HYDRAULIC FILTRATION
PRODUCTS

STAINLESS STEEL HIGH PRESSURE FILTERS

PASSION TO PERFORM

MPFILTRI®

FILTER SIZING

INDEX

THE CORRECT FILTER SIZING HAS TO BE BASED ON THE TOTAL PRESSURE DROP DEPENDING BY THE APPLICATION.
FOR EXAMPLE, THE MAXIMUM TOTAL PRESSURE DROP ALLOWED BY A NEW AND CLEAN RETURN FILTER HAVE TO BE IN THE RANGE 0.4 - 0.6 bar / 5.80 - 8.70 psi.

The pressure drop calculation is performed by adding together the value of the housing with the value of the filter element. The pressure drop Δpc of the housing is proportional to the fluid density (kg/dm³ / lb/ft³).
The filter element pressure drop Δpe is proportional to its viscosity (mm²/s / SUS), the corrective factor Y have to be used in case of an oil viscosity different than 30 mm²/s (cSt) / 150 SUS.

Sizing data for single filter element, head at top

Δpc = Filter housing pressure drop [bar / psi]
Δpe = Filter element pressure drop [bar / psi]
Y = Corrective factor Y (see correspondent table), depending on the filter type, on the filter element size, on the filter element length and on the filter media
Q = flow rate (l/min - gpm)
V1 reference oil viscosity = 30 mm²/s (cSt) /150 SUS
V2 = operating oil viscosity in mm²/s (cSt) / SUS

Filter element pressure drop calculation with an oil viscosity different than 30 mm²/s (cSt) / 150 SUS

International system:
Δpe = Y : 1000 x Q x (V2:V1)

Impe rial system:
Δpe = Y : 17.2 x Q x (V2:V1)

Δp Tot. = Δpc + Δpe

Verification formula

Δp Tot. ≤ Δp max allowed

Maximum total pressure drop (Δp max) allowed by a new and clean filter

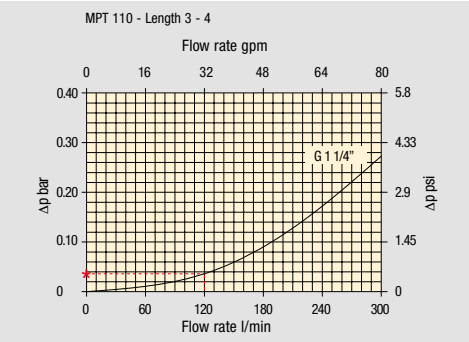
Application	Range:[bar]	[psi]	
Suction filters	0.08 - 0.10 bar	1.16 - 1.45 psi	
Return filters	0.4 - 0.6 bar	5.80 - 8.70 psi	
Return - Suction filters (*)	0.8 - 1.0 bar	11.60 - 14.50 psi	
Low & Medium Pressure filters	0.4 - 0.6 bar	5.80 - 8.70 psi	return lines
	0.3 - 0.5 bar	4.35 - 7.25 psi	lubrication lines
	0.3 - 0.4 bar	4.35 - 5.80 psi	off-line in power systems
	0.1 - 0.3 bar	1.45 - 4.35 psi	off-line in test benches
	0.4 - 0.6 bar	5.80 - 8.7 psi	over-boost
High Pressure filters	0.8 - 1.5 bar	11.60 - 21.75 psi	
Stainless Steel filters	0.8 - 1.5 bar	11.60 - 21.75 psi	

(*) The suction flow rate should not exceed 30% of the return flow rate

Generic filter calculation example

Application data:
Tank top return filter
Pressure Pmax = 10 bar
Flow rate Q = 120 l/min
Viscosity V2 = 46 mm²/s (cSt)
Oil density = 0.86 kg/dm³
Required filtration efficiency = 25 µm with absolute filtration
With bypass valve and G 1 1/4" inlet connection

Calculation:
Δpc = 0.03 bar / 0.43 psi (see graphic below)



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

Δpe = (2.00 : 1000) x 120 x (46 : 30) = 0.37 bar
Δpe = (2.00 : 17.2) x 32 x (216 : 150) = 5.36 psi

Filter element		Absolute filtration H Series					Nominal filtration N Series		
Type		A03	A06	A10	A16	A25	P10	P25	M25 M60 M90
Return filters		74.00	50.08	20.00	16.00	9.00	6.43	5.51	4.40
MF 020	2	29.20	24.12	8.00	7.22	5.00	3.33	2.85	2.00
	3	22.00	19.00	6.56	5.33	4.33	1.68	1.44	1.30
MF 030 MFX 030	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51	3.40
MF 100 MFX 100	1	28.20	24.40	8.67	8.17	6.88	4.62	3.96	1.25
	2	17.33	12.50	6.86	5.70	4.00	3.05	2.47	1.10
	3	10.25	9.00	3.65	3.33	2.50	1.63	1.32	0.96
	4	6.10	5.40	2.30	2.20	2.00	1.19	0.96	0.82

Δp Tot. = 0.03 + 0.37 = 0.4 bar
Δp Tot. = 0.43 + 5.36 = 5.79 psi

The selection is correct because the total pressure drop value is inside the admissible range for top tank return filters.
In case the allowed max total pressure drop is not verified, it is necessary to repeat the calculation changing the filter length/size.

FILTER SIZING Corrective factor

Corrective factor Y to be used for the filter element pressure drop calculation. The values depend to the filter size and length and to the filter media.
Reference oil viscosity 30 mm²/s

Return filters

Filter element		Absolute filtration H Series					Nominal filtration N Series		
Type		A03	A06	A10	A16	A25	P10	P25	M25 M60 M90
MF 020	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51	4.40
	2	29.20	24.12	8.00	7.22	5.00	3.33	2.85	2.00
	3	22.00	19.00	6.56	5.33	4.33	1.68	1.44	1.30
MF 030 MFX 030	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51	3.40
MF 100 MFX 100	1	28.20	24.40	8.67	8.17	6.88	4.62	3.96	1.25
	2	17.33	12.50	6.86	5.70	4.00	3.05	2.47	1.10
	3	10.25	9.00	3.65	3.33	2.50	1.63	1.32	0.96
	4	6.10	5.40	2.30	2.20	2.00	1.19	0.96	0.82
MF 180 MFX 180	1	3.67	3.05	1.64	1.56	1.24	1.18	1.06	0.26
	2	1.69	1.37	0.68	0.54	0.51	0.43	0.39	0.12
MF 190 MFX 190	2	1.69	1.37	0.60	0.49	0.44	0.35	0.31	0.11
MF 400 MFX 400	1	3.20	2.75	1.39	1.33	1.06	0.96	0.87	0.22
	2	2.00	1.87	0.88	0.85	0.55	0.49	0.45	0.13
	3	1.90	1.60	0.63	0.51	0.49	0.39	0.35	0.11
MF 750 MFX 750	1	1.08	0.84	0.49	0.36	0.26	0.21	0.19	0.06
MLX 250	2	3.00	3.04	1.46	1.25	1.17	-	-	M25 0.20
MLX 660	2	1.29	1.26	0.52	0.44	0.38	-	-	M25 0.10
CU 025		78.00	48.00	28.00	24.00	9.33	9.33	8.51	1.25
CU 040		25.88	20.88	10.44	10.00	3.78	3.78	3.30	1.25
CU 100		15.20	14.53	5.14	4.95	2.00	2.00	0.17	1.10
CU 250		3.25	2.55	1.55	1.35	0.71	0.71	0.59	0.25
CU 630		1.96	1.68	0.85	0.72	0.42	0.42	0.36	0.09
CU 850		1.06	0.84	0.42	0.33	0.17	0.17	0.13	0.04
DH 250	2	3.61	4.08	1.81	1.71	1.35	-	-	M25 0.55
	4	2.10	1.70	1.14	0.77	0.53	-	-	0.60
MR 100	1	19.00	17.00	6.90	6.30	4.60	2.94	2.52	1.60
	2	11.70	10.80	4.40	4.30	3.00	2.94	2.52	1.37
	3	7.80	6.87	3.70	3.10	2.70	2.14	1.84	1.34
	4	5.50	4.97	2.60	2.40	2.18	1.72	1.47	1.34
	5	4.20	3.84	2.36	2.15	1.90	1.60	1.37	1.34
MR 250	1	5.35	4.85	2.32	1.92	1.50	1.38	1.20	0.15
	2	4.00	3.28	1.44	1.10	1.07	0.96	0.83	0.13
	3	2.60	2.20	1.08	1.00	0.86	0.77	0.64	0.12
	4	1.84	1.56	0.68	0.56	0.44	0.37	0.23	0.11
MR 630	1	3.10	2.48	1.32	1.14	0.92	0.83	0.73	0.09
	2	2.06	1.92	0.82	0.76	0.38	0.33	0.27	0.08
	3	1.48	1.30	0.60	0.56	0.26	0.22	0.17	0.08
	4	1.30	1.20	0.48	0.40	0.25	0.21	0.16	0.08
	5	0.74	0.65	0.30	0.28	0.13	0.10	0.08	0.04
MR 850	1	0.60	0.43	0.34	0.25	0.13	0.12	0.09	0.03
	2	0.37	0.26	0.23	0.21	0.11	0.08	0.07	0.03
	3	0.27	0.18	0.17	0.17	0.05	0.04	0.04	0.02
	4	0.23	0.16	0.13	0.12	0.04	0.03	0.03	0.02

Return / Suction filters

Filter element		Absolute filtration		
Type		A10	A16	A25
RSX 116	1	5.12	4.33	3.85
	2	2.22	1.87	1.22
RSX 165 RSX 166	1	2.06	1.75	1.46
	2	1.24	1.05	0.96
	3	0.94	0.86	0.61

Filter element		Absolute filtration N Series							
Type		A03	A06	A10	A16	A25	P10	P25	M25 M60 M90
CU 110	1	16.25	15.16	8.75	8.14	5.87	2.86	2.65	0.14
	2	12.62	10.44	6.11	6.02	4.16	1.60	1.49	0.12
	3	8.57	7.95	5.07	4.07	2.40	1.24	1.15	0.11
	4	5.76	4.05	2.80	2.36	1.14	0.91	0.85	0.05

Low & Medium pressure filters

Filter element		Absolute filtration N-W Series					Nominal filtration N Series		
Type		A03	A06	A10	A16	A25	P10	P25	M25
CU 110	1	16.25	15.16	8.75	8.14	5.87	2.86	2.65	0.14
	2	12.62	10.44	6.11	6.02	4.15	1.60	1.49	0.12
	3	8.57	7.95	5.07	4.07	2.40	1.24	1.15	0.11
	4	5.76	4.05	2.80	2.36	1.14	0.91	0.85	0.05
CU 210	1	5.30	4.80	2.00	1.66	1.32	0.56	0.43	0.12
	2	3.44	2.95	1.24	1.09	0.70	0.42	0.35	0.09
	3	2.40	1.70	0.94	0.84	0.54	0.33	0.23	0.05
DN	016	7.95	7.20	3.00	2.49	1.98	0.84	0.65	0.18
	025	5.00	4.53	1.89	1.57	1.25	0.53	0.41	0.11
	040	3.13	2.66	1.12	0.98	0.63	0.38	0.32	0.08
CU 400	2	3.13	2.55	1.46	1.22	0.78	0.75	0.64	0.19
	3	2.15	1.70	0.94	0.78	0.50	0.40	0.34	0.10
	4	1.60	1.28	0.71	0.61	0.40	0.34	0.27	0.08
	5	1.00	0.83	0.47	0.34	0.20	0.24	0.19	0.06
	6	0.82	0.58	0.30	0.27	0.17	0.22	0.18	0.05
CU 900	1	0.86	0.63	0.32	0.30	0.21	-	-	0.05
CU 950	2	1.03	0.80	0.59	0.40	0.26	-	-	0.05
	3	0.44	0.40	0.27	0.18	0.15	-	-	0.02
MR 630	7	0.88	0.78	0.36	0.34	0.16	0.12	0.96	0.47

Corrective factor Y to be used for the filter element pressure drop calculation. The values depend to the filter size and length and to the filter media.
Reference oil viscosity 30 mm²/s

High pressure filters

Filter element		Absolute filtration N - R Series					Nominal filtration N Series
Type		A03	A06	A10	A16	A25	M25
HP 011	1	332.71	250.07	184.32	152.36	128.36	-
	2	220.28	165.56	74.08	59.13	37.05	-
	3	123.24	92.68	41.48	33.08	20.72	-
	4	77.76	58.52	28.37	22.67	16.17	-
HP 039	2	70.66	53.20	25.77	20.57	14.67	4.90
	3	36.57	32.28	18.00	13.38	8.00	2.90
	4	26.57	23.27	12.46	8.80	5.58	2.20
HP 050	1	31.75	30.30	13.16	12.3	7.29	1.60
	2	24.25	21.26	11.70	9.09	4.90	1.40
	3	17.37	16.25	8.90	7.18	3.63	1.25
	4	12.12	10.75	6.10	5.75	3.08	1.07
	5	7.00	6.56	3.60	3.10	2.25	0.80
HP 065	1	58.50	43.46	23.16	19.66	10.71	1.28
	2	42.60	25.64	16.22	13.88	7.32	1.11
	3	20.50	15.88	8.18	6.81	3.91	0.58
HP 135	1	20.33	18.80	9.71	8.66	4.78	2.78
	2	11.14	10.16	6.60	6.38	2.22	1.11
	3	6.48	6.33	3.38	3.16	2.14	1.01
HP 150	1	17.53	15.91	7.48	6.96	5.94	1.07
	2	8.60	8.37	3.54	3.38	3.15	0.58
	3	6.53	5.90	2.93	2.79	2.12	0.49
HP 320	1	10.88	9.73	5.02	3.73	2.54	1.04
	2	4.40	3.83	1.75	1.48	0.88	0.71
	3	2.75	2.11	1.05	0.87	0.77	0.61
	4	2.12	1.77	0.98	0.78	0.55	0.47
HP 500	1	4.44	3.67	2.30	2.10	1.65	0.15
	2	3.37	2.77	1.78	1.68	1.24	0.10
	3	2.22	1.98	1.11	1.09	0.75	0.08
	4	1.81	1.33	0.93	0.86	0.68	0.05
	5	1.33	1.15	0.77	0.68	0.48	0.04

		Absolute filtration - N Series					
Type		A03	A06	A10	A16	A25	M25
HF 325	1	3.65	2.95	2.80	1.80	0.90	0.38
	2	2.03	1.73	1.61	1.35	0.85	0.36
	3	1.84	1.42	1.32	1.22	0.80	0.35

Suction filters

	Nominal filtration - N Series					
Type	P10	P25	M25	M60	M90	M250
SF 250	0.65	0.20	0.10	0.08	0.05	0.03
SF 503	–	–	0.17	0.11	0.11	0.11
SF 504	–	–	0.11	0.08	0.08	0.08
SF 505	–	–	0.23	0.18	0.18	0.18
SF 510	–	–	0.18	0.14	0.14	0.14
SF 535	–	–	0.08	0.05	0.05	0.05
SF 540	–	–	0.05	0.04	0.04	0.04

Stainless steel high pressure filters

Filter element		Absolute filtration N Series				
Type		A03	A06	A10	A16	A25
HP 011	1	332.71	250.07	184.32	152.36	128.36
	2	220.28	165.56	74.08	59.13	37.05
	3	123.24	92.68	41.48	33.08	20.72
	4	77.76	58.52	28.37	22.67	16.17
HP 039	2	70.66	53.20	25.77	20.57	14.67
	3	36.57	32.28	18.00	13.38	8.00
	4	26.57	23.27	12.46	8.80	5.58
HP 050	1	31.75	30.30	13.16	12.3	7.29
	2	24.25	21.26	11.70	9.09	4.90
	3	17.37	16.25	8.90	7.18	3.63
	4	12.12	10.75	6.10	5.75	3.08
	5	7.00	6.56	3.60	3.10	2.25
HP 135	1	20.33	18.80	9.71	8.66	4.78
	2	11.14	10.16	6.60	6.38	2.22
	3	6.48	6.33	3.38	3.16	2.14

Filter element		Absolute filtration H - U Series				
Type		A03	A06	A10	A16	A25
HP 011	1	424.58	319.74	235.17	194.44	163.78
	2	281.06	211.25	94.53	75.45	47.26
	3	130.14	97.50	43.63	34.82	21.81
	4	109.39	82.25	36.79	29.37	18.40
HP 039	2	73.00	57.00	28.00	24.00	17.20
	3	40.90	36.33	21.88	18.80	11.20
	4	31.50	28.22	17.22	9.30	6.70
HP 050	1	47.33	34.25	21.50	20.50	14.71
	2	29.10	25.95	14.04	10.90	5.88
	3	20.85	19.50	10.68	8.61	4.36
	4	14.55	12.90	7.32	6.90	3.69
	5	9.86	9.34	6.40	4.80	2.50
HP 135	1	29.16	25.33	13.00	12.47	5.92
	2	14.28	11.04	7.86	7.60	4.44
	3	8.96	7.46	4.89	4.16	3.07

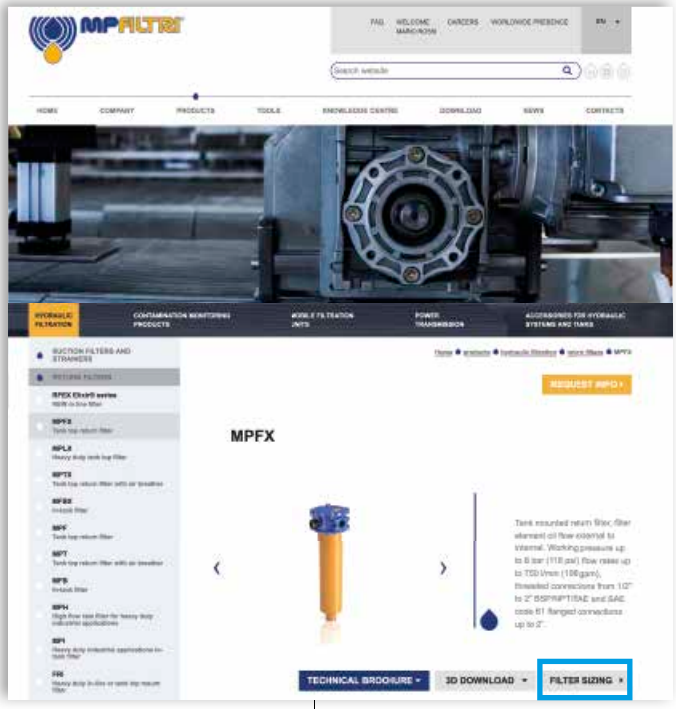
TYPICAL FILTER SIZING Selection Software

Step 1

Select “FILTER SIZING SOFTWARE” after login

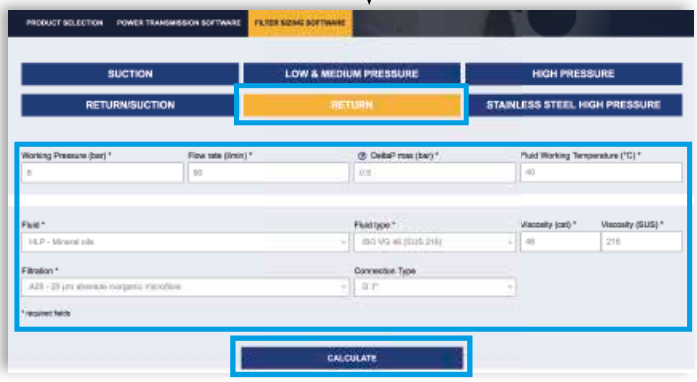
OR

Select “FILTER SIZING” after login from a product page

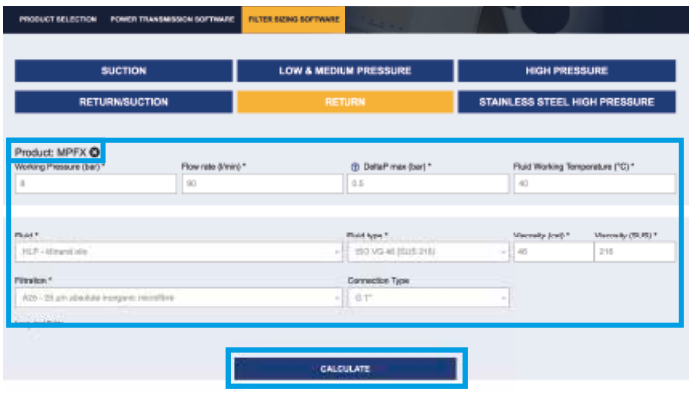


Step 2

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

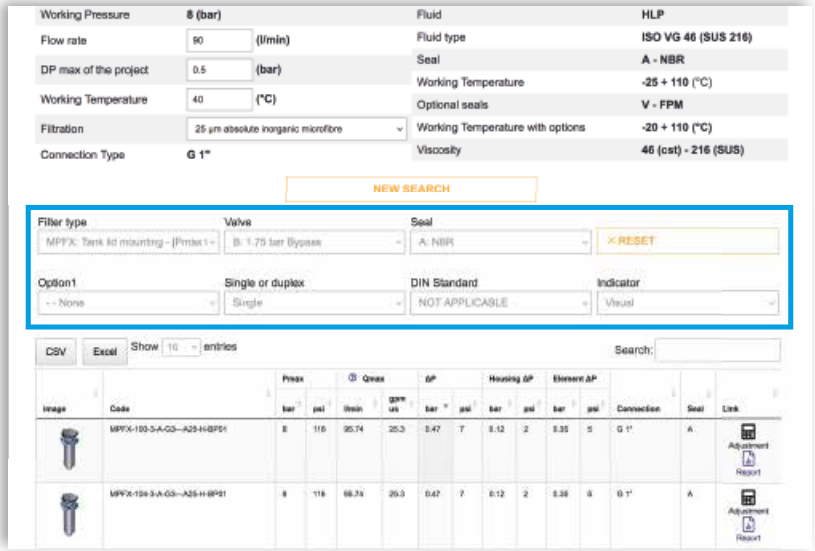


Enter the main data for sizing the filter then push CALCULATE.



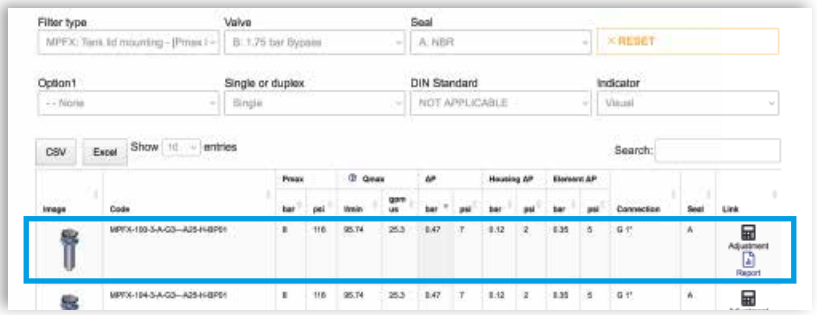
Step 3

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



Step 4

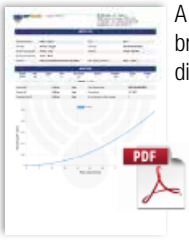
Choose the most suitable filter from the proposed list.



Step 5

A SAVE YOUR FILTER'S REPORT

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

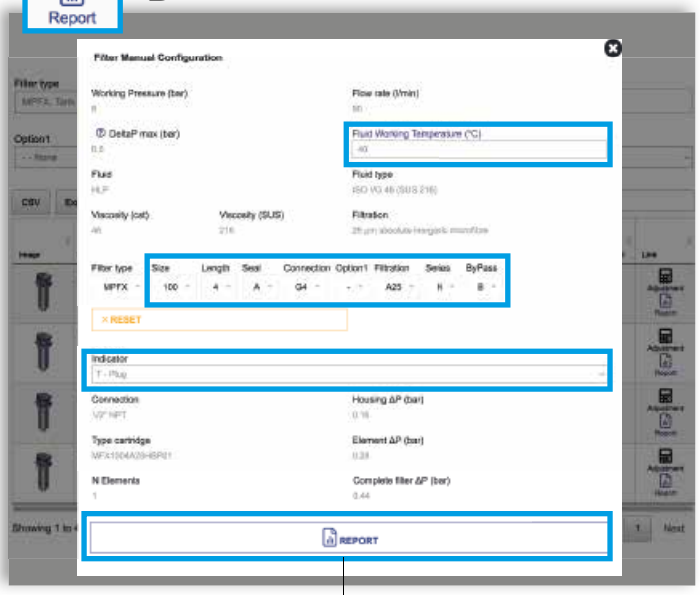


A new
browser window
displays the pdf

Close the report window

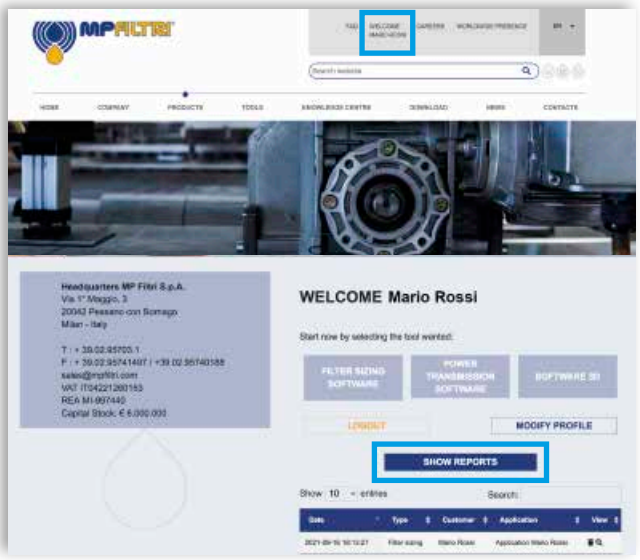
B MANUAL EDIT

It is possible to change the filter
modifying every parameter.



see **A**

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



Stainless steel high pressure filters are used as process filters to protect individual valves or the entire hydraulic circuit from contamination as per ISO 4406.
6 versions are available with operating pressures ranging from 320 bar up to 1000 bar.

A range of products is available to resolve all filter mounting problems, in the following configurations:
- **FZP In-line pressure filter with threaded mount**
- **FZH In-line pressure filter with threaded mount for higher pressure**
- **FZX In-line pressure filter with threaded mount up to 1000 bar**
- **FZB Manifold side mounting**
- **FZM Manifold top mounting**
- **FZD Duplex pressure filter for continuous operation requirements**

FZ stainless steel filters are specifically designed for applications in the:
- **Process engineering**
- **Water hydraulics**
- **Offshore technology**
- **Marine technology**
- **High pressure hydraulics**
- **Any application in harsh or aggressive environment**

FILTER SIZING

For the proper corrective factor Y see chapter at page 25

Stainless steel high pressure filters

FZP series

Maximum working pressure up to 42 Mpa (420 bar) - Flow rate up to 160 l/min

FZP GENERAL INFORMATION

Description

Stainless steel high pressure filters

In-line
Maximum working pressure up to 42 Mpa (420 bar)
Flow rate up to 160 l/min

FZP is a range of stainless steel high pressure filter for protection of sensitive components in high pressure hydraulic systems placed in difficult environmental conditions.
They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- 1 1/4" female threaded connections, for a maximum flow rate of 160 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 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
- High collapse filter element "U", for use with aggressive fluids
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-shore equipment
- Water filtration systems
- Systems with strong or corrosive environmental conditions
- Systems with corrosive fluids

Technical data

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR series A (-25 °C to +110 °C)
- Optional FPM series V (-20 °C to +120 °C)
- Optional MFQ series F (-50 °C to +120 °C)

Bypass valve

Opening pressure 6 bar ±10%

Temperature

From -50 °C to +120 °C

Note

FZP filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series R: 20 bar.
Element series "R":
- End cap: Polyamide
- Core tube: Tinned steel
- External/Internal support: Wire mesh Epox painted
- Media/Support/Pre-filter: Microfibre/Syntetic

Microfibre filter elements - series S: 210 bar.
Element series "S":
- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epox painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements series U: 210 bar.
Element series "U":
- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]				
	Length	1	2	3	4	Length	1	2	3	4
FZP 039		-	4.5	5.1	5.6		-	0.19	0.26	0.34
FZP 136		8.3	10.2	11.5	-		0.45	0.78	1.00	-

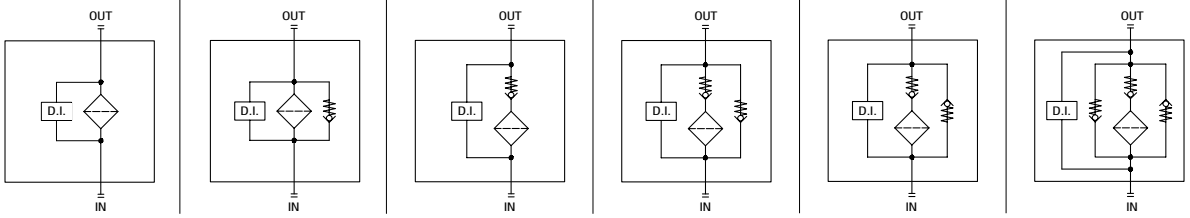
FILTER ASSEMBLY SIZING
Flow rates [l/min]

		Filter element design - R Series					Filter element design - S-U Series				
Filter series	Length	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
	2	19	25	43	50	59	19	23	41	45	55
FZP 039	**3**	34	37	53	62	74	31	34	48	52	66
	4	42	46	63	72	81	38	41	55	71	78
	1	63	67	102	108	136	47	53	87	89	127
FZP 136	**2**	95	100	122	123	159	81	95	113	115	138
	3	122	124	148	150	160	106	116	135	141	151

Maximum flow rate for a complete stainless steel high pressure filter with a pressure drop Δp = 1.5 bar.
The reference fluid has a kinematic viscosity of 30 mm^2/s (cSt) and a density of 0.86 kg/dm^3.
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.

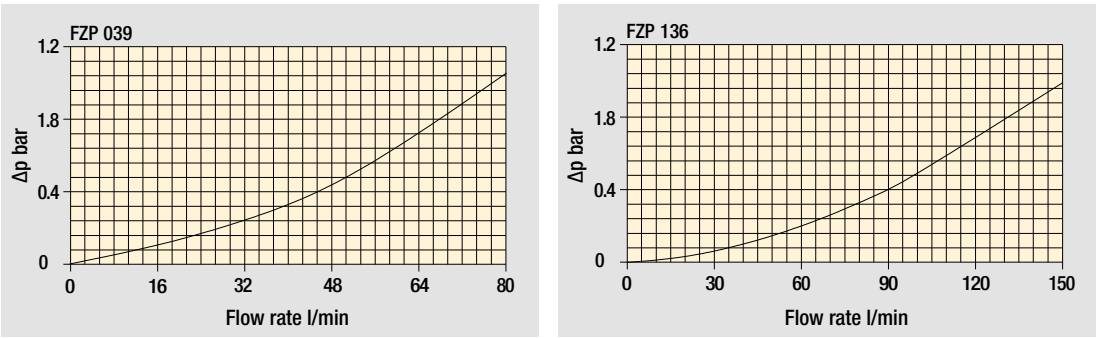
Hydraulic symbols

Filter series	Style S	Style B	Style T	Style D	Style V	Style Z
FZP 039	•	•	•	•	•	•
FZP 136	•	•	-	-	-	-



Pressure drop

Filter housings Δp pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm^3 in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Configuration example: FZP039 | 2 | B | F | B | 2 | A03 | U | P01

Series and size
FZP039

Length
2 | **3** | **4**

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
F MFQ

Connections
A G 1/2”
B 1/2” NPT
C SAE 8 - 3/4” - 16 UNF

Connections for differential indicators
1 Without connection
2 With connection

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

Element Δp		Valves S	B	T	D	V	Z
R	20 bar	-	•	-	•	-	•
S	210 bar	•	-	•	-	•	-
U	210 bar, stainless steel filter element	•	•	•	•	•	•

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: HP039 | 2 | A03 | F | U | P01

Element series and size
HP039

Element length
2 | **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

Seals
A NBR
V FPM
F MFQ

Element Δp		Valves S	B	T	D	V	Z
R	20 bar	-	•	-	•	-	•
S	210 bar	•	-	•	-	•	-
U	210 bar, stainless steel filter element	•	•	•	•	•	•

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

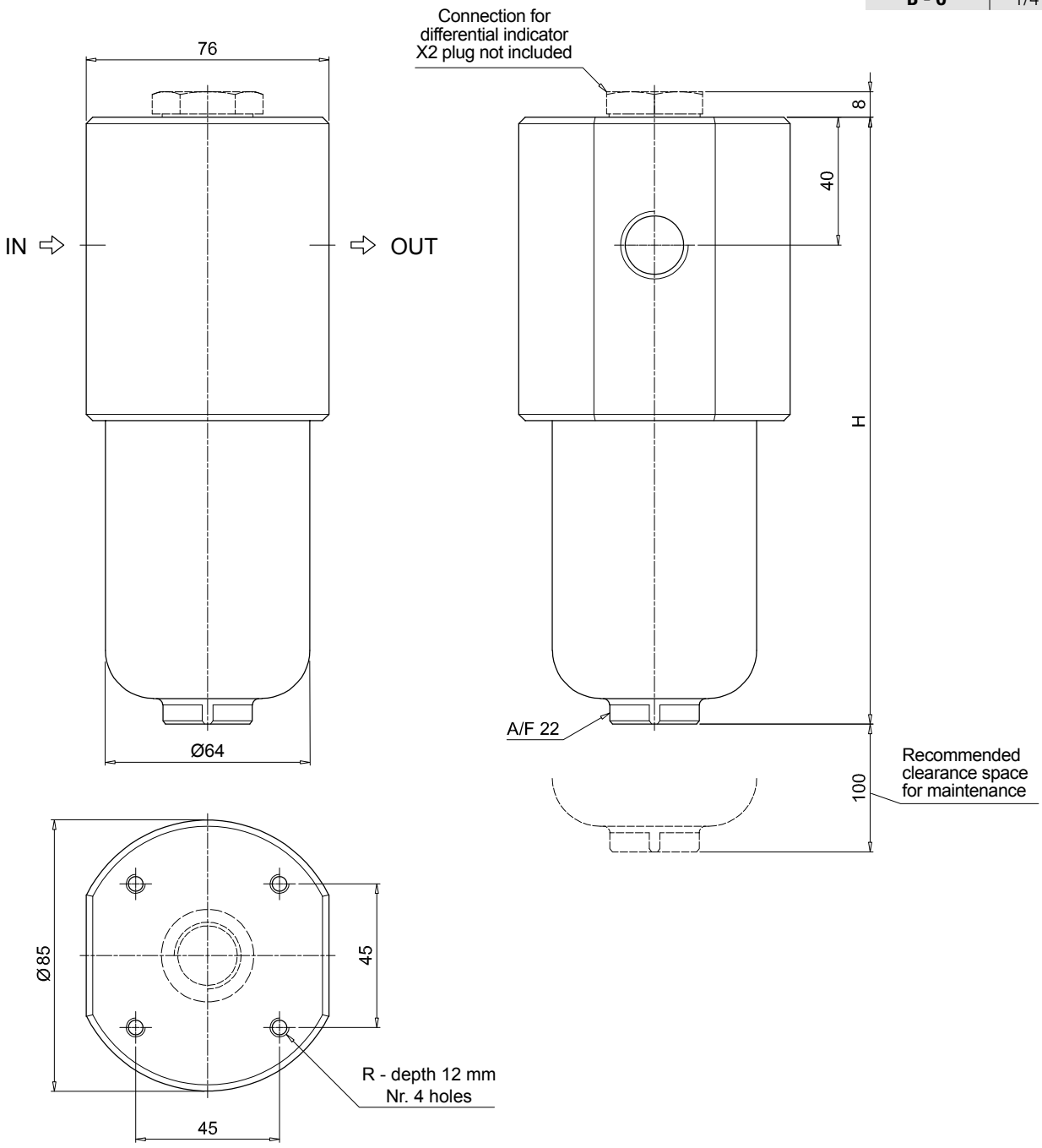
See page 687

DEX Electrical differential indicator
DLX Electrical / visual differential indicator
DVX Visual differential indicator
DVY Visual differential indicator
X2 Plug

Dimensions

FZP039	
Filter length	**H [mm]**
2	179
3	222
4	266

Connections	R
A	M6
B - C	1/4" UNC



Designation & Ordering code

COMPLETE FILTER

Configuration example: FZP136 | 1 | B | A | B | 6 | A03 | R | P01

Series and size
FZP136

Length
1 | **2** | **3**

Bypass valve
S Without bypass
B With bypass 6 bar

Seals
A NBR
V FPM
F MFQ

Connections
A G 3/4”
B 3/4” NPT
C SAE 12 - 1 1/16” - 12 UN
D G 1”
E 1” NPT
F SAE 16 - 1 5/16” - 12 UN
G G 1 1/4”
H 1 1/4” NPT
I SAE 20 - 1 5/8” - 12 UN

Connections for differential indicators
1 Without connection
6 With two connections on both sides

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

Element Δp		Valves S	Valves B
R	20 bar	-	•
S	210 bar	•	-
U	210 bar, stainless steel filter element	•	•

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: HP135 | 1 | A03 | A | R | P01

Element series and size
HP135

Element length
1 | **2** | **3**

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

Seals
A NBR
V FPM
F MFQ

Element Δp		Valves S	Valves B
R	20 bar	-	•
S	210 bar	•	-
U	210 bar, stainless steel filter element	•	•

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

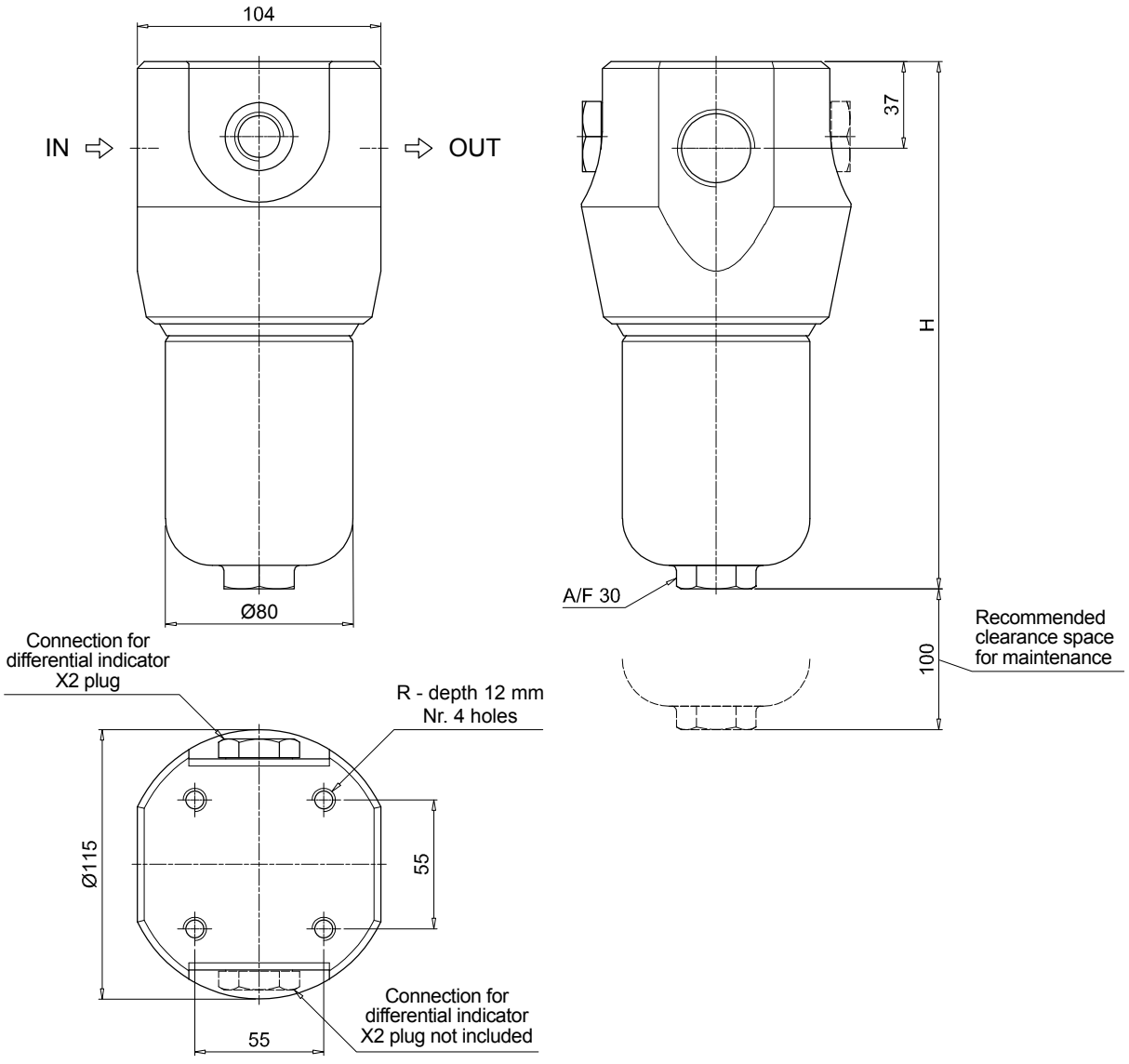
See page 683

DEX Electrical differential indicator
DLX Electrical / visual differential indicator
DVX Visual differential indicator
DVY Visual differential indicator
X2 Plug

Dimensions

FZP136	
Filter length	**H [mm]**
1	222
2	335
3	410

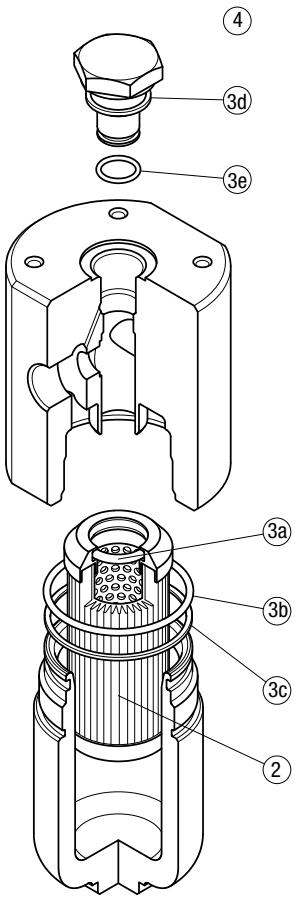
Connections	R
A	M10
B - C	3/8" UNC
D	M10
E - F	3/8" UNC
G	M10
H - I	3/8" UNC



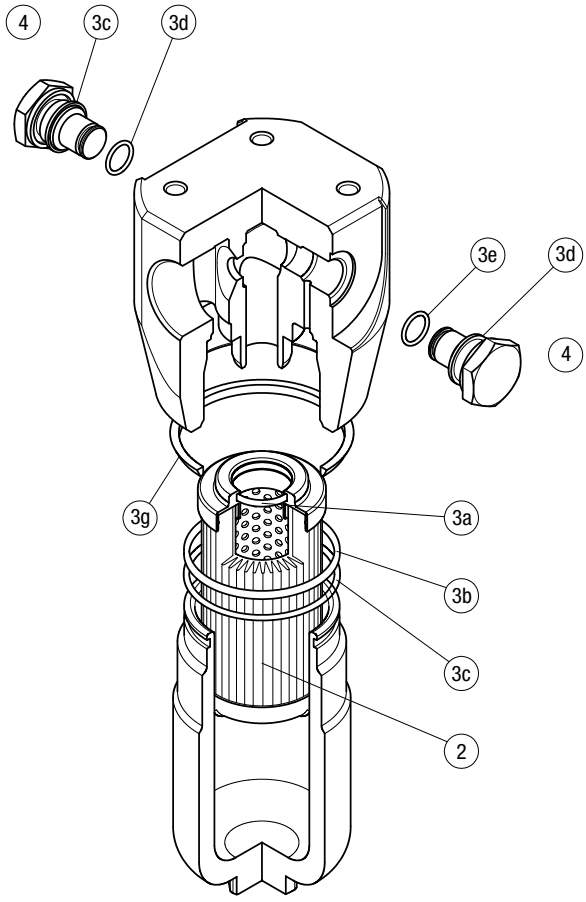
The position of the X2 plug is reversible

Order number for spare parts

FZP 039



FZP 136



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3g)		Q.ty: 1 pc. 4	
Filter series	**Filter element**	**Seal Kit code number NBR**	**FPM**	**Indicator connection plug NBR**	**FPM**
FZP 039	See order table	02050299	02050300	X2H	X2V
FZP 136		02050636	02050637		

FZH series

Maximum working pressure up to 70 Mpa (700 bar) - Flow rate up to 80 l/min

FZH GENERAL INFORMATION

Description

Stainless steel high pressure filters

In-line
Maximum working pressure up to 80 Mpa (700 bar)
Flow rate up to 80 l/min

FZH is a range of stainless steel high pressure filter for protection of sensitive components in high pressure hydraulic systems placed in difficult environmental conditions.
They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- 1/2" female threaded connections, for a maximum flow rate of 80 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
- High collapse filter element "H", for use with filters not 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
- High collapse filter element "U", for use with aggressive fluids
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-shore equipment
- Water filtration systems
- Systems with strong or corrosive environmental conditions
- Systems with corrosive fluids

Technical data

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR
  series A (-25 °C to +110 °C)
- Optional FPM
  series V (-20 °C to +120 °C)
- Optional MFQ
  series F (-50 °C to +120 °C)

Bypass valve

Opening pressure 6 bar ±10%

Temperature

From -50 °C to +120 °C

Note

FZH filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series N-R: 20 bar.
Element series "N - R":
- End cap: Polyamide
- Core tube: Tinned steel
- External/Internal support: Wire mesh Epox painted
- Media/Support/Pre-filter: Microfibre/Syntetic

Microfibre filter elements - series H-S: 210 bar.
Element series "H - S":
- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epox painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements series U: 210 bar.
Element series "U":
- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]				
	Length	1	2	3	4	Length	1	2	3	4
FZH 012		2.1	2.2	2.7	3.3		0.10	0.12	0.15	0.20
FZH 040		-	4.5	5.1	5.6		-	0.19	0.26	0.34

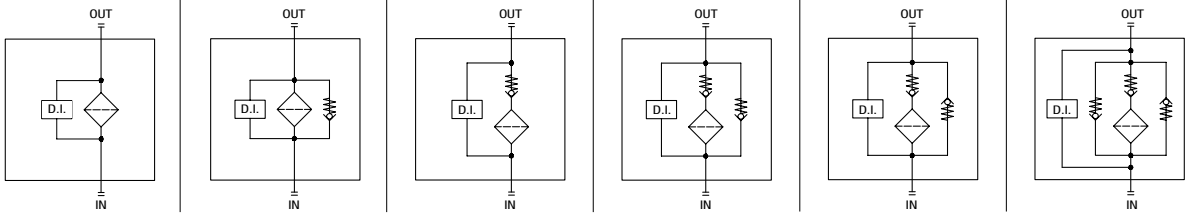
FILTER ASSEMBLY SIZING
Flow rates [l/min]

		Filter element design - R Series					Filter element design - S-U Series				
Filter series	Length	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZH 012	**1**	4	6	8	9	11	3	5	6	7	9
	2	7	9	17	20	26	5	7	14	17	23
	3	11	14	25	27	32	11	14	24	27	32
	4	17	20	29	31	34	13	16	26	29	33
FZH 040	**2**	19	25	43	50	59	19	23	41	45	55
	3	34	37	53	62	74	31	34	48	52	66
	4	42	46	63	72	81	38	41	55	71	78

Maximum flow rate for a complete stainless steel high pressure filter with a pressure drop Δp = 1.5 bar.
The reference fluid has a kinematic viscosity of 30 mm^2/s (cSt) and a density of 0.86 kg/dm^3.
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.

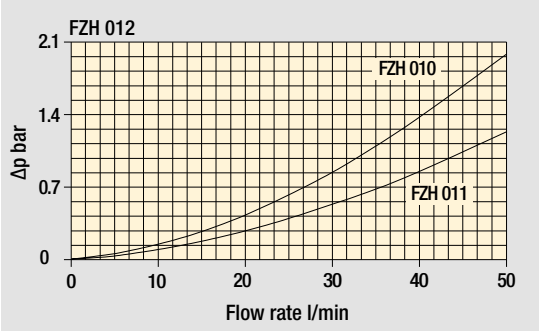
Hydraulic symbols

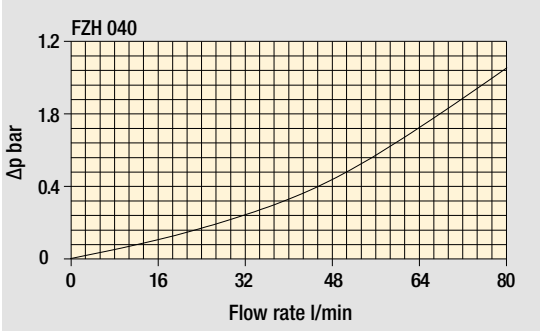
Filter series	Style S	Style B	Style T	Style D	Style V	Style Z
FZH 012	•	•	-	-	•	•
FZH 040	•	•	•	•	•	•



Pressure drop

Filter housings Δp pressure drop





The curves are plotted using mineral oil with density of 0.86 kg/dm^3 in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Configuration example: FZH012 | 2 | B | F | B | 2 | A03 | U | P01

Filter Series and size
FZH012

Filter length
1 | **2** | **3** | **4**

Valves

S	Without bypass
B	With bypass 6 bar
V	With reverse flow, without bypass
Z	With reverse flow, with bypass 6 bar

Seals

A	NBR
V	FPM
F	MFQ

Connections

A	G 1/4”
B	1/4” NPT
C	SAE 5 - 1/2” - 20 UNF
D	G 3/8”
E	3/8” NPT
F	SAE 6 - 9/16” - 18 UNF

Connection for differential indicator

1	Without connection
2	With connection

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

Element Δp		Valves S	B	V	Z
N	20 bar	-	•	-	•
H	210 bar	•	-	•	-
U	210 bar, stainless steel filter element	•	•	•	•

Execution

P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Configuration example: HP011 | 2 | A03 | F | U | P01

Element series and size
HP011

Element length
1 | **2** | **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

Seals

A	NBR
V	FPM
F	MFQ

Element Δp		Valves S	B	V	Z
N	20 bar	-	•	-	•
H	210 bar	•	-	•	-
U	210 bar, stainless steel filter element	•	•	•	•

Execution

P01	MP Filtri standard
Pxx	Customized

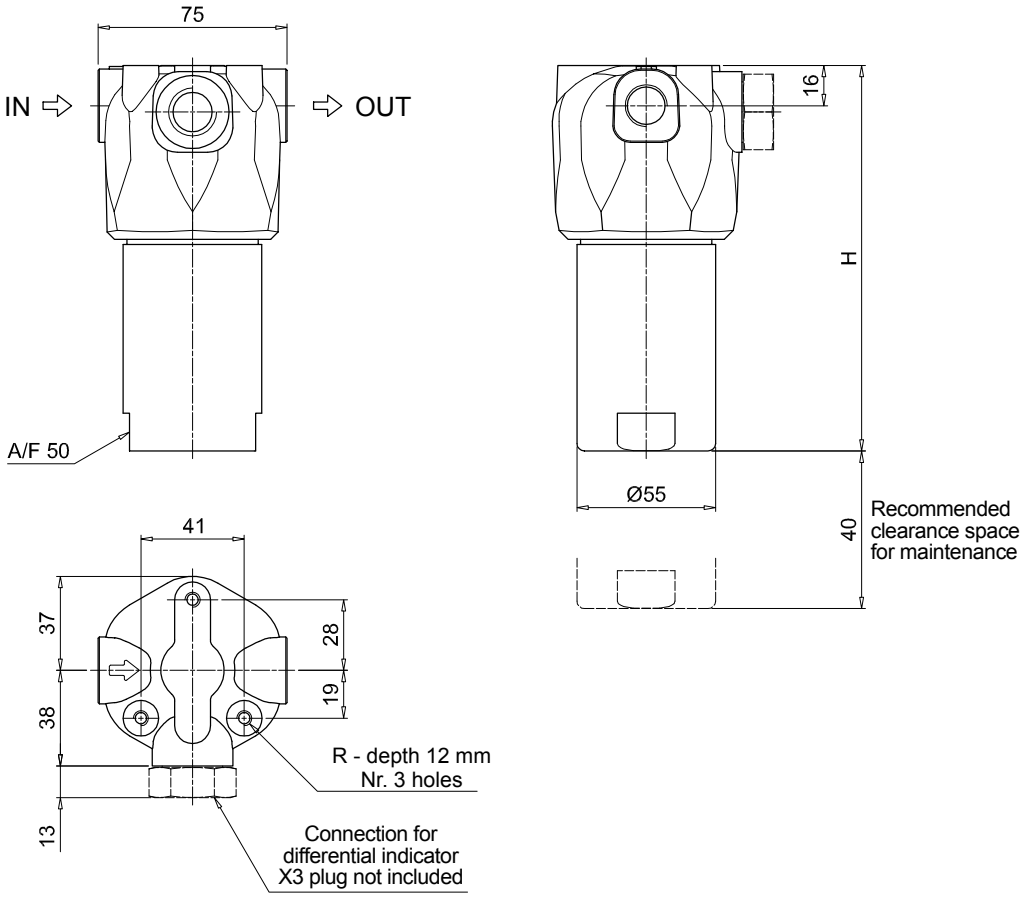
CLOGGING INDICATORS

See page 687

DEZ	Electrical differential indicator
X3	Plug
DVZ	Visual differential indicator

FZH012	
Filter length	**H [mm]**
1	93
2	104
3	154
4	204

Connections	**R**
A	M6
B - C	1/4" UNC
D	M6
E - F	1/4" UNC



Designation & Ordering code

COMPLETE FILTER

Configuration example: FZH040 | 2 | T | A | A | 2 | A03 | S | P01

Filter Series and size
FZH040

Filter length
2 | **3** | **4**

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	**F**	MFQ
V	FPM		

Connections

A	G 1/2”
B	1/2” NPT
C	SAE 8 - 3/4” - 16 UNF

Connection for differential indicator

1	Without connection
2	With connection

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

Element Δp		Valves S	B	T	D	V	Z
R	20 bar	-	•	-	•	-	•
S	210 bar	•	-	•	-	•	-
U	210 bar, stainless steel filter element	•	•	•	•	•	•

Execution

P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Configuration example: HP039 | 2 | A03 | A | S | P01

Element series and size
HP039

Element length
2 | **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

Seals

A	NBR	**E**	EPDM
V	FPM	**F**	MFQ

Element Δp		Valves S	B	T	D	V	Z
R	20 bar	-	•	-	•	-	•
S	210 bar	•	-	•	-	•	-
U	210 bar, stainless steel filter element	•	•	•	•	•	•

Execution

P01	MP Filtri standard
Pxx	Customized

CLOGGING INDICATORS

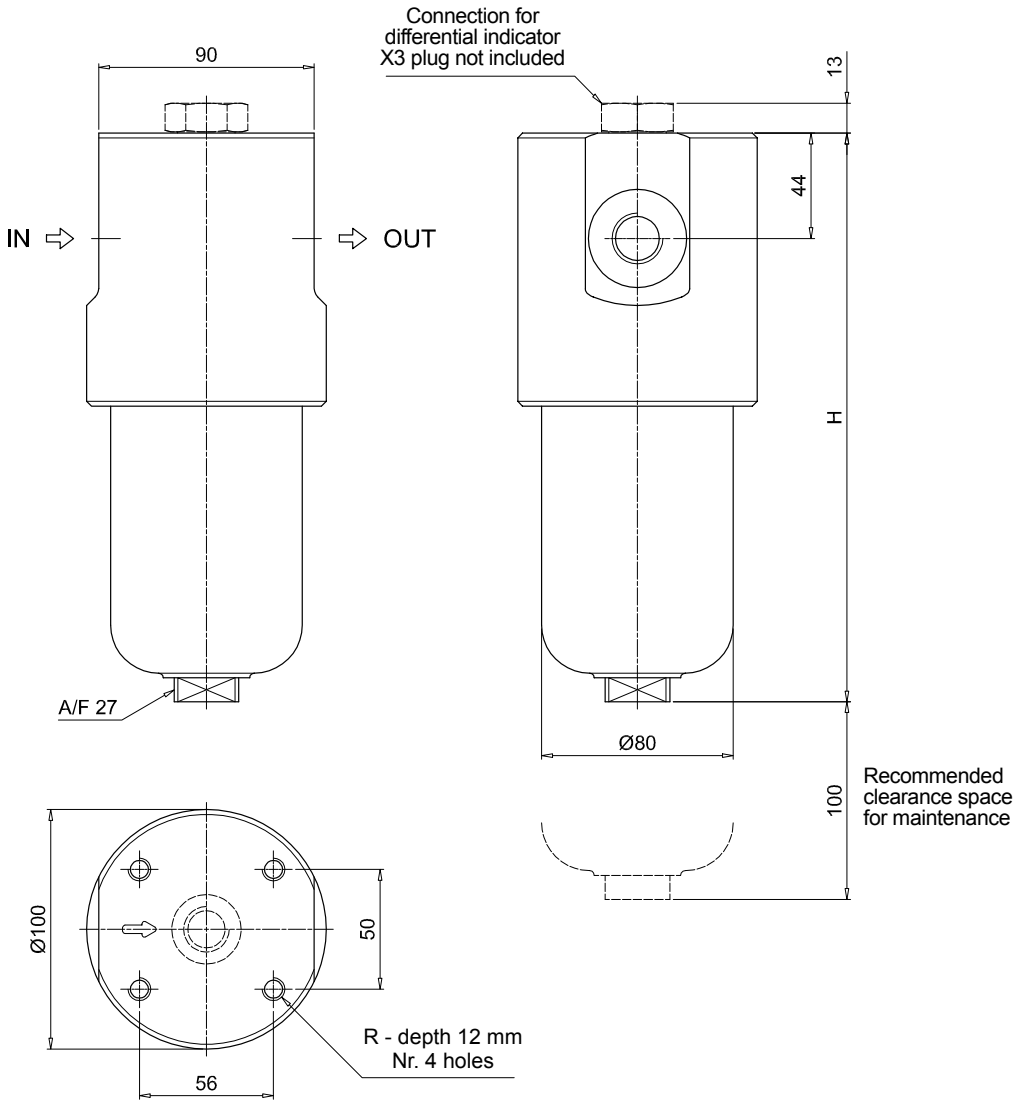
See page 687

DEZ	Electrical differential indicator	**DVZ**	Visual differential indicator
X3	Plug		

Dimensions

FZH040	
Filter length	**H [mm]**
2	204
3	247
4	291

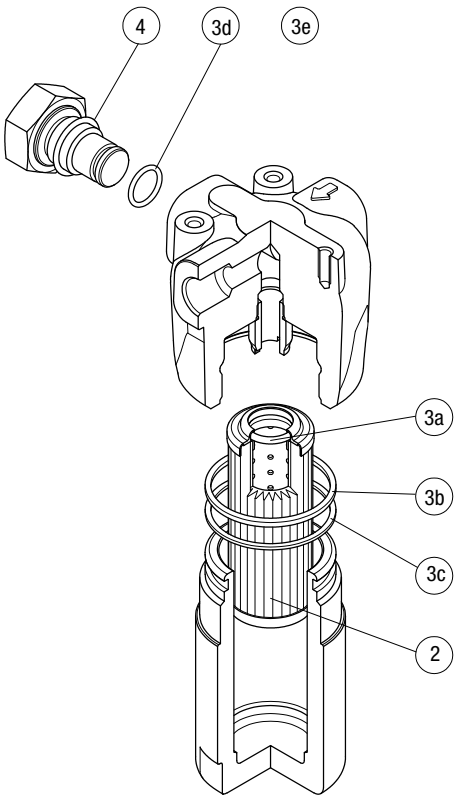
Connections	R
A	M10
B	3/8" UNC
C	3/8" UNC



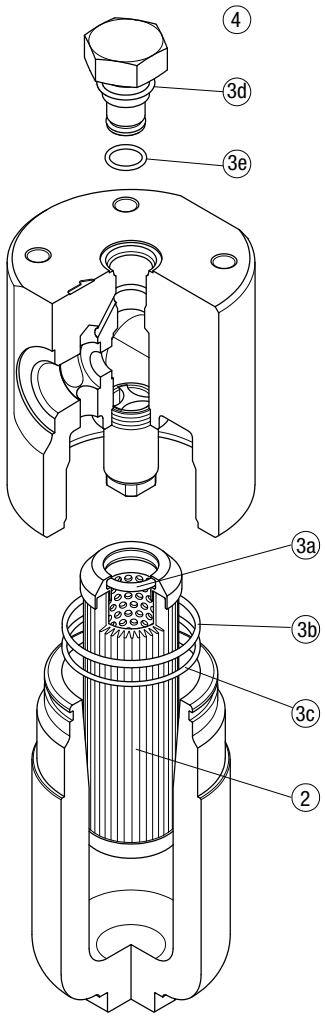
FZH SPARE PARTS

Order number for spare parts

FZH 012



FZH 040



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3e)		Q.ty: 1 pc. 4	
Filter series	Filter element	Seal Kit code number NBR	FPM	Indicator connection plug NBR	FPM
FZH 012	See order table	02050856	02050857	X2H	X2V
FZH 040		02050860	02050861		

FZX series

Maximum working pressure up to 100 Mpa (1000 bar) - Flow rate up to 10 l/min

FZX GENERAL INFORMATION

Description

Stainless steel high pressure filters

In-line
Maximum working pressure up to 100 Mpa (1000 bar)
Flow rate up to 10 l/min

FZX is a range of stainless steel high pressure filter for protection of sensitive components in high pressure hydraulic systems placed in difficult environmental conditions.
They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- 1/2" female threaded connections, for a maximum flow rate of 10 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- High collapse filter element "H", for use with filters not provided with bypass valve
- High collapse filter element "U", for use with aggressive fluids
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-shore equipment
- Water filtration systems
- Systems with strong or corrosive environmental conditions
- Systems with corrosive fluids

Technical data

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR
  series A (-25 °C to +110 °C)
- Optional FPM
  series V (-20 °C to +120 °C)
- Optional MFQ
  series F (-50 °C to +120 °C)

Bypass valve

Opening pressure 6 bar ±10%

Temperature

From -50 °C to +120 °C

Note

FZX filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series H: 210 bar.
Element series "H":
- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epox painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements series U: 210 bar.
Element series "U":
- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]				
	Length	1	2	3	4	Length	1	2	3	4
FZX 011		-	-	6.5	-		-	-	0.15	-

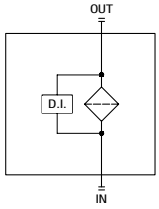
FILTER ASSEMBLY SIZING
Flow rates [l/min]

		Filter element design - H-U Series				
Filter series	Length	A03	A06	A10	A16	A25
FZX 011	**3**	1.57	1.63	1.73	1.74	1.77

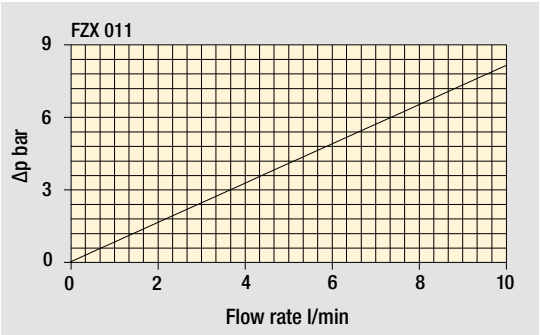
Maximum flow rate for a complete stainless steel high pressure filter with a pressure drop Δp = 1.5 bar.
The reference fluid has a kinematic viscosity of 30 mm^2/s (cSt) and a density of 0.86 kg/dm^3.
For different pressure drop or fluid viscosity we recommend to use our selection software available 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
FZX 011	•



Pressure drop
Filter housings Δp pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm^3 in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Configuration example: FZX011 | 3 | S | V | B | 1 | A03 | U | P01

Filter series and size
FZX011

Filter length
3

Bypass valve
S Without bypass

Seals
A NBR
V FPM
F MFQ

Connections

700 bar
A G 1/4”
B 1/4” NPT
G G 1/2”
H 1/2” NPT”

Autoclave 1000 bar
M 9/16” - 18 UNF
L 3/4” - 14 NPS

Connection for differential indicators
1 Without connection

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

Element Δp
H 210 bar
U 210 bar, stainless steel filter element

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Example: HP011 | 3 | A03 | V | U | P01

Element series and size
HP011

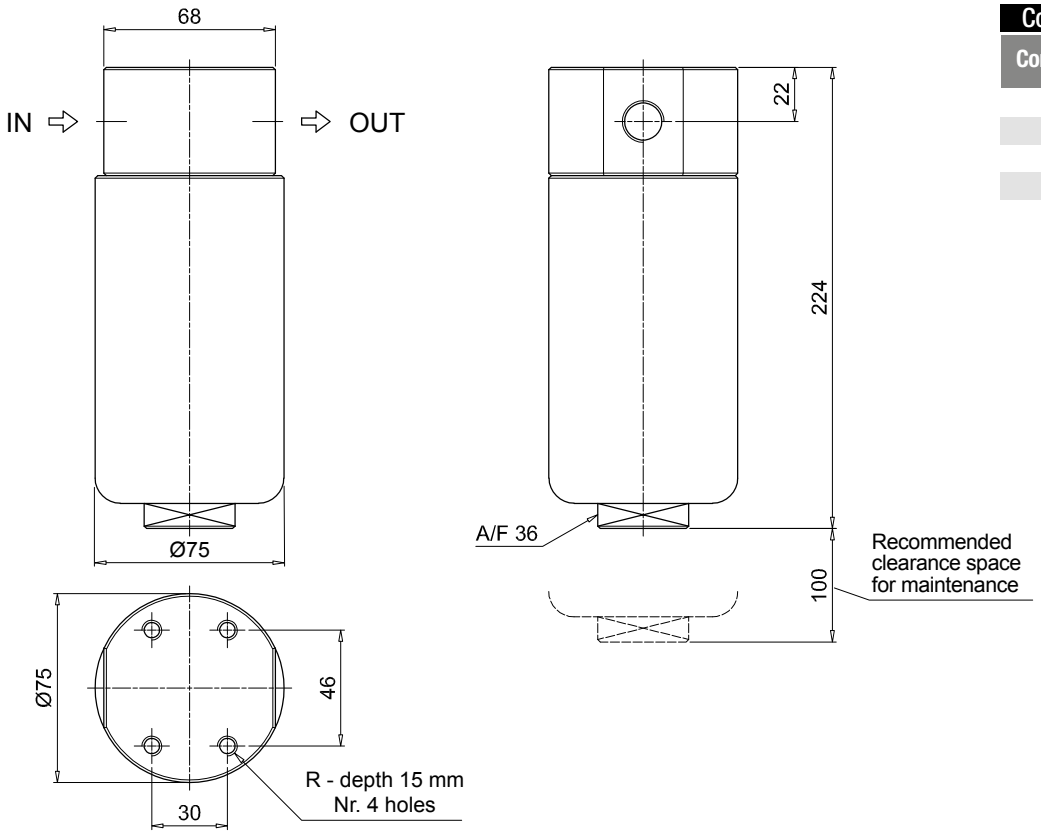
Element length
3

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

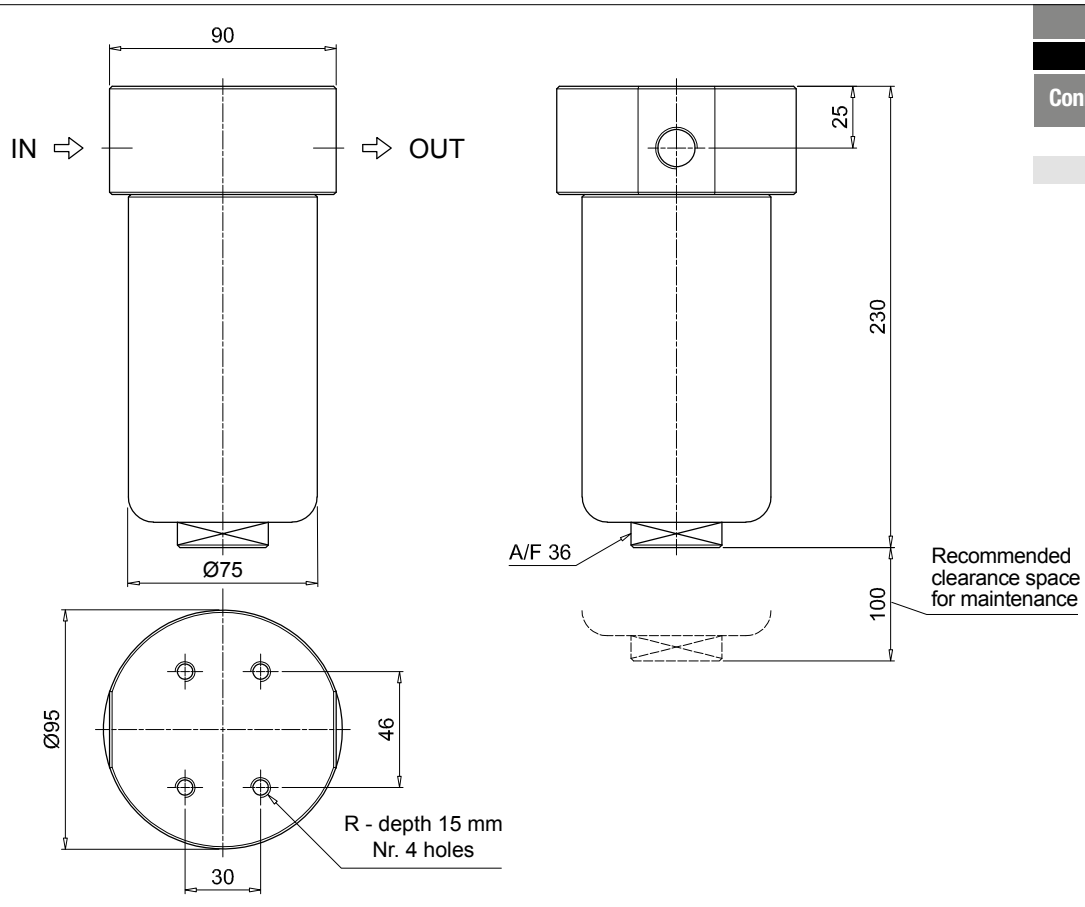
Seals
A NBR
V FPM
F MFQ

Element Δp
H 210 bar
U 210 bar, stainless steel filter element

Execution
P01 MP Filtri standard
Pxx Customized



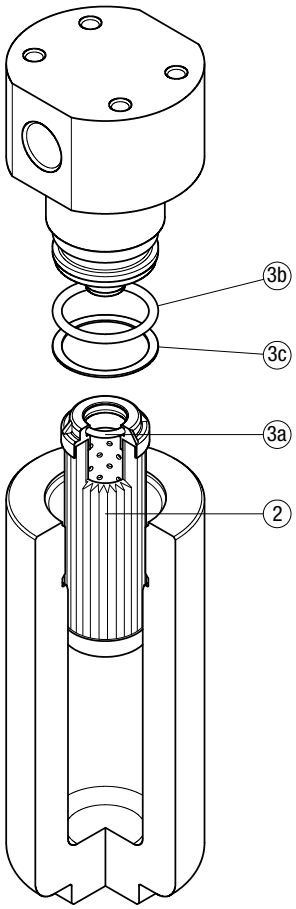
FZX011	
Connection A - B - G - H	
Connections	**R**
A	M8
B	5/16" UNC
G	M8
H	5/16" UNC



FZX011	
Connection M - L	
Connections	**R**
M	M8
L	M8

Order number for spare parts

FZX 011



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3c)	
Filter series	**Filter element**	**Seal Kit code number NBR**	**FPM**
FZX 011	See order table	02050643	02050644

FZM series

Maximum working pressure up to 32 Mpa (320 bar) - Flow rate up to 70 l/min

FZM GENERAL INFORMATION

Description

Stainless steel high pressure filters

Manifold
Maximum working pressure up to 32 Mpa (320 bar)
Flow rate up to 70 l/min

FZM is a range of stainless steel high pressure filter for protection of sensitive components in high pressure hydraulic systems placed in difficult environmental conditions.
They are directly connected to the top of the manifold, through the proper flanged interface.

Available features:

- Manifold connections up to Ø15 mm, for a maximum flow rate of 70 l/min
- ISO 4401 CETOP 3 and CETOP 5 interface, for direct mounting on the CETOP valves.
- 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 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
- High collapse filter element "U", for use with aggressive fluids
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-shore equipment
- Water filtration systems
- Systems with strong or corrosive environmental conditions
- Systems with corrosive fluids

Technical data

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR
  series A (-25 °C to +110 °C)
- Optional FPM
  series V (-20 °C to +120 °C)
- Optional MFQ
  series F (-50 °C to +120 °C)

Bypass valve

Opening pressure 6 bar ±10%

Temperature

From -50 °C to +120 °C

Note

FZM filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series R: 20 bar.
Element series "R":
- End cap: Polyamide
- Core tube: Tinned steel
- External/Internal support: Wire mesh Epox painted
- Media/Support/Pre-filter: Microfibre/Syntetic

Microfibre filter elements - series S: 210 bar.
Element series "S":
- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epox painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements series U: 210 bar.
Element series "U":
- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]				
	Length	1	2	3	4	Length	1	2	3	4
FZM 039		-	5.0	5.6	6.1		-	0.19	0.26	0.34

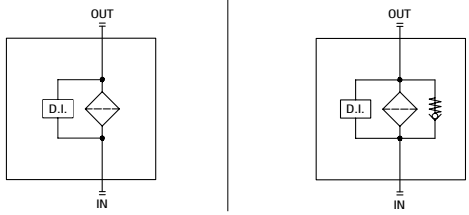
FILTER ASSEMBLY SIZING
Flow rates [l/min]

		Filter element design - R Series					Filter element design - S-U Series				
Filter series	Length	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZM 039	**2**	19	25	41	47	54	19	23	39	43	51
	3	33	36	50	56	65	30	33	45	49	60
	4	41	44	58	64	70	37	39	51	63	68

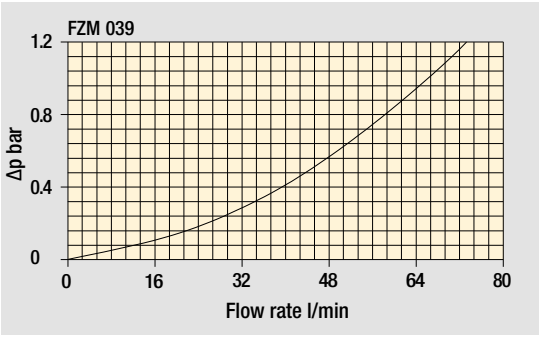
Maximum flow rate for a complete stainless steel high pressure filter with a return drop Δp = 1.5 bar.
The reference fluid has a kinematic viscosity of 30 mm^2/s (cSt) and a density of 0.86 kg/dm^3.
For different pressure drop or fluid viscosity we recommend to use our selection software available on 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
FZM 039	•	•



Pressure drop
Filter housings Δp pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm^3 in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Configuration example: FZM039 | 2 | S | A | M | 1 | A10 | H | P01

Series and size
FZM039

Length
2 | **3** | **4**

Bypass valve
S Without bypass
B With bypass 6 bar

Seals
A NBR
V FPM
F MFQ

Connections
M Manifold

Connection for differential indicator
1 Without connection
2 With connection

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

Element Δp	Valves S	Valves B
R 20 bar	-	•
S 210 bar	•	-
U 210 bar, stainless steel filter element	•	•

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: HP039 | 3 | A10 | A | S | P01

Element series and size
HP039

Element length
2 | **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

Seals
A NBR
V FPM
F MFQ

Element Δp
R 20 bar
S 210 bar
U 210 bar, stainless steel filter element

Execution
P01 MP Filtri standard
Pxx Customized

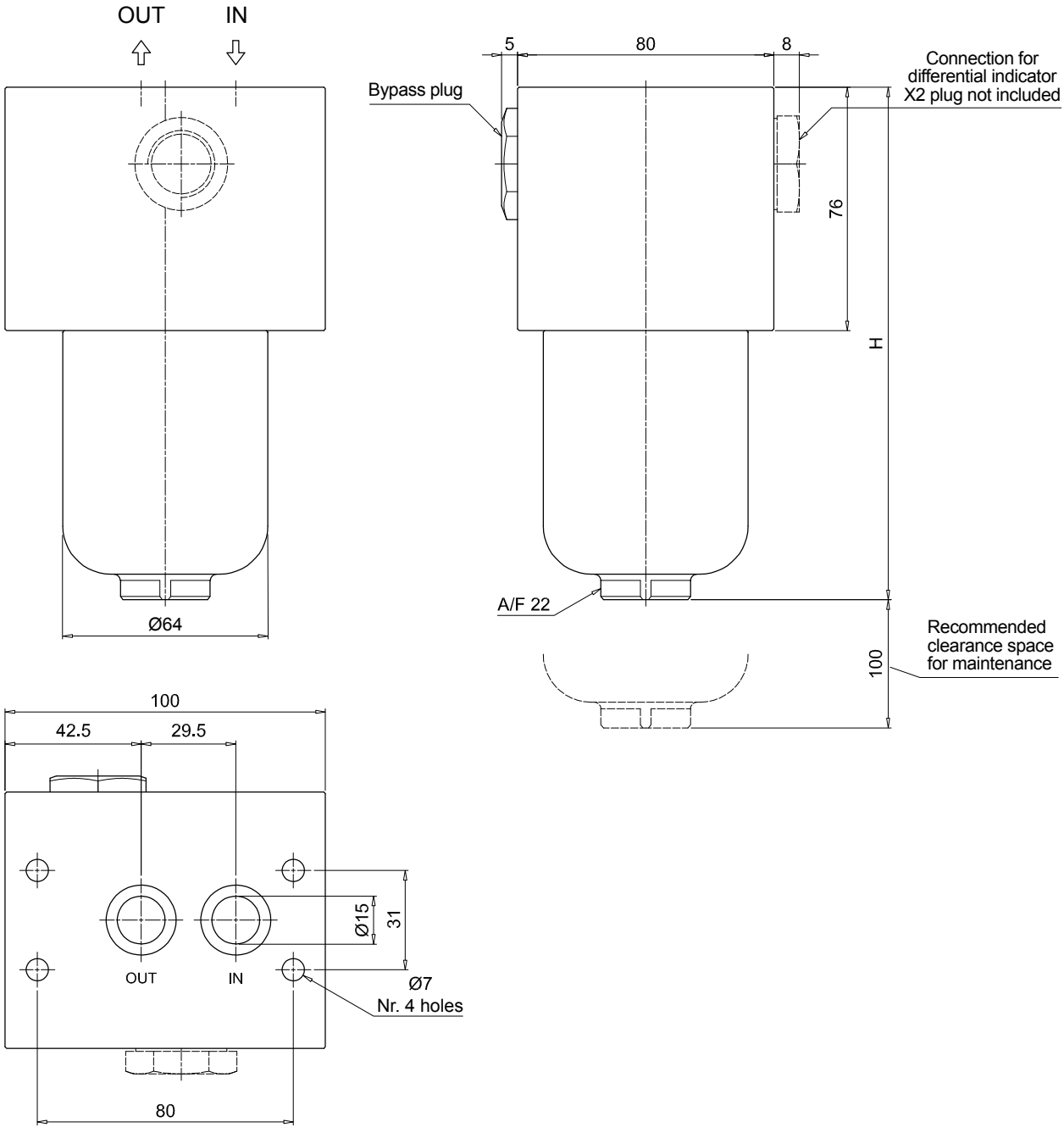
ACCESSORIES

Differential indicators
DEX Electrical differential indicator
DLX Electrical / visual differential indicator
DVX Visual differential indicator
DVY Visual differential indicator

Additional features
X2 Plug

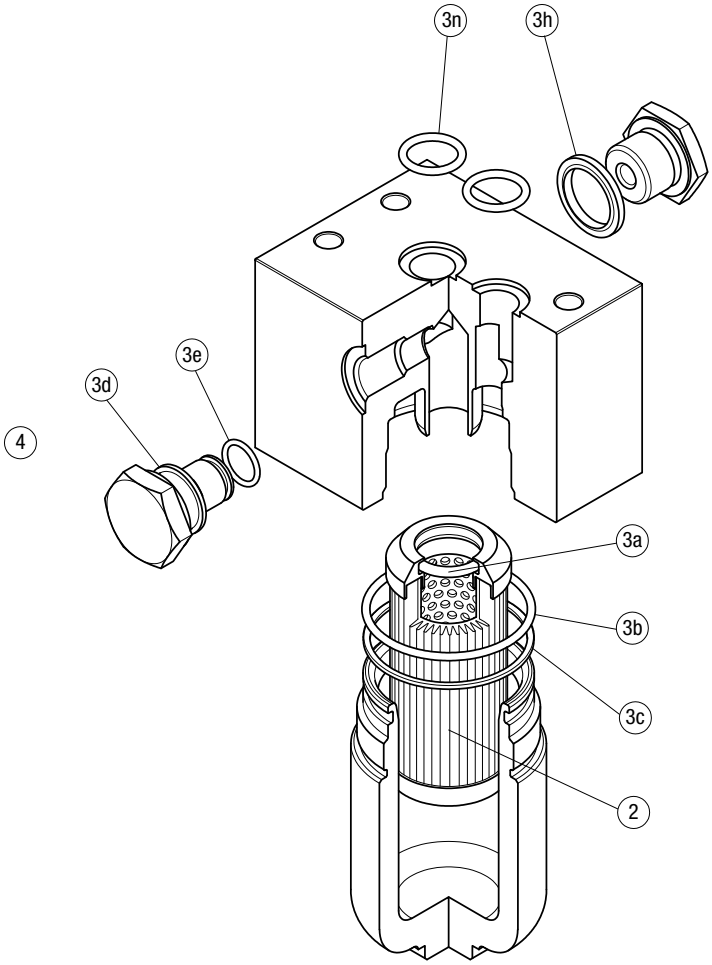
Dimensions

FZM039	
Filter length	**H [mm]**
2	160
3	203
4	247



Order number for spare parts

FZM 039



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3n)		Q.ty: 1 pc. 4	
Filter series	**Filter element**	**Seal Kit code number NBR**	**FPM**	**Indicator connection plug NBR**	**FPM**
FZM 039	See order table	02050651	02050652	X2H	X2V

FZB series

Maximum working pressure up to 32 Mpa (320 bar) - Flow rate up to 70 l/min

FZB GENERAL INFORMATION

Description

Stainless steel high pressure filters

Manifold
Maximum working pressure up to 32 Mpa (320 bar)
Flow rate up to 70 l/min

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.
They are directly connected to the side of the manifold, through the proper flanged interface.

Available features:

- Manifold connections up to Ø16 mm, for a maximum flow rate of 70 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 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
- High collapse filter element "U", for use with aggressive fluids
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-shore equipment
- Water filtration systems
- Systems with strong or corrosive environmental conditions
- Systems with corrosive fluids

Technical data

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR series A (-25 °C to +110 °C)
- Optional FPM series V (-20 °C to +120 °C)
- Optional MFQ series F (-50 °C to +120 °C)

Bypass valve

Opening pressure 6 bar ±10%

Temperature

From -50 °C to +120 °C

Note

FZB filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series R: 20 bar.
Element series "R":
- End cap: Polyamide
- Core tube: Tinned steel
- External/Internal support: Wire mesh Epox painted
- Media/Support/Pre-filter: Microfibre/Syntetic

Microfibre filter elements - series S: 210 bar.
Element series "S":
- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epox painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements series U: 210 bar.
Element series "U":
- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]				
	Length	1	2	3	4	Length	1	2	3	4
FZB 039		-	4.6	5.2	5.7		-	0.19	0.26	0.34

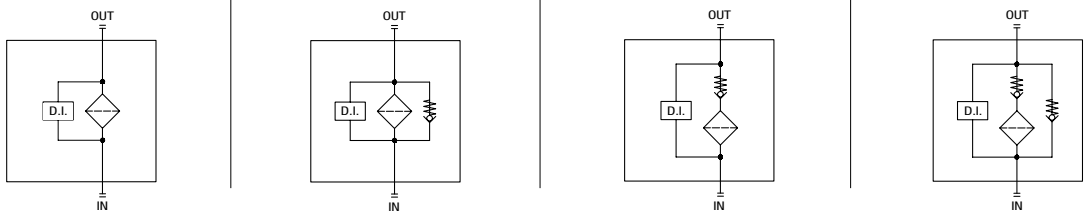
FILTER ASSEMBLY SIZING
Flow rates [l/min]

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

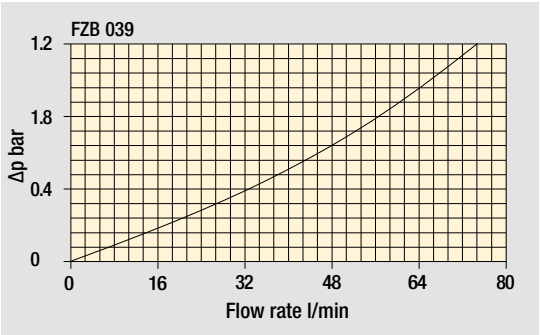
Maximum flow rate for a complete stainless steel high pressure filter with a pressure drop Δp = 1.5 bar.
The reference fluid has a kinematic viscosity of 30 mm^2/s (cSt) and a density of 0.86 kg/dm^3.
For different pressure drop or fluid viscosity we recommend to use our selection software available 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
FZB 039	•	•	•	•



Pressure drop
Filter housings Δp pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm^3 in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Configuration example: FZB039 | 2 | T | A | F | 2 | A06 | S | P01

Series and size
FZB039

Length
2 | **3** | **4**

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
F	MFQ

Connections
F	Manifold

Connections for differential indicator
1	Without connection
2	With connection on the top

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

Element Δp		Valves S	B	T	D
R	20 bar	-	•	-	•
S	210 bar	•	-	•	-
U	210 bar, stainless steel filter element	•	•	•	•

Execution
P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Configuration example: HP039 | 2 | A06 | A | S | P01

Element series and size
HP039

Element length
2 | **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

Seals
A	NBR
V	FPM
F	MFQ

Element Δp
R	20 bar
S	210 bar
U	210 bar, stainless steel filter element

Execution
P01	MP Filtri standard
Pxx	Customized

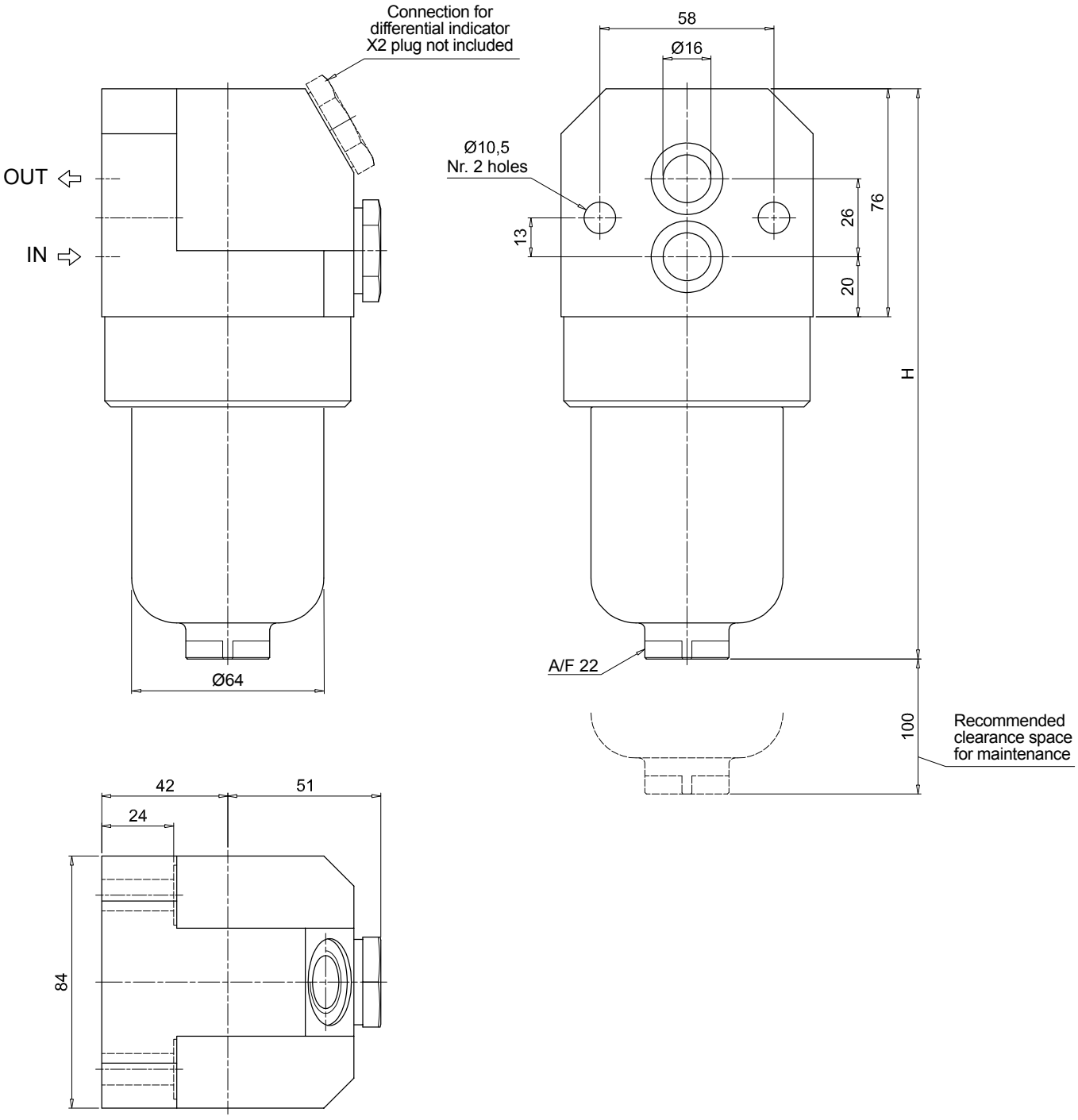
CLOGGING INDICATORS

See page 687

DEX	Electrical differential indicator
DLX	Electrical / visual differential indicator
DVX	Visual differential indicator
DVY	Visual differential indicator
X2	Plug

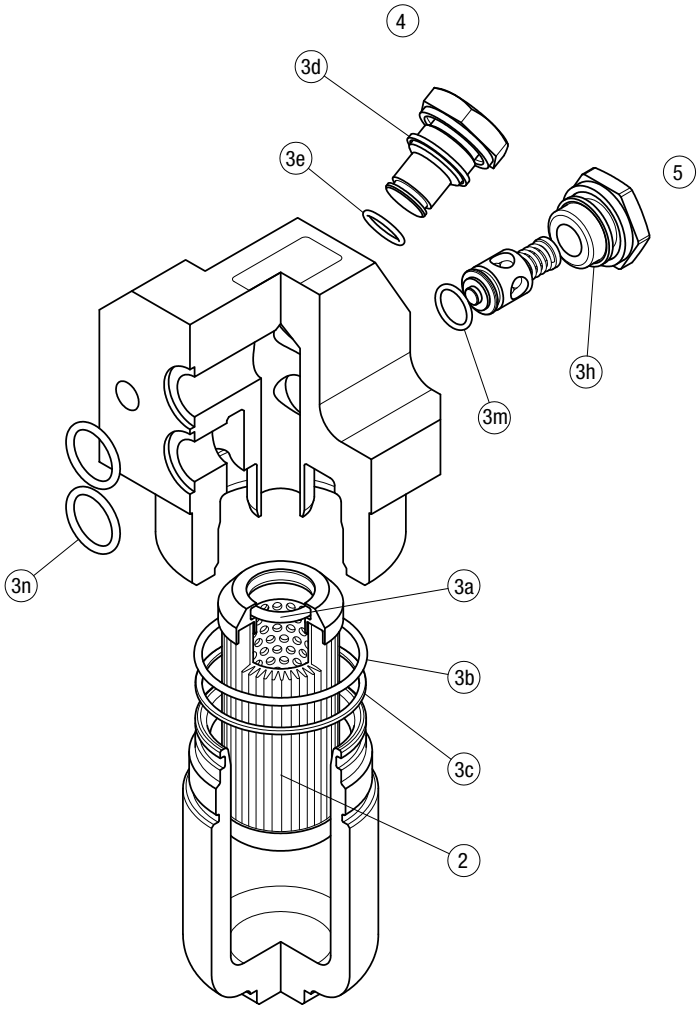
Dimensions

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



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**	**Seal Kit code number NBR**	**FPM**	**Indicator connection plug NBR**	**FPM**	**Bypass assembly / plug NBR**	**FPM**
FZB 039	See order table	02050647	02050648	X2H	X2V	02001286	02001295

FZD series

Maximum working pressure up to 35 Mpa (350 bar) - Flow rate up to 60 l/min

FZD GENERAL INFORMATION

Description

Stainless steel high pressure filters

Duplex
Maximum working pressure up to 35 Mpa (350 bar)
Flow rate up to 60 l/min

FZD is a range of stainless steel high pressure duplex filter with integrated changeover function to allow the filter element replacement without the system shut-down. 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 60 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Balancing valve, available for FZD051, to equalize the housing pressure before the switch.
- Bypass valve, to relieve excessive pressure drop across the filter media
- Vent ports, to avoid air trapped into the filter going into the system
- Drain ports, to remove the fluid from the housing prior the maintenance work
- High collapse filter element "H", for use with filters not 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
- High collapse filter element "U", for use with aggressive fluids
- Visual, electrical and electronic differential clogging indicators

Common applications:

- System where shut-down causes high costs
- System where shut-down causes safety issues

Technical data

Filter housing materials

- Head: AISI 316L
- Housing: AISI 316L
- Bypass valve: AISI 316L

Seals

- Standard NBR series A (-25 °C to +110 °C)
- Optional FPM series V (-20 °C to +120 °C)
- Optional MFQ series F (-50 °C to +120 °C)

Bypass valve

Opening pressure 6 bar ±10%

Temperature

From -50 °C to +120 °C

Note

FZD filters are provided for vertical mounting

Δp element type

Fluid flow through the filter element from OUT to IN

Microfibre filter elements - series R: 20 bar.
Element series "R":
- End cap: Polyamide
- Core tube: Tinned steel
- External/Internal support: Wire mesh Epox painted
- Media/Support/Pre-filter: Microfibre/Syntetic

Microfibre filter elements - series H-S: 210 bar.
Element series "H - S":
- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epox painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Stainless Steel Microfibre filter elements series U: 210 bar.
Element series "U":
- End cap: Stainless steel
- Core tube: Stainless steel
- External support: Stainless steel
- Internal support: Stainless steel
- Media/Support/Pre-filter: Microfibre/Syntetic

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]						Volumes [dm³]					
	Length	1	2	3	4	5	Length	1	2	3	4	4
FZD 010		-	7.9	-	-	-		-	0.10	-	-	-
FZD 021		-	9.6	9.8	10.3	-		-	0.06	0.12	0.22	-
FZD 051		-	17.4	18.0	19.0	20.3		-	0.31	0.41	0.53	0.83

FILTER ASSEMBLY SIZING
Flow rates [l/min]

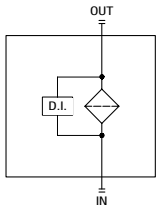
		Filter element design - H Series					Filter element design - U Series				
Filter series	Length	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZD 010	**2**	4	5	7	8	11	4	5	7	8	11
FZD 021	**2**	5	6	11	12	16	5	6	11	12	16
	3	9	11	16	18	20	9	11	16	18	20
	4	10	12	17	19	21	10	12	17	19	21

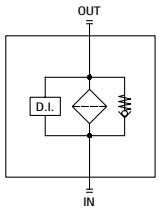
		Filter element design - R Series					Filter element design - S Series					Filter element design - U Series				
Filter series	Length	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZD 051	**2**	39	41	51	54	59	35	37	48	51	58	35	37	48	51	58
	3	45	46	54	56	61	41	43	52	54	60	41	43	52	54	60
	4	50	52	58	58	62	47	49	56	56	61	47	49	56	56	61
	5	56	57	61	62	63	53	53	57	59	63	53	53	57	59	63

Maximum flow rate for a complete stainless steel high pressure filter with a pressure drop Δp = 1.5 bar.
The reference fluid has a kinematic viscosity of 30 mm^2/s (cSt) and a density of 0.86 kg/dm^3.
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.

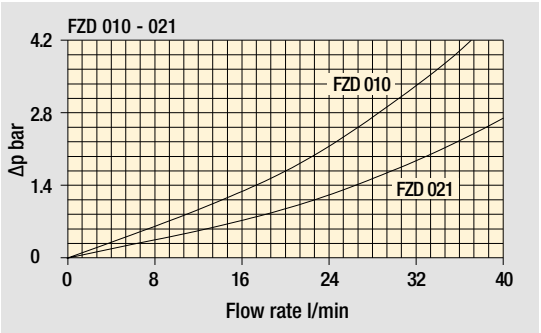
Hydraulic symbols

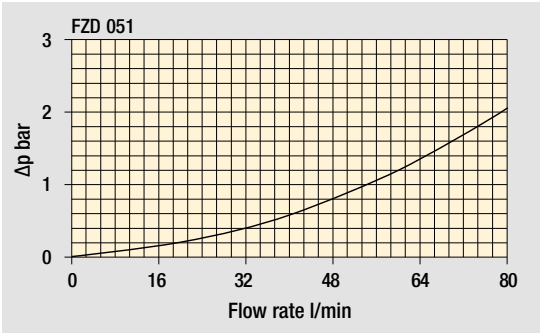
Filter series	Style S	Style B
FZD 010	•	-
FZD 021	•	-
FZD 051	•	•





Pressure drop
Filter housings Δp pressure drop





The curves are plotted using mineral oil with density of 0.86 kg/dm^3 in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Configuration example: FZD021 | 4 | S | A | G1 | A06 | H | P01

Series and size

FZD010 | **FZD021** |

Length	FZD010	FZD021
2	•	•
3	-	•
4	-	•

Bypass valve

S	Without bypass

Seals

A	NBR
V	FPM

Connections	FZD010	FZD021
G1	G 3/8”	G 1/2”
G2	3/8” NPT	1/2” NPT
G3	-	SAE 8 - 3/4” - 16 UNF

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

Element Δp

H	210 bar
U	210 bar, stainless steel filter element

Execution

P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Configuration example: HP011 | 4 | A06 | A | H | P01

Element series and size

	FZD010	FZD021
HP010	•	-
HP011	-	•

Element length	HP010	HP011
2	•	•
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

Seals

A	NBR
V	FPM

Element Δp

H	210 bar
U	210 bar, stainless steel filter element

Execution

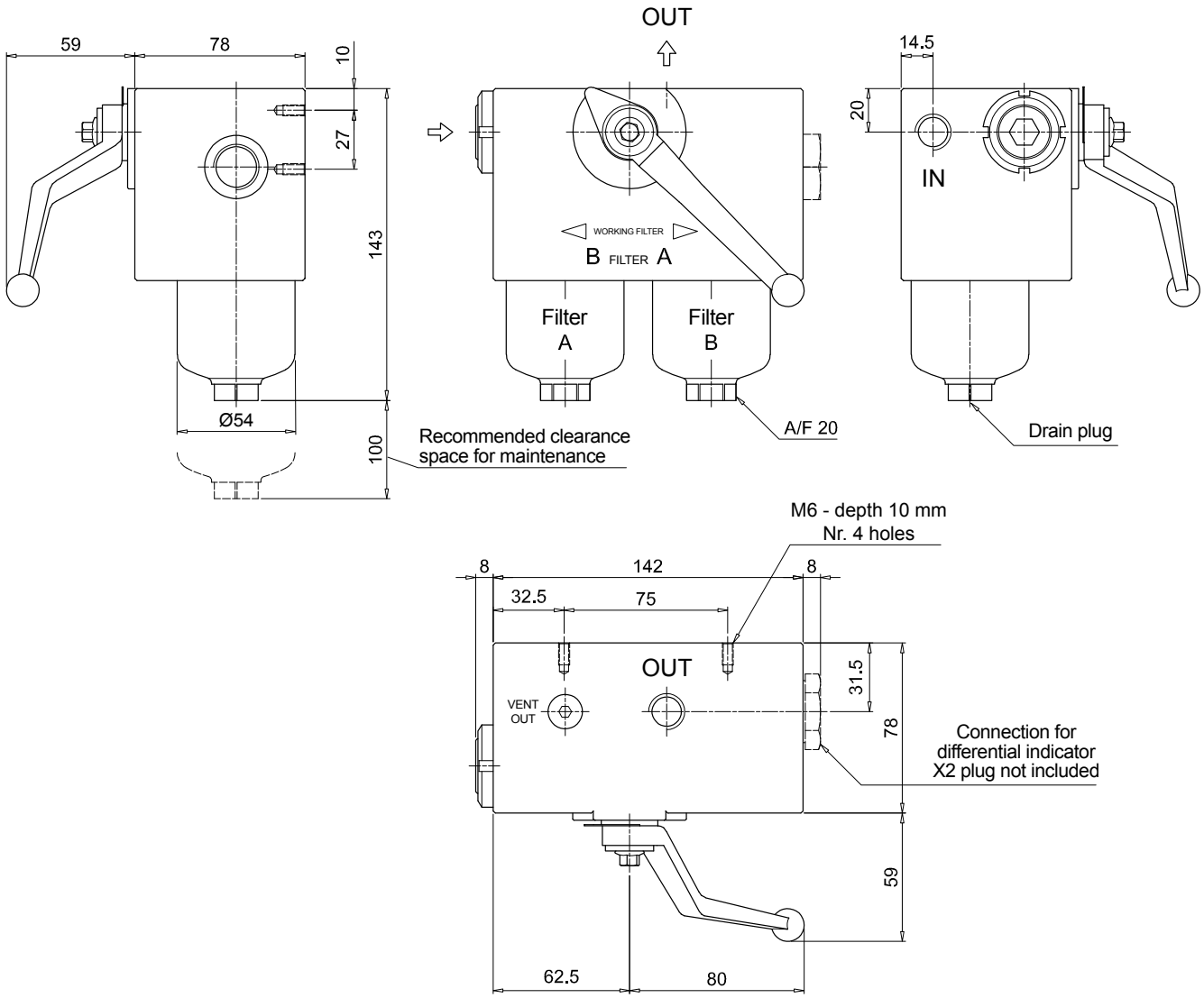
P01	MP Filtri standard
Pxx	Customized

CLOGGING INDICATORS

See page 687

DEX	Electrical differential indicator
DLX	Electrical / visual differential indicator
DVX	Visual differential indicator
DVY	Visual differential indicator
X2	Plug

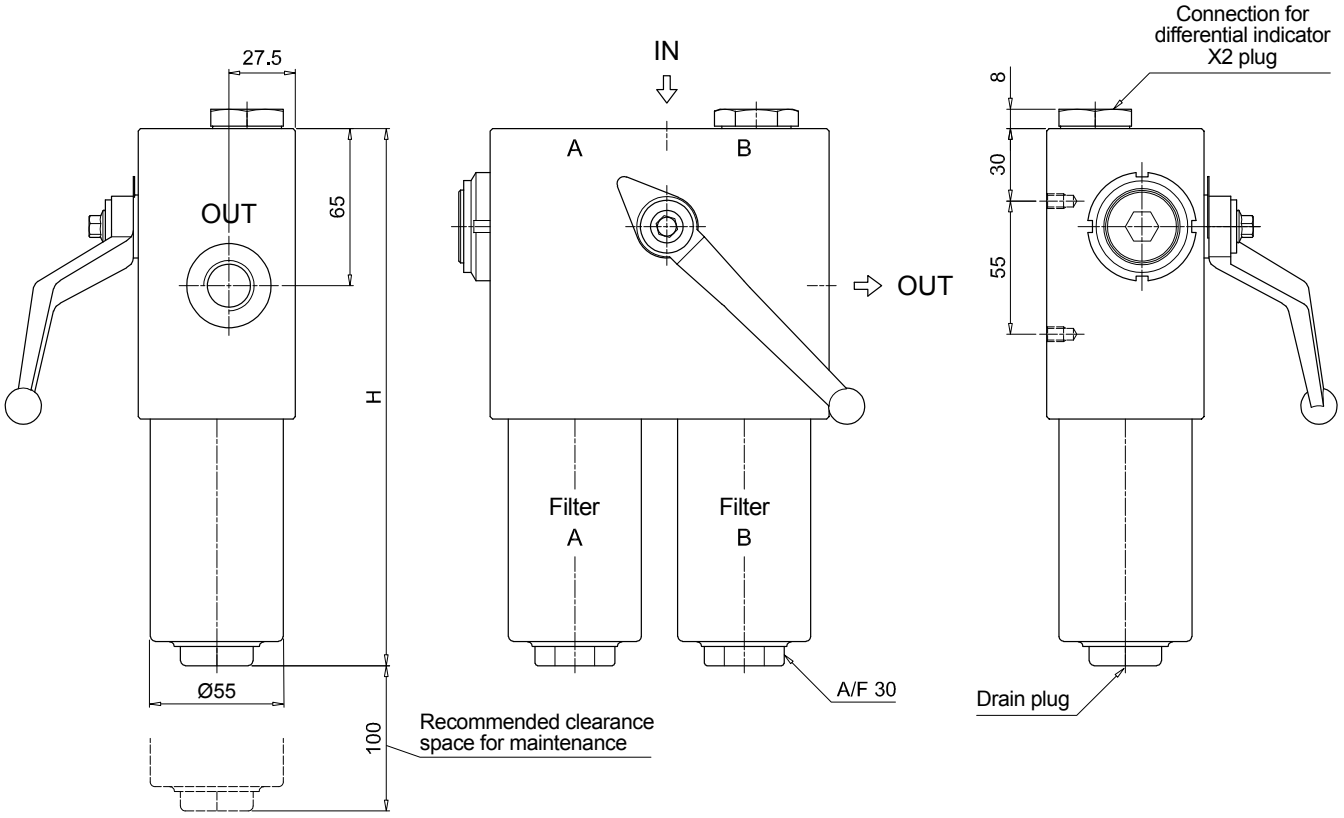
FZD010

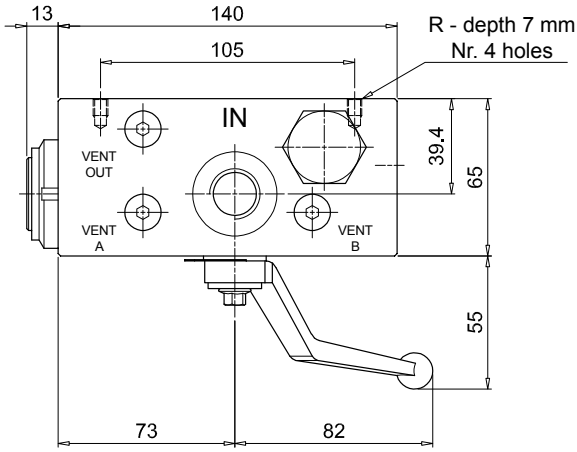

OUT
59
78
10
27
143
Ø54
100
Recommended clearance
space for maintenance
WORKING FILTER
B FILTER A
Filter
A
Filter
B
A/F 20
14.5
20
IN
Drain plug
M6 - depth 10 mm
Nr. 4 holes
8
142
8
32.5
75
OUT
VENT
OUT
31.5
78
Connection for
differential indicator
X2 plug not included
59
62.5
80

Dimensions

FZD021	
Filter length	**H [mm]**
2	172
3	222
4	272

Connections	R
G1	M6
G2 - G3	1/4" UNC





Designation & Ordering code

COMPLETE FILTER

Configuration example: FZD051 | 3 | B | A | G3 | A03 | U | P01

Series and size
FZD051

Length
2 | **3** | **4** | **5**

Bypass valve
S Without bypass
B With bypass 6 bar

Seals
A NBR
V FPM

Connections
G1 G 3/4”
G2 3/4” NPT
G3 G 1/2”
G4 1/2” NPT
G5 SAE 8 - 3/4” - 16 UNF
G6 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

Element Δp	Valves S	Valves B
R 20 bar	-	•
S 210 bar	•	-
U 210 bar, stainless steel filter element	•	•

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: HP050 | 3 | A03 | A | U | P01

Element series and size
HP050

Element length
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

Seals
A NBR
V FPM

Element Δp
R 20 bar
S 210 bar
U 210 bar, stainless steel filter element

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

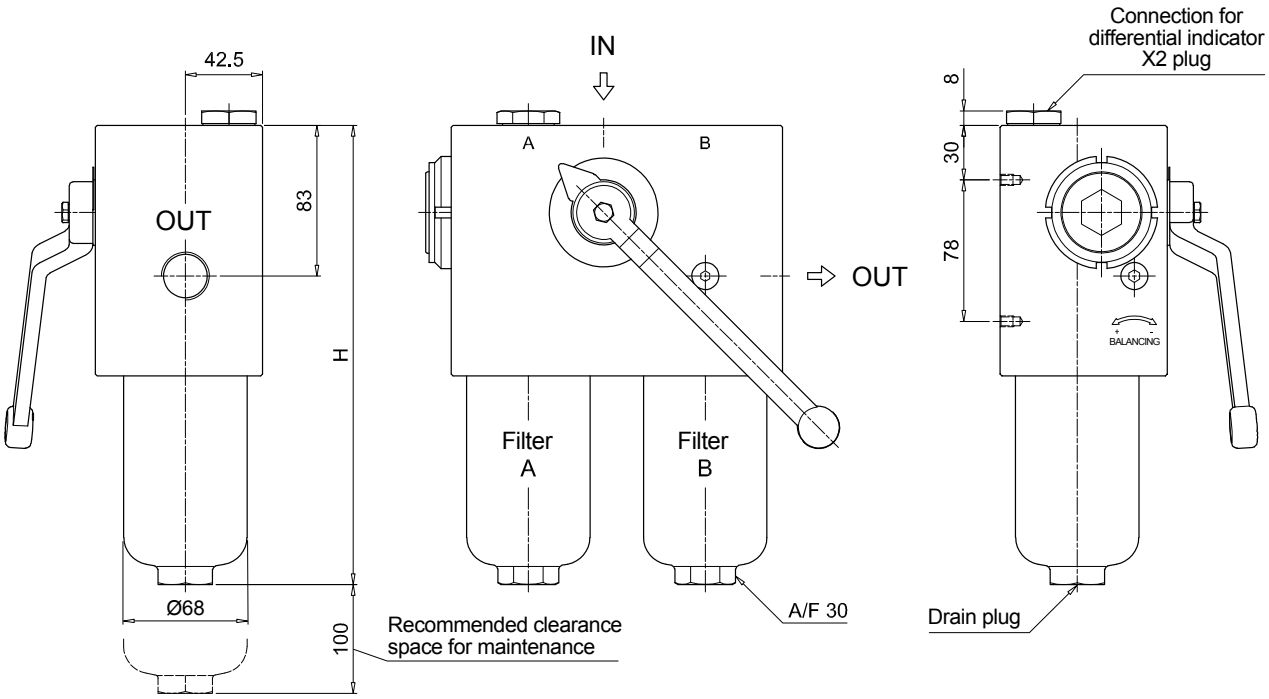
See page 687

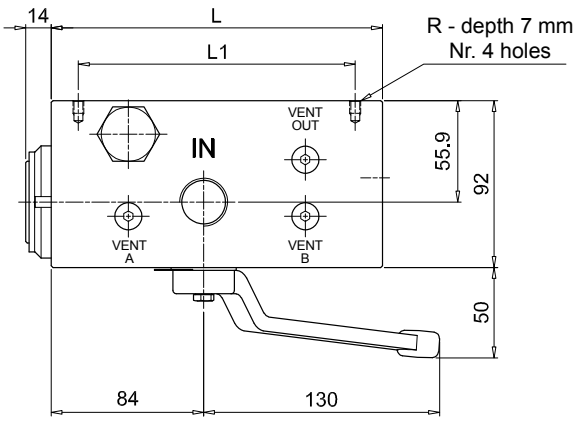
DEX Electrical differential indicator
DLX Electrical / visual differential indicator
DVX Visual differential indicator
DVY Visual differential indicator
X2 Plug

FZD051	
Filter length	**H [mm]**
2	253
3	295
4	343
5	465

Connections	**R**
G1	M6
G2	1/4" UNC
G3	M6
G4-G5-G6	1/4" UNC

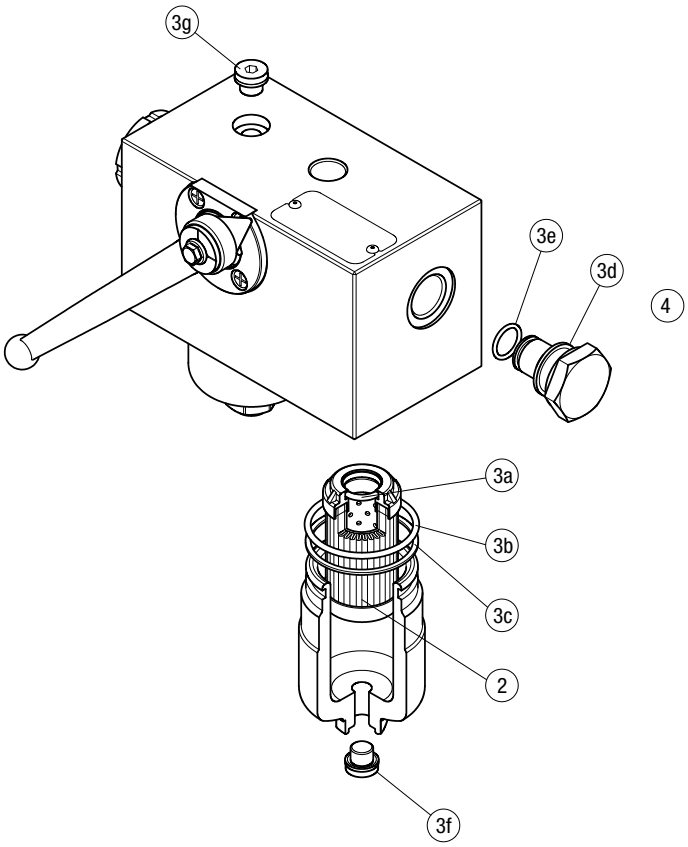
Valves	**L [mm]**	**L1 [mm]**
S	168	138
B	182.5	152.5



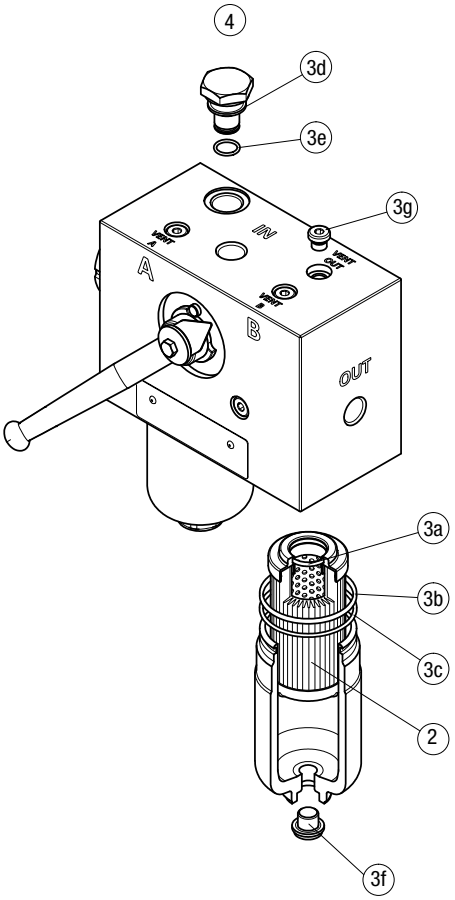


Order number for spare parts

FZD 010



FZD 021 - FZD 051



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3g)		Q.ty: 1 pc. 4	
Filter series	Filter element	Seal Kit code number NBR	FPM	Indicator connection plug NBR	FPM
FZD 010	See order table	02050613	02050655	X2H	X2V
FZD 021		02050796	02050797		
FZD 051		02050800	02050801		

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:

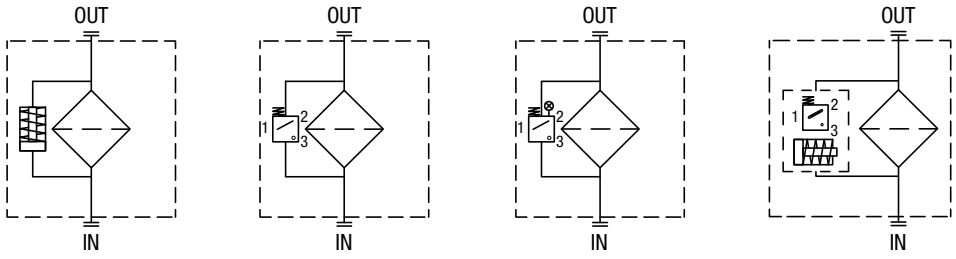
- **Vacuum switches and gauges**
- **Pressure switches and gauges**
- **Differential pressure indicators**

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

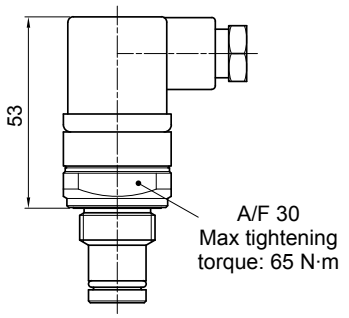
Filter family	Filter series		Visual indicators	Electrical indicators	Electrical / Visual indicators
STAINLESS STEEL HIGH PRESSURE FILTERS	With bypass valve 6 bar	FZH 012 - 040	DVZ50xP01	DEZ50xA50P01	
	Without bypass valve	FZH 012 - 040	DVZ70xP01 DVZ95xP01	DEZ70xA50P01 DEZ95xA50P01	
	With bypass valve 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

Dimensions

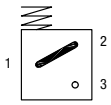
DEX*50

Electrical Differential Indicator

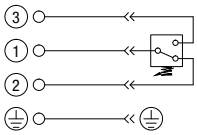
Settings	Ordering code
5.0 bar ±10%	DE X 50 x A 50 P01
7.0 bar ±10%	DE X 70 x A 50 P01
9.5 bar ±10%	DE X 95 x A 50 P01



Hydraulic symbol



Electrical symbol



Materials
- Body: AISI 316L
- Base: Black polyamide
- Contacts: Silver
- Seal: HNBR - MFQ

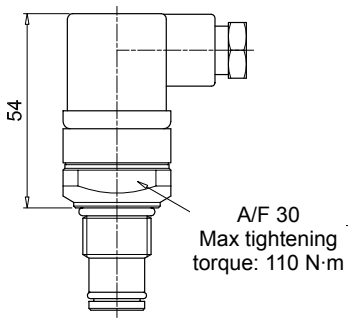
Technical data
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree protection: IP66 according to EN 60529 IP69K according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

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

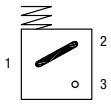
DEZ*50

Electrical Differential Indicator

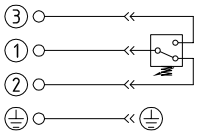
Settings	Ordering code
5.0 bar ±10%	DE Z 50 x A 50 P01
7.0 bar ±10%	DE Z 70 x A 50 P01
9.5 bar ±10%	DE Z 95 x A 50 P01



Hydraulic symbol



Electrical symbol



Materials
- Body: AISI 316L
- Base: Black polyamide
- Contacts: Silver
- Seal: HNBR - MFQ

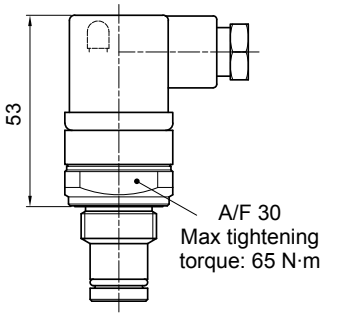
Technical data
- Max working pressure: 700 bar
- Proof pressure: 1050 bar
- Burst pressure: 2100 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree protection: IP66 according to EN 60529 IP69K according to ISO 20653

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

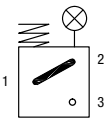
DLX*51 - DLX*52

Electrical/Visual Differential Indicator

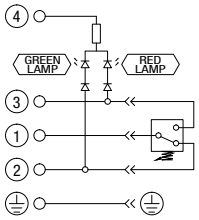
Settings	Ordering code
5.0 bar ±10%	DL X 50 x A x x P01
7.0 bar ±10%	DL X 70 x A x x P01
9.5 bar ±10%	DL X 95 x A x x P01



Hydraulic symbol



Electrical symbol



Materials
- Body: AISI 316L
- Base: Transparent polyamide
- Contacts: Silver
- Seal: HNBR - MFQ

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

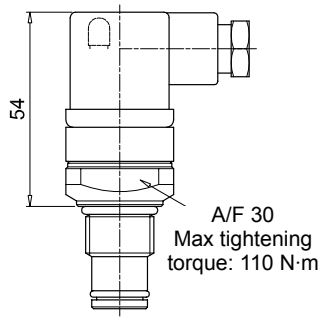
Electrical data

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

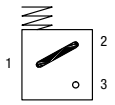
DLZ*51 - DLZ*52

Electrical/Visual Differential Indicator

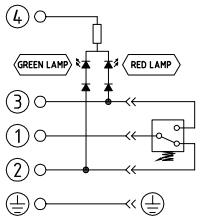
Settings	Ordering code
5.0 bar ±10%	DL Z 50 x A 50 P01
7.0 bar ±10%	DL Z 70 x A 50 P01
9.5 bar ±10%	DL Z 95 x A 50 P01



Hydraulic symbol



Electrical symbol



Materials

- Body: AISI 316L
- Base: Transparent polyamide
- Contacts: Silver
- Seal: HNBR - MFQ

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

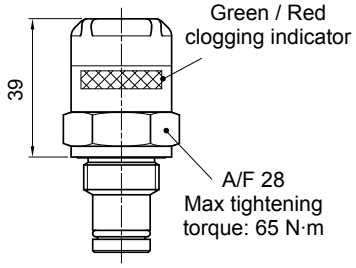
Electrical data

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

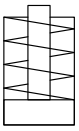
DVX

Visual Differential Indicator

Settings	Ordering code
5.0 bar ±10%	DV X 50 x P01
7.0 bar ±10%	DV X 70 x P01
9.5 bar ±10%	DV X 95 x P01



Hydraulic symbol



Materials

- Body: AISI 316L
- Internal parts: AISI 316L - Polyamide
- Contacts: Silver
- Seal: HNBR - MFQ

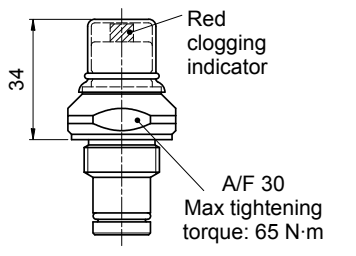
Technical data

- 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

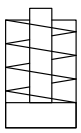
DVY

Visual Differential Indicator

Settings	Ordering code
5.0 bar ±10%	DV Y 50 x P01
7.0 bar ±10%	DV Y 70 x P01
9.5 bar ±10%	DV Y 95 x P01



Hydraulic symbol



Materials

- Body: AISI 316L
- Internal parts: AISI 316L - Polyamide
- Contacts: Silver
- Seal: HNBR - MFQ

Technical data

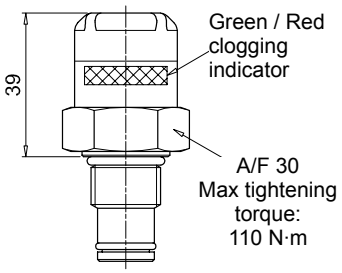
- Reset: Manual reset
- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943
- Degree protection: IP65 according to EN 60529

Dimensions

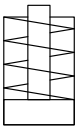
DVZ

Visual Differential Indicator

Settings	Ordering code
5.0 bar ±10%	DV Z 50 x P01
7.0 bar ±10%	DV Z 70 x P01
9.5 bar ±10%	DV Z 95 x P01



Hydraulic symbol



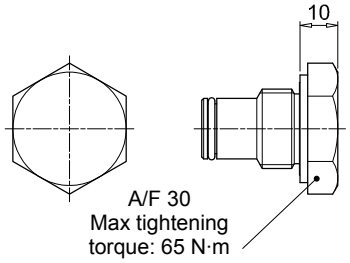
Materials
- Body: AISI 316L
- Internal parts: AISI 316L - Polyamide
- Contacts: Silver
- Seal: HNBR - MFQ

Technical data
- Reset: Automatic reset
- 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: IP65 according to EN 60529

X2

Indicator plug 420 bar

Seal	Ordering code
HNBR	X2 H
MFQ	X2 F

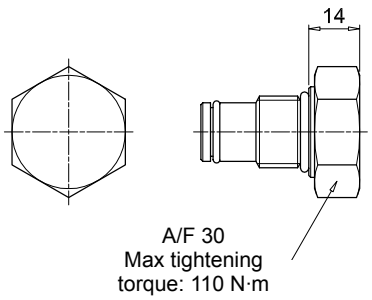


Materials
- Body: AISI 316L
- Seal: HNBR / MFQ

X3

Indicator plug 700 bar (only for FZH)

Seal	Ordering code
HNBR	X3 H
MFQ	X3 F



Materials
- Body: AISI 316L
- Seal: HNBR / MFQ

DESIGNATION & ORDERING CODE - DIFFERENTIAL INDICATORS

Configuration example 1:	DE	Z	50	H	A	50	P01
Configuration example 2:	DL	X	70	V	A	52	P01

Series

DE	Electrical differential indicator
DL	Electrical / Visual differential indicator
DV	Visual differential indicator

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

Configuration example	X2	H

Series

X2	Indicator plug 420 bar
X3	Indicator plug 700 bar (only for FZH)

Seals

H	HNBR
V	FPM
F	MFQ

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