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 filters 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: 1 000 000 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**
- Standard NBR series A
- Optional FPM series V

**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]

<table>
<thead>
<tr>
<th>Filter series</th>
<th>Weights [kg]</th>
<th>Volumes [dm³]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Length 1</td>
<td>2</td>
</tr>
<tr>
<td>FHA 051</td>
<td>3.28</td>
<td>3.65</td>
</tr>
</tbody>
</table>
The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968. \( \Delta p \) varies proportionally with density.

### General Information

**FHA 051**

Filter series | Length | A03 | A06 | A10 | A16 | A25 | M25 | A03 | A06 | A10 | A16 | A25 |
---|---|---|---|---|---|---|---|---|---|---|---|---|
1 | 42 | 41 | 82 | 85 | 110 | 156 | | 42 | 41 | 82 | 85 | 110 |
2 | 53 | 58 | 87 | 100 | 127 | 158 | | 53 | 58 | 87 | 100 | 127 |
3 | 68 | 71 | 101 | 111 | 137 | 160 | | 68 | 71 | 101 | 111 | 137 |
4 | 86 | 92 | 118 | 121 | 142 | 162 | | 86 | 92 | 118 | 121 | 142 |
5 | 112 | 115 | 137 | 142 | 150 | 165 | | 112 | 115 | 137 | 142 | 150 |

Maximum flow rate for a complete pressure filter with a pressure drop \( \Delta p = 1.5 \text{ bar} \).

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

<table>
<thead>
<tr>
<th>Filter series</th>
<th>Style S</th>
<th>Style B</th>
<th>Style T</th>
<th>Style D</th>
<th>Style V</th>
<th>Style Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHA 051</td>
<td>•</td>
<td>•</td>
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<td>•</td>
<td>•</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Filter element design - N Series</th>
<th>Filter element design - R Series</th>
<th>Filter element design - S Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHA 051</td>
<td>12</td>
<td>204</td>
</tr>
</tbody>
</table>

Flow rates [l/min]

High Pressure filters

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. \( \Delta p \) varies proportionally with density.
### COMPLETE FILTER

<table>
<thead>
<tr>
<th>Series and size</th>
<th>Configuration example: FHA051</th>
<th>3</th>
<th>B</th>
<th>A</th>
<th>G</th>
<th>A10</th>
<th>N</th>
<th>P01</th>
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<table>
<thead>
<tr>
<th>Length</th>
<th>FHA051</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th></th>
<th></th>
</tr>
</thead>
</table>

**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"

**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

<table>
<thead>
<tr>
<th>Element</th>
<th>Valves</th>
<th>Execution</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>N 20 bar - • - - - -</td>
<td>P01 Upper connection for clogging indicator</td>
</tr>
<tr>
<td>B</td>
<td>- 20 bar - - - • - -</td>
<td>P02 Without connection for clogging indicator</td>
</tr>
<tr>
<td>T</td>
<td>- - 210 bar • - - - -</td>
<td>P03 Frontal connection for clogging indicator</td>
</tr>
<tr>
<td>D</td>
<td>- - - - - - - - - -</td>
<td>Pxx Customized</td>
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### FILTER ELEMENT

<table>
<thead>
<tr>
<th>Element series and size</th>
<th>Configuration example: HP050</th>
<th>3</th>
<th>A10</th>
<th>A</th>
<th>N</th>
<th>P01</th>
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<table>
<thead>
<tr>
<th>Element length</th>
<th>HP050</th>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
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<thead>
<tr>
<th>Element</th>
<th>Seals</th>
<th>Element</th>
<th>Execution</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>N</td>
<td>N 20 bar</td>
<td>P01 MP Filtri standard</td>
</tr>
<tr>
<td>V</td>
<td>FPM</td>
<td>R 20 bar</td>
<td>Pxx Customized</td>
</tr>
<tr>
<td>S</td>
<td>210 bar</td>
<td>S 210 bar</td>
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</tbody>
</table>

### CLOGGING INDICATORS

- DEA Electrical differential indicator
- DEM Electrical differential indicator
- DLA Electrical / visual differential indicator
- DLE Electrical / visual differential indicator
- DTA Electrical differential indicator
- DVA Visual differential indicator
- DVM Visual differential indicator

**PLUGS**

- T2 Differential indicator plug

See page 687

See page 706
FHA 051

Dimensions

<table>
<thead>
<tr>
<th>Filter length</th>
<th>H [mm]</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
<td>195</td>
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<tr>
<td>3</td>
<td>237</td>
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<td>285</td>
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<tr>
<td>5</td>
<td>407</td>
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Connections R

<table>
<thead>
<tr>
<th>A-B-C-D</th>
<th>M10</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-F-G-H</td>
<td>3/8&quot; UNC</td>
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</tbody>
</table>

IN ➔ OUT

Ø68

90

100

23

H

A/F 30

Drain plug only length 5

Recommended clearance space for maintenance

R - depth 12 mm

Nr. 3 holes

Valves S - B - T - D

Execution P01

Connection for differential indicator T2 plug

Execution P02

Connection for differential indicator T2 plug

Execution P03

Valves V - Z

Execution P01

Connection for differential indicator T2 plug

Execution P02

Connection for differential indicator T2 plug

Execution P03

Connection for differential indicator T2 plug
FHA 051 SPARE PARTS

Order number for spare parts

<table>
<thead>
<tr>
<th>Item:</th>
<th>Filter series</th>
<th>Filter element</th>
<th>Seal Kit code number</th>
<th>Indicator connection plug</th>
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<tbody>
<tr>
<td>2</td>
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<td>See order table</td>
<td>02050288 NBR</td>
<td>T2H FPM</td>
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<tr>
<td>3</td>
<td>02050305 NBR</td>
<td>T2V FPM</td>
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