



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 MYCLEAN 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 MYCLEAN, 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



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## Description

## Technical data

### 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

#### 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: 20 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

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					
		A03	A06	A10	A16	A25	M25
<b>FMMX 050</b>	<b>1</b>	42	43	79	82	106	147
	<b>2</b>	52	57	85	96	121	149
	<b>3</b>	66	69	97	106	130	150
	<b>4</b>	83	89	113	115	134	152
	<b>5</b>	107	110	130	134	141	154
<b>FMMX 150</b>	<b>1</b>	81	88	156	163	179	295
	<b>2</b>	142	145	227	230	236	312
	<b>3</b>	170	180	242	245	263	315

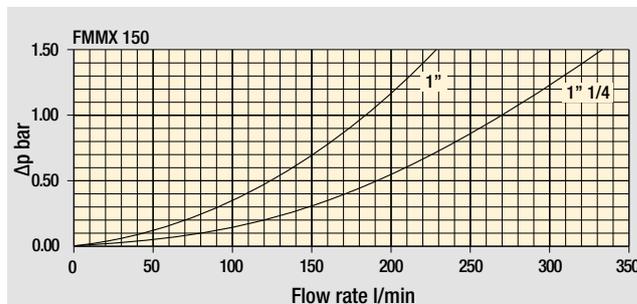
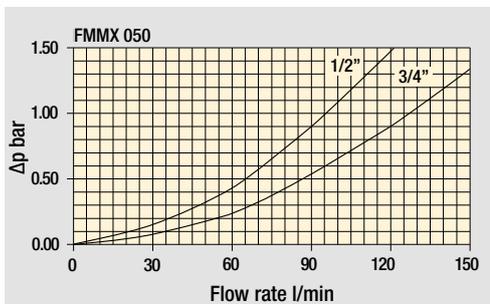
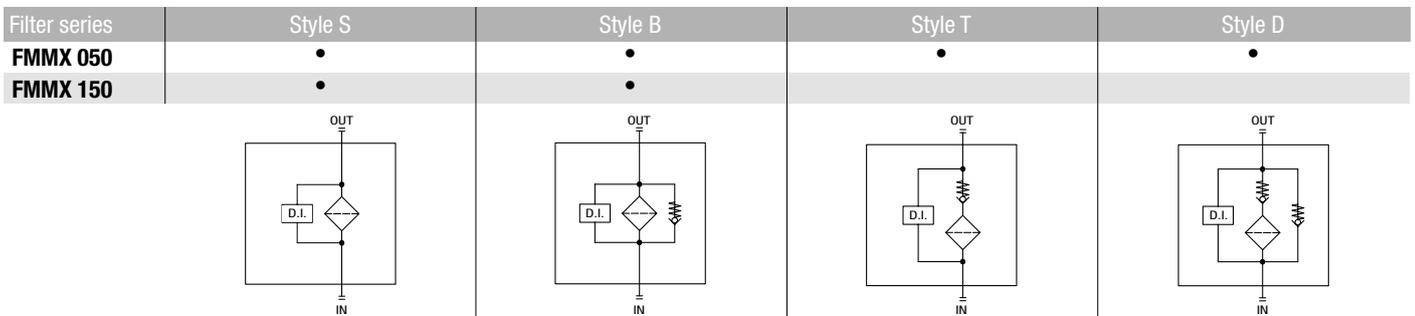
### Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

The reference fluid has a kinematic viscosity of 30 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).

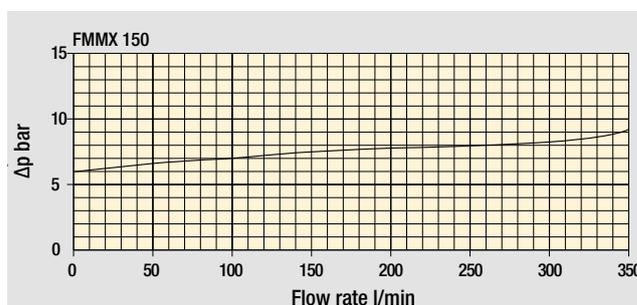
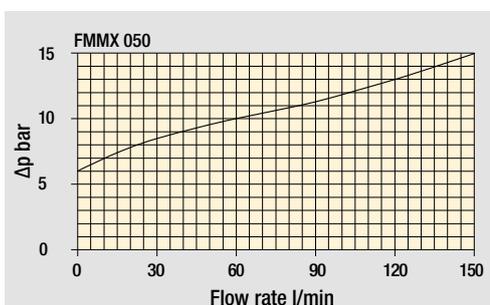
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

### Hydraulic symbols

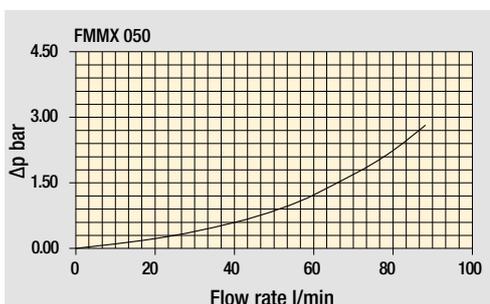


### Pressure drop

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  
**B** With bypass 6 bar  
**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  
**N** 20 bar

Executions		
Base	zero <span style="color:blue">spark</span> <sup>+</sup>	
<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

Executions		
Base	zero <span style="color:blue">spark</span> <sup>+</sup>	
<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 727

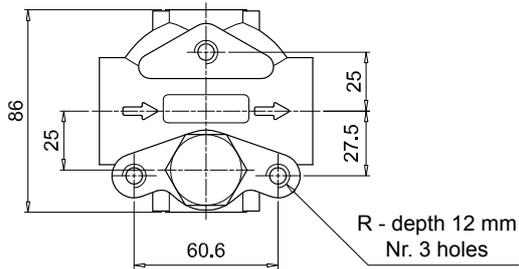
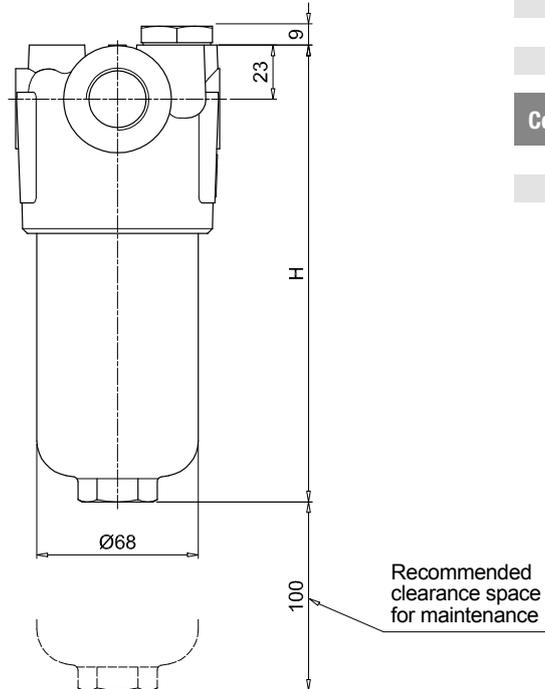
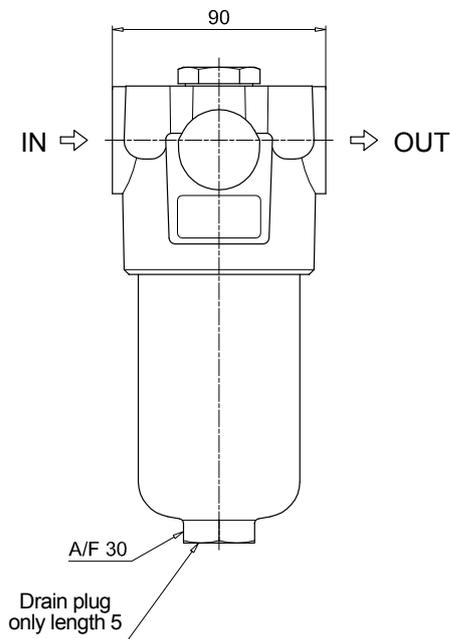
**DEA** Electrical differential pressure indicator  
**DEM** Electrical differential pressure indicator  
**DEU** Electrical differential pressure indicator  
**DLA** Electrical / visual differential pressure indicator

**DLE** Electrical / visual differential pressure indicator  
**DTA** Electronic differential pressure indicator  
**DVA** Visual differential pressure indicator  
**DVM** Visual differential pressure indicator

### PLUGS

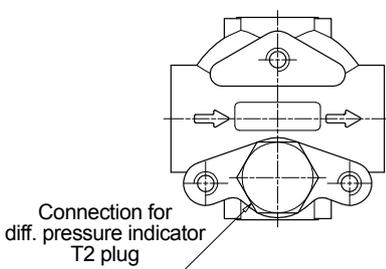
See page 747

**T2** Plug

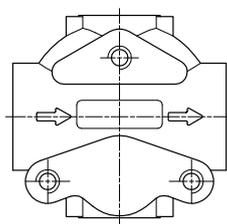


FMMX050	
Filter length	H [mm]
1	158
2	195
3	237
4	285
5	407
Connections	R
A-B-C-D	M10
E-F-G-H	3/8" UNC

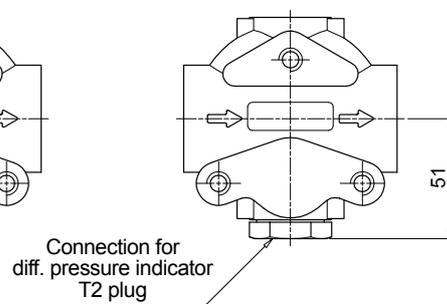
Execution P01



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

**S** Without bypass      **B** 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)

<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

**N** 20 bar

#### Executions

Base	<b>zere<span style="color: orange;">spark</span></b>	
<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

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

Configuration example: **HPX150** **3** **A10** **A** **N** **P01**

#### Element length

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

#### 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

**A** NBR  
**V** FPM

#### Element Δp

**N** 20 bar

#### Executions

Base	<b>zere<span style="color: orange;">spark</span></b>	
<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 727

**DEA** Electrical differential pressure indicator

**DEM** Electrical differential pressure indicator

**DEU** Electrical differential pressure indicator

**DLA** Electrical / visual differential pressure indicator

**DLE** Electrical / visual differential pressure indicator

**DTA** Electronic differential pressure indicator

**DVA** Visual differential pressure indicator

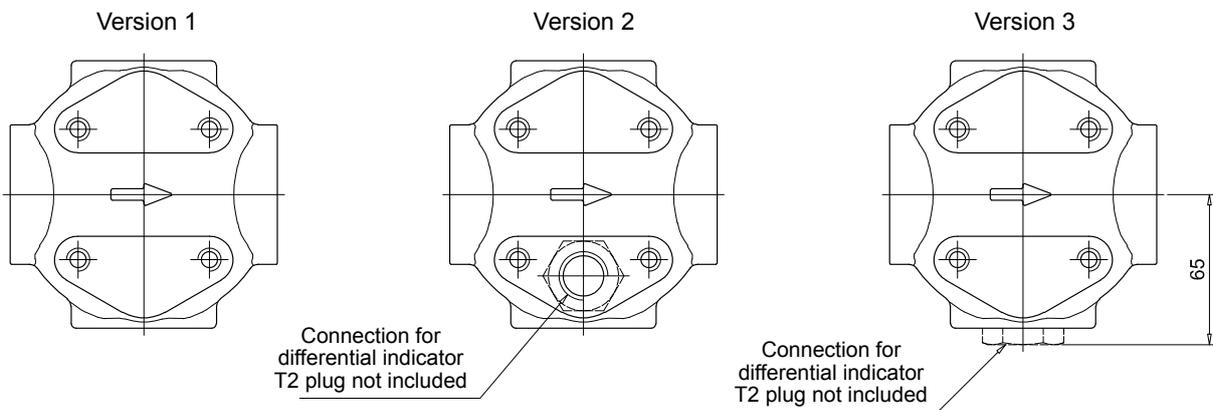
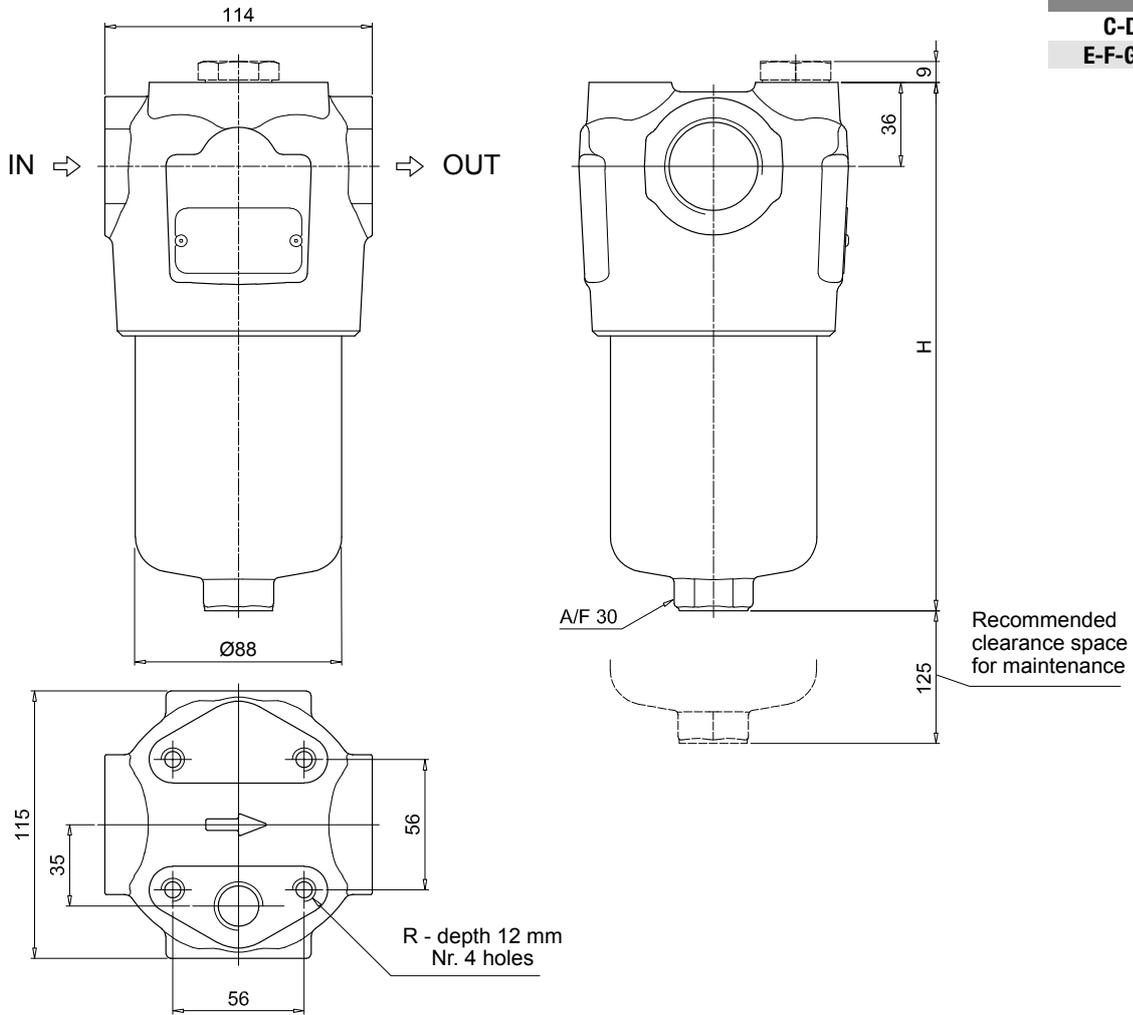
**DVM** Visual differential pressure indicator

### PLUGS

See page 747

**T2** Plug

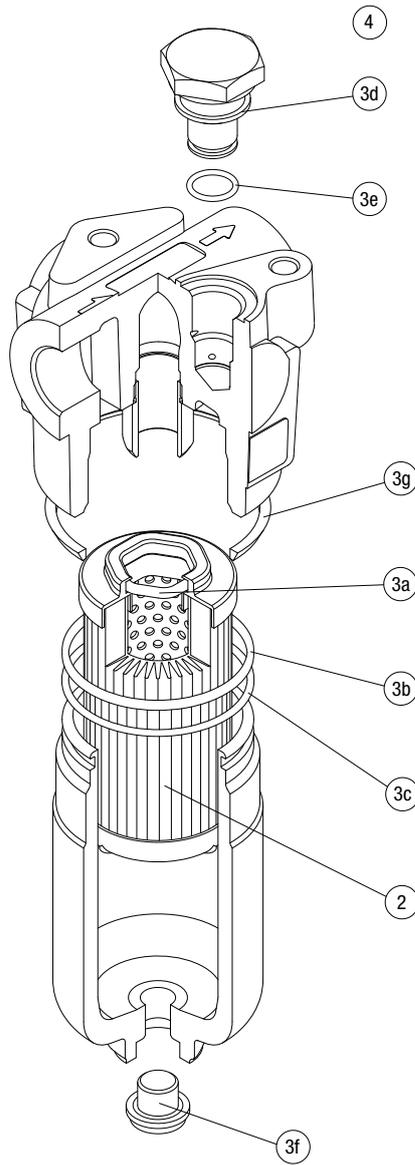
FMMX150	
Filter length	H [mm]
<b>1</b>	230
<b>2</b>	340
<b>3</b>	415
Connections	R
<b>C-D</b>	M10
<b>E-F-G-H</b>	3/8" UNC



# FMMX SPARE PARTS

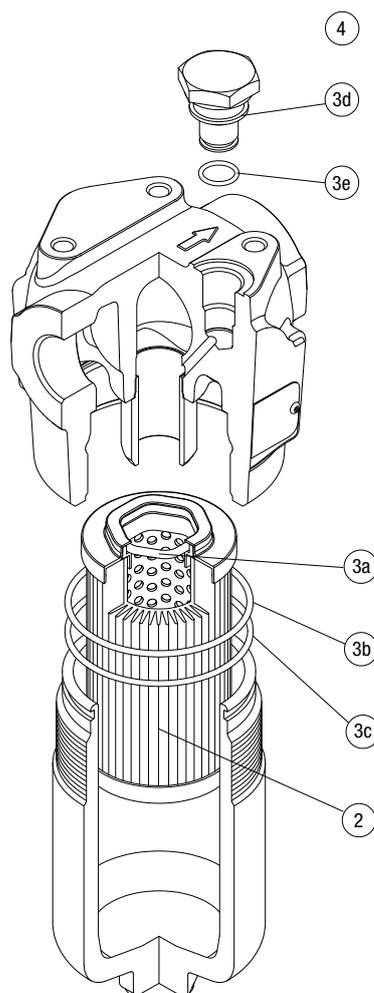
Order number for spare parts

## 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	FPM	NBR	FPM
		02050864	02050865	T2H	T2V

## FMMX 150



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 150	See order table	NBR	FPM	NBR	FPM
		02050868	02050869	T2H	T2V

## DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1: DE M 12 H F 50 P01									
<b>DE</b> Electrical differential pressure indicator	Configuration example 2: DE U 50 V A 50 P01 UL									
<b>DL</b> Electrical/Visual differential pressure indicator	Configuration example 3: DL E 20 V A 71 P01									
<b>DT</b> Electronic differential pressure indicator	Configuration example 4: DT A 50 H F 70 P01									
<b>DV</b> Visual differential pressure indicator	Configuration example 5: DV M 70 V P01									

Type	DE	DL	DT	DV						
<b>A</b> Standard type	•	•	•	<b>A</b> With automatic reset						
<b>M</b> With wired electrical connection	•	-	-	<b>M</b> With manual reset						
<b>U</b> Standard type 210 bar, UL certified	•	-	-							
<b>E</b> For high power supply	-	•	-							

Pressure setting	DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM
<b>50</b> 5.0 bar	•	•	•	•	•	•	•	•
<b>70</b> 7.0 bar	•	•	•	•	•	•	•	•
<b>95</b> 9.5 bar	•	•	-	•	•	•	•	•

Seals	DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM
<b>H</b> HNBR	•	•	-	•	•	•	•	•
<b>V</b> FPM	•	•	•	•	•	•	•	•

Thermostat	DEA	DEM	DEU	DLA	DLE	DT
<b>A</b> Without thermostat	•	•	•	•	•	-
<b>F</b> With thermostat	-	•	-	-	•	•

Electrical connections	DEA	DEM	DEU	DLA	DLE	DT
<b>10</b> Connection AMP Superseal series 1.5	-	•	-	-	-	-
<b>20</b> Connection AMP Timer Junior	-	•	-	-	-	-
<b>30</b> Connection Deutsch DT-04-2-P	-	•	-	-	-	-
<b>35</b> Connection Deutsch DT-04-3-P	-	•	-	-	-	-
<b>50</b> Connection EN 175301-803	•	-	•	-	•	-
<b>51</b> Connection EN 175301-803, transparent base with lamps 24 Vdc	-	-	-	•	-	-
<b>52</b> Connection EN 175301-803, transparent base with lamps 110 Vdc	-	-	-	•	-	-
<b>70</b> Connection IEC 61076-2-101 D (M12)	-	-	-	-	-	•
<b>71</b> Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	•	-	-

Option
<b>P01</b> MP Filtri standard
<b>Pxx</b> Customized

Certifications	DEU	OTHERS
Without	-	•
<b>UL</b> UL certification	•	-

## PLUGS

Series	Configuration example	
<b>T2</b> Plug	T2	H

Seals
<b>H</b> HNBR
<b>V</b> FPM