

FMM series

Maximum working pressure up to 42 MPa (420 bar) - Flow rate up to 300 l/min



Description

Technical data

High Pressure filters

In-line

Maximum working pressure up to 42 MPa (420 bar)

Flow rate up to 300 l/min

FMM is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines.

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

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 250 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
- Low collapse filter element "N", for use with filters 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:

- Agricultural machines
- Mobile machines

Filter housing materials

- Head: Painted cast iron, black RAL 9005
- Housing: Phosphatized steel
- Bypass valve: Steel

Pressure

- Test pressure: 63 MPa (630 bar)
- Burst pressure: 126 MPa (1260 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 42 MPa (420 bar)

Bypass valve

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

Δp element type

- Microfiber filter elements - series N-R: 20 bar
- Microfiber filter elements - series 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

FMM filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

| Filter series | Weights [kg] | | | | | Volumes [dm ³] | | | | | | |
|----------------|--------------|------|------|-------|------|----------------------------|--------|------|------|------|------|------|
| | Length | 1 | 2 | 3 | 4 | 5 | Length | 1 | 2 | 3 | 4 | 5 |
| FMM 050 | | 3.11 | 3.48 | 3.90 | 4.36 | 5.54 | | 0.34 | 0.48 | 0.63 | 0.81 | 1.23 |
| FMM 150 | | 7.50 | 9.50 | 10.90 | - | - | | 0.60 | 1.00 | 1.25 | - | - |

| Filter series | Length | Filter element design - N Series | | | | | | Filter element design - S Series | | | | |
|----------------|----------|----------------------------------|-----|-----|-----|-----|-----|----------------------------------|-----|-----|-----|-----|
| | | A03 | A06 | A10 | A16 | A25 | M25 | A03 | A06 | A10 | A16 | A25 |
| FMM 050 | 1 | 42 | 43 | 79 | 82 | 106 | 147 | 29 | 39 | 57 | 59 | 74 |
| | 2 | 52 | 57 | 85 | 96 | 121 | 149 | 45 | 49 | 76 | 88 | 114 |
| | 3 | 66 | 69 | 97 | 106 | 130 | 150 | 58 | 61 | 89 | 99 | 125 |
| | 4 | 83 | 89 | 113 | 115 | 134 | 152 | 74 | 80 | 106 | 108 | 129 |
| | 5 | 107 | 110 | 130 | 134 | 141 | 154 | 93 | 95 | 111 | 121 | 139 |
| FMM 150 | 1 | 81 | 88 | 156 | 163 | 179 | 295 | | | | | |
| | 2 | 142 | 145 | 227 | 230 | 236 | 312 | | | | | |
| | 3 | 170 | 180 | 242 | 245 | 263 | 315 | | | | | |

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 mm²/s (cSt) and a density of 0.86 kg/dm³.

For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

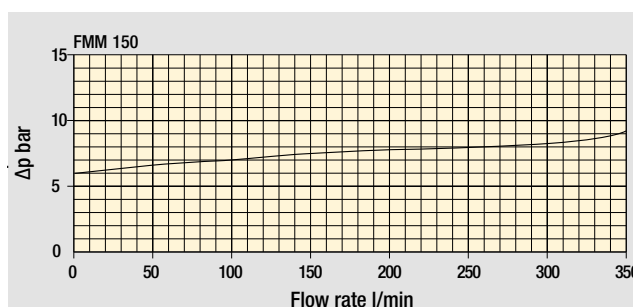
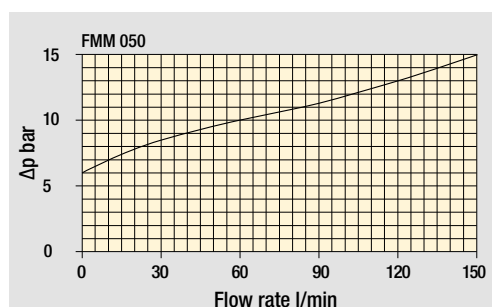
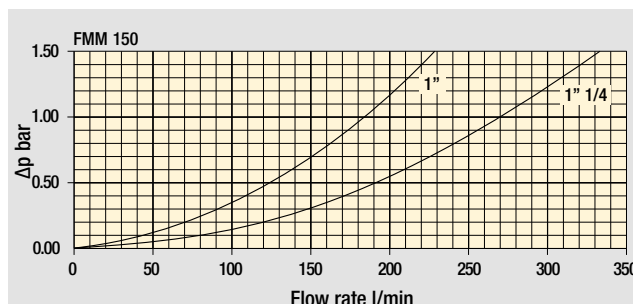
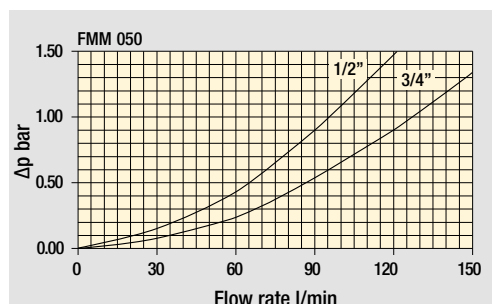
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

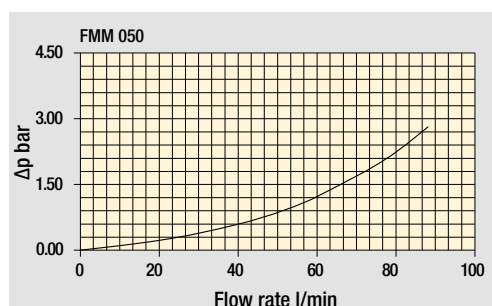
| Filter series | Style S | Style B | Style T | Style D |
|----------------|---------|---------|---------|---------|
| FMM 050 | • | • | • | • |
| FMM 150 | • | • | - | - |

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

Pressure drop
Filter housings
 Δp pressure drop



Bypass valve
pressure drop



Filter housing
with check valve

Valves

The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **FMM050** | **3** | **B** | **A** | **G** | **A10** | **N** | **P01**

FMM050

Length

1 | 2 | 3 | 4 | 5

Valves

- S** Without bypass
- B** With bypass 6 bar
- T** With check valve, without bypass
- D** With check valve, with bypass 6 bar

Seals

- A** NBR
- V** FPM

Connections

- | | |
|-----------------------------|-----------------------------------|
| A M18x1.5 - ISO 6149 | E 1/2" NPT |
| B M22x1.5 - ISO 6149 | F 3/4" NPT |
| C G 1/2" | G SAE 8 - 3/4" - 16 UNF |
| D G 3/4" | H SAE 12 - 1 1/16" - 12 UN |

Filtration rating (filter media)

- | | |
|---------------------------------|-------|
| A03 Inorganic microfiber | 3 µm |
| A06 Inorganic microfiber | 6 µm |
| A10 Inorganic microfiber | 10 µm |
| A16 Inorganic microfiber | 16 µm |
| A25 Inorganic microfiber | 25 µm |
| M25 Wire mesh | 25 µm |

| Element Δp | Valves | | | |
|------------------|--------|---|---|---|
| | S | B | T | D |
| N 20 bar | - | • | - | - |
| R 20 bar | - | - | - | • |
| S 210 bar | • | - | • | - |

Executions

- P01** Upper connection for clogging indicator
- P02** Without connection for clogging indicator
- P03** Frontal connection for clogging indicator
- Pxx** Customized

FILTER ELEMENT

Element series and size Configuration example: **HP050** | **3** | **A10** | **A** | **N** | **P01**

HP050

Element length

1 | 2 | 3 | 4 | 5

Filtration rating (filter media)

- | | |
|---------------------------------|-------|
| A03 Inorganic microfiber | 3 µm |
| A06 Inorganic microfiber | 6 µm |
| A10 Inorganic microfiber | 10 µm |
| A16 Inorganic microfiber | 16 µm |
| A25 Inorganic microfiber | 25 µm |
| M25 Wire mesh | 25 µm |

| Seals | |
|----------|-----|
| A | NBR |
| V | FPM |

| Element Δp | |
|------------|---------|
| N | 20 bar |
| R | 20 bar |
| S | 210 bar |

| Execution | |
|------------|--------------------|
| P01 | MP Filtri standard |
| Pxx | Customized |

CLOGGING INDICATORS

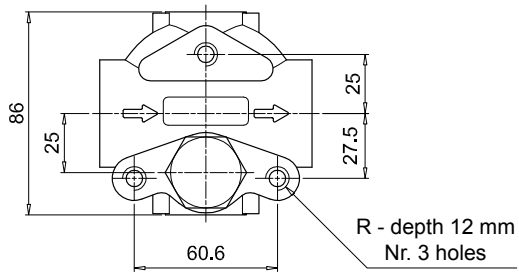
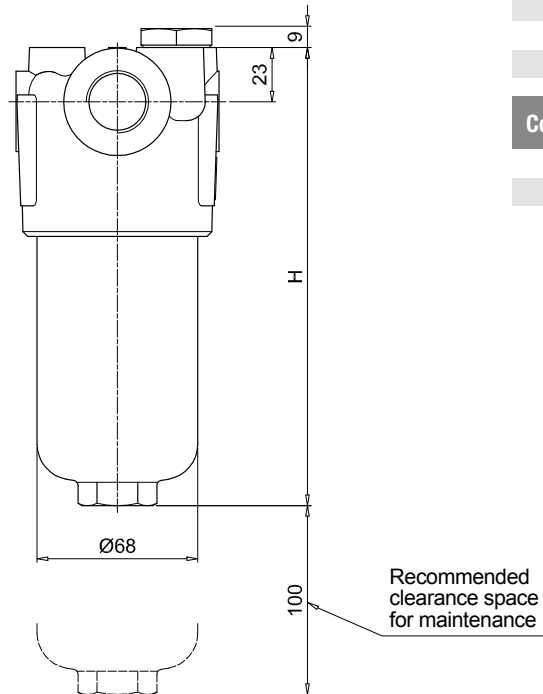
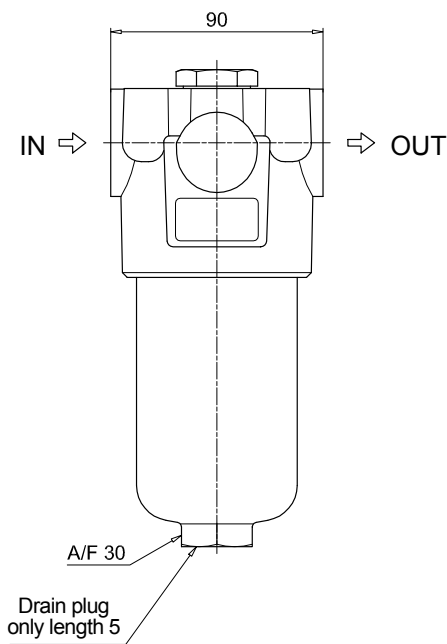
See page 687

- | | |
|---|--|
| DEA Electrical differential indicator | DTA Electrical differential indicator |
| DEM Electrical differential indicator | DVA Visual differential indicator |
| DLA Electrical / visual differential indicator | DVM Visual differential indicator |
| DLE Electrical / visual differential indicator | |

PLUGS

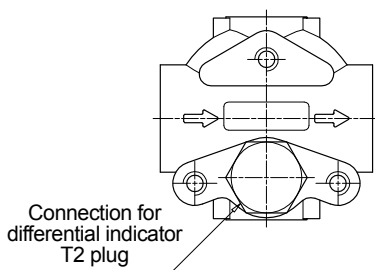
See page 706

- T2** Differential indicator plug

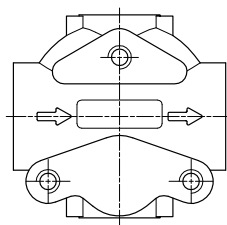


| FMM050 | |
|---------------|----------|
| Filter length | H [mm] |
| 1 | 158 |
| 2 | 195 |
| 3 | 237 |
| 4 | 285 |
| 5 | 407 |
| Connections | R |
| A-B-C-D | M10 |
| E-F-G-H | 3/8" UNC |

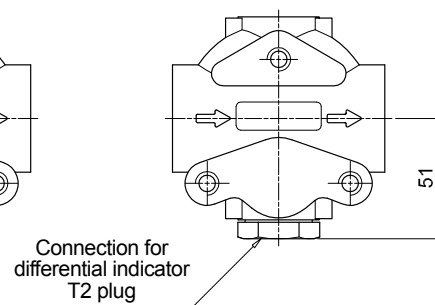
Execution P01



Execution P02



Execution P03



Designation & Ordering code

COMPLETE FILTER

Configuration example: **FMM150** | **2** | **B** | **A** | **D** | **2** | **M25** | **N** | **P01**

Series and size
FMM150

Length
1 | **2** | **3**

Valves
S Without bypass
B With bypass 6 bar

Seals
A NBR
V FPM

Connections
C G 1" **F** 1 1/4" NPT
D G 1 1/4" **G** SAE 16 - 1 5/16" - 12 UN
E 1" NPT **H** SAE 20 - 1 5/8" - 12 UN

Connection for differential indicator
1 Without connection
2 Upper connection
3 Frontal connection

Filtration rating (filter media)

| | | |
|------------|----------------------|-------|
| A03 | Inorganic microfiber | 3 µm |
| A06 | Inorganic microfiber | 6 µm |
| A10 | Inorganic microfiber | 10 µm |
| A16 | Inorganic microfiber | 16 µm |
| A25 | Inorganic microfiber | 25 µm |
| M25 | Wire mesh | 25 µm |

| Element Δp | S | B |
|------------|---------|-----|
| N | 20 bar | - • |
| S | 210 bar | • • |

| Execution | |
|------------|--------------------|
| P01 | MP Filtri standard |
| Pxx | Customized |

FILTER ELEMENT

Configuration example: **HP150** | **2** | **M25** | **A** | **N** | **P01**

Element series and size
HP150

Element length
1 | **2** | **3**

Filtration rating (filter media)

| | | |
|------------|----------------------|-------|
| A03 | Inorganic microfiber | 3 µm |
| A06 | Inorganic microfiber | 6 µm |
| A10 | Inorganic microfiber | 10 µm |
| A16 | Inorganic microfiber | 16 µm |
| A25 | Inorganic microfiber | 25 µm |
| M25 | Wire mesh | 25 µm |

| Seals | |
|----------|-----|
| A | NBR |
| V | FPM |

| Element Δp | |
|------------|---------|
| N | 20 bar |
| S | 210 bar |

| Execution | |
|------------|--------------------|
| P01 | MP Filtri standard |
| Pxx | Customized |

CLOGGING INDICATORS

See page 687

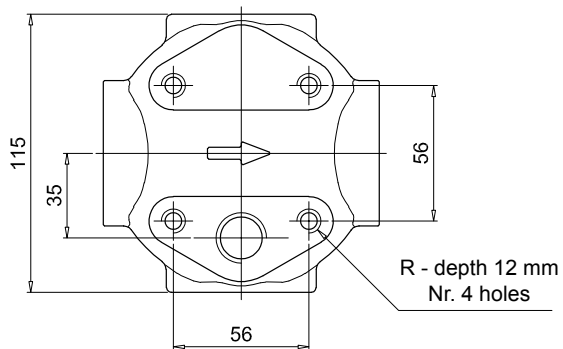
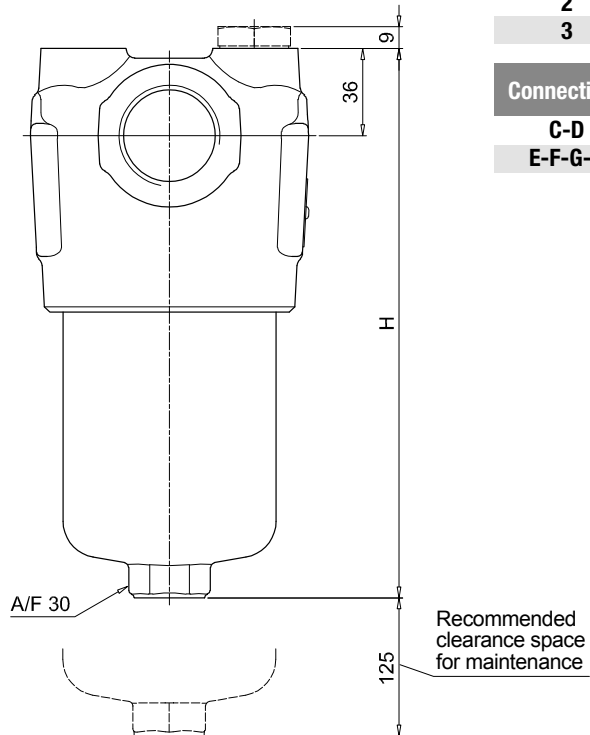
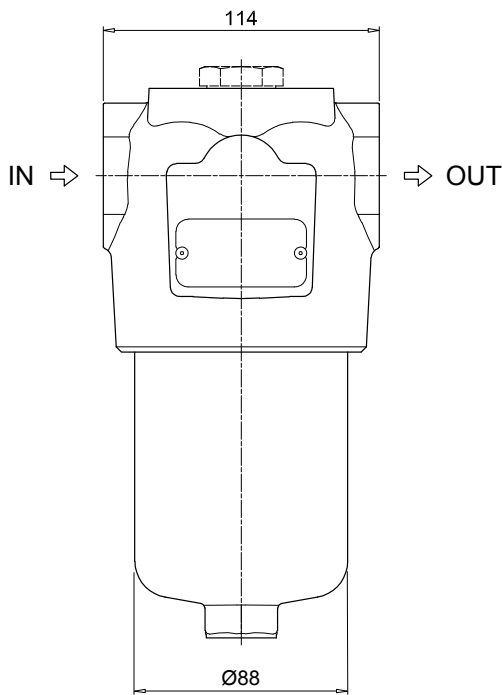
DEA Electrical differential indicator
DEM Electrical differential indicator
DLA Electrical / visual differential indicator
DLE Electrical / visual differential indicator

DTA Electrical differential indicator
DVA Visual differential indicator
DVM Visual differential indicator

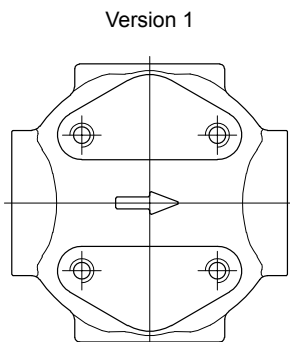
PLUGS

See page 706

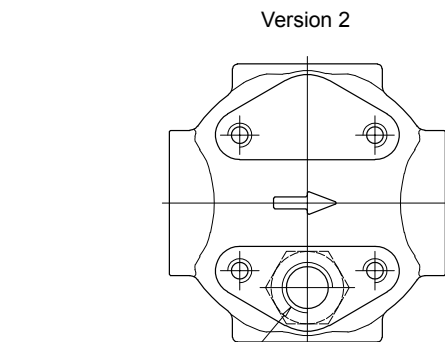
T2 Differential indicator plug (not included)



| FMM150 | |
|----------------|----------|
| Filter length | H [mm] |
| 1 | 230 |
| 2 | 340 |
| 3 | 415 |
| Connections | R |
| C-D | M10 |
| E-F-G-H | 3/8" UNC |

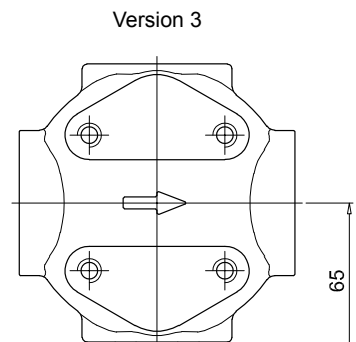


Version 1



Version 2

Connection for differential indicator
T2 plug not included



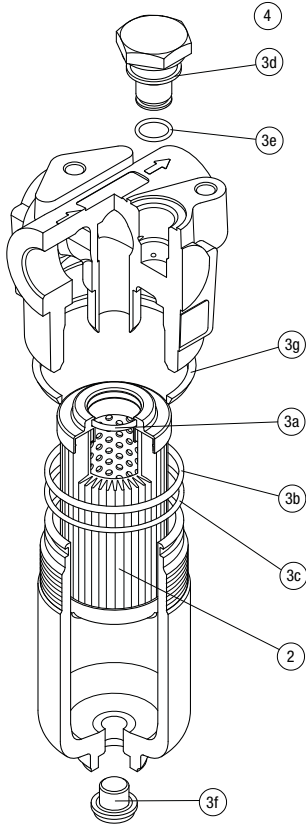
Version 3

Connection for differential indicator
T2 plug not included

FMM SPARE PARTS

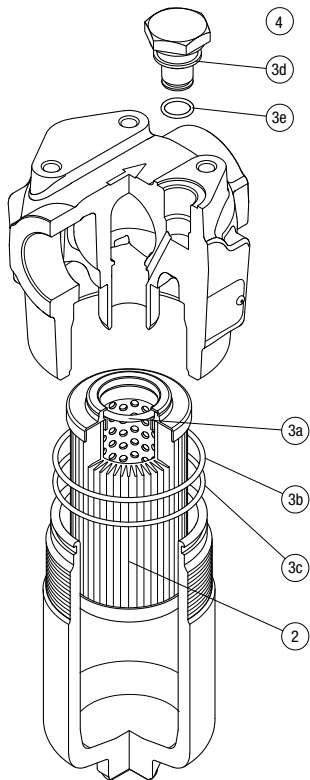
Order number for spare parts

FMM 050



| Item: | Q.ty: 1 pc. 2 | Q.ty: 1 pc. 3 (3a ÷ 3g) | | Q.ty: 1 pc. 4 | |
|----------------|------------------|----------------------------|----------|---------------------------|-----|
| Filter series | Filter element | Seal Kit code number | | Indicator connection plug | |
| | | NBR | FPM | NBR | FPM |
| FMM 050 | See order table | 02050314 | 02050315 | T2H | T2V |

FMM 150



| Item: | Q.ty: 1 pc. 2 | Q.ty: 1 pc. 3 (3a ÷ 3e) | | Q.ty: 1 pc. 4 | |
|----------------|------------------|----------------------------|----------|---------------------------|-----|
| Filter series | Filter element | Seal Kit code number | | Indicator connection plug | |
| | | NBR | FPM | NBR | FPM |
| FMM 150 | See order table | 02050731 | 02050732 | T2H | T2V |