

# FHA 051 series

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



# TYPICAL FILTER SIZING Selection Software

## Step ①

Select "FILTER SIZING SOFTWARE" after login

The screenshot shows the MP Filtri website's homepage. A user profile for 'WELCOME MARIO ROSSI' is displayed. Below it, a section titled 'Then here you're selecting the tool wanted:' contains three buttons: 'FILTER SIZING SOFTWARE' (highlighted with a blue box), 'POWER TRANSMISSION SOFTWARE', and 'MODIFY PROFILE'. At the bottom of the page, there is contact information for MP Filtri srl.

OR

Select "FILTER SIZING" after login from a product page

The screenshot shows a product page for 'MPFX' filter elements. The 'FILTER SIZING' button is highlighted with a blue box at the bottom right of the page. To the right, there is a technical drawing of a filter element and some descriptive text about tank-mounted return filters.

Choose the type of filter family.  
Enter the main data for sizing the filter  
then push CALCULATE.

## Step ②

This screenshot shows the 'FILTER SIZING SOFTWARE' interface. It has tabs for 'PRODUCT SELECTION', 'POWER TRANSMISSION SOFTWARE', and 'FILTER SIZING SOFTWARE' (which is active). Under 'RETURN/SUCTION', the 'RETURN' tab is selected. The main data entry area includes fields for Working Pressure (bar), Flow rate (l/min), Fluid type (ISO VG 46 SUS 216), Fluid Working Temperature (°C), Fluid (HLP - Mineral oil), Viscosity (cSt), Viscosity (cSt), Filtration (A25 - 25 µm absolute inorganic microfibre), and Connection Type (G 1"). A 'CALCULATE' button is at the bottom.

This screenshot shows the 'FILTER SIZING SOFTWARE' interface again, but with a different product selected ('Product: MPFX'). The data entry fields are identical to the previous screenshot, including Working Pressure, Flow rate, Fluid type, Fluid Working Temperature, Fluid, Viscosity, Filtration, and Connection Type. A 'CALCULATE' button is at the bottom.

Select the desired options to choose the appropriate filter type for the application.

This screenshot shows the 'FILTER SIZING SOFTWARE' interface with various filter options selected. At the top, there are dropdown menus for Working Pressure (8 bar), Fluid type (ISO VG 46 SUS 216), Seal (A - NBR), Working Temperature (-25 + 110 °C), Optional seals (V - FPM), Working Temperature with options (-20 + 110 °C), and Viscosity (46 cSt - 216 SUS). Below this is a 'Filter type' section with 'MPFX - Tank lid mounting - [Pmax x -] B: 1.75 bar Bypass' selected. Further down are sections for 'Option1' (Single or duplex) and 'DIN Standard' (NOT APPLICABLE). At the bottom, a table lists filter models with columns for Image, Code, Prex, Qmax, ΔP, Housing ΔP, Element ΔP, Connection, Seal, and Link.

## TYPICAL FILTER SIZING

## Step 4

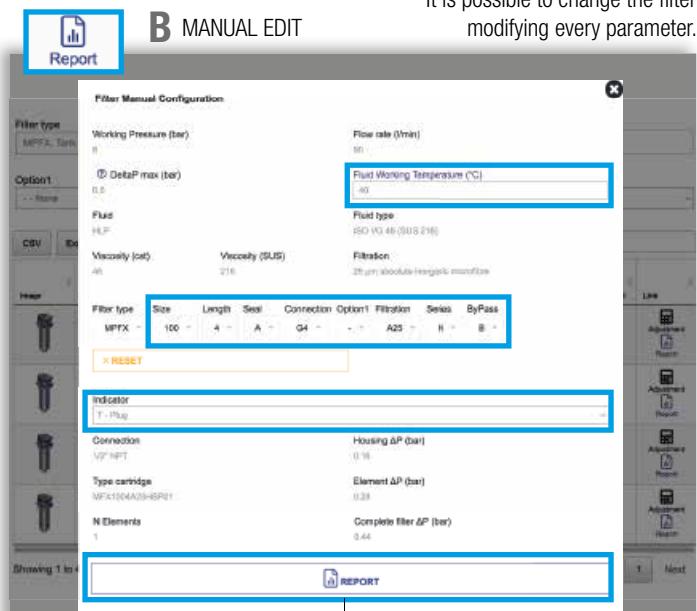
Choose the most suitable filter from the proposed list.

Filter type	Valve	Seal							
MPX: Tank lid mounting - [Pmax = 1 bar]	B: 1.75 bar Bypass	A: NBR	<b>X</b> RESET						
Option1	Single or duplex	DIN Standard	Indicator						
-- None	Single	NOT APPLICABLE	Visual						
<b>CSV</b>	<b>Excel</b>	Show 10 entries	Search:						
Image	Code	Peak bar psi	Qmax dm³/h gpm us	dP bar inHg psig	Housing AP bar psi	Element AP bar psi	Connection	Seal	Link
	MPX-100-S-A-G3-A25-H-BPSI	B 116 95.74	25.3 0.47	T 0.12 2	E35 5	G 1"	A	 	
	MPX-104-S-A-G3-A25-H-BPSI	B 116 95.74	25.3 0.47	T 0.12 2	E35 5	G 1"	A	 	

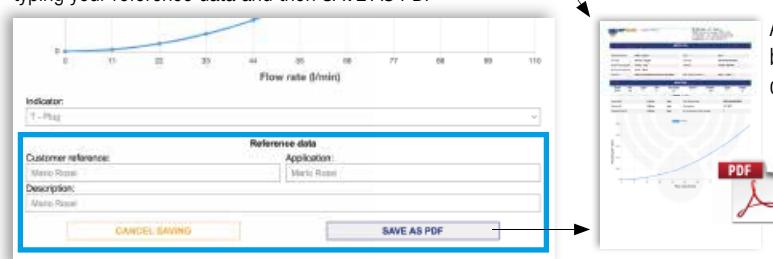
## Step 5



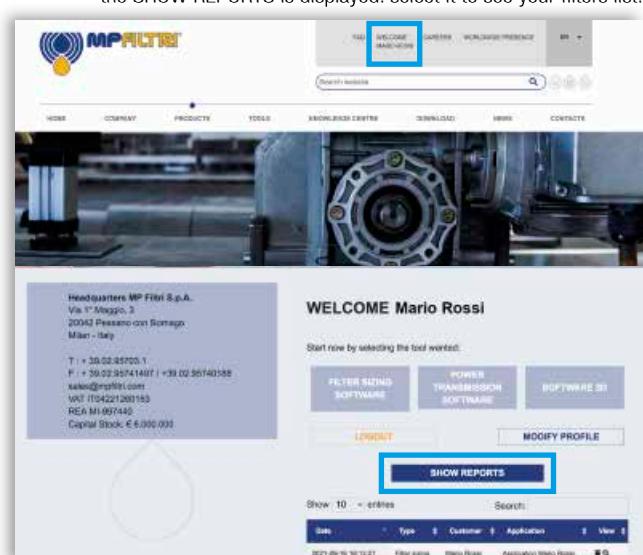
**SAVE IN YOUR ARCHIVE**  
typing your reference data and then **SAVE AS PDF**



It is possible to change the filter  
modifying every parameter.



By clicking your WELCOME button, the SHOW REPORTS is displayed; select it to see your filters list



# FHA 051 GENERAL INFORMATION

## 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) ±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 [dm<sup>3</sup>]

Filter series	Length	Weights [kg]					Length	Volumes [dm <sup>3</sup> ]				
		1	2	3	4	5		1	2	3	4	5
<b>FHA 051</b>		3.28	3.65	4.06	4.54	5.74		0.33	0.47	0.62	0.79	1.23

# GENERAL INFORMATION FHA 051

## FILTER ASSEMBLY SIZING 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
<b>FHA 051</b>	<b>1</b>	42	41	82	85	110	156	42	41	82	85	110	30	40	58	60	76
	<b>2</b>	53	58	87	100	127	158	53	58	87	100	127	45	50	78	91	120
	<b>3</b>	68	71	101	111	137	160	68	71	101	111	137	59	62	92	103	131
	<b>4</b>	86	92	118	121	142	162	86	92	118	121	142	77	83	110	113	137
	<b>5</b>	112	115	137	142	150	165	112	115	137	142	150	96	99	116	128	147

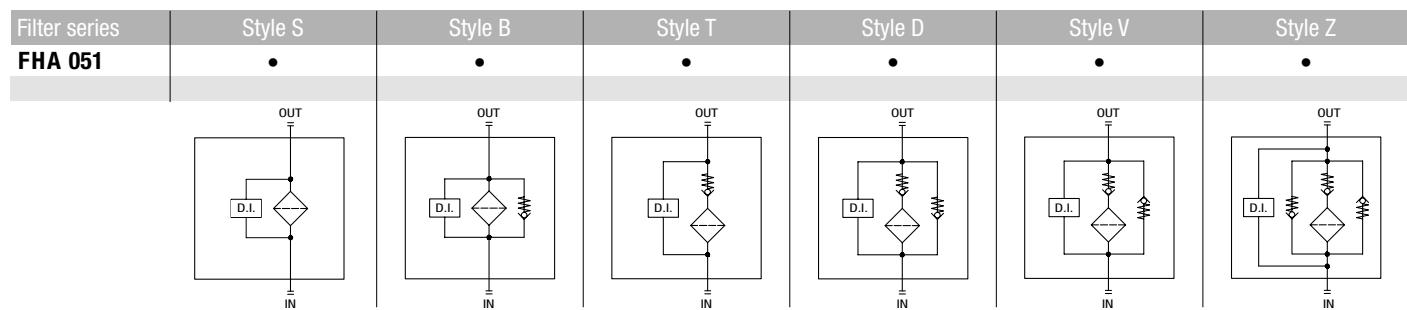
### Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

The reference fluid has a kinematic viscosity of 30 mm<sup>2</sup>/s (cSt) and a density of 0.86 kg/dm<sup>3</sup>.

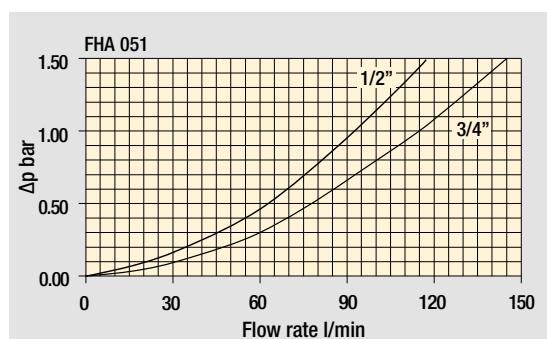
For different pressure drop or fluid viscosity we recommend to use our selection software available on [www.mpfiltre.com](http://www.mpfiltre.com).

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.

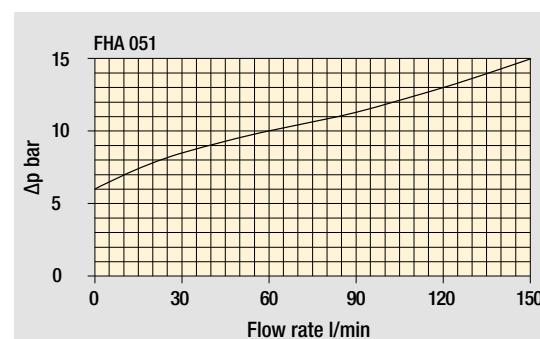
### Hydraulic symbols



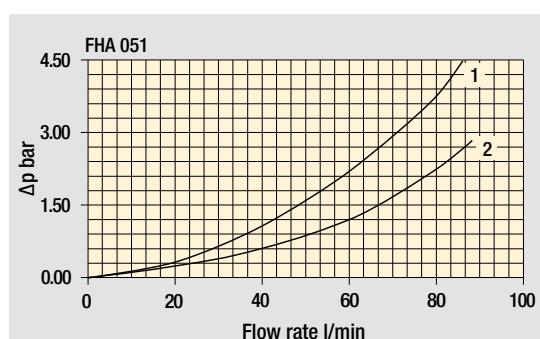
### Pressure drop



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/dm<sup>3</sup> in compliance with ISO 3968.  $\Delta p$  varies proportionally with density.

# FHA 051

## Designation & Ordering code

### COMPLETE FILTER

<b>Series and size</b>	Configuration example: FHA051 3 B A G A10 N P01							
<b>FHA051</b>								
<b>Length</b>								
1   2   3   4   5								
<b>Valves</b>								
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								
<b>Seals</b>								
A NBR								
V FPM								
<b>Connections</b>								
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							
<b>Filtration rating (filter media)</b>								
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								
<b>Element Δp</b>								
N 20 bar	S	B	T	D	V	Z		
R 20 bar	-	-	-	•	-	•		
S 210 bar	•	-	•	-	•	-		
<b>Execution</b>								
P01 Upper connection for clogging indicator								
P02 Without connection for clogging indicator								
P03 Frontal connection for clogging indicator								
Pxx Customized								

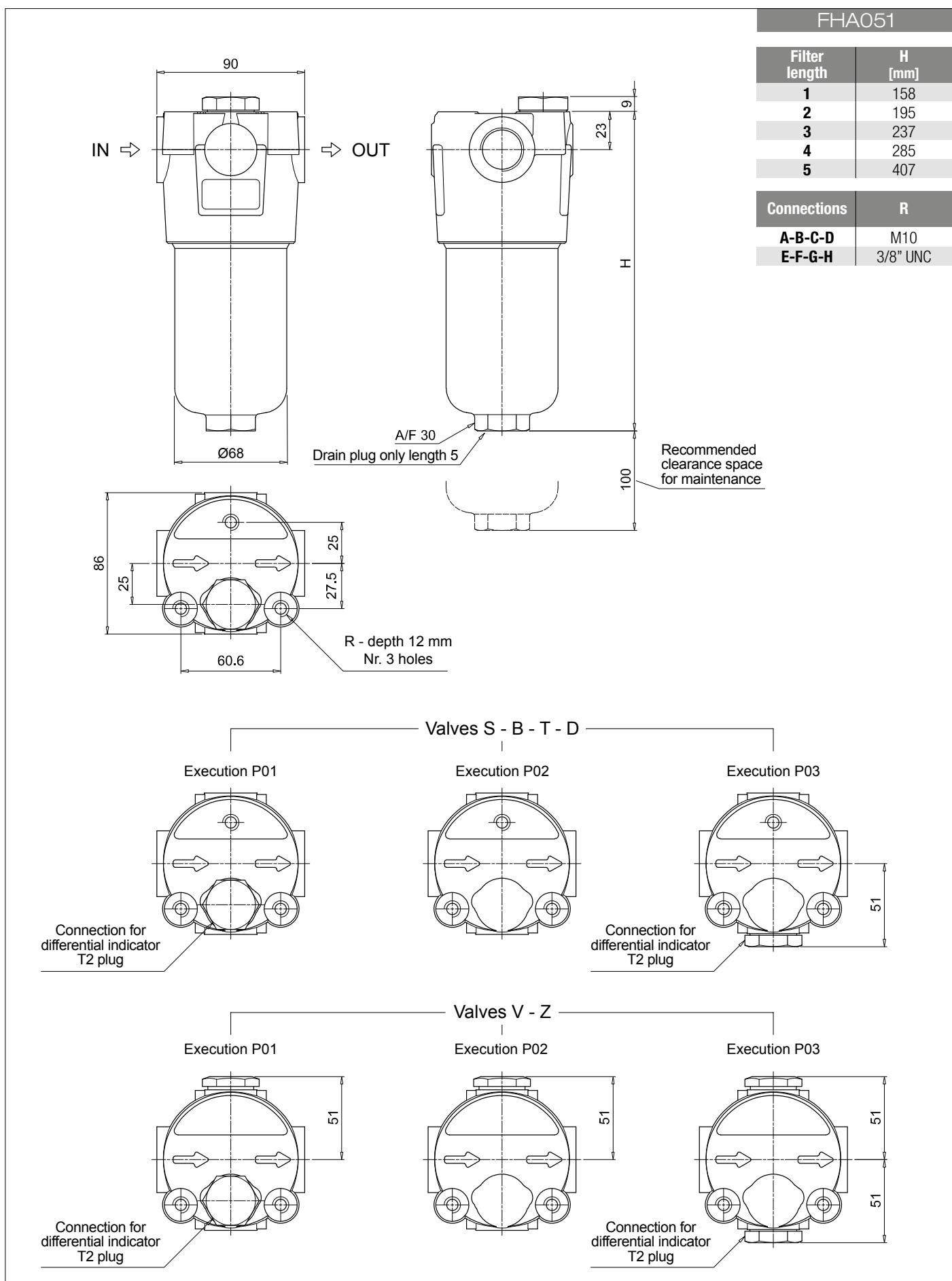
<b>FILTER ELEMENT</b>								
<b>Element series and size</b>	Configuration example: HP050 3 A10 A N P01							
<b>HP050</b>								
<b>Element length</b>								
1   2   3   4   5								
<b>Filtration rating (filter media)</b>								
A03 Inorganic microfiber 3 µm								
A06 Inorganic microfiber 6 µm								
A10 Inorganic microfiber 10 µm								
A16 Inorganic microfiber 16 µm								
A25 Inorganic microfiber 25 µm								
M25 Wire mesh 25 µm								
<b>Seals</b>								
A NBR								
V FPM								
<b>Element Δp</b>								
N 20 bar								
R 20 bar								
S 210 bar								
<b>Execution</b>								
P01 MP Filtri standard								
Pxx Customized								

### CLOGGING INDICATORS

See page 622

<b>DEA</b> Electrical differential indicator
<b>DEM</b> Electrical differential indicator
<b>DLA</b> Electrical / visual differential indicator
<b>DLE</b> Electrical / visual differential indicator

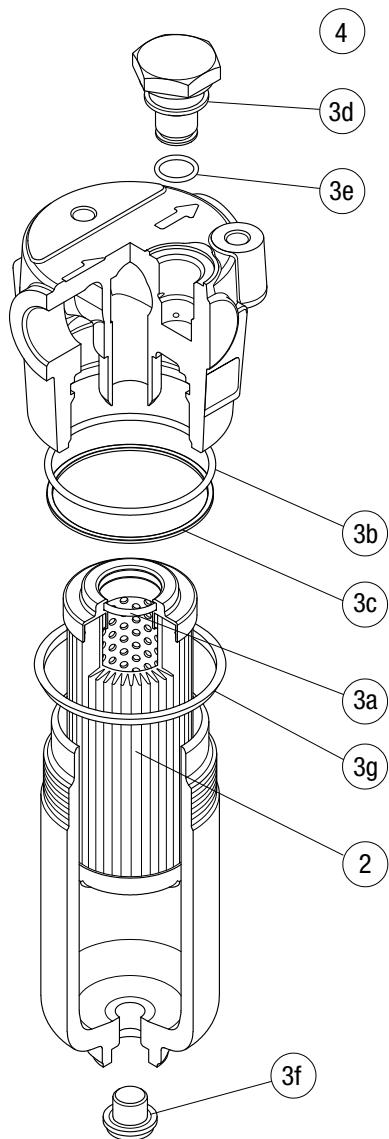
<b>DTA</b> Electrical differential indicator
<b>DVA</b> Visual differential indicator
<b>DVM</b> Visual differential indicator
<b>T2</b> Plug



# FHA 051 SPARE PARTS

Order number for spare parts

FHA 051



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



# Clogging indicators

## Introduction

Filter elements are efficient only if their Dirt Holding Capacity is fully exploited. This is achieved by using filter housings equipped with clogging indicators.

These devices trip when the clogging of the filter element causes an increase in pressure drop across the filter element.

The indicator is set to alarm before the element becomes fully clogged.

MP Filtri can supply indicators of the following designs:

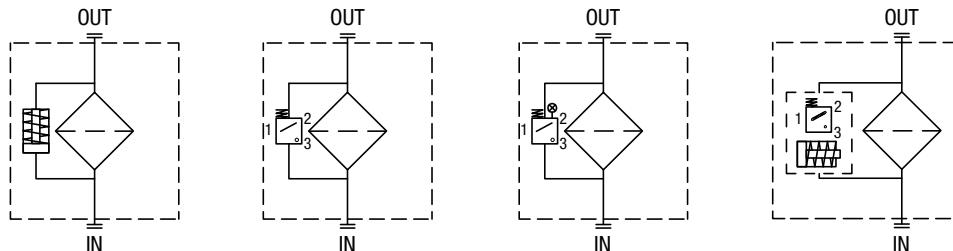
- **Vacuum switches and gauges**
- **Pressure switches and gauges**
- **Differential pressure indicators**

These type of devices can be provided with a visual, electrical or both signals.

## Suitable indicator types

### DIFFERENTIAL INDICATORS

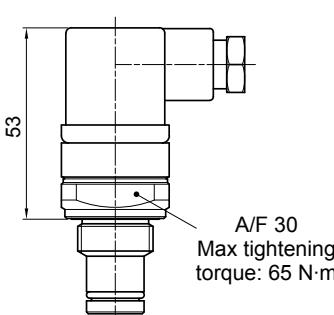
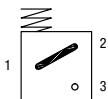
Differential indicators are used on the Pressure line to check the efficiency of the filter element. They measure the pressure upstream and downstream of the filter element (differential pressure). Standard items are produced with special connection G 1/2" size. Also available in Stainless Steel models.



## Quick reference guide

Filter family	Filter series	Visual indicators	Electrical indicators	Electrical / Visual indicators
With bypass valve 6 bar	FMP 039 - 065 - 135 - 320 FHP 010 - 011 - 065 - 135 - 350 - 351 - 500 FMMX 050 FMM 050 - 150 FHA 051 FHM 006 - 007 - 010 - 050 - 065 - 135 - 320 - 500 FHB 050 - 135 - 320 FHF 325 FHD 021 - 051 - 326 - 333	DVA50xP01 DVM50xP01	DEA50xA50P01 DEM50XX10P01 DEM50XX20P01 DEM50XX30P01 DEM50XX35P01 DTA50xF70P01 DEA70xA50P01 DEA95xA50P01	DEA50xA50P01 DEM50XX10P01 DEM50XX20P01 DEM50XX30P01 DEM50XX35P01 DTA50xF70P01 DEA70xA50P01 DEA95xA50P01
Without bypass valve	FMP 039 - 065 - 135 - 320 FHP 010 - 011 - 065 - 135 - 350 - 351 - 500 FMMX 050 FMM 050 - 150 FHA 051 FHM 006 - 007 - 010 - 050 - 065 - 135 - 320 - 500 FHB 050 - 135 - 320 FHF 325 FHD 021 - 051 - 326 - 333	DVA70xP01 DVA95xP01 DVM70xP01 DVM95xP01	DEM70XX10P01 DEM70XX20P01 DEM70XX30P01 DEM70XX35P01 DEM95XX10P01 DEM95XX20P01 DEM95XX30P01 DEM95XX35P01 DTA70xF70P01 DTA95xF70P01	DEM70XX10P01 DEM70XX20P01 DEM70XX30P01 DEM70XX35P01 DEM95XX10P01 DEM95XX20P01 DEM95XX30P01 DEM95XX35P01 DTA70xF70P01 DTA95xF70P01

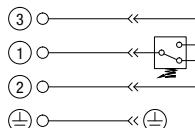
<b>DEA*50</b>	
<b>Electrical Differential Indicator</b>	
<b>Settings</b>	<b>Ordering code</b>
5.0 bar $\pm 10\%$	DE A 50 x A 50 P01
7.0 bar $\pm 10\%$	DE A 70 x A 50 P01
9.5 bar $\pm 10\%$	DE A 95 x A 50 P01


**Hydraulic symbol****Materials**

- Body: Brass
- Base: Black polyamide
- Contacts: Silver
- Seal: HNBR - FPM

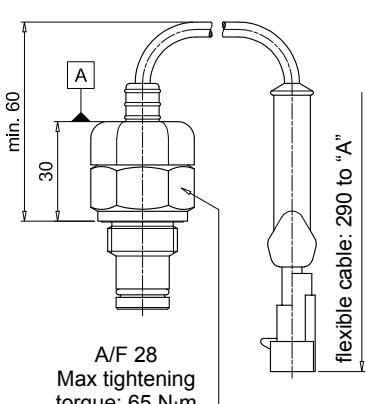
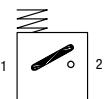
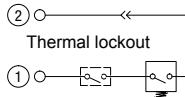
**Technical data**

- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree protection: IP66 according to EN 60529
- Degree protection: IP69K according to ISO 20653

**Electrical symbol****Electrical data**

- Electrical connection: EN 175301-803
- Resistive load: 0.2 A / 115 Vdc

<b>DEM*10</b>	
<b>Electrical Differential Indicator</b>	
<b>Settings</b>	<b>Ordering code</b>
5.0 bar $\pm 10\%$	DE M 50 x x 10 P01
7.0 bar $\pm 10\%$	DE M 70 x x 10 P01
9.5 bar $\pm 10\%$	DE M 95 x x 10 P01


**Hydraulic symbol****Electrical symbol****Materials**

- Body: Brass
- Base: Black polyamide
- Contacts: Silver
- Seal: HNBR - FPM

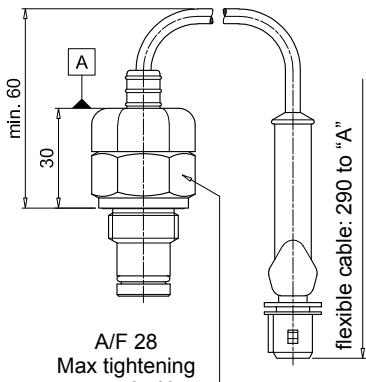
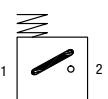
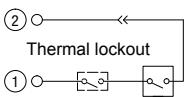
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- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree protection: IP66 according to EN 60529

**Electrical data**

- Electrical connection: AMP Superseal series 1.5
- Resistive load: 0.2 A / 115 Vdc
- Switching type: Normally open contacts (NC on request)
- Thermal lockout: Normally open up to 30 °C (option "F")

<b>DEM*20</b>	
<b>Electrical Differential Indicator</b>	
<b>Settings</b>	<b>Ordering code</b>
5.0 bar $\pm 10\%$	DE M 50 x x 20 P01
7.0 bar $\pm 10\%$	DE M 70 x x 20 P01
9.5 bar $\pm 10\%$	DE M 95 x x 20 P01


**Hydraulic symbol****Electrical symbol****Materials**

- Body: Brass
- Base: Black polyamide
- Contacts: Silver
- Seal: HNBR - FPM

**Technical data**

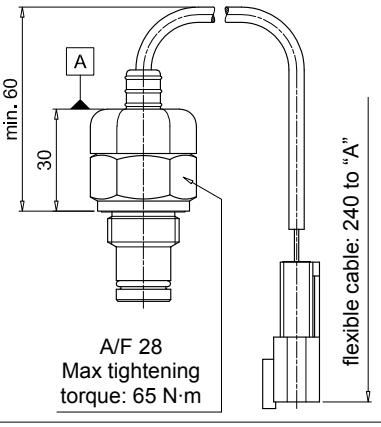
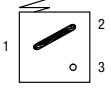
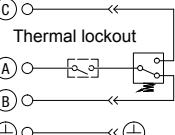
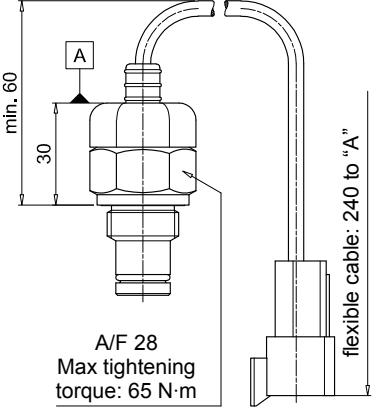
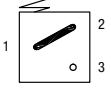
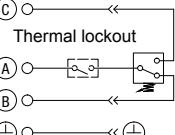
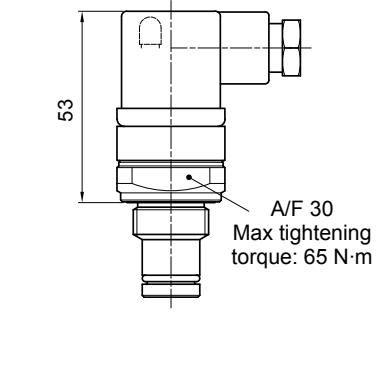
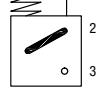
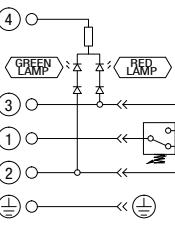
- Max working pressure: 420 bar
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- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree protection: IP66 according to EN 60529

**Electrical data**

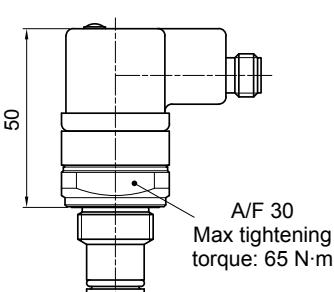
- Electrical connection: AMP Time junior
- Resistive load: 0.2 A / 115 Vdc
- Switching type: Normally open contacts (NC on request)
- Thermal lockout: Normally open up to 30 °C (option "F")

# DIFFERENTIAL INDICATORS

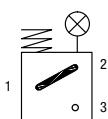
## Dimensions

<p><b>DEM*30</b></p> <p><b>Electrical Differential Indicator</b></p> <table border="1"> <thead> <tr> <th>Settings</th><th>Ordering code</th></tr> </thead> <tbody> <tr> <td>5.0 bar <math>\pm 10\%</math></td><td>DE M 50 x x 30 P01</td></tr> <tr> <td>7.0 bar <math>\pm 10\%</math></td><td>DE M 70 x x 30 P01</td></tr> <tr> <td>9.5 bar <math>\pm 10\%</math></td><td>DE M 95 x x 30 P01</td></tr> </tbody> </table>  <p>A/F 28 Max tightening torque: 65 N·m</p>	Settings	Ordering code	5.0 bar $\pm 10\%$	DE M 50 x x 30 P01	7.0 bar $\pm 10\%$	DE M 70 x x 30 P01	9.5 bar $\pm 10\%$	DE M 95 x x 30 P01	<p><b>Hydraulic symbol</b></p>  <p><b>Electrical symbol</b></p>  <p>Thermal lockout</p> <p>② ○ ←→</p> <p>③ ○ —○—○—→</p> <p>④ ○ —○—○—→</p> <p>① ○ →—○—→</p> <p>flexible cable: 240 to "A"</p>	<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>- Body: Brass</li> <li>- Base: Black polyamide</li> <li>- Contacts: Silver</li> <li>- Seal: HNBR - FPM</li> </ul> <p><b>Technical data</b></p> <ul style="list-style-type: none"> <li>- Max working pressure: 420 bar</li> <li>- Proof pressure: 630 bar</li> <li>- Burst pressure: 1260 bar</li> <li>- Working temperature: From -25 °C to +110 °C</li> <li>- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943</li> <li>- Degree protection: IP66 according to EN 60529</li> </ul> <p><b>Electrical data</b></p> <ul style="list-style-type: none"> <li>- Electrical connection: Deutsch DT-04-3-P</li> <li>- Resistive load: 0.2 A / 115 Vdc</li> <li>- Switching type: SPDT contact</li> <li>- Thermal lockout: Normally open up to 30 °C (option "F")</li> </ul>																				
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<p><b>DEM*35</b></p> <p><b>Electrical Differential Indicator</b></p> <table border="1"> <thead> <tr> <th>Settings</th><th>Ordering code</th></tr> </thead> <tbody> <tr> <td>5.0 bar <math>\pm 10\%</math></td><td>DE M 50 x x 35 P01</td></tr> <tr> <td>7.0 bar <math>\pm 10\%</math></td><td>DE M 70 x x 35 P01</td></tr> <tr> <td>9.5 bar <math>\pm 10\%</math></td><td>DE M 95 x x 35 P01</td></tr> </tbody> </table>  <p>A/F 28 Max tightening torque: 65 N·m</p>	Settings	Ordering code	5.0 bar $\pm 10\%$	DE M 50 x x 35 P01	7.0 bar $\pm 10\%$	DE M 70 x x 35 P01	9.5 bar $\pm 10\%$	DE M 95 x x 35 P01	<p><b>Hydraulic symbol</b></p>  <p><b>Electrical symbol</b></p>  <p>Thermal lockout</p> <p>② ○ ←→</p> <p>③ ○ —○—○—→</p> <p>④ ○ —○—○—→</p> <p>① ○ →—○—→</p> <p>flexible cable: 240 to "A"</p>	<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>- Body: Brass</li> <li>- Base: Black polyamide</li> <li>- Contacts: Silver</li> <li>- Seal: HNBR - FPM</li> </ul> <p><b>Technical data</b></p> <ul style="list-style-type: none"> <li>- Max working pressure: 420 bar</li> <li>- Proof pressure: 630 bar</li> <li>- Burst pressure: 1260 bar</li> <li>- Working temperature: From -25 °C to +110 °C</li> <li>- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943</li> <li>- Degree protection: IP66 according to EN 60529</li> </ul> <p><b>Electrical data</b></p> <ul style="list-style-type: none"> <li>- Electrical connection: Deutsch DT-04-3-P</li> <li>- Resistive load: 0.2 A / 115 Vdc</li> <li>- Switching type: SPDT contact</li> <li>- Thermal lockout: Normally open up to 30 °C (option "F")</li> </ul>																				
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<p><b>DLA*51 - DLA*52</b></p> <p><b>Electrical/Visual Differential Indicator</b></p> <table border="1"> <thead> <tr> <th>Settings</th><th>Ordering code</th></tr> </thead> <tbody> <tr> <td>5.0 bar <math>\pm 10\%</math></td><td>DL A 50 x A xx P01</td></tr> <tr> <td>7.0 bar <math>\pm 10\%</math></td><td>DL A 70 x A xx P01</td></tr> <tr> <td>9.5 bar <math>\pm 10\%</math></td><td>DL A 95 x A xx P01</td></tr> </tbody> </table>  <p>A/F 30 Max tightening torque: 65 N·m</p>	Settings	Ordering code	5.0 bar $\pm 10\%$	DL A 50 x A xx P01	7.0 bar $\pm 10\%$	DL A 70 x A xx P01	9.5 bar $\pm 10\%$	DL A 95 x A xx P01	<p><b>Hydraulic symbol</b></p>  <p><b>Electrical symbol</b></p>  <p>Thermal lockout</p> <p>④ ○ —○—○—→</p> <p>GREEN LAMP</p> <p>RED LAMP</p> <p>③ ○ —○—○—→</p> <p>② ○ ←→</p> <p>① ○ →—○—→</p> <p>flexible cable: 240 to "A"</p>	<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>- Body: Brass</li> <li>- Base: Transparent polyamide</li> <li>- Contacts: Silver</li> <li>- Seal: HNBR - FPM</li> </ul> <p><b>Technical data</b></p> <ul style="list-style-type: none"> <li>- Max working pressure: 420 bar</li> <li>- Proof pressure: 630 bar</li> <li>- Burst pressure: 1260 bar</li> <li>- Working temperature: From -25 °C to +110 °C</li> <li>- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943</li> <li>- Degree protection: IP66 according to EN 60529</li> <li>- Protection rating: IP69K according to ISO 20653</li> </ul> <p><b>Electrical data</b></p> <table border="1"> <thead> <tr> <th>Parameter</th><th>Value</th><th>Parameter</th><th>Value</th></tr> </thead> <tbody> <tr> <td>- Electrical connection:</td><td>EN 175301-803</td><td>- Type:</td><td>51</td></tr> <tr> <td>- Resistive load:</td><td>1 A / 24 Vdc</td><td>- Type:</td><td>52</td></tr> <tr> <td>- Lamps:</td><td>24 Vdc</td><td>- Resistive load:</td><td>1 A / 110 Vdc</td></tr> <tr> <td>- Degree protection:</td><td>IP66 according to EN 60529</td><td>- Protection rating:</td><td>IP69K according to ISO 20653</td></tr> </tbody> </table>	Parameter	Value	Parameter	Value	- Electrical connection:	EN 175301-803	- Type:	51	- Resistive load:	1 A / 24 Vdc	- Type:	52	- Lamps:	24 Vdc	- Resistive load:	1 A / 110 Vdc	- Degree protection:	IP66 according to EN 60529	- Protection rating:	IP69K according to ISO 20653
Settings	Ordering code																													
5.0 bar $\pm 10\%$	DL A 50 x A xx P01																													
7.0 bar $\pm 10\%$	DL A 70 x A xx P01																													
9.5 bar $\pm 10\%$	DL A 95 x A xx P01																													
Parameter	Value	Parameter	Value																											
- Electrical connection:	EN 175301-803	- Type:	51																											
- Resistive load:	1 A / 24 Vdc	- Type:	52																											
- Lamps:	24 Vdc	- Resistive load:	1 A / 110 Vdc																											
- Degree protection:	IP66 according to EN 60529	- Protection rating:	IP69K according to ISO 20653																											

DLA*71	
Electrical/Visual Differential Indicator	
Settings	Ordering code
5.0 bar $\pm 10\%$	DL A 50 x A 71 P01
7.0 bar $\pm 10\%$	DL A 70 x A 71 P01
9.5 bar $\pm 10\%$	DL A 95 x A 71 P01



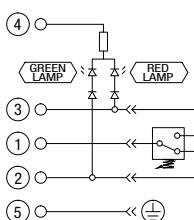
50  
A/F 30  
Max tightening torque: 65 N·m

**Hydraulic symbol****Materials**

- Body: Brass
- Base: Black polyamide
- Contacts: Silver
- Seal: HNBR - FPM

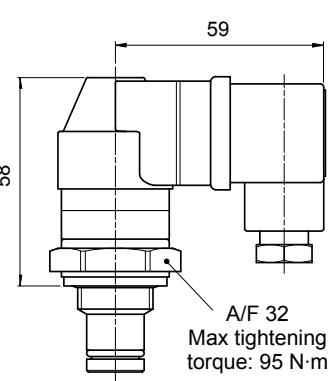
**Technical data**

- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 IP65 according to EN 60529 IP69K according to ISO 20653
- Degree protection: IP65 according to EN 60529

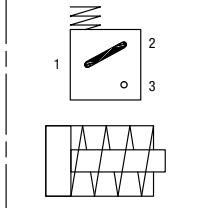
**Electrical symbol****Electrical data**

- Electrical connection: IEC 61076-2-101 D (M12)
- Lamps 24 Vdc
- Resistive load: 0.4 A / 24 Vdc

DLE*A50	
Electrical/Visual Differential Indicator	
Settings	Ordering code
5.0 bar $\pm 10\%$	DL E 50 x A 50 P01
7.0 bar $\pm 10\%$	DL E 70 x A 50 P01
9.5 bar $\pm 10\%$	DL E 95 x A 50 P01



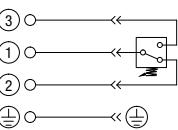
59  
A/F 32  
Max tightening torque: 95 N·m

**Hydraulic symbol****Materials**

- Body: Brass
- Base: Black polyamide
- Contacts: Silver
- Seal: HNBR - FPM

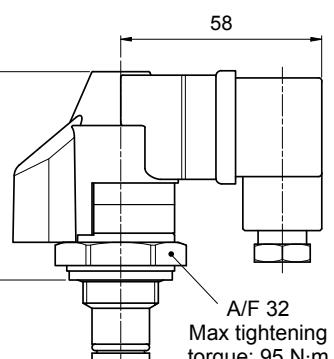
**Technical data**

- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 IP65 according to EN 60529
- Degree protection: IP65 according to EN 60529

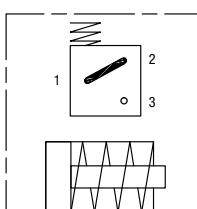
**Electrical symbol****Electrical data**

- Electrical connections: EN 175301-803
- Resistive load: 5 A / 250 Vac
- Available the connector with lamps

DLE*F50	
Electrical/Visual Differential Indicator	
Settings	Ordering code
5.0 bar $\pm 10\%$	DL E 50 x F 50 P01
7.0 bar $\pm 10\%$	DL E 70 x F 50 P01
9.5 bar $\pm 10\%$	DL E 95 x F 50 P01



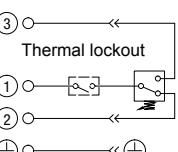
58  
A/F 32  
Max tightening torque: 95 N·m

**Hydraulic symbol****Materials**

- Body: Brass
- Base: Black polyamide
- Contacts: Silver
- Seal: HNBR - FPM

**Technical data**

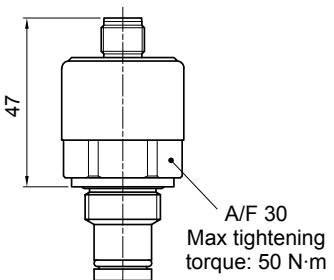
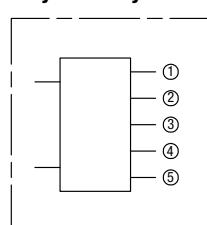
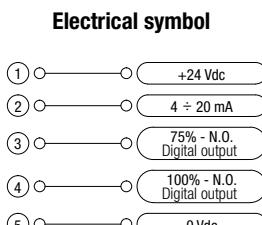
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 IP65 according to EN 60529
- Degree protection: IP65 according to EN 60529

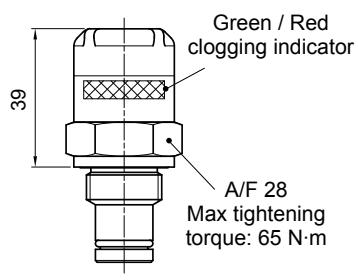
**Electrical symbol****Electrical data**

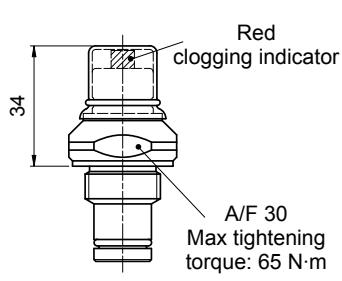
- Electrical connections: EN 175301-803
- Resistive load: 5 A / 250 Vac
- Thermal lockout setting: +30 °C

# DIFFERENTIAL INDICATORS

## Dimensions

DTA*70		<b>Hydraulic symbol</b>	<b>Materials</b>	
Settings	Ordering code			
5.0 bar $\pm 10\%$	DT A 50 x 70 P01		- Body: Brass	
7.0 bar $\pm 10\%$	DT A 70 x 70 P01		- Internal parts: Brass - Polyamide	
9.5 bar $\pm 10\%$	DT A 95 x 70 P01		- Contacts: Silver	
			- Seal: HNBR - FPM	
 <p>47 A/F 30 Max tightening torque: 50 N·m</p>			<b>Technical data</b>	
			<b>Electrical data</b>	
			- Max working pressure: 420 bar	
			- Proof pressure: 630 bar	
			- Burst pressure: 1260 bar	
			- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943	
			- Degree protection: IP67 according to EN 60529	

DVA		<b>Hydraulic symbol</b>	<b>Materials</b>	
Settings	Ordering code			
5.0 bar $\pm 10\%$	DV A 50 x P01		- Body: Brass	
7.0 bar $\pm 10\%$	DV A 70 x P01		- Internal parts: Brass - Polyamide	
9.5 bar $\pm 10\%$	DV A 95 x P01		- Contacts: Silver	
			- Seal: HNBR - FPM	
 <p>39 Green / Red clogging indicator A/F 28 Max tightening torque: 65 N·m</p>			<b>Technical data</b>	
			- Reset: Automatic reset	
			- Max working pressure: 420 bar	
			- Proof pressure: 630 bar	
			- Burst pressure: 1260 bar	
			- Working temperature: From -25 °C to +110 °C	
			- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943	
			- Degree protection: IP65 according to EN 60529	

DVM		<b>Hydraulic symbol</b>	<b>Materials</b>	
Settings	Ordering code			
5.0 bar $\pm 10\%$	DV M 50 x P01		- Body: Brass	
7.0 bar $\pm 10\%$	DV M 70 x P01		- Internal parts: Brass - Polyamide	
9.5 bar $\pm 10\%$	DV M 95 x P01		- Contacts: Silver	
			- Seal: HNBR - FPM	
 <p>34 Red clogging indicator A/F 30 Max tightening torque: 65 N·m</p>			<b>Technical data</b>	
			- Reset: Manual reset	
			- Max working pressure: 420 bar	
			- Proof pressure: 630 bar	
			- Burst pressure: 1260 bar	
			- Working temperature: From -25 °C to +110 °C	
			- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943	
			- Degree protection: IP65 according to EN 60529	

T2	
Indicator plug	
Seal	Ordering code
HNBR	T2 H
FPM	T2 V

10  
A/F 30  
Max tightening torque: 65 N·m

**Materials**

- Body: Phosphatized steel
- Seal: HNBR / FPM

# DIFFERENTIAL INDICATORS

## Designation & Ordering code

### DESIGNATION & ORDERING CODE - DIFFERENTIAL INDICATORS

<b>Series</b>	Configuration example 1:						DE	M	50	H	F	35	P01
DE Electrical differential indicator	Configuration example 2:						DE	H	50	F	A	70	P01
DL Electrical / Visual differential indicator	Configuration example 3:						DL	E	70	V	A	50	P01
DT Electrical differential indicator	Configuration example 4:						DT	A	50	H	F	70	P01
DV Visual differential indicator	Configuration example 5:						DV	M	95	V			P01
<b>Type</b>	DE	DL	DT	<b>DV</b>									
A Standard type	•	•	•	A With automatic reset									
M With wired electrical connection	•	-	-	M With manual reset									
E For high power supply	-	•	-										
<b>Pressure setting</b>	DEA	DEM	DLA	DLE	DT	DV							
50 5 bar	•	•	•	•	•	•							
70 7 bar	•	•	•	•	•	•							
95 9.5 bar	•	•	•	•	•	•							
<b>Seals</b>	DEA	DEM	DLA	DLE	DT	DV							
F MFQ	-	-	-	-	-	-							
H HNBR	•	•	•	•	•	•							
V FPM	•	•	•	•	•	•							
<b>Thermostat</b>	DEA	DEM	DLA	DLE	DT	DV							
A Without thermostat	•	•	•	•	-	-							
F With thermostat	-	•	-	•	•	-							
<b>Electrical connections</b>	DEA	DEM	DLA	DLE	DT	DV							
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	-	•	-	-	-	-							
48 Connection via three-core cable - fitting M20x1.5	-	-	-	-	-	-							
49 Connection via four-core cable - fitting 1/2" NPT	-	-	-	-	-	-							
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	-	-	•	-	-	-							
<b>Option</b>													
P01 MP Filtri standard													
Pxx Customized													

### DESIGNATION & ORDERING CODE - DIFFERENTIAL INDICATOR PLUG

<b>Series</b>	Configuration example						T2	H
T2 Indicator plug								
<b>Seals</b>								
H HNBR								
V FPM								