

# FMP series

Maximum working pressure up to 32 MPa (320 bar) - Flow rate up to 500 l/min



### High Pressure filters

#### In-line

**Maximum working pressure up to 32 MPa (320 bar)**

**Flow rate up to 500 l/min**

FMP is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the industrial equipment.

They are directly connected to the lines of the system through the hydraulic fittings.

#### Available features:

- Female threaded connections up to 1 1/2" and flanged connections up to 1 1/2", for a maximum flow rate of 475 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Bypass valve, to relieve excessive pressure drop across the filter media
- Check valve, to protect the system against reverse flow
- Low collapse filter element "N", for use with filters provided with bypass valve
- High collapse filter element "H", for use with filters not provided with bypass valve
- Low collapse filter element with external support "R", for filter element protection against the back pressure caused by the check valve in filters provided with the bypass valve
- High collapse filter element with external support "S", for filter element protection against the back pressure caused by the check valve in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

#### Common applications:

Delivery lines, in any high pressure industrial equipment or mobile machines

#### Filter housing materials

- Head: Phosphatized cast iron
- Housing: Phosphatized steel
- Bypass valve: Brass
- Reverse Flow: Steel (only for series FMP 320)
- Check valve: Steel

#### Pressure

- Test pressure: 48 MPa (480 bar)
- Burst pressure: 96 MPa (960 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 32 MPa (320 bar)

#### Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

#### Δp element type

- Microfibre filter elements - series N-R: 20 bar
- Microfibre filter elements - series H-S: 210 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

#### Seals

- Standard NBR series A
- Optional FPM series V

#### Temperature

From -25 °C to +110 °C

#### Connections

In-line Inlet/Outlet

#### Note

FMP filters are provided for vertical mounting



## Weights [kg] and volumes [dm<sup>3</sup>]

| Filter series  | Weights [kg] |       |       |       |       | Volumes [dm <sup>3</sup> ] |      |      |      |      |
|----------------|--------------|-------|-------|-------|-------|----------------------------|------|------|------|------|
|                | Length       | 1     | 2     | 3     | 4     | Length                     | 1    | 2    | 3    | 4    |
| <b>FMP 065</b> |              | 3.26  | 3.62  | 4.83  | -     |                            | 0.36 | 0.47 | 0.84 | -    |
| <b>FMP 135</b> |              | 5.61  | 7.21  | 8.27  | -     |                            | 0.45 | 0.78 | 1.00 | -    |
| <b>FMP 320</b> |              | 10.95 | 13.08 | 15.37 | 17.85 |                            | 1.03 | 1.75 | 2.52 | 3.35 |

| Filter series  | Length   | Filter element design - N Series |     |     |     |     |     |
|----------------|----------|----------------------------------|-----|-----|-----|-----|-----|
|                |          | A03                              | A06 | A10 | A16 | A25 | M25 |
| <b>FMP 065</b> | <b>1</b> | 23                               | 30  | 48  | 54  | 72  | 105 |
|                | <b>2</b> | 31                               | 45  | 60  | 65  | 82  | 106 |
|                | <b>3</b> | 52                               | 60  | 80  | 84  | 94  | 108 |
| <b>FMP 135</b> | <b>1</b> | 69                               | 73  | 120 | 129 | 171 | 201 |
|                | <b>2</b> | 110                              | 117 | 149 | 152 | 211 | 232 |
|                | <b>3</b> | 151                              | 152 | 192 | 195 | 212 | 233 |
| <b>FMP 320</b> | <b>1</b> | 130                              | 144 | 244 | 296 | 361 | 477 |
|                | <b>2</b> | 267                              | 291 | 417 | 438 | 492 | 509 |
|                | <b>3</b> | 348                              | 390 | 476 | 493 | 503 | 519 |
|                | <b>4</b> | 389                              | 415 | 483 | 502 | 525 | 534 |

### Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

The reference fluid has a kinematic viscosity of 30 mm<sup>2</sup>/s (cSt) and a density of 0.86 kg/dm<sup>3</sup>.

For different pressure drop or fluid viscosity we recommend to use our selection software available on [www.mpfiltri.com](http://www.mpfiltri.com).

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

### Hydraulic symbols

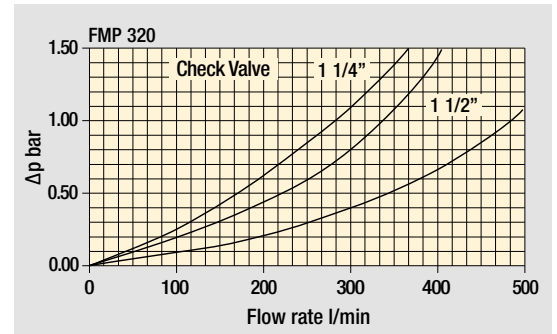
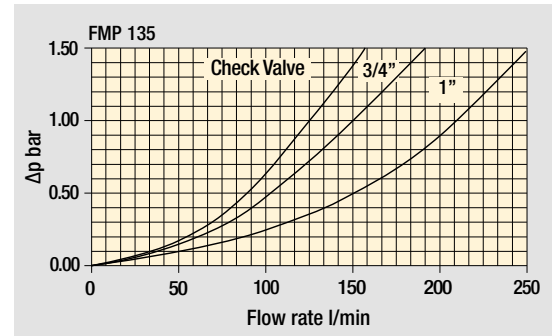
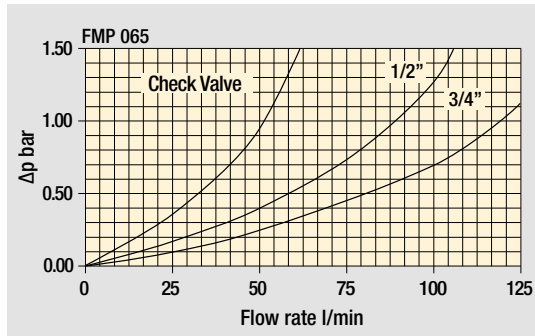
| Filter series  | Style S - E | Style B - C | Style T | Style D |
|----------------|-------------|-------------|---------|---------|
| <b>FMP 065</b> | •           | •           | •       | •       |
| <b>FMP 135</b> | •           | •           | •       | •       |
| <b>FMP 320</b> | •           | •           | •       | •       |

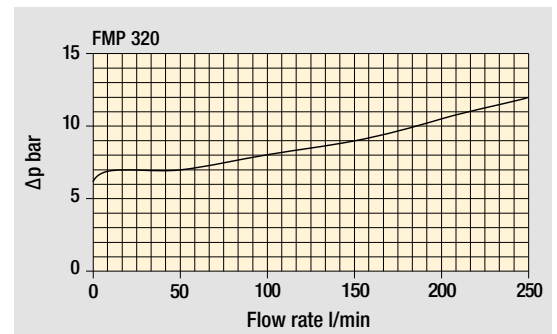
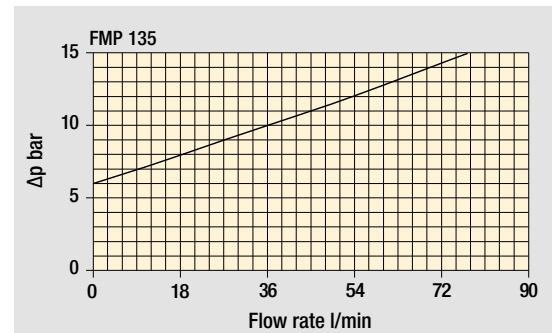
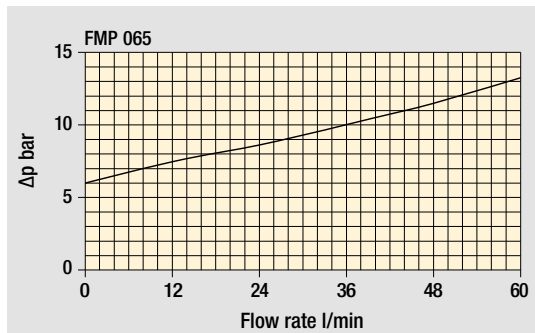
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|  |  |  |  |
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## Pressure drop

### Filter housings $\Delta p$ pressure drop



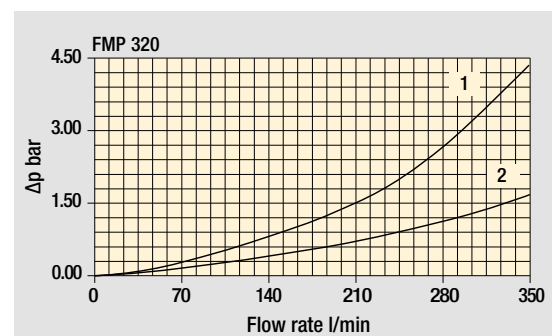
### Bypass valve pressure drop



### Valves

#### Filter housing with check valve

- 1 - Reverse flow
- 2 - In filter direction



The curves are plotted using mineral oil with density of 0.86 kg/dm<sup>3</sup> in compliance with ISO 3968.  $\Delta p$  varies proportionally with density.

# FMP FMP065 - FMP135 - FMP320

## Designation & Ordering code

### COMPLETE FILTER

Series and size Configuration example: **FMP065** | **3** | **T** | **A** | **G1** | **M25** | **S** | **P01**

**FMP065** | **FMP135** | **FMP320**

| Length | FMP065 | FMP135 | FMP320 |
|--------|--------|--------|--------|
| 1      | •      | •      | •      |
| 2      | •      | •      | •      |
| 3      | •      | •      | •      |
| 4      |        |        | •      |

| Valves   |   |
|--|---|
| <b>S</b> Without bypass                            | <b>C</b> With bypass 6 bar, plug on the opposite side |
| <b>E</b> Without bypass, plug on the opposite side | <b>T</b> With check valve, without bypass             |
| <b>B</b> With bypass 6 bar                         | <b>D</b> With check valve, with bypass                |

| Seals        |              |
|--------------|--------------|
| <b>A</b> NBR | <b>V</b> FPM |

| Connections | FMP065                   | FMP135                   | FMP320                  |
|-------------|--------------------------|--------------------------|-------------------------|
| <b>G1</b>   | G 1/2"                   | G 3/4"                   | G 1 1/4"                |
| <b>G2</b>   | G 3/4"                   | G 1"                     | G 1 1/2"                |
| <b>G3</b>   | 1/2" NPT                 | 3/4" NPT                 | 1 1/4" NPT              |
| <b>G4</b>   | 3/4" NPT                 | 1" NPT                   | 1 1/2" NPT              |
| <b>G5</b>   | SAE 8 - 3/4" - 16 UNF    | SAE 12 - 1 1/16" - 12 UN | SAE 20 - 1 5/8" - 12 UN |
| <b>G6</b>   | SAE 12 - 1 1/16" - 12 UN | SAE 16 - 1 5/16" - 12 UN | SAE 24 - 1 7/8" - 12 UN |
| <b>F1</b>   | -                        | 3/4" SAE 3000 psi/M      | 1 1/4" SAE 3000 psi/M   |
| <b>F2</b>   | -                        | 1" SAE 3000 psi/M        | 1 1/2" SAE 3000 psi/M   |
| <b>F3</b>   | -                        | 3/4" SAE 3000 psi/UNC    | 1 1/4" SAE 3000 psi/UNC |
| <b>F4</b>   | -                        | 1" SAE 3000 psi/UNC      | 1 1/2" SAE 3000 psi/UNC |

| Filtration rating (filter media) |       |
|----------------------------------|-------|
| <b>A03</b> Inorganic microfiber  | 3 µm  |
| <b>A06</b> Inorganic microfiber  | 6 µm  |
| <b>A10</b> Inorganic microfiber  | 10 µm |
| <b>A16</b> Inorganic microfiber  | 16 µm |
| <b>A25</b> Inorganic microfiber  | 25 µm |
| <b>M25</b> Wire mesh             | 25 µm |

| Element Δp       | Valves |   |   |   |   |   |
|------------------|--------|---|---|---|---|---|
|                  | S      | E | B | C | T | D |
| <b>N</b> 20 bar  |        |   | • | • |   |   |
| <b>R</b> 20 bar  |        |   |   |   | • |   |
| <b>H</b> 210 bar | •      | • |   |   |   |   |
| <b>S</b> 210 bar |        |   |   |   | • |   |

| Execution   | Filter length |   |   |   |
|---|---------------|---|---|---|
|   | 1             | 2 | 3 | 4 |
| <b>P01</b> MP Filtri standard                         | •             | • | • | • |
| <b>P02</b> Maintenance from the bottom of the housing |               |   |   | • |
| <b>Pxx</b> Customized                                 |               |   |   |   |

### FILTER ELEMENT

Element series and size Configuration example: **HP065** | **3** | **M25** | **A** | **S** | **P01**

**HP065** | **HP135** | **HP320**

| Element length | HP065 | HP135 | HP320 |
|----------------|-------|-------|-------|
| 1              | •     | •     | •     |
| 2              | •     | •     | •     |
| 3              | •     | •     | •     |
| 4              |       |       | •     |

| Filtration rating (filter media) |       |
|----------------------------------|-------|
| <b>A03</b> Inorganic microfiber  | 3 µm  |
| <b>A06</b> Inorganic microfiber  | 6 µm  |
| <b>A10</b> Inorganic microfiber  | 10 µm |
| <b>A16</b> Inorganic microfiber  | 16 µm |
| <b>A25</b> Inorganic microfiber  | 25 µm |
| <b>M25</b> Wire mesh             | 25 µm |

| Seals        |  |
|--------------|--|
| <b>A</b> NBR |  |
| <b>V</b> FPM |  |

| Element Δp       |  |
|------------------|--|
| <b>N</b> 20 bar  |  |
| <b>R</b> 20 bar  |  |
| <b>H</b> 210 bar |  |
| <b>S</b> 210 bar |  |

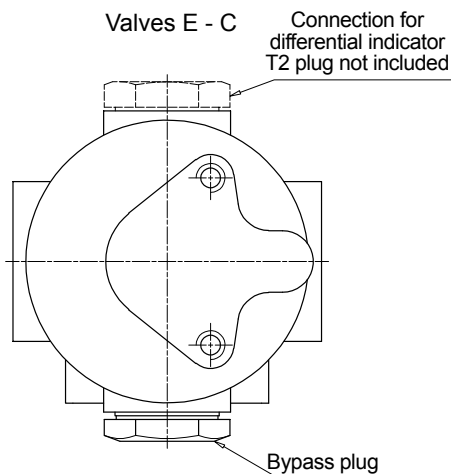
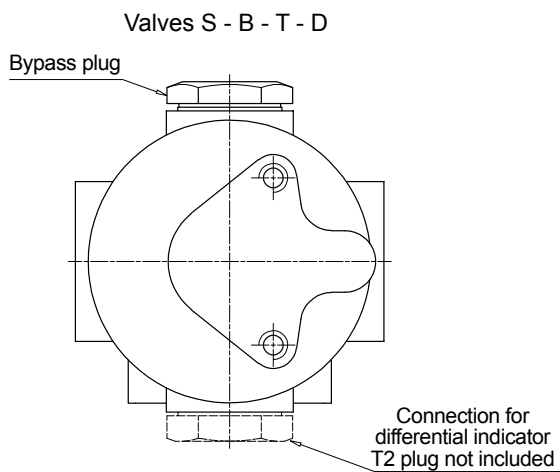
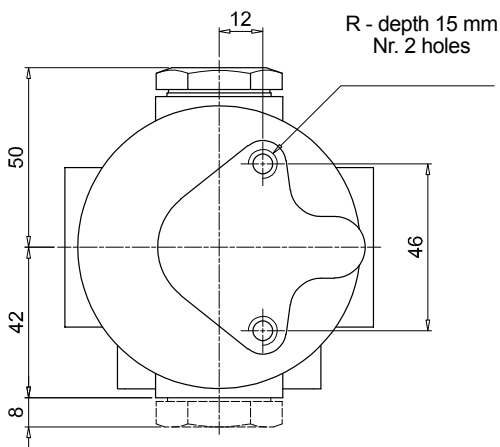
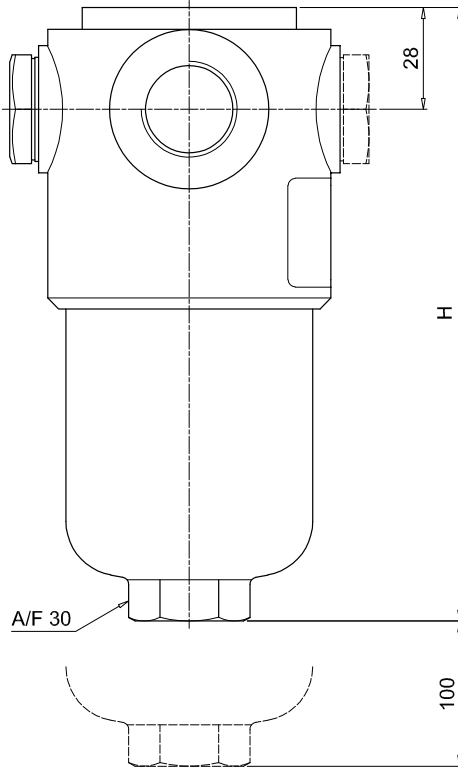
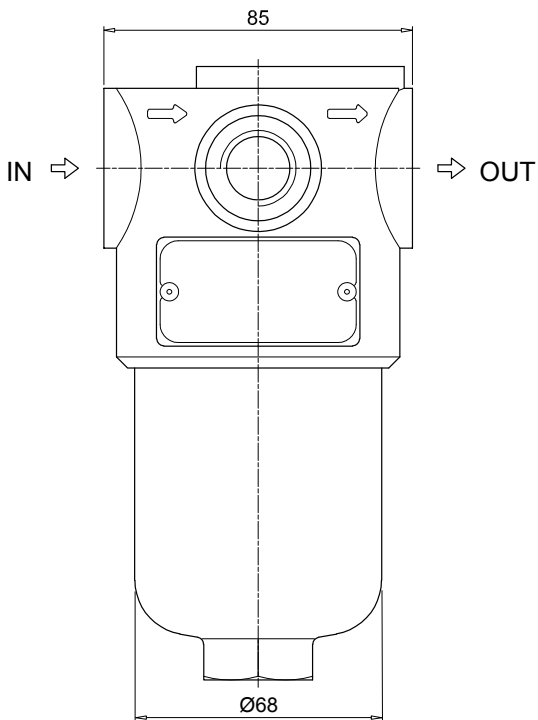
| Execution                     |  |
|-------------------------------|--|
| <b>P01</b> MP Filtri standard |  |
| <b>Pxx</b> Customized         |  |

### ACCESSORIES

| Differential indicators                                     | page    | Differential indicators                               | page |
|---|---------|---|------|
| <b>DEA</b> Electrical differential indicator                | 577     | <b>DLE</b> Electrical / visual differential indicator | 580  |
| <b>DEH</b> Hazardous area electronic differential indicator | 577-578 | <b>DTA</b> Electronic differential indicator          | 581  |
| <b>DEM</b> Electrical differential indicator                | 578-579 | <b>DVA</b> Visual differential indicator              | 581  |
| <b>DLA</b> Electrical / visual differential indicator       | 579-580 | <b>DVM</b> Visual differential indicator              | 581  |

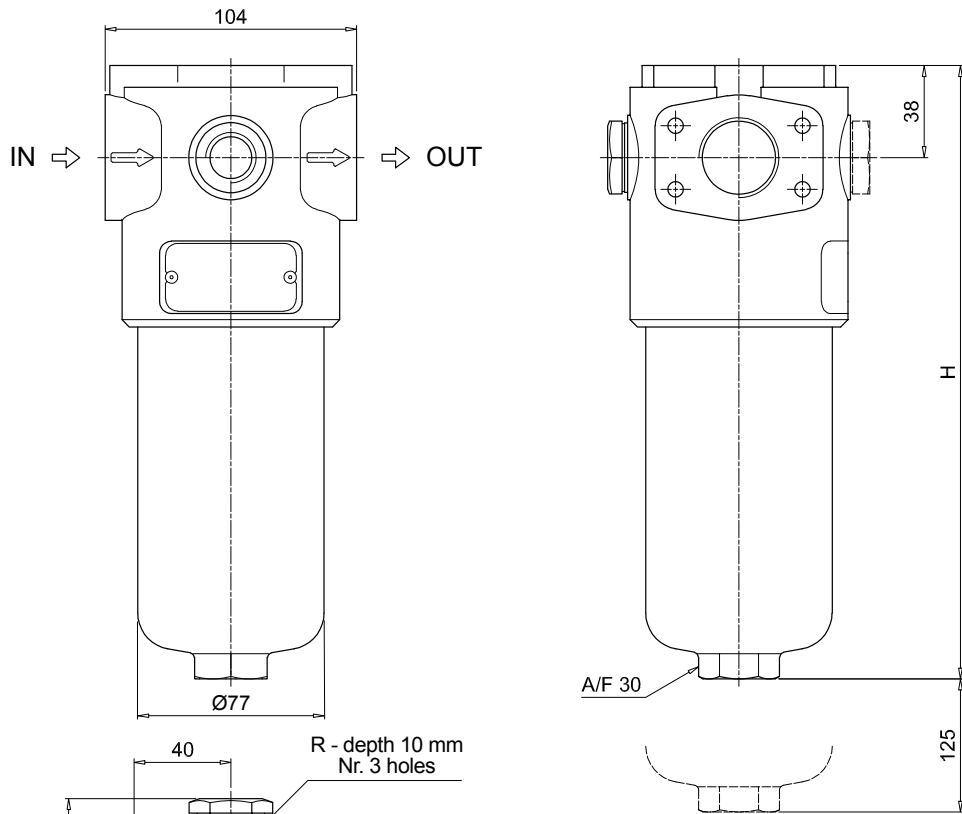
| Additional features | page |
|---------------------|------|
| <b>T2</b> Plug      | 582  |

| FMP065             |           |
|--------------------|-----------|
| Filter length      | H [mm]    |
| <b>1</b>           | 169       |
| <b>2</b>           | 200       |
| <b>3</b>           | 302       |
| Connections        | R         |
| <b>G1-G2</b>       | M8        |
| <b>G3-G4-G5-G6</b> | 5/16" UNC |

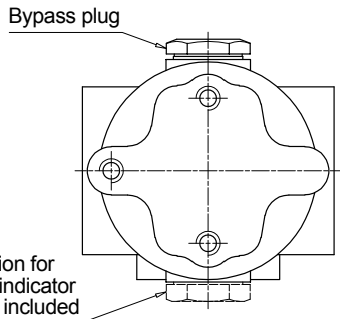


# FMP FMP065 - FMP135 - FMP320

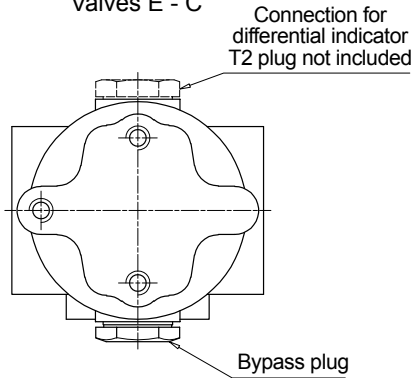
## Dimensions



Valves S - B - T - D



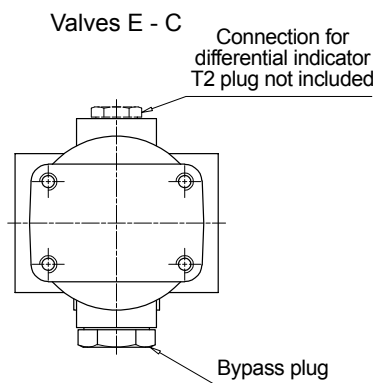
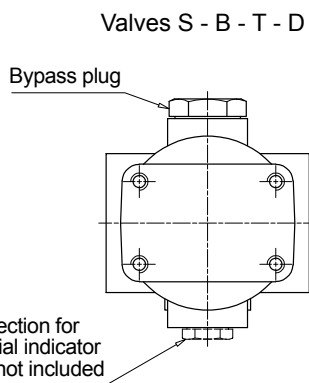
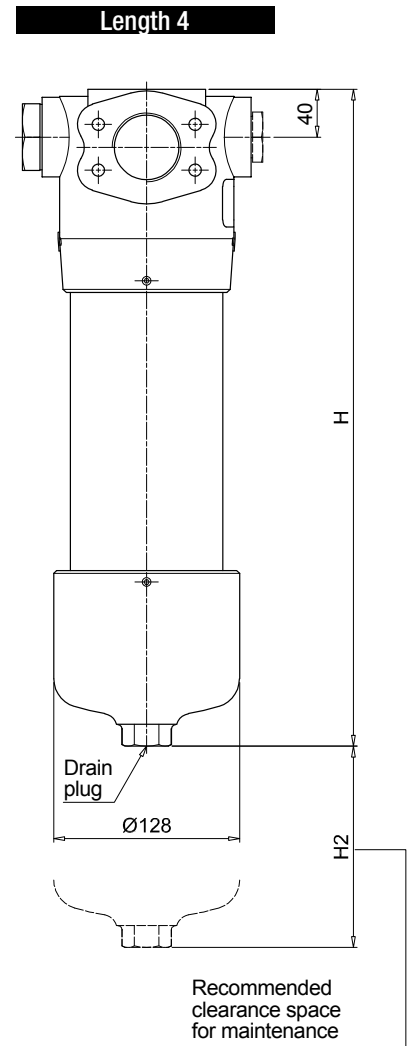
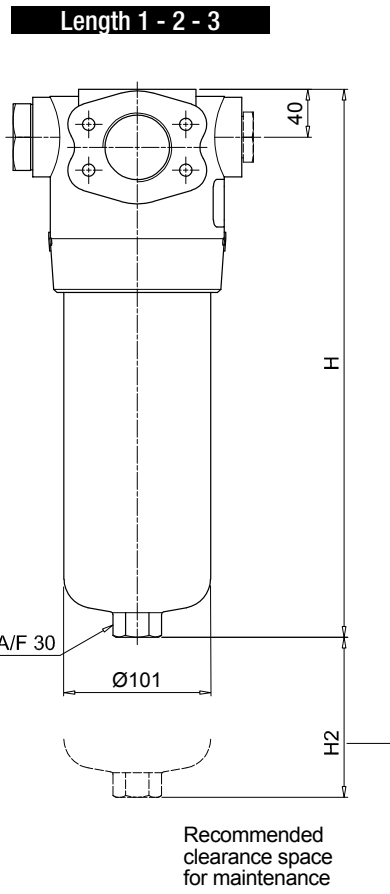
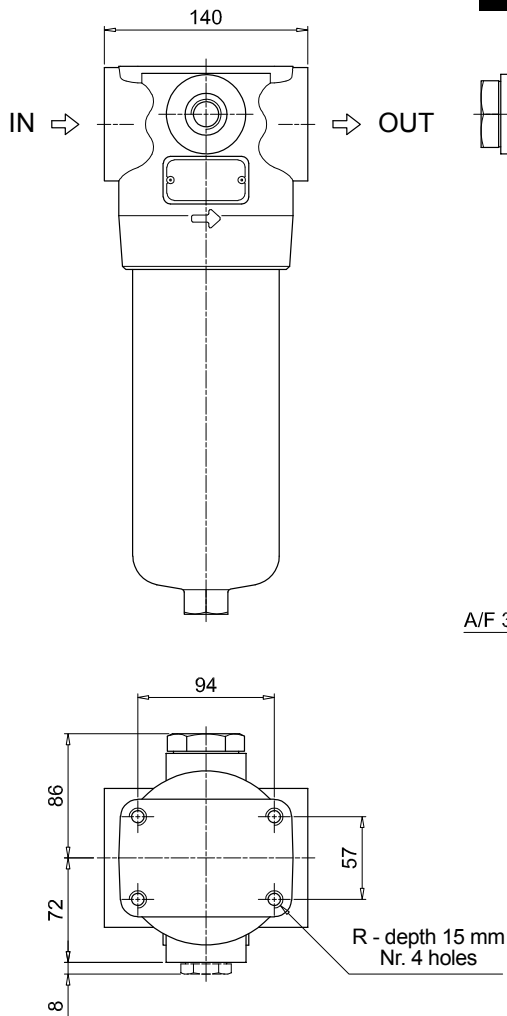
Valves E - C



### FMP135

| Filter length | H [mm] |
|---------------|--------|
| 1             | 221    |
| 2             | 334    |
| 3             | 409    |

| Connections | R        |
|-------------|----------|
| G1-G2       | M10      |
| G3-G4-G5-G6 | 3/8" UNC |
| F1-F2       | M10      |
| F3-F4       | 3/8" UNC |



### FMP320

| Filter length | H [mm] | H2 [mm]       |               |
|---------------|--------|---------------|---------------|
|               |        | Execution P01 | Execution P02 |
| 1             | 263    | 150           | -             |
| 2             | 386    | 150           | -             |
| 3             | 518    | 150           | -             |
| 4             | 671    | 150           | 550           |

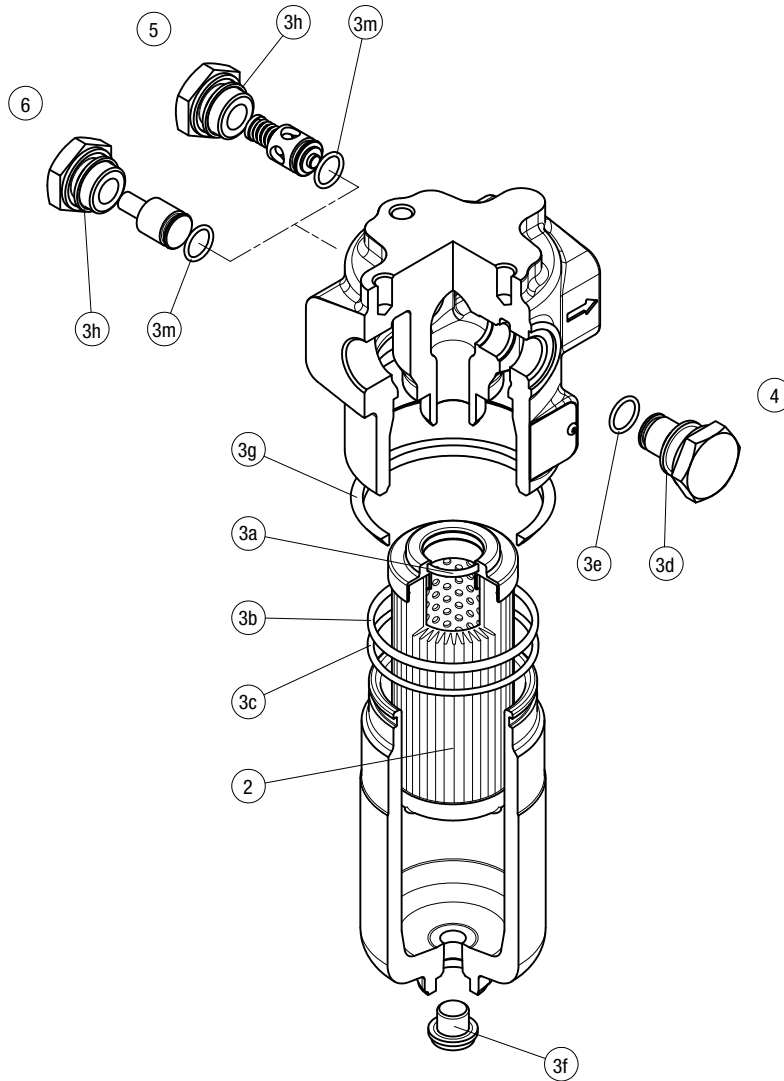
| Connections | R        |
|-------------|----------|
| G1-G2       | M12      |
| G3-G4-G5-G6 | 1/2" UNC |
| F1-F2       | M12      |
| F3-F4       | 1/2" UNC |



# FMP SPARE PARTS

Order number for spare parts

FMP 065 - 135 - 320



| Item:          | Q.ty: 1 pc.     | Q.ty: 1 pc.          |          | Q.ty: 1 pc.               |     | Q.ty: 1 pc.     |          | Q.ty: 1 pc.         |          |
|----------------|-----------------|----------------------|----------|---------------------------|-----|-----------------|----------|---------------------|----------|
| Filter series  | Filter element  | Seal Kit code number |          | Indicator connection plug |     | Bypass assembly |          | Non-bypass assembly |          |
|                |                 | NBR                  | FPM      | NBR                       | FPM | NBR             | FPM      | NBR                 | FPM      |
| <b>FMP 065</b> | See order table | 02050267             | 02050278 |                           |     | 02001312        | 02001385 | 02001314            | 02001386 |
| <b>FMP 135</b> |                 | 02050293             | 02050294 | T2H                       | T2V | 02001312        | 02001385 | 02001314            | 02001386 |
| <b>FMP 320</b> |                 | 02050274             | 02050285 |                           |     | 02001396        | 02001397 | 02001398            | 02001399 |