

FMM series

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



High Pressure filters

In-line

Maximum working pressure up to 42 MPa (420 bar)

Flow rate up to 300 l/min

FMM is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines.
They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 250 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Bypass valve, to relieve excessive pressure drop across the filter media
- Low collapse filter element "N", for use with filters provided with bypass valve
- Low collapse filter element with external support "R", for filter element protection against the back pressure caused by the check valve in filters provided with the bypass valve
- High collapse filter element with external support "S", for filter element protection against the back pressure caused by the check valve in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Agricultural machines
- Mobile machines

Filter housing materials

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

Pressure

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

Bypass valve

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

Δp element type

- Microfiber filter elements - series N-R: 20 bar
- Microfiber filter elements - series S: 210 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

In-line Inlet/Outlet

Note

FMM filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FMM 050		3.11	3.48	3.90	4.36	5.54		0.34	0.48	0.63	0.81	1.23
FMM 150		7.50	9.50	10.90	-	-		0.60	1.00	1.25	-	-

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

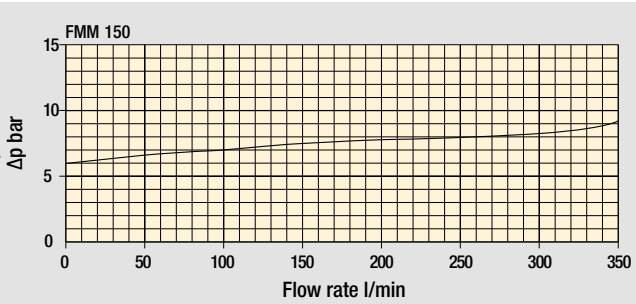
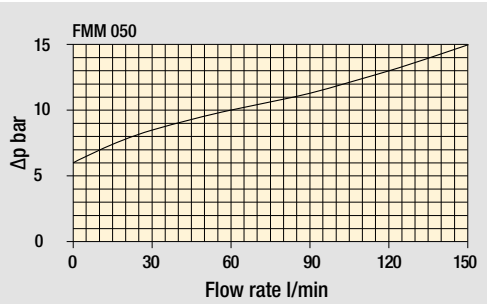
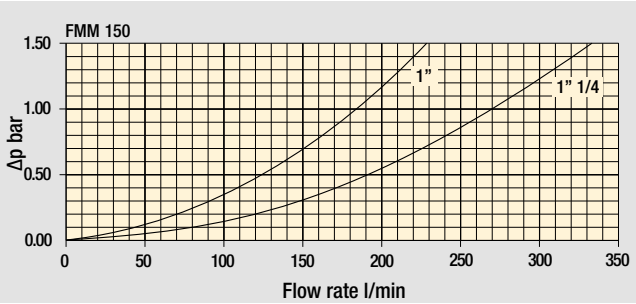
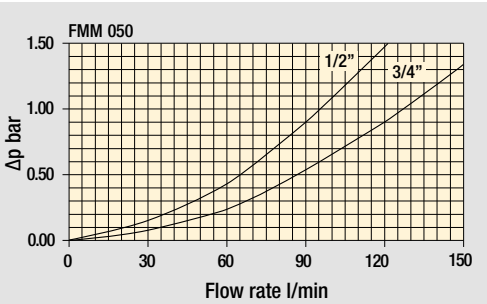
Maximum flow rate for a complete pressure filter with a pressure drop Δp = 1.5 bar.

The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.
Please, contact our Sales Department for further additional information.

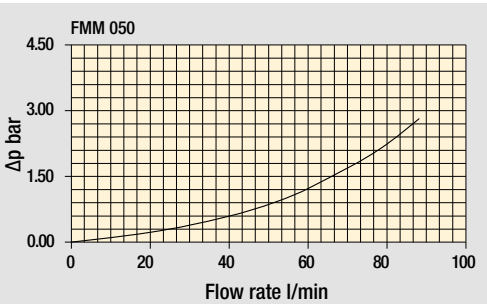
Hydraulic symbols

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

Pressure drop
Filter housings
Δp pressure drop



Bypass valve
pressure drop



Filter housing
with check valve

Valves

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

COMPLETE FILTER

Series and size

FMM050

Configuration example:

FMM050

3

B

A

G

A10

N

P01

Length

1

2

3

4

5

Valves

S

Without bypass

B

With bypass 6 bar

T

With check valve, without bypass

D

With check valve, with bypass 6 bar

Seals

A

NBR

V

FPM

Connections

A

M18x1.5 - ISO 6149

B

M22x1.5 - ISO 6149

C

G 1/2"

D

G 3/4"

E

1/2" NPT

F

3/4" NPT

G

SAE 8 - 3/4" - 16 UNF

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

Valves

Element Δp

S

B

T

D

N

20 bar

•

R

20 bar

•

S

210 bar

•

•

Execution

P01

Upper connection for clogging indicator

P02

Without connection for clogging indicator

P03

Frontal connection for clogging indicator

Pxx

Customized

FILTER ELEMENT

Element series and size

HP050

Configuration example:

HP050

3

A10

A

N

P01

Element length

1

2

3

4

5

Filtration rating (filter media)

A03

Inorganic microfiber

3 μm

A06

Inorganic microfiber

6 μm

A10

Inorganic microfiber

10 μm

A16

Inorganic microfiber

16 μm

A25

Inorganic microfiber

25 μm

M25

Wire mesh

25 μm

Seals

A

NBR

V

FPM

Element Δp

N

20 bar

R

20 bar

S

210 bar

Execution

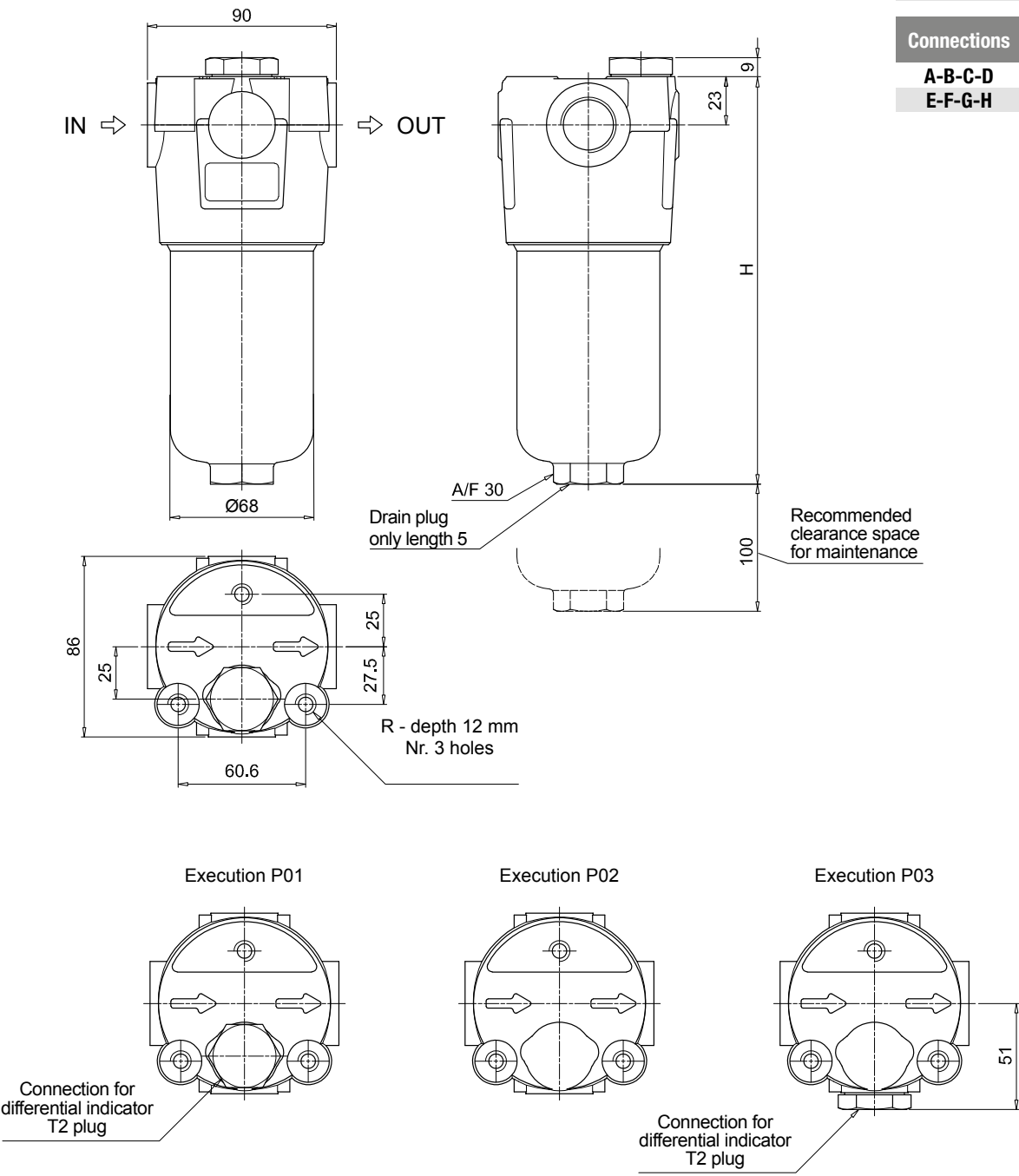
P01

MP Filtri standard

Pxx

Customized

ACCESSORIES					
Differential indicators			page	page	
DEA	Electrical differential indicator	577	DLE	Electrical / visual differential indicator	580
DEH	Hazardous area electronic differential indicator	577-578	DTA	Electronic differential indicator	581
DEM	Electrical differential indicator	578-579	DVA	Visual differential indicator	581
DLA	Electrical / visual differential indicator	579-580	DVM	Visual differential indicator	581
Additional features			page		
T2	Plug	582			



FMMO50	
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

COMPLETE FILTER

Series and size

FMM150

Configuration example:

FMM150

2

B

A

D

2

M25

N

P01

Length

1

2

3

Valves

S

Without bypass

B

With bypass 6 bar

Seals

A

NBR

V

FPM

Connections

C

G 1"

D

G 1 1/4"

E

1" NPT

F

1 1/4" NPT

G

SAE 16 - 1 5/16" - 12 UN

H

SAE 20 - 1 5/8" - 12 UN

Connection for differential indicator

1

Without connection

2

Upper connection

3

Frontal connection

Filtration rating (filter media)

A03

Inorganic microfiber

3 μm

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

N

20 bar

Execution

P01

MP Filtri standard

Pxx

Customized

FILTER ELEMENT

Element series and size

HP150

Configuration example:

HP150

2

M25

A

N

P01

Element length

1

2

3

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

Seals

A

NBR

V

FPM

Element Δp

N

20 bar

Execution

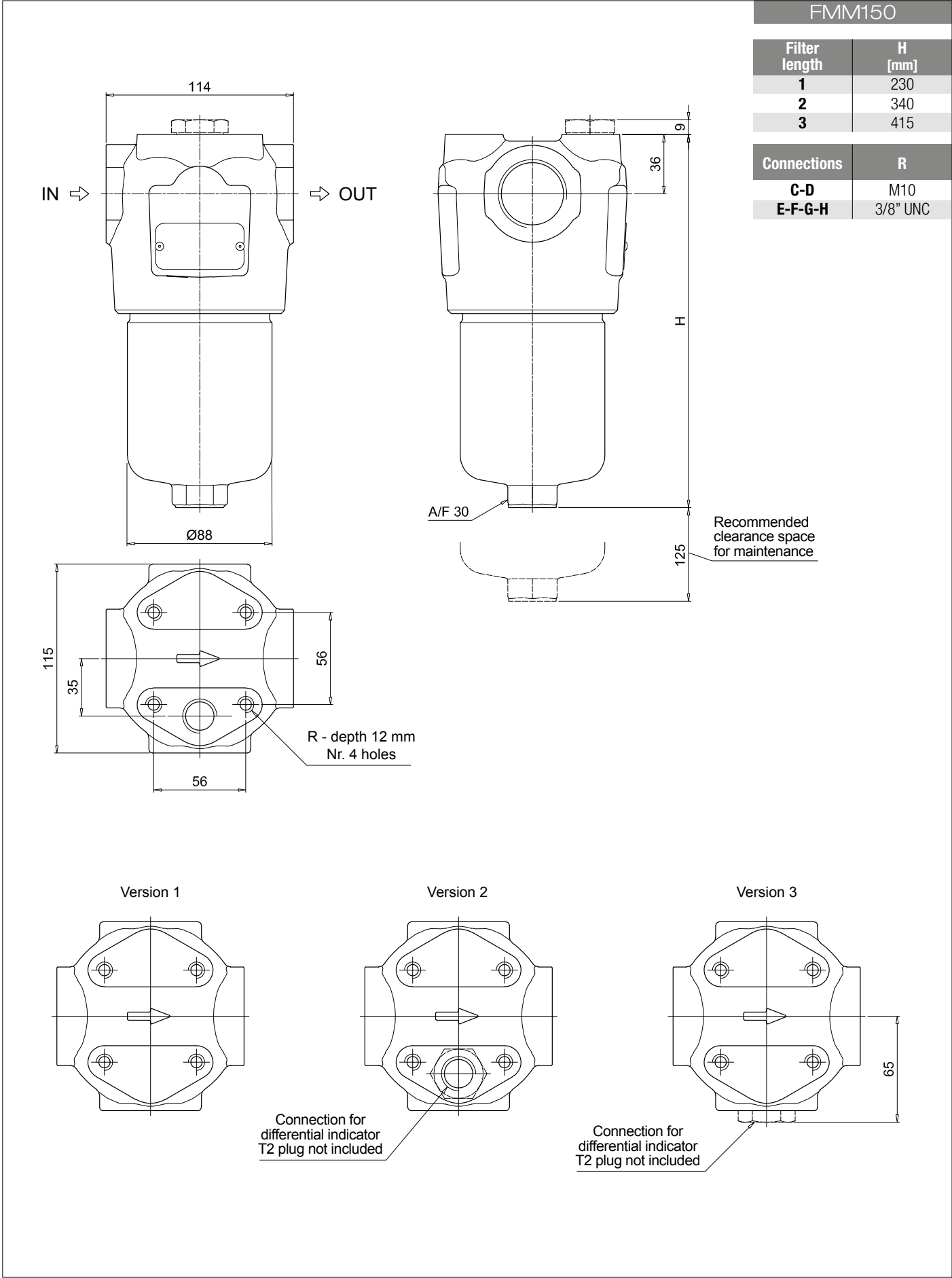
P01

MP Filtri standard

Pxx

Customized

ACCESSORIES					
Differential indicators			page	page	
DEA	Electrical differential indicator	577	DLE	Electrical / visual differential indicator	580
DEH	Hazardous area electronic differential indicator	577-578	DTA	Electronic differential indicator	581
DEM	Electrical differential indicator	578-579	DVA	Visual differential indicator	581
DLA	Electrical / visual differential indicator	579-580	DVM	Visual differential indicator	581
Additional features			page		
T2	Plug	582			



Order number for spare parts

This exploded perspective view shows the assembly of the water filter. At the top is a hexagonal nut (4) and a small O-ring (3d). Below these is a cap (3e) with an arrow indicating the flow direction. The main body of the filter (3g) is shown in a cross-section, revealing internal components: a top cap (3a) with a mesh (3b) and a central filter element (3c). The bottom of the filter body (2) features a base (3f) with a central outlet. The entire assembly is designed to be mounted onto a water supply line.

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

[illegible]

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

FHA 051 series

Maximum working pressure up to 56 MPa (560 bar) - Flow rate up to 150 l/min



FHA 051 GENERAL INFORMATION

Description

High Pressure filters

In-line
Maximum working pressure up to 56 MPa (560 bar)
Flow rate up to 150 l/min

FHA is a range of 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 3/4", for a maximum flow rate of 150 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
- Check valve, to protect the system against reverse flow
- Reverse flow valve, to allow bidirectional flow through the filter housing. The back flow is not filtered
- Low collapse filter element "N", for use with filters provided with bypass valve
- Low collapse filter element with external support "R", for filter element protection against the back pressure caused by the check valve 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any heavy duty industrial equipment or mobile machines

Technical data

Filter housing materials

- Head: Steel (chemical heat treatment)
- Housing: Steel (chemical heat treatment)
- Bypass valve: Steel

Pressure

- Test pressure: 84 MPa (840 bar)
- Burst pressure: 168 MPa (1680 bar)
- Pulse pressure fatigue test: 1 00 000 cycles with pressure from 0 to 56 MPa (560 bar)

Bypass valve

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

Δp element type

- Microfibre filter elements - series N-R: 20 bar
- Microfibre filter elements - series S: 210 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

In-line Inlet/Outlet

Note

FHA filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FHA 051		3.28	3.65	4.06	4.54	5.74		0.33	0.47	0.62	0.79	1.23

Filter series	Length	Filter element design - N Series						Filter element design - R Series					Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FHA 051	1	42	41	82	85	110	156	42	41	82	85	110	30	40	58	60	76
	2	53	58	87	100	127	158	53	58	87	100	127	45	50	78	91	120
	3	68	71	101	111	137	160	68	71	101	111	137	59	62	92	103	131
	4	86	92	118	121	142	162	86	92	118	121	142	77	83	110	113	137
	5	112	115	137	142	150	165	112	115	137	142	150	96	99	116	128	147

Maximum flow rate for a complete pressure filter with a pressure drop Δp = 1.5 bar.

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

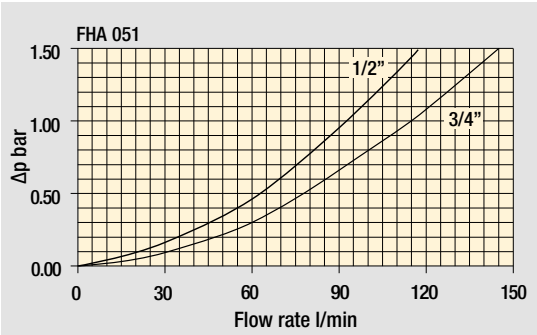
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

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

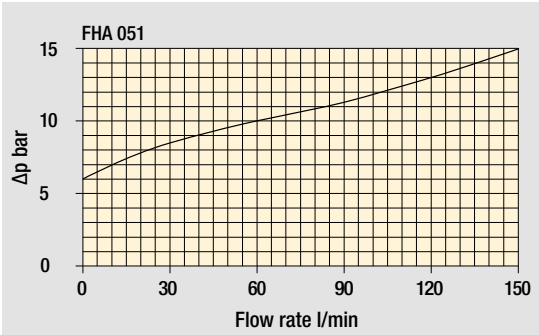
Hydraulic symbols

Filter series	Style S	Style B	Style T	Style D	Style V	Style Z
FHA 051	•	•	•	•	•	•

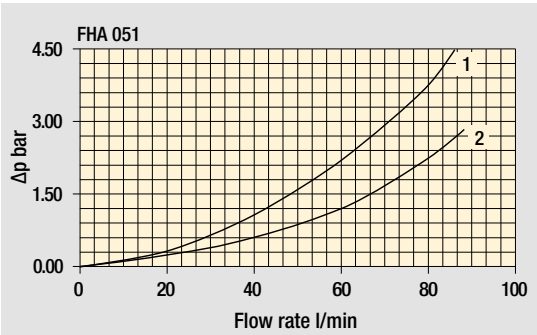
Pressure drop



Filter housings
Δp pressure drop



Bypass valve
pressure drop



Pressure drop in reverse flow valves

- 1 - Reverse flow
- 2 - In filter direction

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

FHA 051

Designation & Ordering code

COMPLETE FILTER

Series and size

FHA051

Configuration example:

FHA051

3

B

A

G

A10

N

P01

Length

1 | 2 | 3 | 4 | 5 |

Valves

S Without bypass

B With bypass 6 bar

T With check valve, without bypass

D With check valve, with bypass 6 bar

V With reverse flow, without bypass

Z With reverse flow, with bypass 6 bar

Seals

A NBR

V FPM

Connections

A M18x1.5 - ISO 6149

B M22x1.5 - ISO 6149

C G 1/2"

D G 3/4"

E 1/2" NPT

F 3/4" NPT

G SAE 8 - 3/4" - 16 UNF

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

Valves

Element Δp

S

B

T

D

V

Z

N 20 bar

R 20 bar

S 210 bar

Execution

P01 Upper connection for clogging indicator

P02 Without connection for clogging indicator

P03 Frontal connection for clogging indicator

Pxx Customized

FILTER ELEMENT

Element series and size

HP050

Configuration example:

HP050

3

A10

A

N

P01

Element length

1 | 2 | 3 | 4 | 5 |

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm

A06 Inorganic microfiber 6 µm

A10 Inorganic microfiber 10 µm

A16 Inorganic microfiber 16 µm

A25 Inorganic microfiber 25 µm

M25 Wire mesh 25 µm

Seals

A NBR

V FPM

Element Δp

N 20 bar

R 20 bar

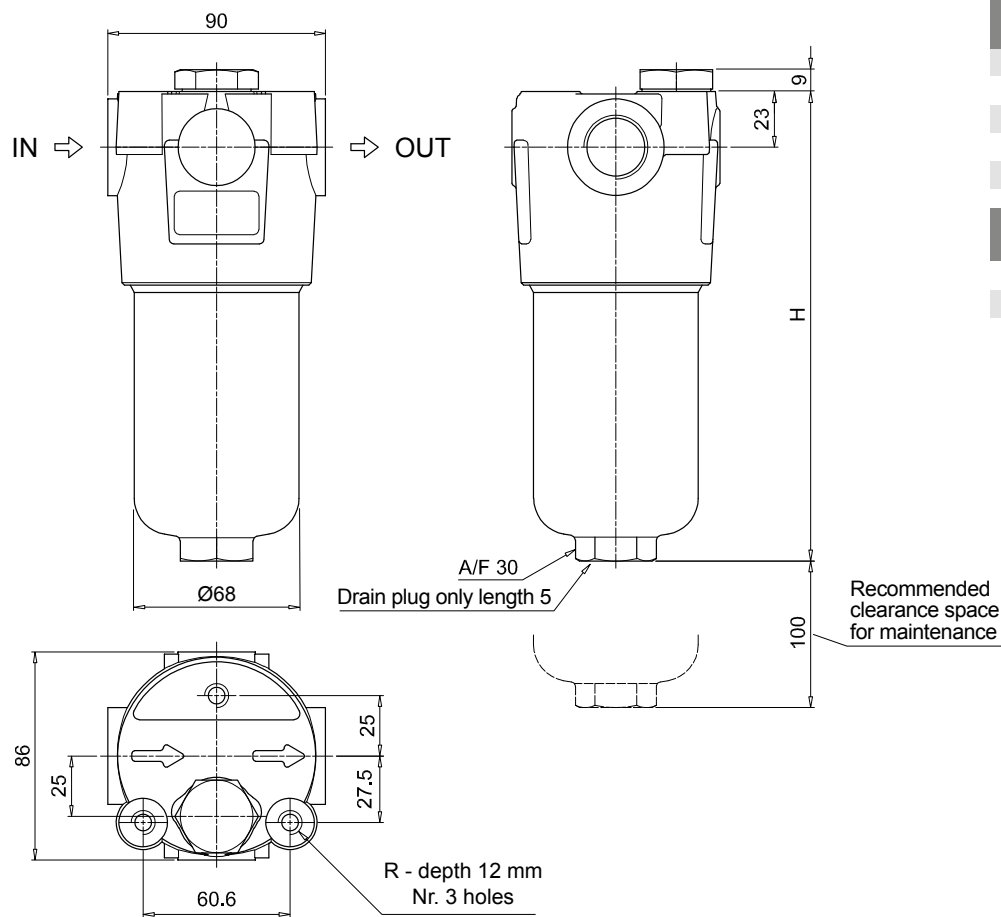
S 210 bar

Execution

P01 MP Filtri standard

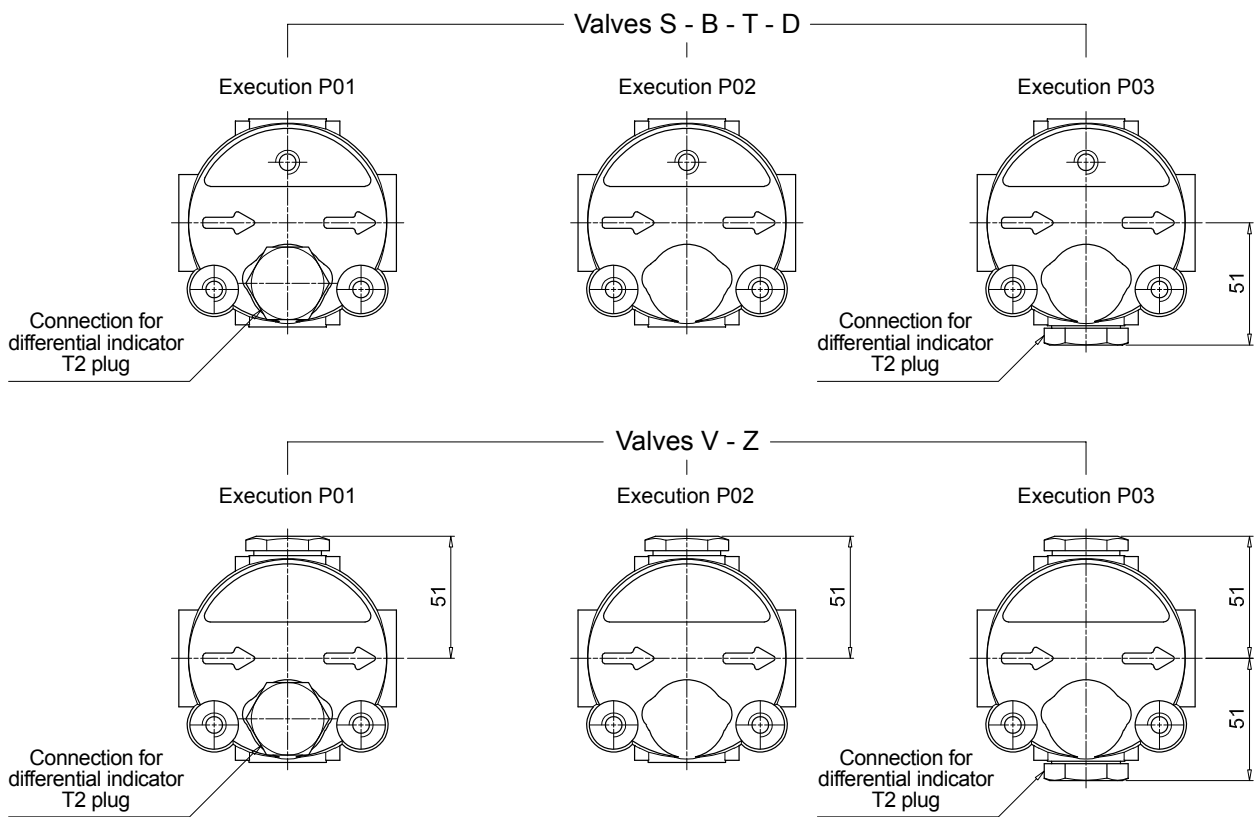
Pxx Customized

ACCESSORIES			
Differential indicators		page	page
DEA	Electrical differential indicator	577	580
DEH	Hazardous area electronic differential indicator	577-578	581
DEM	Electrical differential indicator	578-579	581
DLA	Electrical / visual differential indicator	579-580	581
Additional features		page	
T2	Plug	582	
DLE	Electrical / visual differential indicator		580
DTA	Electronic differential indicator		581
DVA	Visual differential indicator		581
DVM	Visual differential indicator		581



FHA051	
Filter length	H [mm]
1	158
2	195
3	237
4	285
5	407

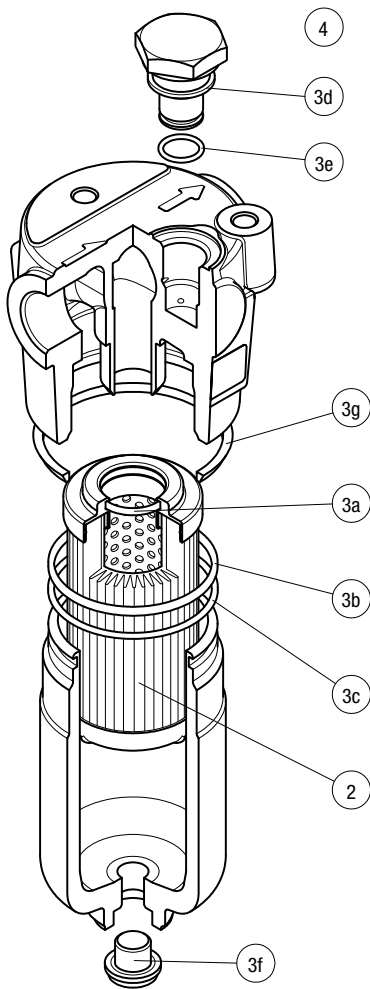
Connections	R
A-B-C-D	M10
E-F-G-H	3/8" UNC



FHA 051 SPARE PARTS

Order number for spare parts

FHA 051



Item:		Q.ty: 1 pc.		Q.ty: 1 pc.	
		2		3 (3a ÷ 3g)	
		4			
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
		NBR	FPM	NBR	FPM
FHA 051	See order table	02050288	02050305	T2H	T2V