

# FZB series

Maximum working pressure up to 32 Mpa (320 bar) - Flow rate up to 70 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 by 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.

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

## Step ②

The screenshot shows the 'FILTER SIZING SOFTWARE' interface. Under 'RETURN/SUCTION', the 'RETURN' tab is selected. The 'Product' dropdown is set to 'MPFX'. Input fields include Working Pressure (bar), Flow rate (l/min), Fluid type (ISO VG 46 SUS 216), Viscosity (cSt), and Viscosity (cSt). Filtration is set to 'A25 - 25 µm absolute inorganic microfibre'. Connection Type is 'G 1''. A 'CALCULATE' button is highlighted with a blue box at the bottom.

The screenshot shows the 'FILTER SIZING SOFTWARE' interface with the same configuration as the previous step. The 'Product' dropdown is set to 'MPFX'. Input fields include Working Pressure (bar), Flow rate (l/min), Fluid type (ISO VG 46 SUS 216), Viscosity (cSt), and Viscosity (cSt). Filtration is set to 'A25 - 25 µm absolute inorganic microfibre'. Connection Type is 'G 1''. A 'CALCULATE' button is highlighted with a blue box at the bottom.

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

The screenshot shows the 'FILTER SIZING SOFTWARE' interface with various filter selection options. At the bottom, a table lists filter products with columns for Image, Code, Prex, Qmax, ΔP, Housing ΔP, Element ΔP, Connection, Seal, and Link. Two filters are listed: MPFX-103-3-A-G3-A25-H-BP61 and MPFX-103-3-A-G3-A25-H-BP61. Each row has a 'Report' link.

# TYPICAL FILTER SIZING

## Step ④

Choose the most suitable filter from the proposed list.

Filter type	Valve	Seal	XRESET							
MPPX: Tank lid mounting - [Pmax 1 -> B: 1.75 bar Bypass]	A: NBR									
Option1		DIN Standard	Indicator							
<- None		NOT APPLICABLE	Visual							
CSV	Excel	Show 10 entries	Search:							
Image	Code	Max	Qmax	ΔP	Housing ΔP	Element ΔP	Connec.	Seal	Link	
	MPPX-104-3-A-Q3-A25-H-BPS1	B	116	25.74	25.3	8.47	T	E.12	2	
	MPPX-104-3-A-Q3-A25-H-BPS1	B	116	25.74	25.3	8.47	T	E.12	2	

## Step ⑤

It is possible to change the filter modifying every parameter.

**A SAVE YOUR FILTER'S REPORT**

Adjustment

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

Close the report window

**B MANUAL EDIT**

Report

see A

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

# FZB GENERAL INFORMATION

## Description

## Technical data

<p><b>Stainless steel high pressure filters</b></p> <p><b>Manifold</b>  <b>Maximum working pressure up to 32 Mpa (320 bar)</b>  <b>Flow rate up to 70 l/min</b></p> <p>FZB is a range of stainless steel high pressure filter for protection of sensitive components in high pressure hydraulic systems placed in difficult environmental conditions.</p> <p>They are directly connected to the side of the manifold, through the proper flanged interface.</p> <p><b>Available features:</b></p> <ul style="list-style-type: none"> <li>- Manifold connections up to Ø16 mm, for a maximum flow rate of 70 l/min</li> <li>- Fine filtration rating, to get a good cleanliness level into the system</li> <li>- Bypass valve, to relieve excessive pressure drop across the filter media</li> <li>- 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</li> <li>- 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</li> <li>- High collapse filter element "U", for use with aggressive fluids</li> <li>- Visual, electrical and electronic differential clogging indicators</li> </ul> <p><b>Common applications:</b></p> <ul style="list-style-type: none"> <li>- Off-shore equipment</li> <li>- Water filtration systems</li> <li>- Systems with strong or corrosive environmental conditions</li> <li>- Systems with corrosive fluids</li> </ul>	<p><b>Filter housing materials</b></p> <ul style="list-style-type: none"> <li>- Head: AISI 316L</li> <li>- Housing: AISI 316L</li> <li>- Bypass valve: AISI 316L</li> </ul> <p><b>Seals</b></p> <ul style="list-style-type: none"> <li>- Standard NBR series A (-25 °C to +110 °C)</li> <li>- Optional FPM series V (-20 °C to +120 °C)</li> <li>- Optional MFQ series F (-50 °C to +120 °C)</li> </ul> <p><b>Bypass valve</b>  Opening pressure 6 bar ±10%</p> <p><b>Temperature</b>  From -50 °C to +120 °C</p> <p><b>Note</b>  FZB filters are provided for vertical mounting</p> <p><b>Δp element type</b>  Fluid flow through the filter element from OUT to IN</p> <p>Microfibre filter elements - series R: 20 bar.  Element series "R":</p> <ul style="list-style-type: none"> <li>- End cap: Polyamide</li> <li>- Core tube: Tinned steel</li> <li>- External/Internal support: Wire mesh Epoxy painted</li> <li>- Media/Support/Pre-filter: Microfibre/Syntetic</li> </ul> <p>Microfibre filter elements - series S: 210 bar.  Element series "S":</p> <ul style="list-style-type: none"> <li>- End cap: Tinned steel</li> <li>- Core tube: Tinned steel</li> <li>- External support: Wire mesh Epoxy painted</li> <li>- Internal support: Wire mesh Stainless steel</li> <li>- Media/Support/Pre-filter: Microfibre/Syntetic</li> </ul> <p>Stainless Steel Microfibre filter elements series U: 210 bar.  Element series "U":</p> <ul style="list-style-type: none"> <li>- End cap: Stainless steel</li> <li>- Core tube: Stainless steel</li> <li>- External support: Stainless steel</li> <li>- Internal support: Stainless steel</li> <li>- Media/Support/Pre-filter: Microfibre/Syntetic</li> </ul>
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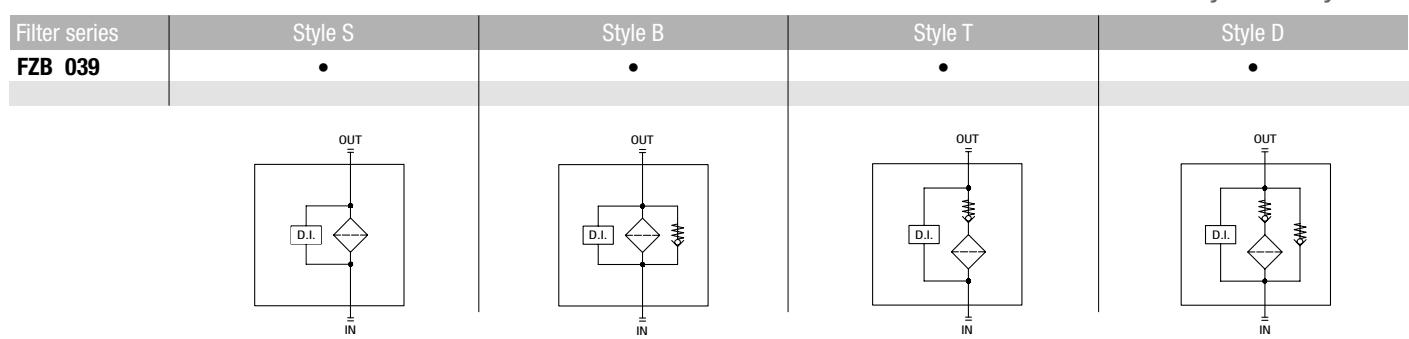
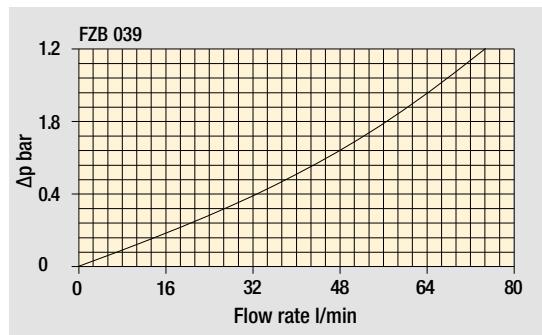
## Weights [kg] and volumes [dm<sup>3</sup>]

Filter series	Length	Weights [kg]				Length	Volumes [dm <sup>3</sup> ]			
		1	2	3	4		1	2	3	4
<b>FZB 039</b>	-	4.6	5.2	5.7		-	0.19	0.26	0.34	

Filter series	Length	Filter element design - R Series					Filter element design - S Series					Filter element design - U Series				
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
<b>FZB 039</b>	<b>2</b>	18	23	39	44	52	18	22	37	40	48	18	22	37	40	48
	<b>3</b>	31	33	47	54	65	28	31	43	46	84	28	31	43	46	84
	<b>4</b>	38	41	56	63	71	34	36	48	62	68	34	36	48	62	68

**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 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.mpfiltr.com](http://www.mpfiltr.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  $\Delta p$  pressure dropThe 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.

## Designation &amp; Ordering code

**COMPLETE FILTER**

<b>Series and size</b>	Configuration example:	FZB039	2	T	A	F	2	A06	S	P01
<b>FZB039</b>										
<b>Length</b>										
2   3   4										
<b>Valves</b>										
<b>S</b> Without bypass										
<b>B</b> With bypass 6 bar										
<b>T</b> With check valve, without bypass										
<b>D</b> With check valve, with bypass 6 bar										
<b>Seals</b>										
<b>A</b> NBR										
<b>V</b> FPM										
<b>F</b> MFQ										
<b>Connections</b>										
<b>F</b> Manifold										
<b>Connections for differential indicator</b>										
<b>1</b> Without connection										
<b>2</b> With connection on the top										
<b>Filtration rating (filter media)</b>										
<b>A03</b> Inorganic microfiber 3 µm										
<b>A06</b> Inorganic microfiber 6 µm										
<b>A10</b> Inorganic microfiber 10 µm										
<b>A16</b> Inorganic microfiber 16 µm										
<b>A25</b> Inorganic microfiber 25 µm										
	<b>Element Δp</b>	<b>S</b>	<b>B</b>	<b>T</b>	<b>D</b>					
	<b>R</b> 20 bar	-	•	-	•					
	<b>S</b> 210 bar	•	-	•	-					
	<b>U</b> 210 bar, stainless steel filter element	•	•	•	•					
	<b>Execution</b>									
	<b>P01</b> MP Filtri standard									
	<b>Pxx</b> Customized									

**FILTER ELEMENT**

<b>Element series and size</b>	Configuration example:	HP039	2	A06	A	S	P01
<b>HP039</b>							
<b>Element length</b>							
2   3   4							
<b>Filtration rating (filter media)</b>							
<b>A03</b> Inorganic microfiber 3 µm							
<b>A06</b> Inorganic microfiber 6 µm							
<b>A10</b> Inorganic microfiber 10 µm							
<b>A16</b> Inorganic microfiber 16 µm							
<b>A25</b> Inorganic microfiber 25 µm							
	<b>Seals</b>	<b>S</b>	<b>B</b>	<b>T</b>	<b>D</b>		
	<b>A</b> NBR						
	<b>V</b> FPM						
	<b>F</b> MFQ						
	<b>Element Δp</b>	<b>S</b>	<b>B</b>	<b>T</b>	<b>D</b>		
	<b>R</b> 20 bar						
	<b>S</b> 210 bar						
	<b>U</b> 210 bar, stainless steel filter element						
	<b>Execution</b>						
	<b>P01</b> MP Filtri standard						
	<b>Pxx</b> Customized						

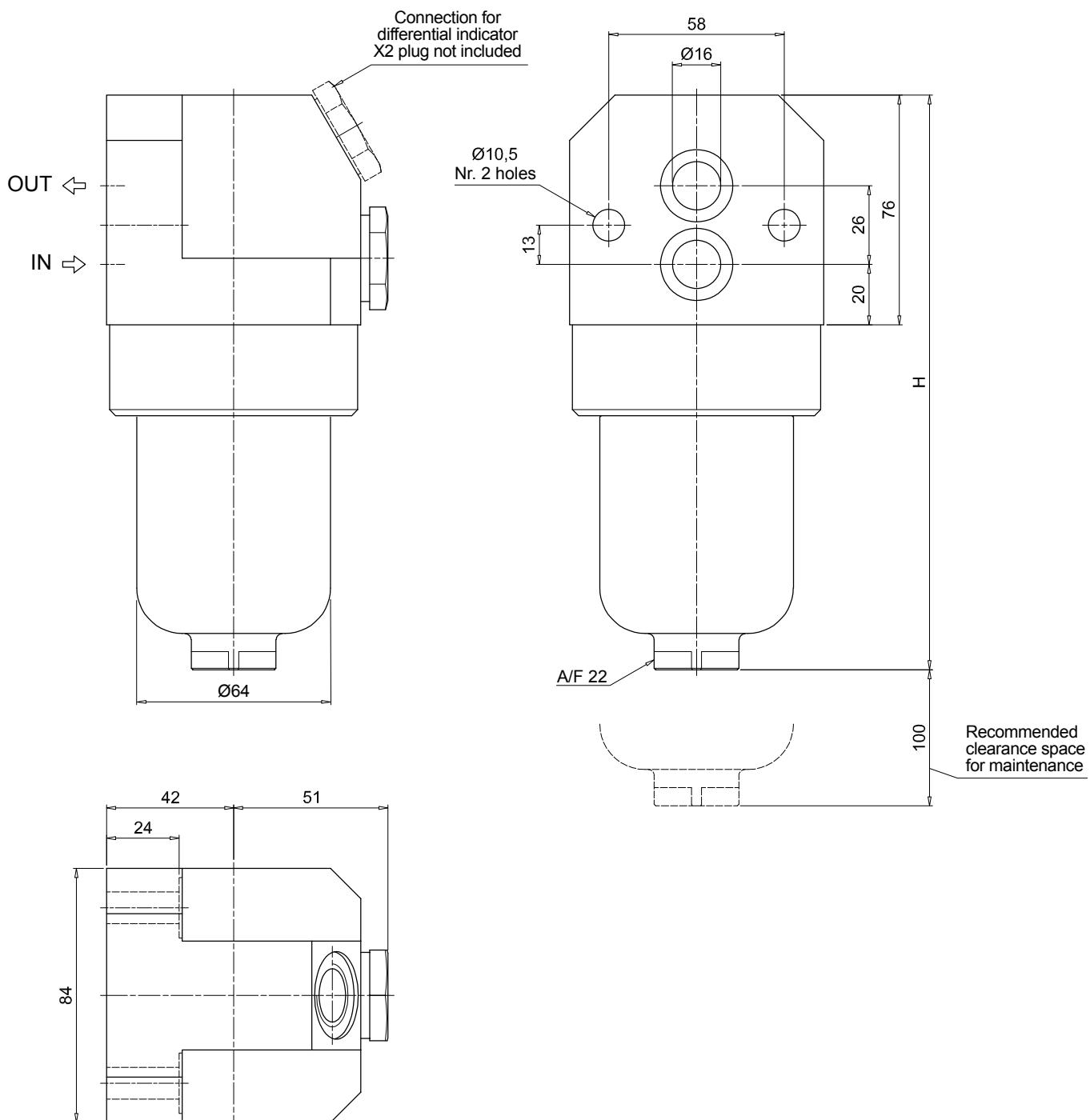
**CLOGGING INDICATORS**

See page 687

<b>DEX</b> Electrical differential indicator
<b>DLX</b> Electrical / visual differential indicator
<b>DVX</b> Visual differential indicator

<b>DVY</b> Visual differential indicator
<b>X2</b> Plug

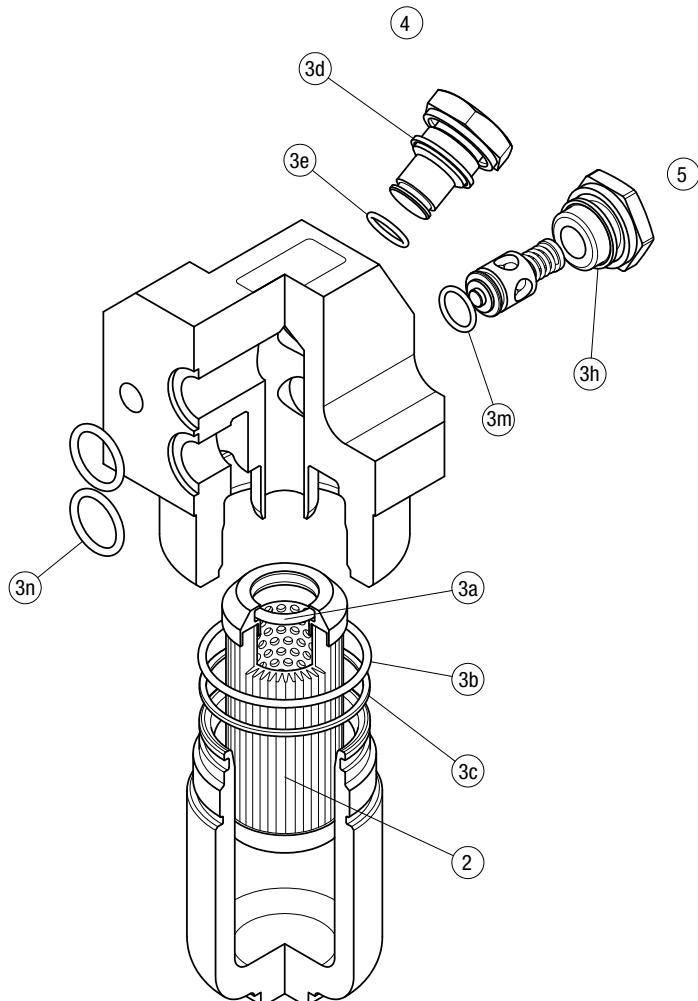
FZB039	
Filter length	H [mm]
2	190
3	233
4	277



# FZB SPARE PARTS

Order number for spare parts

**FZB 039**



Item:	Q.ty: 1 pc. ②	Q.ty: 1 pc. ③ (3a ÷ 3n)	Q.ty: 1 pc. ④	Q.ty: 1 pc. ⑤
Filter series	Filter element See order table	Seal Kit code number NBR      FPM	Indicator connection plug NBR      FPM	Bypass assembly / plug NBR      FPM
<b>FZB 039</b>		02050647      02050648	X2H      X2V	02001286      02001295

# 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

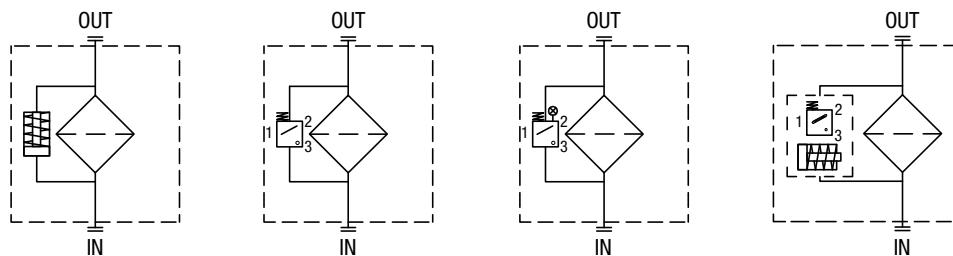
### DIFFERENTIAL INDICATORS

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.



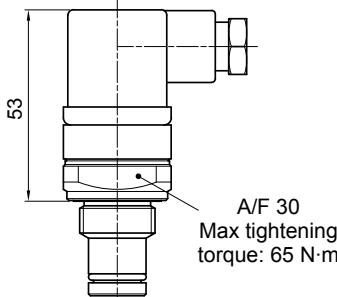
## Quick reference guide

Filter family	Filter series	Visual indicators	Electrical indicators	Electrical / Visual indicators
	With bypass valve 6 bar	FZH 012 - 040	DVZ50xP01	DEZ50xA50P01
	Without bypass valve	FZH 012 - 040	DVZ70xP01 DVZ95xP01	DEZ70xA50P01 DEZ95xA50P01
STAINLESS STEEL HIGH PRESSURE FILTERS	With bypass valve 6 bar	FZP 039 - 136 FZB 039 FZM 039 FZD 051	DVX50xP01 DVY50xP01	DEX50xA50P01 DLX50xA51P01 DLX50xA52P01
	Without bypass valve	FZP 039 - 136 FZB 039 FZM 039 FZD 010 - 021 - 051	DVX70xP01 DVX95xP01 DVY70xP01 DVY95xP01	DEX70xA50P01 DEX95xA50P01 DLX70xA51P01 DLX70xA52P01 DLX95xA51P01 DLX95xA52P01

# DIFFERENTIAL INDICATORS

## Dimensions

DEX*50		<b>Hydraulic symbol</b>	<b>Materials</b>
Settings	Ordering code		
5.0 bar $\pm 10\%$	DE X 50 x A 50 P01		- Body: AISI 316L - Base: Black polyamide - Contacts: Silver - Seal: HNBR - MFQ
7.0 bar $\pm 10\%$	DE X 70 x A 50 P01		
9.5 bar $\pm 10\%$	DE X 95 x A 50 P01		



53  
A/F 30  
Max tightening torque: 65 N·m

**Electrical symbol**

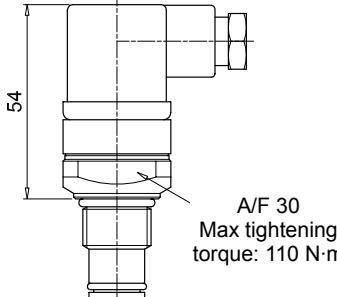
**Technical data**

- 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  
IP69K according to ISO 20653

**Electrical data**

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

DEZ*50		<b>Hydraulic symbol</b>	<b>Materials</b>
Settings	Ordering code		
5.0 bar $\pm 10\%$	DE Z 50 x A 50 P01		- Body: AISI 316L - Base: Black polyamide - Contacts: Silver - Seal: HNBR - MFQ
7.0 bar $\pm 10\%$	DE Z 70 x A 50 P01		
9.5 bar $\pm 10\%$	DE Z 95 x A 50 P01		



54  
A/F 30  
Max tightening torque: 110 N·m

**Electrical symbol**

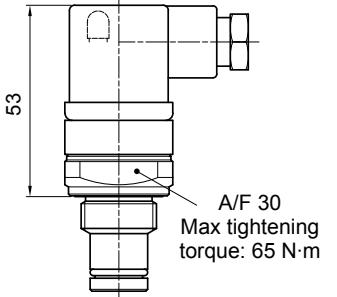
**Technical data**

- Max working pressure: 700 bar
- Proof pressure: 1050 bar
- Burst pressure: 2100 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  
IP69K according to ISO 20653

**Electrical data**

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

DLX*51 - DLX*52		<b>Hydraulic symbol</b>	<b>Materials</b>
Settings	Ordering code		
5.0 bar $\pm 10\%$	DL X 50 x A x x P01		- Body: AISI 316L - Base: Transparent polyamide - Contacts: Silver - Seal: HNBR - MFQ
7.0 bar $\pm 10\%$	DL X 70 x A x x P01		
9.5 bar $\pm 10\%$	DL X 95 x A x x P01		



53  
A/F 30  
Max tightening torque: 65 N·m

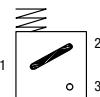
**Electrical symbol**

**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  
IP69K according to ISO 20653

**Electrical data**

- Electrical connection:	EN 175301-803
- Type	51
- Lamps	24 Vdc
- Resistive load:	1 A / 24 Vdc
	52
	110 Vdc
	1 A / 110 Vdc

DLZ*51 - DLZ*52		<b>Hydraulic symbol</b>	<b>Materials</b>
Settings	Ordering code		
5.0 bar $\pm 10\%$	DL Z 50 x A 50 P01		- Body: AISI 316L - Base: Transparent polyamide - Contacts: Silver - Seal: HNBR - MFQ
7.0 bar $\pm 10\%$	DL Z 70 x A 50 P01		
9.5 bar $\pm 10\%$	DL Z 95 x A 50 P01		

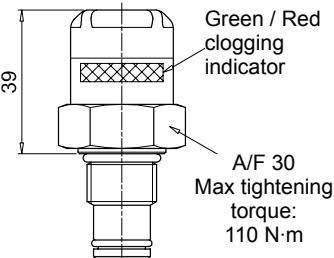
DVX		<b>Hydraulic symbol</b>	<b>Materials</b>
Settings	Ordering code		
5.0 bar $\pm 10\%$	DV X 50 x P01		- Body: AISI 316L - Internal parts: AISI 316L - Polyamide - Contacts: Silver - Seal: HNBR - MFQ
7.0 bar $\pm 10\%$	DV X 70 x P01		
9.5 bar $\pm 10\%$	DV X 95 x P01		

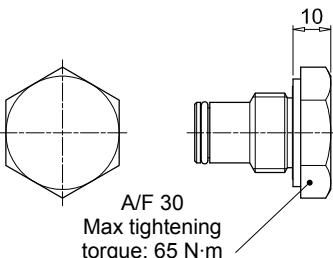
DVY		<b>Hydraulic symbol</b>	<b>Materials</b>
Settings	Ordering code		
5.0 bar $\pm 10\%$	DV Y 50 x P01		- Body: AISI 316L - Internal parts: AISI 316L - Polyamide - Contacts: Silver - Seal: HNBR - MFQ
7.0 bar $\pm 10\%$	DV Y 70 x P01		
9.5 bar $\pm 10\%$	DV Y 95 x P01		

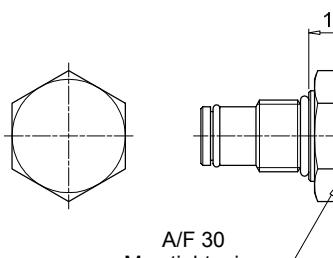
DVI		<b>Hydraulic symbol</b>	<b>Materials</b>
Settings	Ordering code		
5.0 bar $\pm 10\%$	DV I 50 x P01		- Body: AISI 316L - Internal parts: AISI 316L - Polyamide - Contacts: Silver - Seal: HNBR - MFQ
7.0 bar $\pm 10\%$	DV I 70 x P01		
9.5 bar $\pm 10\%$	DV I 95 x P01		

# DIFFERENTIAL INDICATORS

## Dimensions

DVZ		Hydraulic symbol	Materials	
Visual Differential Indicator				
Settings	Ordering code	Technical data		
5.0 bar $\pm 10\%$	DV Z 50 x P01	- Body: AISI 316L - Internal parts: AISI 316L - Polyamide - Contacts: Silver - Seal: HNBR - MFQ		
7.0 bar $\pm 10\%$	DV Z 70 x P01			
9.5 bar $\pm 10\%$	DV Z 95 x P01			
		<b>Technical data</b> <ul style="list-style-type: none"> <li>- Reset: Automatic reset</li> <li>- Max working pressure: 700 bar</li> <li>- Proof pressure: 1050 bar</li> <li>- Burst pressure: 2100 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: IP65 according to EN 60529</li> </ul>		

X2		Materials
Indicator plug 420 bar		
Seal	Ordering code	
HNBR	X2 H	- Body: AISI 316L - Seal: HNBR / MFQ
MFQ	X2 F	
		

X3		Materials
Indicator plug 700 bar (only for FZH)		
Seal	Ordering code	
HNBR	X3 H	- Body: AISI 316L - Seal: HNBR / MFQ
MFQ	X3 F	
		

# DIFFERENTIAL INDICATORS

Designation & Ordering code

DESIGNATION & ORDERING CODE - DIFFERENTIAL INDICATORS									
Series						Configuration example 1:			
DE Electrical differential indicator						DE	Z	50	H
DL Electrical / Visual differential indicator						DL	X	70	V
DV Visual differential indicator						A	A	50	P01
Type	DE	DL	DV						
X Standard type	•	•	•						
Z 700 bar	•	•	•						
Y Optional type	-	-	•						
Pressure setting									
50 5.0 bar									
70 7.0 bar									
95 9.5 bar									
Seals									
H HNBR									
V FPM									
Thermostat									
A Without thermostat									
Electrical connections	DEX	DEZ	DL	DV					
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)	-	-	-	-					
						Option			
						P01	MP Filtri standard		
						Pxx	Customized		

DESIGNATION & ORDERING CODE - DIFFERENTIAL INDICATOR PLUG									
Series						Configuration example			
X2 Indicator plug 420 bar						X2	H		
X3 Indicator plug 700 bar (only for FZH)									
Seals									
H HNBR									
V FPM									
F MFQ									