumatic connection | G1/8                                    | G1/4   | G3/8                  | G1/2 | G3/4   | G1 |
| Design               | Fibre filter                            |  |                       |      |  |    |
| Type of mounting     | Via accessories<br>In-line installation |  |                       |      |  |    |
| Mounting position    | Vertical ±5°                            |  |                       |      |  |    |
| Length [mm]          | 40                                      |  | 55                    |      | 66   |    |
| Width [mm]           | 40 (64) <sup>1)</sup>                   |  | 55 (85) <sup>1)</sup> |      | 66 (96) <sup>1)</sup> 66 (116) <sup>1)</sup> |    |
| Height [mm]          | 163                                     |  | 198                   |      | 222  |    |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min] |      |      |      |      |       |       |
|--|------|------|------|------|-------|-------|
| Size   | Mini |      | Midi |      | Maxi  |       |
| Pneumatic connection                                 | G1/8 | G1/4 | G3/8 | G1/2 | G3/4  | G1    |
| Micro filter LFMA                                    | 130  | 160  | 380  | 400  | 900   | 950   |
| Fine filter LFMB                                     | 250  | 300  | 700  | 900  | 1,200 | 1,250 |

1) Measured at p<sub>1</sub> = 6 bar and Δp = 70 mbar.  
 A minimum flow rate of 125 l/min. is required for flawless functioning.

| Operating Conditions                      |   |  |   |  |
|---|---|--|---|--|
| Type                                      | LFMA  |  | LFMB  |  |
| Condensate drain                          | Manual rotary   |  | Fully automatic   |  |
| Operating medium                          | Filtered compressed air, lubricated or unlubricated, grade of filtration 1 µm |  | Filtered compressed air, lubricated or unlubricated, grade of filtration 5 µm |  |
| Grade of filtration [µm]                  | 0.01  |  | 1   |  |
| Residual oil content [mg/m <sup>3</sup> ] | ≤ 0.01  |  | ≤ 0.5   |  |
| Supply pressure [bar]                     | 1 ... 16  |  | 1 ... 16 1.5 ... 12   |  |
| Ambient temperature [°C]                  | -10 ... +60   |  | -10 ... +60   |  |

# Fine and Micro Filters LFMB/LFMA – Metric Series

Ordering Data, Accessories

| Ordering Data – Fine filters LFMB               |            |                                  |    |                   |                                  |  |
|---|------------|----------------------------------|----|-------------------|----------------------------------|--|
| Grade of filtration 1 µm, metal bowl guard      |            |                                  |    |                   |                                  |  |
| Size  | Connection | Input pressure 1 ... 16 bar      |    | LT                | Input pressure 1.5 ... 12 bar    |  |
|   |            | Condensate drain turned manually |    |                   | Condensate drain fully automatic |  |
|   |            | Type                             |    |                   | Type                             |  |
| With threaded connecting plates                 |            |                                  |    |                   |                                  |  |
| Mini  | G1/8       | LFMB-1/8-D-MINI                  | 1D | LFMB-1/8-D-MINI-A | 1D                               |  |
|   | G1/4       | LFMB-1/4-D-MINI                  | 1D | LFMB-1/4-D-MINI-A | 1D                               |  |
| Midi  | G3/8       | LFMB-3/8-D-MIDI                  | 1D | LFMB-3/8-D-MIDI-A | 1D                               |  |
|   | G1/2       | LFMB-1/2-D-MIDI                  | 1D | LFMB-1/2-D-MIDI-A | 1D                               |  |
| Maxi  | G3/4       | LFMB-3/4-D-MAXI                  | 1D | LFMB-3/4-D-MAXI-A | 1D                               |  |
|   | G1         | LFMB-1-D-MAXI                    | 1D | LFMB-1-D-MAXI-A   | 1D                               |  |
| Basic Units, without Threaded Connecting Plates |            |                                  |    |                   |                                  |  |
| Mini  | –          | LFMB-D-MINI-U                    | 1D | LFMB-D-MINI-A-U   | 1D                               |  |
| Midi  | –          | LFMB-D-MIDI-U                    | 1D | LFMB-D-MIDI-A-U   | 1D                               |  |
| Maxi  | –          | LFMB-D-MAXI-U                    | 1D | LFMB-D-MAXI-A-U   | 1D                               |  |

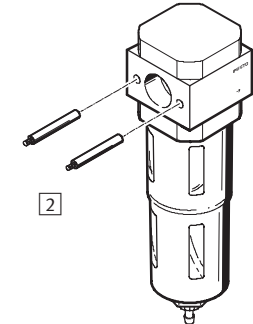
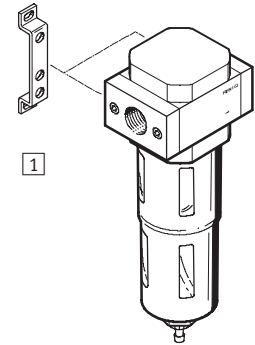
| Ordering Data – Micro filters LFMA              |            |                                  |    |                   |                                  |  |
|---|------------|----------------------------------|----|-------------------|----------------------------------|--|
| Grade of filtration 0.01 µm, metal bowl guard   |            |                                  |    |                   |                                  |  |
| Size  | Connection | Input pressure 1 ... 16 bar      |    | LT                | Input pressure 1.5 ... 12 bar    |  |
|   |            | Condensate drain turned manually |    |                   | Condensate drain fully automatic |  |
|   |            | Type                             |    |                   | Type                             |  |
| With threaded connecting plates                 |            |                                  |    |                   |                                  |  |
| Mini  | G1/8       | LFMA-1/8-D-MINI                  | 1D | LFMA-1/8-D-MINI-A | 1D                               |  |
|   | G1/4       | LFMA-1/4-D-MINI                  | 1D | LFMA-1/4-D-MINI-A | 1D                               |  |
| Midi  | G3/8       | LFMA-3/8-D-MIDI                  | 1D | LFMA-3/8-D-MIDI-A | 1D                               |  |
|   | G1/2       | LFMA-1/2-D-MIDI                  | 1D | LFMA-1/2-D-MIDI-A | 1D                               |  |
| Maxi  | G3/4       | LFMA-3/4-D-MAXI                  | 1D | LFMA-3/4-D-MAXI-A | 1D                               |  |
|   | G1         | LFMA-1-D-MAXI                    | 1D | LFMA-1-D-MAXI-A   | 1D                               |  |
| Basic Units, without Threaded Connecting Plates |            |                                  |    |                   |                                  |  |
| Mini  | –          | LFMA-D-MINI-U                    | 1D | LFMA-D-MINI-A-U   | 1D                               |  |
| Midi  | –          | LFMA-D-MIDI-U                    | 1D | LFMA-D-MIDI-A-U   | 1D                               |  |
| Maxi  | –          | LFMA-D-MAXI-U                    | 1D | LFMA-D-MAXI-A-U   | 1D                               |  |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device

Basic unit for manifold assembly



| Mounting attachments and accessories | → Page |
|--------------------------------------|--------|
| 1 Mounting bracket HFOE              | 258    |

| Mounting attachments and accessories               | → Page |
|--|--------|
| 2 Threaded pin FRB (included in scope of delivery) | 258    |

Air Preparation Units

4

# Lubricators LOE – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc/aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



The following oils are recommended for Festo components:  
 Viscosity range to ISO 3448, ISO class VG 32  
 32 mm<sup>2</sup>/s (= cSt) at 40 °C

- Festo special oil OFSW-32
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

| Technical Data                                |                                       |                               |                               |                               |                               |                               |                               |                        |
|---|---------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------|
| Size  | Micro                                 |                               | Mini                          |                               | Midi                          |                               | Maxi                          |                        |
| Pneumatic connection                          | M5                                    | G <sup>1</sup> / <sub>8</sub> | G <sup>1</sup> / <sub>8</sub> | G <sup>1</sup> / <sub>4</sub> | G <sup>3</sup> / <sub>8</sub> | G <sup>1</sup> / <sub>2</sub> | G <sup>3</sup> / <sub>4</sub> | G1                     |
| Design  | Proportional standard mist lubricator |                               |                               |                               |                               |                               |                               |                        |
| Type of mounting                              | Via accessories                       |                               |                               |                               |                               |                               |                               |                        |
|   | In-line installation                  |                               |                               |                               |                               |                               |                               |                        |
| Mounting position                             | Vertical ±5°                          |                               |                               |                               |                               |                               |                               |                        |
| Minimum flow for lubricator operation [l/min] | 3                                     |                               | 3                             |                               | 8                             |                               | 10                            |                        |
| Max. oil capacity [cm <sup>3</sup> ]          | 6.5                                   |                               | 45                            |                               | 110                           |                               | 190                           |                        |
| Length [mm]                                   | 25                                    |                               | 40                            |                               | 55                            |                               | 66                            |                        |
| Width [mm]                                    | 25                                    | 45                            | 40 (64) <sup>1)</sup>         |                               | 55 (85) <sup>1)</sup>         |                               | 66 (96) <sup>1)</sup>         | 66 (116) <sup>1)</sup> |
| Height [mm]                                   | 96                                    |                               | 169                           |                               | 204                           |                               | 228                           |                        |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min] |       |                               |                               |                               |                               |                               |                               |       |
|--|-------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------|
| Size   | Micro |                               | Mini                          |                               | Midi                          |                               | Maxi                          |       |
| Pneumatic connection                                 | M5    | G <sup>1</sup> / <sub>8</sub> | G <sup>1</sup> / <sub>8</sub> | G <sup>1</sup> / <sub>4</sub> | G <sup>3</sup> / <sub>8</sub> | G <sup>1</sup> / <sub>2</sub> | G <sup>3</sup> / <sub>4</sub> | G1    |
| Lubricator LOE                                       | 200   | 410                           | 1,300                         | 2,300                         | 5,500                         | 6,100                         | 8,400                         | 9,000 |

1) Measured at p<sub>1</sub> = 6 bar and Δp = 1 bar.

| Operating Conditions     |  |                    |
|--------------------------|--|--------------------|
| Size                     | Micro  | Mini / Midi / Maxi |
| Operating medium         | Filtered compressed air, unlubricated, grade of filtration 40 μm |                    |
| Supply pressure [bar]    | 0 ... 10   |                    |
| Ambient temperature [°C] | -10 ... +60  |                    |

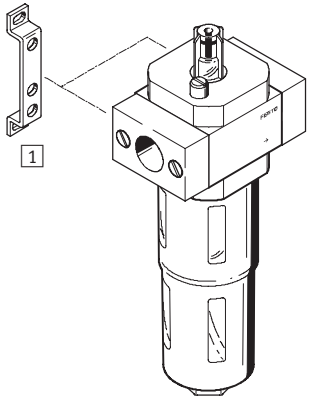
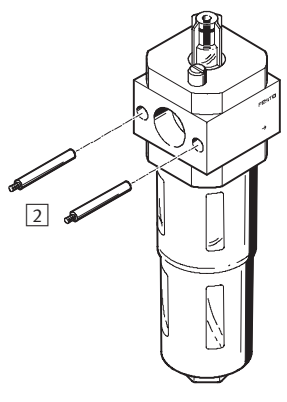
# Lubricators LOE – Metric Series

Ordering Data, Accessories

| Ordering Data                                 |            |                 |    |
|---|------------|-----------------|----|
| Size  | Connection | Type            | LT |
| Input pressure 0 ... 10 bar                   |            |                 |    |
| Micro   | M5         | LOE-M5-D-MICRO  | 1D |
|   | G1/8       | LOE-1/8-D-MICRO | 1D |
| Input pressure 0 ... 16 bar, metal bowl guard |            |                 |    |
| Mini  | G1/8       | LOE-1/8-D-MINI  | 3D |
|   | G1/4       | LOE-1/4-D-MINI  | 3D |
| Midi  | G3/8       | LOE-3/8-D-MIDI  | 3D |
|   | G1/2       | LOE-1/2-D-MIDI  | 3D |
| Maxi  | G3/4       | LOE-3/4-D-MAXI  | 3D |
|   | G1         | LOE-1-D-MAXI    | 3D |

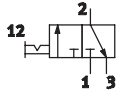
| Ordering Data – Basic Units, without Threaded Connecting Plates |            |              |    |
|---|------------|--------------|----|
| Size  | Connection | Type         | LT |
| Input pressure 0 ... 16 bar, metal bowl guard                   |            |              |    |
| Mini  | –          | LOE-D-MINI-U | 1D |
| Midi  | –          | LOE-D-MIDI-U | 1D |
| Maxi  | –          | LOE-D-MAXI-U | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

| Accessories Overview  |   |  |        |
|---|---|--|--------|
| Individual device   | Basic unit for manifold assembly  | Mounting attachments and accessories               | → Page |
|  |  | 1 Mounting bracket HFOE                            | 258    |
|   |   | 2 Threaded pin FRB (included in scope of delivery) | 258    |

# Manual On-off Valves HE – Metric Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data       |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                       |      |  |    |
|----------------------|---|--|-----------------------|------|--|----|
| Size                 | Mini                                    |  | Midi                  |      | Maxi   |    |
| Pneumatic connection | G1/8                                    | G1/4   | G3/8                  | G1/2 | G3/4   | G1 |
| Design               | Piston spool                            |  |                       |      |  |    |
| Type of mounting     | Via accessories<br>In-line installation |  |                       |      |  |    |
| Mounting position    | Any                                     |  |                       |      |  |    |
| Valve function       | 3/2-way                                 |  |                       |      |  |    |
| Exhaust port         | G1/8                                    |  | G1/4                  |      | G3/8   |    |
| Reset method         | Mechanical spring                       |  |                       |      |  |    |
| Direction of flow    | Non-reversible                          |  |                       |      |  |    |
| Length [mm]          | 40                                      |  | 55                    |      | 66   |    |
| Width [mm]           | 40 (64) <sup>1)</sup>                   |  | 55 (85) <sup>1)</sup> |      | 66 (96) <sup>1)</sup> 66 (116) <sup>1)</sup> |    |
| Height [mm]          | 100                                     |  | 121                   |      | 134  |    |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min] |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|
| Size   | Mini  |       | Midi  |       | Maxi  |       |
| Pneumatic connection                                 | G1/8  | G1/4  | G3/8  | G1/2  | G3/4  | G1    |
| On-off valve HE                                      | 1,000 | 1,500 | 3,200 | 3,600 | 6,000 | 6,500 |

1) Measured at p1 = 6 bar and Δp = 1 bar.

| Operating Conditions     |  |
|--------------------------|--|
| Operating medium         | Filtered compressed air, lubricated or unlubricated, grade of filtration 50 μm |
| Operating pressure [bar] | 0 ... 16   |
| Ambient temperature [°C] | -10 ... +60  |

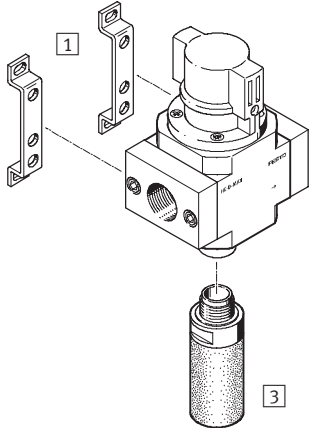
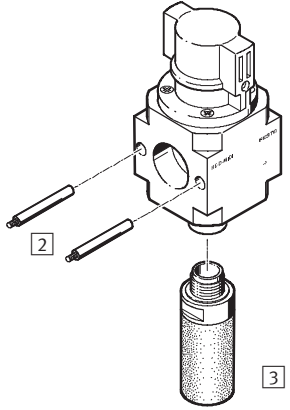
# Manual On-off Valves HE – Metric Series

Ordering Data, Accessories

| Ordering Data   |            |               |    |
|---|------------|---------------|----|
| 3/2-way valve, operating pressure 0 ... 16 bar, normally closed |            |               |    |
| Size  | Connection | Type          | LT |
| With threaded connecting plates                                 |            |               |    |
| Mini  | G1/8       | HE-1/8-D-MINI | 3D |
|   | G1/4       | HE-1/4-D-MINI | 3D |
| Midi  | G3/8       | HE-3/8-D-MIDI | 3D |
|   | G1/2       | HE-1/2-D-MIDI | 3D |
| Maxi  | G3/4       | HE-3/4-D-MAXI | 3D |
|   | G1         | HE-1-D-MAXI   | 3D |
| Basic Unit, without threaded connecting plates                  |            |               |    |
| Mini  | –          | HE-D-MINI     | 1D |
| Midi  | –          | HE-D-MIDI     | 1D |
| Maxi  | –          | HE-D-MAXI     | 1D |

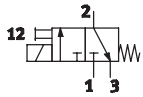
LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

| Individual device  | Basic unit for manifold assembly   | Mounting attachments and accessories               | → Page |
|--|--|--|--------|
|  |  | 1 Mounting bracket HFOE                            | 258    |
|  |  | 2 Threaded pin FRB (included in scope of delivery) | 258    |
|  |  | 3 Silencer U                                       | 259    |

# Electric On-off Valves HEE – Metric Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data       |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |      |                       |      |  |
|----------------------|---|--|------|-----------------------|------|--|
| Size                 | Mini                                    |  | Midi |                       | Maxi |  |
| Pneumatic connection | G1/8                                    | G1/4   | G3/8 | G1/2                  | G3/4 | G1   |
| Design               | Piston spool                            |  |      |                       |      |  |
| Type of mounting     | Via accessories<br>In-line installation |  |      |                       |      |  |
| Mounting position    | Any                                     |  |      |                       |      |  |
| Valve function       | 3/2-way, single solenoid                |  |      |                       |      |  |
| Exhaust port         | G1/8                                    |  | G1/4 |                       | G3/8 |  |
| Reset method         | Mechanical spring                       |  |      |                       |      |  |
| Direction of flow    | Non-reversible                          |  |      |                       |      |  |
| Operating voltage    | [V DC]                                  | 24   |      |                       |      |  |
|                      | [V AC]                                  | 110, 230   |      |                       |      |  |
| Length               | [mm]                                    | 40   |      | 55                    |      | 66   |
| Width                | [mm]                                    | 40 (64) <sup>1)</sup>  |      | 55 (85) <sup>1)</sup> |      | 66 (96) <sup>1)</sup> 66 (116) <sup>1)</sup> |
| Height               | [mm]                                    | 104  |      | 122                   |      | 135  |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min] |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|
| Size   | Mini  |       | Midi  |       | Maxi  |       |
| Pneumatic connection                                 | G1/8  | G1/4  | G3/8  | G1/2  | G3/4  | G1    |
| On-off valve HEE                                     | 1,000 | 1,500 | 3,200 | 3,600 | 6,000 | 6,500 |

1) Measured at p1 = 6 bar and Δp = 1 bar.

| Operating Conditions |  |
|----------------------|--|
| Operating medium     | Filtered compressed air, lubricated or unlubricated, grade of filtration 50 μm |
| Operating pressure   | [bar] 2,5 ... 16   |
| Ambient temperature  | [°C] -10 ... +60   |

# Electric On-off Valves HEE – Metric Series

Ordering Data, Accessories



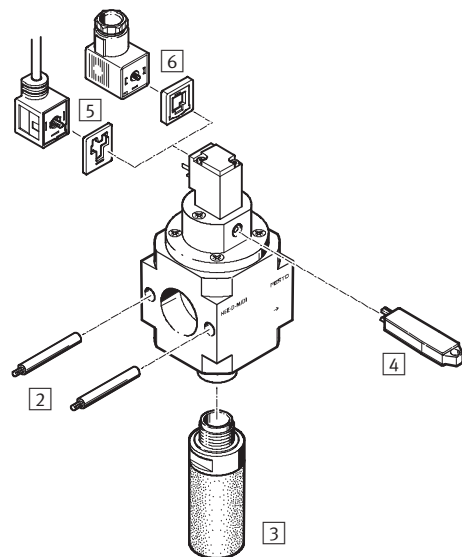
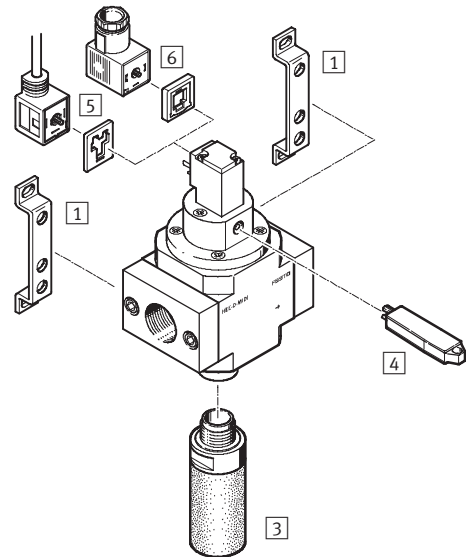
| Ordering Data   |            |               |    |                |    |                |    |
|---|------------|---------------|----|----------------|----|----------------|----|
| 3/2-way valve, operating pressure 2.5 ... 16 bar, normally closed |            |               |    |                |    |                |    |
| Size  | Connection | 24 V DC       | LT | 110 V AC       | LT | 230 V AC       | LT |
|   |            | Type          |    | Type           |    | Type           |    |
| Without threaded connecting plates                                |            |               |    |                |    |                |    |
| Mini  | –          | HEE-D-MINI-24 | 1D | HEE-D-MINI-110 | 1D | HEE-D-MINI-230 | 1D |
| Midi  | –          | HEE-D-MIDI-24 | 1D | HEE-D-MIDI-110 | 1D | HEE-D-MIDI-230 | 1D |
| Maxi  | –          | HEE-D-MAXI-24 | 1D | HEE-D-MAXI-110 | 1D | HEE-D-MAXI-230 | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device

Basic unit for manifold assembly



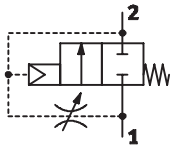
| Mounting attachments and accessories              | → Page        |
|---|---------------|
| 1 Mounting bracket HFOE                           | 258           |
| 3 Silencer U                                      | 259           |
| 4 Non-detenting manual override tool AHB-MD/MF/MY | 259           |
| 5 Plug socket with cable KMEB                     | www.festo.com |
| 6 Plug socket MSSD-EB                             | www.festo.com |

| Mounting attachments and accessories               | → Page        |
|--|---------------|
| 2 Threaded pin FRB (included in scope of delivery) | 258           |
| 3 Silencer U                                       | 259           |
| 4 Non-detenting manual override tool AHB-MD/MF/MY  | 259           |
| 5 Plug socket with cable KMEB                      | www.festo.com |
| 6 Plug socket MSSD-EB                              | www.festo.com |



# Soft-start Valves HEL – Metric Series

Technical Data



Materials  
 Housing: Die-cast aluminum  
 Seals: Nitrile rubber  
 Free of copper and PTFE



| Technical Data       |   | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                       |      |  |    |
|----------------------|---|--|-----------------------|------|--|----|
| Size                 | Mini                                      |  | Midi                  |      | Maxi   |    |
| Pneumatic connection | G1/8                                      | G1/4   | G3/8                  | G1/2 | G3/4   | G1 |
| Design               | Piston spool                              |  |                       |      |  |    |
| Type of mounting     | Via accessories<br>In-line installation   |  |                       |      |  |    |
| Mounting position    | Any                                       |  |                       |      |  |    |
| Valve function       | 2/2-way, closed, air operated, adjustable |  |                       |      |  |    |
| Reset method         | Mechanical spring                         |  |                       |      |  |    |
| Actuation method     | Direct                                    |  |                       |      |  |    |
| Direction of flow    | Non-reversible                            |  |                       |      |  |    |
| Length [mm]          | 40  |  | 55                    |      | 66   |    |
| Width [mm]           | 40 (64) <sup>1)</sup>                     |  | 55 (85) <sup>1)</sup> |      | 66 (96) <sup>1)</sup> 66 (116) <sup>1)</sup> |    |
| Height [mm]          | 66  |  | 77                    |      | 89   |    |

1) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> q <sub>N</sub> [l/min] |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|
| Size  | Mini  |       | Midi  |       | Maxi  |       |
| Pneumatic connection  | G1/8  | G1/4  | G3/8  | G1/2  | G3/4  | G1    |
| Soft-start valve HEL  | 1,000 | 1,500 | 3,200 | 3,600 | 6,000 | 6,500 |

1) Measured at p<sub>1</sub> = 6 bar and Δp = 1 bar.

| Operating Conditions     |  |
|--------------------------|--|
| Operating medium         | Filtered compressed air, lubricated or unlubricated, grade of filtration 50 μm |
| Operating pressure [bar] | 3 ... 16   |
| Ambient temperature [°C] | -10 ... +60  |

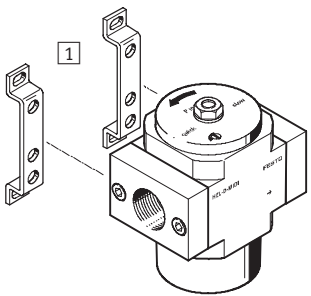
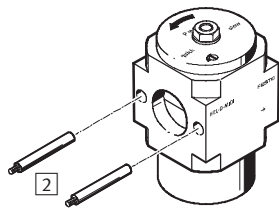
# Soft-start Valves HEL – Metric Series



Ordering Data, Accessories

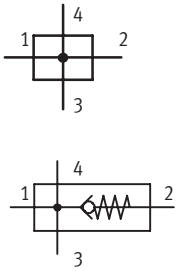
| Ordering Data  |            |                |    |
|--|------------|----------------|----|
| Gradual pressure build-up, 2/2-way valve, normally closed, operating pressure 3 ... 16 bar |            |                |    |
| Size   | Connection | Type           | LT |
| With threaded connecting plates  |            |                |    |
| Mini   | G1/8       | HEL-1/8-D-MINI | 3D |
|  | G1/4       | HEL-1/4-D-MINI | 3D |
| Midi   | G3/8       | HEL-3/8-D-MIDI | 3D |
|  | G1/2       | HEL-1/2-D-MIDI | 3D |
| Maxi   | G3/4       | HEL-3/4-D-MAXI | 3D |
|  | G1         | HEL-1-D-MAXI   | 3D |
| Basic Unit, without threaded connecting plates   |            |                |    |
| Mini   | –          | HEL-D-MINI     | 1D |
| Midi   | –          | HEL-D-MIDI     | 1D |
| Maxi   | –          | HEL-D-MAXI     | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

| Accessories Overview   |   |  |        |
|--|---|--|--------|
| Individual device  | Basic unit for manifold assembly  | Mounting attachments and accessories               | → Page |
|  |  | 1 Mounting bracket HFOE                            | 258    |
|  |   | 2 Threaded pin FRB (included in scope of delivery) | 258    |

# Branching Modules FRM/FRZ – Metric Series

Technical Data



Materials  
 Housing: Die-cast zinc  
 Seals: Nitrile rubber, polyvinyl chloride  
 Free of copper and PTFE



| Technical Data                          |                      | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |      |                       |      |                       |                        |
|---|----------------------|--|------|-----------------------|------|-----------------------|------------------------|
| Size                                    | Micro                | Mini   |      | Midi                  |      | Maxi                  |                        |
| Pneumatic connection 1, 2 <sup>1)</sup> | G1/8                 | G1/8   | G1/4 | G3/8                  | G1/2 | G3/4                  | G1                     |
| Pneumatic connection 3                  | G1/8                 | G1/4   |      | G1/2                  |      | G3/4                  |                        |
| Pneumatic connection 4                  | M5                   | G1/4   |      |                       |      |                       |                        |
| Design                                  | Branching module     |  |      |                       |      |                       |                        |
| Type of mounting                        | With accessories     |  |      |                       |      |                       |                        |
|   | In-line installation |  |      |                       |      |                       |                        |
| Mounting position                       | Any                  |  |      |                       |      |                       |                        |
| Length [mm]                             | 25                   | 40   |      | 55                    |      | 66                    |                        |
| Width [mm]                              | 25                   | 40 (64) <sup>2)</sup>  |      | 55 (85) <sup>2)</sup> |      | 66 (96) <sup>2)</sup> | 66 (116) <sup>2)</sup> |
| Height [mm]                             | 30                   | 49   |      | 67                    |      | 78                    |                        |

- 1) With connecting plates.
- 2) Value in brackets with connecting plates.

| Standard Nominal Flow Rate <sup>1)</sup> qnN [l/min] |       |                                      |                        |       |       |       |        |        |
|--|-------|--------------------------------------|------------------------|-------|-------|-------|--------|--------|
| Connection   |       | Basic Unit Without Connecting Plates | With connecting plates |       |       |       |        |        |
|  |       |                                      | G1/8                   | G1/4  | G3/8  | G1/2  | G3/4   | G1     |
| Standard   |       |                                      |                        |       |       |       |        |        |
| In main flow direction                               | Micro | 210                                  | –                      | –     | –     | –     | –      | –      |
|  | Mini  | 3,300                                | 1,500                  | 3,300 | –     | –     | –      | –      |
|  | Midi  | 8,200                                | –                      | –     | 7,000 | 8,200 | –      | –      |
|  | Maxi  | 20,000                               | –                      | –     | –     | –     | 20,000 | 17,400 |
| With non-return function                             |       |                                      |                        |       |       |       |        |        |
| In main flow direction                               | Mini  | 2,000                                | 1,300                  | 2,000 | –     | –     | –      | –      |
|  | Midi  | 5,600                                | –                      | –     | 5,500 | 5,600 | –      | –      |
|  | Maxi  | 15,000                               | –                      | –     | –     | –     | 15,000 | 13,400 |

- 1) Measured at p1 = 6 bar and Δp = 1 bar.

| Operating Conditions     |                         |             |            |             |
|--------------------------|-------------------------|-------------|------------|-------------|
| Size                     | Mini                    | Mini        | Midi       | Maxi        |
| Operating medium         | Filtered compressed air |             |            |             |
| Ambient temperature [°C] | –10 ... +60             |             |            |             |
| Operating pressure [bar] |                         |             |            |             |
| Standard                 | 0 ... 16                |             |            |             |
| With non-return function | –                       | 0.15 ... 16 | 0.2 ... 16 | 0.25 ... 16 |

# Branching Modules FRM/FRZ – Metric Series

Ordering Data, Accessories

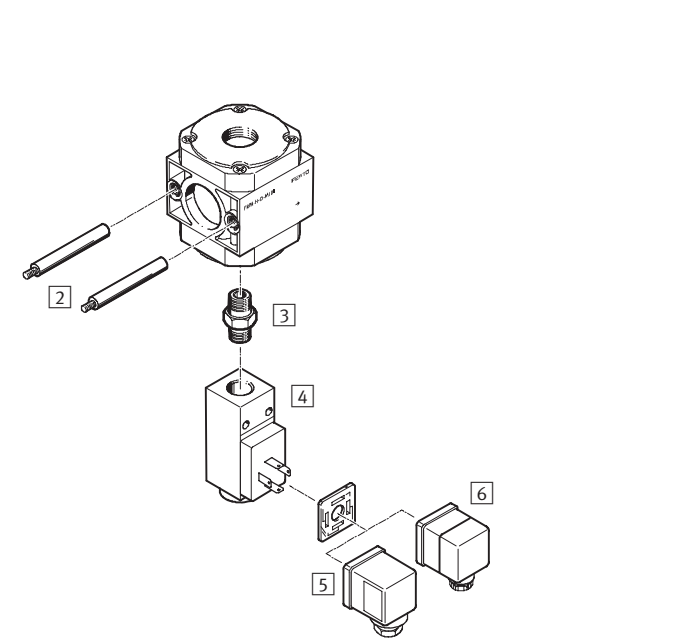
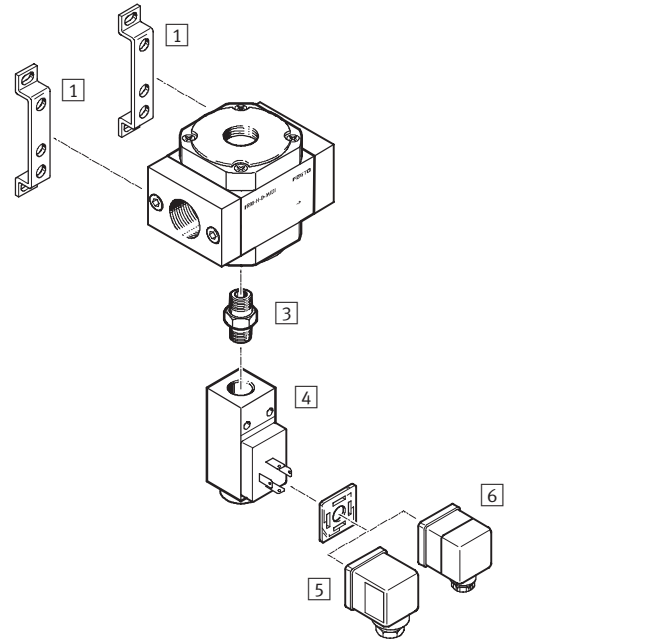
| Ordering Data – With Connecting Plates |      |                                     |    |
|--|------|-------------------------------------|----|
| Size                                   | Port | With integrated non-return function |    |
|  |      | Type                                | LT |
| Mini                                   | G1/8 | FRM-H-1/8-D-MINI                    | 3D |
|  | G1/4 | FRM-H-1/4-D-MINI                    | 3D |
| Midi                                   | G3/8 | FRM-H-3/8-D-MIDI                    | 3D |
|  | G1/2 | FRM-H-1/2-D-MIDI                    | 3D |
| Maxi                                   | G3/4 | FRM-H-3/4-D-MAXI                    | 3D |
|  | G1   | FRM-H-1-D-MAXI                      | 3D |

| Ordering Data – Basic Unit Without Connecting Plates |             |  |    |                                     |    |
|--|-------------|--|----|-------------------------------------|----|
| Size   | Standard    |  | LT | With integrated non-return function |    |
|  | Type        |  |    | Type                                | LT |
| Micro  | FRZ-D-MICRO |  | 1D | -                                   |    |
| Mini   | FRM-D-MINI  |  | 1D | FRM-H-D-MINI                        | 1D |
| Midi   | FRM-D-MIDI  |  | 1D | FRM-H-D-MIDI                        | 1D |
| Maxi   | FRM-D-MAXI  |  | 1D | FRM-H-D-MAXI                        | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

## Accessories Overview

Individual device      Basic unit for manifold assembly



| Mounting attachments and accessories | → Page |
|--------------------------------------|--------|
| 1 Mounting bracket HFOE              | 258    |
| 3 Double nipple ESK                  | -      |
| 4 Pressure switch PEV                | 259    |
| 5 Plug socket MSSD-C                 | -      |
| 6 Angled plug socket PEV-...-WD-LED  | -      |

| Mounting attachments and accessories               | → Page |
|--|--------|
| 2 Threaded pin FRB (included in scope of delivery) | -      |
| 3 Double nipple ESK                                | -      |
| 4 Pressure switch PEV                              | 259    |
| 5 Plug socket MSSD-C                               | -      |
| 6 Angled plug socket PEV-...-WD-LED                | -      |

# Pressure Gauges MA

Technical Data, Ordering Data

FESTO



Materials  
 Housing:  
 MA-23: Brass  
 MA-27/40/50: Acrylic butadiene styrene/plastic  
 MA-63: Steel  
 Dial cover: Polystyrene/plastic  
 Threaded plug: Brass



| Technical Data             |                                  | Download CAD data → <a href="http://www.festo.com/us/engineering">www.festo.com/us/engineering</a> |                 |
|----------------------------|----------------------------------|--|-----------------|
| Nominal size               | 27                               | 40   | 50              |
| Pneumatic connection       | M5                               | G $\frac{1}{8}$  | G $\frac{1}{4}$ |
| Operating medium           | Liquid and gaseous media         |  |                 |
|                            | Not permitted: Oxygen, Acetylene |  |                 |
| Constructional design      | Bourdon tube pressure gauge      |  |                 |
| Type of mounting           | Screw-in                         |  |                 |
| Connection position        | Rear side, center                |  |                 |
| Ambient temperature        | [°F]                             | 32 ... 140   | -4 ... +140     |
|                            | [°C]                             | 0 ... +60  | -20 ... +60     |
| Measurement accuracy class | 4                                | 2.5  |                 |
| Continuous load factor     | 0.75                             |  |                 |
| Intermittent load factor   | 0.66                             |  |                 |
| Protection class           | IP43                             |  |                 |

| Ordering Data |                            |                      |                  |           |                  |    |
|---------------|----------------------------|----------------------|------------------|-----------|------------------|----|
| Nominal size  | For D Series service units | Pneumatic connection | Indicating range |           | Order code       | LT |
|               |                            |                      | [bar]            | [psi]     |                  |    |
| 27            | MICRO                      | M5                   | 0 ... 10         | -         | MA-27-10-M5      | 1D |
|               |                            |                      | -                | 0 ... 160 | MA-27-160-M5-PSI | 1D |
| 40            | MINI                       | G $\frac{1}{8}$      | 0 ... 10         | 0 ... 145 | MA-40-10-1/8-U   | 1D |
|               |                            |                      | 0 ... 16         | 0 ... 240 | MA-40-16-1/8-U   | 1D |
| 50            | MIDI/MAXI                  | G $\frac{1}{4}$      | 0 ... 10         | 0 ... 160 | MA-50-10-1/4-U   | 1D |
|               |                            |                      | 0 ... 16         | 0 ... 240 | MA-50-16-1/4-U   | 1D |

LT = Lead time      1D typically ships same day/next day      3D typically ships within 3 days

# Accessories – Metric Series

Ordering Data



| Ordering Data – Mounting attachments |           |                  |
|--------------------------------------|-----------|------------------|
| Designation                          | Size      | Order code       |
| <b>Mounting bracket HFOE</b>         |           |                  |
|                                      | Micro     | HFOE-D-MICRO     |
|                                      | Mini      | HFOE-D-MINI      |
|                                      | Midi/Maxi | HFOE-D-MIDI/MAXI |
| <b>Mounting bracket HRBK</b>         |           |                  |
|                                      | Mini      | HRBK-D-MINI      |
|                                      | Midi      | HRBK-D-MIDI      |
| <b>Mounting bracket HRB</b>          |           |                  |
|                                      | Mini      | HRB-D-MINI       |
|                                      | Midi      | HRB-D-MIDI       |
| <b>Mounting bracket HR-D</b>         |           |                  |
|                                      | Micro     | HRS-D-MICRO      |
|                                      | Mini      | HR-D-MINI        |
|                                      | Midi      | HR-D-MIDI        |
|                                      | Maxi      | HR-D-MAXI        |
| <b>Threaded pin FRB</b>              |           |                  |
|                                      | Micro     | FRB-D-MICRO      |
|                                      | Mini      | FRB-D-MINI       |
|                                      | Midi      | FRB-D-MIDI       |
|                                      | Maxi      | FRB-D-MAXI       |
| <b>Threaded pin LF/LOE</b>           |           |                  |
|                                      | Mini      | LF/LOE-D-MINI    |
|                                      | Midi      | LF/LOE-D-MIDI    |
|                                      | Maxi      | LF/LOE-D-MAXI    |
| <b>Hex nut HMR</b>                   |           |                  |
|                                      | Micro     | HMR-D-MICRO      |
| <b>Connecting kit HRBC</b>           |           |                  |
|                                      | Mini      | HRBC-D-MINI      |
|                                      | Midi      | HRBC-D-MIDI      |

| Ordering Data – Connecting plates |                 |                  |                  |                  |
|-----------------------------------|-----------------|------------------|------------------|------------------|
| Designation                       | Size            | Connection       | Position         | Order code       |
| <b>Connecting plates PBL</b>      |                 |                  |                  |                  |
|                                   | Micro           | G $\frac{1}{8}$  | Either           | PBL-1/8-D-MICRO  |
|                                   |                 | QS-4             | Either           | PBL-QS4-D-MICRO  |
|                                   |                 | QS-6             | Either           | PBL-QS6-D-MICRO  |
|                                   | Mini            | G $\frac{1}{8}$  | Left             | PBL-1/8-D-MINI-L |
|                                   |                 |                  | Right            | PBL-1/8-D-MINI-R |
|                                   |                 | G $\frac{1}{4}$  | Left             | PBL-1/4-D-MINI-L |
|                                   |                 |                  | Right            | PBL-1/4-D-MINI-R |
|                                   |                 | G $\frac{3}{8}$  | Left             | PBL-3/8-D-MINI-L |
|                                   |                 |                  | Right            | PBL-3/8-D-MINI-R |
|                                   | Midi            | G $\frac{1}{4}$  | Left             | PBL-1/4-D-MIDI-L |
|                                   |                 |                  | Right            | PBL-1/4-D-MIDI-R |
|                                   |                 | G $\frac{3}{8}$  | Left             | PBL-3/8-D-MIDI-L |
|                                   |                 |                  | Right            | PBL-3/8-D-MIDI-R |
|                                   |                 | G $\frac{1}{2}$  | Left             | PBL-1/2-D-MIDI-L |
|                                   |                 |                  | Right            | PBL-1/2-D-MIDI-R |
|                                   | G $\frac{3}{4}$ | Left             | PBL-3/4-D-MIDI-L |                  |
| Right                             |                 | PBL-3/4-D-MIDI-R |                  |                  |
| Maxi                              | G $\frac{1}{2}$ | Left             | PBL-1/2-D-MAXI-L |                  |
|                                   |                 | Right            | PBL-1/2-D-MAXI-R |                  |
|                                   | G $\frac{3}{4}$ | Left             | PBL-3/4-D-MAXI-L |                  |
|                                   |                 | Right            | PBL-3/4-D-MAXI-R |                  |
| G1                                | Left            | PBL-1-D-MAXI-L   |                  |                  |
|                                   | Right           | PBL-1-D-MAXI-R   |                  |                  |


| Ordering Data – Safety components |      |             |
|-----------------------------------|------|-------------|
| Designation                       | Size | Order code  |
| <b>Regulator lock LRVS</b>        |      |             |
|                                   | Mini | LRVS-D-MINI |
|                                   | Midi | LRVS-D-MIDI |
|                                   | Maxi | LRVS-D-MAXI |

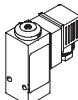
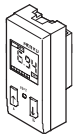
Lead Time LT for all products on this page: 1D typically ships same day/next day


## Accessories – Metric Series



Ordering Data



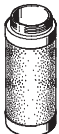
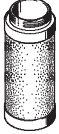
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| Ordering Data – Pressure gauges   |            |                  | Technical Data → 231 |                  |
|---|------------|------------------|----------------------|------------------|
| Connection  | Connection | Indicating range |                      | Order code       |
|   |            | [bar]            | [psi]                |                  |
|  | M5         | 0 ... 10         | –                    | MA-27-10-M5      |
|   |            | –                | 0 ... 160            | MA-27-160-M5-PSI |
|   | G1/8       | 0 ... 10         | 0 ... 145            | MA-40-10-1/8-U   |
|   |            | 0 ... 16         | 0 ... 240            | MA-40-16-1/8-U   |
|   | G1/4       | 0 ... 10         | 0 ... 160            | MA-50-10-1/4-U   |
|   |            | 0 ... 16         | 0 ... 240            | MA-50-16-1/4-U   |

| Ordering Data – Sensors  |            |                         |
|--|------------|-------------------------|
| Designation  | Connection | Order code              |
| Pressure switch PEV <span style="float: right;">Technical Data → 167</span>        |            |                         |
|   | G1/4       | PEV-1/4-B               |
| Pressure sensor SDE1 <span style="float: right;">Technical Data → 175</span>       |            |                         |
|  | R1/4       | SDE1-D10-G2-R14-C-P1-M8 |
|  | R1/8       | SDE1-D10-G2-R18-C-P1-M8 |

| Ordering Data – Electrical connection technology                                    |             |                     |
|---|-------------|---------------------|
| Designation   | Description | Order code          |
| Connecting cable NEBU   |             |                     |
|  | M8x1, 3-pin | NEBU-M8G3-K-2.5-LE3 |
|   | M8x1, 4-pin | NEBU-M8G4-K-2.5-LE4 |

| Ordering Data – Accessories   |             |              |
|---|-------------|--------------|
| Designation   | Description | Order code   |
| Silencer U <span style="float: right;">Technical Data → 295</span>                |             |              |
|  | G1/8        | U-1/8-B      |
|   | G1/4        | U-1/4-B      |
|   | G3/8        | U-3/8-B      |
| Manual override AHB   |             |              |
|  | –           | AHB-MD/MF/MV |

| Ordering Data – Filter cartridges   |       |                  |
|---|-------|------------------|
| Designation   | Size  | Order code       |
| Grade of filtration 5 µm  |       |                  |
|    | Micro | LFP-D-MICRO-5M   |
|   | Mini  | LFP-D-MINI-5M    |
|   | Midi  | LFP-D-MIDI-5M    |
|   | Maxi  | LFP-D-MAXI-5M    |
| Grade of filtration 40 µm   |       |                  |
|   | Mini  | LFP-D-MINI-40M-U |
|   | Midi  | LFP-D-MIDI-40M-U |
|   | Maxi  | LFP-D-MAXI-40M-U |
| Grade of filtration 1 µm  |       |                  |
|  | Mini  | MS4/D-MINI-LFM-B |
|   | Midi  | LFMBP-D-MIDI     |
|   | Maxi  | LFMBP-D-MAXI     |
| Grade of filtration 0.01 µm   |       |                  |
|  | Mini  | MS4/D-MINI-LFM-A |
|   | Midi  | LFMAP-D-MIDI     |
|   | Maxi  | LFMAP-D-MAXI     |





# Product Range and Company Overview

## A Complete Suite of Automation Services

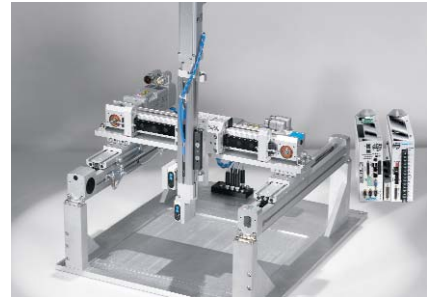
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Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

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