



## THE X CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.

Quality and efficiency are fundamental for MP Filtri:

this exclusive new filter element possesses polygon shape geometry and specific seal that ensures only original spare parts can be used - ensuring correct operation and higher system reliability.

## FMMX series

with  HPX Filter Element



- ◆ **Protects the machine from improper use of non-original products.**
- ◆ **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.



The products identified as FMMX series are protected by:

- ◆ Italian Patent n° 102014902261205
- ◆ Canadian Patent n° 2,937,258
- ◆ European Patent n° 3 124 092 B1
- ◆ US Patent n° 20170030384 A1

TOGETHER WITH  , AS OPTION, FMMX SERIES CAN BE PROVIDED WITH

**zerospark®**  
THE ANTI-STATIC FILTERS

## THE Z CONCEPT FOR OUR FILTERS

Zerospark® is a specialist solution designed to solve the problem of electrostatic discharge inside hydraulic filters. Caused by the electrical charge build-up due to the passage of oil through the filters, this can result in damage to filter elements, oils and circuit components. It can even cause fire hazards in environments where flammable materials are present.



# FMMX series

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



## INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



FMMX050



FMMX150

Please scan or click the QR codes  
to get updated electronic version  
of the related document.



*For all the QR codes: Scan or click me!*

## Description

### High Pressure filters

#### In-line

**Maximum working pressure up to 42 MPa (420 bar)**

**Flow rate up to 300 l/min**

FMMX 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 300 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
- Visual, electrical and electronic differential clogging indicators
- MYclean interface connection for the filter element, to protect the product against non-original spare parts.
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

#### Common applications:

- Agricultural machines
- Mobile machines

## Technical data

### Filter housing materials

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

### Pressure

- Test pressure: 63 MPa (630 bar)
- Min. 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 0.6 MPa (6 bar)  $\pm 10\%$
- Other opening pressures on request.

### Filter element features

| Filter<br>FMMX                                                                                                              |                                       | Filter element<br>HPX |            |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------|------------|
| $\Delta p$ Element type                                                                                                     |                                       |                       |            |
| Element media                                                                                                               | Construction                          | $\Delta p$ Series     | $\Delta p$ |
| A - Microfiber                                                                                                              | Standard                              | N                     | 20 bar     |
| A - Microfiber                                                                                                              | High $\Delta p$ with external support | S                     | 210 bar    |
| M - Wire mesh                                                                                                               | Standard                              | N                     | 20 bar     |
| <i>Please see ordering code tables to check element <math>\Delta p</math> series availability based on filter features.</i> |                                       |                       |            |
| <b>Flow direction through the filter element:</b>                                                                           |                                       |                       |            |
| 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

FMMX 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    | 5    | Length                     | 1    | 2    | 3    | 4    | 5    |
| <b>FMMX 050</b> |              | 3.11 | 3.48 | 3.90  | 4.36 | 5.54 |                            | 0.34 | 0.48 | 0.63 | 0.81 | 1.23 |
| <b>FMMX 150</b> |              | 7.50 | 9.50 | 10.90 | -    | -    |                            | 0.60 | 1.00 | 1.25 | -    | -    |

Flow rates [l/min]

| Filter series | Length | Filter element design - N Series |     |     |     |     |     | Filter element design - S Series |     |     |     |     |
|---------------|--------|----------------------------------|-----|-----|-----|-----|-----|----------------------------------|-----|-----|-----|-----|
|               |        | A03                              | A06 | A10 | A16 | A25 | M25 | A03                              | A06 | A10 | A16 | A25 |
| FMMX 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 |
| FMMX 150      | 1      | 81                               | 88  | 156 | 163 | 179 | 295 | 58                               | 67  | 128 | 128 | 158 |
|               | 2      | 142                              | 145 | 227 | 230 | 236 | 312 | 119                              | 137 | 212 | 212 | 207 |
|               | 3      | 170                              | 180 | 242 | 245 | 263 | 315 | 138                              | 164 | 211 | 224 | 239 |

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

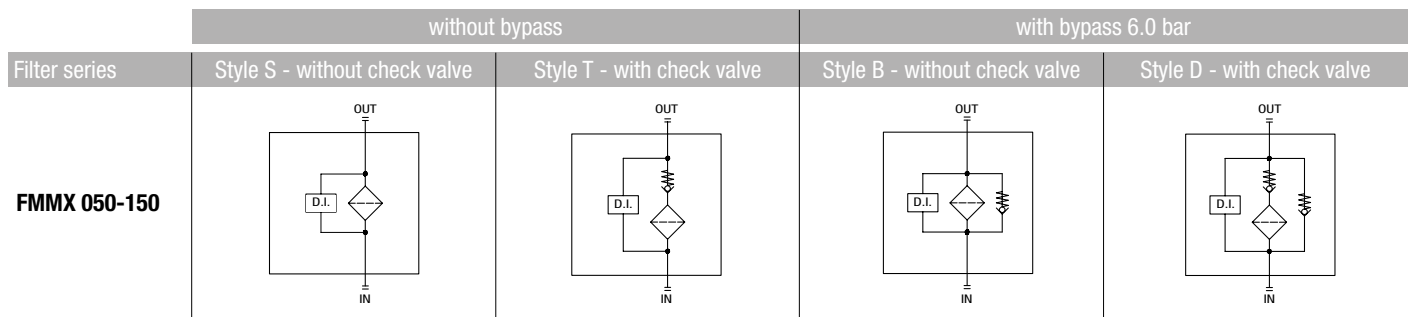
The reference fluid has a kinematic viscosity of 30 mm<sup>2</sup>/s (cSt) and a density of 0.86 kg/dm<sup>3</sup>.

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.

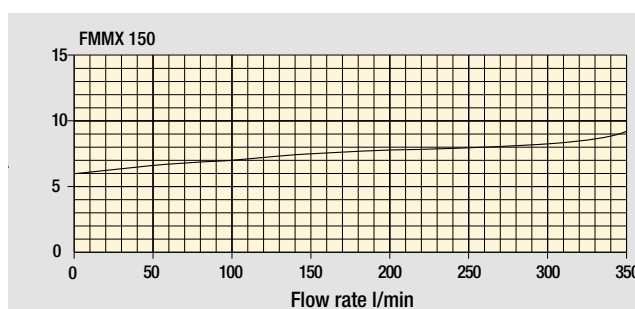
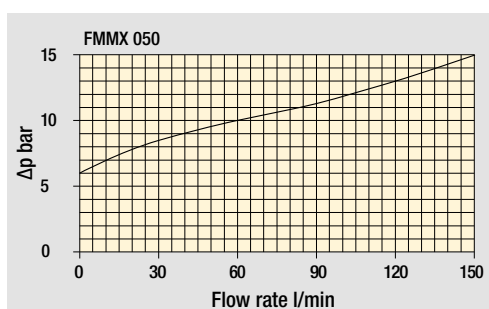
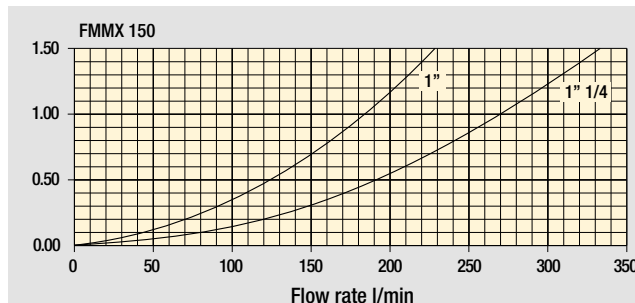
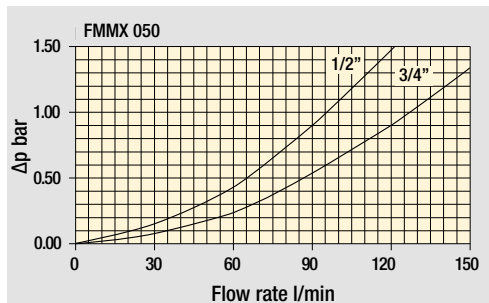
Please, contact our Sales Department for further additional information.

## Hydraulic diagram

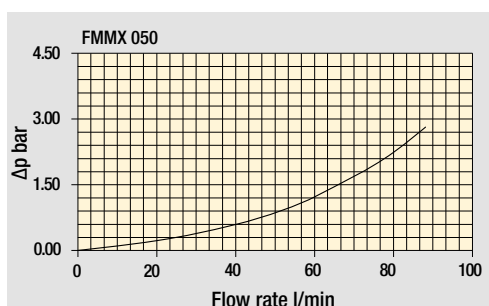


## Pressure drop

Filter housings  
 $\Delta p$  pressure drop



Bypass valve  
pressure drop



Filter housing with check valve

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.

## Designation & Ordering code

### COMPLETE FILTER

Series and size Configuration example: **FMMX050** **3** **B** **A** **G** **A10** **N** **P01**

**FMMX050** Filter featuring **MYCLEAN** Filter Element

Length **1** **2** **3** **4** **5**

Valves (see page 531)  
**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 **A16** Inorganic microfiber 16 µm  
**A06** Inorganic microfiber 6 µm **A25** Inorganic microfiber 25 µm  
**A10** Inorganic microfiber 10 µm **M25** Wire mesh 25 µm

| Element Δp       | S | B | T | D |
|------------------|---|---|---|---|
| <b>N</b> 20 bar  | - | • | - | • |
| <b>S</b> 210 bar | • | - | • | - |

| Executions |                           |                                           |
|------------|---------------------------|-------------------------------------------|
| Base       | zero <span>spark</span> ® |                                           |
| <b>P01</b> | <b>Z01 *</b>              | Upper connection for clogging indicator   |
| <b>P02</b> | <b>Z02 *</b>              | Without connection for clogging indicator |
| <b>P03</b> | <b>Z03 *</b>              | Frontal connection for clogging indicator |
| <b>Pxx</b> | <b>Zxx *</b>              | Customized                                |

\* Not for Mxx filter media

### FILTER ELEMENT

Element series and size Configuration example: **HPX050** **3** **A10** **A** **N** **P01**

**HPX050** Filter Element with **MYCLEAN** feature

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  
**S** 210 bar

Executions  

| Base       | zero <span>spark</span> ® |                    |
|------------|---------------------------|--------------------|
| <b>P01</b> | <b>Z01 *</b>              | MP Filtri standard |
| <b>Pxx</b> | <b>Zxx *</b>              | Customized         |

\* Not for Mxx filter media

### CLOGGING INDICATORS

See page 786

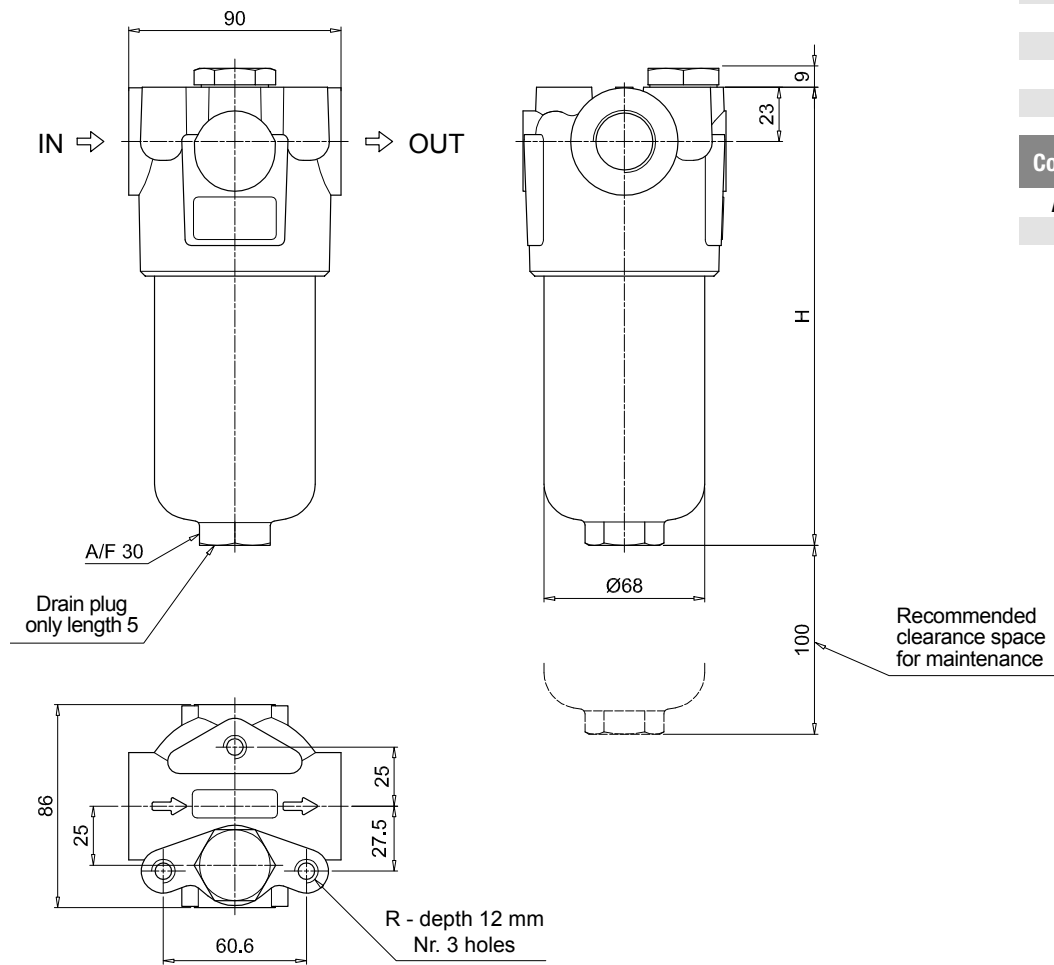
|                                                                |  |
|----------------------------------------------------------------|--|
| <b>DEA</b> Electrical differential pressure indicator          |  |
| <b>DEM</b> Electrical differential pressure indicator          |  |
| <b>DEU</b> Electrical differential pressure indicator          |  |
| <b>DLA</b> Electrical / visual differential pressure indicator |  |
| <b>DLE</b> Electrical / visual differential pressure indicator |  |

|                                                                |  |
|----------------------------------------------------------------|--|
| <b>DTA</b> Electronic differential pressure indicator          |  |
| <b>DTI</b> I-O Link electronic differential pressure indicator |  |
| <b>DVA</b> Visual differential pressure indicator              |  |
| <b>DVM</b> Visual differential pressure indicator              |  |

### PLUGS

See page 807

**T2** Plug



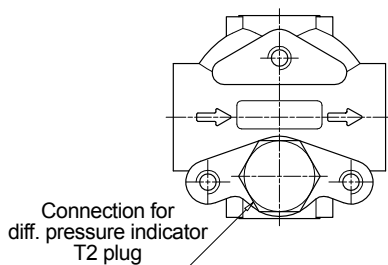
### FMMX050

| Filter length | H [mm] |
|---------------|--------|
| 1             | 158    |
| 2             | 195    |
| 3             | 237    |
| 4             | 285    |
| 5             | 407    |

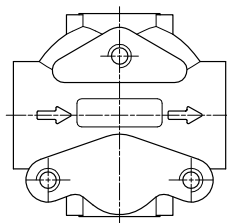
  

| Connections | R        |
|-------------|----------|
| A-B-C-D     | M10      |
| E-F-G-H     | 3/8" UNC |

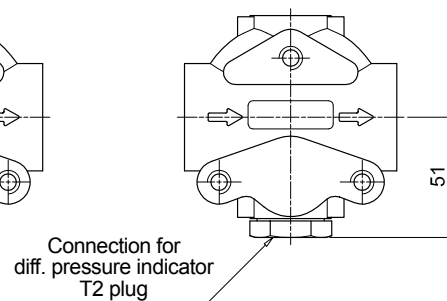
Execution P01



Execution P02



Execution P03



## Designation & Ordering code

### COMPLETE FILTER

Series and size Configuration example: **FMMX150** **2** **B** **A** **D** **2** **M25** **N** **P01**

**FMMX150** Filter featuring **MYCLEAN** Filter Element

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

Valves (see page 531)  
**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  
**C** G1" **F** 1 1/4" NPT  
**D** G1 1/4" **G** SAE 16 - 1 5/16" - 12 UN  
**E** 1" NPT **H** SAE 20 - 1 5/8" - 12 UN

Connections 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 | T | D |
|------------------|---|---|---|---|
| <b>N</b> 20 bar  | - | • | - | • |
| <b>S</b> 210 bar | • | - | • | - |

Executions  

| Base       | zero <span style="color: orange;">spark</span> |                    |
|------------|------------------------------------------------|--------------------|
| <b>P01</b> | <b>Z01 *</b>                                   | MP Filtri standard |
| <b>Pxx</b> | <b>Zxx *</b>                                   | Customized         |

\* Not for Mxx filter media

### FILTER ELEMENT

Element series and size Configuration example: **HPX150** **3** **A10** **A** **N** **P01**

**HPX150** Filter Element with **MYCLEAN** feature

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

Executions  

| Base       | zero <span style="color: orange;">spark</span> |                    |
|------------|------------------------------------------------|--------------------|
| <b>P01</b> | <b>Z01 *</b>                                   | MP Filtri standard |
| <b>Pxx</b> | <b>Zxx *</b>                                   | Customized         |

\* Not for Mxx filter media

### CLOGGING INDICATORS

See page 786

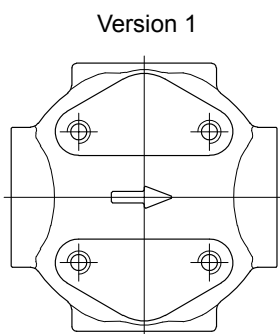
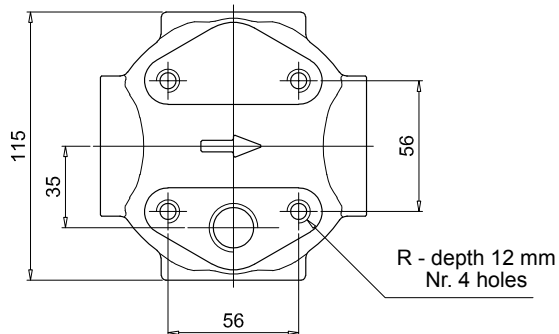
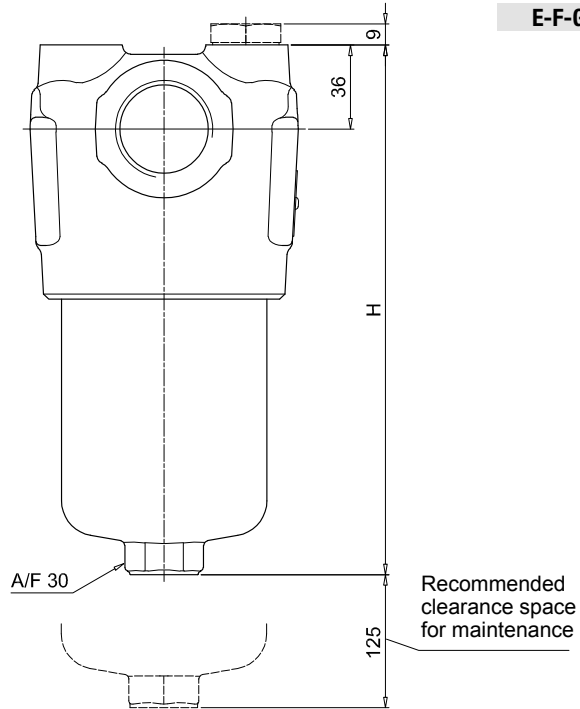
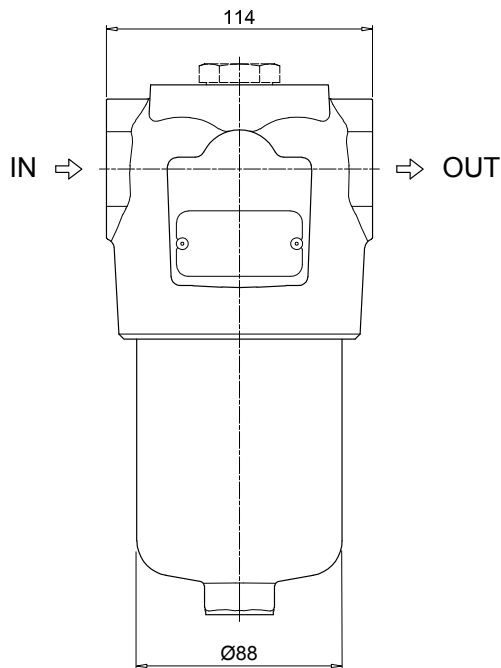
|                                                                |
|----------------------------------------------------------------|
| <b>DEA</b> Electrical differential pressure indicator          |
| <b>DEM</b> Electrical differential pressure indicator          |
| <b>DEU</b> Electrical differential pressure indicator          |
| <b>DLA</b> Electrical / visual differential pressure indicator |
| <b>DLE</b> Electrical / visual differential pressure indicator |

|                                                                |
|----------------------------------------------------------------|
| <b>DTA</b> Electronic differential pressure indicator          |
| <b>DTI</b> I-O Link electronic differential pressure indicator |
| <b>DVA</b> Visual differential pressure indicator              |
| <b>DVM</b> Visual differential pressure indicator              |

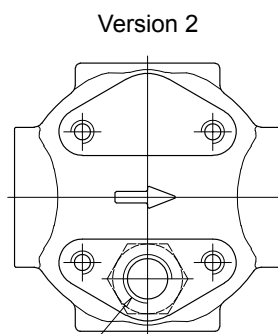
### PLUGS

See page 807

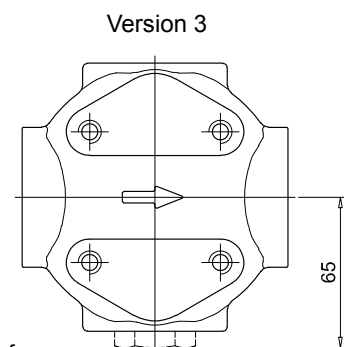
**T2** Plug



Connection for differential indicator  
T2 plug not included



Connection for differential indicator  
T2 plug not included



### FMMX150

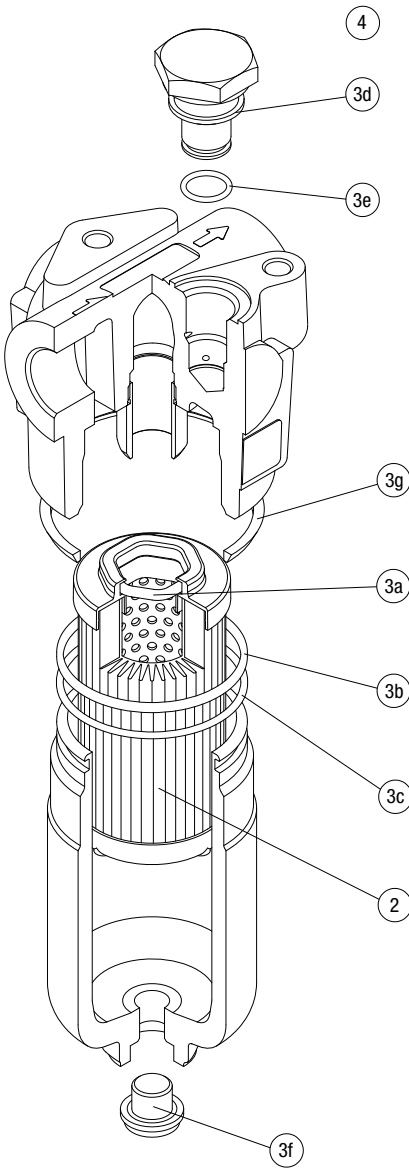
| Filter length | H [mm] |
|---------------|--------|
| 1             | 230    |
| 2             | 340    |
| 3             | 415    |

| Connections | R        |
|-------------|----------|
| C-D         | M10      |
| E-F-G-H     | 3/8" UNC |

# FMMX SPARE PARTS

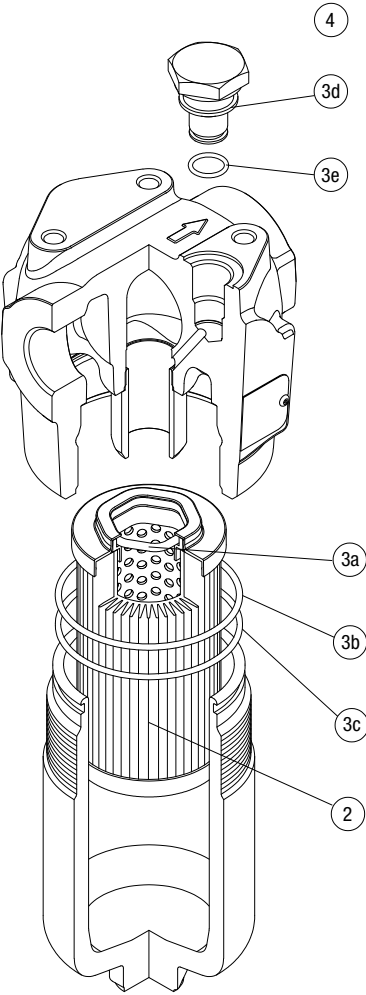
Order number for spare parts

## FMMX 050



| Item:         | Q.ty: 1 pc.     | Q.ty: 1 pc.          | Q.ty: 1 pc.               |
|---------------|-----------------|----------------------|---------------------------|
| Filter series | Filter element  | Seal Kit code number | Indicator connection plug |
| FMMX 050      | See order table | NBR                  | NBR                       |
|               |                 | FPM                  | FPM                       |
|               |                 | 02050864             | 02050865                  |
|               |                 | T2H                  | T2V                       |

FMMX 150



| Item:         |                 | Q.ty: 1 pc.          |          | Q.ty: 1 pc.               |     | Q.ty: 1 pc. |  |
|---------------|-----------------|----------------------|----------|---------------------------|-----|-------------|--|
|               |                 | 2                    |          | 3 (3a ÷ 3e)               |     | 4           |  |
| Filter series | Filter element  | Seal Kit code number |          | Indicator connection plug |     |             |  |
|               |                 | NBR                  | FPM      | NBR                       | FPM |             |  |
| FMMX 150      | See order table | 02050868             | 02050869 | T2H                       | T2V |             |  |