

FHA 051 series

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

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) $\pm 10\%$
- 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

Flow rates [l/min]

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 $\Delta p = 1.5$ bar.

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

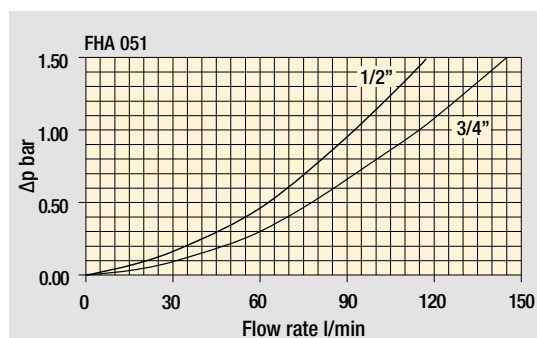
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

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.

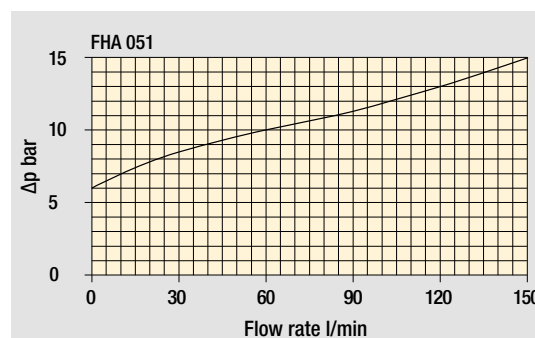
Hydraulic symbols

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

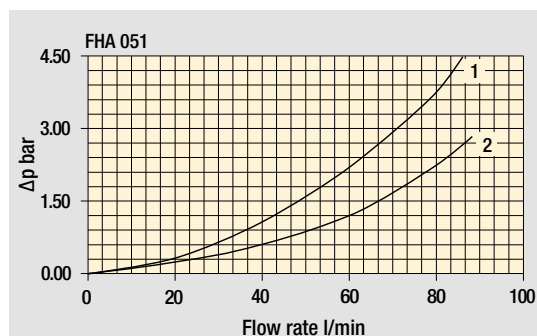
Pressure drop



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

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

To be installed for working pressures up to 420 bar max

CLOGGING INDICATORS

See page 727

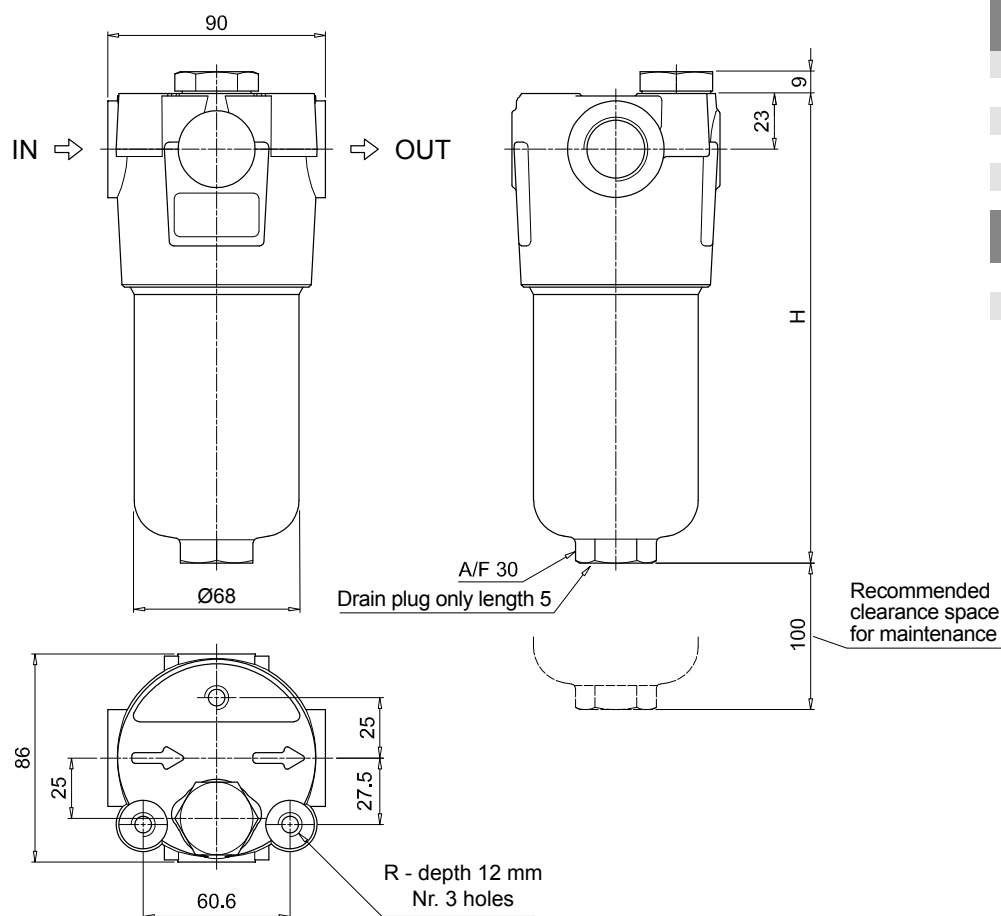
DEA Electrical differential pressure indicator
DEM Electrical differential pressure indicator
DEU Electrical differential pressure indicator
DLA Electrical / visual differential pressure indicator

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 (not included)



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

Valves S - B - T - D

Execution P01

Execution P02

Execution P03

Connection for
diff. pressure indicator
T2 plug

Connection for
diff. pressure indicator
T2 plug

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Valves V - Z

Execution P01

Execution P02

Execution P03

Connection for
diff. pressure indicator
T2 plug

Connection for
diff. pressure indicator
T2 plug

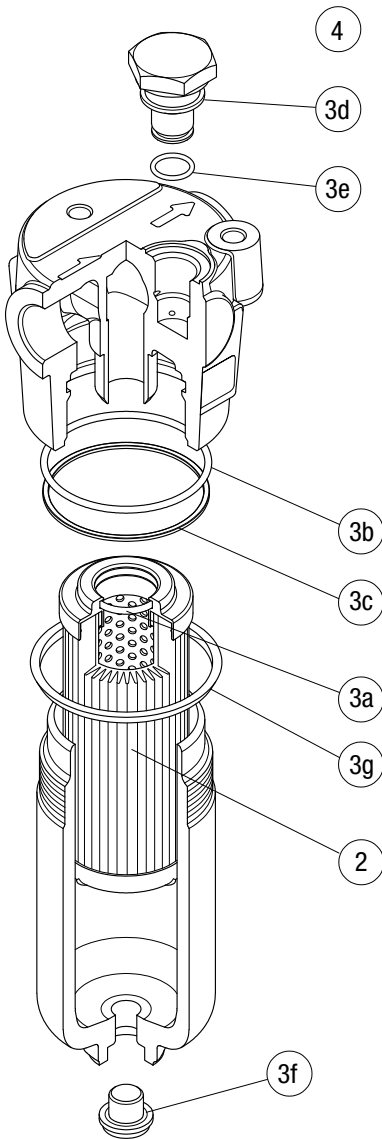
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FHA 051 SPARE PARTS

Order number for spare parts

FHA 051



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.
Filter series	Filter element	Seal Kit code number	Indicator connection plug
FHA 051	See order table	02050288	02050305
		NBR	FPM
		T2H	T2V

DIFFERENTIAL PRESSURE INDICATORS

Series		Configuration example 1:								
DE Electrical differential pressure indicator		DE	M	12	H	F	50	P01	UL	
DL Electrical/Visual differential pressure indicator		Configuration example 2:								
DT Electronic differential pressure indicator		DL	E	20	V	A	71	P01		
DV Visual differential pressure indicator		Configuration example 4:								
		DT	A	50	H	F	70	P01		
		Configuration example 5:								
		DV	M	70	V			P01		
Type		DE	DL	DT	DV					
A Standard type		•	•	•	A With automatic reset					
M With wired electrical connection		•	-	-	M With manual reset					
U Standard type 210 bar, UL certified		•	-	-						
E For high power supply		-	•	-						
Pressure setting		DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM	
50 5.0 bar		•	•	•	•	•	•	•	•	
70 7.0 bar		•	•	•	•	•	•	•	•	
95 9.5 bar		•	•	-	•	•	•	•	•	
Seals		DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM	
H HNBR		•	•	-	•	•	•	•	•	
V FPM		•	•	•	•	•	•	•	•	
Thermostat		DEA	DEM	DEU	DLA	DLE	DT			
A Without thermostat		•	•	•	•	•	-			
F With thermostat		-	•	-	-	•	•			
Electrical connections		DEA	DEM	DEU	DLA	DLE	DT			
10 Connection AMP Superseal series 1.5		-	•	-	-	-	-			
20 Connection AMP Timer Junior		-	•	-	-	-	-			
30 Connection Deutsch DT-04-2-P		-	•	-	-	-	-			
35 Connection Deutsch DT-04-3-P		-	•	-	-	-	-			
50 Connection EN 175301-803		•	-	•	-	•	-			
51 Connection EN 175301-803, transparent base with lamps 24 Vdc		-	-	-	•	-	-			
52 Connection EN 175301-803, transparent base with lamps 110 Vdc		-	-	-	•	-	-			
70 Connection IEC 61076-2-101 D (M12)		-	-	-	-	-	•			
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc		-	-	-	•	-	-			
Option										
P01 MP Filtri standard										
Pxx Customized										

PLUGS

Series		Configuration example	
T2 Plug		T2	H
Seals			
H HNBR			
V FPM			