

FZH series

Maximum working pressure up to 70 Mpa (700 bar) - Flow rate up to 80 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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Description

Technical data

Filters for potentially explosive atmosphere

In-line

Maximum working pressure up to 70 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

Bypass valve

Opening pressure 6 bar $\pm$ 10%

Pressure

- Test pressure: 105 MPa (1050 bar)
- Min. Burst pressure: 210 MPa (2100 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 70 MPa (700 bar)

Filter element features

Filter FZH		Filter element HP	
Δp Element type			
Element media	Construction	Δp Series	Δp
A - Microfiber	Standard	N	20 bar
	with external support	R	20 bar
	High Δp	H	210 bar
	High Δp with external support	S	210 bar
	High Δp with stainless steel components	U	210 bar
Please see ordering code tables to check element Δp series availability based on filter features.			
Flow direction through the filter element: From OUT to IN			
Filter element components materials	Δp Series		
	N - R	H - S	U
End cap	Polyamide	Tinned Steel	Stainless steel
Core tube	Tinned Steel	Tinned Steel	Stainless steel
External support	Wire mesh epoxy painted	Wire mesh epoxy painted	Stainless steel
Internal support	Wire mesh epoxy painted	Stainless steel	Stainless steel
Pre-filter	Synthetic	Synthetic	Synthetic

Temperature

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

Seals

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

Note

FZH filters are provided for vertical mounting

Filter with:

NBR seal in configuration **zerospark+**



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

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



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

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]				
	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.

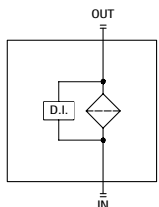
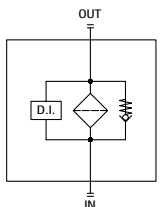
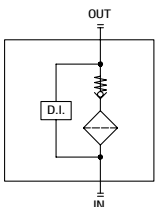
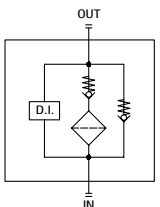
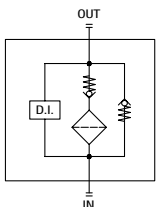
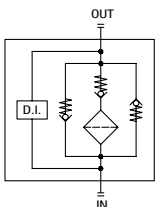
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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.

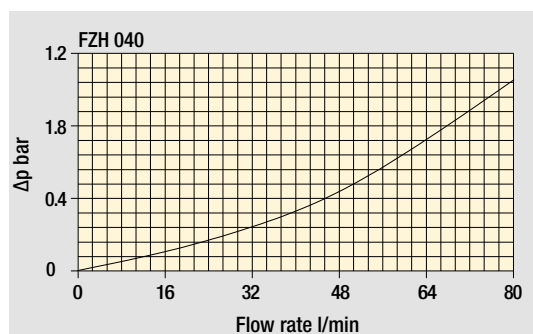
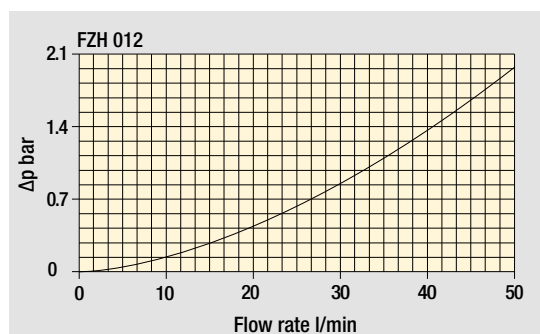
Hydraulic diagram

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

Filter Series and size	Configuration example: FZH012 2 B F B 2 A03 U Z01 EX										
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)											
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											
H 210 bar											
U 210 bar stainless steel filter element											
Valves											
S B V Z											
- • - •											
• - • -											
• • • •											
Execution											
zerospark®											
Z01 MP Filtri standard											
Zxx Customized											
Certifications											
EX ATEX certifications											

FILTER ELEMENT

Element series and size	Configuration example: HP011 2 A03 F U Z01					
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

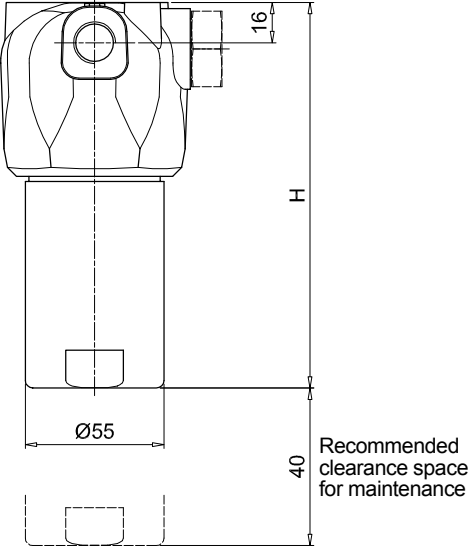
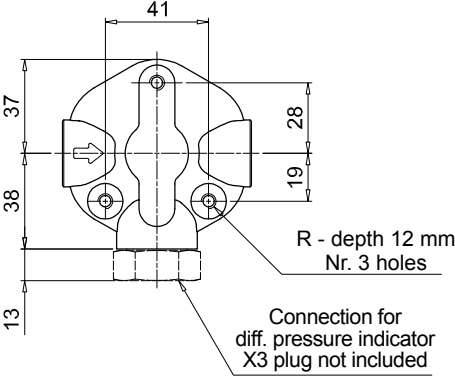
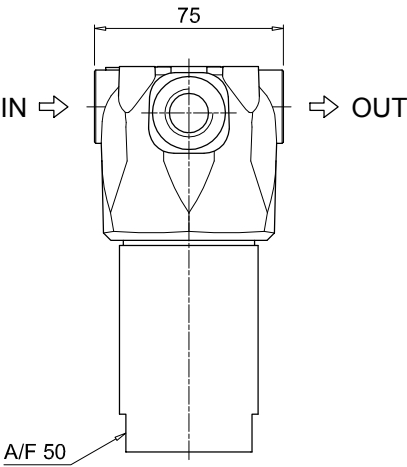
See page 788

DVZ Visual differential pressure indicator

PLUGS

See page 807

X3 Stainless steel plug (not included)



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

Filter Series and size	Configuration example: FZH040										2	T	A	A	2	A03	S	Z01	EX
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																		
R 20 bar	S	B	T	D	V	Z													
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	Configuration example: HP039										2	A03	A	S	Z01
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 788

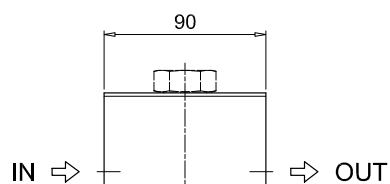
DVZ Visual differential pressure indicator

PLUGS

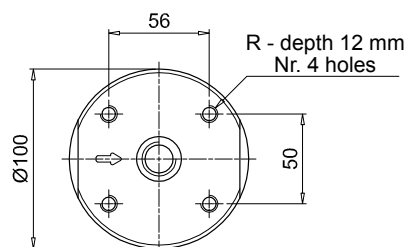
See page 807

X3 Stainless steel plug (not included)

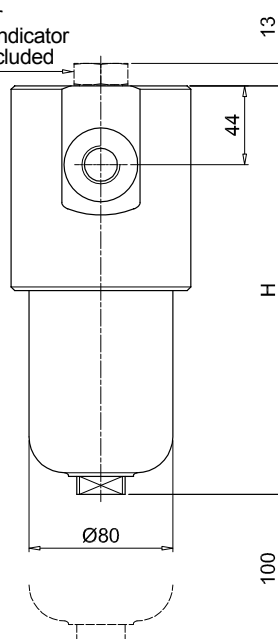
Valves S - B - T - D



A/F 27



Connection for
diff. pressure indicator
X3 plug not included



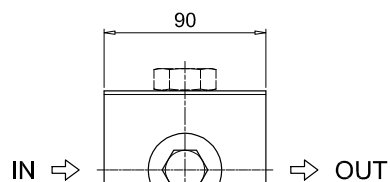
Recommended
clearance space
for maintenance

FZH040

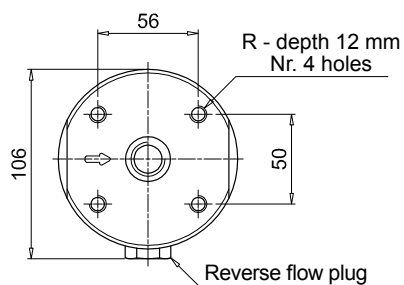
Filter length	H [mm]
2	204
3	247
4	291

Connections	R
A	M10
B	3/8" UNC
C	3/8" UNC

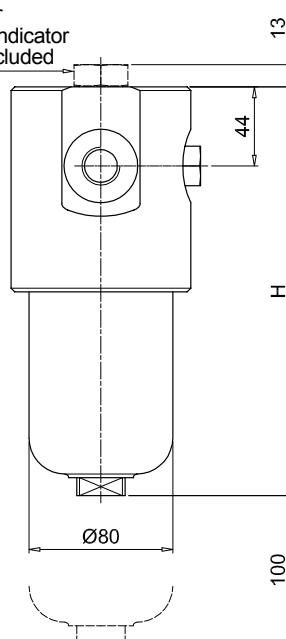
Valves V - Z



A/F 27



Connection for
diff. pressure indicator
X3 plug not included

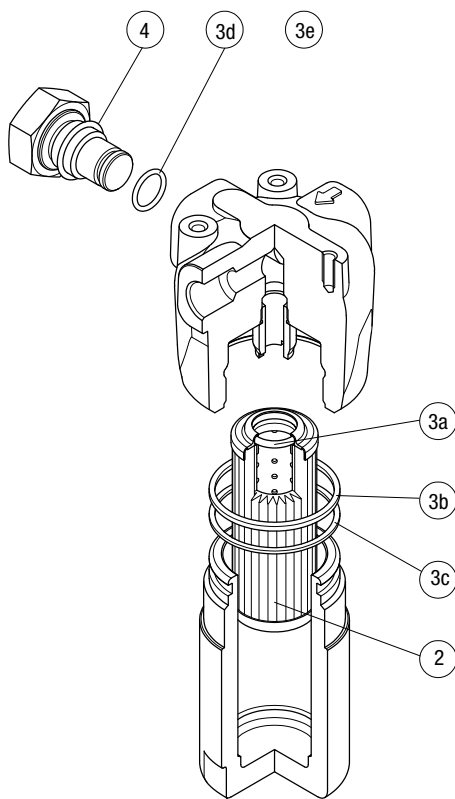


Recommended
clearance space
for maintenance

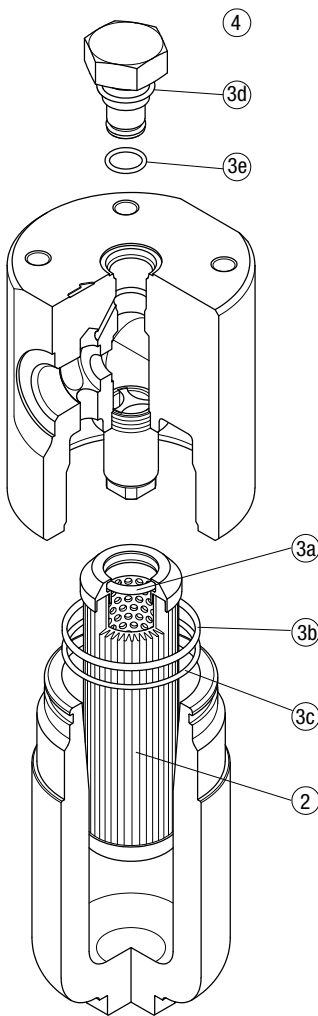
FZH SPARE PARTS

Order number for spare parts

FZH 012



FZH 040



Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Item:	2	3 (3a ÷ 3e)		4	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
		NBR	FPM	NBR	FPM
FZH 012	See order table	02050856	02050857	X3H	X3V
FZH 040		02050860	02050861		