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FMMX series

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



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.

+

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 ATEX series 

with  + **zerospark**[®]

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

Description

Technical data

Filters for potentially explosive atmosphere

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 with external support "N", for filter element protection against the back pressure caused by the check valve in filters provided with the 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

Common applications:

- Agricultural machines
- Mobile machines

Filter with:

NBR seal in configuration **zerospark+**



II 3G Ex h IIC T6 Gc X
II 3D Ex h IIIC T85°C Dc X

FPM seal in configuration

zerospark+



II 3G Ex h IIC T6... T4 Gc X
II 3D Ex h IIIC T85°C...T115°C Dc X

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

Connections

In-line Inlet/Outlet

Note

FMMX filters are provided for vertical mounting

Temperature

Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Weights [kg] and volumes [dm³]

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

GENERAL INFORMATION FMMX

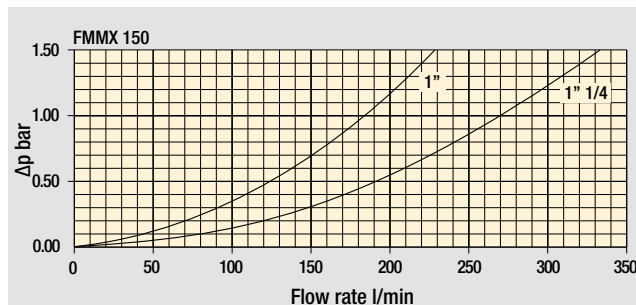
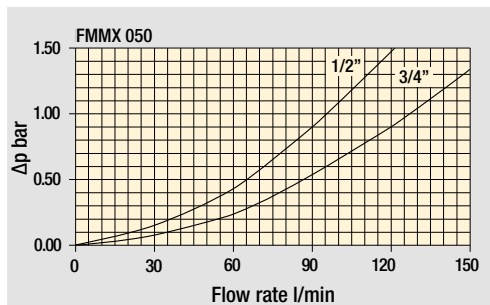
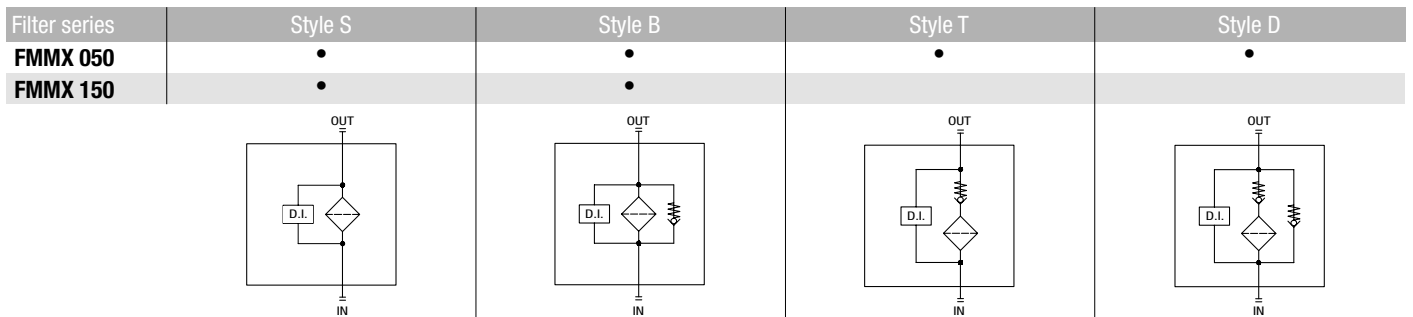
Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25
FMMX 050	1	42	43	79	82	106	147
	2	52	57	85	96	121	149
	3	66	69	97	106	130	150
	4	83	89	113	115	134	152
	5	107	110	130	134	141	154
FMMX 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.

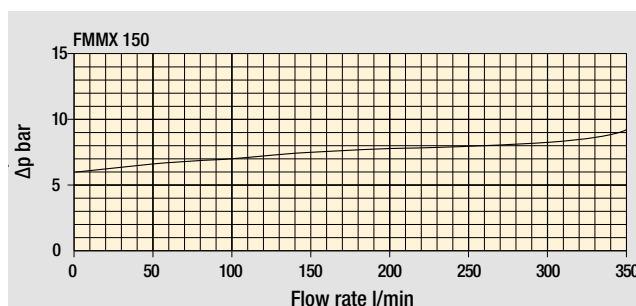
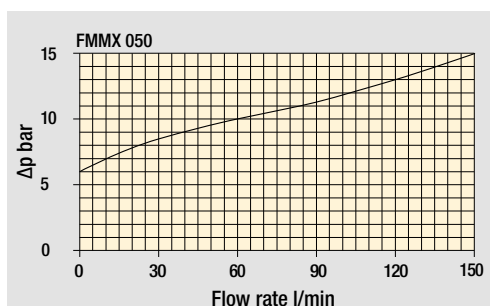
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

Hydraulic symbols

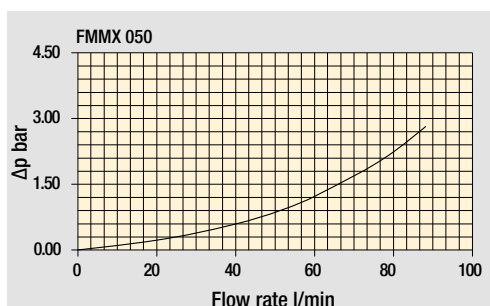


Pressure drop

Filter housings
 Δp pressure drop



Bypass valve
pressure drop



Filter housing
with check valve

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

FMMX FMMX050

Designation & Ordering code

COMPLETE FILTER

Configuration example: **FMMX050** | **3** | **B** | **A** | **G** | **A10** | **N** | **Z01** | **EX**

Series and size
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

Element Δp
N 20 bar

Executions
zerospark
Z01 Upper connection for clogging indicator
Z02 Without connection for clogging indicator
Z03 Frontal connection for clogging indicator
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Configuration example: **HPX050** | **3** | **A10** | **A** | **N** | **Z01**

Element series and size
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

Seals
A NBR
V FPM

Element Δp
N 20 bar

Execution
zerospark
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

See page 729

DEH Electrical differential pressure indicator 420 bar

DVM Visual differential pressure indicator

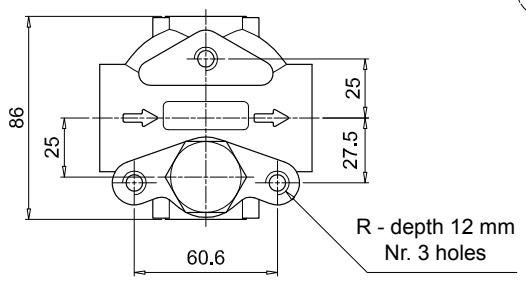
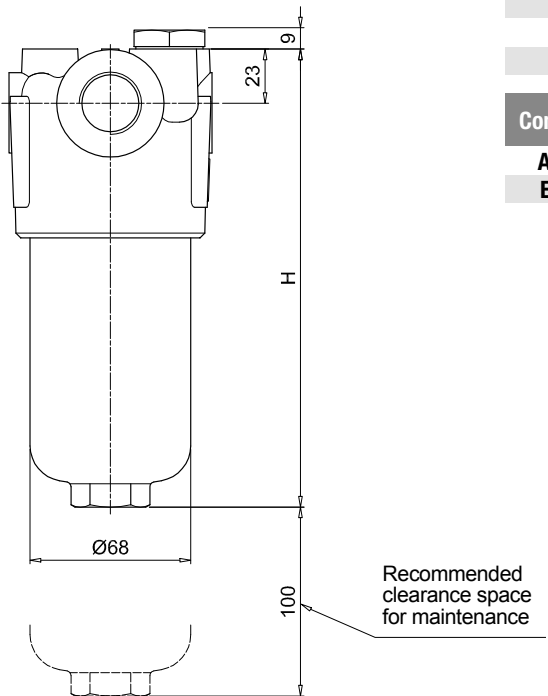
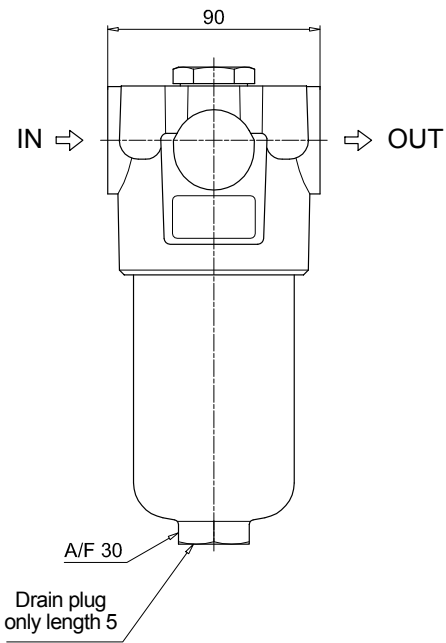
DVA Visual differential pressure indicator

PLUGS

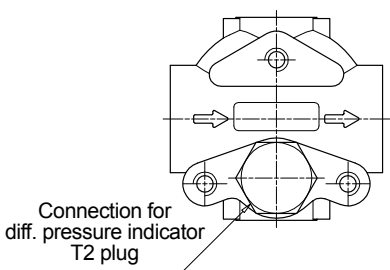
See page 747

T2 Plug

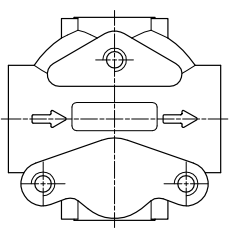
FMMX050	
Filter length	H [mm]
1	158
2	195
3	237
4	285
5	407
Connections	R
A-B-C-D	M10
E-F-G-H	3/8" UNC



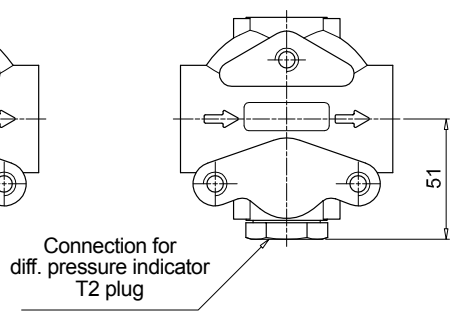
Execution P01



Execution P02



Execution P03



FMMX FMMX150

Designation & Ordering code

COMPLETE FILTER

Series and size **FMMX150** Filter featuring **MYCLEAN** Filter Element

Config. example: **FMMX150** **2** **B** **A** **D** **2** **M25** **N** **Z01** **EX**

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)
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

Execution
zerospark+
Z01 MP Filtri standard
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Element series and size **HPX150** Filter Element with **MYCLEAN** feature

Configuration example: **HPX150** **3** **A10** **A** **N** **Z01**

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

Execution
zerospark+
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

See page 729

DEH Electrical differential pressure indicator 420 bar

DVM Visual differential pressure indicator

DVA Visual differential pressure indicator

PLUGS

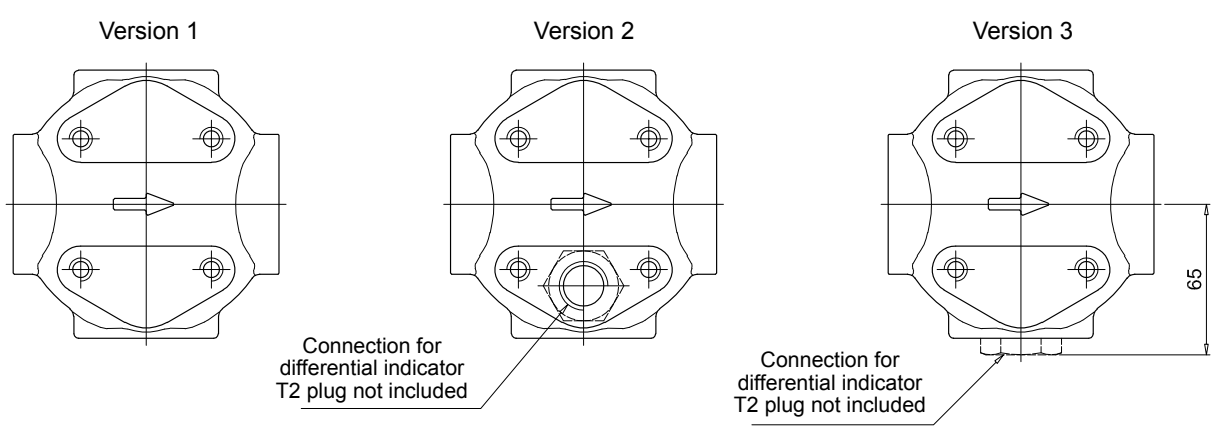
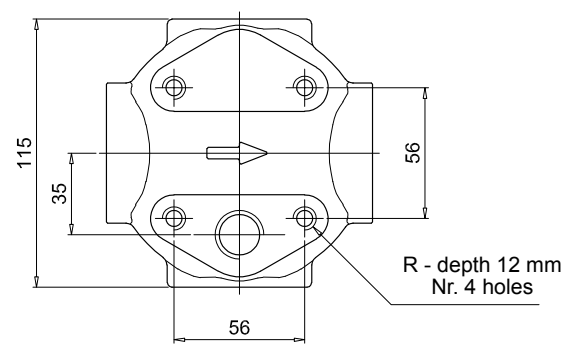
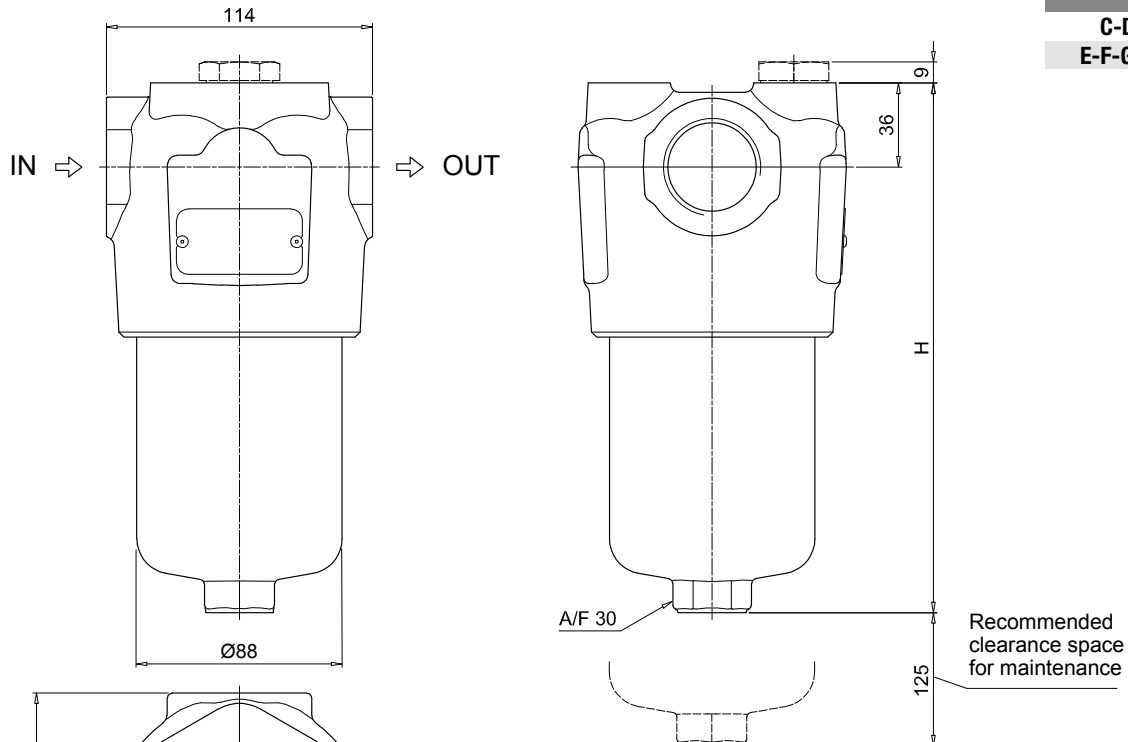
See page 747

T2 Plug

FMMX150

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

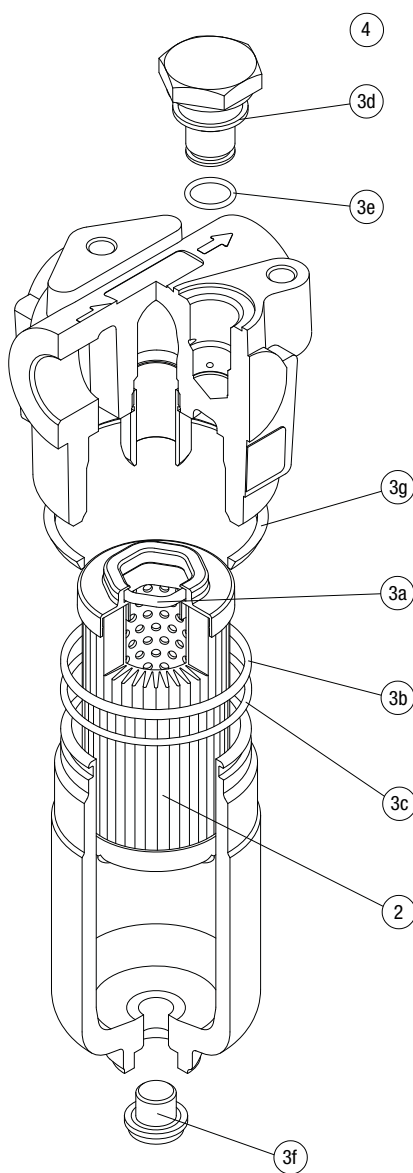
Connections	R
C-D	M10
E-F-G-H	3/8" UNC



FMMX SPARE PARTS

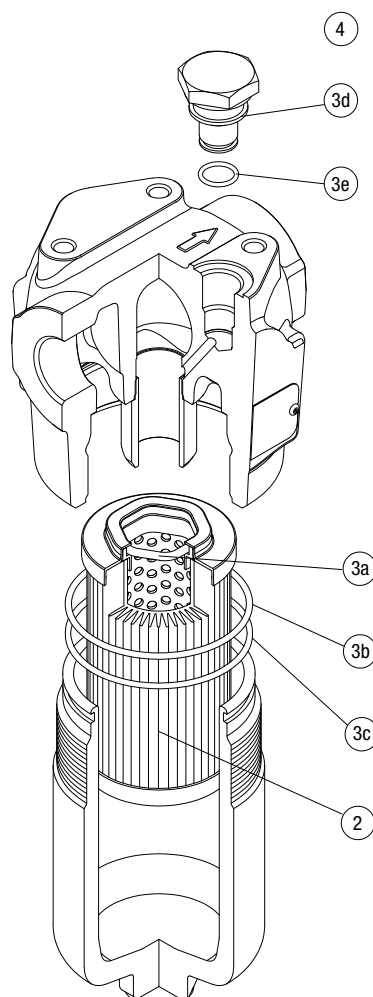
Order number for spare parts

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	FPM	NBR	FPM
	2	3 (3a ÷ 3g)		4	
		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
	2	3 (3a ÷ 3e)		4	
		02050868	02050869	T2H	T2V

CLOGGING INDICATORS

FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE

Designation & Ordering code

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:						
DE Electrical differential pressure indicator	DE	H	50	F	A	48	P01
DV Visual differential pressure indicator	Configuration example 2:						
	DV	X	70	V			P01
Type	DE	DV					
A With automatic reset	-	•					
M With manual reset	-	•					
H Stainless steel hazardous area 420 bar	•	-					
X Stainless steel standard type 420 bar	-	•					
Y Stainless steel optional type 420 bar	-	•					
Pressure setting	DEH	DVA	DVM	DVX	DVY		
50 5.0 bar	•	•	•	•	•		
70 7.0 bar	•	•	•	•	•		
95 9.5 bar	-	•	•	•	•		
Seals	DEH	DVA	DVM	DVX	DVY		
H HNBR	-	•	•	•	•		
V FPM	•	•	•	•	•		
F MFQ	•	-	-	-	-		
Thermostat	DEH						
A Without thermostat	•						
T With thermostat	-						
Electrical connections	DEH						
48 Connection via three-core cable - fitting M20x1.5	•						
49 Connection via four-core cable - fitting 1/2" NPT	•						
70 Connection IEC 61076-2-101 D (M12)	•						
							Option
							P01 MP Filtri standard
							Pxx Customized

PLUGS

Series	Configuration example		
T2 Plug	X2	H	
X2 Stainless Steel plug 420 bar			
X3 Stainless Steel plug 700 bar (only for FZH)			
Seals	T2	X2	X3
H HNBR	•	•	•
V FPM	•	•	•
F MFQ	-	•	•

FZP GENERAL INFORMATION

Description

Technical data



Filters for potentially explosive atmosphere

In-line

Maximum working pressure up to 42 Mpa (420 bar)

Flow rate up to 160 l/min

FZP is a range of stainless steel high pressure filter for protection of sensitive components in high pressure hydraulic systems placed in difficult environmental conditions.

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

Available features:

- 1 1/4" female threaded connections, for a maximum flow rate of 160 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 with external support "R", for filter element protection against the back pressure caused by the check valve or the reverse flow 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 or the reverse flow in filters not provided with the bypass valve
- High collapse filter element "U", for use with aggressive fluids
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-shore equipment
- Water filtration systems
- Systems with strong or corrosive environmental conditions
- Systems with corrosive fluids

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR series A
- Optional FPM series V
- Optional MFQ series F

Bypass valve

Opening pressure 6 bar \pm 10%

Note

FZP filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series R: 20 bar.

Element series "R":

- End cap: Polyamide
- Core tube: Tinned steel
- External/Internal support: Wire mesh Epoxy painted
- Media/Support/Pre-filter: Microfibre/Syntetic

Microfibre filter elements - series S: 210 bar.

Element series "S":

- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epoxy painted
- Internal support: Wire mesh stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements series U: 210 bar.

Element series "U":

- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Temperature

Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM / MFQ	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Filter with:

NBR seal in configuration **zerospark⁺**

CE UK CA Ex II 3G Ex h IIC T6 Gc X II 3D Ex h IIIC T85°C Dc X

FPM / MFQ seal in configuration **zerospark⁺**

CE UK CA Ex II 3G Ex h IIC T6... T4 Gc X II 3D Ex h IIIC T85°C...T115°C Dc X

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
FZP 039	-	-	4.5	5.1	5.6	-	-	0.19	0.26	0.34
FZP 136	8.3	10.2	11.5	-	-	0.45	0.78	1.00	-	-

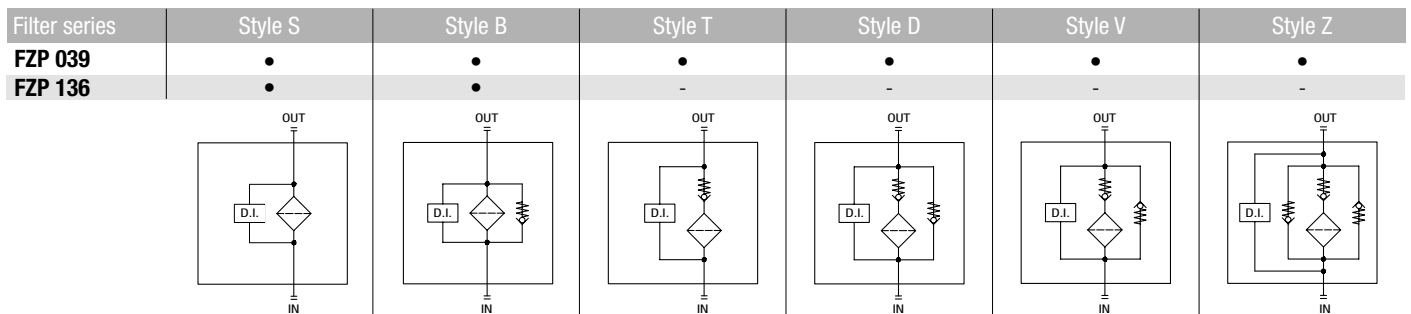
Flow rates [l/min]

Filter series	Length	Filter element design - R Series					Filter element design - S-U Series				
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZP 039	2	19	25	43	50	59	19	23	41	45	55
	3	34	37	53	62	74	31	34	48	52	66
	4	42	46	63	72	81	38	41	55	71	78
FZP 136	1	63	67	102	108	136	47	53	87	89	127
	2	95	100	122	123	159	81	95	113	115	138
	3	122	124	148	150	160	106	116	135	141	151

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

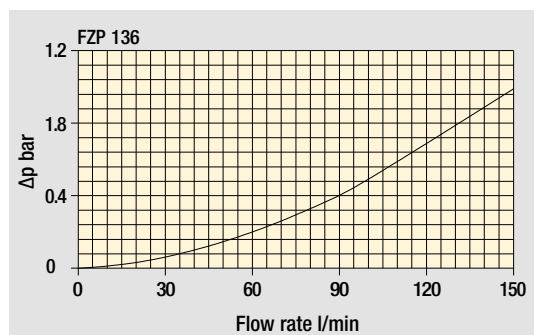
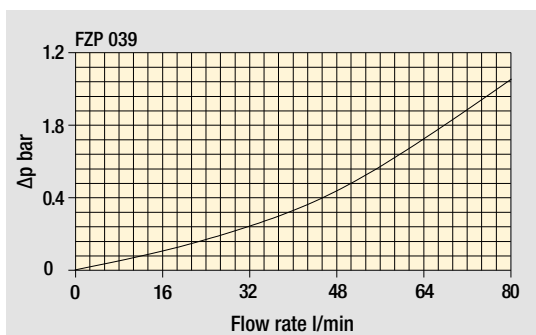
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

Hydraulic symbols



Pressure drop

Filter housings Δp pressure drop



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

Filter series and size **FZP039** Configuration example: **FZP039** **2** **B** **F** **B** **2** **A03** **U** **Z01** **EX**

Filter length
2 | **3** | **4** |

Valves
S Without bypass **D** With reverse flow, with bypass 6 bar
B With bypass 6 bar **V** With reverse flow, without bypass
T With reverse flow, without bypass **Z** With reverse flow, with bypass 6 bar

Seals
A NBR
V FPM
F MFQ

Connections
A G 1/2"
B 1/2" NPT
C SAE 8 - 3/4" - 16 UNF

Connections for differential pressure indicator
1 Without connection
2 With 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

Element Δp	S	B	T	D	V	Z
R 20 bar	-	•	-	•	-	•
S 210 bar	•	-	•	-	•	-
U 210 bar, stainless steel filter element	•	•	•	•	•	•

Valves

Execution
zerospark*
Z01 MP Filtri standard
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Element series and size **HP039** Configuration example: **HP039** **2** **A03** **F** **U** **Z01**

Element length
2 | **3** | **4** |

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

Seals
A NBR
V FPM
F MFQ

Element Δp
R 20 bar
S 210 bar
U 210 bar, stainless steel filter element

Execution
zerospark*
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

See page 729

DEH Electrical differential pressure indicator
DVX Visual differential pressure indicator

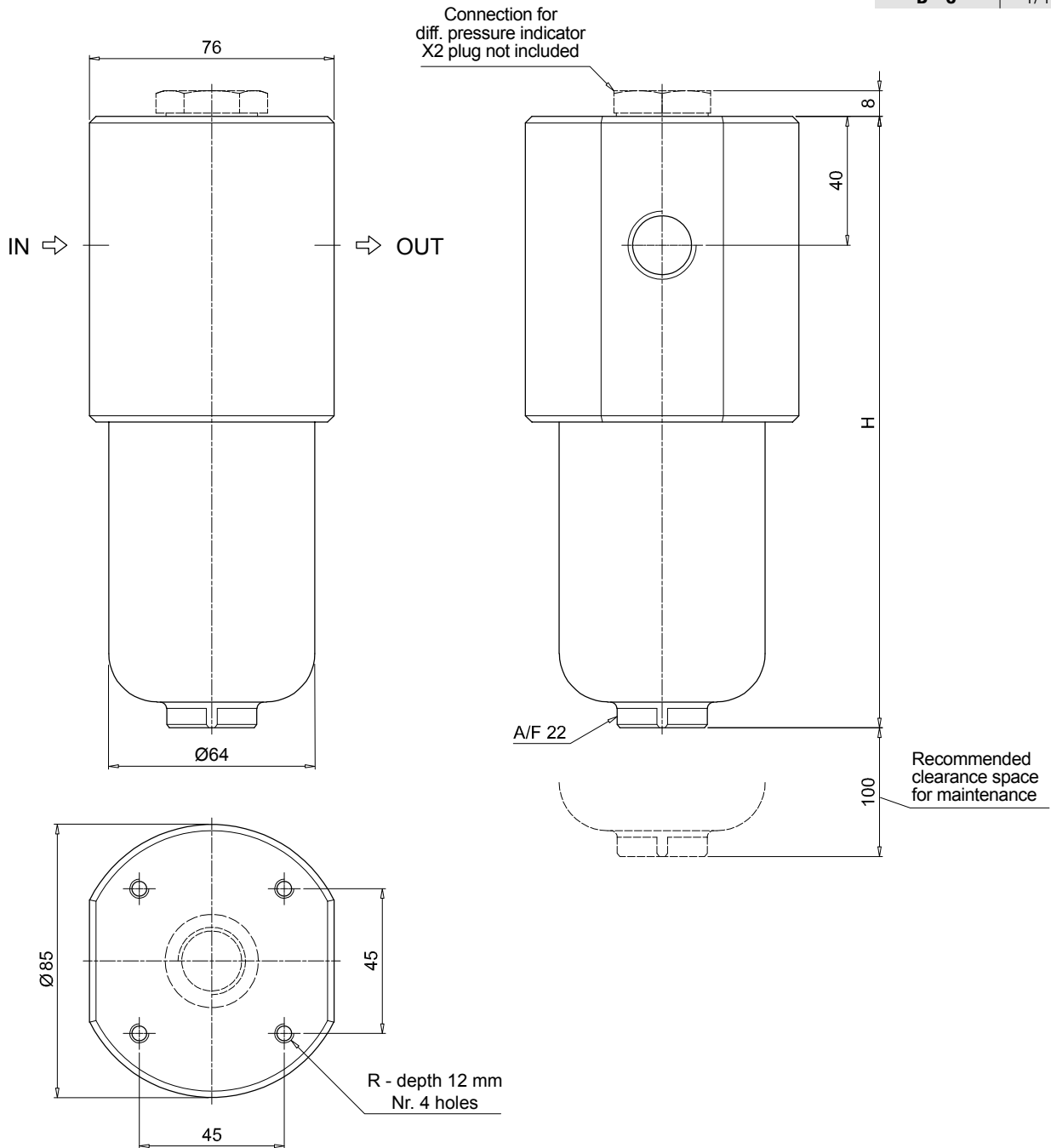
DVY Visual differential pressure indicator

PLUGS

See page 747

X2 Stainless steel plug (not included)

FZP039	
Filter length	H [mm]
2	179
3	222
4	266
Connections	R
A	M6
B - C	1/4" UNC



Designation & Ordering code

COMPLETE FILTER

Filter series and size **FZP136** Configuration example: **FZP136** **1** **B** **A** **B** **6** **A03** **R** **Z01** **EX**

Filter length
1 | **2** | **3** |

Valves
S Without bypass
B With bypass 6 bar

Seals
A NBR
V FPM
F MFQ

Connections
A G 3/4" **G** G 1 1/4"
B 3/4" NPT **H** 1 1/4" NPT
C SAE 12 - 1 1/16" - 12 UN **I** SAE 20 - 1 5/8" - 12 UN
D G 1"
E 1" NPT
F SAE 16 - 1 5/16" - 12 UN

Connections for differential pressure indicator
1 Without connection
6 With two connections on both sides

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

Element Δp	Valves	
	S	B
R 20 bar	-	•
S 210 bar	•	-
U 210 bar, stainless steel filter element	•	•

Execution
zerospark+
Z01 MP Filtri standard
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Element series and size **HP135** Configuration example: **HP135** **1** **A03** **A** **R** **Z01**

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

Seals
A NBR
V FPM
F MFQ

Element Δp	Valves	
	S	B
R 20 bar	-	•
S 210 bar	•	-
U 210 bar, stainless steel filter element	•	•

Execution
zerospark+
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

DEH Electrical differential pressure indicator
DVX Visual differential pressure indicator

DVY Visual differential pressure indicator

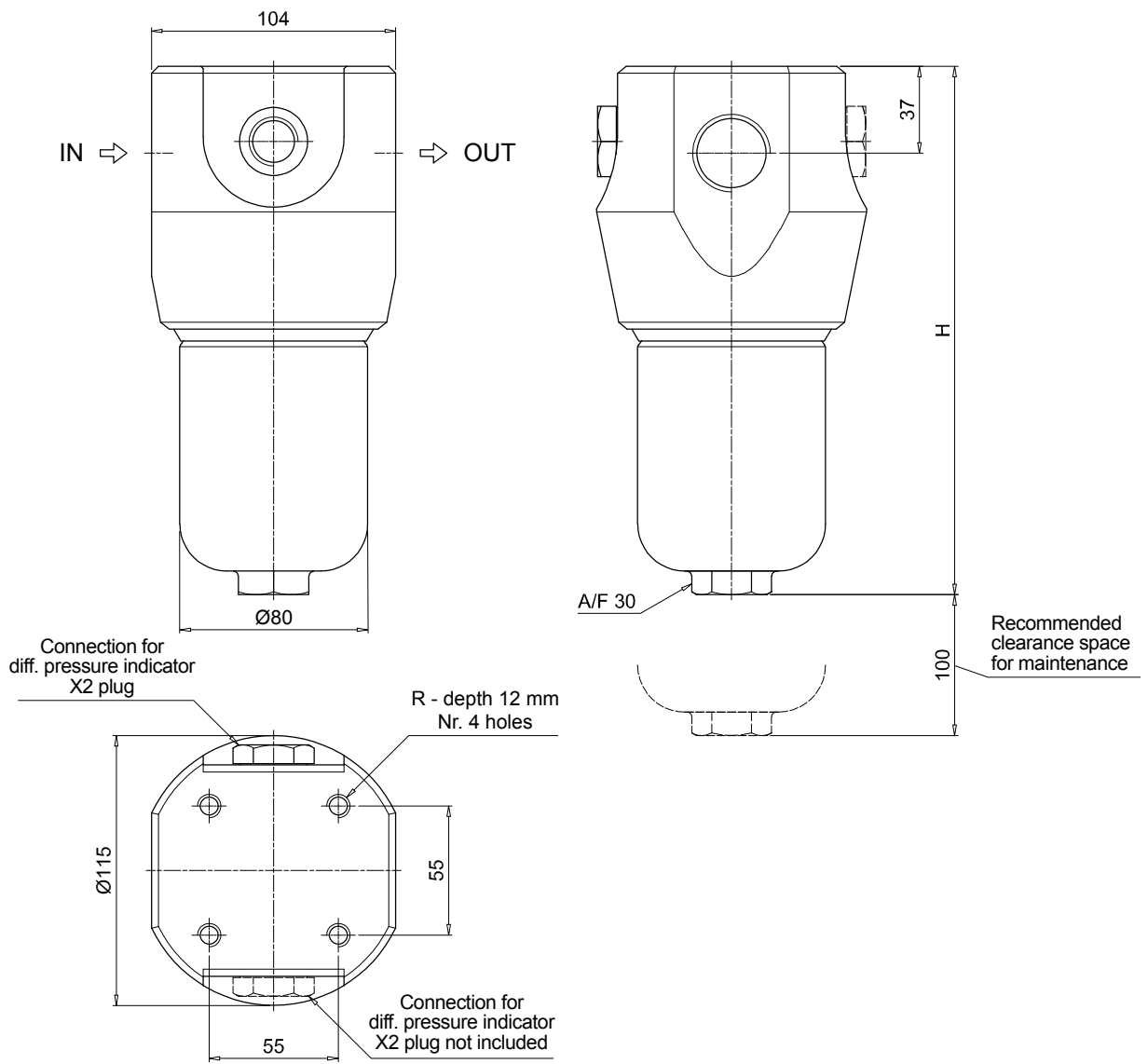
See page 729

PLUGS

X2 Stainless steel plug (not included)

See page 747

FZP136	
Filter length	H [mm]
1	222
2	335
3	410
Connections	R
A	M10
B - C	3/8" UNC
D	M10
E - F	3/8" UNC
G	M10
H - I	3/8" UNC



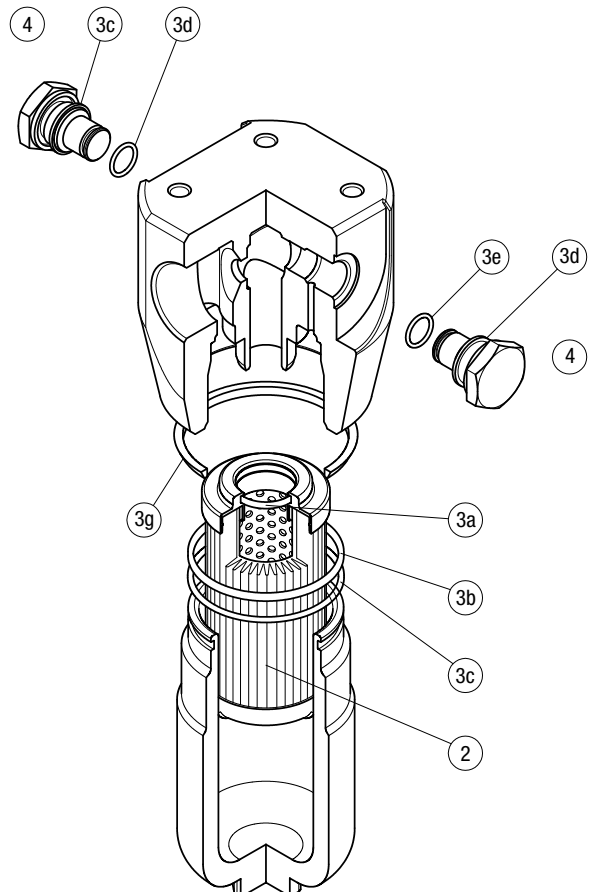
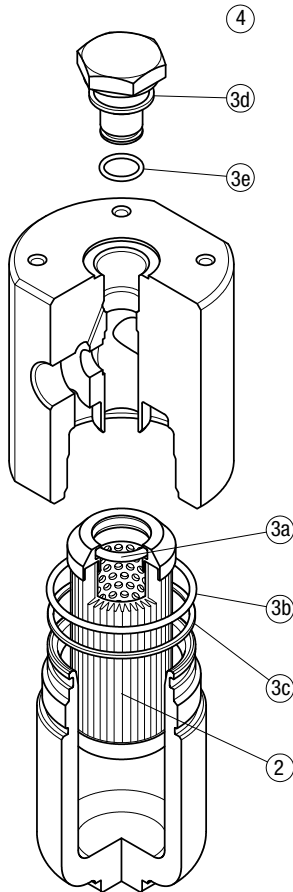
The position of the X2 plug is reversible

FZP SPARE PARTS

Order number for spare parts

FZP 039

FZP 136



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FZP 039	See order table	NBR	FPM	NBR	FPM
FZP 136	See order table	02050299	02050300	X2H	X2V
		02050636	02050637		

CLOGGING INDICATORS

FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE

Designation & Ordering code

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:						
DE Electrical differential pressure indicator	DE	H	50	F	A	48	P01
DV Visual differential pressure indicator	Configuration example 2:						
	DV	X	70	V			P01
Type	DE	DV					
A With automatic reset	-	•					
M With manual reset	-	•					
H Stainless steel hazardous area 420 bar	•	-					
X Stainless steel standard type 420 bar	-	•					
Y Stainless steel optional type 420 bar	-	•					
Pressure setting	DEH	DVA	DVM	DVX	DVY		
50 5.0 bar	•	•	•	•	•		
70 7.0 bar	•	•	•	•	•		
95 9.5 bar	-	•	•	•	•		
Seals	DEH	DVA	DVM	DVX	DVY		
H HNBR	-	•	•	•	•		
V FPM	•	•	•	•	•		
F MFQ	•	-	-	-	-		
Thermostat	DEH						
A Without thermostat	•						
T With thermostat	-						
Electrical connections	DEH						
48 Connection via three-core cable - fitting M20x1.5	•						
49 Connection via four-core cable - fitting 1/2" NPT	•						
70 Connection IEC 61076-2-101 D (M12)	•						
							Option
							P01 MP Filtri standard
							Pxx Customized

PLUGS

Series	Configuration example		
T2 Plug	X2	H	
X2 Stainless Steel plug 420 bar			
X3 Stainless Steel plug 700 bar (only for FZH)			
Seals	T2	X2	X3
H HNBR	•	•	•
V FPM	•	•	•
F MFQ	-	•	•

FZH GENERAL INFORMATION



Description

Technical data

Filters for potentially explosive atmosphere

In-line

Maximum working pressure up to 80 Mpa (700 bar)

Flow rate up to 80 l/min

FZH is a range of stainless steel high pressure filter for protection of sensitive components in high pressure hydraulic systems placed in difficult environmental conditions.

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

Available features:

- 1/2" female threaded connections, for a maximum flow rate of 80 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
- 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 or the reverse flow 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 or the reverse flow in filters not provided with the bypass valve
- High collapse filter element "U", for use with aggressive fluids
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-shore equipment
- Water filtration systems
- Systems with strong or corrosive environmental conditions
- Systems with corrosive fluids

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR series A
- Optional FPM series V
- Optional MFQ series F

Bypass valve

Opening pressure 6 bar \pm 10%

Note

FZH filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series N-R: 20 bar.

Element series "N - R":

- End cap: Polyamide
- Core tube: Tinned steel
- External/Internal support: Wire mesh Epox painted
- Media/Support/Pre-filter: Microfibre/Syntetic

Microfibre filter elements - series H-S: 210 bar.

Element series "H - S":

- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epox painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements series U: 210 bar.

Element series "U":

- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Temperature

Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM / MFQ	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Filter with:

NBR seal in configuration **zerospark®**



II 3G Ex h IIC T6 Gc X
II 3D Ex h IIIC T85°C Dc X

FPM / MFQ seal in configuration **zerospark®**



II 3G Ex h IIC T6... T4 Gc X
II 3D Ex h IIIC T85°C...T115°C Dc X

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
FZH 012		2.1	2.2	2.7	3.3		0.10	0.12	0.15	0.20
FZH 040		-	4.5	5.1	5.6		-	0.19	0.26	0.34

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					Filter element design - H-U Series				
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZH 012	1	4	6	8	9	11	3	5	6	7	9
	2	7	9	17	20	26	5	7	14	17	23
	3	11	14	25	27	32	11	14	24	27	32
	4	17	20	29	31	34	13	16	26	29	33

Filter series	Length	Filter element design - R Series					Filter element design - S-U Series				
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZH 040	2	19	25	43	50	59	19	23	41	45	55
	3	34	37	53	62	74	31	34	48	52	66
	4	42	46	63	72	81	38	41	55	71	78

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

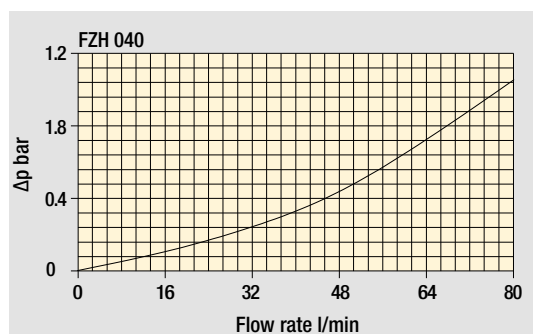
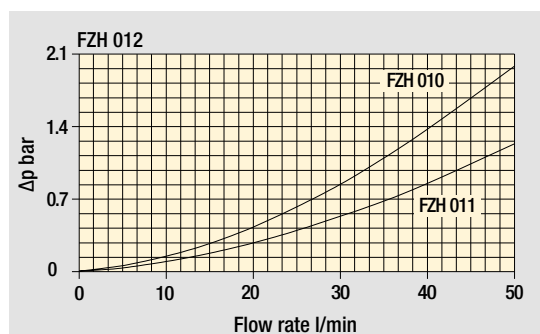
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

Hydraulic symbols

Filter series	Style S	Style B	Style T	Style D	Style V	Style Z
FZH 012	•	•	-	-	•	•
FZH 040	•	•	•	•	•	•

Pressure drop

Filter housings Δp pressure drop



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

Configuration example: **FZH012** | **2** | **B** | **F** | **B** | **2** | **A03** | **U** | **Z01** | **EX**

Filter Series and size
FZH012

Filter length
1 | **2** | **3** | **4**

Valves
S Without bypass
B With bypass 6 bar
V With reverse flow, without bypass
Z With reverse flow, with bypass 6 bar

Seals
A NBR
V FPM
F MFQ

Connections
A G 1/4"
B 1/4" NPT
C SAE 5 - 1/2" - 20 UNF
D G 3/8"
E 3/8" NPT
F SAE 6 - 9/16" - 18 UNF

Connection for differential pressure indicator
1 Without connection
2 With connection

Filtration rating (filter media)	Element Δp	Valves			
		S	B	V	Z
A03 Inorganic microfiber 3 μm	N 20 bar	-	•	-	•
A06 Inorganic microfiber 6 μm	H 210 bar	•	-	•	-
A10 Inorganic microfiber 10 μm	U 210 bar, stainless steel filter element	•	•	•	•
A16 Inorganic microfiber 16 μm					
A25 Inorganic microfiber 25 μm					

Execution
zerospark+
Z01 MP Filtri standard
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Configuration example: **HP011** | **2** | **A03** | **F** | **U** | **Z01**

Element series and size
HP011

Element length
1 | **2** | **3** | **4**

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

Seals
A NBR
V FPM
F MFQ

Element Δp
N 20 bar
H 210 bar
U 210 bar, stainless steel filter element

Execution
zerospark+
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

DEZ Electrical differential pressure indicator

DVZ Visual differential pressure indicator

See page 729

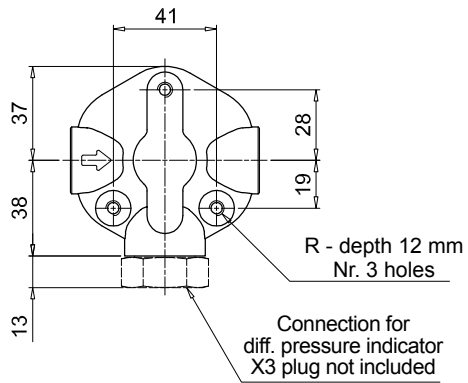
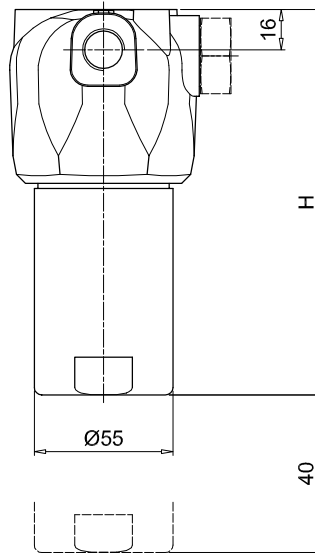
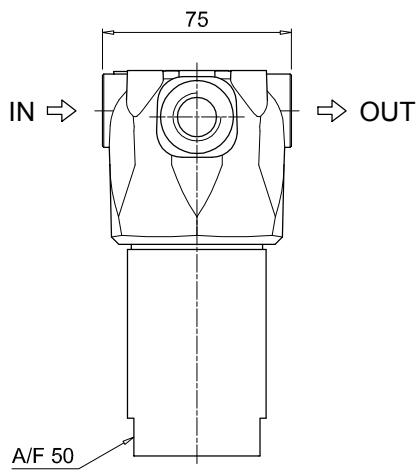
PLUGS

X3 Stainless steel plug (not included)

See page 747

FZH012	
Filter length	H [mm]
1	93
2	104
3	154
4	204

Connections	R
A	M6
B - C	1/4" UNC
D	M6
E - F	1/4" UNC



Designation & Ordering code

COMPLETE FILTER

Configuration example: **FZH040** | **2** | **T** | **A** | **A** | **2** | **A03** | **S** | **Z01** | **EX**

Filter Series and size
FZH040

Filter length
2 | **3** | **4**

Valves
S Without bypass
B With bypass 6 bar
T With check valve, without bypass
D With check valve, with bypass 6 bar
V With reverse flow, without bypass
Z With reverse flow, with bypass 6 bar

Seals
A NBR **F** MFQ
V FPM

Connections
A G 1/2"
B 1/2" NPT
C SAE 8 - 3/4" - 16 UNF

Connection for differential pressure indicator
1 Without connection
2 With 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

Element Δp	Valves					
	S	B	T	D	V	Z
R 20 bar	-	•	-	•	-	•
S 210 bar	•	-	•	-	•	-
U 210 bar, stainless steel filter element	•	•	•	•	•	•

Execution
zerospark®
Z01 MP Filtri standard
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Configuration example: **HP039** | **2** | **A03** | **A** | **S** | **Z01**

Element series and size
HP039

Element length
2 | **3** | **4**

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

Seals
A NBR
V FPM
F MFQ

Element Δp
R 20 bar
S 210 bar
U 210 bar, stainless steel filter element

Execution
zerospark®
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

See page 729

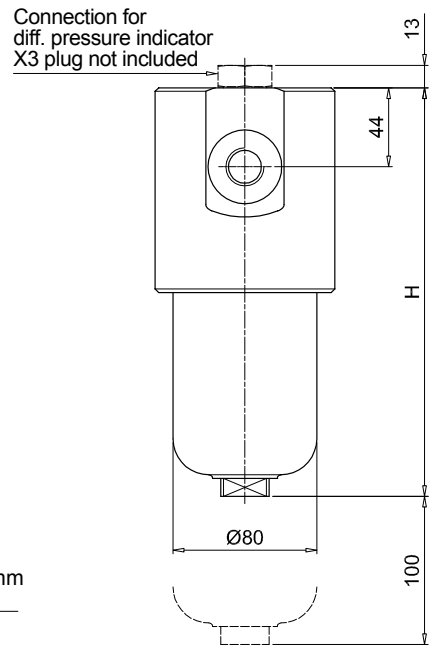
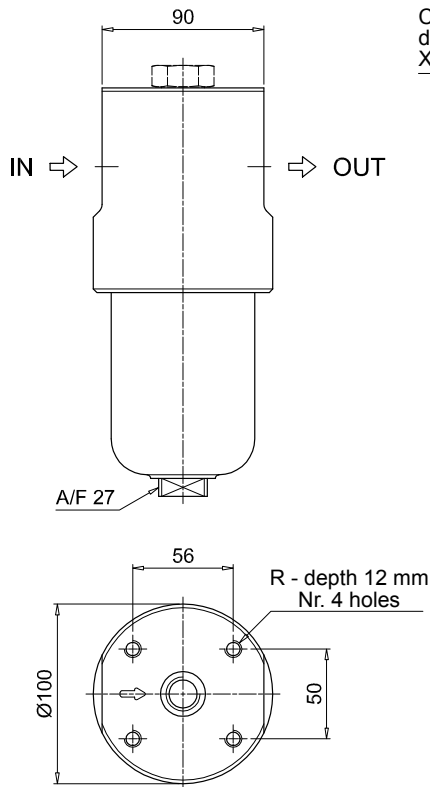
DVZ Visual differential pressure indicator

PLUGS

See page 747

X3 Stainless steel plug (not included)

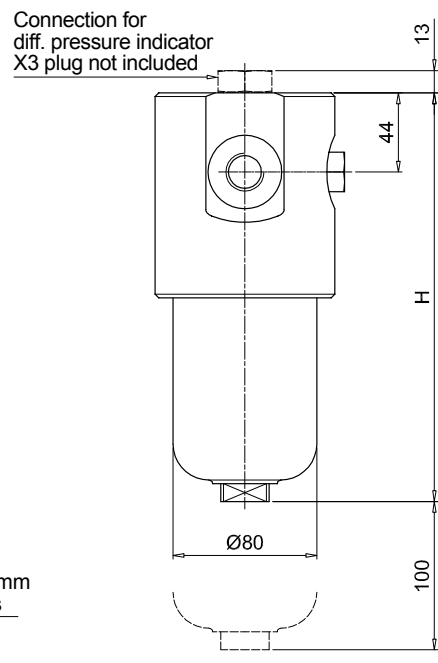
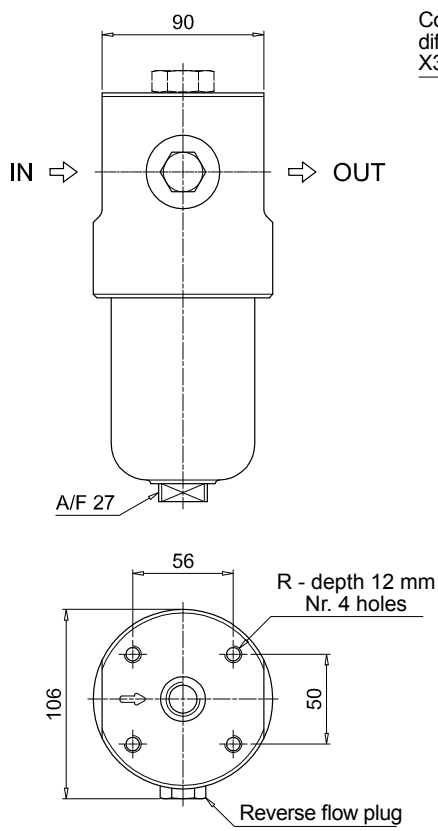
Valves S - B - T - D



FZH040	
Filter length	H [mm]
2	204
3	247
4	291
Connections	R
A	M10
B	3/8" UNC
C	3/8" UNC

Recommended clearance space for maintenance

Valves V - Z



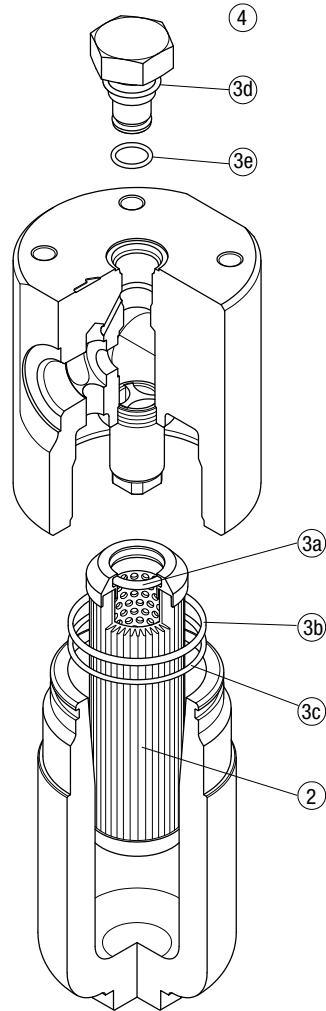
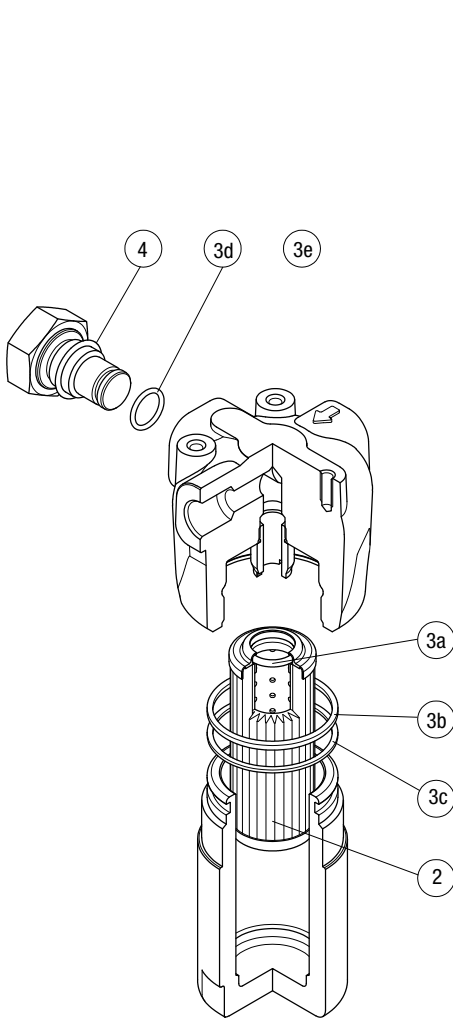
Recommended clearance space for maintenance

FZH SPARE PARTS

Order number for spare parts

FZH 012

FZH 040



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FZH 012	See order table	NBR	FPM	NBR	FPM
FZH 040	See order table	02050856	02050857	X2H	X2V
		02050860	02050861		

CLOGGING INDICATORS

FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE

Designation & Ordering code

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:						
DE Electrical differential pressure indicator	DE	H	50	F	A	48	P01
DV Visual differential pressure indicator	Configuration example 2:						
	DV	X	70	V			P01

Type	DE	DV
A With automatic reset	-	•
M With manual reset	-	•
H Stainless steel hazardous area 420 bar	•	-
X Stainless steel standard type 420 bar	-	•
Y Stainless steel optional type 420 bar	-	•

Pressure setting	DEH	DVA	DVM	DVX	DVY
50 5.0 bar	•	•	•	•	•
70 7.0 bar	•	•	•	•	•
95 9.5 bar	-	•	•	•	•

Seals	DEH	DVA	DVM	DVX	DVY
H HNBR	-	•	•	•	•
V FPM	•	•	•	•	•
F MFQ	•	-	-	-	-

Thermostat	DEH
A Without thermostat	•
T With thermostat	-

Electrical connections	DEH
48 Connection via three-core cable - fitting M20x1.5	•
49 Connection via four-core cable - fitting 1/2" NPT	•
70 Connection IEC 61076-2-101 D (M12)	•

Option
P01 MP Filtri standard
Pxx Customized

PLUGS

Series	Configuration example	
T2 Plug	X2	H
X2 Stainless Steel plug 420 bar		
X3 Stainless Steel plug 700 bar (only for FZH)		

Seals	T2	X2	X3
H HNBR	•	•	•
V FPM	•	•	•
F MFQ	-	•	•

FZX GENERAL INFORMATION



Description

Technical data

Filters for potentially explosive atmosphere

In-line

Maximum working pressure up to 100 Mpa (1000 bar)

Flow rate up to 10 l/min

FZX is a range of stainless steel high pressure filter for protection of sensitive components in high pressure hydraulic systems placed in difficult environmental conditions.

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

Available features:

- 1/2" female threaded connections, for a maximum flow rate of 10 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- High collapse filter element "H", for use with filters not provided with bypass valve
- High collapse filter element "U", for use with aggressive fluids

Common applications:

- Off-shore equipment
- Water filtration systems
- Systems with strong or corrosive environmental conditions
- Systems with corrosive fluids

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR series A
- Optional FPM series V
- Optional MFQ series F

Bypass valve

Opening pressure 6 bar \pm 10%

Note

FZX filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series H: 210 bar.

Element series "H":

- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epox painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements

series U: 210 bar.

Element series "U":

- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Temperature

Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM / MFQ	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Filter with:

NBR seal in configuration **zerospark®**

CE UK CA Ex II 3G Ex h IIC T6 Gc X
II 3D Ex h IIIC T85°C Dc X

FPM / MFQ seal in configuration **zerospark®**

CE UK CA Ex II 3G Ex h IIC T6... T4 Gc X
II 3D Ex h IIIC T85°C... T115°C Dc X

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
FZX 011	-	-	6.5	-	-	-	-	0.15	-	-

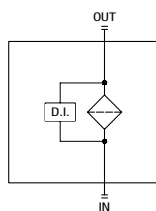
Flow rates [l/min]

Filter series	Length	Filter element design - H-U Series				
		A03	A06	A10	A16	A25
FZX 011	3	1.57	1.63	1.73	1.74	1.77

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

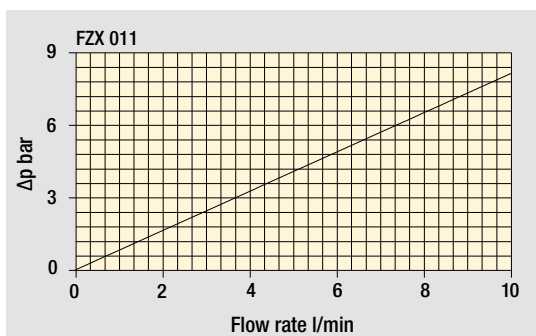
Hydraulic symbols

Filter series	Style S
FZX 011	•



Pressure drop

Filter housings Δp pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm^3 in compliance with ISO 3968. Δp varies proportionally with density.

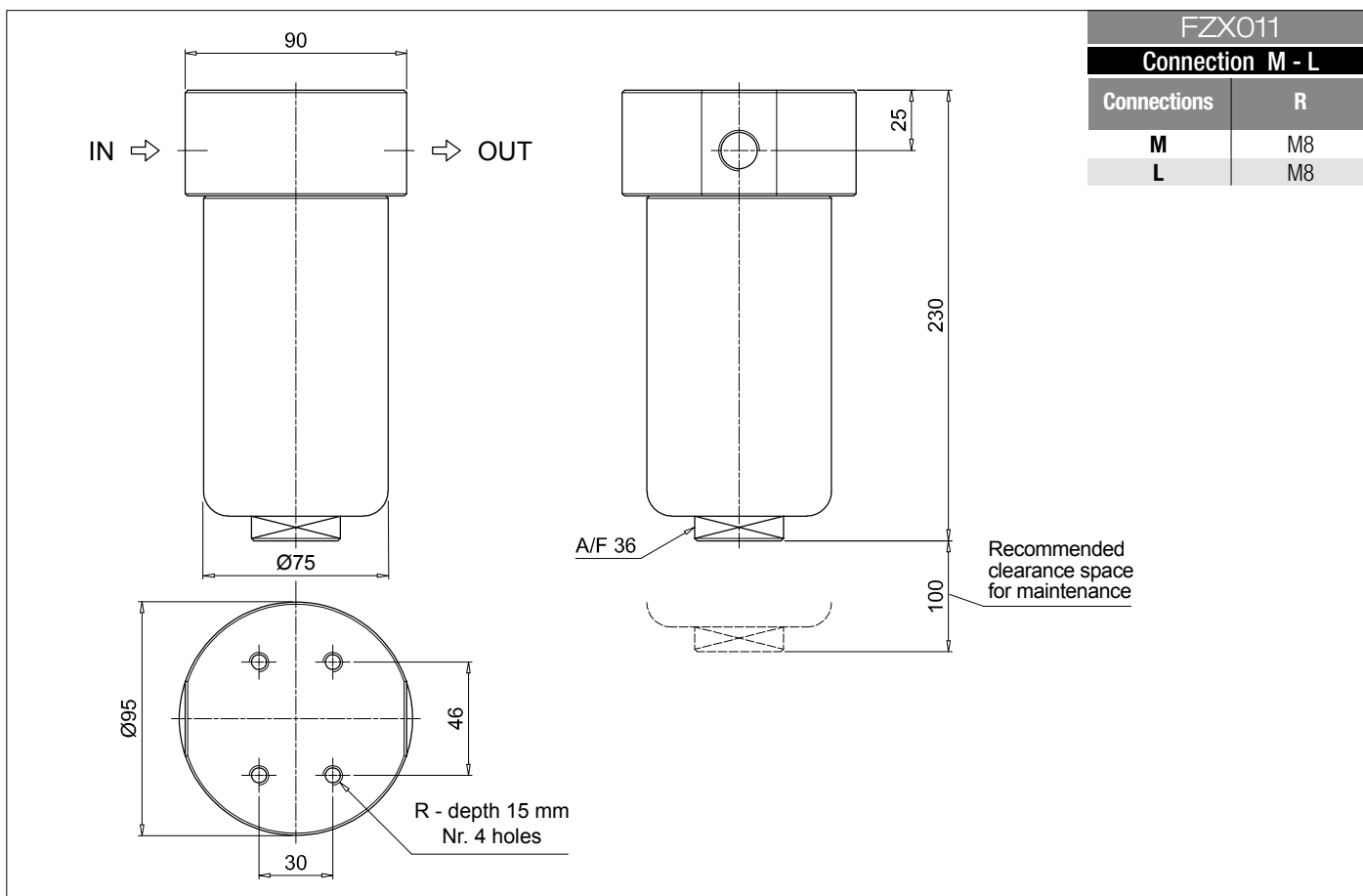
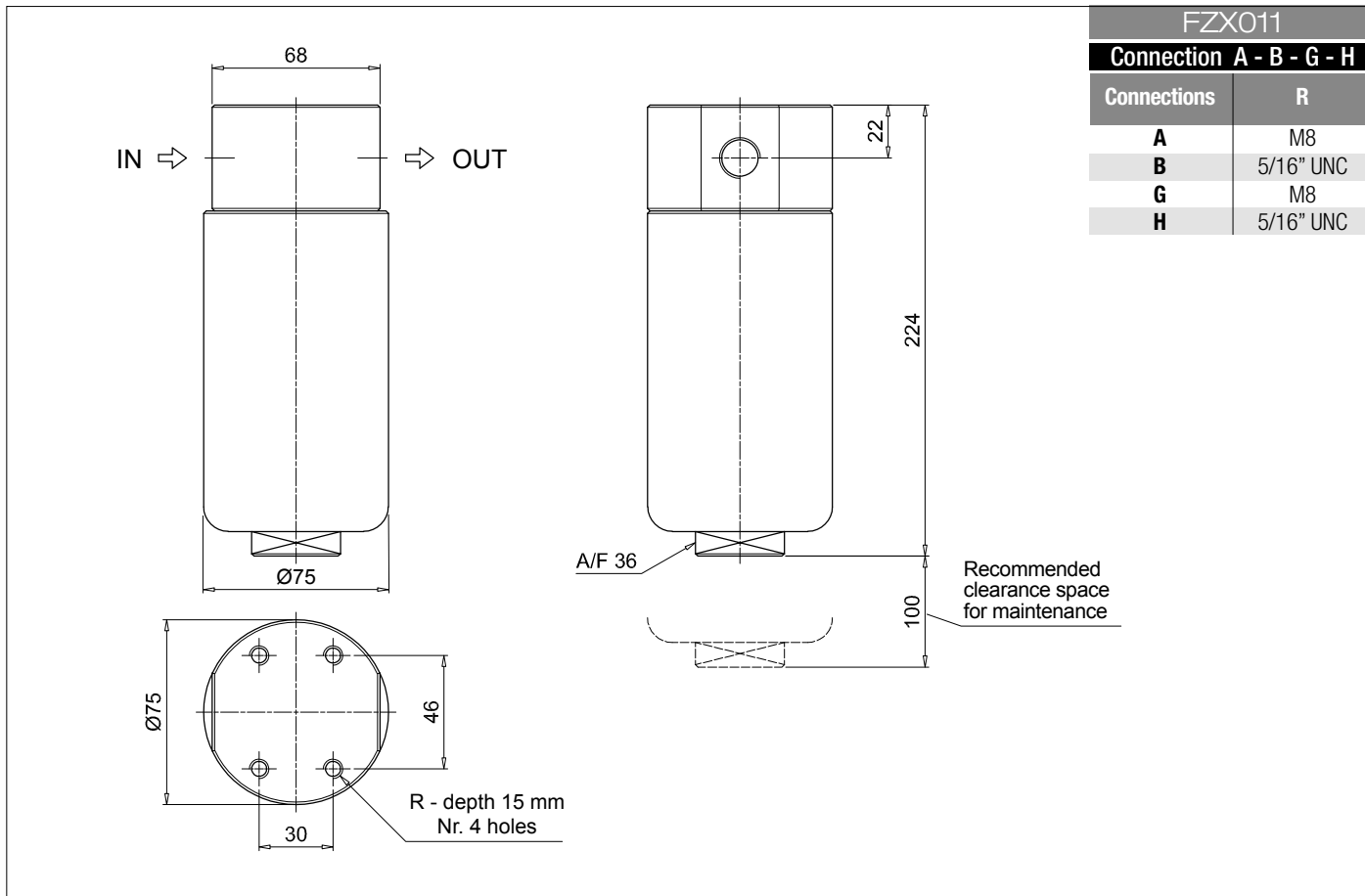
Designation & Ordering code

COMPLETE FILTER

Filter series and size	Configuration example: FZX011	3	S	V	B	1	A03	U	Z01	EX
FZX011										
Filter length										
3										
Bypass valve										
S Without bypass										
Seals										
A NBR										
V FPM										
F MFQ										
Connections										
700 bar										
A G 1/4"										
B 1/4" NPT										
G G 1/2"										
H 1/2" NPT"										
Autoclave 1000 bar										
M 9/16" - 18 UNF										
L 3/4" - 14 NPS										
Connection for differential pressure indicator										
1 Without 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										
Element Δp										
H 210 bar										
U 210 bar, stainless steel filter element										
Execution										
zerospark®										
Z01 MP Filtri standard										
Zxx Customized										
Certifications										
EX ATEX certifications										

FILTER ELEMENT

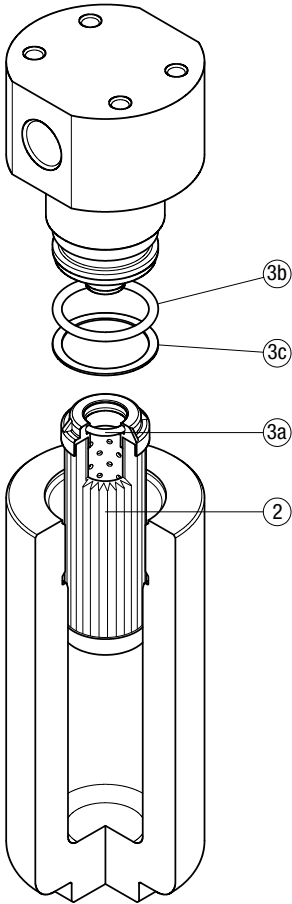
Element series and size	Example: HP011	3	A03	V	U	Z01
HP011						
Element length						
3						
Filtration rating (filter media)						
A03 Inorganic microfiber 3 µm						
A06 Inorganic microfiber 6 µm						
A10 Inorganic microfiber 10 µm						
A16 Inorganic microfiber 16 µm						
A25 Inorganic microfiber 25 µm						
Seals						
A NBR						
V FPM						
F MFQ						
Element Δp						
H 210 bar						
U 210 bar, stainless steel filter element						
Execution						
zerospark®						
Z01 MP Filtri standard						
Zxx Customized						



FZX SPARE PARTS

Order number for spare parts

FZX 011



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FZX 011	See order table	02050643	02050644

По вопросам продаж и поддержки обращайтесь:

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