

MPFILTRI®

PASSION TO PERFORM



A WORLDWIDE LEADER IN THE FIELD
OF HYDRAULIC FILTRATION EQUIPMENT.

Our company started life in 1964, when Bruno Pasotto decided to attempt to cater for the requests of a market still to be fully explored, with the study, design, development, production and marketing of a vast range of filters for hydraulic equipment, capable of satisfying the needs of manufacturers in all sectors. The quality of our products, our extreme competitiveness compared with major international producers and our constant activities of research, design and development has made us a worldwide leader in the field of hydraulic circuit filtering. Present for over 50 years in the market, we have played a truly decisive role in defining our sector, and by now we are a group capable of controlling our entire chain of production, monitoring all manufacturing processes to guarantee superior quality standards and to provide concrete solutions for the rapidly evolving needs of customers and the market.

HYDRAULIC FILTRATION PRODUCTS

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			l/min	gpm
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			bar	psi	l/min	gpm
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			bar	psi	l/min	gpm
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294	page	SPIN-ON FILTERS	up to P_{max}		up to Q_{max}	
			bar	psi	l/min	gpm
297	MPS	Low pressure filter, available with single cartridge (CS) for in-line or flange mounting or with two cartridge on the same axis on the opposite sides	12	174	365	96
313	MSH	In-line low and medium pressure filter available with single cartridge (CH)	35	508	195	52
720		CLOGGING INDICATORS				

320 page	LOW & MEDIUM PRESSURE FILTERS	up to P _{max}		up to Q _{max}		
		bar	psi	l/min	gpm	
322	LFEX	In-line filter with plastic bowl	16	232	300	79
333	LMP 110	In-line low & medium pressure filter, low to medium flow rate	80	1160	165	44
341	LMP 112 - 123 MULTIPORT	In-line filter with Multiport design for multiple choice connection	80	1160	175	46
357	LMP 210 - 211	In-line low & medium pressure filter, low flow rate	60	870	365	96
367	LPH 630	Off-line low pressure filter	10	145	1600	352
375	LMP 400 - 401	In-line low & medium pressure filter, high flow rate	60	870	780	206
383	LMP 430 - 431	In-line low & medium pressure filter, high flow rate	60	870	780	206
391	LMP 950 - 951	In-line filter, available with 2 and up to 6 different heads	30	435	2400	634
399	LMP 952 - 953 - 954	In-line low pressure filter specifically designed to be mounted in series	25	363	4500	1189
411	LMD 211	In-line duplex medium pressure filter	60	870	200	53
419	LMD 400 - 401 & 431	In-line duplex low pressure filter	16	232	600	159
435	LMD 951	In-line duplex filter, available with 2 up to 6 different heads	16	232	1200	317
443	Filter elements designed according to DIN 24550					
445	LDP - LDD	In-line and duplex medium pressure filter	60	870	360	95
455	LMP 900 - 901	In-line low pressure filter	30	435	2000	528
463	LMP 902 - 903	In-line filter specifically designed to be mounted in series	20	290	3000	793
472	ACCESSORIES					
722	CLOGGING INDICATORS					

474 page	HIGH PRESSURE FILTERS	up to P _{max}		up to Q _{max}		
		bar	psi	l/min	gpm	
476	FMMX	Typical high pressure filter for mobile applications, low flow rate	420	6092	154	41
485	FMM	Typical high pressure filter for mobile applications, low flow rate	420	6092	300	79
495	FHA	Filter optimized for use in high pressure operating systems, low flow rate	560	8122	150	40
503	FMP 039	Filter high pressure, low flow rate applications	110	1595	80	21
511	FMP	Filter high pressure, high flow rate applications	320	4641	500	132
523	FHP	Typical high pressure filter for mobile applications, high flow rate	420	6092	630	166
543	FHM	High pressure filter with intermediate manifold construction	320	4641	400	106
561	FHB	High pressure for block mounting	320	4641	485	128
575	FHF	In-line manifold top mounting according to SAE J2066	350	5076	550	145
585	FHD	In-line duplex high pressure filter	350	5076	250	66
599	HPB	Pressure filter kits for integration in control manifolds	420	6092	300	79
723	CLOGGING INDICATORS					

608 page	STAINLESS STEEL HIGH PRESSURE FILTERS	up to P _{max}		up to Q _{max}		
		bar	psi	l/min	gpm	
611	FZP	In-line pressure filter with threaded mount	420	6092	160	42
621	FZH	In-line pressure filter with threaded mount for higher pressure	700	10153	80	21
631	FZX	In-line pressure filter with threaded mount up to 1000 bar	1000	14504	10	3
639	FZM	Manifold top mounting	320	4641	70	18
647	FZB	Manifold side mounting	320	4641	70	18
655	FZD	Duplex pressure filter for continuous operation requirements	350	5076	60	16
724	CLOGGING INDICATORS					

666 page	FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE	up to P _{max}		up to Q _{max}		
		bar	psi	l/min	gpm	
668	FMMX	Typical high pressure filter for mobile applications, low flow rate	420	6092	154	41
677	FZP	In-line pressure filter with threaded mount	420	6092	160	42
687	FZH	In-line pressure filter with threaded mount for higher pressure	700	10153	80	21
697	FZX	In-line pressure filter with threaded mount up to 1000 bar	1000	14504	10	3
725	CLOGGING INDICATORS					

705 page	CLOGGING INDICATORS					
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Our work is based on a skillful interaction between advanced technology and fine workmanship, **customizing products according to specific market requests**, focusing strongly on innovation and quality, and following every step in the manufacturing of both standard and special products, fully respecting customer expectations.

MARKET
LEADER



Our customer-oriented philosophy, which enables us to satisfy all customer requests **rapidly** and **with personalized products**, makes us a **dynamic and flexible enterprise**.

The possibility of constantly controlling and monitoring the entire production process is essential to allow us to guarantee the quality of our products.

WORLDWIDE PRESENCE



Our foreign Branches enable us to offer a diversified range of products that allow us to successfully face the aggressive challenge of international competition, and also to maintain a stable presence at a local level.

The Group boasts **9** business branches



TECHNOLOGY

Our constant **quest for excellence in quality and technological innovation** allows us to offer only the best solutions and services for applications in many fields, including general industry, test rigs, lubrication, heavy engineering, renewable energies, naval engineering, offshore engineering, aviation systems, emerging technologies and mobile plant (i.e. tractors, excavators, concrete pumps, platforms).



AND PRODUCTION

Our high level of technological expertise means **we can rely entirely on our own resources, without resorting to external providers.** This in turn enables us to satisfy a growing number of customer requests, also exploiting our constantly updated range of machines and equipment, featuring **fully-automated workstations** capable of **24-hour production.**





SUCTION FILTERS

- Mounting:
- Tank immersed
 - In-Line
 - In tank with shut off valve
 - In tank with flooded suction



RETURN FILTERS

- Mounting:
- In-Line
 - Tank top
 - In single and duplex designs



RETURN / SUCTION FILTERS

- Mounting:
- In-Line
 - Tank top



SPIN-ON FILTERS

- Mounting:
- In-Line
 - Tank top



LOW & MEDIUM PRESSURE FILTERS

- Mounting:
- In-Line
 - Parallel manifold version
 - In single and duplex designs



HIGH PRESSURE FILTERS

- Mounting:
- In-Line
 - Manifold
 - In single and duplex designs

PRODUCT RANGE

MP Filtri can offer a vast and articulated range of products for the global market, suitable for all industrial sectors using hydraulic equipment.

This includes filters (suction, return, return/suction, spin-on, pressure, stainless steel pressure, ATEX filters) and structural components (motor/pump bell-housings, transmission couplings, damping rings, foot brackets, aluminium tanks, cleaning covers).

We can provide all the skills and solutions required by the modern hydraulics industry to monitor contamination levels and other fluid conditions.

Mobile filtration units and a full range of accessories allow us to supply everything necessary for a complete service in the hydraulic circuits.



STAINLESS STEEL HIGH PRESSURE FILTERS

- Mounting:
- In-Line
 - Manifold
 - In single and duplex designs

FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE

- Mounting:
- In-Line

CONTAMINATION CONTROL SOLUTIONS

- Off-line, in-line particle counters
- Off-line bottle sampling products
- Fully calibrated using relevant ISO standards
- A wide range of variants to support fluid types and communication protocols
- Mobile Filtration Units with flow rates from 15 l/min up to 200 l/min

POWER TRANSMISSION PRODUCTS

- Aluminium bell-housings for motors from 0.12 kW to 400 kW
- Couplings in Aluminium Cast Iron - Steel
- Damping rings
- Foot bracket
- Aluminium tanks
- Cleaning covers

TANK ACCESSORIES

- Oil filler and air breather plugs
- Optical and electrical level gauges
- Pressure gauge valve selectors
- Pipe fixing brackets
- Pressure gauges



CONTAMINATION MANAGEMENT

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1 HYDRAULIC FLUIDS

The fluid is the vector that transmits power, energy within an oleodynamic circuit. In addition to transmitting energy through the circuit, it also performs additional functions such as lubrication, protection and cooling of the surfaces.

The classification of fluids used in hydraulic systems is coded in many regulatory references, different Standards.

The most important classification system for hydraulic fluids is the one defined by International Organization for Standardization (ISO), which established a classification system within their standard: "ISO 6743-4 Lubricants, Industrial Oils and Related Products". In particular, the parts of interest for hydraulic fluids are:

- Lubricants, industrial oils and related products (class L)
- Classifications - Part 4L - Family H (Hydraulic systems)

The ISO 6743-4 classification system can be generally applied to the three primary classes of hydraulic fluids:

- Mineral Oils (i.e.: petroleum) Hydraulic Fluids (i.e.: HH: Mineral lubricants without corrosion inhibitors; HL: HH-type lubricants with oxidation reduction and anticorrosive additives; HM: HL-type lubricants with anti-wear additives; HV: HM-type lubricants with a higher viscosity grade and temperature properties; and others).
- Biodegradable Hydraulic Fluids (HExx), also defined as "Environmentally acceptable hydraulic fluids".
- Fire Resistant Hydraulic Fluids (HFxx), which could be further split into: Fire-resistant aqueous fluids (HFAx, HFB; HFC) ; Fire-resistant synthetic anhydrous fluids (HFDx).

The choice of fluid for an hydraulic system must take into account several parameters.

These parameters can adversely affect the performance of an hydraulic system, causing delay in the controls, pump cavitation, excessive absorption, excessive temperature rise, efficiency reduction, increased drainage, wear, jam/block or air intake in the plant.

The main properties that characterize hydraulic fluids and affect their choice are:

- **DYNAMIC VISCOSITY**
It identifies the fluid's resistance to sliding due to the impact of the particles forming it.
- **KINEMATIC VISCOSITY**
It is a widespread formal dimension in the hydraulic field.
It is calculated with the ratio between the dynamic viscosity and the fluid density.
Kinematic viscosity varies with temperature and pressure variations.
- **VISCOSITY INDEX**
This value expresses the ability of a fluid to maintain viscosity when the temperature changes.
A high viscosity index indicates the fluid's ability to limit viscosity variations by varying the temperature.
- **FILTERABILITY INDEX**
It is the value that indicates the ability of a fluid to cross the filter materials.
A low filterability index could cause premature clogging of the filter material.
- **WORKING TEMPERATURE**
Working temperature affects the fundamental characteristics of the fluid.
As already seen, some fluid characteristics, such as cinematic viscosity, vary with the temperature variation.

When choosing a hydraulic oil, must therefore be taken into account of the environmental conditions in which the machine will operate.

- **COMPRESSIBILITY MODULE**
Every fluid subjected to a pressure contracts, increasing its density.
The compressibility module identifies the increase in pressure required to cause a corresponding increase in density.
- **HYDROLYTIC STABILITY**
It is the characteristic that prevents galvanic pairs that can cause wear in the plant/system.
- **ANTIOXIDANT STABILITY AND WEAR PROTECTION**
These features translate into the capacity of a hydraulic oil to avoid corrosion of metal elements inside the system.
- **HEAT TRANSFER CAPACITY**
It is the characteristic that indicates the capacity of hydraulic oil to exchange heat with the surfaces and then cool them.

2 FLUID CONTAMINATION

Whatever the nature and properties of fluids, they are inevitably subject to contamination. Fluid contamination can have two origins:

- **INITIAL CONTAMINATION**
Caused by the introduction of contaminated fluid into the circuit, or by incorrect storage, transport or transfer operations.
- **PROGRESSIVE CONTAMINATION**
Caused by factors related to the operation of the system, such as metal surface wear, sealing wear, oxidation or degradation of the fluid, the introduction of contaminants during maintenance, corrosion due to chemical or electrochemical action between fluid and components, cavitation.
The contamination of hydraulic systems can be of different nature:
- **SOLID CONTAMINATION**
For example rust, slag, metal particles, fibers, rubber particles, paint particles or additives
- **LIQUID CONTAMINATION**
For example, the presence of water due to condensation or external infiltration or acids
- **GASEOUS CONTAMINATION**
For example, the presence of air due to inadequate oil level in the tank, drainage in suction ducts, incorrect sizing of tubes or tanks.

3 FLUID COMPATIBILITY CHARTS

For more detailed information on specific fluid compatibility please refer to the fluid compatibility charts on our website:



4 EFFECTS OF CONTAMINATION ON HYDRAULIC COMPONENTS

Solid contamination is recognized as the main cause of malfunction, failure and early degradation in hydraulic systems. It is impossible to delete it completely, but it can be effectively controlled by appropriate devices.

CONTAMINATION IN PRESENCE OF LARGE TOLERANCES



CONTAMINATION IN PRESENCE OF NARROW TOLERANCES



Solid contamination mainly causes surface damage and component wear.

- ABRASION OF SURFACES
Cause of leakage through mechanical seals, reduction of system performance, failures.
- SURFACE EROSION
Cause of leakage through mechanical seals, reduction of system performance, variation in adjustment of control components, failures.
- ADHESION OF MOVING PARTS
Cause of failure due to lack of lubrication.
- DAMAGES DUE TO FATIGUE
Cause of breakdowns and components breakdown.

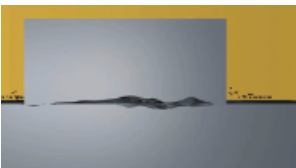
ABRASION



EROSION



ADHESION



FATIGUE



Liquid contamination mainly results in decay of lubrication performance and protection of fluid surfaces.

DISSOLVED WATER

- INCREASING FLUID ACIDITY
Cause of surface corrosion and premature fluid oxidation
- GALVANIC COUPLE AT HIGH TEMPERATURES
Cause of corrosion

FREE WATER - ADDITIONAL EFFECTS

- DECAY OF LUBRICANT PERFORMANCE
Cause of rust and sludge formation, metal corrosion and increased solid contamination
- BATTERY COLONY CREATION
Cause of worsening in the filterability feature

- ICE CREATION AT LOW TEMPERATURES
Cause damage to the surface
- ADDITIVE DEPLETION
Free water retains polar additives

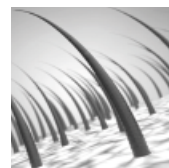
Gaseous contamination mainly results in decay of system performance.

- CUSHION SUSPENSION
Cause of increased noise and cavitation.
- FLUID OXIDATION
Cause of corrosion acceleration of metal parts.
- MODIFICATION OF FLUID PROPERTIES (COMPRESSIBILITY MODULE, DENSITY, VISCOSITY)
Cause of system's reduction of efficiency and of control. It is easy to understand how a system without proper contamination management is subject to higher costs than a system that is provided.
- MAINTENANCE
Increase maintenance activities, spare parts, machine stop costs.
- ENERGY AND EFFICIENCY
Efficiency and performance reduction due to friction, drainage, cavitation.

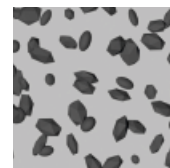
5 MEASURING THE SOLID CONTAMINATION LEVEL

The level of contamination of a system identifies the amount of contaminant contained in a fluid. This parameter refers to a unit volume of fluid. The level of contamination may be different at different points in the system. From the information in the previous paragraphs it is also apparent that the level of contamination is heavily influenced by the working conditions of the system, by its working years and by the environmental conditions.

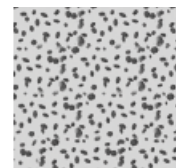
What is the size of the contaminating particles that we must handle in our hydraulic circuit?



HUMAN HAIR (75 µm)



MINIMUM DIMENSION VISIBLE WITH HUMAN EYES (40 µm)



TYPICAL CONTAMINANT DIMENSION IN A HYDRAULIC CIRCUIT (4 - 14 µm)

Contamination level analysis is significant only if performed with a uniform and repeatable method, conducted with standard test methods and suitably calibrated equipment. To this end, ISO has issued a set of standards that allow tests to be conducted and express the measured values in the following ways.

- GRAVIMETRIC LEVEL - ISO 4405

The level of contamination is defined by checking the weight of particles collected by a laboratory membrane. The membrane must be cleaned, dried and desiccated, with fluid and conditions defined by the Standard. The volume of fluid is filtered through the membrane by using a suitable suction system. The weight of the contaminant is determined by checking the weight of the membrane before and after the fluid filtration.



CLEAN MEMBRANE



CONTAMINATED MEMBRANE

CONTAMINATION MANAGEMENT

- CUMULATIVE DISTRIBUTION OF THE PARTICLES SIZE - ISO 4406

The level of contamination is defined by counting the number of particles of certain dimensions per unit of volume of fluid. Measurement is performed by Contamination Monitoring Products (CMP).

Following the count, the contamination classes are determined, corresponding to the number of particles detected in the unit of fluid.

The most common classification methods follow ISO 4406 and SAE AS 4059 (Aerospace Sector) regulations.

NAS 1638 is still used although obsolete.

Classification example according to ISO 4406

The International Standards Organization standard ISO 4406 is the preferred method of quoting the number of solid contaminant particles in a sample. The level of contamination is defined by counting the number of particles of certain dimensions per unit of volume of fluid. The measurement is performed by Contamination Monitoring Products (CMP).

The numbers represent a code which identifies the number of particles of certain sizes in 1ml of fluid. Each code number has a particular size range. The first scale number represents the number of particles equal to or larger than 4 $\mu\text{m}_{(c)}$ per millilitre of fluid; The second scale number represents the number of particles equal to or larger than 6 $\mu\text{m}_{(c)}$ per millilitre of fluid; The third scale number represents the number of particles equal to or larger than 14 $\mu\text{m}_{(c)}$ per millilitre of fluid.

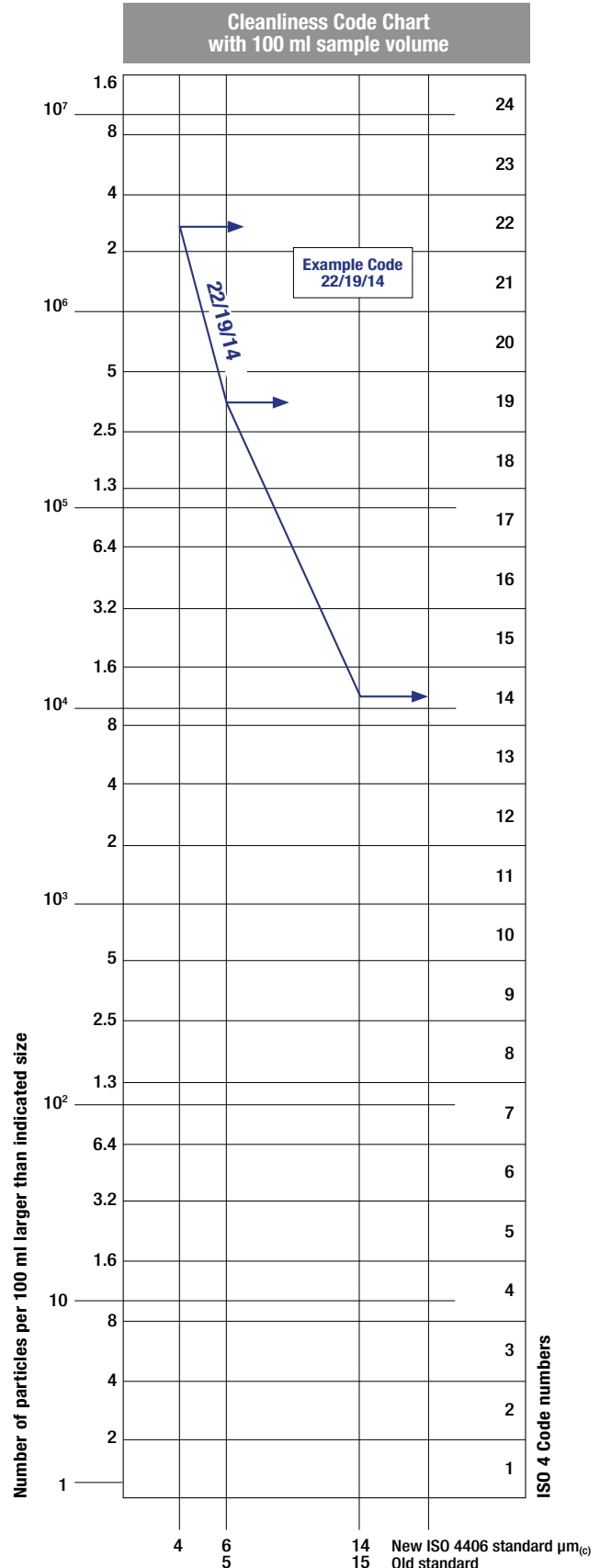
ISO 4406 - Allocation of Scale Numbers

Class	Number of particles per ml	
	Over	Up to
28	1 300 000	2 500 000
27	640 000	1 300 000
26	320 000	640 000
25	160 000	320 000
24	80 000	160 000
23	40 000	80 000
22	20 000	40 000
21	10 000	20 000
20	5 000	10 000
19	2 500	5 000
18	1 300	2 500
17	640	1 300
16	320	640
15	160	320
14	80	160
13	40	80
12	20	40
11	10	20
10	5	10
9	2.5	5
8	1.3	2.5
7	0.64	1.3
6	0.32	0.64
5	0.16	0.32
4	0.08	0.16
3	0.04	0.08
2	0.02	0.04
1	0.01	0.02
0	0	0.01

- > 4 $\mu\text{m}_{(c)}$ = 350 particles
 - > 6 $\mu\text{m}_{(c)}$ = 100 particles
 - > 14 $\mu\text{m}_{(c)}$ = 25 particles
- 16 / 14 / 12

ISO 4406 Cleanliness Code System

Microscope counting examines the particles differently to Contamination Monitoring Products (CMP) and the code is given with two scale numbers only. These are at 5 μm and 15 μm equivalent to the 6 $\mu\text{m}_{(c)}$ and 14 $\mu\text{m}_{(c)}$ of Contamination Monitoring Products (CMP).



- CUMULATIVE DISTRIBUTION OF THE PARTICLES SIZE
SAE AS4059-1 and SAE AS4059-2

Classification example according to SAE AS4059 - Rev. G

The code, prepared for the aerospace industry, is based on the size, quantity, and particle spacing in a 100 ml fluid sample. The contamination classes are defined by numeric codes, the size of the contaminant is identified by letters (A-F).

This SAE Aerospace Standard (AS) defines cleanliness levels for particulate contamination of hydraulic fluids and includes methods of reporting data relating to the contamination levels. Tables 1 and 2 below provide differential and cumulative particle counts respectively for counts obtained by an automatic particle counter, e.g. LPA3.

Table 1 - Class for differential measurement

Class	Dimension of contaminant Maximum Contamination Limits per 100 ml (3)				
	5-15 µm	15-25 µm	25-50 µm	50-100 µm	>100 µm (1)
	6-14 µm(c)	14-21 µm(c)	21-38 µm(c)	38-70 µm(c)	>70 µm(c) (2)
00	125	22	4	1	0
0	250	44	8	2	0
1	500	89	16	3	1
2	1 000	178	32	6	1
3	2 000	356	63	11	2
4	4 000	712	126	22	4
5	8 000	1 425	253	45	8
6	16 000	2 850	506	90	16
7	32 000	5 700	1 012	180	32
8	64 000	11 400	2 025	360	64
9	128 000	22 800	4 050	720	128
10	256 000	45 600	8 100	1 440	256
11	512 000	91 200	16 200	2 880	512
12	1 024 000	182 400	32 400	5 760	1 024

6 - 14 µm(c) = 15 000 particles
14 - 21 µm(c) = 2 200 particles
21 - 38 µm(c) = 200 particles
38 - 70 µm(c) = 35 particles
> 70 µm(c) = 3 particles
SAE AS4059 REV G - Class 6

(1) Size range, optical microscope, based on longest dimension as measured per AS598 or ISO 4407. (2) Size range CMP calibrated per ISO 11171 or an optical or electron microscope with image analysis software, based on projected area equivalent diameter. (3) Contamination classes and particle count limits are identical to NAS 1638.

Table 2 - Class for cumulative measurement

Class	Dimension of contaminant Maximum Contamination Limits per 100 ml					
	>1 µm	>5 µm	>15 µm	>25 µm	>50 µm	>100 µm (1)
	>4 µm(c)	>6 µm(c)	>14 µm(c)	>21 µm(c)	>38 µm(c)	>70 µm(c) (2)
000	195	76	14	3	1	0
00	390	152	27	5	1	0
0	780	304	54	10	2	0
1	1 560	609	109	20	4	1
2	3 120	1 217	217	39	7	1
3	6 250	2 432	432	76	13	2
4	12 500	4 864	864	152	26	4
5	25 000	9 731	1 731	306	53	8
6	50 000	19 462	3 462	612	106	16
7	100 000	38 924	6 924	1 224	212	32
8	200 000	77 849	13 849	2 449	424	64
9	400 000	155 698	27 698	4 898	848	128
10	800 000	311 396	55 396	9 796	1 696	256
11	1 600 000	622 792	110 792	19 592	3 392	512
12	3 200 000	1 245 584	221 584	39 184	6 784	1 024

> 4 µm(c) = 45 000 particles
> 6 µm(c) = 15 000 particles
> 14 µm(c) = 1 500 particles
> 21 µm(c) = 250 particles
> 38 µm(c) = 15 particles
> 70 µm(c) = 3 particles
SAE AS4059 REV G
cpc* Class 6 6/6/5/5/4/2

* cumulative particle count

(1) Size range, optical microscope, based on longest dimension as measured per AS598 or ISO 4407. (2) Size range, CMP calibrated per ISO 11171 or an optical or electron microscope with image analysis software, based on projected area equivalent diameter. (3) Contamination classes and particle count limits are identical to NAS 1638.

- CLASSES OF CONTAMINATION ACCORDING TO NAS 1638 (January 1964)

The NAS system was originally developed in 1964 to define contamination classes for the contamination contained within aircraft components.

The application of this standard was extended to industrial hydraulic systems simply because nothing else existed at the time.

The coding system defines the maximum numbers permitted of 100 ml volume at various size intervals (differential counts) rather than using cumulative counts as in ISO 4406. Although there is no guidance given in the standard on how to quote the levels, most industrial users quote a single code which is the highest recorded in all sizes and this convention is used on MP Filtri Contamination Monitoring Products (CMP).

The contamination classes are defined by a number (from 00 to 12) which indicates the maximum number of particles per 100 ml, counted on a differential basis, in a given size bracket.

Size Range Classes (in microns)

Class	Maximum Contamination Limits per 100 ml				
	5-15	15-25	25-50	50-100	>100
	5-15 µm	15-25 µm	25-50 µm	50-100 µm	>100 µm
00	125	22	4	1	0
0	250	44	8	2	0
1	500	89	16	3	1
2	1 000	178	32	6	1
3	2 000	356	63	11	2
4	4 000	712	126	22	4
5	8 000	1 425	253	45	8
6	16 000	2 850	506	90	16
7	32 000	5 700	1 012	180	32
8	64 000	11 400	2 025	360	64
9	128 000	22 800	4 050	720	128
10	256 000	45 600	8 100	1 440	256
11	512 000	91 200	16 200	2 880	512
12	1 024 000	182 400	32 400	5 760	1 024

5-15 µm = 42 000 particles
15-25 µm = 2 200 particles
25-50 µm = 150 particles
50-100 µm = 18 particles
> 100 µm = 3 particles
Class NAS 8

- CUMULATIVE DISTRIBUTION OF THE PARTICLES SIZE - ISO 4407

The level of contamination is defined by counting the number of particles collected by a laboratory membrane per unit of fluid volume. The measurement is done by a microscope. The membrane must be cleaned, dried and desiccated, with fluid and conditions defined by the Standard. The fluid volume is filtered through the membrane, using a suitable suction system.

The level of contamination is identified by dividing the membrane into a predefined number of areas and by counting the contaminant particles using a suitable laboratory microscope.

MICROSCOPE CONTROL AND MEASUREMENT



Example figure 1 and 2

COMPARISON PHOTOGRAPH'S
1 graduation = 10µm



Fig. 1



Fig. 2



For other comparison photographs for contamination classes see the "Fluid Condition and Filtration Handbook".

- CLEANLINESS CODE COMPARISON

Although ISO 4406 standard is being used extensively within the hydraulics industry other standards are occasionally required and a comparison may be requested. The table below gives a very general comparison but often no direct comparison is possible due to the different classes and sizes involved.

ISO 4406	SAE AS4059 Table 2	SAE AS4059 Table 1	NAS 1638
> 4 $\mu\text{m}_{(c)}$ 6 $\mu\text{m}_{(c)}$ 14 $\mu\text{m}_{(c)}$	> 4 $\mu\text{m}_{(c)}$ 6 $\mu\text{m}_{(c)}$ 14 $\mu\text{m}_{(c)}$	4-6 6-14 14-21 21-38 38-70 >70	5-15 15-25 25-50 50-100 >100
23 / 21 / 18	13A / 12B / 12C	12	12
22 / 20 / 17	12A / 11B / 11C	11	11
21 / 19 / 16	11A / 10B / 10C	10	10
20 / 18 / 15	10A / 9B / 9B	9	9
19 / 17 / 14	9A / 8B / 8C	8	8
18 / 16 / 13	8A / 7B / 7C	7	7
17 / 15 / 12	7A / 6B / 6C	6	6
16 / 14 / 11	6A / 5B / 5C	5	5
15 / 13 / 10	5A / 4B / 4C	4	4
14 / 12 / 09	4A / 3B / 3C	3	3

6 FILTRATION TECHNOLOGIES

Various mechanisms such as mechanical stoppage, magnetism, gravimetric deposit, or centrifugal separation can be used to reduce the level of contamination.

The mechanical stoppage method is most effective and can take place in two ways:

- SURFACE FILTRATION

It is by direct interception. The filter prevents particles larger than the pores from continuing in the plant / system. Surface filters are generally manufactured with metal canvases or meshes.

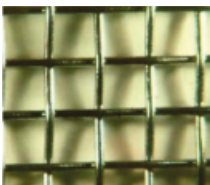
- DEPTH FILTERING

Filters are constructed by fiber interlacing. Such wraps form pathways of different shapes and sizes in which the particles remain trapped when they find smaller apertures than their diameter.

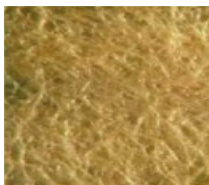
Depth filters are generally produced with papers impregnated with phenolic resins, metal fibers or inorganic fibers.

In inorganic fiber filtration, commonly called microfibre, the filtering layers are often overlapped in order to increase the ability to retain the contaminant.

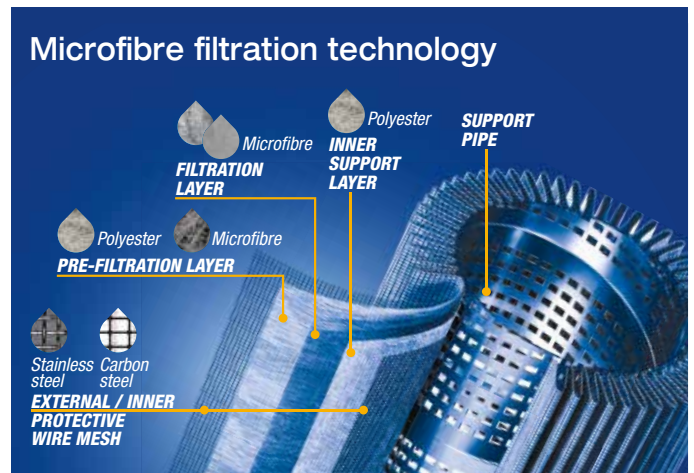
WIRE MESH FILTRATION



PAPER FILTRATION



MICROFIBER FILTRATION



The filtration efficiency of metallic mesh filtrations is defined as the maximum particle size that can pass through the meshes of the filtering grid.

The efficiency of microfibre and paper filtration ($\beta_{x(c)}$) is defined through a lab test called Multipass Test. The efficiency value ($\beta_{x(c)}$) is defined as the ratio between the number of particles of certain dimensions detected upstream and downstream of the filter.

$$\frac{\text{Upstream particles number } > X \mu\text{m}_{(c)}}{\text{Downstream particles number } > X \mu\text{m}_{(c)}} = \beta_{x(c)}$$



Value ($\beta_{x(c)}$)	2	10	75	100	200	1000
Efficiency	50%	90%	98.7%	99%	99.5%	99.9%

Test conditions, such as type of fluid to be used (MIL-H-5606), type of contaminant to be used (ISO MTD), fluid viscosity, test temperature, are determined by ISO 16889.

In addition to the filtration efficiency value during the Multipass test, other important features, such as filtration stability (β stability) and dirt holding capacity (DHC), are also tested.

Poor filtration stability is the cause of the filtering quality worsening as the filter life rises. Low dirt holding capacity causes a reduction in the life of the filter.

Filtration ISO Standard Comparison

$\beta_{x(c)} > 1000$ ISO 16889	$\beta_x > 200$ ISO 4572	MP Filtri Filter media code
5 $\mu\text{m}_{(c)}$	3 μm	A03
7 $\mu\text{m}_{(c)}$	6 μm	A06
10 $\mu\text{m}_{(c)}$	10 μm	A10
16 $\mu\text{m}_{(c)}$	18 μm	A16
21 $\mu\text{m}_{(c)}$	25 μm	A25

7 RECOMMENDED CONTAMINATION CLASSES

Any are the nature and the properties of fluids, they are inevitably subject to contamination. The level of contamination can be managed by using special components called filters.

Hydraulic components builders, knowing the problem of contamination, recommend the filtration level appropriate to the use of their products.

Example of recommended contamination levels for pressures below 140 bar.

Piston pumps with fixed flow rate	•					
Piston pumps with variable flow rate			•			
Vane pumps with fixed flow rate		•				
Vane pumps with variable flow			•			
Engines	•					
Hydraulic cylinders	•					
Actuators					•	
Test benches						•
Check valve	•					
Directional valves	•					
Flow regulating valves	•					
Proportional valves				•		
Servo-valves					•	
Flat bearings			•			
Ball bearings				•		
ISO 4406 CODE	20/18/15	19/17/14	18/16/13	17/15/12	16/14/11	15/13/10
Recommended filtration $\beta_{x(c)} \geq 1.000$	$\beta_{21(c)} > 1000$	$\beta_{15(c)} > 1000$	$\beta_{10(c)} > 1000$	$\beta_{7(c)} > 1000$	$\beta_{7(c)} > 1000$	$\beta_{5(c)} > 1000$
MP Filtri media code	A25	A16	A10	A06	A06	A03

The common classification of filters is determined by their position in the plant.

8 TYPES OF FILTERS

Suction filters

They are positioned before the pump and are responsible for protecting the pump from dirty contaminants. It also provides additional flow guidance to the pump suction line.

Being subject to negligible working pressures are manufactured with simple and lightweight construction.

They are mainly produced with gross grade surface filtrations, mainly $60 \div 125 \mu\text{m}$.

They can be equipped with a magnetic filter for retaining ferrous particles.

They are generally placed under the fluid head to take advantage of the piezometric thrust of the fluid and reduce the risk of cavitation.

There are two types of suction filters:

- IMMERSION FILTERS

Simple filter element screwed on the suction pipe

- FILTERS WITH CONTAINER

Container filters that are more bulky, but provide easier maintenance of the tank

Delivery (or Pressure) filters

They are positioned between the pump and most sensitive regulating and controlling components, such as servo valves or proportional valves, and are designed to ensure the class of contamination required by the components used in the circuit.

Being subjected to high working pressures are manufactured with more robust and articulated construction. In particular situations of corrosive environments or aggressive fluids can be made of stainless steel.

They are mainly produced with filtering depths of $3 \div 25 \mu\text{m}$.

They can be manufactured with in-line connections, with plate or flange connections or directly integrated into the circuit control blocks / manifolds.

They can also be manufactured in duplex configuration to allow the contaminated section to be maintained even when the plant / system is in operation without interruption of the working cycle.

Return filters

They are positioned on the return line to the tank and perform the task of filtering the fluid from particles entering the system from the outside or generated by the wear of the components.

They are generally fixed to the reservoir (for this reason also called top tank mounted), positioned semi-immersed or completely immersed.

The positioning of the return filters must guarantee in all operating conditions that the fluid drainage takes place in immersed condition; this is to avoid creating foams in the tank that can cause malfunctions or cavitation in the pumps.

For the sizing of the return filters, account must be taken of the presence of accumulators or cylinders that can make the return flow considerably greater than the pump suction flow rate.

Being subject to contained working pressures are manufactured with simple and lightweight construction.

Normally it is possible to extract the filter element without disconnecting the filter from the rest of the system.

Combined filters

They are designed to be applied to systems with two or more circuits. They are commonly used in hydrostatic transmission machines where they have a dual filtration function of the return line and suction line of the hydrostatic transmission pump.

The filter is equipped with a valve that keeps the 0.5 bar pressure inside the filter. A portion of the fluid that returns to the tank is filtered by the return filter element, generally produced with absolute filtration, and returns to the transmission booster pump.

Only excess fluid returns to the tank through the valve.

The internal pressure of the filter and the absolute filtration help to avoid the cavitation phenomenon inside the pump.

Off-line filters

They are generally used in very large systems / plants, placed in a closed circuit independent from the main circuit. They remain in operation regardless of the operation of the main circuit and are crossed by a constant flow rate.

They can also be manufactured in duplex configuration to allow the contaminated section to be maintained even when the unit is in operation without interruption of the work cycle.

Venting filters

During the operation of the plants, the fluid level present in the reservoir changes continuously.

The result of this continuous fluctuation is an exchange of air with the outside environment.

The venting filter function, positioned on the tank, is to filter the air that enters the tank to compensate for fluid level variations.

9 FILTER SIZING PARAMETERS

The choice of the filter system for an hydraulic system is influenced by several factors.

It is necessary to consider the characteristics of the various components present in the plant and their sensitivity to contamination.

It is also necessary to consider all the tasks that the filter will have to do within the plant:

- FLUID PROTECTION FROM CONTAMINATION
- PROTECTION OF OLEODYNAMIC COMPONENTS SENSITIVE TO CONTAMINATION
- PROTECTION OF OLEODYNAMIC PLANTS FROM ENVIRONMENTAL WASTE
- PROTECTION OF OLEODYNAMIC PLANTS FROM CONTAMINATION CAUSED BY COMPONENTS' FAILURES

The advantages of proper positioning and sizing of the filters are

- MORE RELIABILITY OF THE SYSTEM
- LONGER LIFE OF THE FLUID COMPONENTS
- REDUCTION OF STOP TIME
- REDUCTION OF FAILURE CASUALTIES

Each hydraulic filter is described by general features that identify the possibility of use in different applications.

- **MAXIMUM WORKING PRESSURE (P_{max})**

The maximum working pressure of the filter must be greater than or equal to the pressure of the circuit section in which it will be installed.

- **PRESSURE DROP (ΔP)**

The pressure drop depends on a number of factors, such as the working circuit temperature, the fluid viscosity, the filter element cleaning condition.

- **WORKING TEMPERATURE (T)**

The working temperature deeply affect the choice of materials. Excessively high or low temperatures may adversely affect the strength of the materials or the characteristics of the seals.

- **FILTRATION EFFICIENCY (%) / FILTRATION RATIO ($\beta_{x(c)}$)**

Filtration efficiency is the most important parameter to consider when selecting a filter.

When choosing the filtration performances, the needs of the most sensitive components in the system must be considered.

- **FLUID TYPE**

The type of fluid influences the choice of filters in terms of compatibility and viscosity. It is always mandatory to check the filterability.

- **PLACEMENT IN THE PLANT**

The position of the filter in the system conditions the efficiency of all filter performances.

10 APPLICABLE STANDARDS FOR FILTER DEVELOPMENT

In order to obtain unique criteria for development and verification of the filters performance, specific regulations for the filters and filter elements testing have been issued by ISO. These norms describe the target, the methodology, the conditions and the presentation methods for the test results.

ISO 2941

Hydraulic fluid power -- Filter elements -- Verification of collapse/burst pressure rating

This Standard describes the method for testing the collapse / burst resistance of the filter elements.

The test is performed by crossing the contaminated fluid filter element at a predefined flow rate. The progressive clogging of the filter element, determined by contamination, causes an increase in differential pressure.

ISO 2942

Hydraulic fluid power -- Filter elements -- Verification of fabrication integrity and determination of the first bubble point

This Standard describes the method to verify the integrity of the assembled filter elements.

It can be used to verify the quality of the production process or the quality of the materials by verifying the pressure value of the first bubble point.

ISO 2943

Hydraulic fluid power -- Filter elements -- Verification of material compatibility with fluids

This Standard describes the method to verify the compatibility of materials with certain hydraulic fluids.

The test is carried out by keeping the element (the material sample) immersed in the fluid under high or low temperature conditions for a given period of time and verifying the retention of the characteristics.

ISO 3723

Hydraulic fluid power -- Filter elements -- Method for end load test

This Standard describes the method for verifying the axial load resistance of the filter elements.

After performing the procedure described in ISO 2943, the designed axial load is applied to the filter element. To verify the test results, then the test described in ISO 2941 is performed.

ISO 3968

Hydraulic fluid power -- Filters -- Evaluation of differential pressure versus flow characteristics

This Standard describes the method for checking the pressure drop across the filter.

The test is carried out by crossing the filter from a given fluid and by detecting upstream and downstream pressures.

Some of the parameters defined by the Standard are the fluid, the test temperature, the size of the tubes, the position of the pressure detection points.

ISO 16889

Hydraulic fluid power -- Filters -- Multi-pass method for evaluating filtration performance of a filter element

This Standard describes the method to check the filtration characteristics of the filter elements.

The test is performed by constant introduction of contaminant (ISO MTD). The characteristics observed during the test are the filtration efficiency and the dirty holding capacity related to the differential pressure.

ISO 23181

Hydraulic fluid power -- Filter elements -- Determination of resistance to flow fatigue using high viscosity fluid

This Standard describes the method for testing the fatigue resistance of the filter elements. The test is carried out by subjecting the filter to continuous flow variations, thus differential pressure, using a high viscosity fluid.

ISO 11170

Hydraulic fluid power -- Sequence of tests for verifying performance characteristics of filter elements

The Standard describes the method for testing the performance of filter elements. The protocol described by the regulations provides the sequence of all the tests described above in order to verify all the working characteristics (mechanical, hydraulic and filtration).

ISO 10771-1

Hydraulic fluid power -- Fatigue pressure testing of metal pressure-containing envelopes -- Test method

This Standard describes the method to check the resistance of the hydraulic components with pulsing pressure.

It can be applied to all metal components (excluding tubes) subject to cyclic pressure used in the hydraulic field.

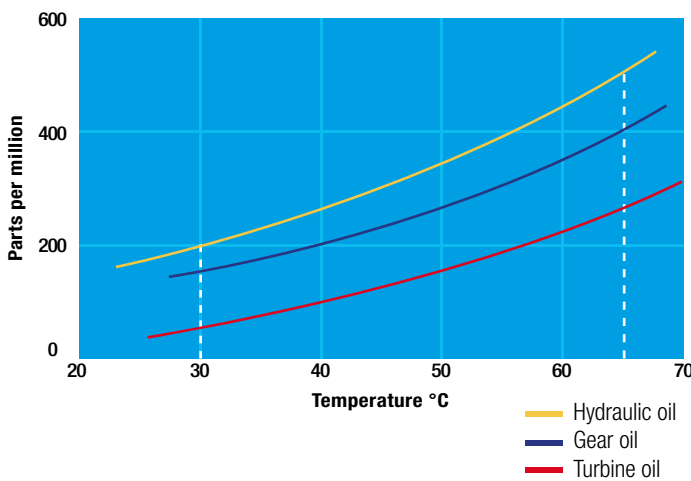
11 WATER IN HYDRAULIC AND LUBRICATING FLUIDS

Water Content

In mineral oils and non aqueous resistant fluids water is undesirable. Mineral oil usually has a water content of 50-300 ppm (@40°C) which it can support without adverse consequences.

Once the water content exceeds about 300ppm the oil starts to appear hazy. Above this level there is a danger of free water accumulating in the system in areas of low flow. This can lead to corrosion and accelerated wear.

Similarly, fire resistant fluids have a natural water which may be different to mineral oil.



Saturation Levels

Since the effects of free (also emulsified) water is more harmful than those of dissolved water, water levels should remain well below the saturation point.

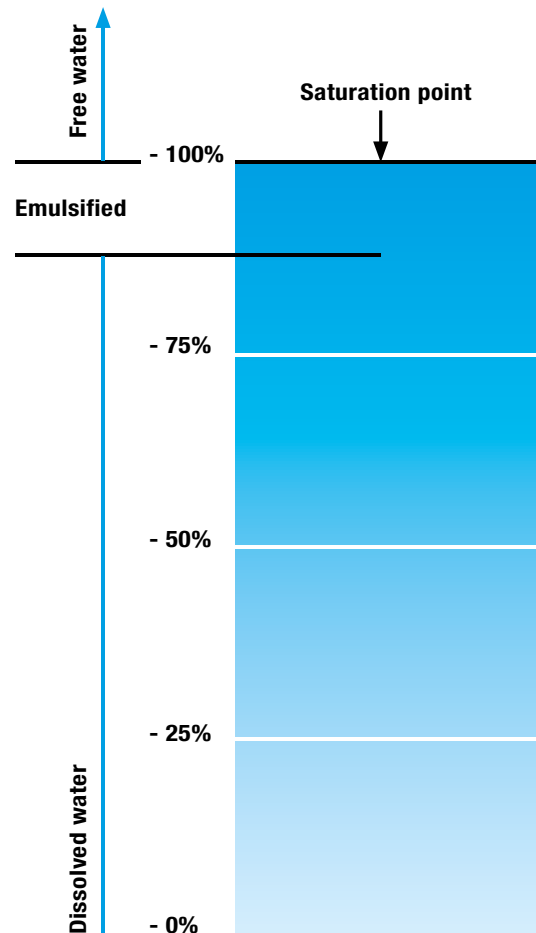
However, even water in solution can cause damage and therefore every reasonable effort should be made to keep saturation levels as low as possible. There is no such thing as too little water. As a guideline, we recommend maintaining saturation levels below 50% in all equipment.

TYPICAL WATER SATURATION LEVEL FOR NEW OILS

Examples:

Hydraulic oil @ 30°C = 200 ppm = 100% saturation

Hydraulic oil @ 65°C = 500 ppm = 100% saturation



WATER REMOVAL

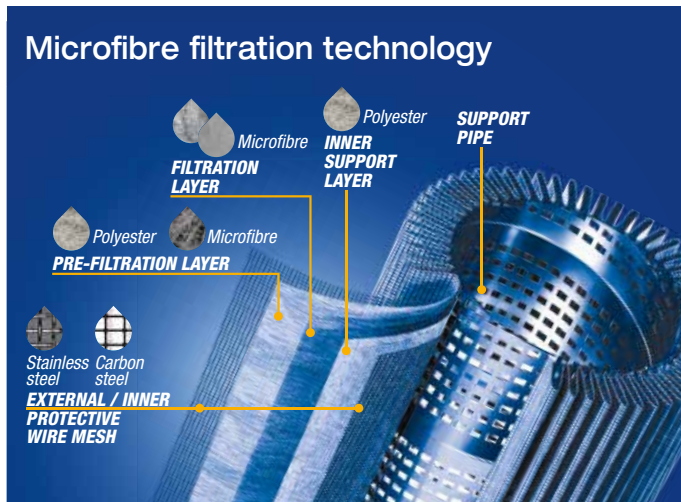
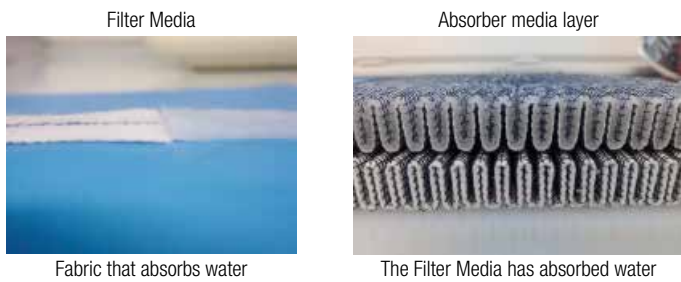
Water is present everywhere, during storage, handling and servicing.

MP Filtri filter elements feature an absorbent media which protects hydraulic systems from both particulate and water contamination.

MP Filtri's filter element technology is available with inorganic microfiber media with a filtration rating 25 µm (therefore identified with media designation WA025), providing absolute filtration of solid particles to $\beta_{x(c)} = 1000$.

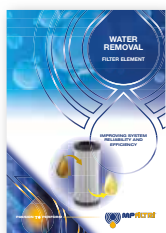
Absorbent media is made by water absorbent fibres which increase in size during the absorption process.

Free water is thus bonded to the filter media and completely removed from the system (it cannot even be squeezed out).



By removing water from your fluid power system, you can prevent such key problems as:

- corrosion (metal etching)
- loss of lubricant power
- accelerated abrasive wear in hydraulic components
- valve-locking
- bearing fatigue
- viscosity variance (reduction in lubricating properties)
- additive precipitation and oil oxidation
- increase in acidity level
- increased electrical conductivity (loss of dielectric strength)
- slow/weak response of control systems



For more details please refer to our dedicate brochure "WATER REMOVAL"



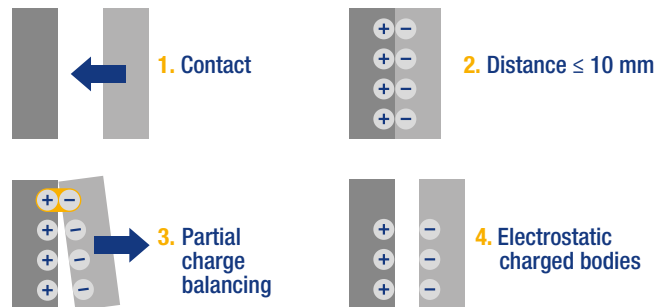
12 THE ANTI-STATIC FILTERS



zerospark is a specialist solution designed to solve the problem of electrostatic discharge inside hydraulic filters. Caused by the electrical charge build-up due to the passage of oil through the filters, this can result in damage to filter elements, oils and circuit components. It can even cause fire hazards in environments where flammable materials are present.

THE TRIBOELECTRIC EFFECT

The body with the most electronegativity strips electrons from the other, generating a build-up of a net negative charge on itself. The other body is charged by the same amount but with the opposite sign, giving rise to very high potential differences. These, if not dissipated, can give rise to electrostatic discharges.



For more details please refer to our dedicate brochure "ZEROSPARK"



FILTER SIZING

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THE CORRECT FILTER SIZING HAS TO BE BASED ON THE TOTAL PRESSURE DROP DEPENDING ON THE APPLICATION.

FOR EXAMPLE, THE MAXIMUM TOTAL PRESSURE DROP ALLOWED BY A NEW AND CLEAN RETURN FILTER HAS 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 Δp_c of the housing is proportional to the fluid density (kg/dm^3 / lb/ft^3). The filter element pressure drop Δp_e is proportional to its viscosity (mm^2/s / SUS), the corrective factor Y have to be used in case of an oil viscosity different than $30 \text{ mm}^2/\text{s}$ (cSt) / 150 SUS.

Sizing data for single filter element, head at top

Δp_c = Filter housing pressure drop [bar / psi]

Δp_e = 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 = $30 \text{ mm}^2/\text{s}$ (cSt) / 150 SUS

V2 = operating oil viscosity in mm^2/s (cSt) / SUS

Filter element pressure drop calculation with an oil viscosity different than $30 \text{ mm}^2/\text{s}$ (cSt) / 150 SUS

International system:

$$\Delta p_e = Y : 1000 \times Q \times (V2:V1)$$

Imperial system:

$$\Delta p_e = Y : 17.2 \times Q \times (V2:V1)$$

$$\Delta p_{\text{Tot.}} = \Delta p_c + \Delta p_e$$

Verification formula

$$\Delta p_{\text{Tot.}} \leq \Delta p_{\text{max allowed}}$$

Maximum total pressure drop (Δp_{max}) allowed by a new and clean filter

Filter family	Δp_{max}	
	[bar]	[psi]
Suction	0.08 bar	1.15 psi
Return	0.50 bar	7.25 psi
Return - Suction (*)	1.50 bar	22.00 psi
Low & Medium Pressure/Duplex	0.70 bar	10.15 psi
High Pressure Pressure/Duplex	1.50 bar	22.00 psi
Stainless Steel	1.50 bar	22.00 psi
ATEX	1.50 bar	22.00 psi

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

Filter pressure drop calculation example

Application data:

Selected filter: tank top return filter - MPT110 series with bypass valve and G 1 1/4" inlet connection.

Selected filter element: **MF100 length 4**

Required filtration efficiency = **25 μm** absolute filtration with microfibre

Pressure Pmax = 10 bar / 145.03 psi

Flow rate Q = 120 l/min / 31.7 gpm

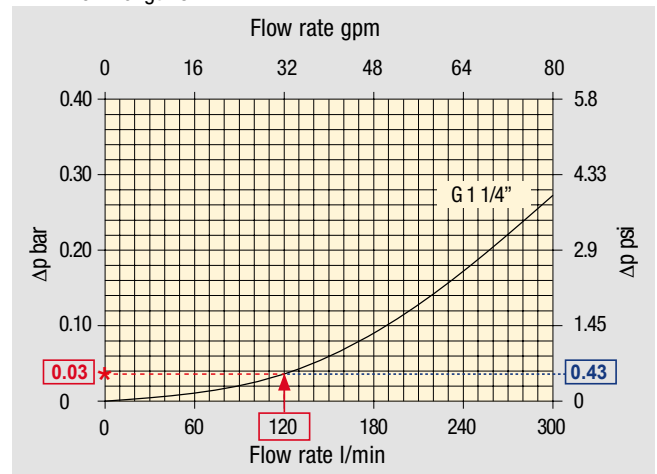
Viscosity V2 = $46 \text{ mm}^2/\text{s}$ (cSt) / 216 SUS

Oil density = $0.86 \text{ kg}/\text{dm}^3$ / $53.68 \text{ lb}/\text{ft}^3$

Calculation:

$\Delta p_c = 0.03 \text{ bar} / 0.43 \text{ psi}$ (see graphic below)

MPT 110 - Length 3 - 4



Filter housings Δp pressure drop.

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

Filter element	Absolute filtration H Series					Nominal filtration N Series		
	A03	A06	A10	A16	A25	P(00)10	P(00)25	M(00)25 M(00)60 M(00)90
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
	3	22.00	19.00	6.56	5.33	4.33	1.68	1.44
MF 030	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51
MFX 030	1	28.20	24.40	8.67	8.17	6.88	4.62	3.96
MF 100	2	17.33	12.50	6.86	5.70	4.00	3.05	2.47
MFX 100	3	10.25	9.00	3.65	3.33	2.50	1.63	1.32
	4	6.10	5.40	2.30	2.20	2.00	1.19	0.96

$$\Delta p_e = (2.00 : 1000) \times 120 \times (46 : 30) = 0.37 \text{ bar}$$

$$\Delta p_e = (2.00 : 17.2) \times 32 \times (216 : 150) = 5.36 \text{ psi}$$

$$\checkmark \Delta p_{\text{Tot.}} = 0.03 + 0.37 = 0.4 \text{ bar}$$

$$\checkmark \Delta p_{\text{Tot.}} = 0.43 + 5.36 = 5.79 \text{ psi}$$

The selection is correct because the total pressure drop value is inside the admissible range for top tank return filters.

In case the max allowed total pressure drop is not verified, it is necessary to repeat the calculation changing the filter and/or filter element length/size.

SUCTION FILTERS

Filter element		Nominal filtration Collapse ΔP : A = 1 bar					
Type	Length	P0010	P0025	M0025	M0060	M0090	M0250
SMC 250	10	0.65	0.20	0.10	0.08	0.05	0.03
SSC 503	10	-	-	0.17	0.11	0.11	0.11
SSC 504	10	-	-	0.11	0.08	0.08	0.08
SSC 505	10	-	-	0.23	0.18	0.18	0.18
SSC 510	10	-	-	0.18	0.14	0.14	0.14
SSC 535	10	-	-	0.08	0.05	0.05	0.05
SSC 540	10	-	-	0.05	0.04	0.04	0.04
FEX 060	10	4.58	3.22	1.02	0.89	0.63	0.63
	20	1.97	1.38	0.62	0.45	0.29	0.29
FEX 110	10	1.33	1.12	0.22	0.18	0.14	0.14
	20	0.90	0.76	0.15	0.10	0.09	0.09

RETURN FILTERS

Filter element		Absolute filtration H Series					Nominal filtration N Series		
Type	Length	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
MFX 030 MF 030	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51	3.40
MF 100 MF 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 MF 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 MF 190	2	1.69	1.37	0.60	0.49	0.44	0.35	0.31	0.11
MF 400 MF 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 MF 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	0.24	0.42	0.36	0.09
CU 850		1.06	0.84	0.42	0.33	0.17	0.17	0.13	0.04

TO BE CONTINUED >>

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

FILTER SIZING Corrective factor

RETURN FILTERS

Filter element		Absolute filtration H Series					Nominal filtration N Series			
Type	Length	A03	A06	A10	A16	A25	P10	P25	M25 - M60 - M90	
MR 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	Length	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	Length	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	4.05	2.36	1.14	0.91	0.85	0.05

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

LOW & MEDIUM PRESSURE FILTERS

Filter element		Absolute filtration N - W Series					Nominal filtration N Series		
Type	Length	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	3.14	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	0.105
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

HIGH PRESSURE FILTERS

Filter element		Absolute filtration N - R Series					Nominal filtration N Series
Type	Length	A03	A06	A10	A16	A25	M25
HP 010 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 HPX 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

TO BE CONTINUED >>

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

FILTER SIZING Corrective factor

HIGH PRESSURE FILTERS

Filter element		Absolute filtration N - R Series					Nominal filtration N Series
Type	Length	A03	A06	A10	A16	A25	M25
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
HP 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

Filter element		Absolute filtration S - H - U Series				
Type	Length	A03	A06	A10	A16	A25
HP 010 HP 011	1	424.58	319.74	235.17	194.44	163.78
	2	281.06	211.25	94.35	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 HPX 050	1	47.33	34.25	21.50	20.50	14.71
	2	29.10	25.95	10.04	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	7.90	4.44
	3	8.96	7.46	4.89	4.16	3.07
HP 320	1	13.00	12.19	6.80	6.40	3.32
	2	6.45	5.31	3.01	2.89	1.73
	3	4.13	3.14	1.90	1.78	1.17
	4	3.17	2.71	1.80	1.70	1.10
HP 500	1	9.70	8.81	4.55	4.47	2.80
	2	5.46	4.63	2.88	2.68	2.20
	3	3.90	3.74	2.22	2.07	1.53
	4	3.10	2.84	1.56	1.53	1.02
	5	1.93	1.83	1.14	1.08	0.69

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

STAINLESS STEEL HIGH PRESSURE FILTERS

Filter element		Absolute filtration N - R Series					Nominal filtration N Series
Type	Length	A03	A06	A10	A16	A25	M25
HP 010 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 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

Filter element		Absolute filtration S - H - U Series				
Type	Length	A03	A06	A10	A16	A25
HP 010 HP 011	1	424.58	319.74	235.17	194.44	163.78
	2	281.06	211.25	94.35	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	10.04	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	7.90	4.44
	3	8.96	7.46	4.89	4.16	3.07

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

FILTER SIZING Corrective factor

FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE

Filter element		Absolute filtration N - R Series					Nominal filtration N Series
Type	Length	A03	A06	A10	A16	A25	M25
HP 010 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
HPX 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 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

Filter element		Absolute filtration S - H - U Series				
Type	Length	A03	A06	A10	A16	A25
HP 010 HP 011	1	424.58	319.74	235.17	194.44	163.78
	2	281.06	211.25	94.35	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
HPX 050	1	47.33	34.25	21.50	20.50	14.71
	2	29.10	25.95	10.04	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	7.90	4.44
	3	8.96	7.46	4.89	4.16	3.07

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.

Filters sizing software

The web-based software program will allow you to select the most suitable MP Filtri's Filters, in accordance with your process design requirements.

The program will automatically check your input design process prior to propose you the acceptable solutions and create an output in PDF report style format.

The MP Filtri Selection Tool software program is easy to use with a flexible fast design method and provides improved layout formats with full descriptions.

The web-based tool is available at MP Filtri website at following link: <https://www.mpfiltri.com/tools/>

The related, complete user guide is available as Manual and downloadable from the "Download" section of MP Filtri website, as well as scanning the following QR code



Suction filters are used as safety filters to protect pumps from gross contamination which can cause them to grip.

They are available in 3 families:

- **Suction Strainers (STRC and MPAC)**
- **SFMC and SFSC external filters, for mounting semi-immersed under the oil level**
- **SFEX ELIXIR® series, for protection of the downstream pump against the coarse contamination**

SFMC and SFSC semi-immersed filters, which shut-off oil flow while the filter element is being replaced, replace the butterfly valves usually used for servicing hydraulic pumps.

Suction filters



STRC & MPAC	page 33
SFEX	40
SFMC	51
SFSC	61

INDICATORS	715
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STRC & MPAC series

Flow rate up to 1000 l/min



Description

Technical data

Suction filters

Flow rate up to 1000 l/min

STRC

STRC is a range of suction strainers for protection of the downstream pump against the coarse contamination.

They are placed below the oil level directly connected to the suction line of the pump.

Available features:

- Female threaded connections up to 3", for a maximum flow rate of 1000 l/min
- Bypass valve, to relieve excessive pressure drop across the filter media

Common application:

- Mobile machines (Construction and Agriculture machines)
- Industrial equipment

MPAC

MPAC is a range of suction strainers for protection of the downstream pump against the coarse contamination.

They are placed below the minimum oil level, directly connected to the suction line of the pump.

The robust design allows the use of these filters in any heavy duty application.

Available features:

- Female threaded connections up to 3", for a maximum flow rate of 1000 l/min
- Magnetic filter (MPAC), to hold the ferrous particles

Common application:

Industrial equipment

STRC materials

- 1 - Connection: Polyamide, GF reinforced
- 2 - Core tube: Tinned steel
- 3 - Wire mesh
- 4 - End cap: Polyamide, GF reinforced
- 5 - Bypass valve: Polyamide, GF reinforced - Steel

MPAC materials

- 1 - Connection: Aluminium
- 2 - Magnetic filter
- 3 - Tie rod: Galvanized steel
- 4 - End cap: Galvanized steel
- 5 - Core tube: Galvanized steel
- 6 - Filter media: Wire mesh
- 7 - Bottom: Galvanized steel
- 8 - Washer: Galvanized steel
- 9 - Self-locking nut: Galvanized steel - Polyamide

Bypass valve

Opening pressure 30 kPa (0.3 bar)

Elements

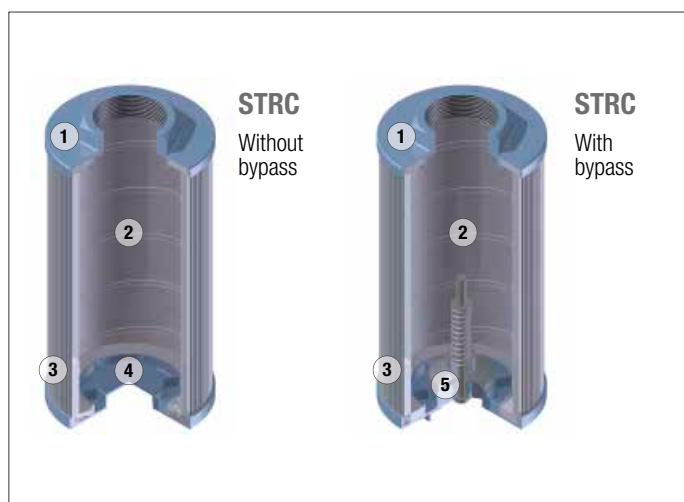
Fluid flow through the filter element from OUT to IN.

Temperature

From -25 °C to +110 °C

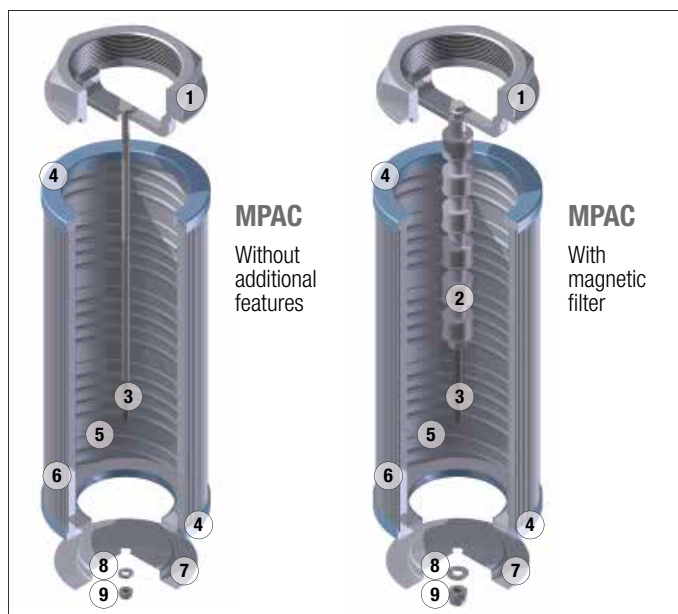
Quantity

Series and size	pcs/pack
STRC 045 - 050	12
STRC 065 - 070 - 086 - 100	6
STRC 140 - 150	1
MPAC 050	12
MPAC 070 - 100	6
MPAC 140	1



Weights [kg]

Filter series	
STRC	see page 37
MPAC	see page 39



Flow rates [l/min]

Filter series	Thread	l/min
STRC & MPAC	3/8"	19
	1/2"	28
	3/4"	67
	1"	126
	1 1/4"	167
	1 1/2"	258
	2"	480
	2 1/2"	854
	3"	995

Maximum flow rate for a complete suction filter with a pressure drop $\Delta p = 0.08$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

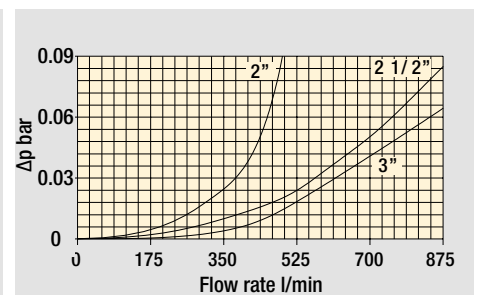
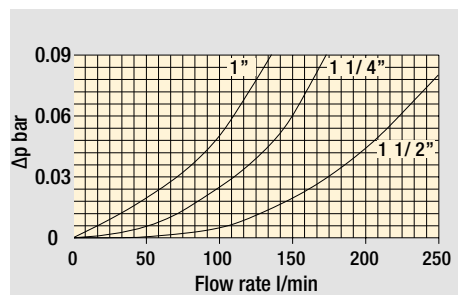
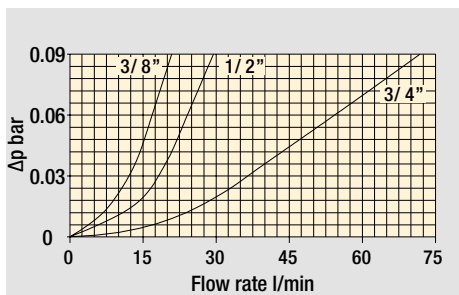
Please, contact our Sales Department for further additional information.

Filter series	00 - without bypass	03 - with bypass
STRC	•	•
MPAC	•	-

Hydraulic symbols

Pressure drop

Filters pressure drop Δp in function of connection type



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

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

Filter family	Δp max	
Suction	0.08 bar	1.15 psi

COMPLETE FILTER

Series	Example 1:	STRC	045	10	M0060	A	N	03	FG038	0	ON	NN	P01	NN
STRC	Example 2:	STRC	100	20	M0250	A	N	00	FN200	0	ON	NN	P01	NN

Size	
045	086
050	100
065	140
070	150

Length	Size:	045	050	065	070	086	100	140	150
10		•	•	•	•	•	•	•	•
20		-	-	•	•	•	•	•	•
30		-	-	-	-	•	-	•	•
40		-	-	-	-	-	-	•	-

Filtration rating (filter media)	
M0025	Wire mesh 25 µm
M0060	Wire mesh 60 µm
M0090	Wire mesh 90 µm
M0250	Wire mesh 250 µm

Element Δp	
A	1 bar

Seals and treatments	
N	Without seals

Bypass	
00	Without bypass
03	With bypass 30 kPa (0.3 bar)

Connection type	
FG	Thread ISO 1179-2 (GAS)
FN	Thread ANSI/ASME B 1.20.1 (NPT)

Nominal thread																			
	Size:	045	050	065	070	086	100	140	150										
	Length	10	10	10	20	10	20	10	20	30	10	20	10	20	30	40	10	20	30
038	3/8"	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
012	1/2"	•	•	•	-	•	•	-	-	-	-	-	-	-	-	-	-	-	-
034	3/4"	-	-	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-
100	1"	-	-	-	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-
114	1 1/4"	-	-	-	-	-	-	-	-	•	•	-	-	-	-	-	-	-	-
112	1 1/2"	-	-	-	-	-	-	•	•	•	•	•	-	-	-	-	-	-	-
200	2"	-	-	-	-	-	-	•	•	•	-	•	•	•	-	-	•	-	-
212	2 1/2"	-	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	•	-
300	3"	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	-	•	•

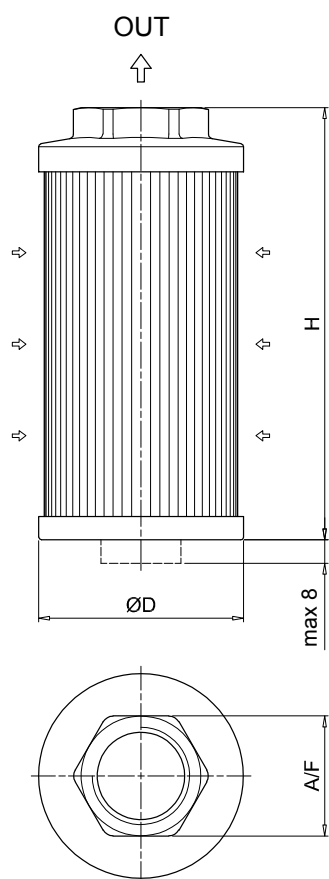
Additional connections	
0	Without additional connections

Connections for clogging indicators	
ON	Without connection

Additional features	
NN	Without additional features

Version	
P01	Standard catalogue item

Certificates	
NN	Without certificates



STRC							
Size	ØD [mm]	Length	Nominal thread		H [mm]	A / F [mm]	Weight [kg]
045	46	10	3/8"	1/2"	105	30	0.19
050	52	10	3/8"	1/2"	79		0.11
065	65	10	1/2"	3/4"	110	41	0.22
		20	3/4"	1"	144		0.24
070	70	10	1/2"	3/4"	95		0.18
		20	1/2"	3/4"	1"		141
086	86	10	1 1/2"	2"	143	69	0.33
		20	1 1/2"	2"	201		0.43
		30	1 1/2"	2"	261		0.53
100	99	10	1 1/4"	1 1/2"	137		0.47
		20	1 1/4"	1 1/2"	2"		227
140	130	10	1 1/2"	2"	160		101
		20	2"		262	0.94	
		30	2 1/2"	3"	272	1.10	
		40	3"		330	1.17	
150	150	10	2"		150	70	0.34
		20	2 1/2"		212	90	0.37
		30	3"		272	100	0.40

Designation & Ordering code

COMPLETE FILTER

Series	Example 1:	MPAC	070	10	M0060	A	N	00	FG034	0	ON	NN	P01	NN
MPAC	Example 2:	MPAC	140	30	M0250	A	N	00	FN300	0	ON	MA	P01	NN

Size

050
070
100
140

Length

Size:	050	070	100	140
10	•	•	•	•
20	-	•	•	•
30	-	-	-	•

Filtration rating (filter media)

M0025 Wire mesh 25 µm	M0090 Wire mesh 90 µm
M0060 Wire mesh 60 µm	M0250 Wire mesh 250 µm

Element Δp

A 1 bar

Seals and treatments

N Without seals

Bypass

00 Without bypass

Connection type

FG Thread ISO 1179-2 (GAS)
FN Thread ANSI/ASME B 1.20.1 (NPT)

Nominal thread

	Size:	050	070	100	140				
Length		10	10	20	10	20	10	20	30
038 3/8"		•	-	-	-	-	-	-	-
012 1/2"		•	•	-	-	-	-	-	-
034 3/4"		-	•	•	-	-	-	-	-
100 1"		-	-	•	•	-	-	-	-
114 1 1/4"		-	-	-	•	•	-	-	-
112 1 1/2"		-	-	-	-	•	•	-	-
200 2"		-	-	-	-	-	•	•	•
212 2 1/2"		-	-	-	-	-	-	•	-
300 3"		-	-	-	-	-	-	-	•

Additional connections

0 Without additional connections

Connections for clogging indicators

ON Without connection

Additional features

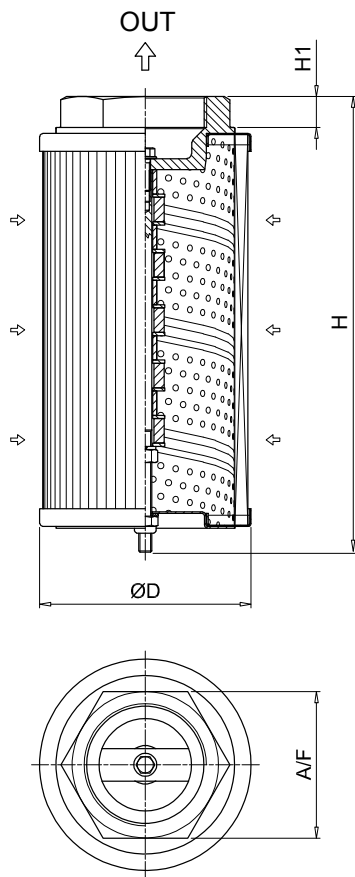
NN Without additional features
MA With magnetic filter

Version

P01 Standard catalogue item

Certificates

NN Without certificates



MPAC									
Size	ØD [mm]	Length	Nominal thread	H [mm]	H1 [mm]	A/F [mm]	Weight [kg]		
050	50	10	3/8"	98	16	28	0.17		
			1/2"	113			0.27		
070	70	10	3/4"	115	18	42	0.36		
		20	160	0.39					
		1"	145	0.35					
100	99	10	1 1/4"	148	20	60	0.54		
		20	239	0.63					
		1 1/2"	174	0.91					
140	136	10	2"	162	13	80	0.98		
		20	272	1.00					
		30	2 1/2"	281			20	90	1.60
			2"	322			13	80	1.67
		3"	335	22			106	1.60	



THE **X** CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

SFEX series

with **MYCLEAN** FEX Filter Element



- **Protects the machine from improper use of non-original products.**
- **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.



The products identified as SFEX are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1

SFEX series

Flow rate up to 100 l/min



ELIXIR®

Description

Technical data

Suction filters

Flow rate up to 100 l/min

SFEX are range of suction filters for protection of the downstream pump against the coarse contamination.

They are placed below the minimum oil level, directly connected to the suction line of the pump in-line mounted.

Available features:

- Female threaded connections up to 1 1/4" and SAE connections up to 1 5/8", for a maximum flow rate of 100 l/min
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical, axial and radial vacuum gauges
- MYclean interface connection for the filter element, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common application:

- Mobile machines
- Industrial equipment

Filter housing materials

- Head: Aluminium
- Bypass valve: Polyamide - Steel
- Bowl: Polyamide

Bypass valve

Opening pressure 30 kPa (0.3 bar) \pm 10%

Elements

Fluid flow through the filter element from OUT to IN

Seals

Standard NBR series A

Temperature

From -25 °C to +110 °C

Note

SFEX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Length	Weights [kg]		Length	Volumes [dm ³]	
		1	2		1	2
SFEX 060		1.00	1.15		0.60	0.80
SFEX 110		1.90	2.10		1.60	2.00

Flow rates [l/min]

Filter element design - N Series						
Filter series	Length	M0060	M0090	M0250	P0010	P0025
SFEX 060	10	31	33	33	13	20
	20	34	35	35	24	30

Filter element design - N Series						
Filter series	Length	M0060	M0090	M0250	P0010	P0025
SFEX 110	10	93	96	96	48	53
	20	98	99	99	60	65

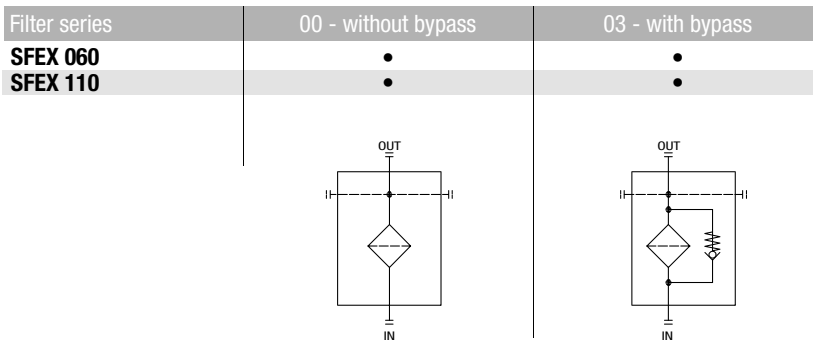
Maximum flow rate for a complete suction filter with a pressure drop $\Delta p = 0.08$ bar.

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

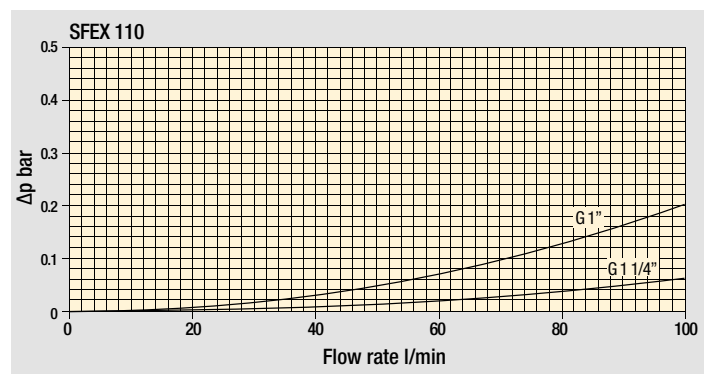
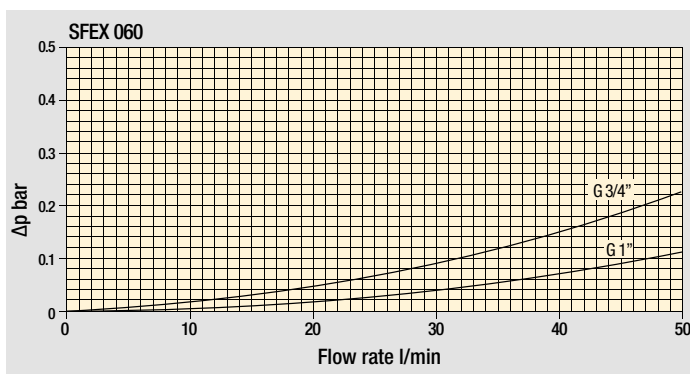
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

Please, contact our Sales Department for further additional information.

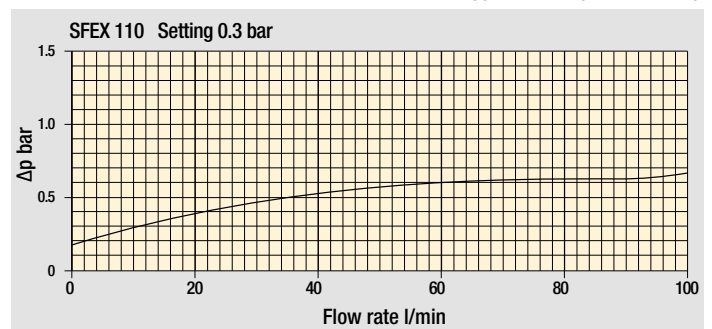
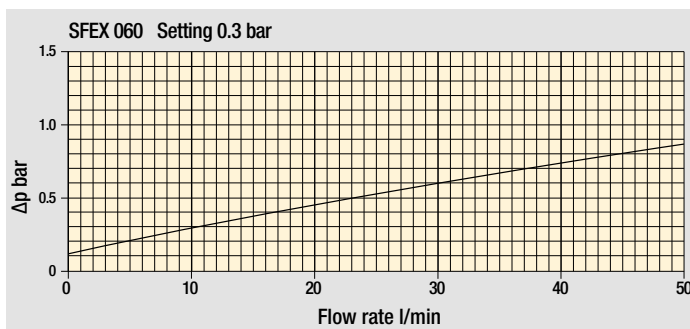
Hydraulic symbols



Pressure drop Filter housings Δp pressure drop



Bypass valve 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.

Corrective factors "Y" for filter element Δp calculation

Filter element	Length	Nominal filtration Collapse ΔP : A = 1 bar					
		P0010	P0025	M0025	M0060	M0090	M0250
FEX 060	10	4.58	3.22	1.02	0.89	0.63	0.63
	20	1.97	1.38	0.62	0.45	0.29	0.29
FEX 110	10	1.33	1.12	0.22	0.18	0.14	0.14
	20	0.90	0.76	0.15	0.10	0.09	0.09

See page 22 for the complete information regarding filter element Δp calculation.


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

Filter family	Δp max	
Suction	0.08 bar	1.15 psi

SFEX SFEX060 - SFEX110

Designation & Ordering code

COMPLETE FILTER

Series	Example 1:	SFEX	060	10	M0060	C	A	03	FG034	0	6T	NN	P01	NN	
SFEX	Filter featuring 	Example 2:	SFEX	110	20	M0060	C	A	00	FS016	0	6T	NN	P01	NN
Size															
060															
110															
Length															
10															
20															
Filtration rating (filter media)															
M0025 Wire mesh 25 µm															
M0060 Wire mesh 60 µm															
M0090 Wire mesh 90 µm															
M0250 Wire mesh 250 µm															
P0010 Resin-impregnated paper 10 µm															
P0025 Resin-impregnated paper 25 µm															
Element Δp															
C 8 bar															
Seals and treatments															
A NBR															
Bypass															
00 Without bypass															
03 With bypass 30 kPa (0.3 bar)															
Connections															
	060	110		060	110		060	110							
FG034 G 3/4"	•	-	FN034 3/4" NPT	•	-	FS012 SAE 12 - 1 1/16" - 12 UN	•	-							
FG100 G 1"	•	•	FN100 1" NPT	•	•	FS016 SAE 16 - 1 5/16" - 12 UN	•	•							
FG114 G 1 1/4"	-	•	FN114 1 1/4" NPT	-	•	FS020 SAE 20 - 1 5/8" - 12 UN	-	•							
Additional connections															
0 Without additional connections															
Connections for clogging indicators															
6T With both side indicator connections, with metal plugs															
Additional features															
NN Without additional features															
Version															
P01 Standard catalogue item															
Certificates															
NN None															

CLOGGING INDICATORS

See page 715

VEB Electrical vacuum indicator

VVB Axial pressure gauge

VLB Electrical / visual vacuum indicator

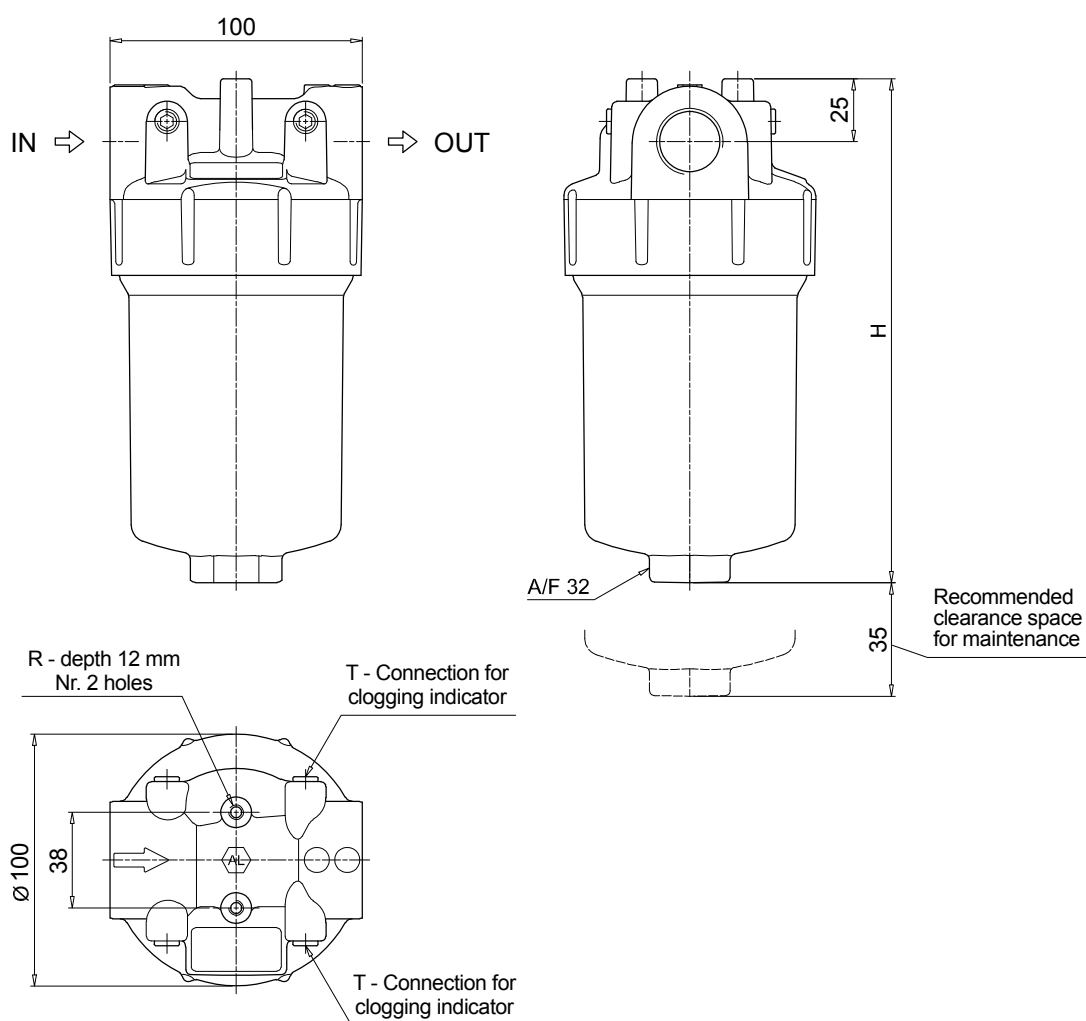
VVS Radial pressure gauge

FILTER ELEMENT										
Series	Example 1: FEX 060 10 M0060 C A 00 NN P01 NN									
FEX Filter element with MYCLEAN feature	Example 2: FEX 110 20 M0060 C A 00 NN P01 NN									
Size										
060										
110										
Length										
10										
20										
Filtration rating (filter media)										
M0025 Wire mesh 25 µm	P0010 Resin-impregnated paper 10 µm									
M0060 Wire mesh 60 µm	P0025 Resin-impregnated paper 25 µm									
M0090 Wire mesh 90 µm										
M0250 Wire mesh 250 µm										
Element Δp										
C 8 bar										
Seals and treatments										
A NBR										
Bypass										
00 Without bypass										
Additional features										
NN Without										
Version										
P01 Standard catalogue item										
Certificates										
NN None										

Dimensions

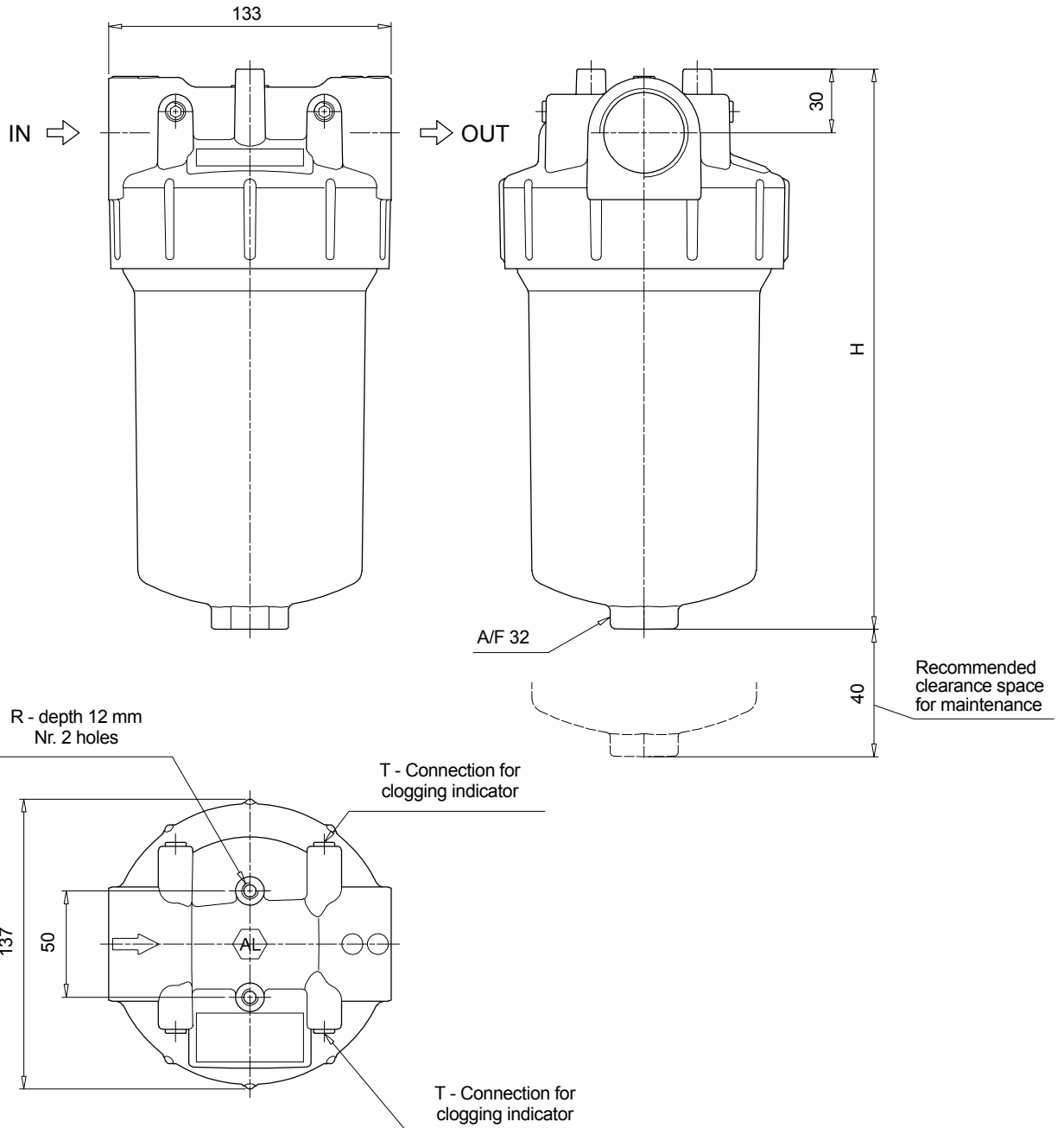
Filter length	H [mm]
10	202
20	265

Connections	T	R
FG034	G 1/8"	M6
FG100	G 1/8"	M6
FN034	1/8" NPT	1/4" UNC
FN100	1/8" NPT	1/4" UNC
FS012	1/8" NPT	1/4" UNC
FS016	1/8" NPT	1/4" UNC



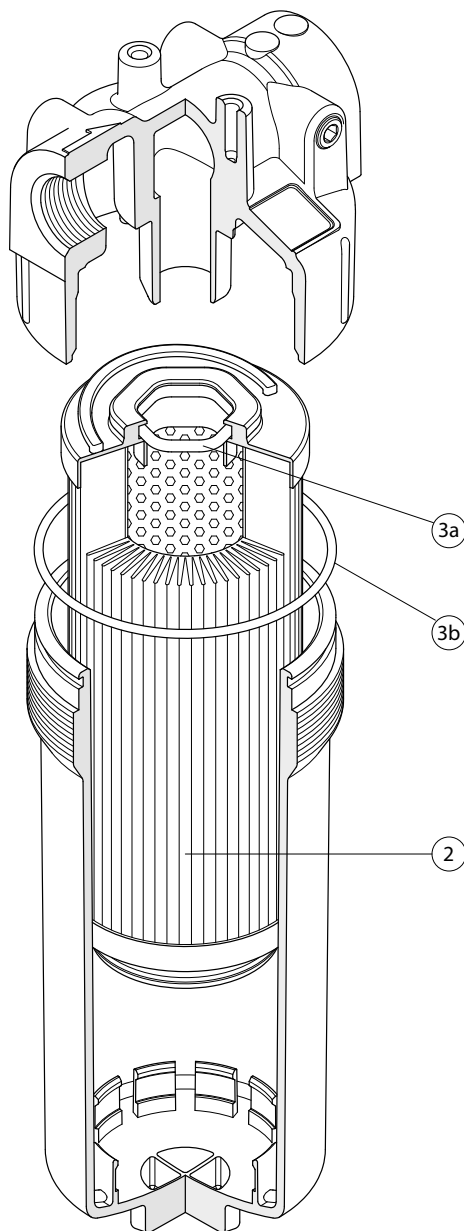
Filter length	H [mm]
10	266
20	315

Connections	T	R
FG100	G 1/8"	M8
FG114	G 1/8"	M8
FN100	1/8" NPT	5/16" UNC
FN114	1/8" NPT	5/16" UNC
FS016	1/8" NPT	5/16" UNC
FS020	1/8" NPT	5/16" UNC



SFEX SPARE PARTS

Order number for spare parts



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3b)
Filter series	Filter element	Seal Kit code number NBR
SFEX 060	See order table	02050771
SFEX 110		02050772

SFMC 250 series

Flow rate up to 160 l/min



SFMC 250 GENERAL INFORMATION

Description

Technical data

Suction filters

Flow rate up to 160 l/min

SFMC 250 is a range of suction filters with integrated shut-off valve for protection of the downstream pump against the coarse contamination.

They are placed below the minimum oil level, directly connected to the suction line of the pump.

They can be fitted on the side or below the tank, allowing a more flexible design of the tank.

The shut-off valve closes automatically when the cover is removed, allowing the filter element replacement without the fluid drop.

Available features:

- Female threaded connections up to 1" and flanged connections up to 1 1/2", for a maximum flow rate of 160 l/min
- Multiple connections, to connect several suction lines
- Bypass valve, to relieve excessive pressure drop across the filter media
- Magnetic filter, to hold the ferrous particles
- Visual, electrical and electronic clogging indicators

Common application:

- Mobile machines
- Industrial equipment

Filter housing materials

- Filter body: Aluminium
- Cover: Polyamide, GF reinforced
- Valve: Polyamide, GF reinforced - Steel
- Anti-Emptying valve: Steel

Bypass valve

Opening pressure 30 kPa (0.3 bar) $\pm 10\%$

Elements

Fluid flow through the filter element from IN to OUT

Seals

- Standard NBR series A or W
- Optional FPM series V or Z

Temperature

From -25 °C to +110 °C

Note

SFMC 250 filters mounting, see the drawings on page 54 and following.

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
SFMC 250	2.8	2.3
SFMC 250	2.8	2.4

Flow rates [l/min]

Filter series	Filter element design - N Series					
	M0025	M0060	M0090	M0250	P0010	P0025
SFMC 250	147	151	155	160	85	132

Maximum flow rate for a complete suction filter with a pressure drop $\Delta p = 0.08$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

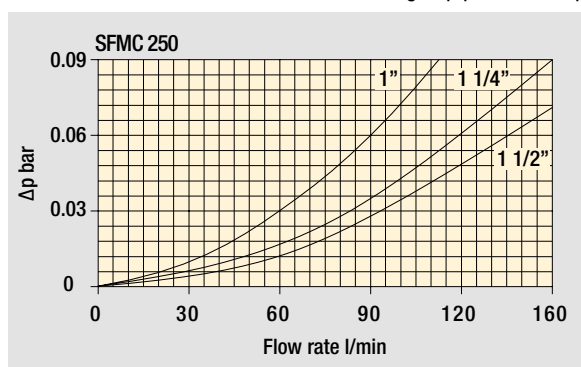
Filter series	0 - without additional connections	1 - with smaller additional connections	0 - without additional connections	1 - with smaller additional connections
	SFMC 250 without bypass	●	●	-
SFMC 250 with bypass	-	-	●	●

Diagram showing a diamond-shaped filter element with 'IN' at the bottom and 'OUT' at the top.

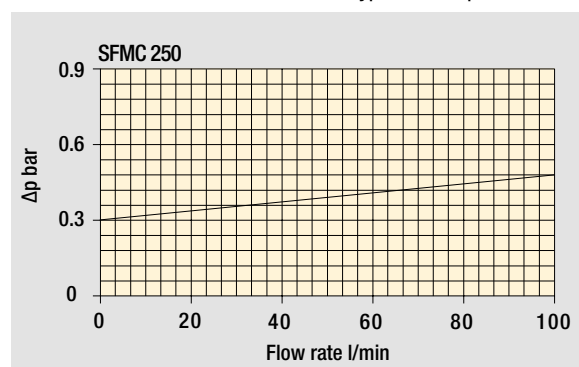
Diagram showing a diamond-shaped filter element with 'IN' at the bottom, 'OUT' at the top, and two 'Aux OUT' ports on the right side.

Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

Corrective factors "Y" for filter element Δp calculation

Filter element		Nominal filtration Collapse ΔP : A = 1 bar					
Type	Length	P0010	P0025	M0025	M0060	M0090	M0250
SMC 250	10	0.65	0.20	0.10	0.08	0.05	0.03

See page 22 for the complete information regarding filter element Δp calculation.

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

Filter family	Δp max	
Suction	0.08 bar	1.15 psi

SFMC 250

Designation & Ordering code

COMPLETE FILTER

Series	Example 1:	SFMC	250	10	M0025	A	A	00	FF112	0	5T	MA	P01	NN
SFMC	Example 2:	SFMC	250	10	P0010	A	V	00	FG112	0	5T	NN	P01	NN

Size
250

Length
10

Filtration rating (filter media)	
M0025	Wire mesh 25 µm
M0060	Wire mesh 60 µm
M0090	Wire mesh 90 µm
M0250	Wire mesh 250 µm
P0010	Resin-impregnated paper 10 µm
P0025	Resin-impregnated paper 25 µm

Element Δp
A 1 bar

Seals and treatments	M0xxx	P0xxx
A NBR	•	•
V FPM	•	•
W NBR with filter housing and components surface treatment	•	-
Z FPM with filter housing and components surface treatment	•	-

Bypass
00 Without bypass
03 With bypass 30 kPa (0.3 bar)

Connections	
FG100	G 1"
FG114	G 1 1/4"
FG112	G 1 1/2" G 1"
FN100	1" NPT
FN114	1 1/4" NPT
FN112	1 1/2" NPT
FS016	SAE 16 - 1 5/16" - 12 UN
FS020	SAE 20 - 1 5/8" - 12 UN
FS024	SAE 24 - 1 7/8" - 12 UN SAE 16 - 1 5/16" - 12 UN
FE112	1 1/2" SAE 3000 psi/M
FF112	1 1/2" SAE 3000 psi/UNC
Available additional connections	

Additional connections	FG112	FS024
0 Without additional connections	-	-
1 With smaller additional connections	G1"	SAE 16 - 1 5/16" - 12 UN

Connections for clogging indicators
5T With rear indicator connection, with metal plugs

Additional features
NN Without additional features
MA With magnetic filter

Version
P01 Standard catalogue item

Certificates
NN None

CLOGGING INDICATORS

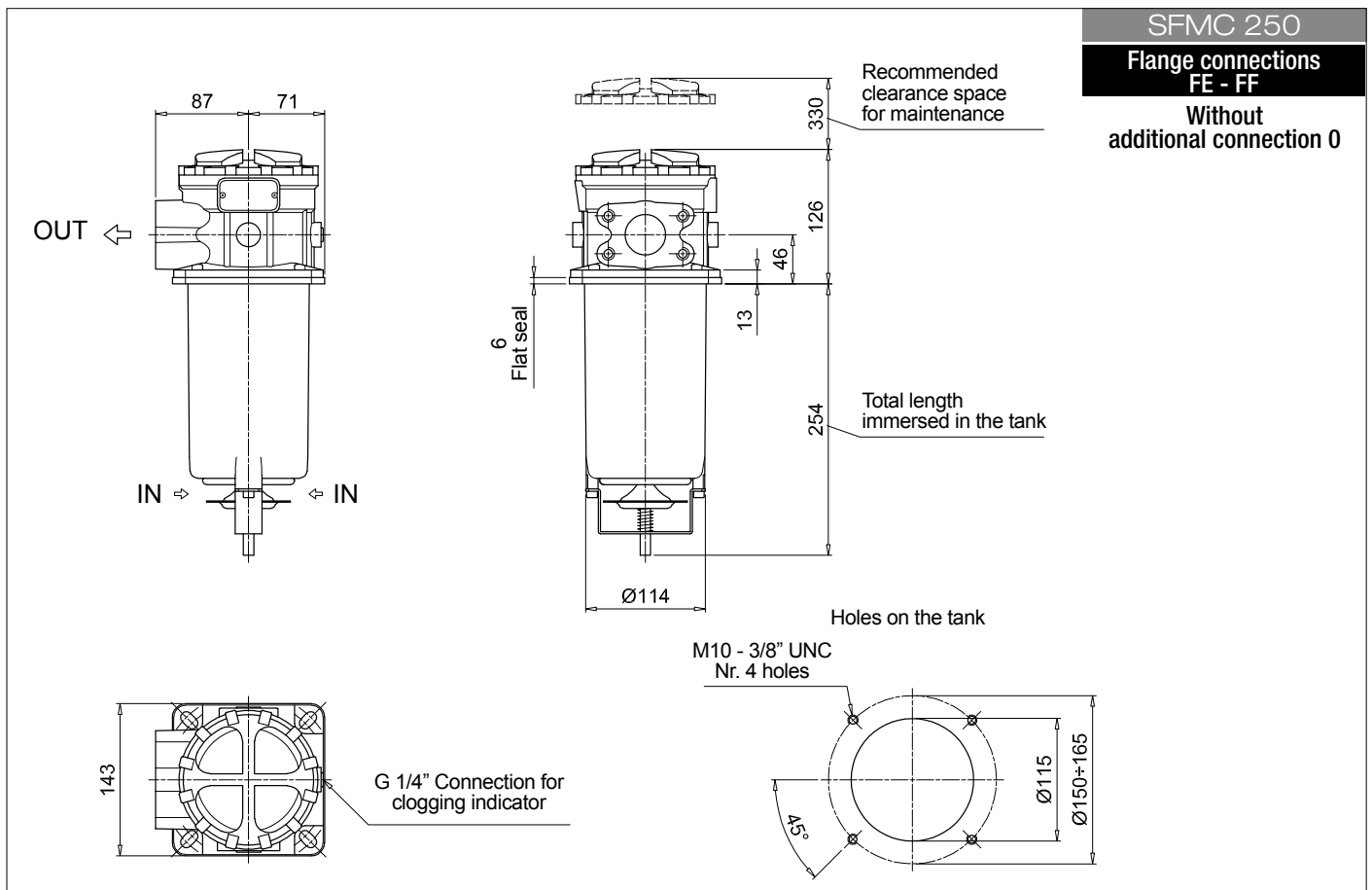
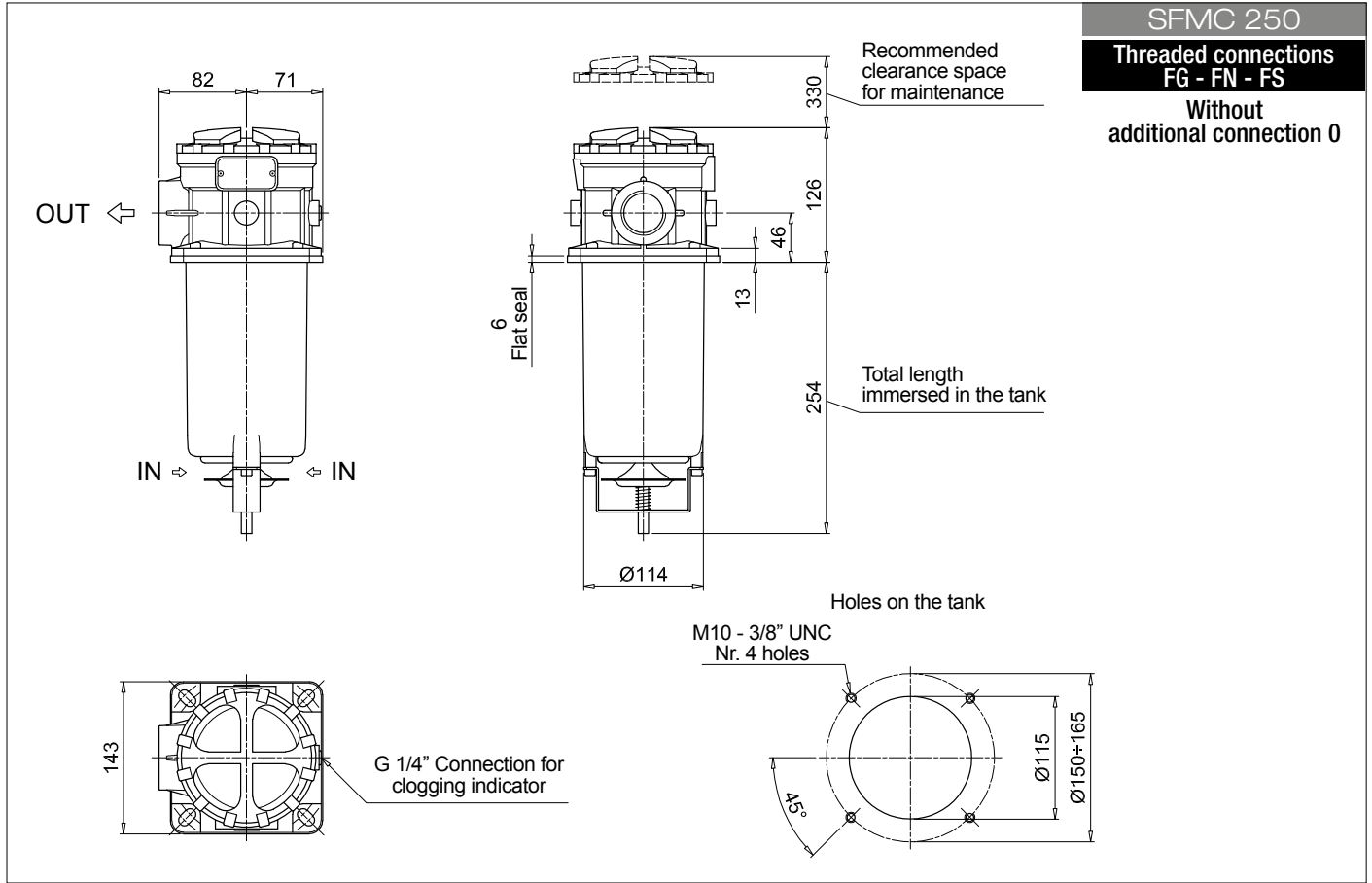
See page 715

VEA	Electrical vacuum indicator	VVA	Axial vacuum gauge
VLA	Electrical / visual vacuum indicator	VVR	Radial vacuum gauge

FILTER ELEMENT										
Series	Example 1: SMC 250 10 M0025 A A 00 NN P01 NN									
SMC	Example 2: SMC 250 10 P0010 A V 00 NN P01 NN									
Size										
250										
Length										
10										
Filtration rating (filter media)										
M0025 Wire mesh 25 µm	P0010 Resin-impregnated paper 10 µm									
M0060 Wire mesh 60 µm	P0025 Resin-impregnated paper 25 µm									
M0090 Wire mesh 90 µm										
M0250 Wire mesh 250 µm										
Element Δp										
A 1 bar										
Seals and treatments										
A NBR										
V FPM										
Bypass										
00 Without bypass										
Additional features										
NN Without										
Version										
P01 Standard catalogue item										
Certificates										
NN None										

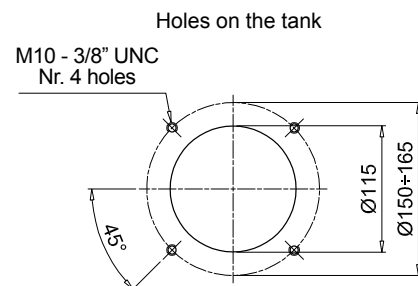
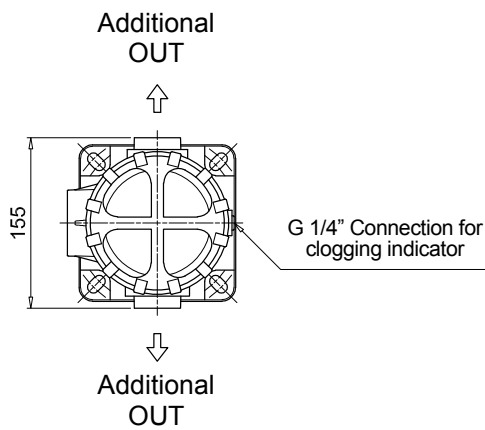
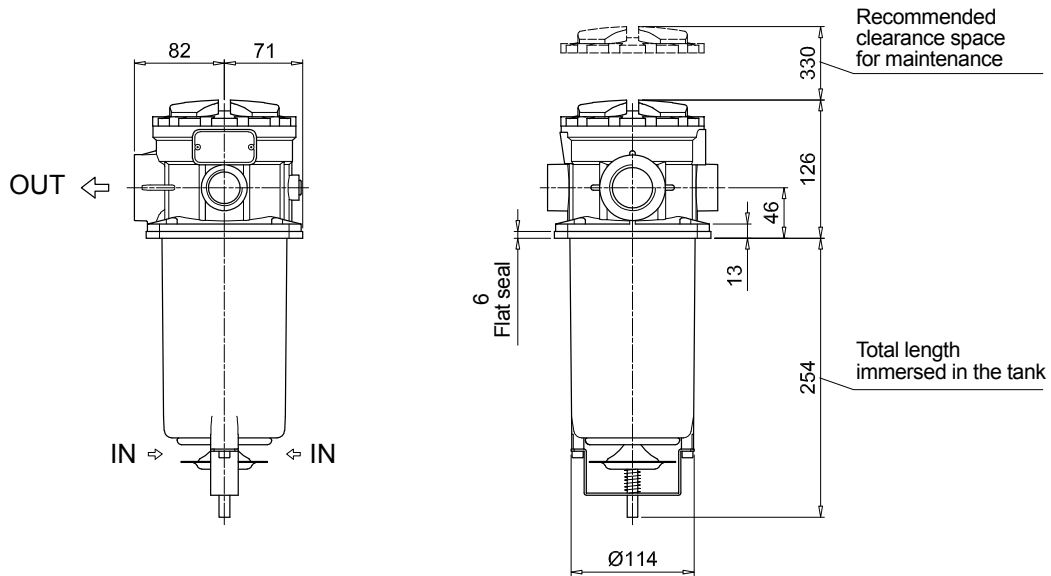
SFMC 250

Dimensions



SFMC 250

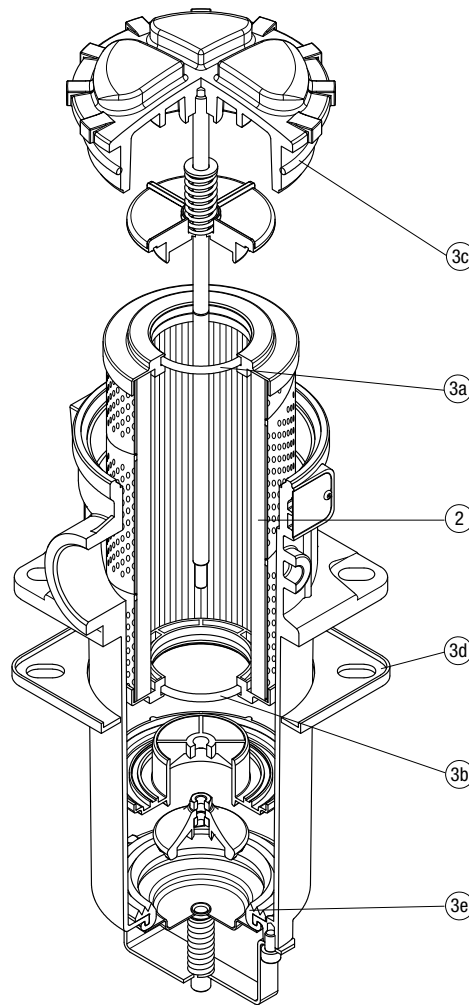
With
smaller additional
connection 1



SFMC 250 SPARE PARTS

Order number for spare parts

SFMC 250



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
SFMC 250	See order table	02050586	02050587

SFSC series

Flow rate up to 700 l/min



Description

Technical data

Suction filters

Flow rate up to 700 l/min

SFSC is a range of suction filters with integrated shut-off valve for protection of the downstream pump against the coarse contamination.

They are placed below the minimum oil level, directly connected to the suction line of the pump.

They can be fitted on the side or below the tank, allowing a more flexible design of the tank.

The shut-off valve closes automatically when the cover is removed, allowing the filter element replacement without the fluid drop.

Available features:

- Flanged connections up to 4", for a maximum flow rate of 700 l/min
- Optional hose fitting installed, to connect the suction line without the use of flanges
- Magnetic filter, to hold the ferrous particles
- Plastic and metal handle, to close the shut-off valve before the cover removal
- Electrical switch, to signal the closed shut-off valve
- Visual, electrical and electronic clogging indicators

Common application:

Industrial equipment

Filter housing materials

- Housing:
 - Anodized Aluminium
 - Steel (chemical heat treatment): only for SFSC 535 - 540
- Cover:
 - Anodized Aluminium
 - Steel (chemical heat treatment): only for SFSC 535 - 540
- Optional flange:
 - Anodized Aluminium

Elements

Fluid flow through the filter element from IN to OUT

Seals

- Standard NBR series A or W
- Optional FPM series V or Z

Temperature

From -25 °C to +110 °C

Note

SFSC filters mounting, see the drawings on page 66 and following

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
SFSC 500	4.2	1.8
SFSC 503	6.2	2.9
SFSC 504	7.2	4.0
SFSC 505	4.3	1.6
SFSC 510	5.4	2.1
SFSC 535	16	4.4
SFSC 540	18.6	6.5

Flow rates [l/min]

Filter series	Filter element design - N Series	
	M0025	M0060 M0090 M0250
SFSC 500	219	234
SFSC 503	325	390
SFSC 504	484	543
SFSC 505	199	221
SFSC 510	259	282
SFSC 535	439	479
SFSC 540	644	688

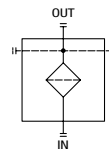
Maximum flow rate for a complete suction filter with a pressure drop $\Delta p = 0.08$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

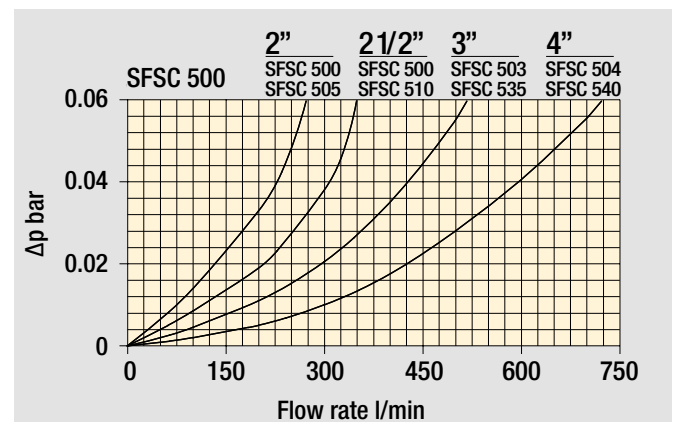
Hydraulic symbols



Filter series	
SFSC	•

PRESSURE DROP

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.

Corrective factors "Y" for filter element Δp calculation

Filter element		Nominal filtration Collapse $\Delta P : A = 1$ bar					
Type	Length	P0010	P0025	M0025	M0060	M0090	M0250
SSC 503	10	-	-	0.17	0.11	0.11	0.11
SSC 504	10	-	-	0.11	0.08	0.08	0.08
SSC 505	10	-	-	0.23	0.18	0.18	0.18
SSC 510	10	-	-	0.18	0.14	0.14	0.14
SSC 535	10	-	-	0.08	0.05	0.05	0.05
SSC 540	10	-	-	0.05	0.04	0.04	0.04

See page 22 for the complete information regarding filter element Δp calculation.

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

Filter family	Δp max	
Suction	0.08 bar	1.15 psi

Designation & Ordering code

COMPLETE FILTER

Series	Example 1:	SFSC	500	10	M0025	A	W	00	FE200	0	6T	MA	P01	NN
SFSC	Example 2:	SFSC	535	10	M0060	A	V	00	HB089	0	9T	MC	P01	NN

Size
500 | 503 | 504 | 505 | 510 | 535 | 540

Length
10

Filtration rating (filter media)

M0025 Wire mesh 25 µm	M0090 Wire mesh 90 µm
M0060 Wire mesh 60 µm	M0250 Wire mesh 250 µm

Element Δp
A 1 bar

Seals and treatments

A NBR
V FPM
W NBR with components surface treatment
Z FPM with components surface treatment

Bypass
00 Without bypass

Connections											
	500	505	510	503-535	504-540		500	505	510	503-535	504-540
FE200 2" SAE 3000 psi/M	•	•	-	-	-	HB063 Hose barb Ø 63 mm	•	•	-	-	-
FE212 2 1/2" SAE 3000 psi/M	•	-	•	-	-	HB075 Hose barb Ø 75 mm	•	-	-	-	-
FE300 3" SAE 3000 psi/M	-	-	-	•	-	HB089 Hose barb Ø 89 mm	-	-	-	•	-
FE400 4" SAE 3000 psi/M	-	-	-	-	•	HB114 Hose barb Ø 114 mm	-	-	-	-	•
FF200 2" SAE 3000 psi/UNC	•	•	-	-	-						
FF212 2 1/2" SAE 3000 psi/UNC	•	-	•	-	-						
FF300 3" SAE 3000 psi/UNC	-	-	-	•	-						
FF400 4" SAE 3000 psi/UNC	-	-	-	-	•						

Additional connections
0 Without additional connections

Connections for clogging indicators		
	500-503-504-540	505-510-535
6T With both side indicator connections, with metal plugs	•	-
9T With multiple indicator connections, with metal plugs	-	•

Additional features		
	500-503-504	505-510-535-540
MA With magnetic filter	•	•
MB With magnetic filter + polyamide handwheel	•	-
MC With magnetic filter + microswitch	-	•
MD With magnetic filter + microswitch + polyamide handwheel	•	-
ME With magnetic filter + microswitch + steel handwheel	•	-

Version
P01 Standard catalogue item

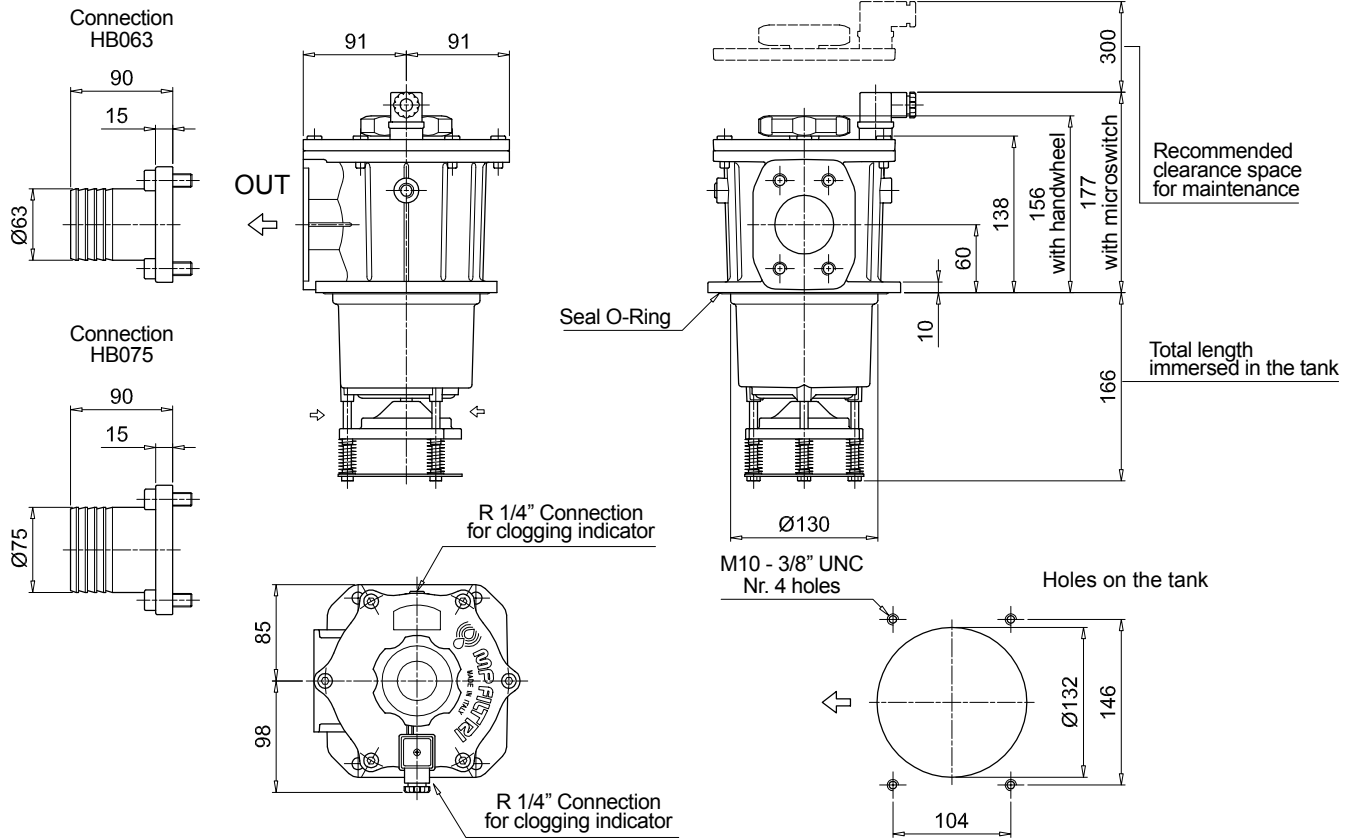
Certificates
NN None

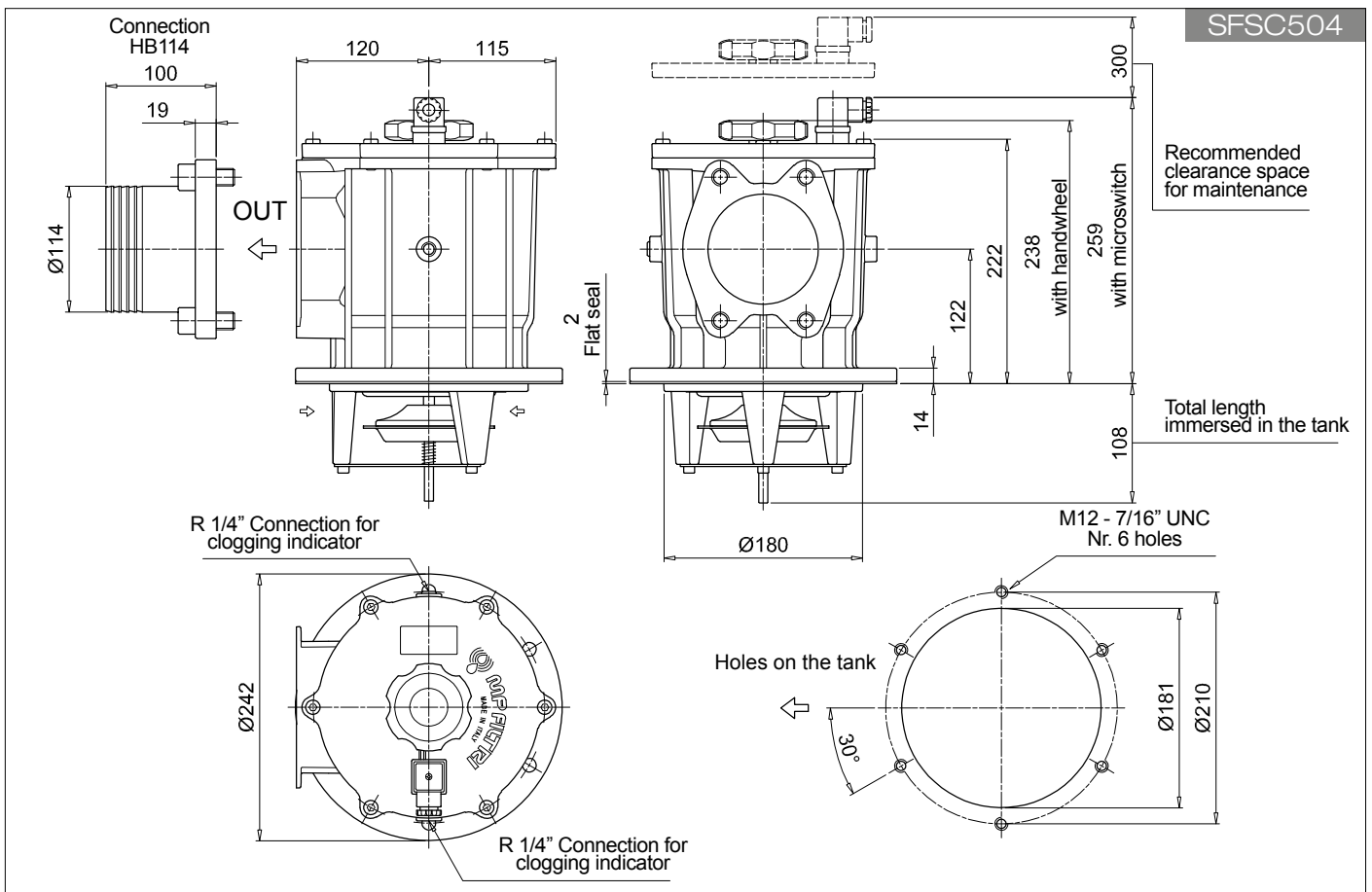
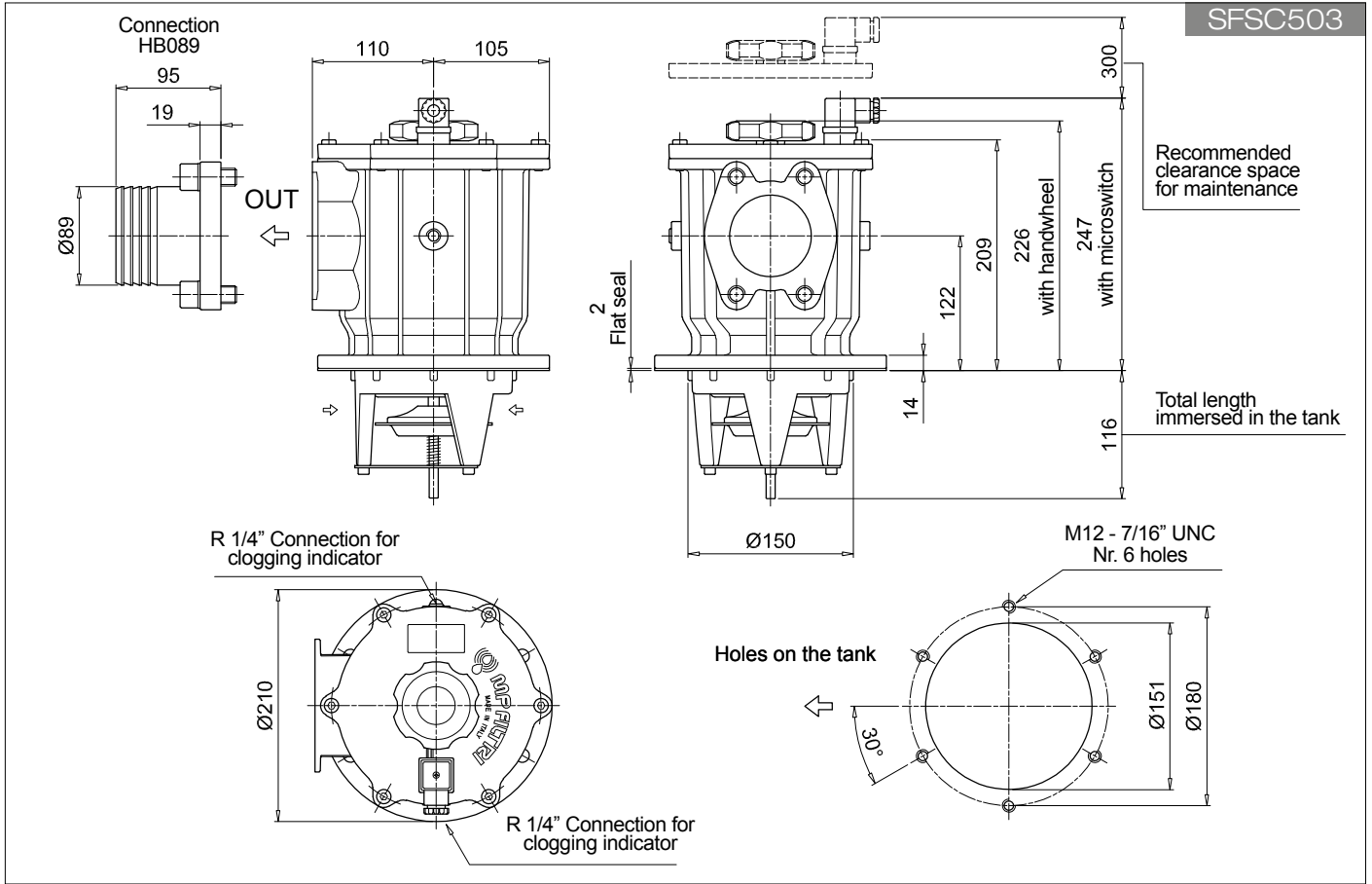
CLOGGING INDICATORS

See page 715

VEA Electrical vacuum indicator	VVA Axial vacuum gauge
VLA Electrical / visual vacuum indicator	VVR Radial vacuum gauge

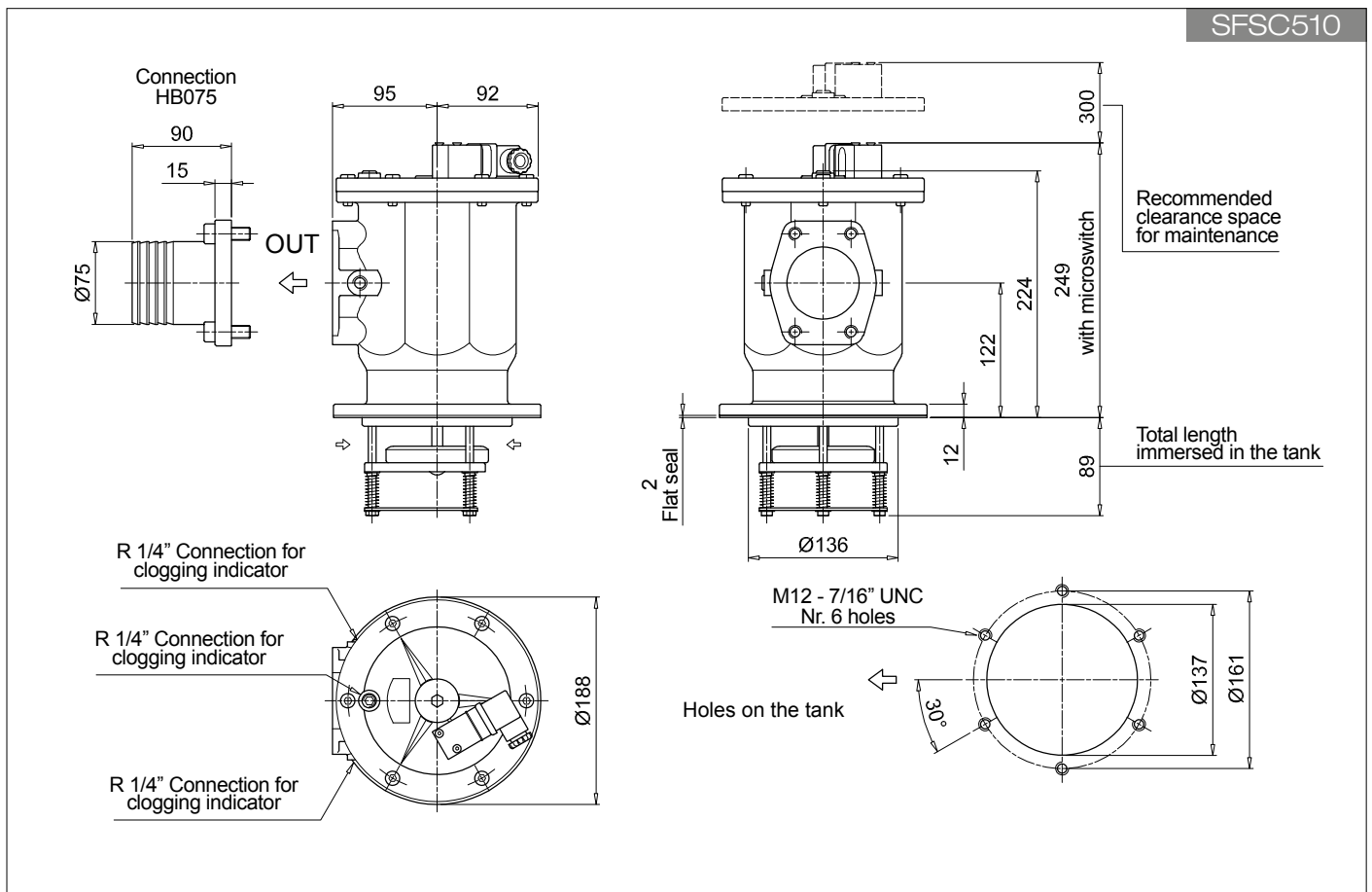
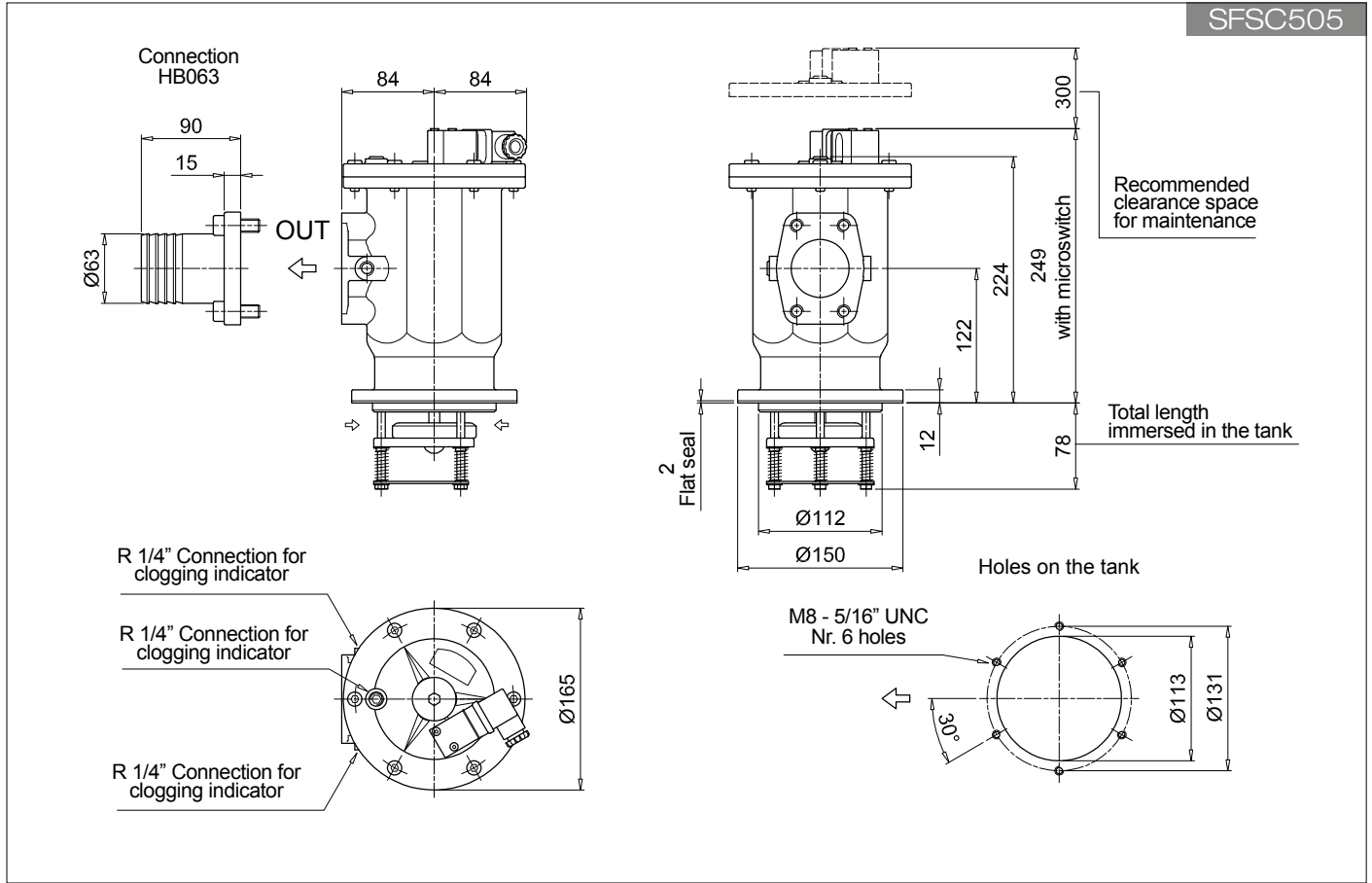
FILTER ELEMENT											
Series		Example 1: SSC 510 10 M0025 A N 00 NN P01 NN									
SSC		Example 2: SSC 535 10 M0060 A N 00 NN P01 NN									
Size											
503	SFSC 503	510	SFSC 500	540	SFSC 540						
504	SFSC 504		SFSC 510								
505	SFSC 505	535	SFSC 535								
Length											
10											
Filtration rating (filter media)											
M0025	Wire mesh	25 µm	M0090	Wire mesh	90 µm						
M0060	Wire mesh	60 µm	M0250	Wire mesh	250 µm						
Element Δp											
A		1 bar									
Seals and treatments											
N		No seal									
Bypass											
00		Without bypass									
Additional features											
NN		Without									
Version											
P01		Standard catalogue item									
Certificates											
NN		None									

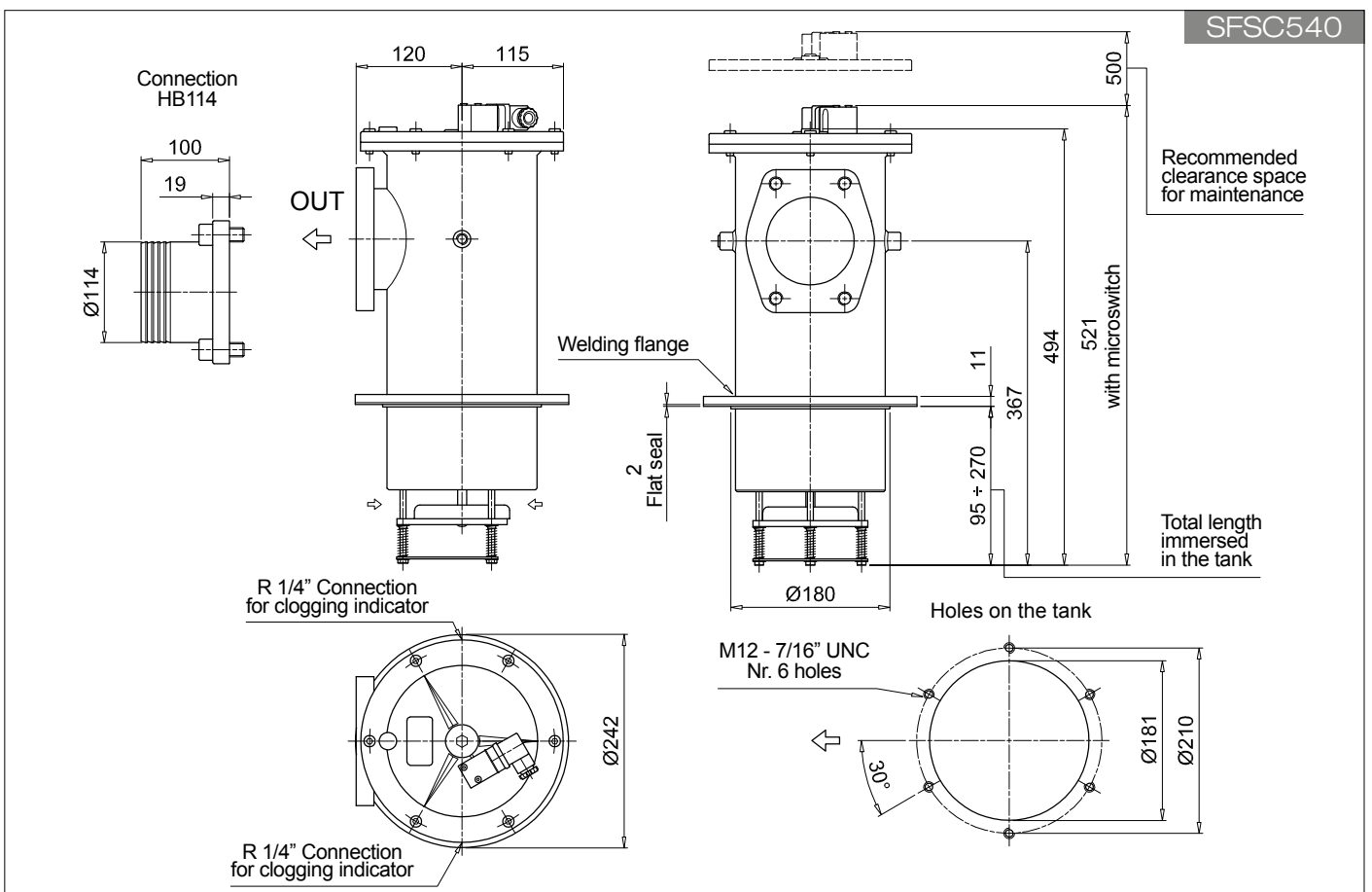
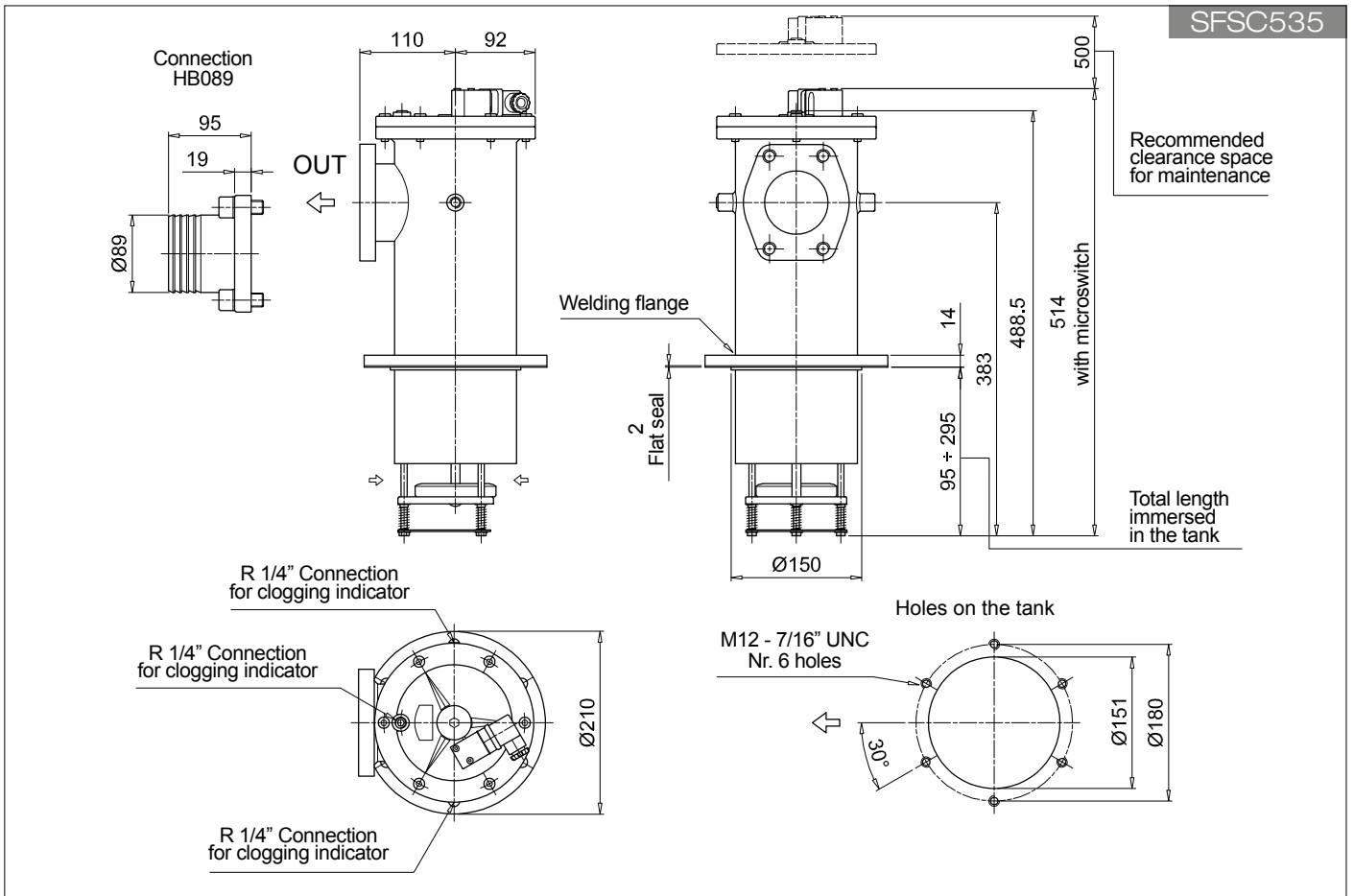




SFSC SFSC505 - SFSC510

Dimensions

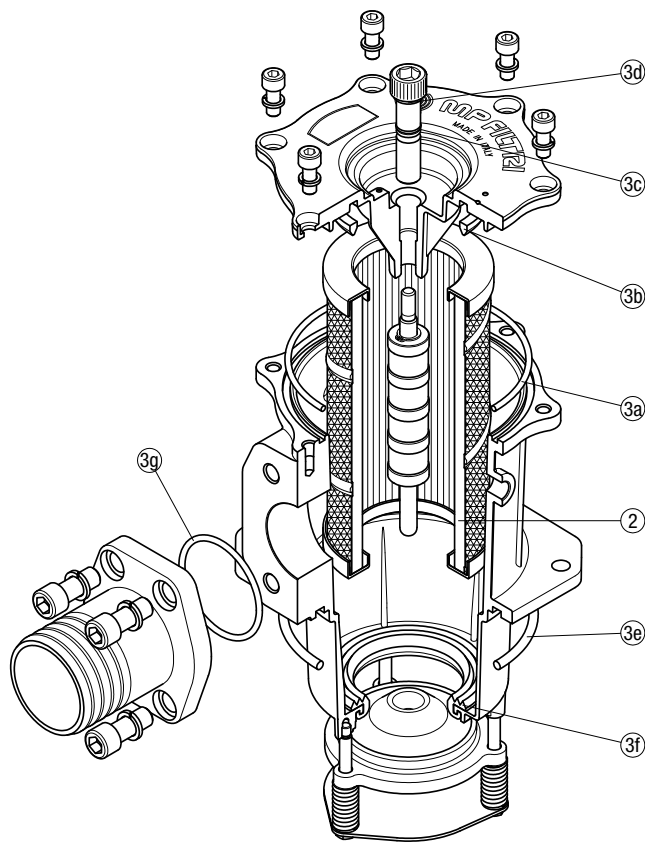




SFSC SPARE PARTS

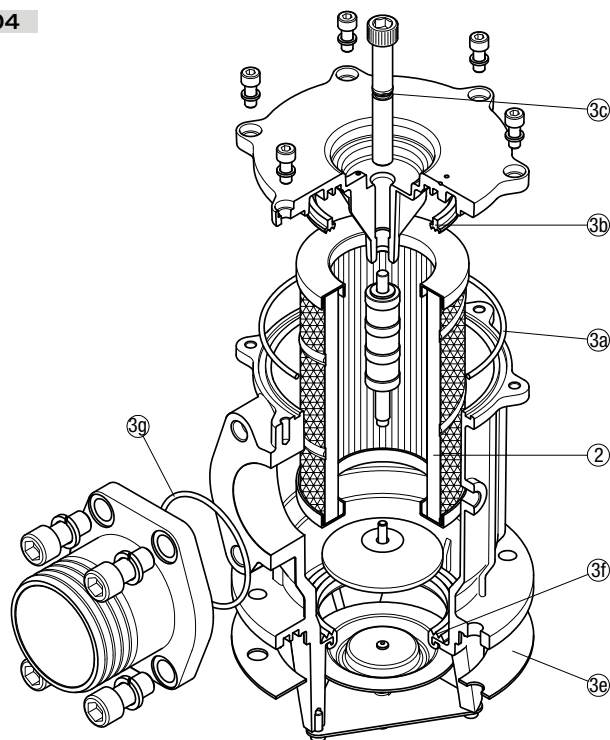
Order number for spare parts

SFSC 500



SFSC 503

SFSC 504



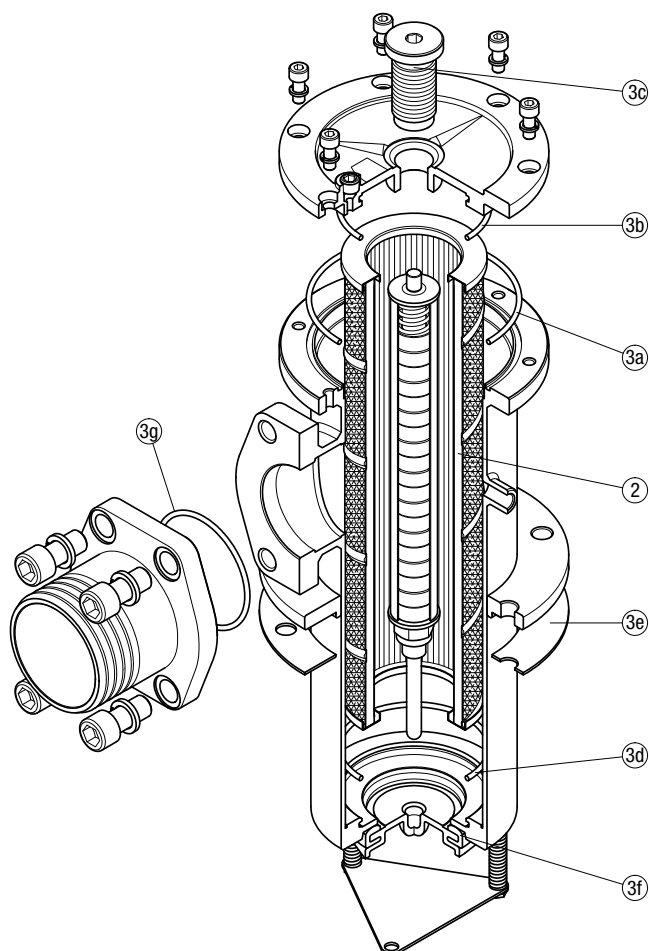
Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3g)	
Filter series	Filter element	Seal Kit code number NBR	FPM
SF2 500	See	02050141	02050142
SF2 503	order	02050070	02050071
SF2 504	table	02050072	02050073

SFSC 505

SFSC 510

SFSC 535

SFSC 540



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
SFSC 505	See order table	02050043	02050044
SFSC 510		02050045	02050046
SFSC 535		02050051	02050052
SFSC 540		02050053	02050054

Return filters are used as process and safety filters to protect pumps and hydraulic circuits from contamination as per ISO 4406.

They are available in 8 families:

- **MPFX-MPF tank top semi-immersed filter with external / internal oil flow; standard filter element disassembly**
- **MPLX tank top semi-immersed filter completely interchangeable with Pall 8420 & 8520, with external / internal oil flow; easy filter element disassembly**
- **MPTX-MPT tank top semi-immersed filter with external / internal oil flow; easy filter element disassembly without any specific tool**
- **MFBX-MFB element and bowl assembly with optional cover and hold-down spring for dirtbox or molded tank applications**
- **MPH tank top semi-immersed filter with internal / external oil flow, therefore keeping the dirt inside the bowl and not on the filter element; standard filter element disassembly, magnetic filter as option**
- **MPI semi-immersed filter element specifically designed to be mounted directly on the oil tank; magnetic filter as option**
- **FRI, the oldest tank top semi-immersed return filter manufactured by MP FILTRI, with external / internal oil flow; available in the single or duplex versions with outlet connection, it can be used also as in-line filter**
- **RF2 semi-immersed filter with shut-off valve for side tank mounting, with external / internal oil flow; easy filter element disassembly without any specific tool.**

FILTER SIZING

For the proper calculation see pag. 22

Return filters



RFEX ELIXIR®	page 74
MPFX	84
MPLX	112
MPTX	120
MFBX	138
MPF	147
MPT	175
MFB	193

MDH	page 201
MPH	209
MPI	233
FRI	245
RF2	261
ACCESSORIES	268
INDICATORS	716



THE **X** CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

RFEX series

with **MYCLEAN** FEX Filter Element



- **Protects the machine from improper use of non-original products.**
- **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.



The products identified as RFEX are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1

RFEX series

Maximum working pressure up to 1.6 MPa (16 bar) - Flow rate up to 260 l/min

 ELIXIR®

Description

Technical data

Return filter

Maximum working pressure up to 1.6 MPa (16 bar)
Flow rate up to 260 l/min

RFEX is a range of return filters for protection of the reservoir against the system contamination. They are mounted in line to limit aeration or foam generation into the reservoir.

Available features:

- Female threaded connections up to 1 1/4" and SAE connections up to 1 5/8", for a maximum flow rate of 260 l/min
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical, axial and radial pressure gauges
- MYclean interface connection for the filter element, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

- Light Industrial equipment
- Mobile application

Filter housing materials

- Head: Aluminium
- Bypass valve: Polyamide - Steel
- Bowl: Polyamide

Bypass valve

Opening pressure 175 kPa (1.75 bar) \pm 10%

Δp element type

- Microfibre filter elements - series N: 8 bar
- Fluid flow through the filter element from OUT to IN

Seals

Standard NBR series A

Temperature

From -25 °C to +110 °C

Note

RFEX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
RFEX 060	1.00	0.60
RFEX 080	1.15	0.80
RFEX 110	1.90	1.60
RFEX 160	2.10	2.00

Hydraulic symbols

Filter series	Style S	Style B
RFEX 060	•	•
RFEX 080	•	•
RFEX 110	•	•
RFEX 160	•	•

Flow rates [l/min]

Filter element design - N Series							
Filter series	A10	A16	A25	M60	M90	P10	P25
RFX 060	60	61	64	87	89	62	77
RFX 080	69	70	75	91	92	79	93

Filter series	A10	A16	A25	M60	M90	P10	P25
RFX 110	141	153	172	250	252	186	196
RFX 160	166	168	191	255	256	207	215

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

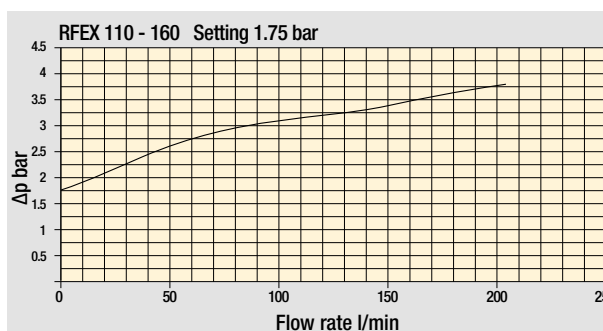
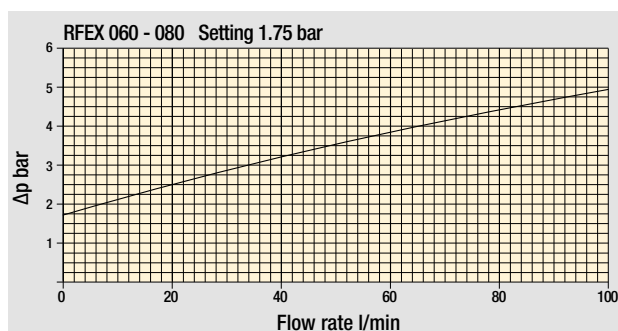
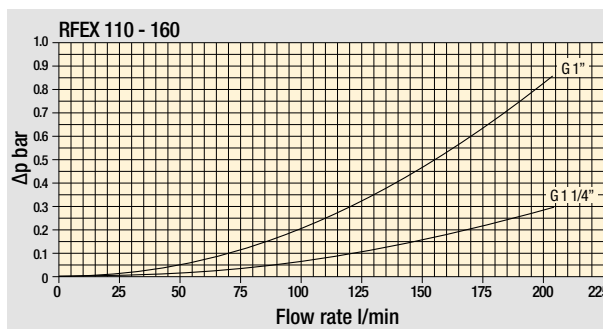
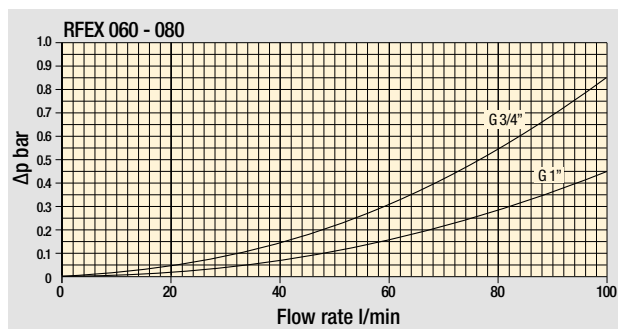
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

Please, contact our Sales Department for further additional information.

Pressure drop

Filter housings
 Δp pressure drop



Bypass valve
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.

RFEX RFEX060 - RFEX080

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **RFEX060** **B** **A** **A** **6** **A10** **N** **P01**

RFEX060 Filter featuring  Filter Element

RFEX080 Filter featuring  Filter Element

Bypass valve

S Without bypass

B 1.75 bar

Seals and treatments

A NBR

Connections

A G 3/4"

B G 1"

C 3/4" NPT

D 1" NPT

E SAE 12 - 1 1/16" - 12 UN

F SAE 16 - 1 5/16" - 12 UN

Connection for clogging indicator

6 With plugged connections

Filtration rating

A10 Inorganic microfiber 10 µm **P10** Resin impregnated paper 10 µm

A16 Inorganic microfiber 16 µm **P25** Resin impregnated paper 25 µm

A25 Inorganic microfiber 25 µm

M60 Wire mesh 60 µm


M90 Wire mesh 90 µm

Element Δp
N 8 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size Configuration example: **FEX060** **A10** **A** **N** **P01**

FEX060 Filter Element with  feature

FEX080 Filter Element with  feature

Filtration rating

A10 Inorganic microfiber 10 µm **P10** Resin impregnated paper 10 µm

A16 Inorganic microfiber 16 µm **P25** Resin impregnated paper 25 µm

A25 Inorganic microfiber 25 µm

M60 Wire mesh 60 µm

M90 Wire mesh 90 µm

Seals and treatments

A NBR

Element Δp
N 8 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 716-717

BEA Electrical pressure indicator

BEM Electrical pressure indicator

BLA Electrical / visual pressure indicator

BVA Axial pressure gauge

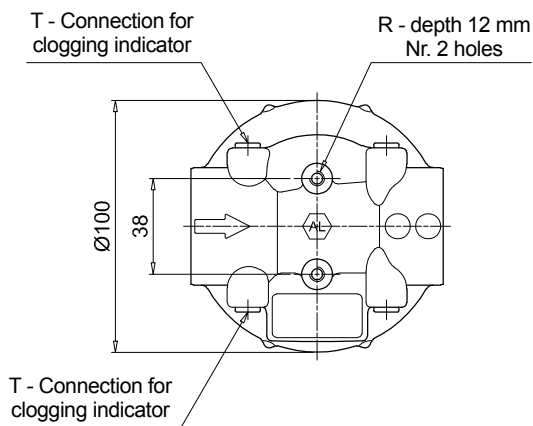
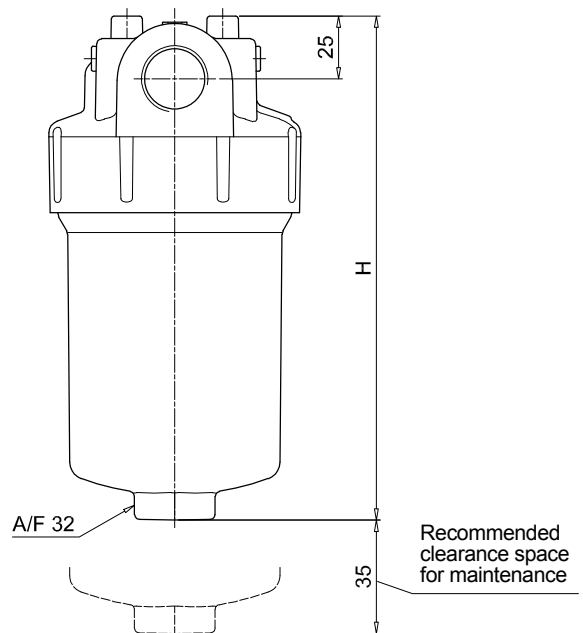
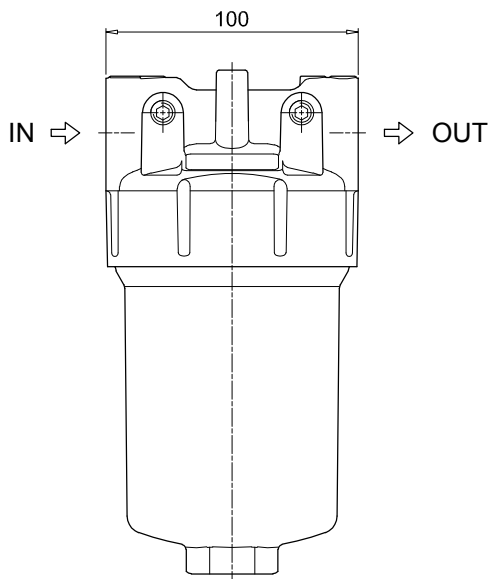
BVR Radial pressure gauge

BVP Visual pressure indicator with automatic reset

BVQ Visual pressure indicator with manual reset

Filter size	H [mm]	
060	202	
080	265	

Connections	T	R
A	G 1/8"	M6
B	G 1/8"	M6
C	1/8" NPT	1/4" UNC
D	1/8" NPT	1/4" UNC
E	1/8" NPT	1/4" UNC
F	1/8" NPT	1/4" UNC



RFEX RFEX110 - RFEX160

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **RFEX110** **B** **A** **A** **6** **A10** **N** **P01**

RFEX110 Filter featuring  Filter Element

RFEX160 Filter featuring  Filter Element

Bypass valve

S Without bypass

B 1.75 bar

Seals and treatments

A NBR

Connections

A G 1"

B G 1 1/4"

C 1" NPT

D 1 1/4" NPT

E SAE 16 - 1 5/16" - 12 UN

F SAE 20 - 1 5/8" - 12 UN

Connection for clogging indicator

6 With plugged connections

Filtration rating

A10 Inorganic microfiber 10 µm **P10** Resin impregnated paper 10 µm

A16 Inorganic microfiber 16 µm **P25** Resin impregnated paper 25 µm

A25 Inorganic microfiber 25 µm

M60 Wire mesh 60 µm

M90 Wire mesh 90 µm

Element Δp

N 8 bar

Execution


P01 MP Filtri standard


Pxx Customized

FILTER ELEMENT

Element series and size

Configuration example: **FEX110** **A10** **A** **N** **P01**

FEX110 Filter Element with  feature

FEX160 Filter Element with  feature

Filtration rating

A10 Inorganic microfiber 10 µm **P10** Resin impregnated paper 10 µm

A16 Inorganic microfiber 16 µm **P25** Resin impregnated paper 25 µm

A25 Inorganic microfiber 25 µm

M60 Wire mesh 60 µm

M90 Wire mesh 90 µm

Seals and treatments

A NBR

Element Δp

N 8 bar

Execution

P01 MP Filtri standard

Pxx Customized

CLOGGING INDICATORS

See page 716-717

BEA Electrical pressure indicator

BEM Electrical pressure indicator

BLA Electrical / visual pressure indicator

BVA Axial pressure gauge

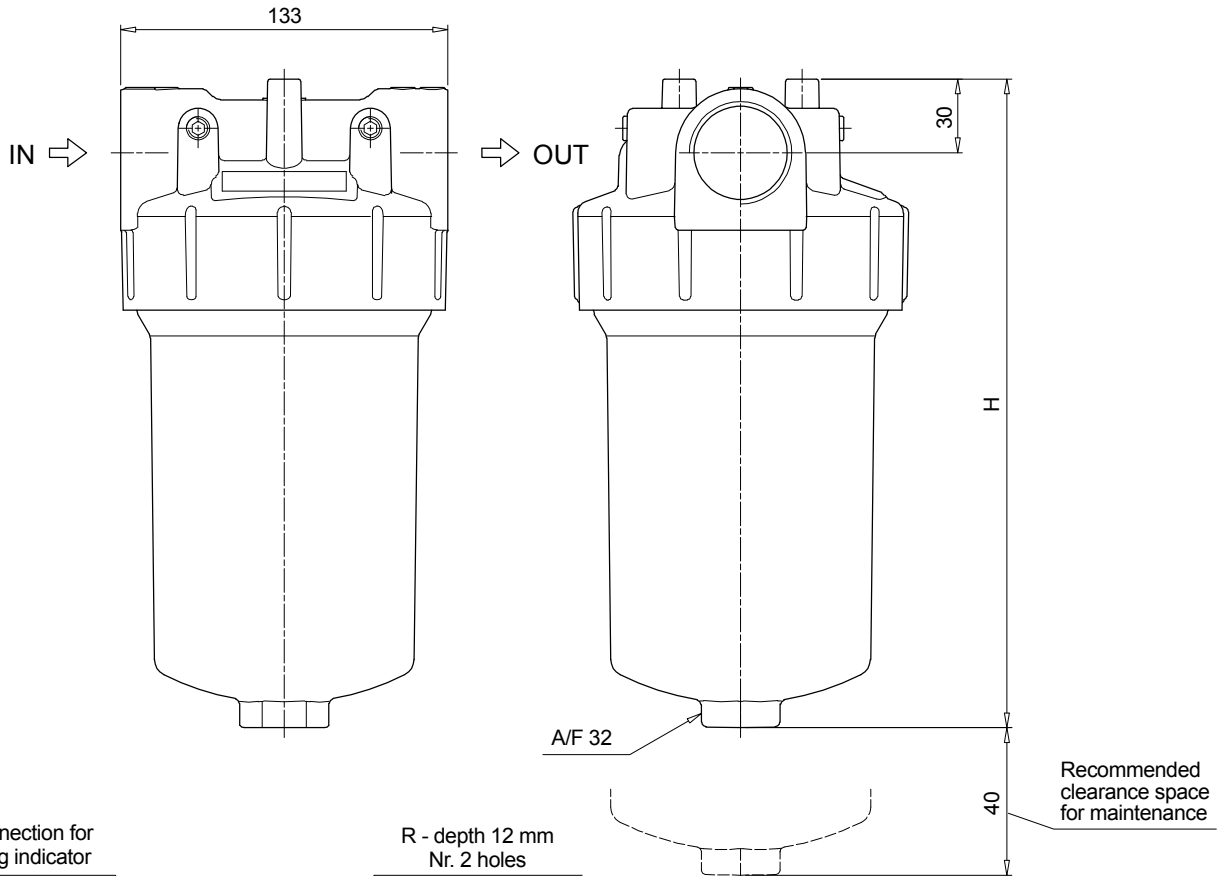
BVR Radial pressure gauge

BVP Visual pressure indicator with automatic reset

BVQ Visual pressure indicator with manual reset

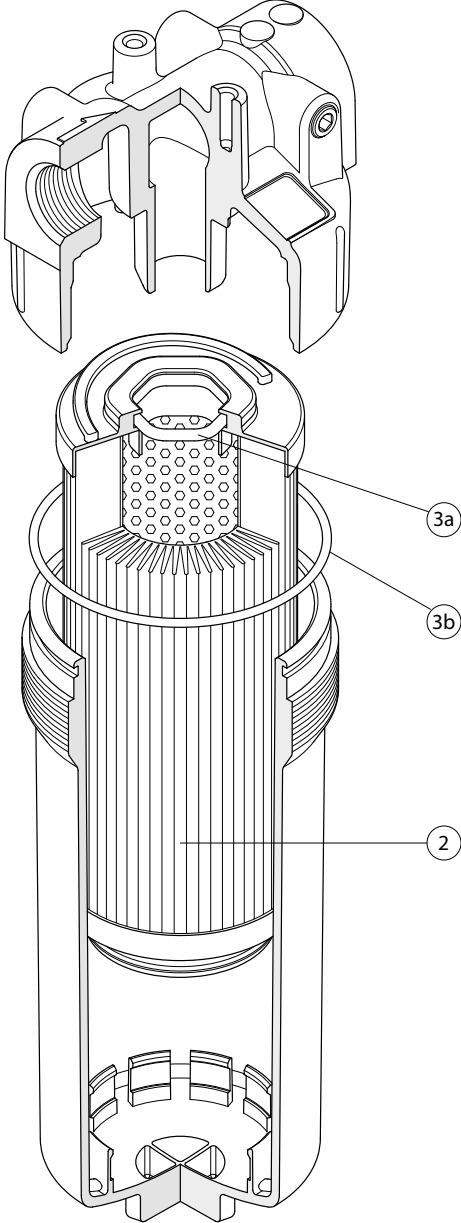
Filter size	H [mm]	
110	266	
160	315	

Connections	T	R
A	G 1/8"	M8
B	G 1/8"	M8
C	1/8" NPT	5/16" UNC
D	1/8" NPT	5/16" UNC
E	1/8" NPT	5/16" UNC
F	1/8" NPT	5/16" UNC



RFEX SPARE PARTS

Order number for spare parts



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3b)
Filter series	Filter element	Seal Kit code number NBR
RFEX 060-080	See order table	02050771
RFEX 110-160		02050772



THE **X** CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

MPFX series

with **MYCLEAN** MFX Filter Element



- **Protects the machine from improper use of non-original products.**
- **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.

The products identified as MPFX are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1



TOGETHER WITH **MYCLEAN**, AS OPTION, MPFX SERIES CAN BE PROVIDED WITH

zerospark[®]
THE ANTI-STATIC FILTERS

THE **Z** CONCEPT FOR OUR FILTERS



Zerospark[®] is a specialist solution designed to solve the problem of electrostatic discharge inside hydraulic filters. Caused by the electrical charge build-up due to the passage of oil through the filters, this can result in damage to filter elements, oils and circuit components. It can even cause fire hazards in environments where flammable materials are present.

MPFX series

Maximum working pressure up to 800 kPa (8 bar) - Flow rate up to 900 l/min



Description

Technical data

Return filter

Maximum working pressure up to 800 kPa (8 bar)

Flow rate up to 900 l/min

MPFX is a range of return filters for protection of the reservoir against the system contamination.

They are directly fixed to the reservoir, in immersed or semi-immersed position.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Female threaded connections up to 2" and flanged connections up to 2", for a maximum flow rate of 900 l/min
- Multiple connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve integrated into the filter element, to relieve excessive pressure drop across the filter media
- 2, 3 or 4 fixing holes for installation, to suit a variety of reservoir surfaces
- O-ring or Flat Seal to suit a variety of reservoir surfaces
- Oil dipstick, to easily check the level of the fluid into the reservoir (sold as separate item)
- Extension tube, to be used in deep reservoirs (sold as separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise (sold as separate item)
- Filler plug, to fill cleaned fluid into the tank without an additional connection
- Visual, electrical and electronic clogging indicators
- MYclean interface connection, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

- Light Industrial equipment
- Mobile application

Filter housing materials

- Head: Aluminium

- Cover

Polyamide: MPFX 030-100-104-110

Aluminium: MPFX 181-182-184-191-192-194-400-410-450-451-750

- Bowl: Polyamide

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$

- Opening pressure 300 kPa (3 bar) $\pm 10\%$

Δp element type

- Microfiber filter elements - series H: 10 bar

- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A

- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MPFX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
MPFX 030		0.40	-	-	-		0.29	-	-	-
MPFX 100		0.61	0.64	0.67	0.74		0.64	0.85	1.20	1.65
MPFX 104		0.82	0.96	1.02	1.25		0.64	0.85	1.20	1.65
MPFX 110		0.64	0.68	0.71	0.78		-	-	-	-
MPFX 181		2.20	3.00	-	-		2.50	4.00	-	-
MPFX 182		2.30	3.10	-	-		2.50	4.00	-	-
MPFX 184		2.55	3.45	-	-		2.65	4.45	-	-
MPFX 191		-	3.00	-	-		-	4.25	-	-
MPFX 192		-	3.10	-	-		-	4.25	-	-
MPFX 194		-	3.45	-	-		-	4.45	-	-
MPFX 400		3.35	3.65	3.90	-		3.70	4.60	5.40	-
MPFX 410		3.55	3.85	4.10	-		3.70	4.60	5.40	-
MPFX 450-451		3.95	4.25	4.50	-		3.70	4.60	5.40	-
MPFX 750		6.30	-	-	-		8.45	-	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - H series					Filter element design - N series		
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MPFX 030	1	7	10	24	29	47	84	60	66
MPFX 100-104-110	1	18	20	53	56	65	153	87	96
	2	28	38	65	75	95	158	111	123
	3	48	55	125	135	169	289	224	251
	4	79	89	180	185	198	306	264	289
MPFX 181-182-184	1	127	148	235	243	278	441	285	299
	2	231	262	358	382	388	472	404	412
MPFX 191-192-194	2	261	305	489	528	546	696	583	598
MPFX 400	1	150	171	294	304	350	585	370	390
	2	237	252	454	462	589	868	619	645
	3	248	288	553	609	621	885	680	703
MPFX 410	1	146	167	277	285	325	512	341	357
	2	226	239	396	402	485	644	503	519
	3	236	269	462	497	505	653	539	553
MPFX 450-451	1	150	171	294	304	350	585	370	390
	2	237	252	454	462	589	868	619	645
	3	248	288	553	609	621	885	680	703
MPFX 750	1	392	465	623	700	769	929	804	819

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

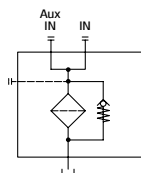
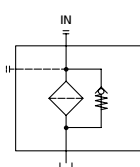
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

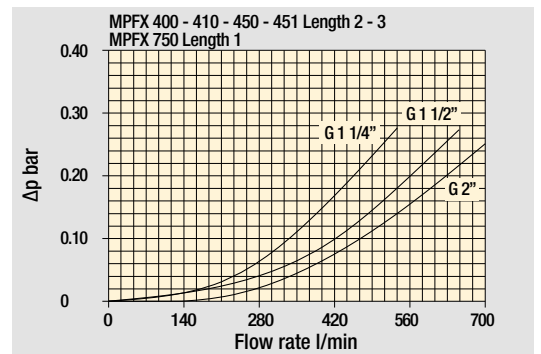
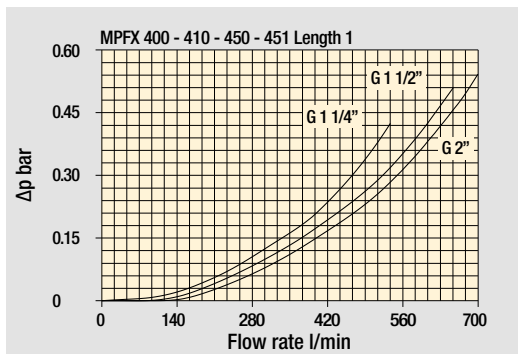
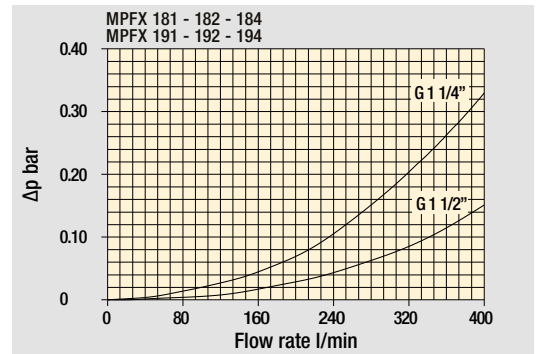
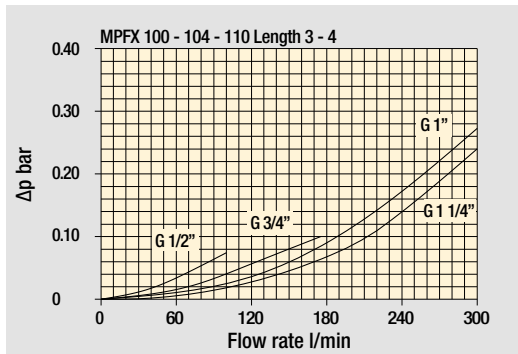
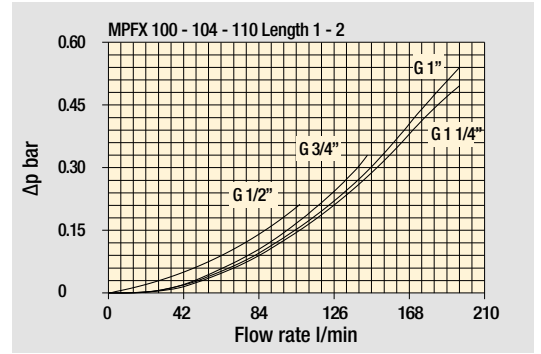
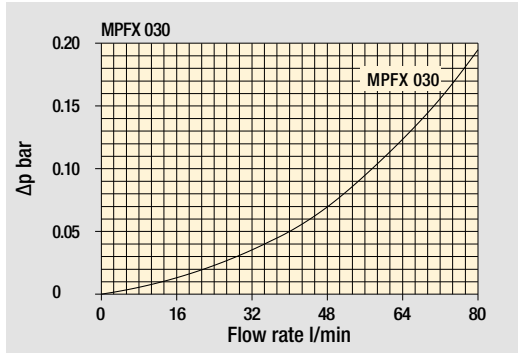
Filter series	Style 1 connection	Style 2 connections
MPFX 030	●	-
MPFX 100	●	-
MPFX 104	●	-
MPFX 110	-	●
MPFX 181	●	-
MPFX 182	-	●
MPFX 184	●	●
MPFX 191	●	-
MPFX 192	●	-
MPFX 194	●	●
MPFX 400	●	-
MPFX 410	-	●
MPFX 450	●	-
MPFX 451	-	●
MPFX 750	●	-



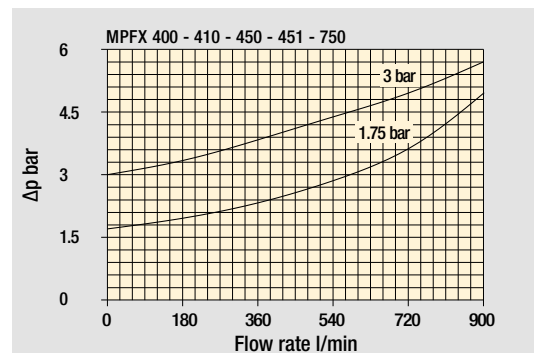
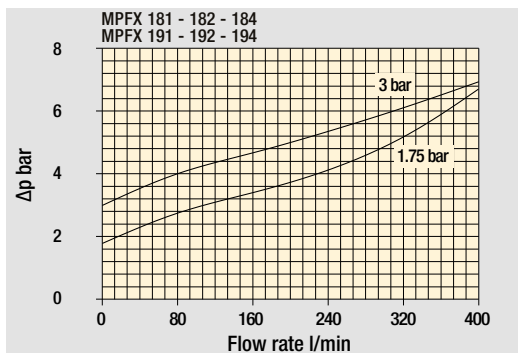
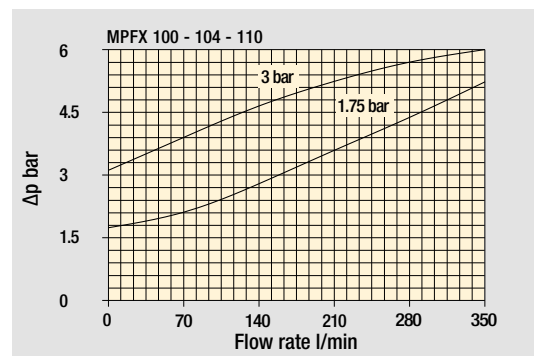
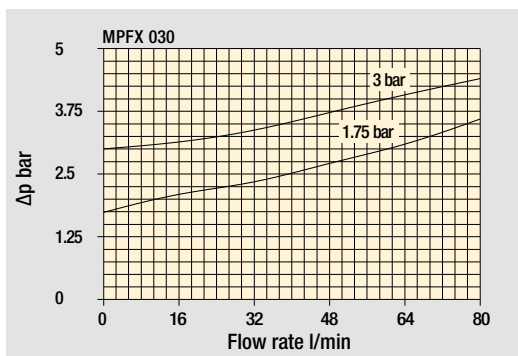
MPFX GENERAL INFORMATION

Pressure drop

Filter housings Δp pressure drop



Bypass valve pressure drop

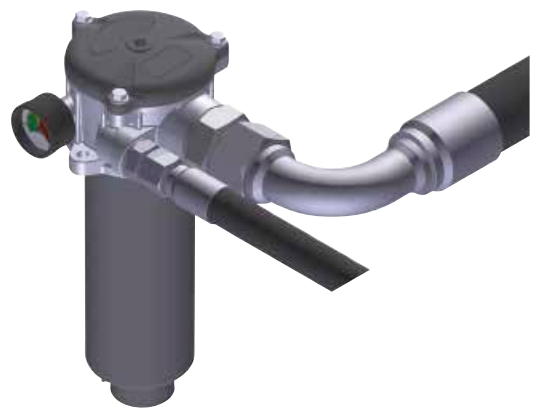


The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968. Δp varies proportionally with density.

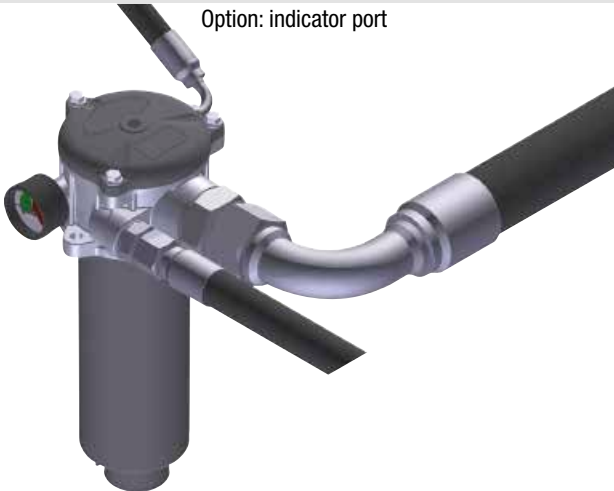
Standard - Single IN port



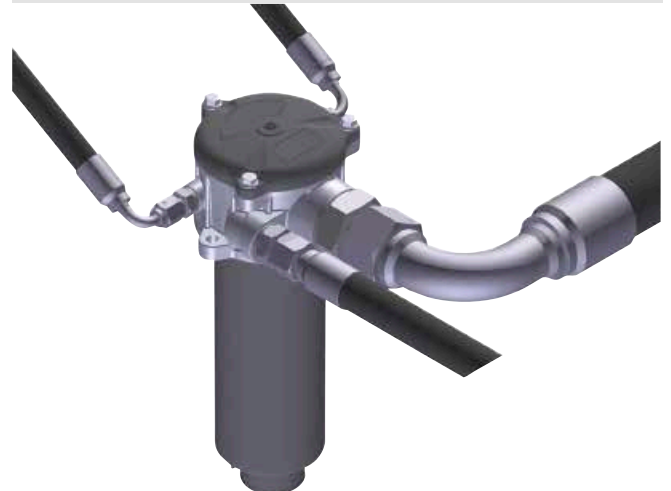
Double IN port
Option: double indicator port



Double IN port - Drain port
Option: indicator port



Double IN port - Double drain port



MPFX MPFX030

Designation & Ordering code

COMPLETE FILTER

Series and size
MPFX030 Filter featuring **MY CLEAN** Filter Element

Configuration example 1: **MPFX030** | 1 | V | G1 | M25 | N | B | P01
 Configuration example 2: **MPFX030** | 1 | A | G4 | A10 | H | E | P01

Length
 1

Seals and treatments
A NBR
V FPM
W NBR head anodized
Z FPM head anodized

Connections
G1 G 1/2"
G4 1/2" NPT
G7 SAE 8 - 3/4" - 16 UNF

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm **P10** Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm **P25** Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Bypass valve
E 3 bar
B 1.75 bar

Executions
 Base **zerospark***
P01 **Z01*** MP Filtri standard
Pxx **Zxx*** Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size
MFXX030 Filter Element with **MY CLEAN** feature

Configuration example 1: **MFXX030** | 1 | M25 | N | V | P01
 Configuration example 2: **MFXX030** | 1 | A10 | H | B | E | P01

Element length
 1

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm **P10** Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm **P25** Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals
B NBR
V FPM

Bypass valve
E 3 bar
 - 1.75 bar

Executions
 Base **zerospark***
P01 **Z01*** MP Filtri standard
Pxx **Zxx*** Customized

* Not for Mxx filter media

CLOGGING INDICATORS

See page 716-717

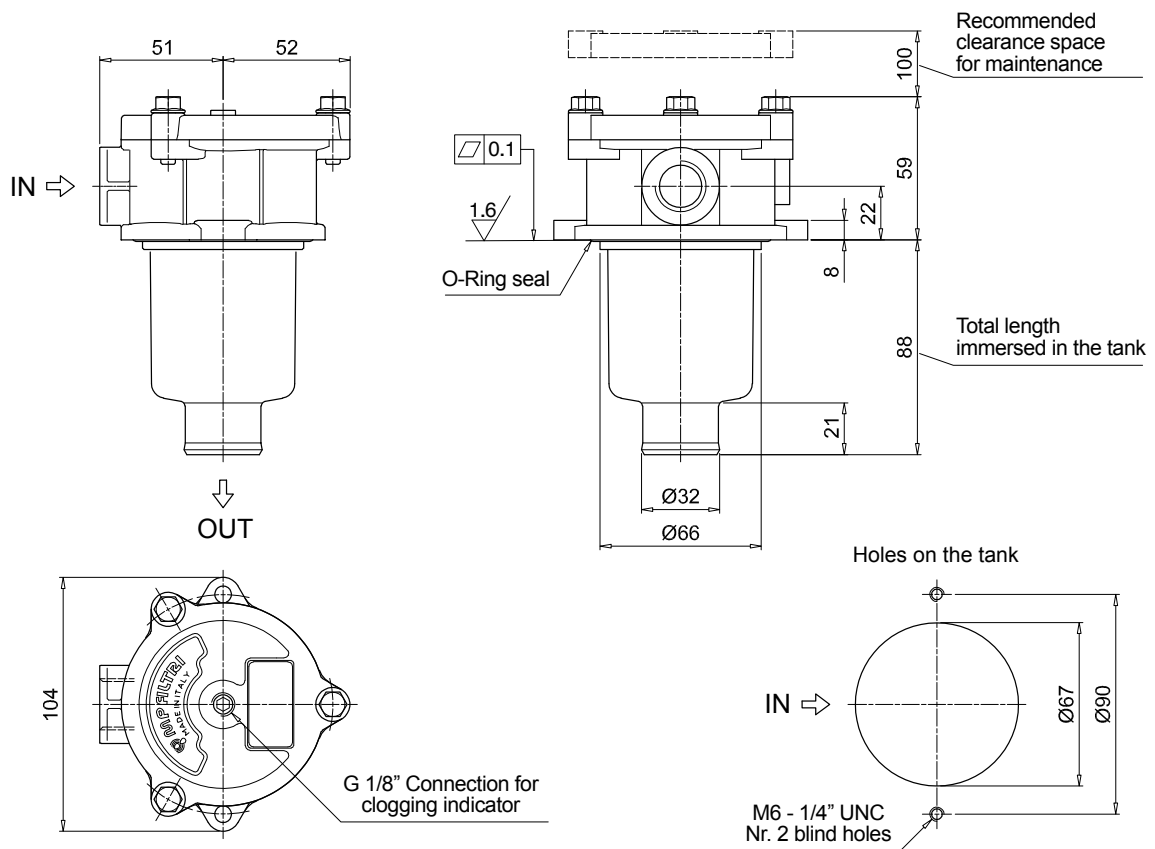
BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

ADDITIONAL FEATURES

See page 268

TE Extension tube
T5 Filler plug M30x1.5

MPFX030



MPFX MPFX100 - MPFX104

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example 1: **MPFX100** **2** **W** **G3** **A06** **H** **B** **P01**
MPFX100 | **MPFX104** Filter featuring **MYCLEAN** Filter Element Configuration example 2: **MPFX104** **4** **A** **G8** **P10** **N** **E** **P01**

Length
1 | **2** | **3** | **4**

Seals and treatments
A NBR
V FPM
W NBR head anodized
Z FPM head anodized

Connections	Size 100	Size 104	Connections	Size 100	Size 104
G1 G 1/2"	•	•	G7 SAE 8 - 3/4" - 16 UNF	•	•
G2 G 3/4"	•	•	G8 SAE 12 - 1 1/16" - 12 UN	•	•
G3 G 1"	•	•	G9 SAE 16 - 1 5/16" - 12 UN	•	•
G4 1/2" NPT	•	•			
G5 3/4" NPT	•	•			
G6 1" NPT	•	•			

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Executions

Bypass valve	Base	zérospark*	
E 3 bar	P01	Z01*	MP Filtri standard
B 1.75 bar	Pxx	Zxx*	Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size Configuration example 1: **MFx100** **2** **A06** **H** **B** **P01**
MFx100 Filter Element with **MYCLEAN** feature Configuration example 2: **MFx100** **4** **P10** **N** **B** **E** **P01**

Element length
1 | **2** | **3** | **4**

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals
B NBR
V FPM

Bypass valve
E 3 bar
- 1.75 bar

Executions

Base	zérospark*	
P01	Z01*	MP Filtri standard
Pxx	Zxx*	Customized

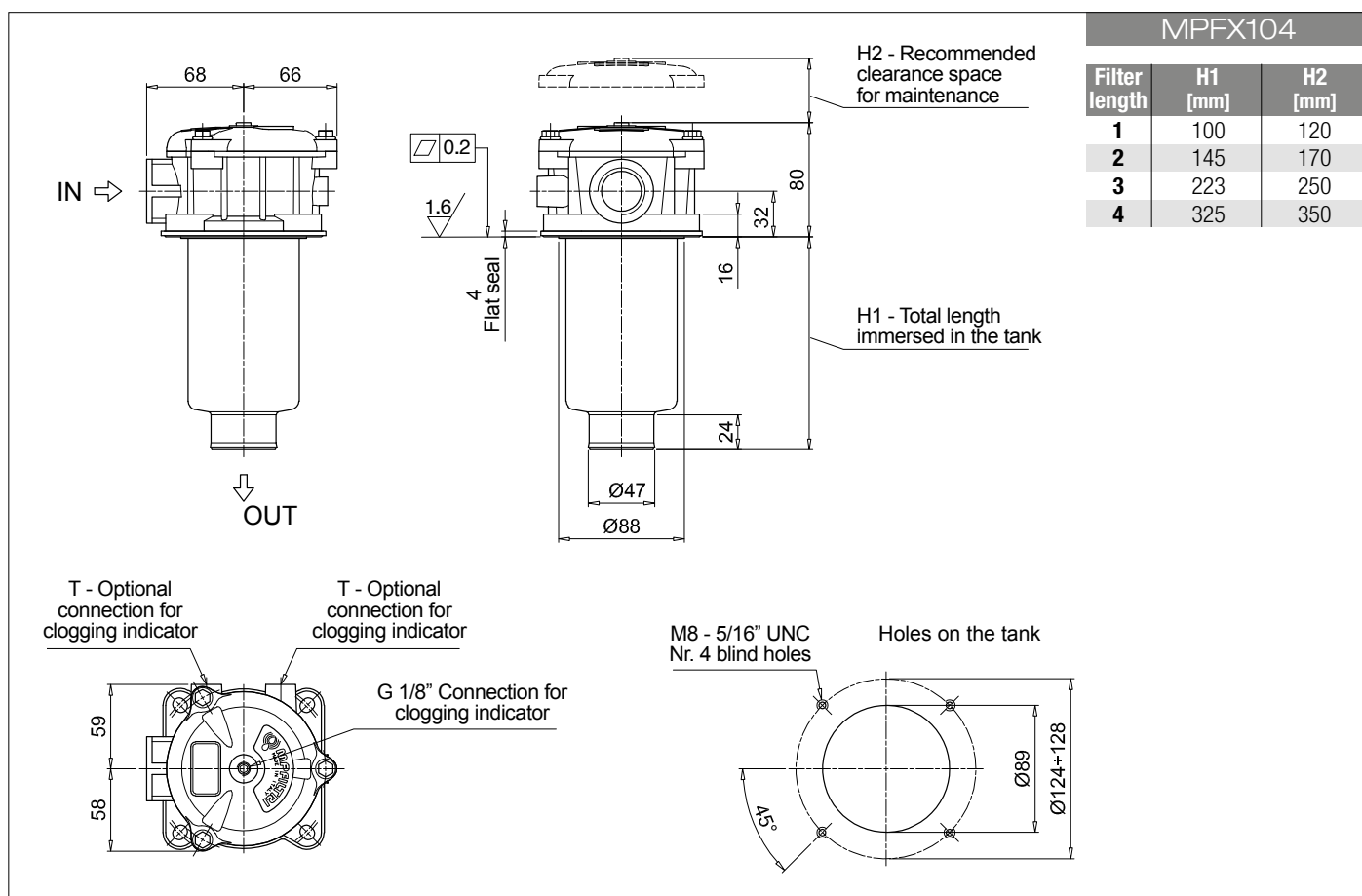
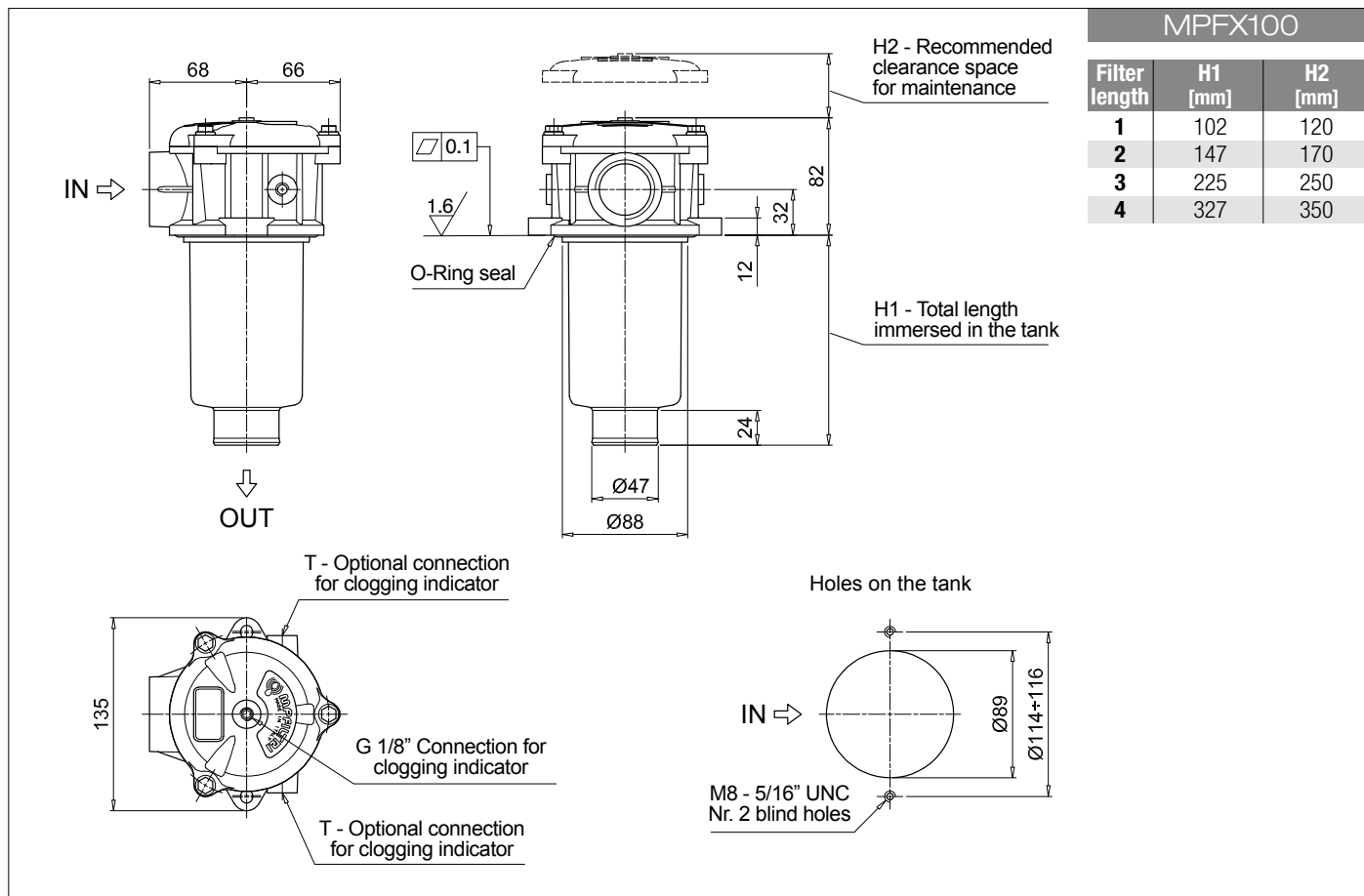
* Not for Mxx filter media

CLOGGING INDICATORS

BVA Axial pressure gauge	BEA Electrical pressure indicator	See page 716-717
BVR Radial pressure gauge	BEM Electrical pressure indicator	
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator	
BVQ Visual pressure indicator with manual reset		

ADDITIONAL FEATURES

TE Extension tube	T5 Filler plug M30x1.5	See page 268
DFS Diffuser with fast lock connection	DPT Dipstick	



MPFX MPFX110

Designation & Ordering code

COMPLETE FILTER

Series and size			Configuration example 1: MPFX110 3 Z G4 2 M25 H B P01																		
MPFX110 Filter featuring MY CLEAN Filter Element			Configuration example 2: MPFX110 4 A G8 1 P10 N E P01																		
Length			1 2 3 4																		
Seals and treatments			<table border="0"> <tr> <td>A NBR</td> <td>W NBR head anodized</td> </tr> <tr> <td>V FPM</td> <td>Z FPM head anodized</td> </tr> </table>									A NBR	W NBR head anodized	V FPM	Z FPM head anodized						
A NBR	W NBR head anodized																				
V FPM	Z FPM head anodized																				
Main Connections			Main Connections			Aux size 1			Aux size 2												
G1 G 1/2"	Aux size 1 G 3/8"	Aux size 2 G 1/2"	G7 SAE 8 - 3/4" - 16 UNF																		
G2 G 3/4"			G8 SAE 12 - 1 1/16" - 12 UN	SAE 6 - 9/16" - 18 UNF		SAE 8 - 3/4" - 16 UNF															
G3 G 1"			G9 SAE 16 - 1 5/16" - 12 UN																		
G4 1/2" NPT			G10 G 1 1/4"	G 3/8"		G 1/2"															
G5 3/4" NPT	3/8" NPT	1/2" NPT	G11 1 1/4" NPT	3/8" NPT		1/2" NPT															
G6 1" NPT			G12 SAE 20 - 1 5/8" - 12 UN	SAE 6 - 9/16" - 18 UNF		SAE 8 - 3/4" - 16 UNF															
Aux connection - see previous table			<table border="0"> <tr> <td>1 Aux size 1</td> <td>2 Aux size 2</td> </tr> </table>									1 Aux size 1	2 Aux size 2								
1 Aux size 1	2 Aux size 2																				
Filtration rating (filter media)			<table border="0"> <tr> <td>A03 Inorganic microfiber 3 µm</td> <td>M25 Wire mesh 25 µm</td> </tr> <tr> <td>A06 Inorganic microfiber 6 µm</td> <td>M60 Wire mesh 60 µm</td> </tr> <tr> <td>A10 Inorganic microfiber 10 µm</td> <td>M90 Wire mesh 90 µm</td> </tr> <tr> <td>A16 Inorganic microfiber 16 µm</td> <td>P10 Resin impregnated paper 10 µm</td> </tr> <tr> <td>A25 Inorganic microfiber 25 µm</td> <td>P25 Resin impregnated paper 25 µm</td> </tr> </table>									A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm	A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm	A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm	A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm	A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm																				
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm																				
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm																				
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm																				
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm																				

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Bypass valve	Executions		
	Base	zereospark*	
E 3 bar	P01	Z01*	MP Filtri standard
B 1.75 bar	Pxx	Zxx*	Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size			Configuration example 1: MFx100 3 M25 H V P01																		
MFx100 Filter Element with MY CLEAN feature			Configuration example 2: MFx100 4 P10 N B E P01																		
Element length			1 2 3 4																		
Filtration rating (filter media)			<table border="0"> <tr> <td>A03 Inorganic microfiber 3 µm</td> <td>M25 Wire mesh 25 µm</td> </tr> <tr> <td>A06 Inorganic microfiber 6 µm</td> <td>M60 Wire mesh 60 µm</td> </tr> <tr> <td>A10 Inorganic microfiber 10 µm</td> <td>M90 Wire mesh 90 µm</td> </tr> <tr> <td>A16 Inorganic microfiber 16 µm</td> <td>P10 Resin impregnated paper 10 µm</td> </tr> <tr> <td>A25 Inorganic microfiber 25 µm</td> <td>P25 Resin impregnated paper 25 µm</td> </tr> </table>									A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm	A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm	A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm	A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm	A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm																				
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm																				
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm																				
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm																				
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm																				

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals	Bypass valve	Executions		
		Base	zereospark*	
B NBR	E 3 bar	P01	Z01*	MP Filtri standard
V FPM	- 1.75 bar	Pxx	Zxx*	Customized

* Not for Mxx filter media

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

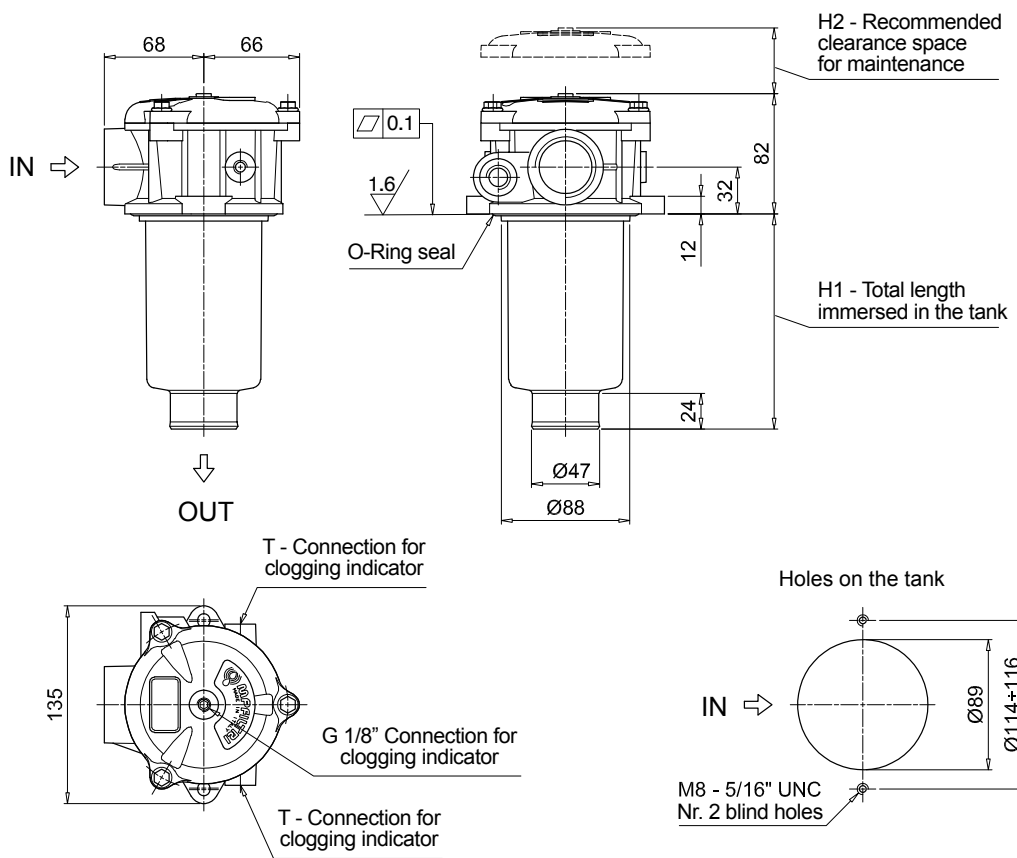
ADDITIONAL FEATURES

See page 268

TE Extension tube	T5 Filler plug M30x1.5
DFS Diffuser with fast lock connection	DPT Dipstick

MPFX110		
Filter length	H1 [mm]	H2 [mm]
1	102	120
2	147	170
3	225	250
4	327	350

Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT
G10	G 1/8"
G11-G12	1/8" NPT



MPFX MPFX181 - MPFX191

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1: MPFX181		1	A	G1	A25	H	E	P01
MPFX181 MPFX191 Filter featuring MYCLEAN Filter Element		Configuration example 2: MPFX191		2	V	G2	P10	N	B	P01
Length		Size 181	Size 191							
1		•	-							
2		•	•							
Seals and treatments										
A NBR	B NBR flat seal on head									
V FPM	D FPM flat seal on head									
W NBR head anodized	L NBR head anodized, flat seal on head									
Z FPM head anodized	M FPM head anodized, flat seal on head									
Connections										
G1 G 1 1/4"	G5 1 1/2" NPT									
G2 G 1 1/2"	G7 SAE 20 - 1 5/8" - 12 UN									
G4 1 1/4" NPT	G8 SAE 24 - 1 7/8" - 12 UN									
Filtration rating (filter media)										
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm									
Element Δp		Filter media			Executions					
N 10 bar		Axx	Mxx	Pxx	Bypass valve	Base	zereospark⁺			
H 10 bar		-	•	•	E 3 bar	P01	Z01*	MP Filtri standard		
		•	-	-	B 1.75 bar	Pxx	Zxx*	Customized		

* Not for Mxx filter media

FILTER ELEMENT

Element series and size		Configuration example 1: MFX180		1	A25	H	B	E	P01	
MFX180 Filter Element with MYCLEAN feature		Configuration example 2: MFX180		2	P10	N	V		P01	
Element length										
1	2									
Filtration rating (filter media)										
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm									
Element Δp		Filter media			Executions					
N 10 bar		Axx	Mxx	Pxx	Seals	Bypass valve	Base	zereospark⁺		
H 10 bar		-	•	•	B NBR	E 3 bar	P01	Z01*	MP Filtri standard	
		•	-	-	V FPM	- 1.75 bar	Pxx	Zxx*	Customized	

* Not for Mxx filter media

CLOGGING INDICATORS

See page 716-717

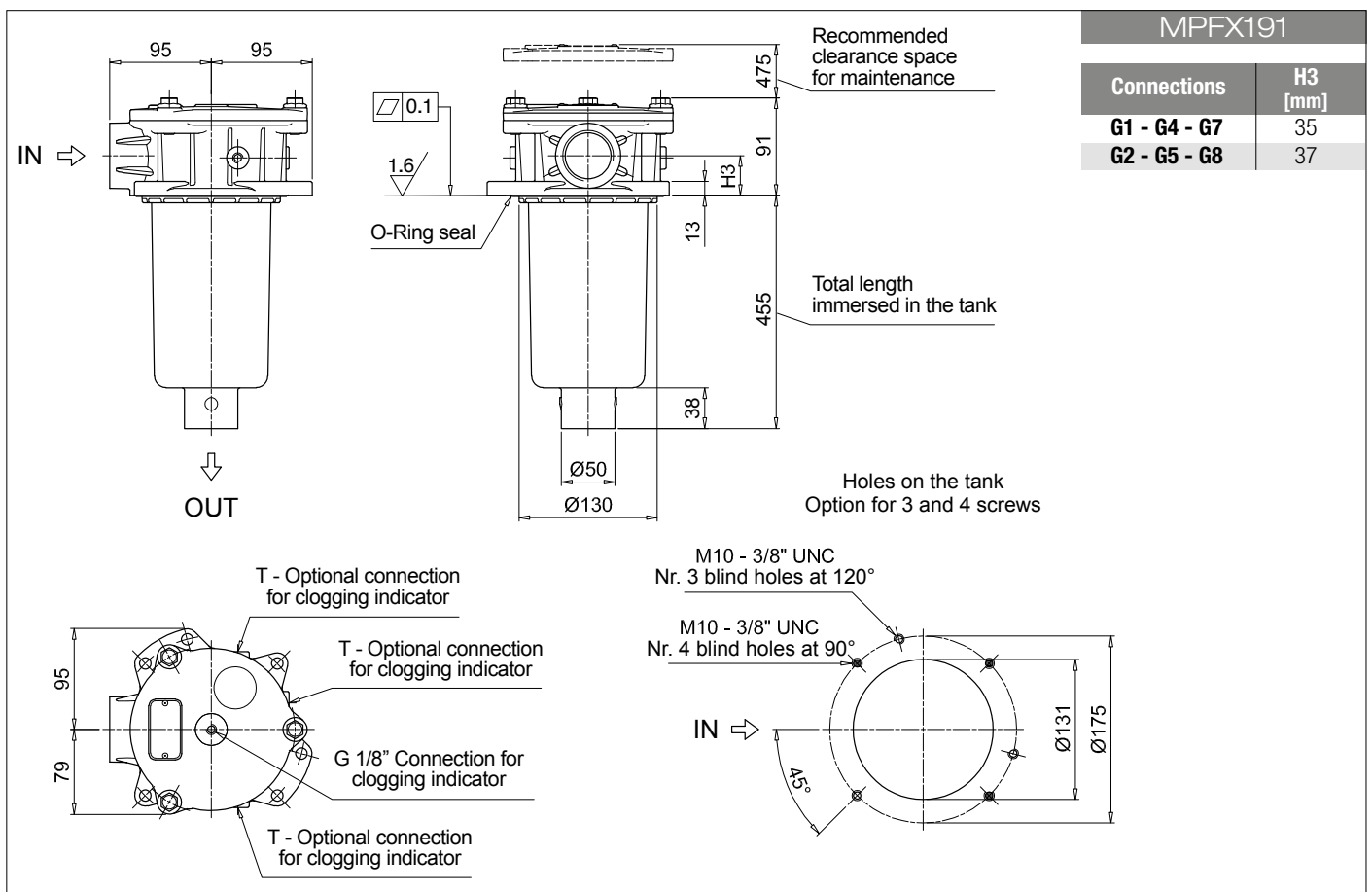
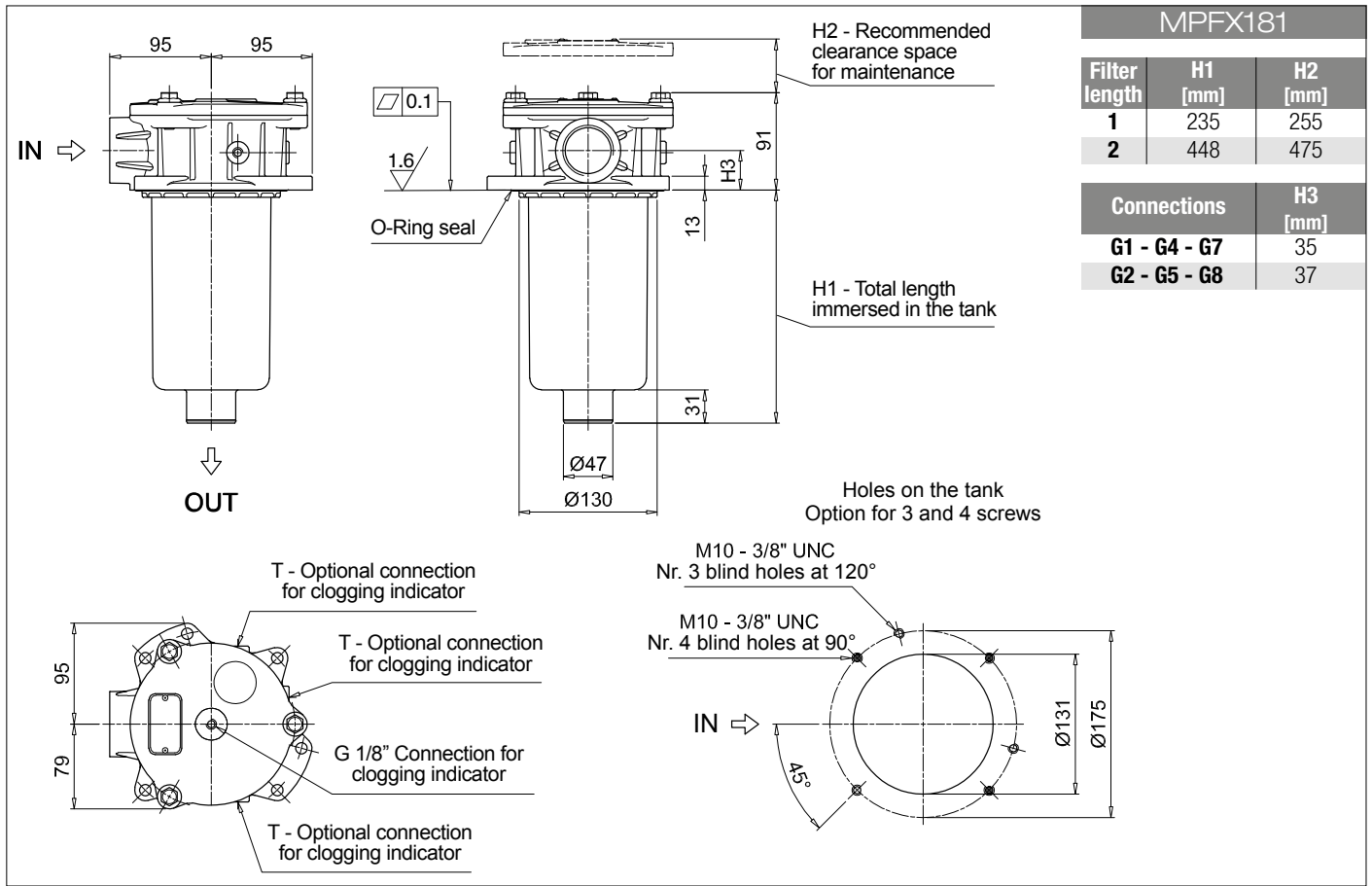
BVA Axial pressure gauge	
BVR Radial pressure gauge	
BVP Visual pressure indicator with automatic reset	
BVQ Visual pressure indicator with manual reset	

BEA Electrical pressure indicator	
BEM Electrical pressure indicator	
BLA Electrical / visual pressure indicator	

ADDITIONAL FEATURES

See page 268

TE Extension tube	
T5 Filler plug M30x1.5	



MPFX MPFX182 - MPFX192

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1:	MPFX182	1	A	G1	1	A25	H	E	P01
MPFX182 MPFX192 Filter featuring MYCLEAN Filter Element	Configuration example 2:	MPFX192	2	V	G4	2	P10	N	B	P01

Length	Size 182	Size 192
1	•	-
2	•	•

Seals and treatments	
A NBR	B NBR flat seal on head
V FPM	D FPM flat seal on head
W NBR head anodized	L NBR head anodized, flat seal on head
Z FPM head anodized	M FPM head anodized, flat seal on head

Main Connections	Aux size 1	Aux size 2
G1 G 1 1/4"	G 1/2"	G 3/4"
G4 1 1/4" NPT	1/2" NPT	3/4" NPT
G7 SAE 20 - 1 5/8" - 12 UN	SAE 8 - 3/16" - 16 UNF	SAE 12 - 1 1/16" - 12 UN

Aux connection - see previous table	
1 Aux size 1	2 Aux size 2

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Bypass valve	Executions	
	Base	zerospark ⁺
E 3 bar	P01	Z01 * MP Filtri standard
B 1.75 bar	Pxx	Zxx * Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size	Configuration example 1:	MFX180	1	A25	H	B	E	P01
MFX180 Filter Element with MYCLEAN feature	Configuration example 2:	MFX180	2	P10	N	V		P01

Element length	
1	2

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals	Bypass valve	Executions	
		Base	zerospark ⁺
B NBR	E 3 bar	P01	Z01 * MP Filtri standard
V FPM	- 1.75 bar	Pxx	Zxx * Customized

* Not for Mxx filter media

CLOGGING INDICATORS

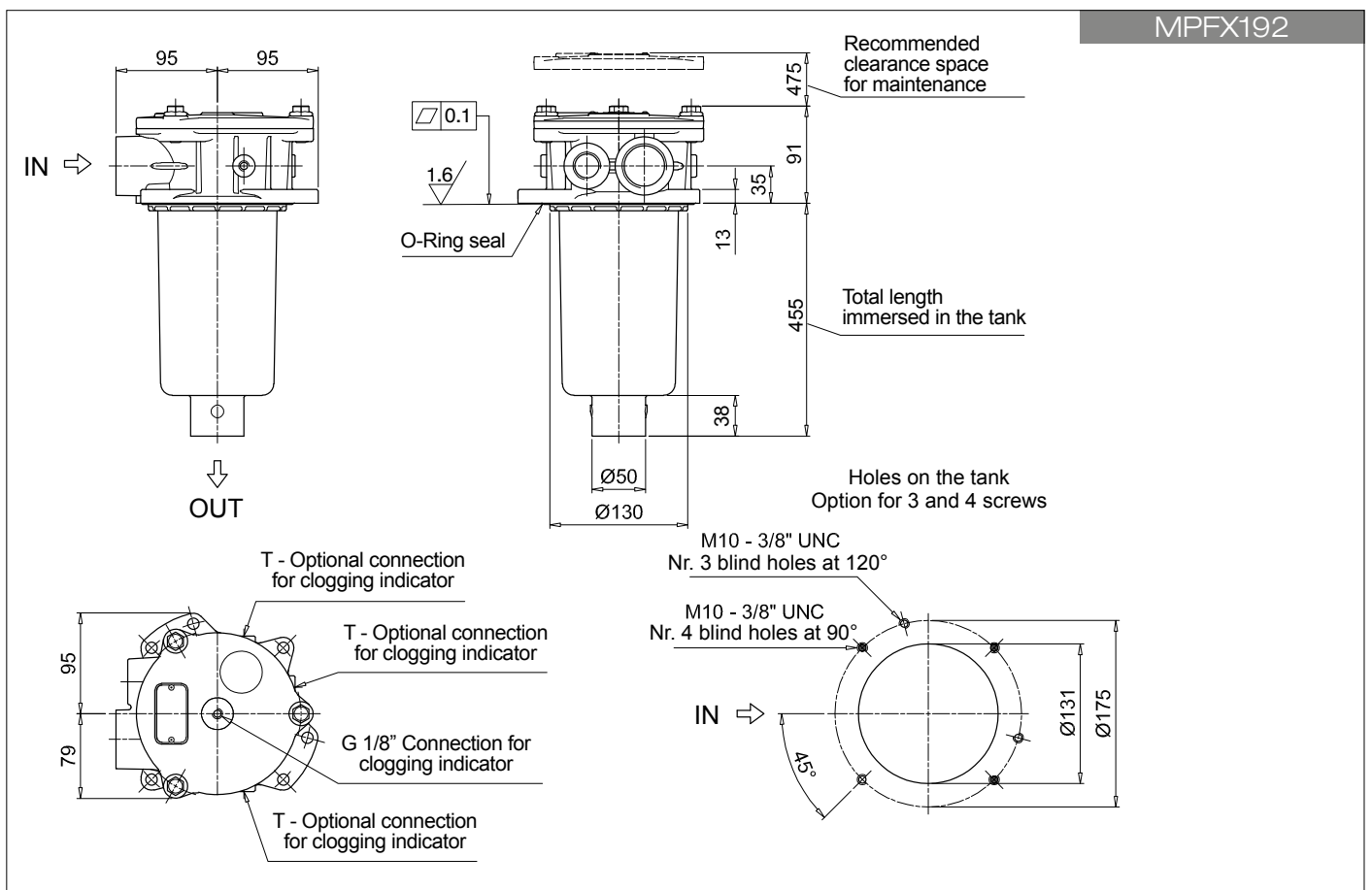
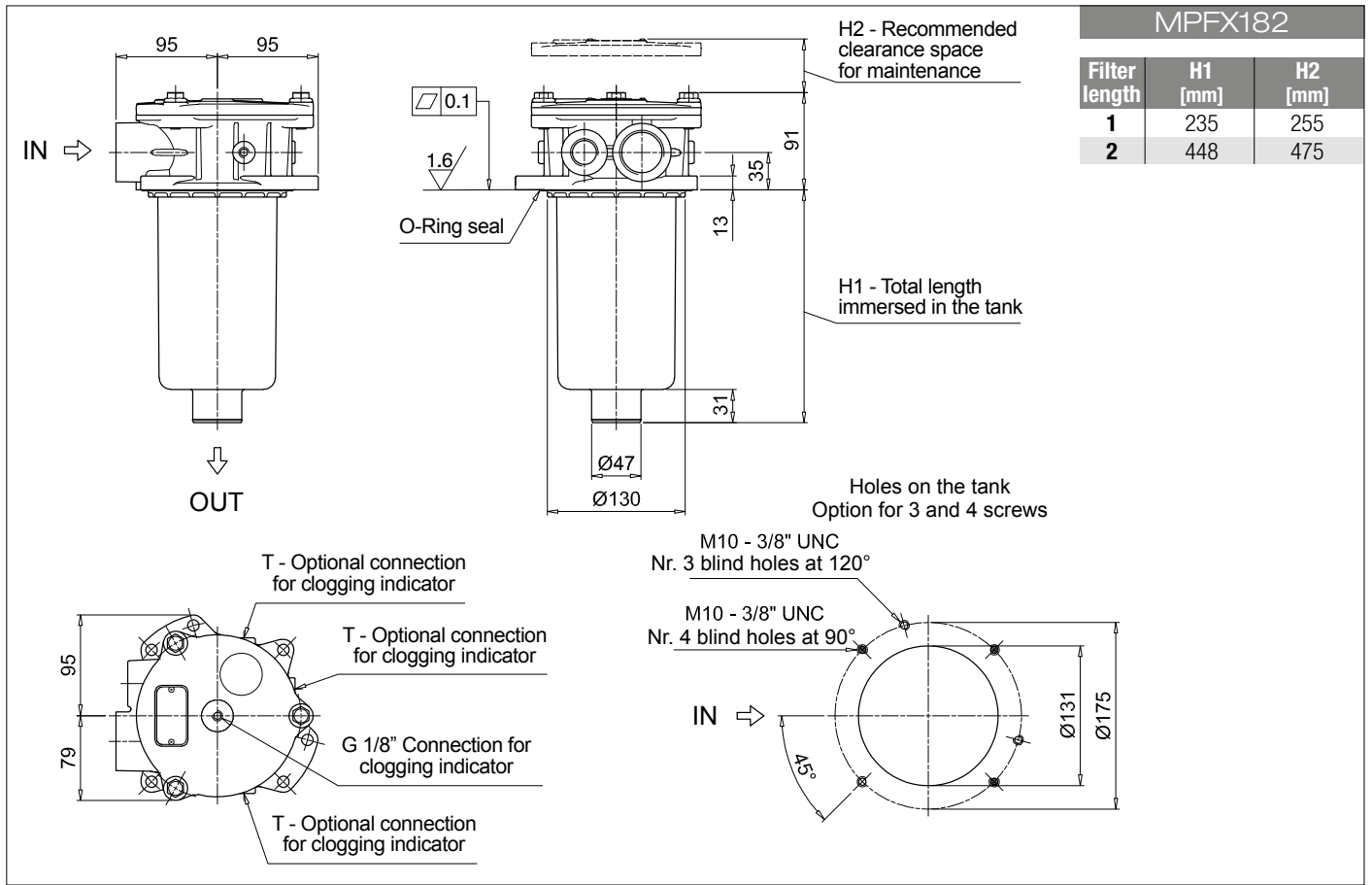
See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

ADDITIONAL FEATURES

See page 268

TE Extension tube
T5 Filler plug M30x1.5



MPFX MPFX184 - MPFX194

Designation & Ordering code

COMPLETE FILTER

Series and size			Configuration example 1: MPFX184 1 A G1 A25 H E P01								
MPFX184 MPFX194 Filter featuring MYCLEAN Filter Element			Configuration example 2: MPFX194 2 V F3 P10 N B P01								
Length		Size 184	Size 194								
1		•	-								
2		•	•								
Seals and treatments											
A	NBR	W	NBR head anodized								
V	FPM	Z	FPM head anodized								
Main Connections		Rear connections		Main Connections		Rear connections					
G1	G 1 1/4"	-		G13	G 1 1/2"	-					
G2	G 1 1/4"	G 1 1/4"		G14	G 1 1/2"	G 1 1/4"					
G4	1 1/4" NPT	-		G15	1 1/2" NPT	-					
G5	1 1/4" NPT	1 1/4" NPT		G16	1 1/2" NPT	1 1/4" NPT					
G7	SAE 20 - 1 5/8" - 12 UN	-		F1	1 1/2" SAE 3000 psi/M	-					
G8	SAE 20 - 1 5/8" - 12 UN	SAE 20 - 1 5/8" - 12 UN		F2	1 1/2" SAE 3000 psi/UNC	-					
G10	SAE 24 - 1 7/8" - 12 UN	-		F3	1 1/2" SAE 3000 psi/M	1 1/2" SAE 3000 psi/M					
G11	SAE 24 - 1 7/8" - 12 UN	SAE 20 - 1 5/8" - 12 UN		F4	1 1/2" SAE 3000 psi/UNC	1 1/2" SAE 3000 psi/UNC					
Filtration rating (filter media)											
A03	Inorganic microfiber	3 µm		M25	Wire mesh	25 µm					
A06	Inorganic microfiber	6 µm		M60	Wire mesh	60 µm					
A10	Inorganic microfiber	10 µm		M90	Wire mesh	90 µm					
A16	Inorganic microfiber	16 µm		P10	Resin impregnated paper	10 µm					
A25	Inorganic microfiber	25 µm		P25	Resin impregnated paper	25 µm					

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Bypass valve	Executions	
	Base	zerospark*
E 3 bar	P01	Z01* MP Filtri standard
B 1.75 bar	Pxx	Zxx* Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size			Configuration example 1: MFx180 1 A25 H B E P01								
MFx180 Filter Element with MYCLEAN feature			Configuration example 2: MFx180 2 P10 N V P01								
Element length		1	2								
Filtration rating (filter media)											
A03	Inorganic microfiber	3 µm		M25	Wire mesh	25 µm					
A06	Inorganic microfiber	6 µm		M60	Wire mesh	60 µm					
A10	Inorganic microfiber	10 µm		M90	Wire mesh	90 µm					
A16	Inorganic microfiber	16 µm		P10	Resin impregnated paper	10 µm					
A25	Inorganic microfiber	25 µm		P25	Resin impregnated paper	25 µm					

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals	Bypass valve	Executions	
		Base	zerospark*
B NBR	E 3 bar	P01	Z01* MP Filtri standard
V FPM	- 1.75 bar	Pxx	Zxx* Customized

* Not for Mxx filter media

CLOGGING INDICATORS

See page 716-717

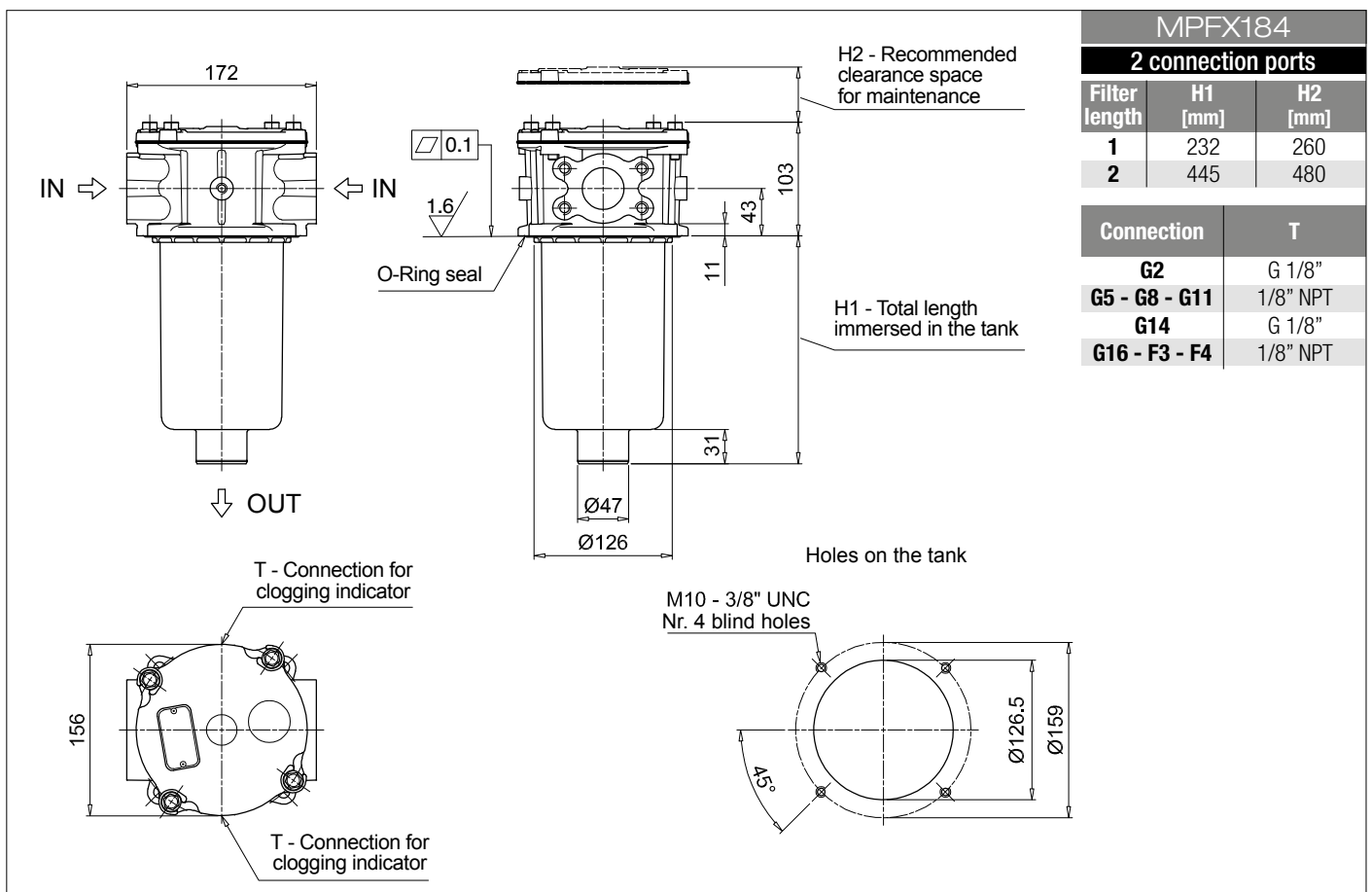
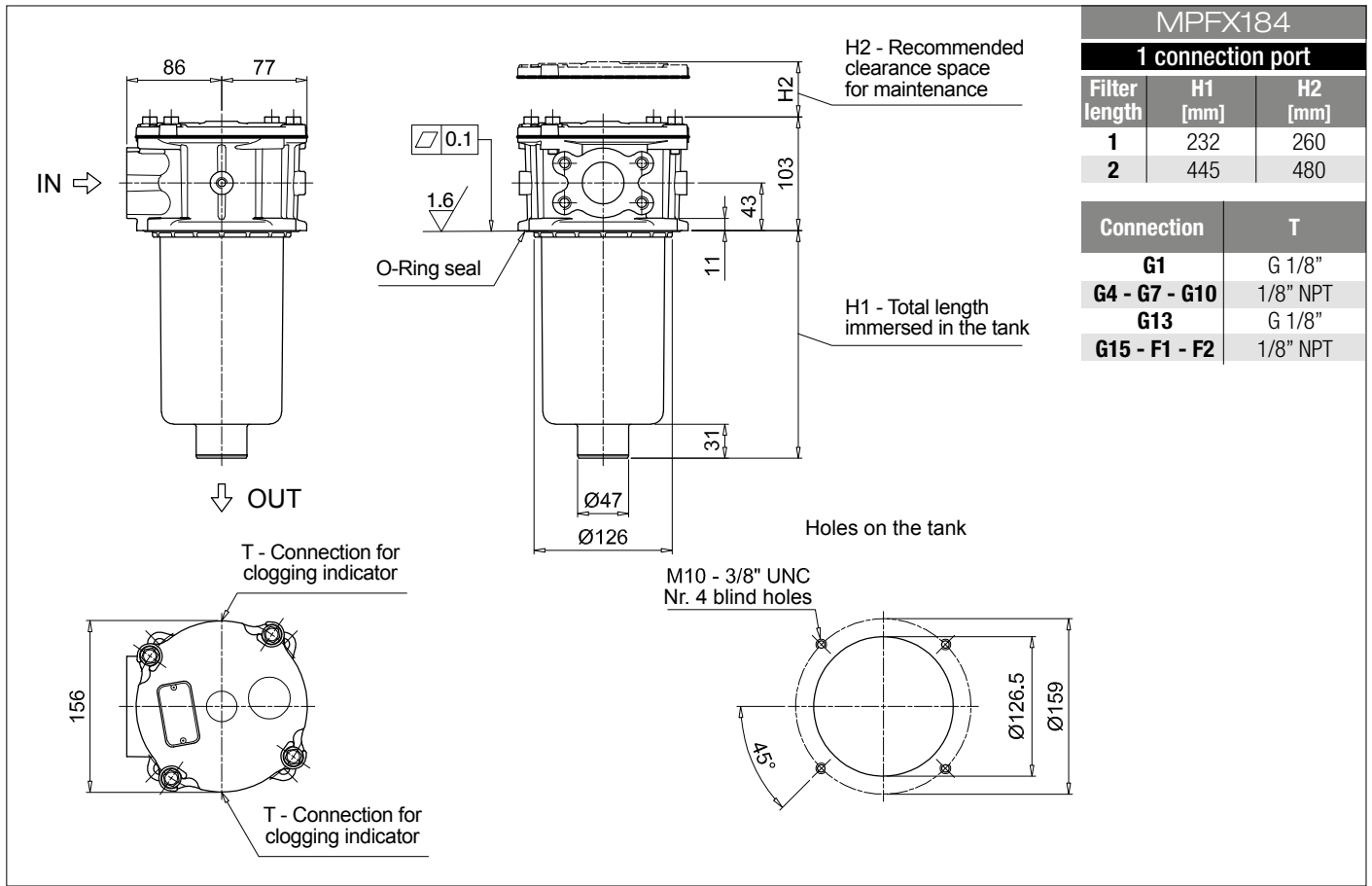
BVA	Axial pressure gauge
BVR	Radial pressure gauge
BVP	Visual pressure indicator with automatic reset
BVQ	Visual pressure indicator with manual reset

BEA	Electrical pressure indicator
BEM	Electrical pressure indicator
BLA	Electrical / visual pressure indicator

ADDITIONAL FEATURES

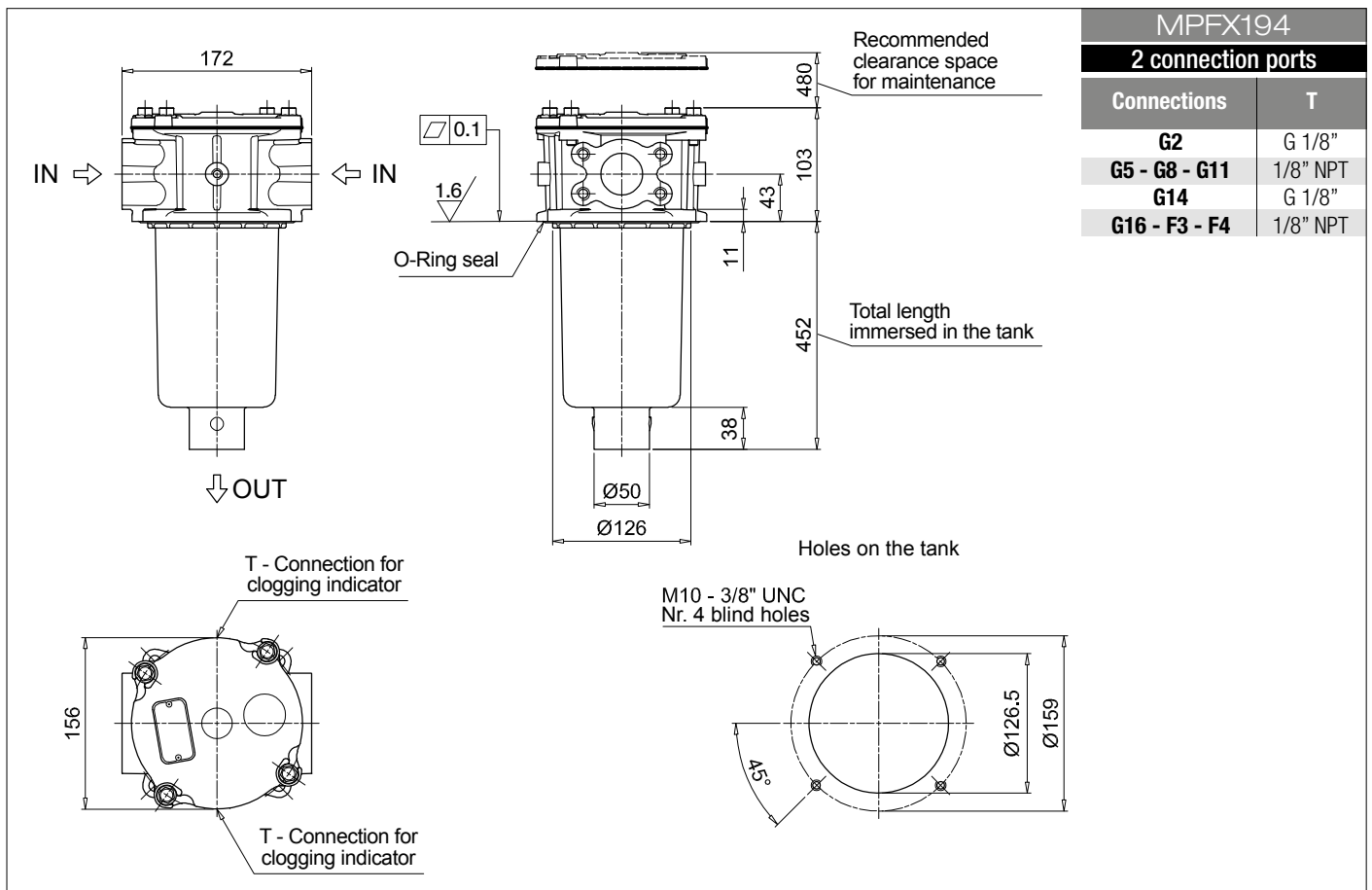
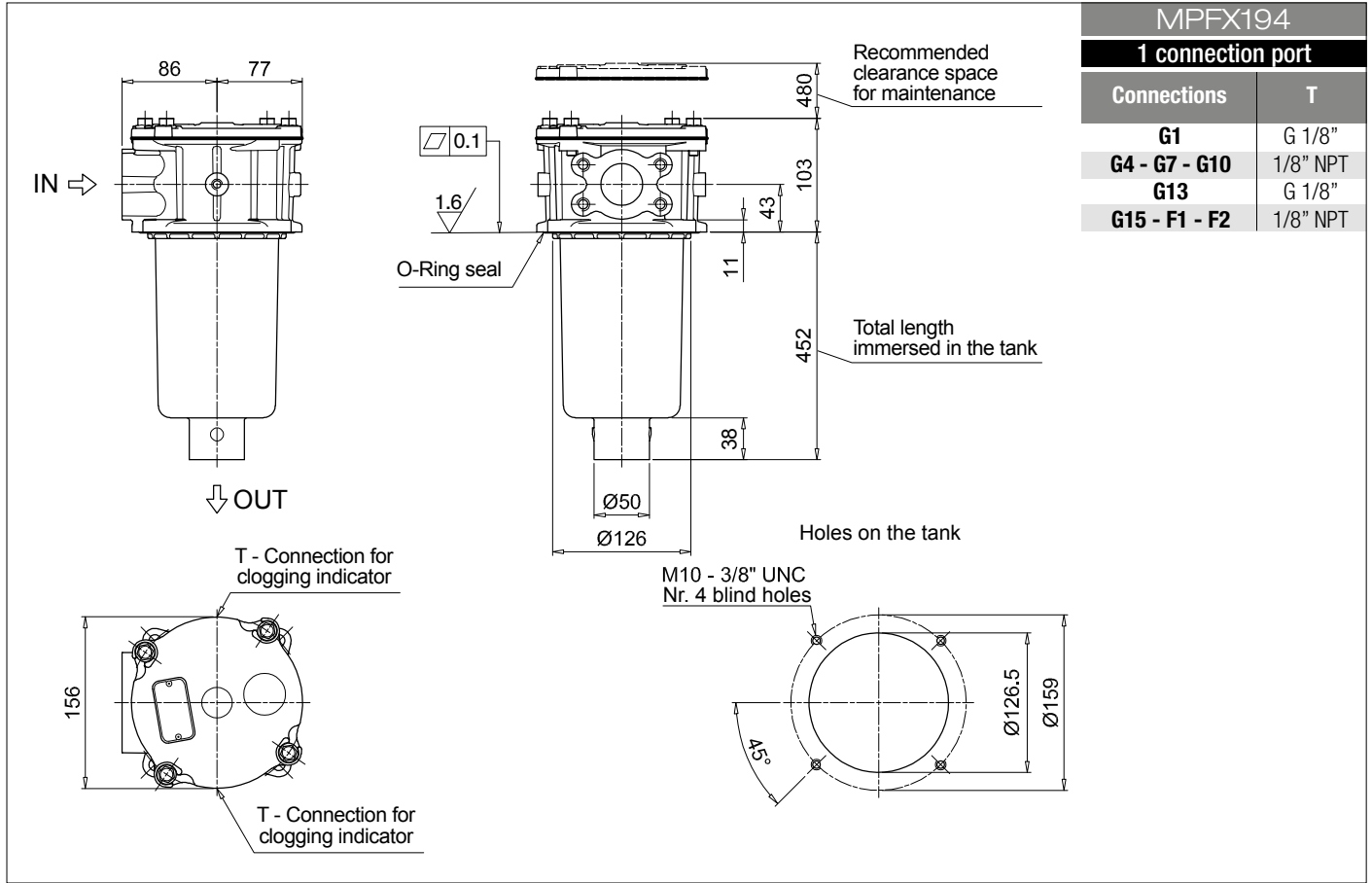
See page 268

TE	Extension tube
T5	Filler plug M30x1.5



MPFX MPFX184 - MPFX194

Dimensions



MPFX MPFX400

Designation & Ordering code

COMPLETE FILTER

Series and size MPFX400 Filter featuring MYCLEAN Filter Element	Configuration example 1: MPFX400 1 A G9 A25 H B P01
	Configuration example 2: MPFX400 2 V G4 P10 N E P01
Length 1 2 3	
Seals and treatments A NBR V FPM W NBR head anodized Z FPM head anodized	
Connections G1 G 1 1/4" G6 2" NPT G2 G 1 1/2" G7 SAE 20 - 1 5/8" - 12 UN G3 G 2" G8 SAE 24 - 1 7/8" - 12 UN G4 1 1/4" NPT G9 SAE 32 - 2 1/2" - 12 UN G5 1 1/2" NPT	
Filtration rating (filter media) A03 Inorganic microfiber 3 µm M25 Wire mesh 25 µm A06 Inorganic microfiber 6 µm M60 Wire mesh 60 µm A10 Inorganic microfiber 10 µm M90 Wire mesh 90 µm A16 Inorganic microfiber 16 µm P10 Resin impregnated paper 10 µm A25 Inorganic microfiber 25 µm P25 Resin impregnated paper 25 µm	

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Bypass valve	Executions	
	Base	zereospark*
E 3 bar	P01	Z01* MP Filtri standard
B 1.75 bar	Pxx	Zxx* Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size MFx400 Filter Element with MYCLEAN feature	Configuration example 1: MFx400 1 A25 H B P01
	Configuration example 2: MFx400 2 P10 N V E P01
Element length 1 2 3	
Filtration rating (filter media) A03 Inorganic microfiber 3 µm M25 Wire mesh 25 µm A06 Inorganic microfiber 6 µm M60 Wire mesh 60 µm A10 Inorganic microfiber 10 µm M90 Wire mesh 90 µm A16 Inorganic microfiber 16 µm P10 Resin impregnated paper 10 µm A25 Inorganic microfiber 25 µm P25 Resin impregnated paper 25 µm	

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals	Bypass valve	Executions	
		Base	zereospark*
B NBR	E 3 bar	P01	Z01 MP Filtri standard
V FPM	- 1.75 bar	Pxx	Zxx* Customized

* Not for Mxx filter media

CLOGGING INDICATORS

See page 716-717

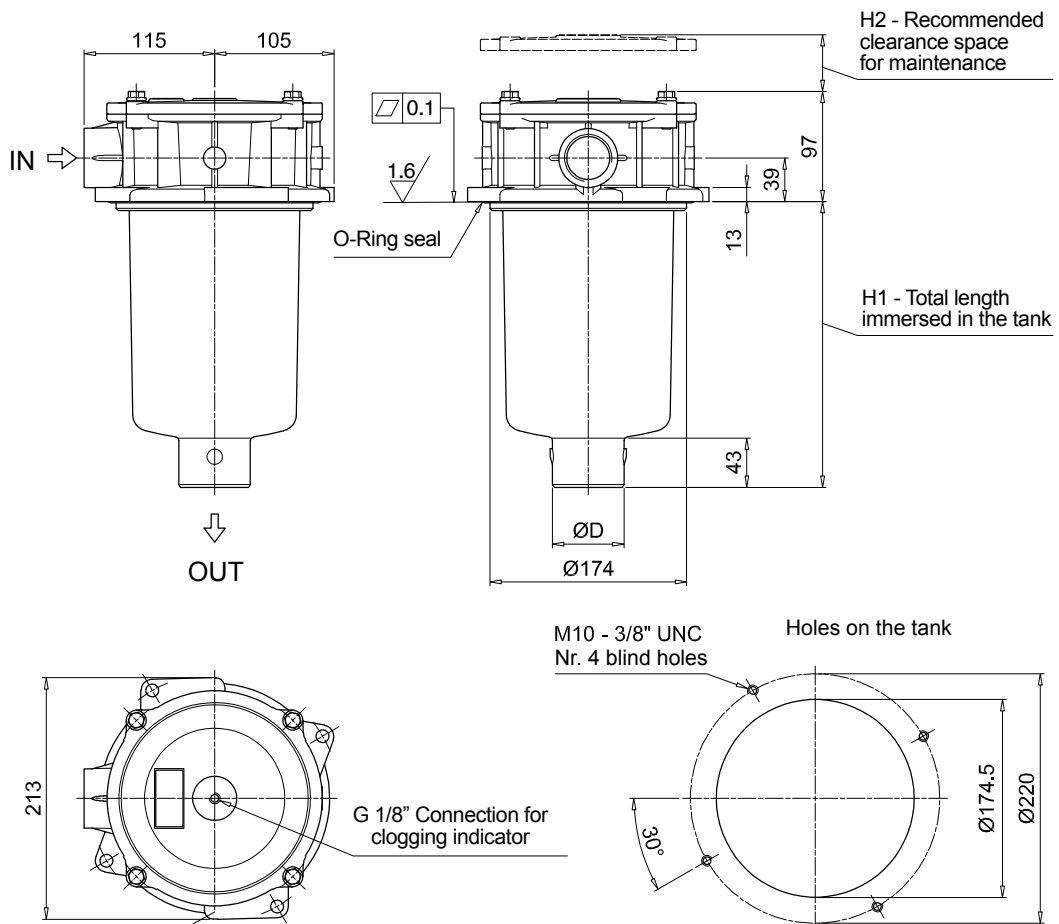
BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

ADDITIONAL FEATURES

See page 268

T5 Filler plug M30x1.5

MPFX400			
Filter length	H1 [mm]	H2 [mm]	D [mm]
1	187	210	50
2	252	270	63
3	300	315	63



MPFX MPFX410

Designation & Ordering code

COMPLETE FILTER

Series and size
MPFX410 Filter featuring **MY CLEAN** Filter Element

Configuration example 1: **MPFX410** | 1 | V | G4 | 1 | P10 | N | E | P01
 Configuration example 2: **MPFX410** | 1 | A | G1 | 1 | A25 | H | B | P01

Length
 1 | 2 | 3

Seals and treatments
A NBR
V FPM
W NBR head anodized
Z FPM head anodized

Main Connections	Aux size 1
G1 G 1 1/4"	G 1"
G4 1 1/4" NPT	1" NPT
G7 SAE 20 - 1 5/8" - 12 UN	SAE 16 - 1 5/16" - 12 UN

Aux connection - see previous table
 1 Aux size 1

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Bypass valve	Executions	
	Base	zereospark*
E 3 bar	P01	Z01* MP Filtri standard
B 1.75 bar	Pxx	Zxx* Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size
MFx400 Filter Element with **MY CLEAN** feature

Configuration example 1: **MFx400** | 1 | P10 | N | V | E | P01
 Configuration example 2: **MFx400** | 1 | A25 | H | B | P01

Element length
 1 | 2 | 3

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals	Bypass valve	Executions	
		Base	zereospark*
B NBR	E 3 bar	P01	Z01* MP Filtri standard
V FPM	- 1.75 bar	Pxx	Zxx* Customized

* Not for Mxx filter media

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

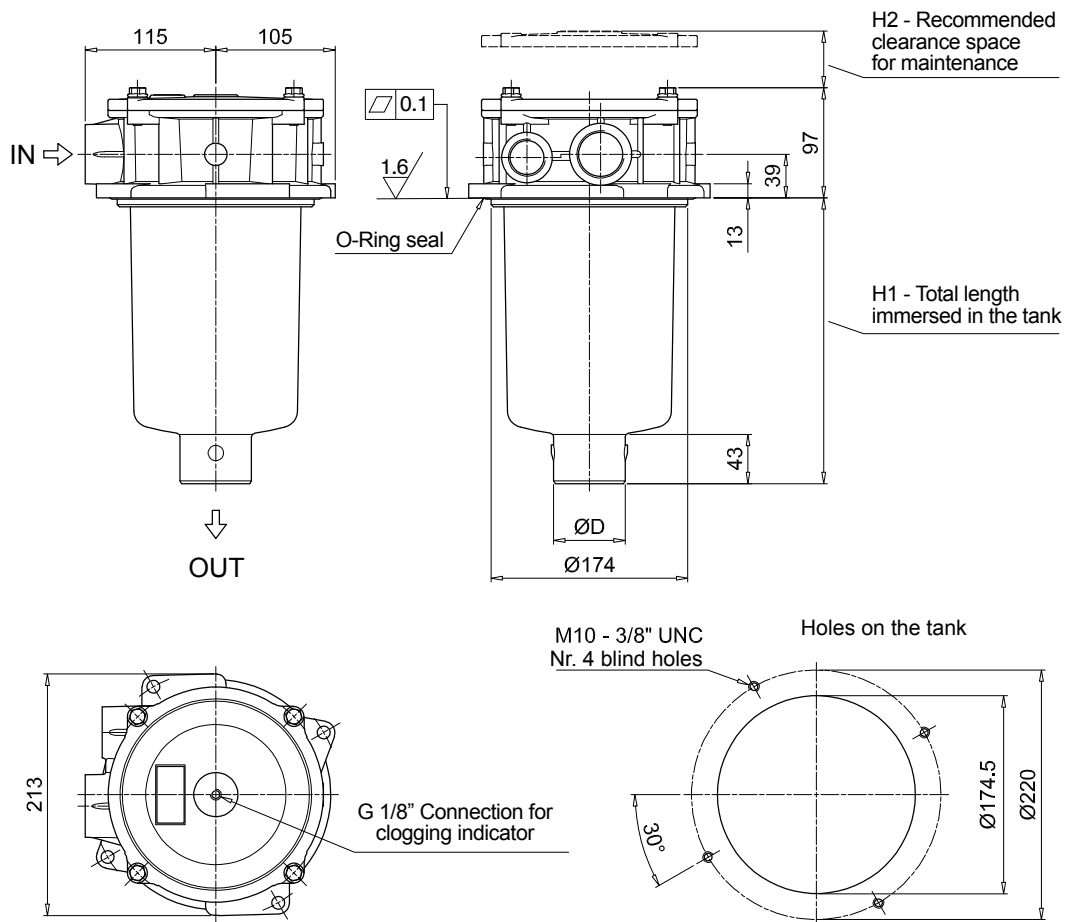
BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

ADDITIONAL FEATURES

See page 268

T5 Filler plug M30x1.5

MPFX410			
Filter length	H1 [mm]	H2 [mm]	D [mm]
1	187	210	50
2	252	270	63
3	300	315	63



MPFX MPFX450 - MPFX451 - MPFX750

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1: MPFX450 1 A G1 A25 H B P01	
MPFX450 MPFX451 MPFX750		Configuration example 2: MPFX750 1 V F2 P10 N E P01	
Filter featuring MYCLEAN Filter Element			
Length	MPFX 450 MPFX 451 MPFX 750		
1	• • •		
2	• • -		
3	• • -		
Seals and treatments			
A NBR	W NBR head anodized		
V FPM	Z FPM head anodized		
Connections		Aux (only size 451)	
G1 G 2"	G 3/4"		
G4 2" NPT	3/4" NPT		
G7 SAE 32 - 2 1/2" - 12 UN	SAE 12 - 1 1/16" - 12 UN		
F1 2" SAE 3000 psi/M	G 3/4"		
F2 2" SAE 3000 psi/UNC	3/4" NPT		
Filtration rating (filter media)			
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm		
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm		
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm		
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm		
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm		
Element Δp		Filter media	
N 10 bar	Axx Mxx Pxx	-	
H 10 bar	Axx Mxx Pxx	• - -	
		Bypass valve	
		E 3 bar	
		B 1.75 bar	
		Executions	
		Base zereospark*	
		P01 Z01* MP Filtri standard	
		Pxx Zxx* Customized	

* Not for Mxx filter media

FILTER ELEMENT

Element series and size		Configuration example 1: MFx400 1 A25 H B P01	
MFx400 MFx750		Configuration example 2: MFx750 1 P10 N V E P01	
Filter Element with MYCLEAN feature			
Element length	MPFX 450 MPFX 451 MPFX 750		
1	• • •		
2	• • -		
3	• • -		
Filtration rating (filter media)			
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm		
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm		
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm		
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm		
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm		
Element Δp		Filter media	
N 10 bar	Axx Mxx Pxx	-	
H 10 bar	Axx Mxx Pxx	• - -	
		Seals	
		B NBR	
		V FPM	
		Bypass valve	
		E 3 bar	
		- 1.75 bar	
		Executions	
		Base zereospark*	
		P01 Z01* MP Filtri standard	
		Pxx Zxx* Customized	

* Not for Mxx filter media

CLOGGING INDICATORS

See page 716-717

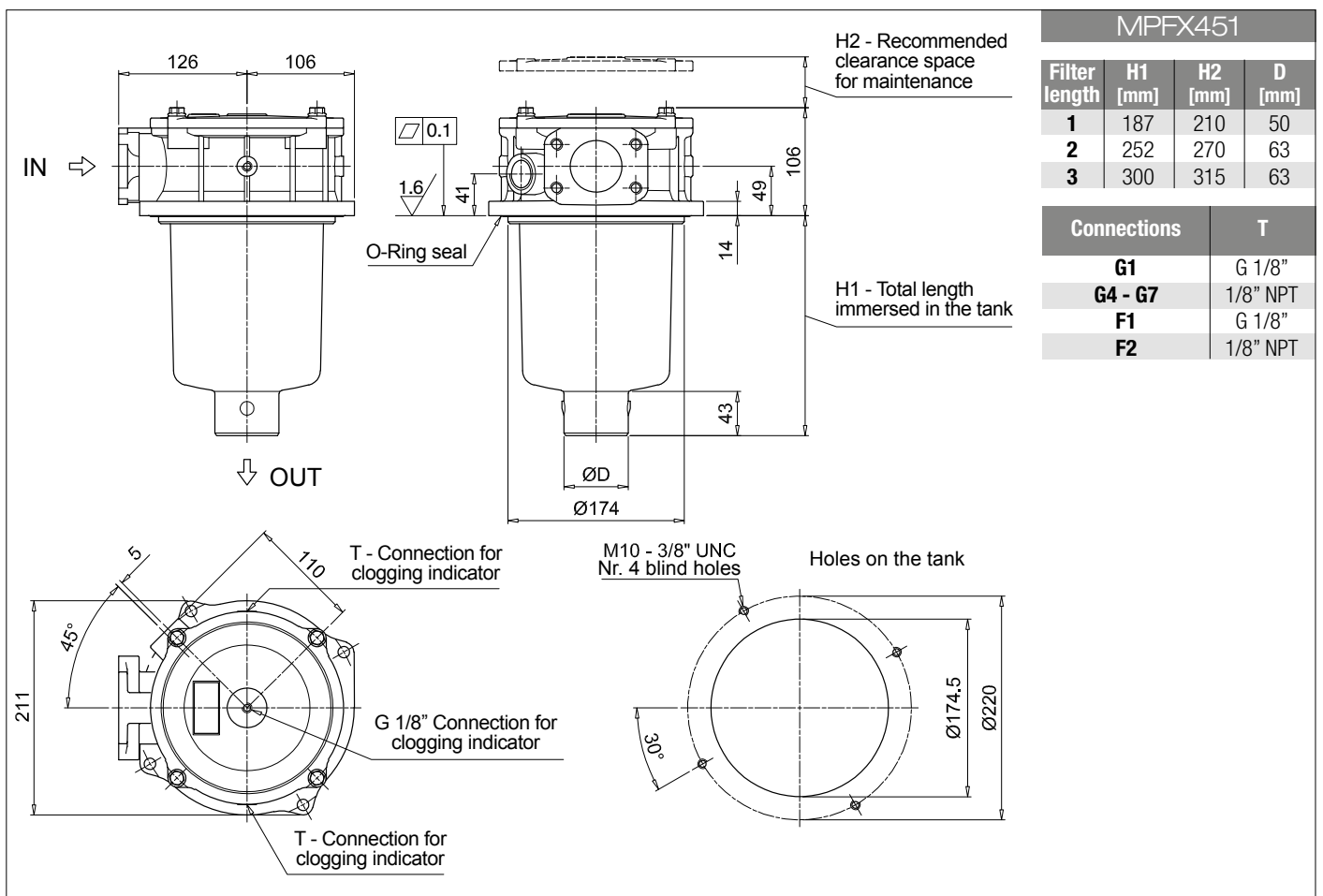
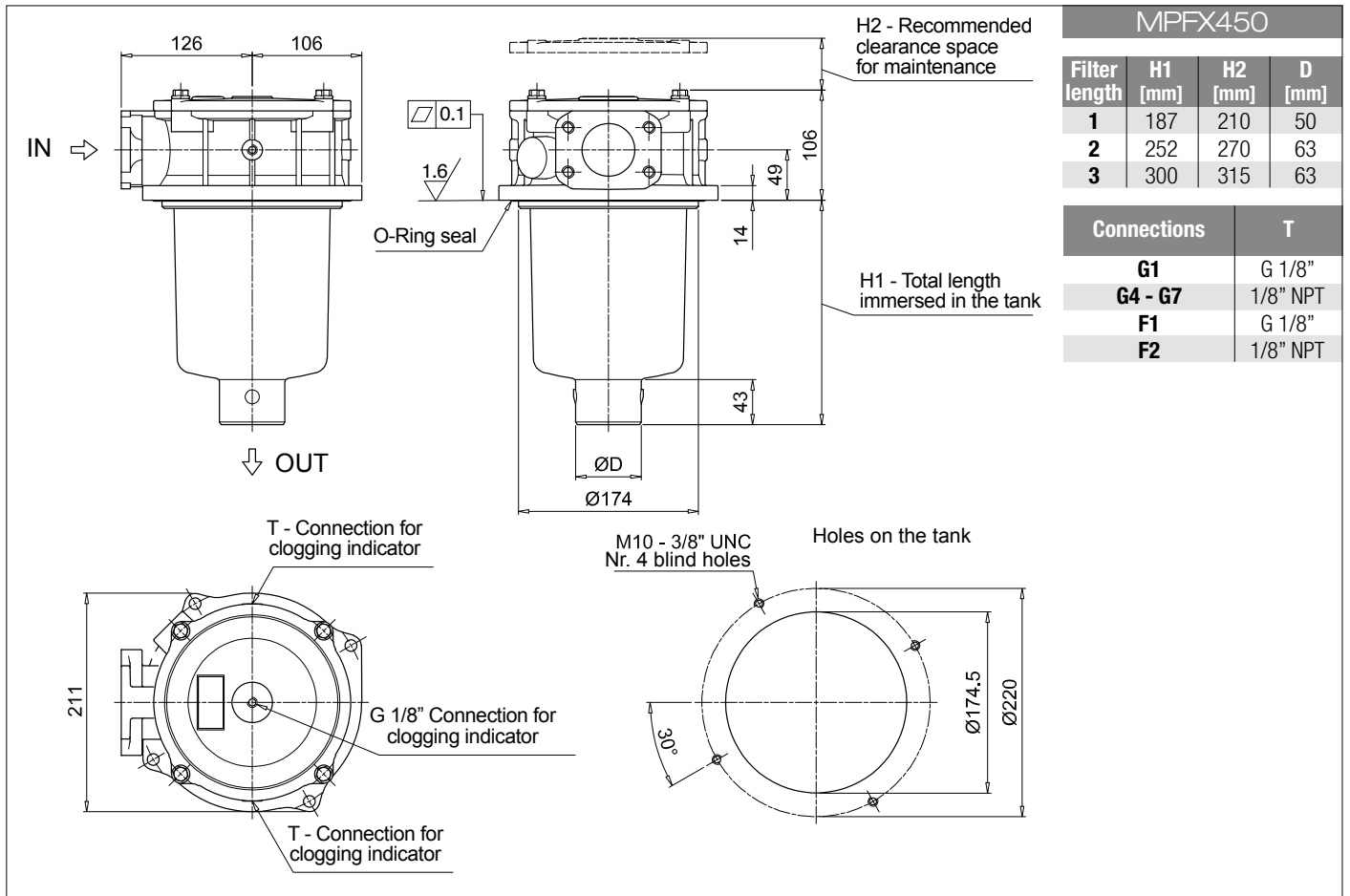
BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

ADDITIONAL FEATURES

See page 268

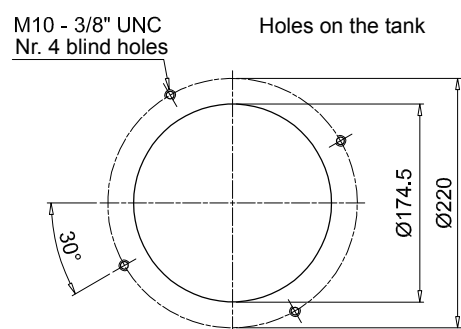
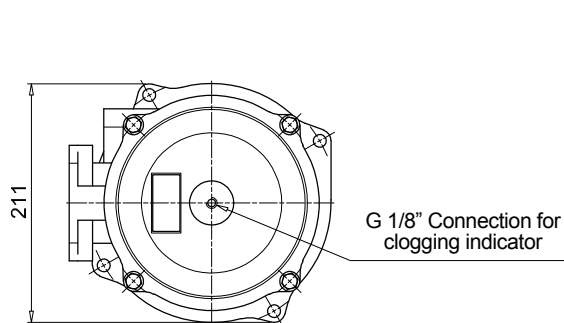
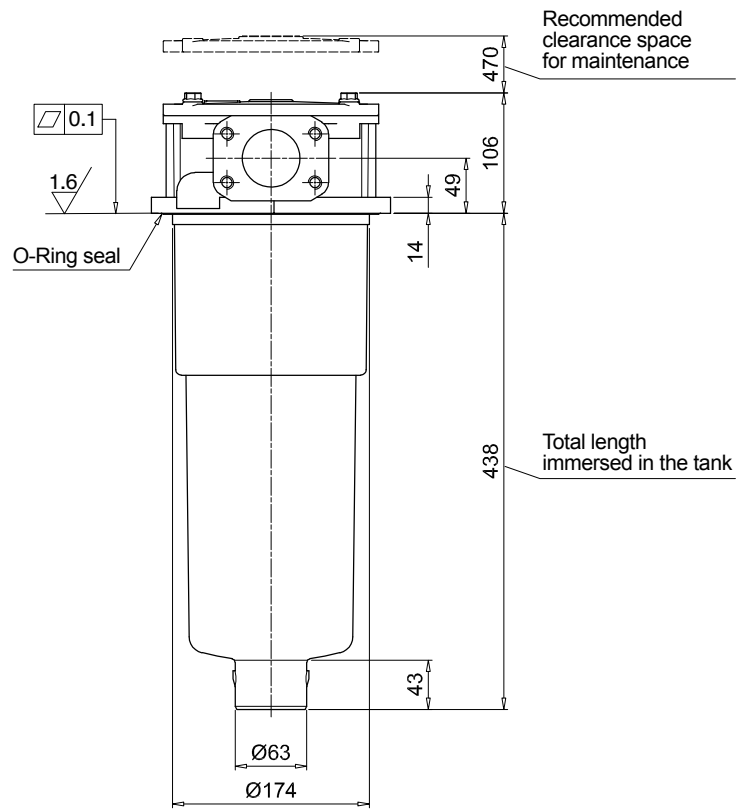
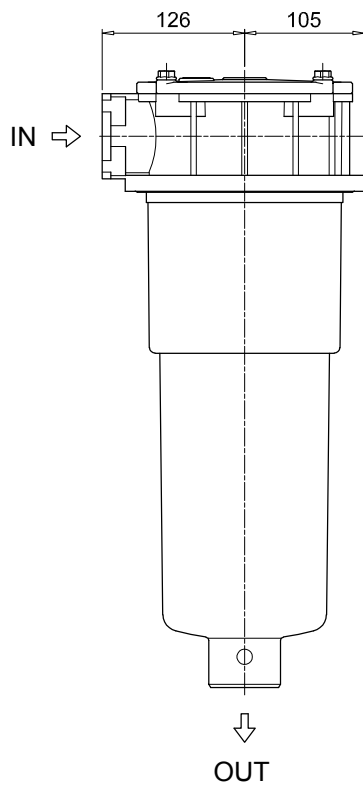
T5 Filler plug M30x1.5



MPFX MPFX450 - MPFX451 - MPFX750

Dimensions

MPFX750



MPFX 100

MPFX 181

O-RING SEAL

	Q.ty: 1 pc.	Q.ty: 1 pc.	
Item:	2	3 (3a ÷ 3d)	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPFX 030	See order table	02050675	02050676
MPFX 100-110		02050677	02050678
MPFX 181-182		02050681	02050682
MPFX 184		02050685	02050686
MPFX 191-192		02050683	02050684
MPFX 194		02050687	02050688
MPFX 400-410		02050695	02050696
MPFX 450-451		02050697	02050698
MPFX 750		02050699	02050700

MPFX 104

MPFX 181

FLAT SEAL

	Q.ty: 1 pc.	Q.ty: 1 pc.	
Item:	2	3 (3a ÷ 3d)	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPFX 104	See order table	02050679	02050680
MPFX 181-182		02050691	02050692
MPFX 191-192		02050691	02050692



THE X CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

MPLX series

with MY CLEAN MLX Filter Element



- **Protects the machine from improper use of non-original products.**
- **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.

The products identified as MPLX are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1

MPLX series

Maximum working pressure up to 1 MPa (10 bar) - Flow rate up to 1800 l/min



Description

Technical data

Return filter

Maximum working pressure up to 1 MPa (10 bar)
Flow rate up to 1800 l/min

MPLX is a range of return filters for protection of the reservoir against the system contamination.

Completely interchangeable with Pall 8420 & 8520, they are directly fixed to the reservoir, in immersed or semi-immersed position.

The use of the diffuser is recommended, to place the filter output always immersed into the fluid to avoid aeration or foam generation into the reservoir.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Flanged connections up to 3", for a maximum flow rate of 1800 l/min
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- 6 fixing holes for installation, to suit a variety of reservoir surfaces
- Diffuser, to reduce the risk of aeration, foaming and noise
- Filler plug, to fill cleaned fluid into the tank without an additional connection
- Visual, electrical and electronic differential clogging indicators
- MYclean interface connection for the filter element, to protect the product against non-original spare parts

Common applications:

- Heavy duty industrial equipment
- Heavy duty mobile equipment

Filter housing materials

- Head: Anodized aluminium
- Cover: Anodized aluminium
- Bowl: Phosphatized steel
- Bypass valve: Steel

Bypass valve

- Opening pressure 450 kPa (4.5 bar) \pm 10%

Δp element type

- Microfiber filter elements: 10 bar
- Fluid flow through the filter element from OUT to IN.

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MPLX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]		Volumes [dm ³]	
	Length	2	Length	2
MPLX 250		8.95		2.90
MPLX 660		20.20		11.00

Flow rates [l/min]

Filter series	Length	Filter element design - N Series						
		A03	A06	A10	A16	A25	M25 M60 M90	P10 P25
MPLX 250	2	157	155	281	312	325	583	392
MPLX 660	2	376	384	820	925	1018	1732	1332

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

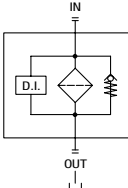
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

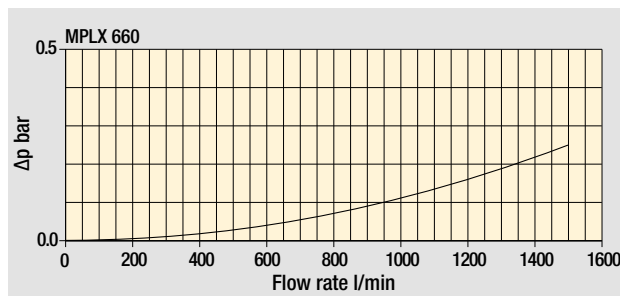
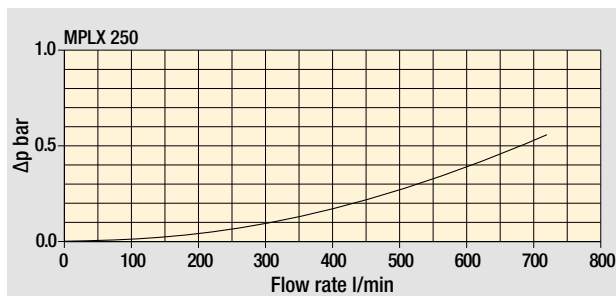
Hydraulic symbols

Filter series	Style 1 connection + Diff. indic.
MPLX 250	•
MPLX 660	•

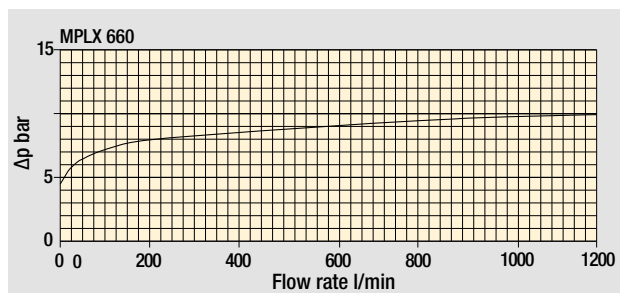
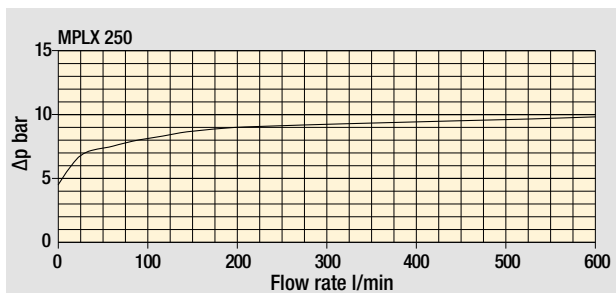


Pressure drop

Filter housings
 Δp pressure drop



Bypass valve
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.


MPLX MPLX250 - MPLX660

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1: MPLX250 2 D S V A 6 M25 P01																			
MPLX250 MPLX660 Filter featuring  Filter Element	Configuration example 2: MPLX660 2 D D A B 6 A10 P01																			
Length	2																			
By-pass valve	D 4.5 bar																			
Diffuser	S Without diffuser D With standard diffuser																			
Seals and treatments	A NBR V FPM																			
Connections	MPLX250					MPLX660														
A	2" SAE 3000 psi/M					3" SAE 3000 psi/M														
B	2" SAE 3000 psi/UNC					3" SAE 3000 psi/UNC														
Connection for differential pressure indicator	6 With plugged connection																			
Filtration rating (filter media)	<table border="0"> <tr> <td>A03 Inorganic microfiber 3 µm</td> <td>M25 Wire mesh 25 µm</td> </tr> <tr> <td>A06 Inorganic microfiber 6 µm</td> <td>M60 Wire mesh 60 µm</td> </tr> <tr> <td>A10 Inorganic microfiber 10 µm</td> <td>M90 Wire mesh 90 µm</td> </tr> <tr> <td>A16 Inorganic microfiber 16 µm</td> <td>P10 Resin impregnated paper 10 µm</td> </tr> <tr> <td>A25 Inorganic microfiber 25 µm</td> <td>P25 Resin impregnated paper 25 µm</td> </tr> </table>										A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm	A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm	A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm	A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm	A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm
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A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm																			
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm																			
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm																			
									Execution											
									P01 MP Filtri standard											
									Pxx Customized											

FILTER ELEMENT

Element series and size	Configuration example 1: MLX250 2 M25 V P01																			
MLX250 MLX660 Filter Element with  feature	Configuration example 2: MLX660 2 A10 A P01																			
Element length	2																			
Filtration rating (filter media)	<table border="0"> <tr> <td>A03 Inorganic microfiber 3 µm</td> <td>M25 Wire mesh 25 µm</td> </tr> <tr> <td>A06 Inorganic microfiber 6 µm</td> <td>M60 Wire mesh 60 µm</td> </tr> <tr> <td>A10 Inorganic microfiber 10 µm</td> <td>M90 Wire mesh 90 µm</td> </tr> <tr> <td>A16 Inorganic microfiber 16 µm</td> <td>P10 Resin impregnated paper 10 µm</td> </tr> <tr> <td>A25 Inorganic microfiber 25 µm</td> <td>P25 Resin impregnated paper 25 µm</td> </tr> </table>										A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm	A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm	A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm	A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm	A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm																			
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A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm																			
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm																			
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm																			
Seals and treatments									Execution											
A NBR									P01 MP Filtri standard											
V FPM									Pxx Customized											

CLOGGING INDICATORS

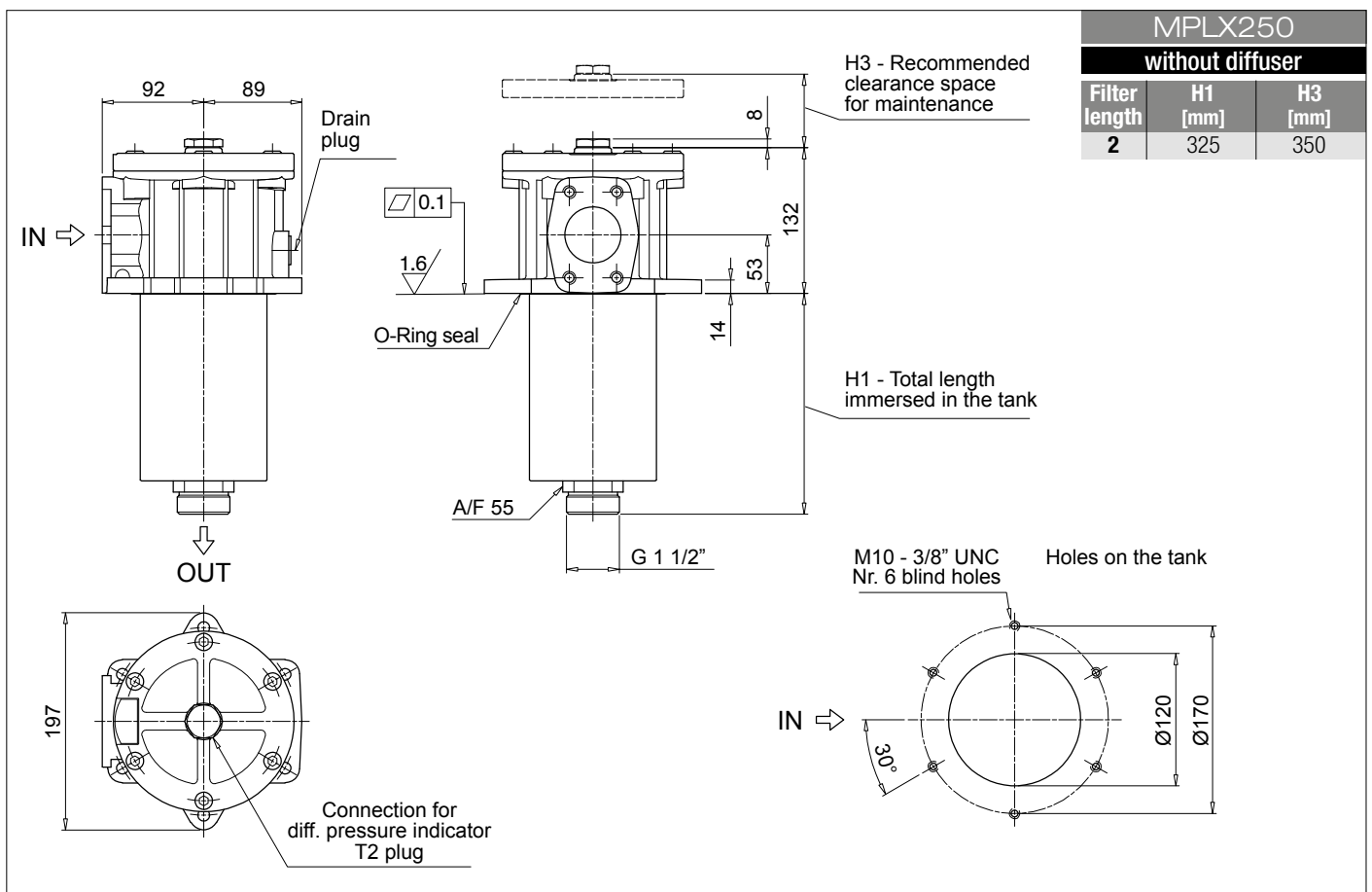
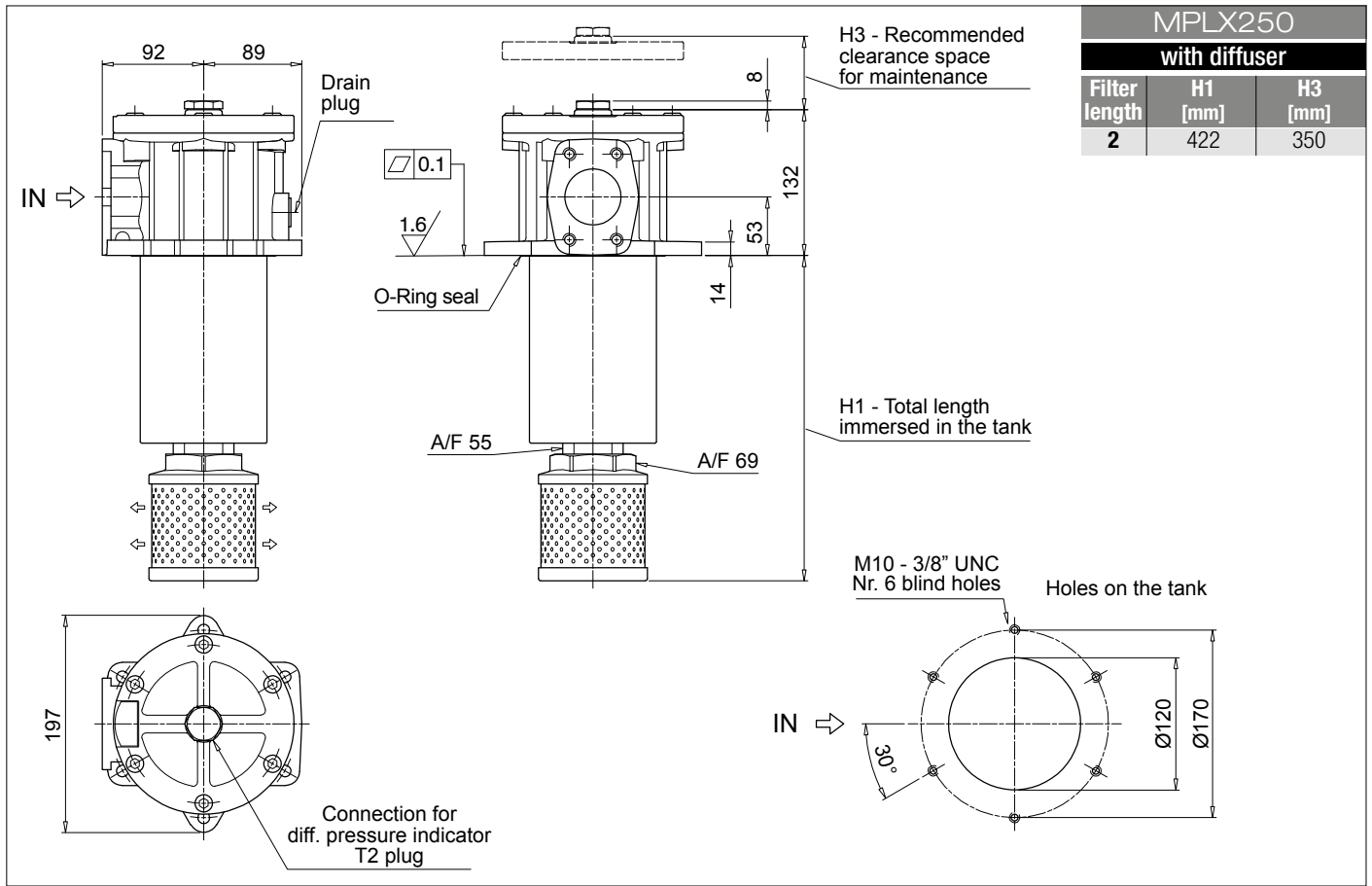
See page 716-717

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

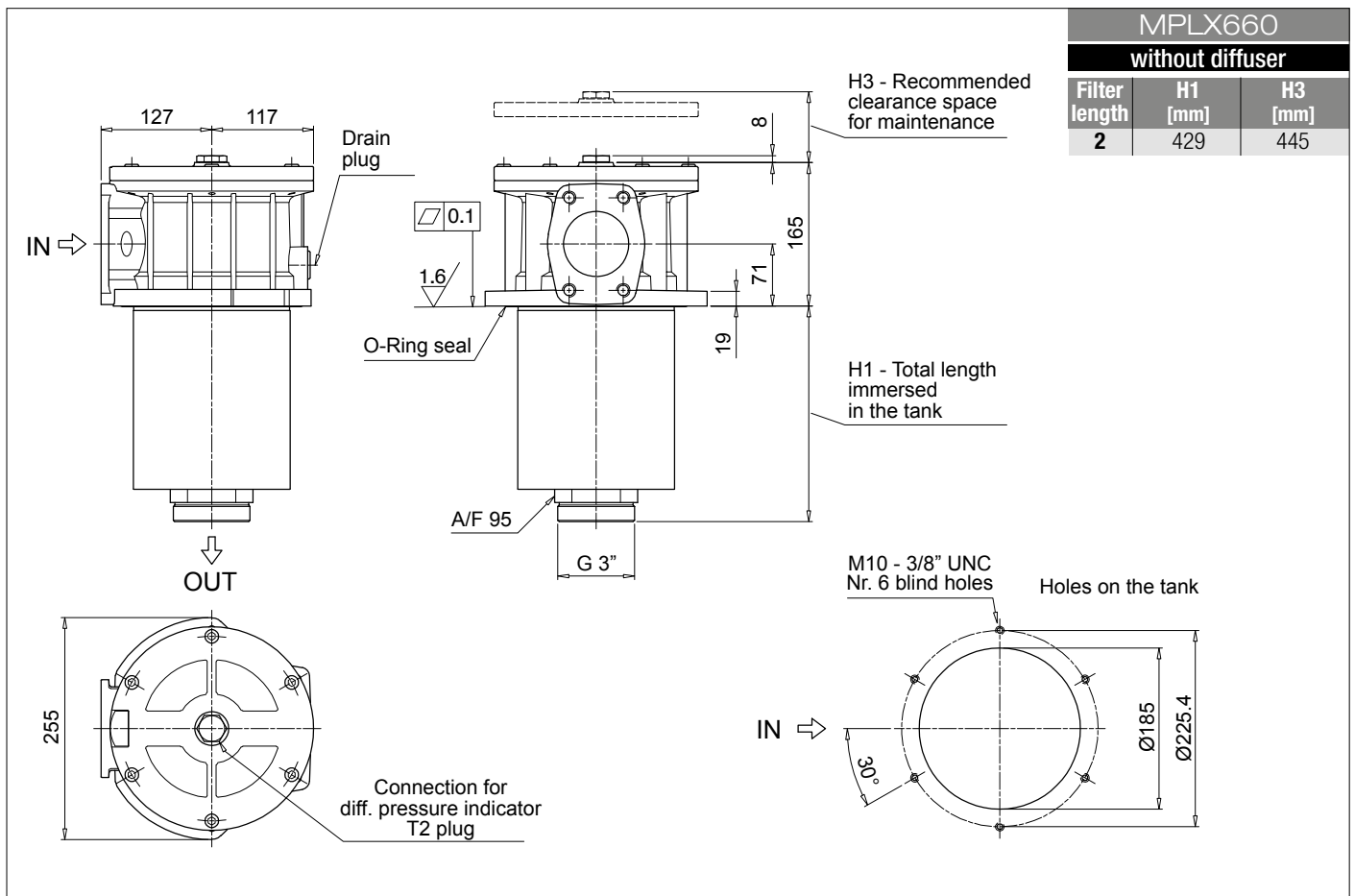
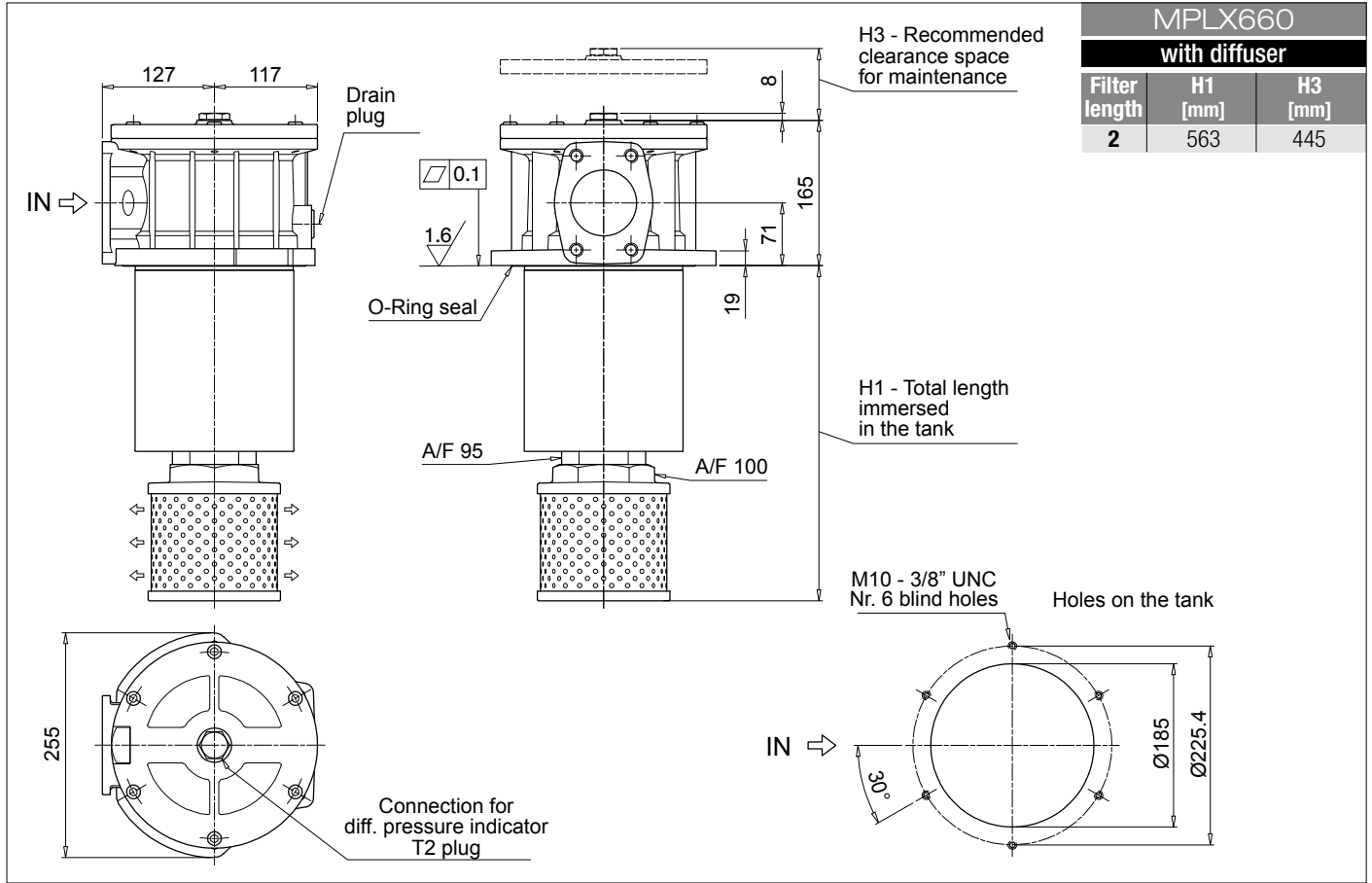
See page 743

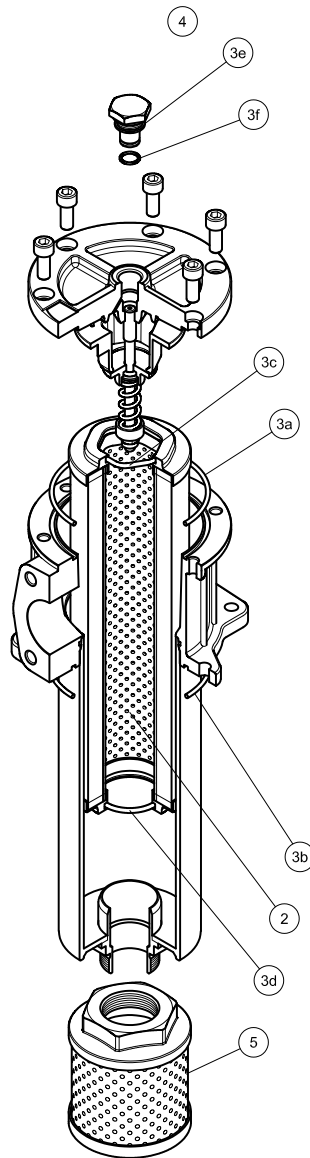
T2 Plug



MPLX MPLX660

Dimensions





Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.
Filter series	Filter element	Seal Kit code number		Indicator connection plug		Diffuser
		NBR	FPM	NBR	FPM	
MPLX 250	See order table	02050745	02050746	T2H	T2V	STD 100 C 115 P01
MPLX 660	See order table	02050747	02050748			STD 150 E 155 P01



THE **X** CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

MPTX series

with **MYCLEAN** MFX Filter Element



- **Protects the machine from improper use of non-original products.**
- **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.

The products identified as MPTX are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1



TOGETHER WITH **MYCLEAN**, AS OPTION, MPTX SERIES CAN BE PROVIDED WITH

zerospark[®]
THE ANTI-STATIC FILTERS

THE **Z** CONCEPT FOR OUR FILTERS



Zerospark[®] is a specialist solution designed to solve the problem of electrostatic discharge inside hydraulic filters. Caused by the electrical charge build-up due to the passage of oil through the filters, this can result in damage to filter elements, oils and circuit components. It can even cause fire hazards in environments where flammable materials are present.

MPTX series

Maximum working pressure up to 800 kPa (8 bar) - Flow rate up to 300 l/min



Description

Technical data

Return filter

Maximum working pressure up to 800 kPa (8 bar)

Flow rate up to 300 l/min

MPTX is a range of return filters with integrated breather filter, for protection of the reservoir against the system contamination.

They are directly fixed to the reservoir, in immersed or semi-immersed position.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 300 l/min
- Multiple connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve integrated into the filter element, to relieve excessive pressure drop across the filter media
- 2, 3 or 6 fixing holes for installation, to suit a variety of reservoir surfaces
- O-ring or Flat Seal to suit a variety of reservoir surfaces
- Screw-in cover with a special shape, to allow the filter element replacement without the use of specific tools
- Oil dipstick, to easily check the level of the fluid into the reservoir (sold as separate item)
- Extension tube, to be used in deep reservoirs (sold as separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise (sold as separate item)
- Integrated breather filter, to clean the air that moves into the reservoir as result of the oil level fluctuation
- Integrated breather filter with pressurization valve, to clean the air that moves into the reservoir as result of the oil level fluctuation and to guarantee the pressurization into the reservoir
- Visual, electrical and electronic clogging indicators
- MYclean interface connection, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

- Light industrial equipment
- Mobile application

Filter housing materials

- Head: Aluminium
- Cover: Polyamide
- Bowl: Polyamide

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$
- Opening pressure 300 kPa (3 bar) $\pm 10\%$

Δp element type

- Microfiber filter elements - series H: 10 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MPTX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]				
	Length	1	2	3	4	Length	1	2	3	4
MPTX 025		0.41	0.45	0.50	-		0.24	0.35	0.42	-
MPTX 027		0.44	0.48	0.55	-		0.24	0.35	0.42	-
MPTX 110		1.00	1.05	1.15	1.40		0.72	0.93	1.28	1.74
MPTX 114		1.10	1.15	1.25	1.50		0.72	0.93	1.28	1.74
MPTX 116		1.10	1.15	1.25	1.50		0.72	0.93	1.28	1.74
MPTX 120		1.00	1.05	1.15	1.40		0.72	0.93	1.28	1.74

Flow rates [l/min]

Filter series	Length	Filter element design - H series					Filter element design - N series		
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MPTX 025-027	1	7	10	23	28	42	59	51	54
	2	17	20	45	48	56	72	64	67
	3	21	24	50	55	59	76	74	75
MPTX 110-120 114-116	1	18	20	53	56	65	153	87	96
	2	28	38	65	75	95	158	111	123
	3	48	55	125	135	169	289	224	251
	4	79	89	180	185	198	306	264	289

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

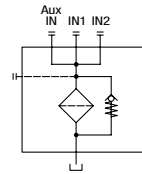
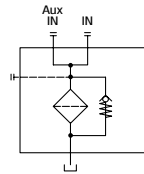
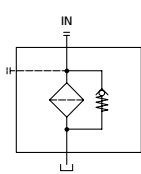
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

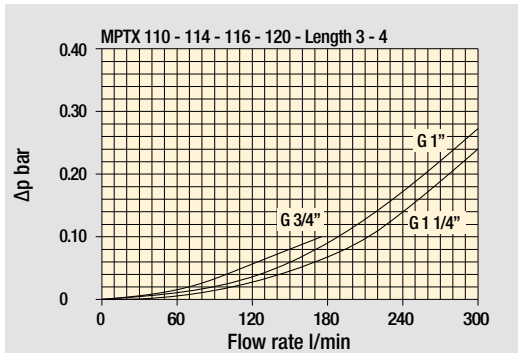
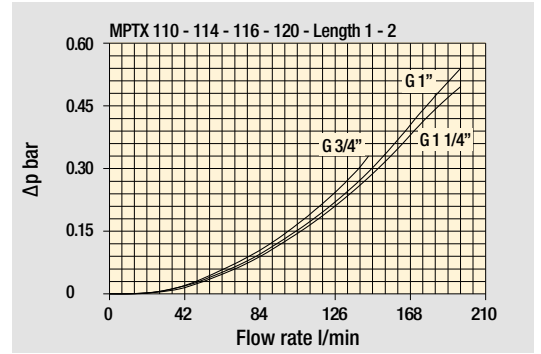
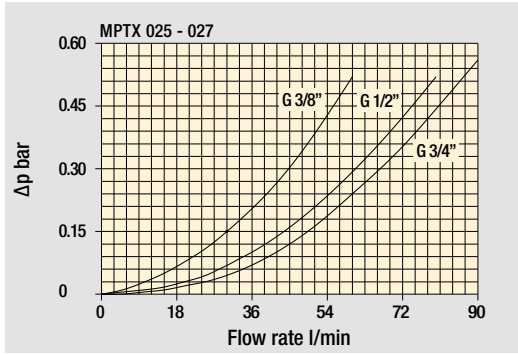
Filter series	Style 1 connection	Style 2 connections	Style 3 connections
MPTX 025	•	-	-
MPTX 027	•	-	-
MPTX 110	-	•	-
MPTX 114	•	-	-
MPTX 116	•	-	-
MPTX 120	-	-	•



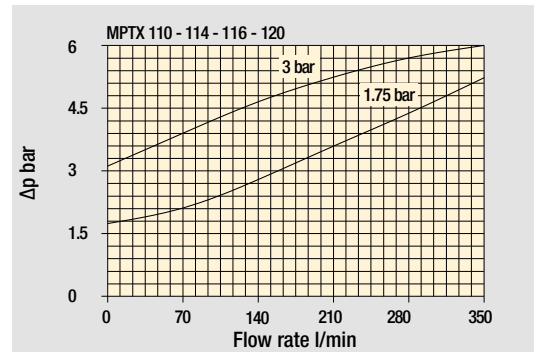
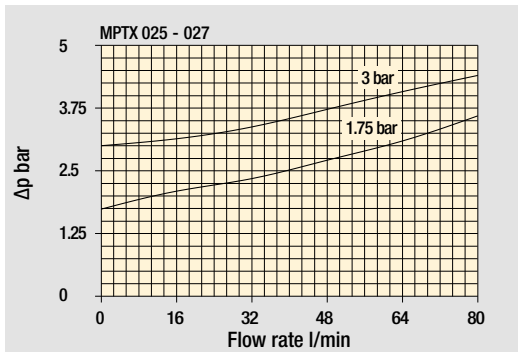
MPTX GENERAL INFORMATION

Pressure drop

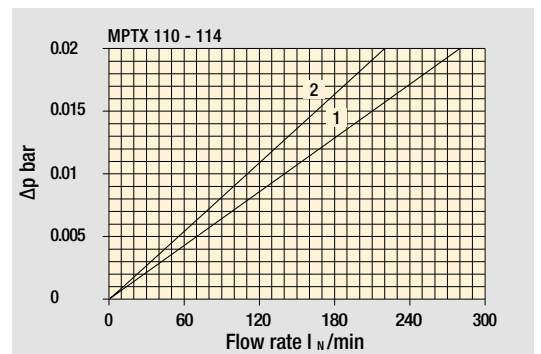
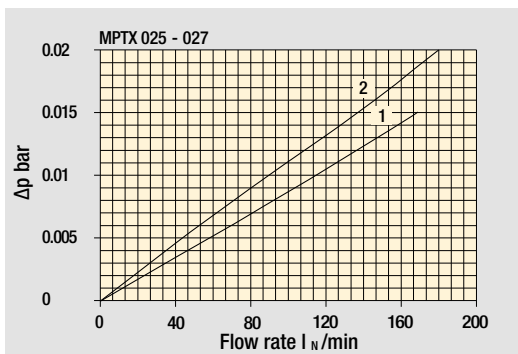
Filter housings Δp pressure drop



Bypass valve pressure drop



Air breather pressure drop







- 1 C With air breather 10 μ m
- 2 D With anti-splash and SAP50 10 μ m

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

MPTX 025 -027		
Air breather port plugged Indicator port	Air breather standard Indicator port	Anti-splash air breather & pressurized Double indicator port
		

Multiport - Multifunction

MPTX 110	
Standard - Single IN Port	Double IN Port - Double indicator port
	
Double IN Port Option: double drain port	Double IN Port - Indicator port Option: drain port
	

MPTX 120

Triple IN port
Option: double drain port



MPTX MPTX025 - MPTX027

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1: MPTX025	1	S	A	G3	A10	E	P01																																								
MPTX025 MPTX027 Filter featuring MYCLEAN Filter Element	Configuration example 2: MPTX027	3	C	W	G6	A03	B	P01																																								
Length	1 2 3																																															
Air breather	S Without air breather C With air breather 10 µm D With anti-splash and air breather SAP050 10 µm P With anti-splash and air breather SAP050 10 µm, pressurization 0.5 bar																																															
Seals and treatments	<table border="1"> <thead> <tr> <th></th> <th colspan="3">Filtration rating</th> </tr> <tr> <th></th> <th>Axx</th> <th>Mxx</th> <th>Pxx</th> </tr> </thead> <tbody> <tr> <td>A NBR</td> <td>•</td> <td>•</td> <td>•</td> </tr> <tr> <td>V FPM</td> <td>•</td> <td>•</td> <td>•</td> </tr> <tr> <td>W NBR head anodized</td> <td>•</td> <td>•</td> <td>-</td> </tr> <tr> <td>Z FPM head anodized</td> <td>•</td> <td>•</td> <td>-</td> </tr> </tbody> </table>									Filtration rating				Axx	Mxx	Pxx	A NBR	•	•	•	V FPM	•	•	•	W NBR head anodized	•	•	-	Z FPM head anodized	•	•	-																
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	B 1.75 bar	P01	Z01*	MP Filtri standard																																												
		Pxx	Zxx*	Customized																																												

* Not for Mxx filter media

FILTER ELEMENT

Element series and size	Configuration example 2: MFx020	1	A10	H	B	E	P01																																			
MFx020 Filter Element with MYCLEAN feature	Configuration example 1: MFx020	3	A03	N	B		P01																																			
Element length	1 2 3																																									
Filtration rating (filter media)	<table border="1"> <tbody> <tr> <td>A03 Inorganic microfiber 3 µm</td> <td>M25 Wire mesh 25 µm</td> <td colspan="5"></td> </tr> <tr> <td>A06 Inorganic microfiber 6 µm</td> <td>M60 Wire mesh 60 µm</td> <td colspan="5"></td> </tr> <tr> <td>A10 Inorganic microfiber 10 µm</td> <td>M90 Wire mesh 90 µm</td> <td colspan="5"></td> </tr> <tr> <td>A16 Inorganic microfiber 16 µm</td> <td>P10 Resin impregnated paper 10 µm</td> <td colspan="5"></td> </tr> <tr> <td>A25 Inorganic microfiber 25 µm</td> <td>P25 Resin impregnated paper 25 µm</td> <td colspan="5"></td> </tr> </tbody> </table>							A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm						A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm						A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm						A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm						A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm					
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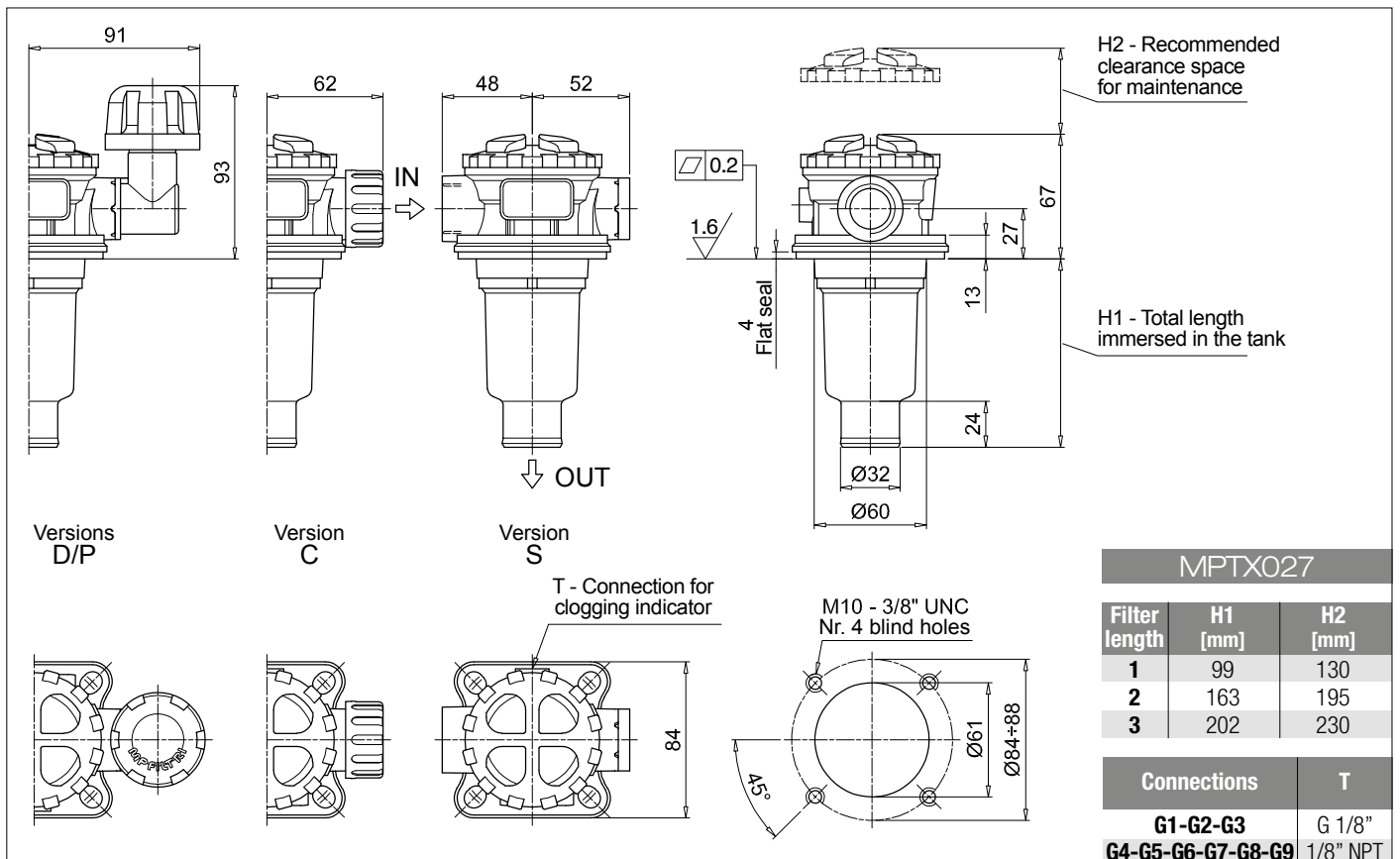
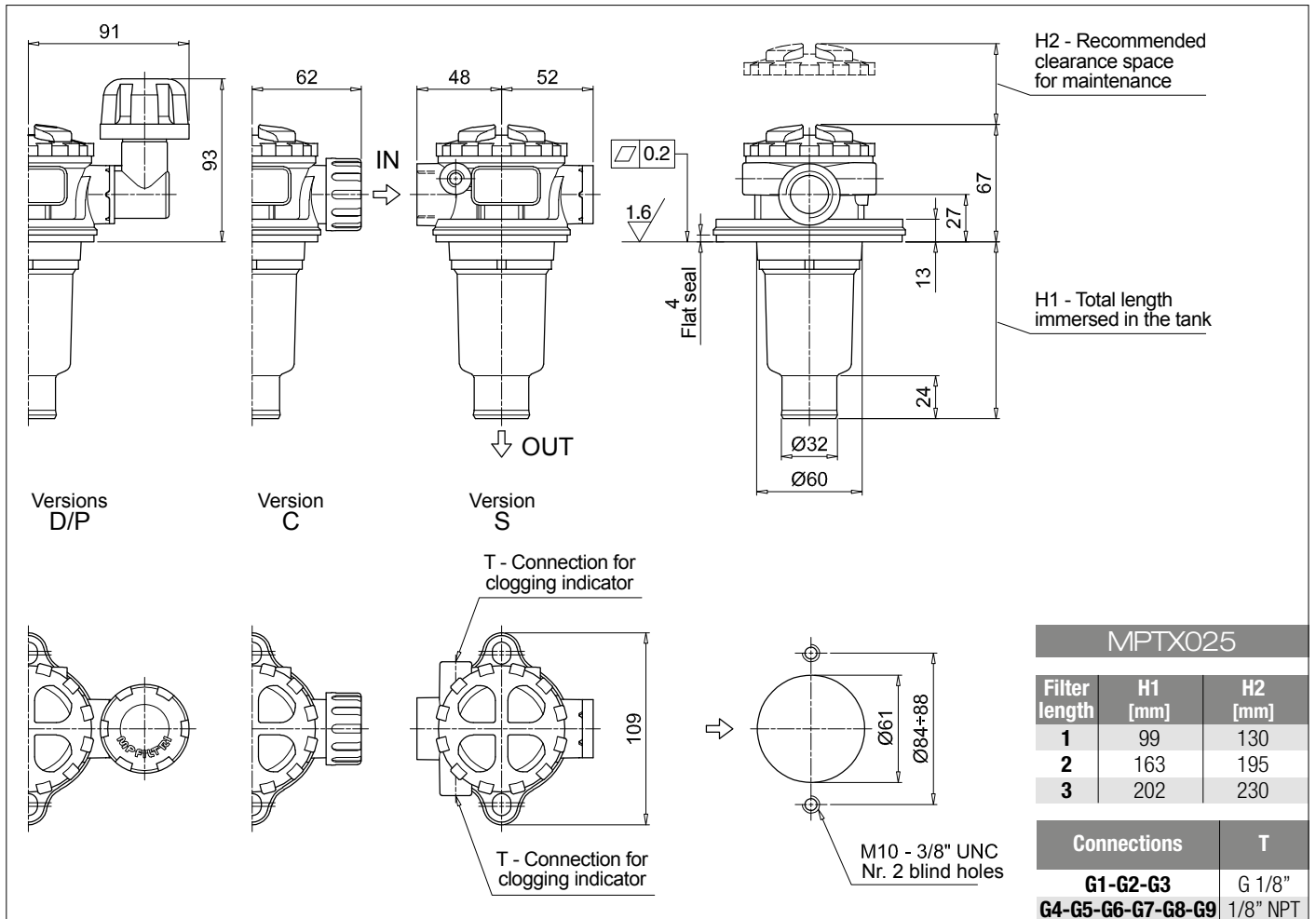
* Not for Mxx filter media

CLOGGING INDICATORS

BVA Axial pressure gauge	BEA Electrical pressure indicator	See page 716-717
BVR Radial pressure gauge	BEM Electrical pressure indicator	
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator	
BVQ Visual pressure indicator with manual reset		

ADDITIONAL FEATURES

TE Extension tube	See page 268
DPT Dipstick	



Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example 1: **MPTX110** | 1 | S | A | G1 | 0 | A06 | E | P01
MPTX110 Filter featuring **MYCLEAN** Filter Element Configuration example 2: **MPTX110** | 3 | P | V | G4 | 1 | M25 | B | P01

Length
 1 | 2 | 3 | 4

Air breather
S Without air breather
C With air breather 10 µm
D With anti-splash and air breather SAP050 10 µm
P With anti-splash and air breather SAP050 10 µm, pressurization 0.5 bar

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Main Connections	Aux size 1	Aux size 2	Main Connections	Aux size 1	Aux size 2
G1 G 3/4"	G 3/8"	G 1/2"	G6 1 1/4" NPT	3/8" NPT	1/2" NPT
G2 G 1"			G7 SAE 12 - 1 1/16" - 12 UN	SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF
G3 G 1 1/4"	G8 SAE 16 - 1 5/16" - 12 UN				
G4 3/4" NPT	3/8" NPT	1/2" NPT			
G5 1" NPT			G9 SAE 20 - 1 5/8" - 12 UN		

Aux connection - see previous table
0 Not machined | **1** Aux size 1 | **2** Aux size 2

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Executions		
Base	zérospark*	
P01	Z01*	MP Filtri standard
Pxx	Zxx*	Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size Configuration example 1: **MFx100** | 1 | A06 | H | B | E | P01
MFx100 Filter Element with **MYCLEAN** feature Configuration example 2: **MFx100** | 3 | M25 | N | V | P01

Element length
 1 | 2 | 3 | 4

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Executions		
Base	zérospark*	
P01	Z01*	MP Filtri standard
Pxx	Zxx*	Customized

Seals		Bypass valve	
B NBR	E 3 bar	V FPM	- 1.75 bar

* Not for Mxx filter media

CLOGGING INDICATORS

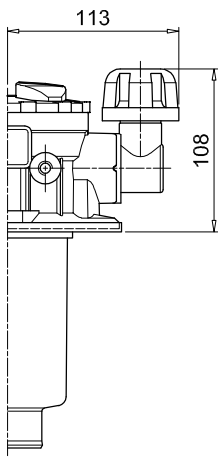
BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

ADDITIONAL FEATURES

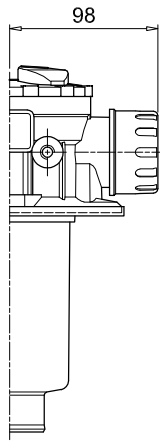
TE Extension tube	DPT Dipstick
DFS Diffuser with fast lock connection	

MPTX110		
Filter length	H1 [mm]	H2 [mm]
1	99	120
2	144	170
3	222	250
4	324	350

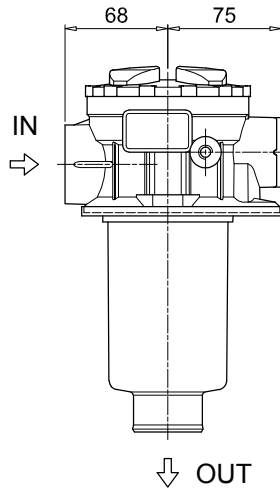
Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT



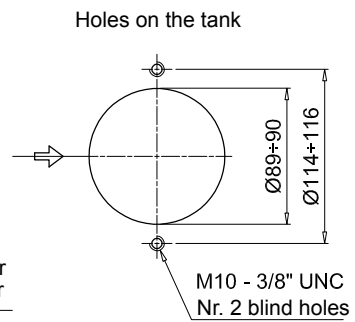
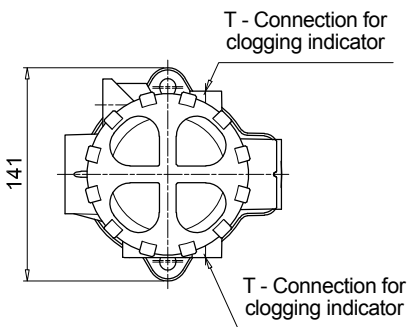
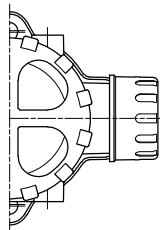
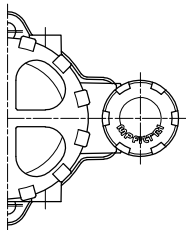
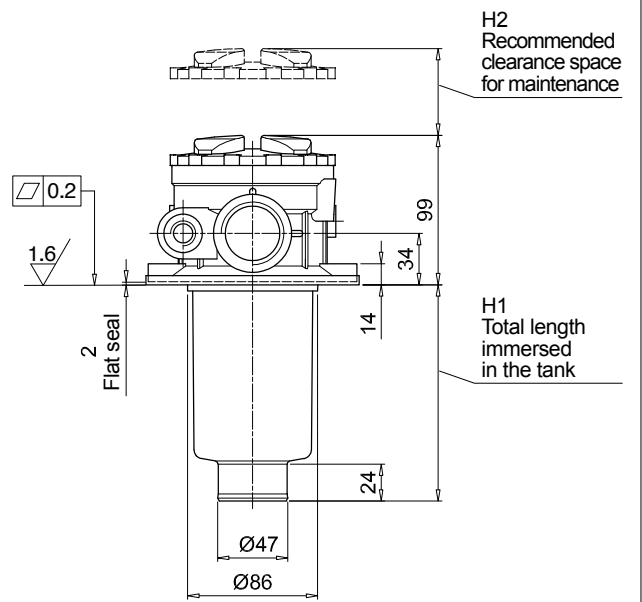
Versions D/P



Version C



Version S



Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1: MPTX114	4	S	A	G3	A10	E	P01																							
MPTX114 Filter featuring MYCLEAN Filter Element	Configuration example 2: MPTX114	3	C	W	G6	A03	B	P01																							
Length	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>								1	2	3	4																			
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Air breather	<table border="1"> <tr> <td>S Without air breather</td> </tr> <tr> <td>C With air breather 10 µm</td> </tr> <tr> <td>D With anti-splash and air breather SAP050 10 µm</td> </tr> <tr> <td>P With anti-splash and air breather SAP050 10 µm pressurization 0.5 bar</td> </tr> </table>								S Without air breather	C With air breather 10 µm	D With anti-splash and air breather SAP050 10 µm	P With anti-splash and air breather SAP050 10 µm pressurization 0.5 bar																			
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* Not for Mxx filter media

FILTER ELEMENT

Element series and size	Configuration example 2: MFX100	4	A10	H	B	E	P01															
MFX100 Filter Element with MYCLEAN feature	Configuration example 1: MFX100	3	A03	N	B		P01															
Element length	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> </table>							1	2	3	4											
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* Not for Mxx filter media

CLOGGING INDICATORS

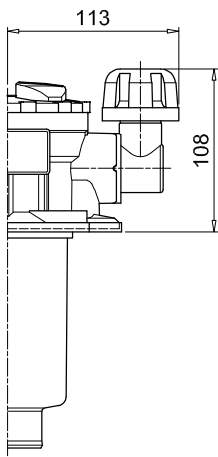
BVA Axial pressure gauge	BEA Electrical pressure indicator	See page 716-717
BVR Radial pressure gauge	BEM Electrical pressure indicator	
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator	
BVQ Visual pressure indicator with manual reset		

ADDITIONAL FEATURES

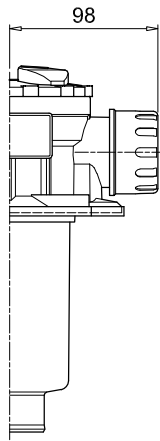
TE Extension tube	DPT Dipstick	See page 268
DFS Diffuser with fast lock connection		

MPTX114		
Filter length	H1 [mm]	H2 [mm]
1	99	120
2	144	170
3	222	250
4	324	350

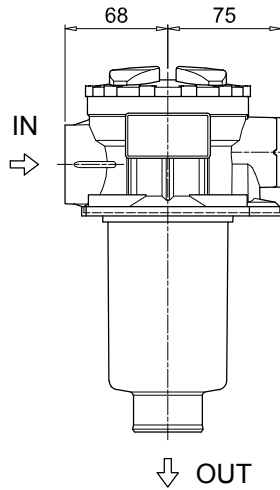
Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT



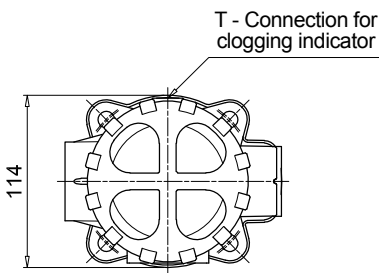
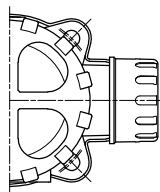
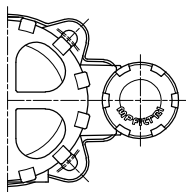
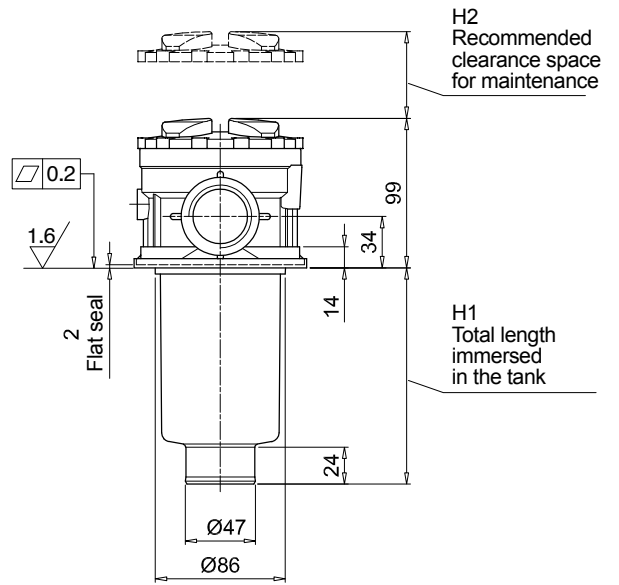
Versions D/P



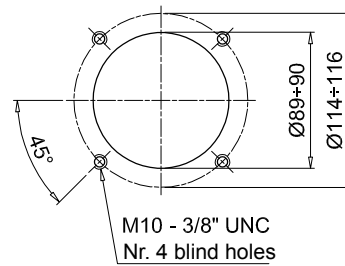
Version C



Version S



Holes on the tank



Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1: MPTX116 1 S A G1 M90 E P01																				
MPTX116 Filter featuring MY CLEAN Filter Element	Configuration example 2: MPTX116 2 S Z G9 A03 B P01																				
Length	1 2 3 4																				
Air breather	S Without air breather																				
Seals and treatments	<table border="1"> <thead> <tr> <th></th> <th>Axx</th> <th>Mxx</th> <th>Pxx</th> </tr> </thead> <tbody> <tr> <td>A NBR</td> <td>•</td> <td>•</td> <td>•</td> </tr> <tr> <td>V FPM</td> <td>•</td> <td>•</td> <td>•</td> </tr> <tr> <td>W NBR head anodized</td> <td>•</td> <td>•</td> <td>-</td> </tr> <tr> <td>Z FPM head anodized</td> <td>•</td> <td>•</td> <td>-</td> </tr> </tbody> </table> <p>Flat seal on the head on request</p>		Axx	Mxx	Pxx	A NBR	•	•	•	V FPM	•	•	•	W NBR head anodized	•	•	-	Z FPM head anodized	•	•	-
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FILTER ELEMENT

Element series and size	Configuration example 2: MFx100 1 M90 N B E P01												
MFx100 Filter Element with MY CLEAN feature	Configuration example 1: MFx100 2 A03 H V P01												
Element length	1 2 3 4												
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P01	Z01*	MP Filtri standard											
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CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

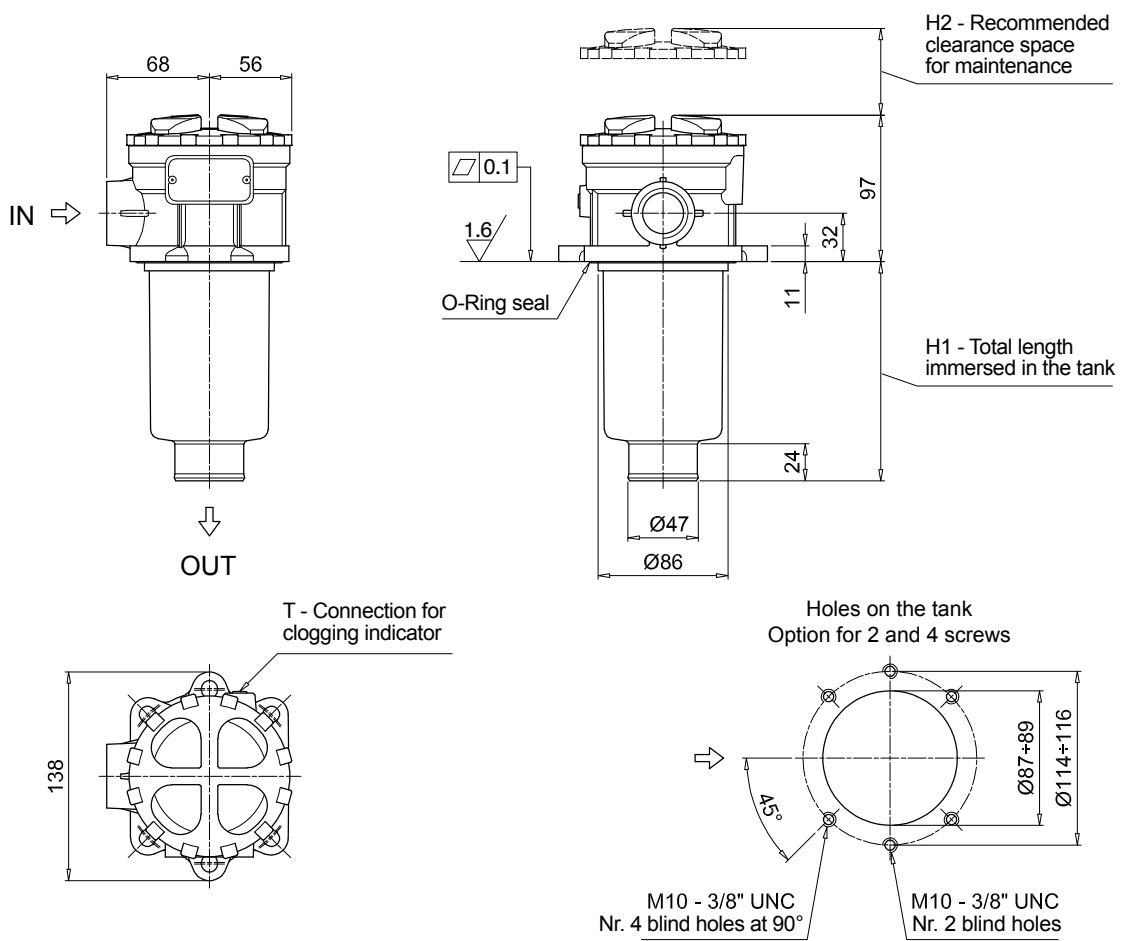
ADDITIONAL FEATURES

See page 268

TE Extension tube	DPT Dipstick
DFS Diffuser with fast lock connection	

MPTX116		
Filter length	H1 [mm]	H2 [mm]
1	99	120
2	146	170
3	224	250
4	326	350

Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT



Designation & Ordering code

COMPLETE FILTER

Series and size
MPTX120 Filter featuring **MY CLEAN** Filter Element

Configuration example 1: **MPTX120** | **1** | **A** | **G1** | **0** | **A06** | **E** | **P01**
 Configuration example 2: **MPTX120** | **3** | **V** | **G4** | **1** | **M25** | **B** | **P01**

Length
1 | **2** | **3** | **4**

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Main Connections	Rear connections	Aux size 1	Aux size 2
G1 G 3/4"	G 3/4"	G 3/8"	G 1/2"
G2 G 1"	G 1"		
G3 G 1 1/4"	G 3/4"	3/8" NPT	1/2" NPT
G4 3/4" NPT	3/4" NPT		
G5 1" NPT	1" NPT	SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF
G6 1 1/4" NPT	3/4" NPT		
G7 SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN		
G8 SAE 16 - 1 5/16" - 12 UN	SAE 16 - 1 5/16" - 12 UN		
G9 SAE 20 - 1 5/8" - 12 UN	SAE 12 - 1 1/16" - 12 UN		

Aux connection - see previous table
0 Not machined | **1** Aux size 1 | **2** Aux size 2

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Bypass valve		Executions	
		Base	zérospark*
E 3 bar		P01	Z01 * MP Filtri standard
B 1.75 bar		Pxx	Zxx * Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size
MFX100 Filter Element with **MY CLEAN** feature

Configuration example 1: **MFX100** | **1** | **A06** | **H** | **B** | **E** | **P01**
 Configuration example 2: **MFX100** | **3** | **M25** | **N** | **V** | **P01**

Element length
1 | **2** | **3** | **4**

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals		Bypass valve		Executions	
				Base	zérospark*
B NBR		E 3 bar		P01	Z01 * MP Filtri standard
V FPM		- 1.75 bar		Pxx	Zxx * Customized

* Not for Mxx filter media

CLOGGING INDICATORS

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

See page 716-717

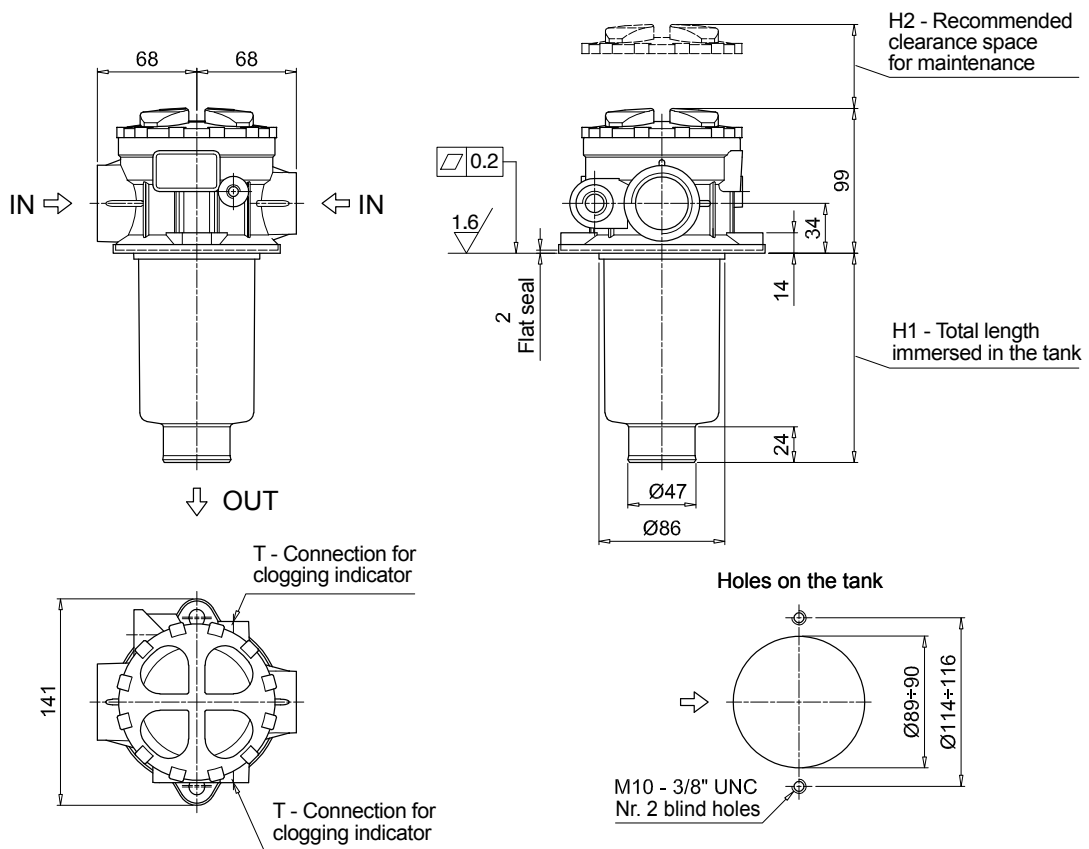
ADDITIONAL FEATURES

TE Extension tube	DPT Dipstick
DFS Diffuser with fast lock connection	

See page 268

MPTX120		
Filter length	H1 [mm]	H2 [mm]
1	99	120
2	144	170
3	222	250
4	324	350

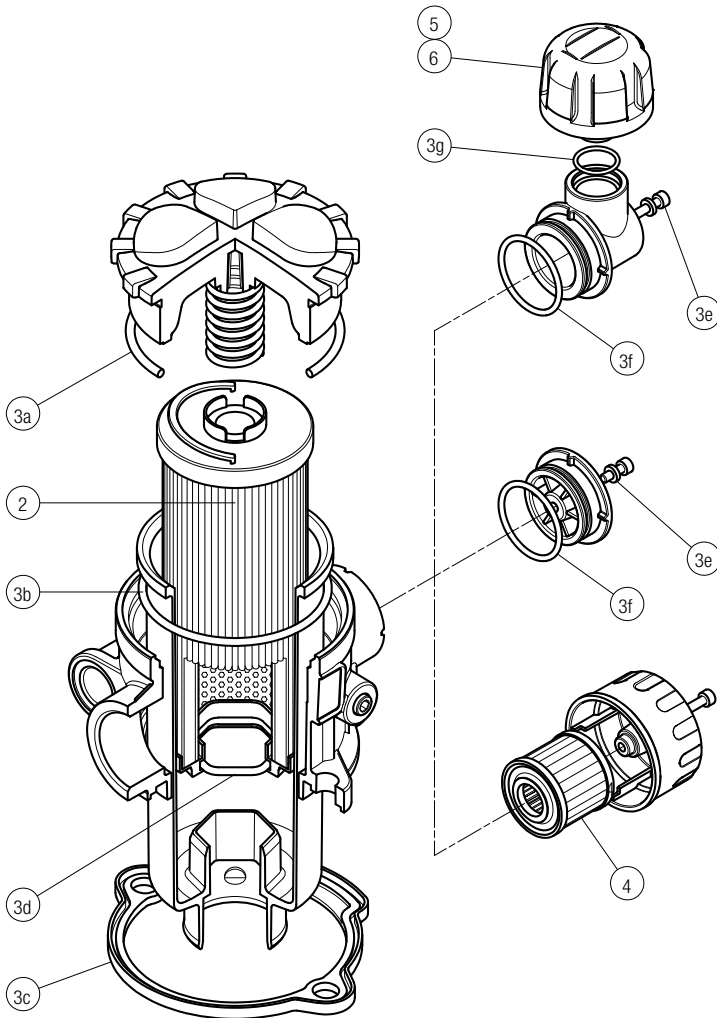
Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT



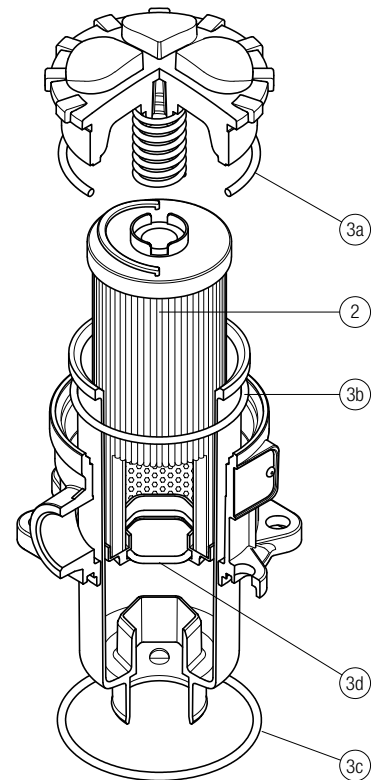
MPTX SPARE PARTS

Order number for spare parts

MPTX 025 - 027 - 110



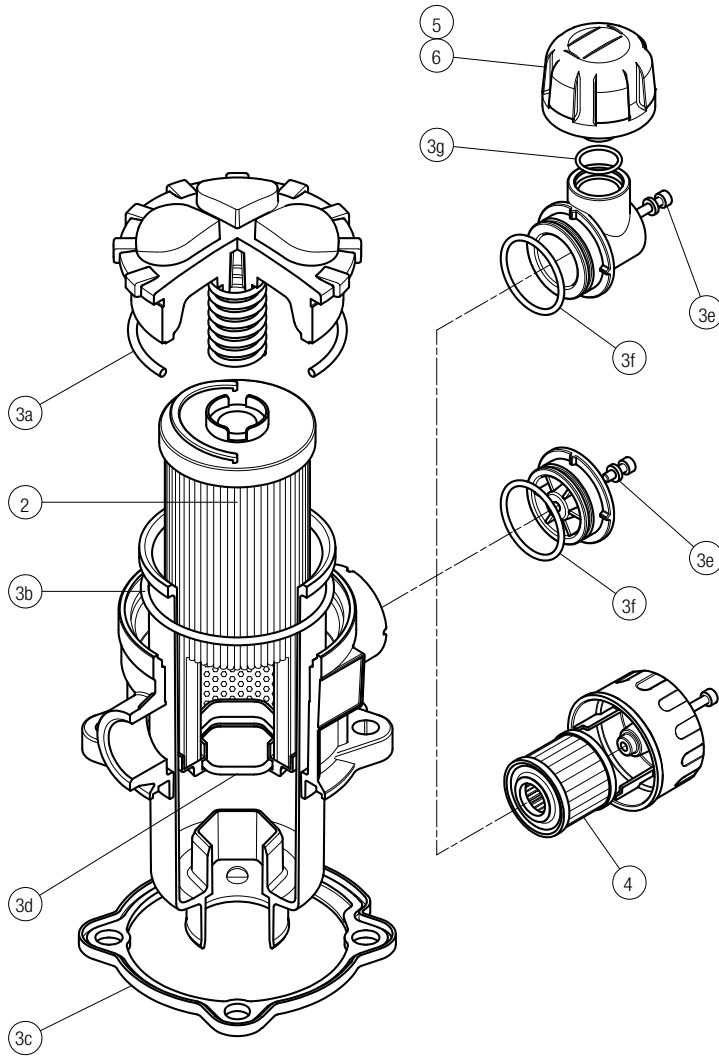
MPTX 116



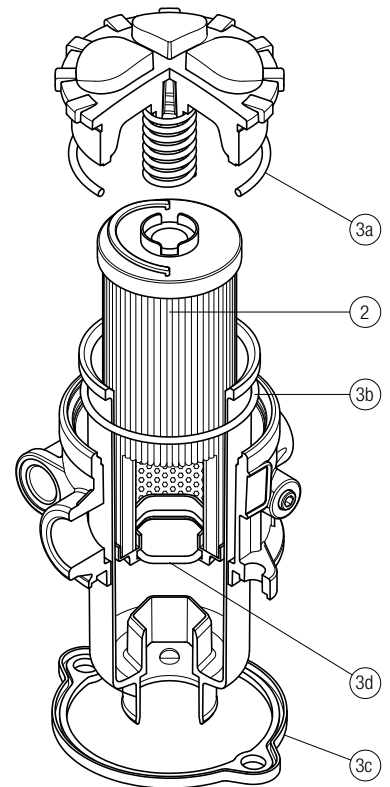
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number NBR	FPM	Air breather filter element - version:		
				C	D	P
MPTX 025	See order table	02050701	02050702	10 µm A3L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01
MPTX 027		02050703	02050704	10 µm A3L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01
MPTX 110		02050709	02050710	10 µm A5L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01

Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number NBR	FPM
MPTX 116	See order table	02050737	02050738

MPTX 114



MPTX 120



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Air breather filter element - version:		
		NBR	FPM	C	D	P
MPTX 114	See order table	02050707	02050708	10 µm A5L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01

Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPTX 120	See order table	02050711	02050712



THE X CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

MFBX series

with MYCLEAN MFX Filter Element



- Protects the machine from improper use of non-original products.
- Safety of constant quality protection & reliability

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.



The products identified as MFBX are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1

TOGETHER WITH MYCLEAN, AS OPTION, MFBX SERIES CAN BE PROVIDED WITH

zerospark®
THE ANTI-STATIC FILTERS

THE Z CONCEPT FOR OUR FILTERS



Zerospark® is a specialist solution designed to solve the problem of electrostatic discharge inside hydraulic filters. Caused by the electrical charge build-up due to the passage of oil through the filters, this can result in damage to filter elements, oils and circuit components. It can even cause fire hazards in environments where flammable materials are present.

MFBX series

BOWL ASSEMBLY

Maximum working pressure up to 800 kPa (8 bar) - Flow rate up to 700 l/min



Description

Technical data

Return filter Bowl assembly

Maximum working pressure up to 800 kPa (8 bar)
Flow rate up to 700 l/min

MFBX is a range of return filter kits for protection of the reservoir against the system contamination.

They are directly integrated in the moulded reservoir in immersed or semi-immersed position to save space into the tank.

Treaded or flanged covers can be provided.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve integrated into the filter element, to relieve excessive pressure drop across the filter media
- Extension tube, to be used in deep reservoirs (sold as separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise (sold as separate item)
- MyClean interface connection, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

Mobile machines

Bowl assembly materials

- Cover
Polyamide: MFBX 020-030-100
Aluminium: MFBX 180-190

- Bowl: Polyamide

Filter element materials

- Caps: Polyamide
- Spring: Spring steel

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$
- Opening pressure 300 kPa (3 bar) $\pm 10\%$

Δp element type

- Microfibre filter elements - series H: 10 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MFBX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
MFBX 020		0.25	0.35	0.40	-		0.10	0.15	0.20	-
MFBX 030		0.25	-	-	-		0.15	-	-	-
MFBX 100		0.50	0.60	0.75	0.95		0.35	0.50	0.80	1.10
MFBX 180		1.60	2.40	-	-		1.50	2.90	-	-
MFBX 190		-	2.40	-	-		-	3.00	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - H series					Filter element design - N series		
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MFBX 020	1	7	10	23	28	42	59	51	54
	2	17	20	45	48	56	72	64	67
	3	21	24	50	55	59	76	74	75
MFBX 030	1	7	10	24	29	47	84	60	66
MFBX 100	1	18	20	53	56	65	153	87	96
	2	28	38	65	75	95	158	111	123
	3	48	55	125	135	169	289	224	251
	4	79	89	180	185	198	306	264	289
MFBX 180	1	127	148	235	243	278	441	285	299
	2	231	262	358	382	388	472	404	412
MFBX 190	2	261	305	489	528	546	696	583	598

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

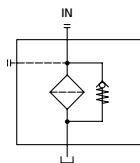
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

Filter series	Style 1 connection
MFBX 020	•
MFBX 030	•
MFBX 100	•
MFBX 180	•
MFBX 190	•



Designation & Ordering code

COMPLETE FILTER

Series and size: **MFBX020** | **MFBX100** | **MFBX190** Filter featuring **MYCLEAN** Filter Element
MFBX030 | **MFBX180**

Configuration example 1: **MFBX100** | **1** | **A** | **2** | **A10** | **H** | **E** | **P01**
 Configuration example 2: **MFBX180** | **2** | **V** | **1** | **M25** | **N** | **B** | **P01**

Length	MFBX020	MFBX030	MFBX100	MFBX180	MFBX190
1	•	•	•	•	-
2	•	-	•	•	•
3	•	-	•	-	-
4	-	-	•	-	-

Seals
A NBR
V FPM

Version	MFBX020	MFBX030	MFBX100	MFBX180	MFBX190
1 Without cover	•	•	•	•	•
2 With flanged cover type MPF	-	•	•	•	•
3 With threaded cover type MPT	•	-	•	-	-

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp		Filter media		
		Axx	Mxx	Pxx
N 10 bar		-	•	•
H 10 bar		•	-	-

Bypass valve	Executions	
	Base	zérospark*
E 3 bar	P01	Z01* MP Filtri standard
B 1.75 bar	Pxx	Zxx* Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size: **MFXX020** | **MFXX100** | **MFXX030** | **MFXX180** Filter Element with **MYCLEAN** feature

Configuration example 1: **MFXX180** | **2** | **M25** | **H** | **V** | **P01**
 Configuration example 2: **MFXX100** | **1** | **A10** | **N** | **B** | **E** | **P01**

Element length	MFXX020	MFXX030	MFXX100	MFXX180	MFXX190
1	•	•	•	•	-
2	•	-	•	•	•
3	•	-	•	-	-
4	-	-	•	-	-

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp		Filter media		
		Axx	Mxx	Pxx
N 10 bar		-	•	•
H 10 bar		•	-	-

Seals	Bypass valve	Executions	
		Base	zérospark*
B NBR	E 3 bar	P01	Z01* MP Filtri standard
V FPM	- 1.75 bar	Pxx	Zxx* Customized

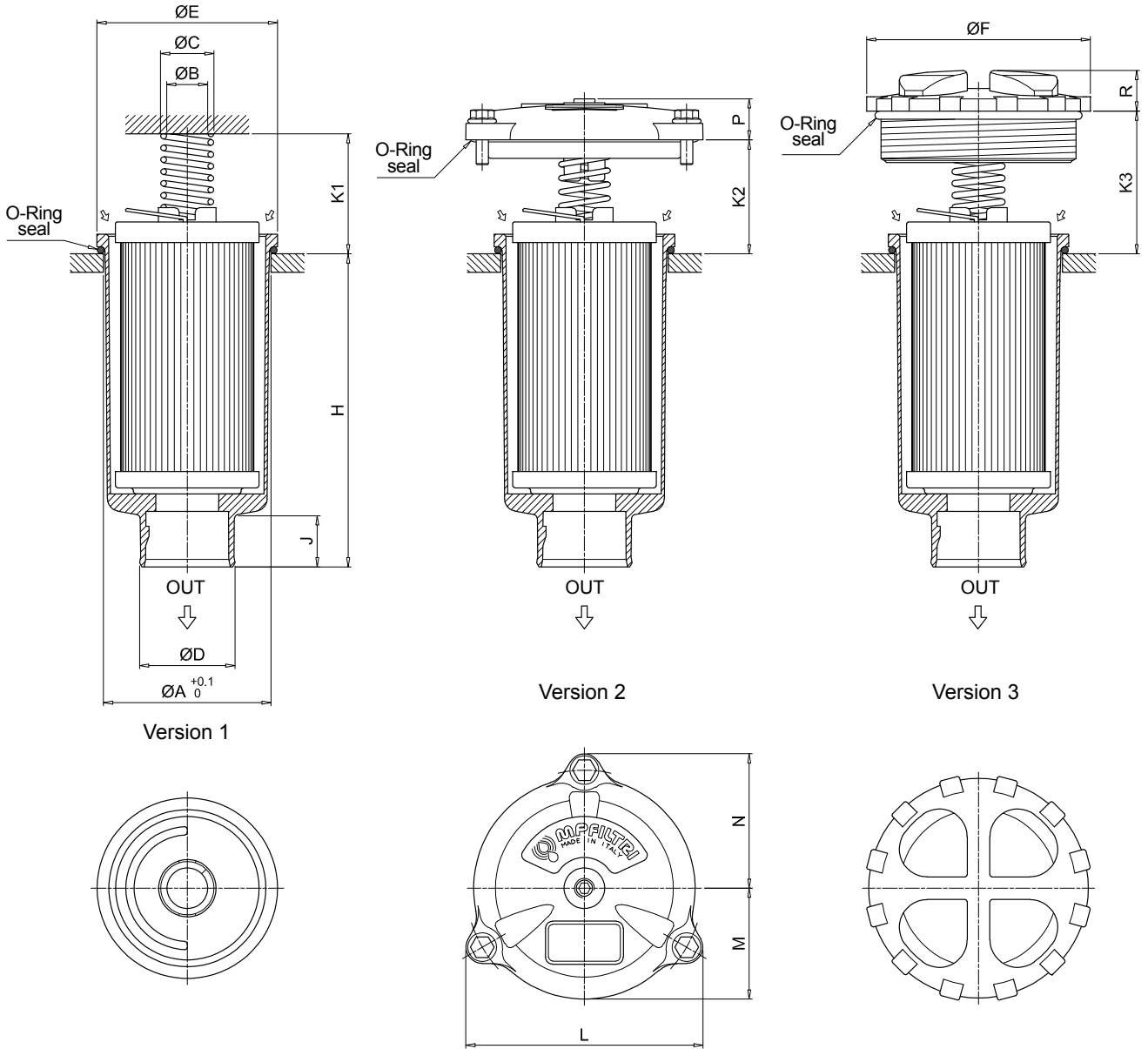
* Not for Mxx filter media

ACCESSORIES

See page 266

	MFBX020	MFBX030	MFBX100	MFBX180	MFBX190
TE Extension tube	•	•	•	•	•
DFS Diffuser with fast lock connection	-	-	•	-	-

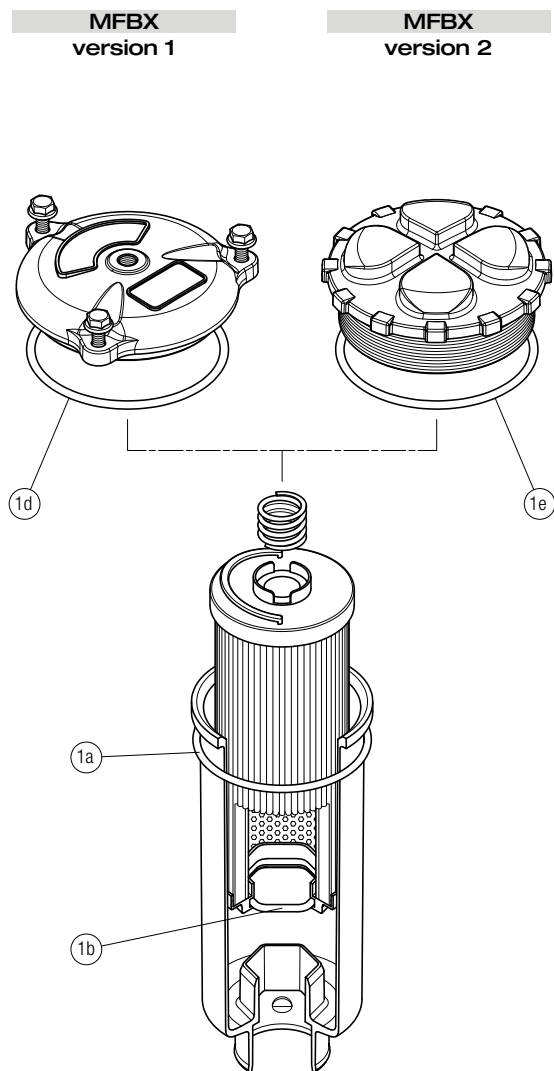
MFBX



Filter size	Filter Length	ø A [mm]	ø B [mm]	ø C [mm]	ø D [mm]	ø E [mm]	ø F [mm]	H [mm]	J [mm]	K1 [mm]	K2 [mm]	K3 [mm]	L [mm]	M [mm]	N [mm]	P [mm]	R [mm]
020	1	52	20.5	26	32	56	75	111	24	42	-	36	-	-	-	-	18
	2	52	20.5	26	32	56	75	175	24	42	-	36	-	-	-	-	18
	3	52	20.5	26	32	56	75	214	24	42	-	36	-	-	-	-	18
030	1	60.5	20	25.5	32	68	-	93	21	33	35	-	92	42	52	18	-
	2	80.5	20	26	47	88	111	109	24	58	55	69	116	54	66	20	20
100	1	80.5	20	26	47	88	111	154	24	58	55	69	116	54	66	20	20
	2	80.5	20	26	47	88	111	232	24	58	55	69	116	54	66	20	20
	3	80.5	20	26	47	88	111	334	24	58	55	69	116	54	66	20	20
180	1	112.5	26	33.5	47	121	-	234	31	58	69	-	159	76	95	21	-
	2	112.5	26	33.5	47	121	-	447	31	58	69	-	159	76	95	21	-
190	2	112.5	26	33.5	50	121	-	454	38	58	69	-	159	76	95	21	-

MFBX SPARE PARTS

Order number for spare parts



Item: 1 (1a ÷ 1d) Q.ty: 1 pc.		
Filter series	Seal Kit code number	
	NBR	FPM
MFBX 020	02050713	02050714
MFBX 030	02050715	02050716
MFBX 100	02050717	02050718
MFBX 180-190	02050719	02050720



MPF series

Maximum working pressure up to 800 kPa (8 bar) - Flow rate up to 900 l/min



Description

Technical data

Return filter

Maximum working pressure up to 800 kPa (8 bar)
Flow rate up to 900 l/min

MPF is a range of return filters for protection of the reservoir against the system contamination.

They are directly fixed to the reservoir, in immersed or semi-immersed position.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Female threaded connections up to 2" and flanged connections up to 2", for a maximum flow rate of 900 l/min
- Multiple connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve integrated into the filter element, to relieve excessive pressure drop across the filter media
- 2, 3 or 4 fixing holes for installation, to suit a variety of reservoir surfaces
- O-ring or Flat Seal to suit a variety of reservoir surfaces
- Oil dipstick, to easily check the level of the fluid into the reservoir (sold as separate item)
- Extension tube, to be used in deep reservoirs (sold as separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise (sold as separate item)
- Filler plug, to fill cleaned fluid into the tank without an additional connection
- Visual, electrical and electronic clogging indicators

Common applications:

- Light industrial equipment
- Mobile application

Filter housing materials

- Head: Aluminium
- Cover
 Polyamide: MPF 020-030-100-104-110
 Aluminium: MPF 181-182-184-191-192-194-400-410-450-451-750
- Bowl: Polyamide

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$
- Opening pressure 300 kPa (3 bar) $\pm 10\%$

Δp element type

- Microfibre filter elements - series H: 10 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MPF filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
MPF 020		0.30	-	-	-		0.26	-	-	-
MPF 030		0.40	-	-	-		0.29	-	-	-
MPF 100		0.61	0.64	0.67	0.74		0.64	0.85	1.20	1.65
MPF 104		0.82	0.96	1.02	1.25		0.64	0.85	1.20	1.65
MPF 110		0.64	0.68	0.71	0.78		-	-	-	-
MPF 181		2.20	3.00	-	-		2.50	4.00	-	-
MPF 182		2.30	3.10	-	-		2.50	4.00	-	-
MPF 184		2.55	3.45	-	-		2.65	4.45	-	-
MPF 191		-	3.00	-	-		-	4.25	-	-
MPF 192		-	3.10	-	-		-	4.25	-	-
MPF 194		-	3.45	-	-		-	4.45	-	-
MPF 400		3.35	3.65	3.90	-		3.70	4.60	5.40	-
MPF 410		3.55	3.85	4.10	-		3.70	4.60	5.40	-
MPF 450-451		3.95	4.25	4.50	-		3.70	4.60	5.40	-
MPF 750		6.30	-	-	-		8.45	-	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - H series					Filter element design - N series		
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MPF 020	1	7	10	23	28	42	59	51	54
MPF 030	1	7	10	24	29	47	84	60	66
MPF 100-104-110	1	18	20	53	56	65	153	87	96
	2	28	38	65	75	95	158	111	123
	3	48	55	125	135	169	289	224	251
	4	79	89	180	185	198	306	264	289
MPF 181-182-184	1	127	148	235	243	278	441	285	299
	2	231	262	358	382	388	472	404	412
MPF 191-192-194	2	261	305	489	528	546	696	583	598
MPF 400	1	150	171	294	304	350	585	370	390
	2	237	252	454	462	589	868	619	645
	3	248	288	553	609	621	885	680	703
MPF 410	1	146	167	277	285	325	512	341	357
	2	226	239	396	402	485	644	503	519
	3	236	269	462	497	505	653	539	553
MPF 450-451	1	150	171	294	304	350	585	370	390
	2	237	252	454	462	589	868	619	645
	3	248	288	553	609	621	885	680	703
MPF 750	1	392	465	623	700	769	929	804	819

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

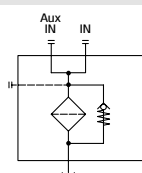
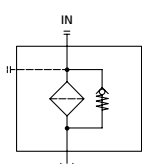
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

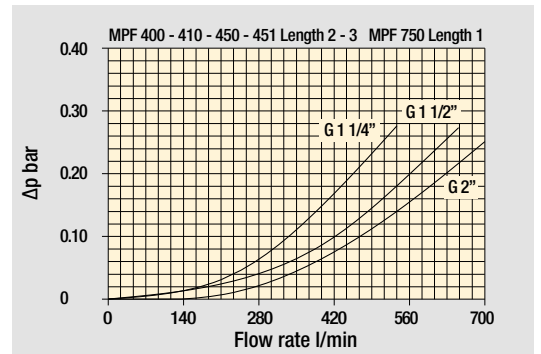
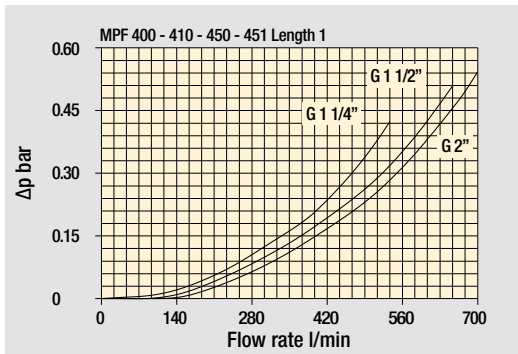
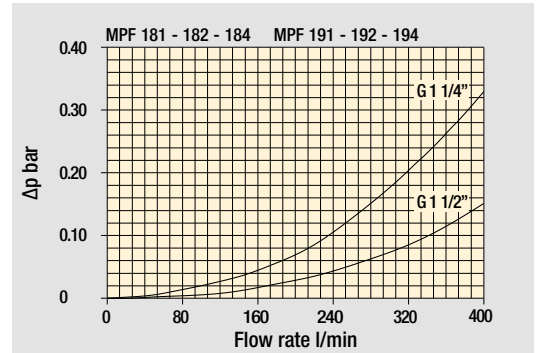
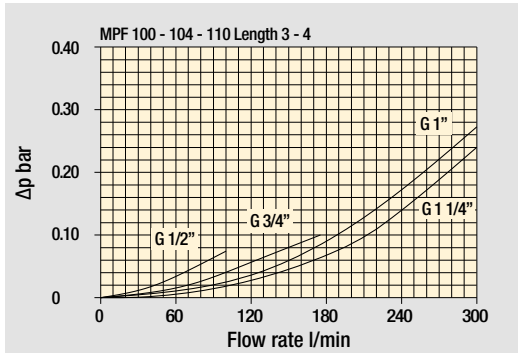
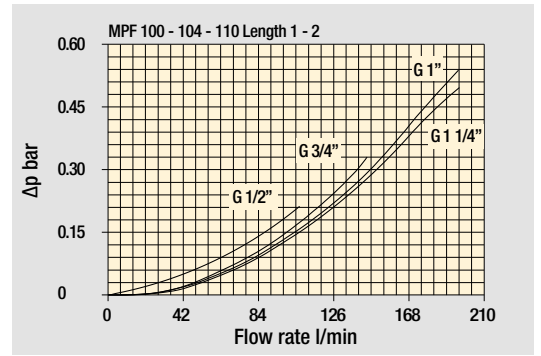
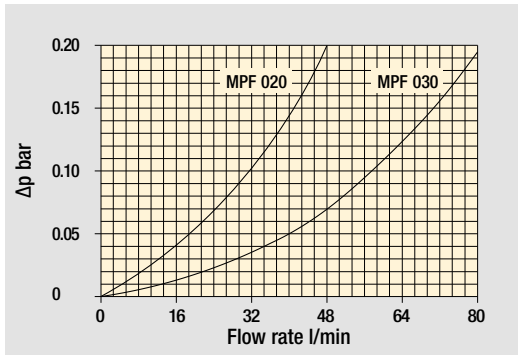
Hydraulic symbols

Filter series	Style 1 connection	Style 2 connections
MPF 020	•	-
MPF 030	•	-
MPF 100	•	-
MPF 104	•	-
MPF 110		•
MPF 181	•	-
MPF 182		•
MPF 184	•	•
MPF 191	•	-
MPF 192	•	-
MPF 194	•	•
MPF 400	•	-
MPF 410		•
MPF 450	•	-
MPF 451		•
MPF 750	•	-

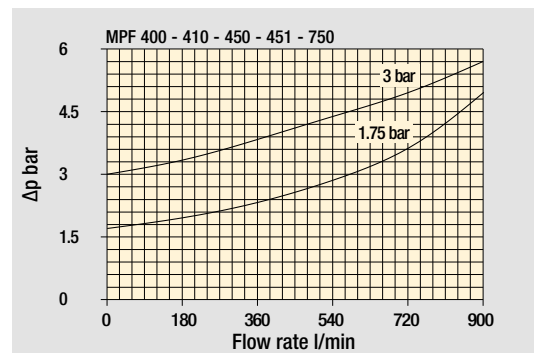
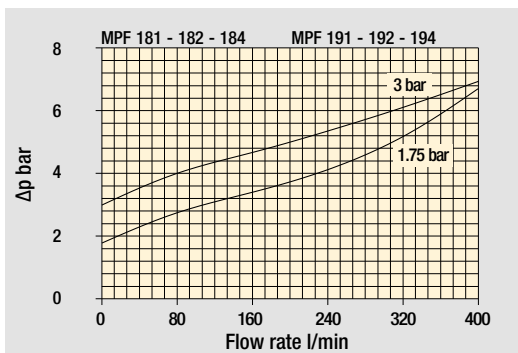
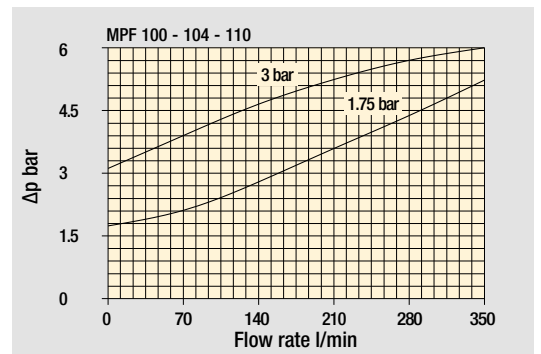
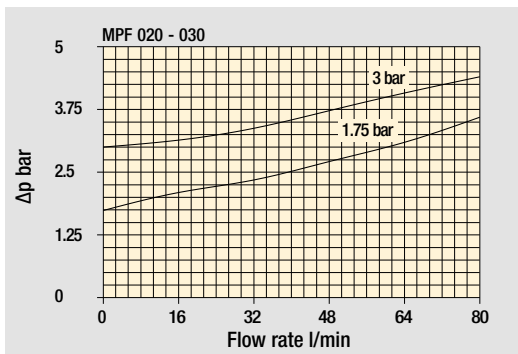


Pressure drop

Filter housings Δp pressure drop



Bypass valve pressure drop

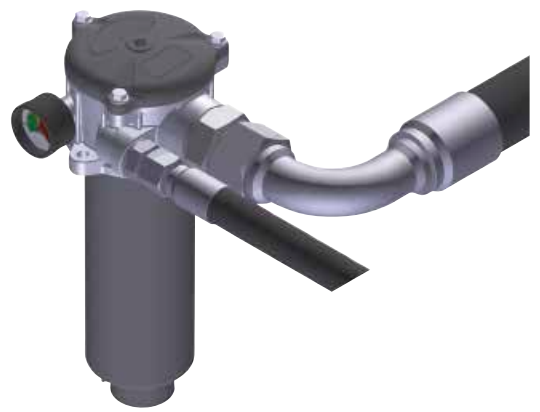


The curves are plotted using mineral oil with density of 0.86 kg/dm^3 in compliance with ISO 3968. Δp varies proportionally with density.

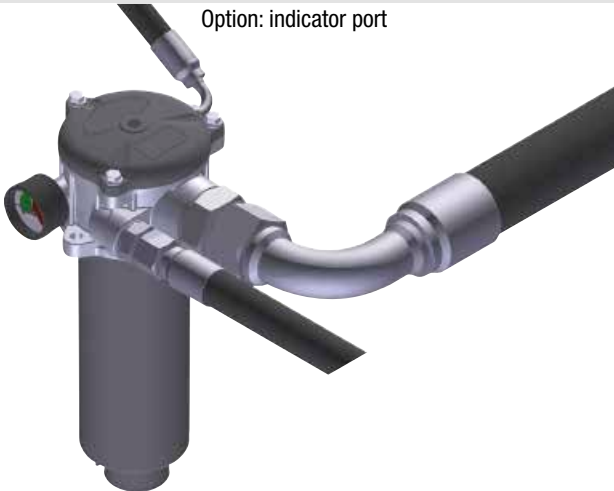
Standard - Single IN port



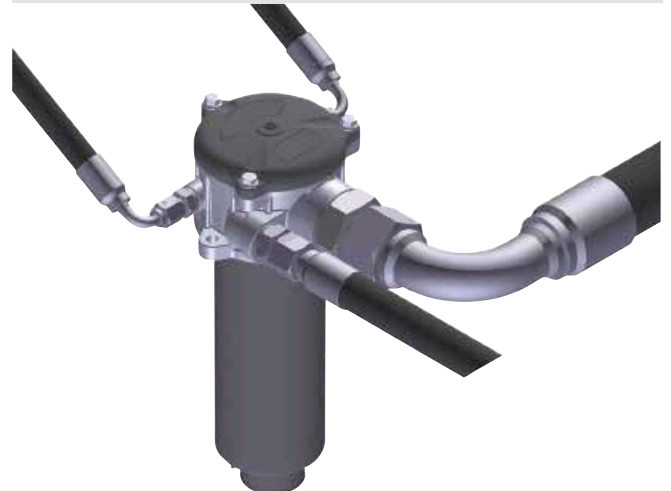
Double IN port
Option: double indicator port



Double IN port - Drain port
Option: indicator port



Double IN port - Double drain port



MPF MPF020 - MPF030

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1:		MPF020	1	A	P1	A10	H	E	P01		
MPF020	MPF030	Filter element with standard spigot		Configuration example 2:		MPF030	1	V	G1	M25	N	B	P01
Length		1											
Seals and treatments		A NBR											
		V FPM											
		W NBR head anodized											
		Z FPM head anodized											
Connections		Size 20	Size 30										
P1 Hose barb ø12		•	-										
G1 G 1/2"		-	•										
G4 1/2" NPT		-	•										
G7 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													
M25 Wire mesh 25 µm													
M60 Wire mesh 60 µm													
M90 Wire mesh 90 µm													
P10 Resin impregnated paper 10 µm													
P25 Resin impregnated paper 25 µm													
Element Δp		Filter media											
N 10 bar		Axx	Mxx	Pxx									
H 10 bar		-	•	•									
		•	-	-									
		Bypass valve		Execution									
		E 3 bar		P01 MP Filtri standard									
		B 1.75 bar		Pxx Customized									

FILTER ELEMENT

Element series and size		Configuration example 1:		MF030	1	A10	H	B	E	P01	
MF030	Filter element with standard spigot		Configuration example 2:		MF030	1	M25	N	V	P01	
Element length		1									
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm											
A06 Inorganic microfiber 6 µm											
A10 Inorganic microfiber 10 µm											
A16 Inorganic microfiber 16 µm											
A25 Inorganic microfiber 25 µm											
M25 Wire mesh 25 µm											
M60 Wire mesh 60 µm											
M90 Wire mesh 90 µm											
P10 Resin impregnated paper 10 µm											
P25 Resin impregnated paper 25 µm											
Element Δp		Filter media									
N 10 bar		Axx	Mxx	Pxx							
H 10 bar		-	•	•							
		•	-	-							
		Seals		Bypass valve		Execution					
		B NBR		E 3 bar		P01 MP Filtri standard					
		V FPM		- 1.75 bar		Pxx Customized					

CLOGGING INDICATORS

See page 716-717

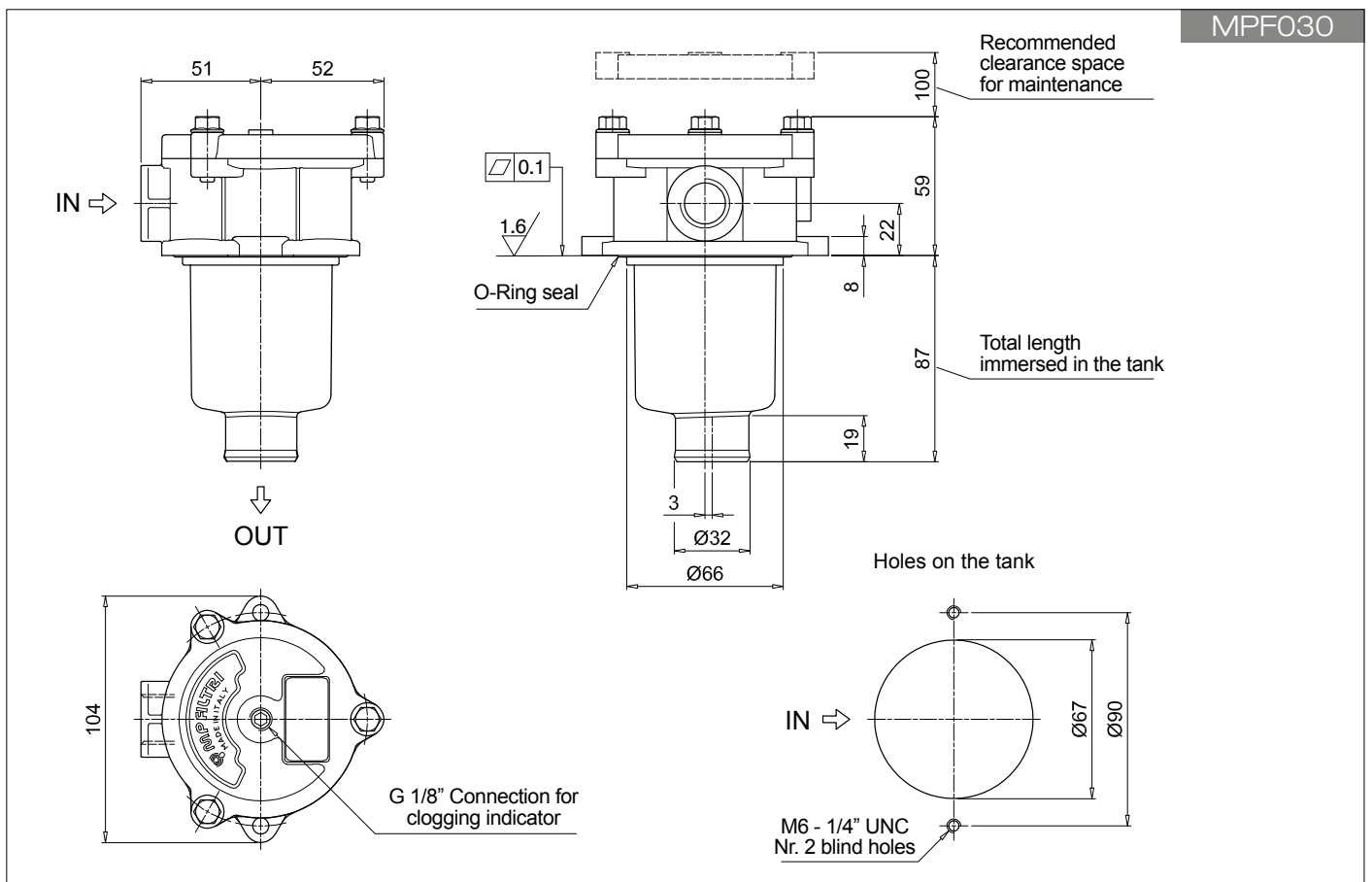
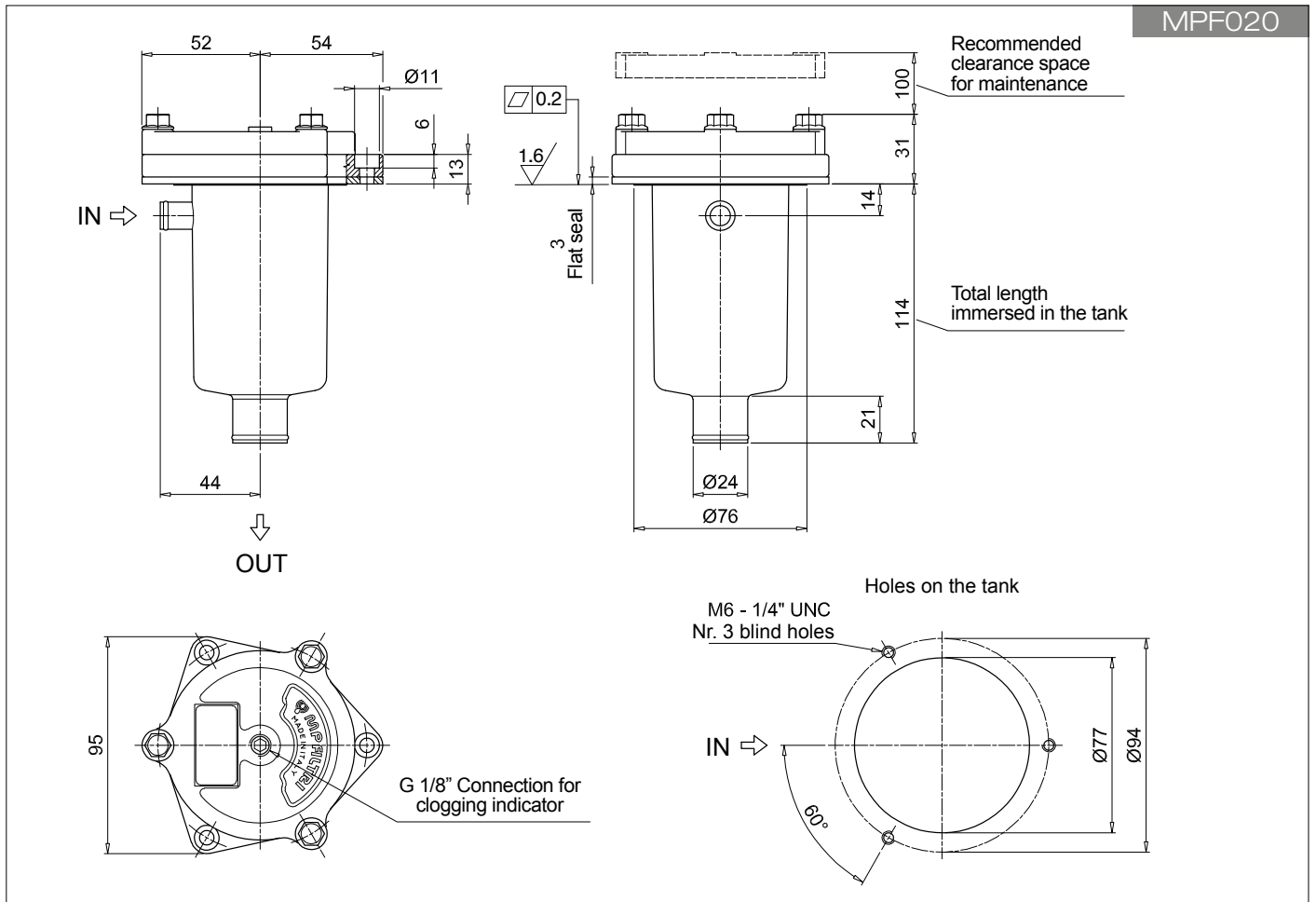
BVA	Axial pressure gauge
BVR	Radial pressure gauge
BVP	Visual pressure indicator with automatic reset
BVQ	Visual pressure indicator with manual reset

BEA	Electrical pressure indicator
BEM	Electrical pressure indicator
BLA	Electrical / visual pressure indicator

ADDITIONAL FEATURES

See page 268

TE	Extension tube
T5	Filler plug M30x1.5



MPF MPF100 - MPF104

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1: MPF100 2 W G3 A06 H B P01									
MPF100 MPF104 Filter element with standard spigot		Configuration example 2: MPF104 4 A G8 P10 N E P01									
Length											
1 2 3 4											
Seals and treatments											
A NBR											
V FPM											
W NBR head anodized											
Z FPM head anodized											
Connections		Size 100		Size 104		Connections		Size 100		Size 104	
G1 G 1/2"		•		•		G7 SAE 8 - 3/4" - 16 UNF		•		•	
G2 G 3/4"		•		•		G8 SAE 12 - 1 1/16" - 12 UN		•		•	
G3 G 1"		•		•		G9 SAE 16 - 1 5/16" - 12 UN		•		•	
G4 1/2" NPT		•		•							
G5 3/4" NPT		•		•							
G6 1" NPT		•		•							
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm											
A06 Inorganic microfiber 6 µm											
A10 Inorganic microfiber 10 µm											
A16 Inorganic microfiber 16 µm											
A25 Inorganic microfiber 25 µm											
M25 Wire mesh 25 µm											
M60 Wire mesh 60 µm											
M90 Wire mesh 90 µm											
P10 Resin impregnated paper 10 µm											
P25 Resin impregnated paper 25 µm											
Element Δp		Filter media			Bypass valve		Execution				
N 10 bar		Axx Mxx Pxx			E 3 bar		P01 MP Filtri standard				
H 10 bar		• - -			B 1.75 bar		Pxx Customized				

FILTER ELEMENT

Element series and size		Configuration example 1: MF100 2 A06 H B P01										
MF100 Filter element with standard spigot		Configuration example 2: MF100 4 P10 N B E P01										
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												
M25 Wire mesh 25 µm												
M60 Wire mesh 60 µm												
M90 Wire mesh 90 µm												
P10 Resin impregnated paper 10 µm												
P25 Resin impregnated paper 25 µm												
Element Δp		Filter media			Seals		Bypass valve		Execution			
N 10 bar		Axx Mxx Pxx			B NBR		E 3 bar		P01 MP Filtri standard			
H 10 bar		• - -			V FPM		- 1.75 bar		Pxx Customized			

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge	
BVR Radial pressure gauge	
BVP Visual pressure indicator with automatic reset	
BVQ Visual pressure indicator with manual reset	

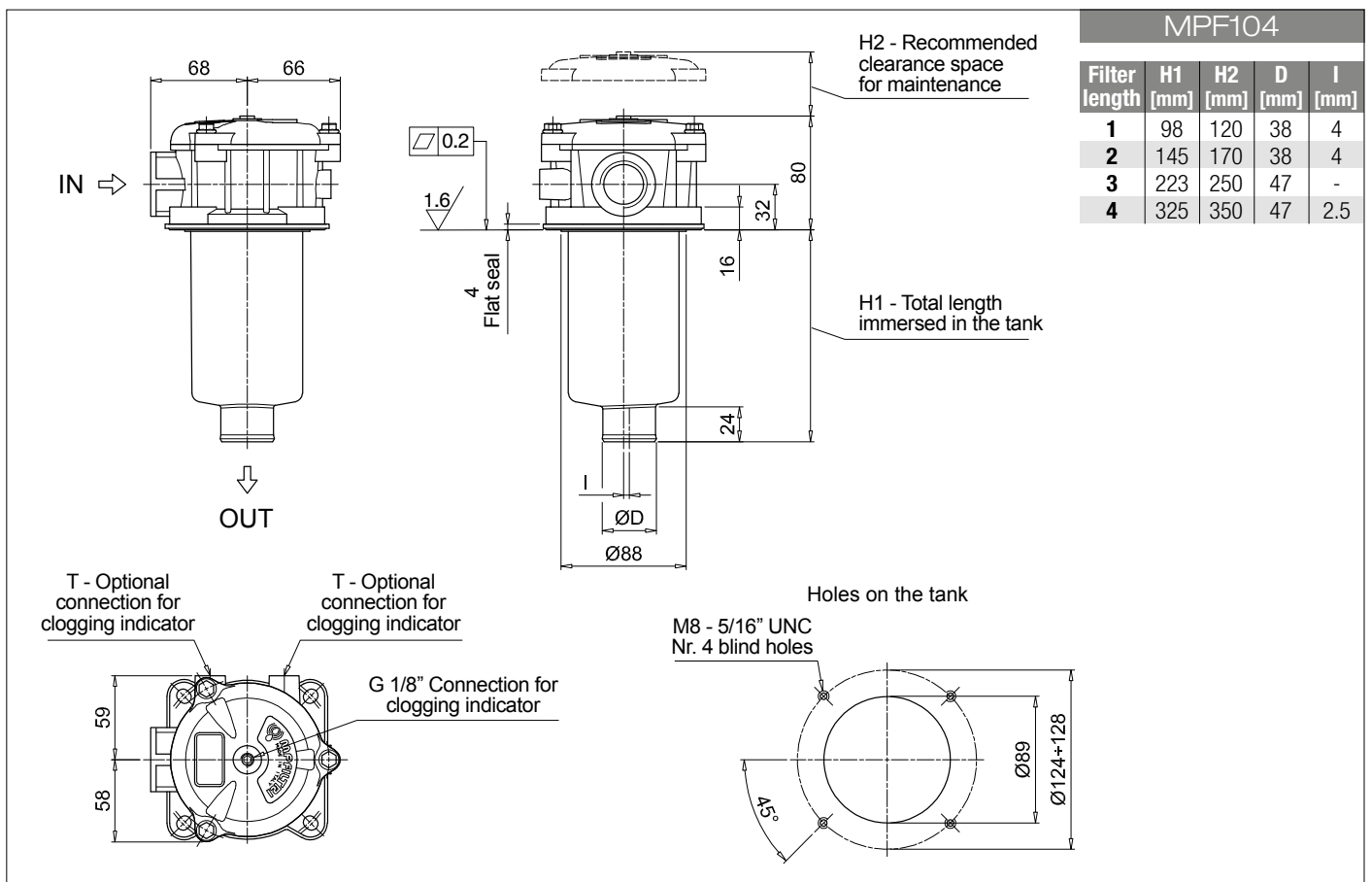
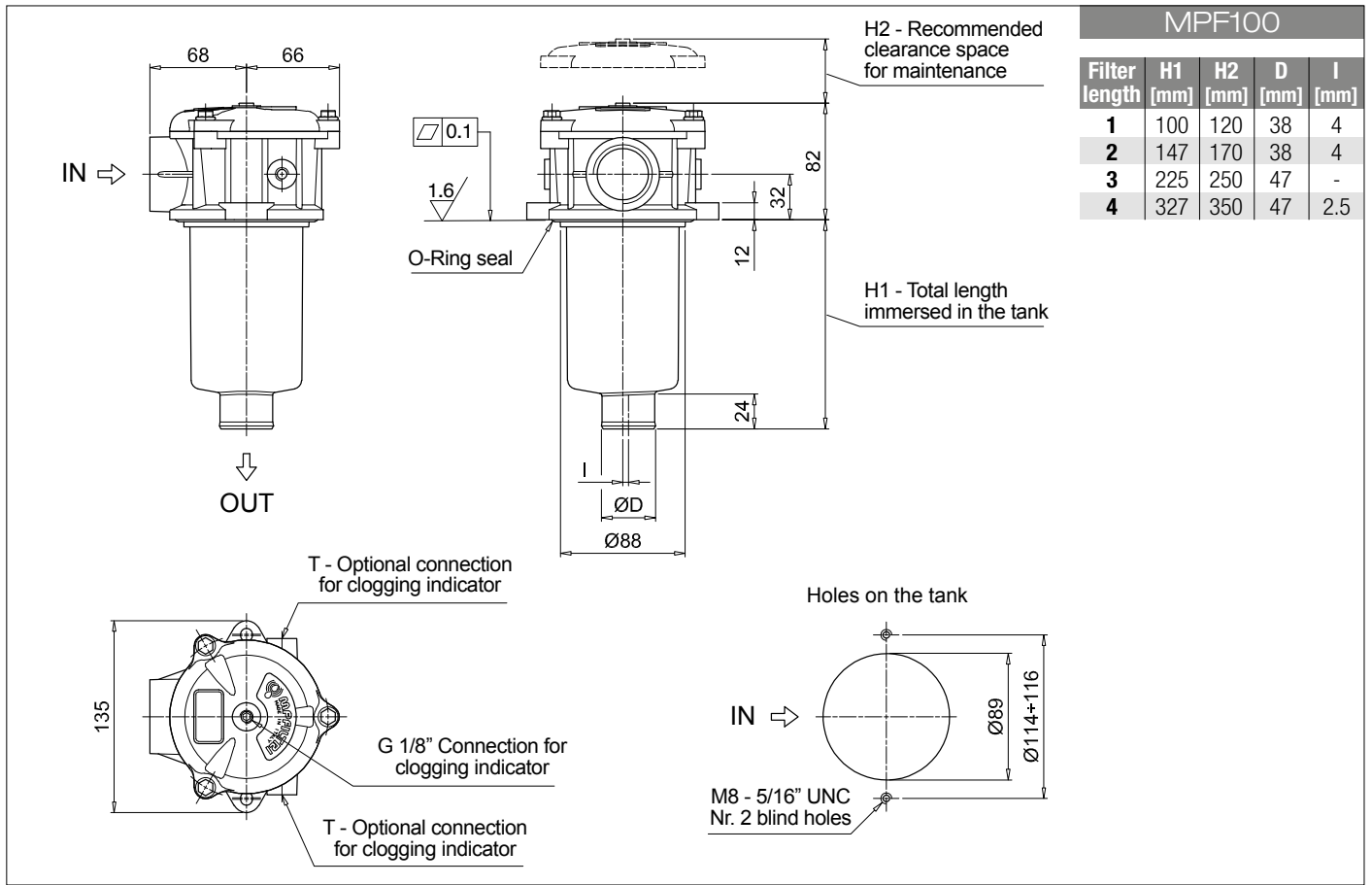
BEA Electrical pressure indicator	
BEM Electrical pressure indicator	
BLA Electrical / visual pressure indicator	

ADDITIONAL FEATURES

See page 268

TE Extension tube	
DFS Diffuser with fast lock connection	

T5 Filler plug M30x1.5	
DPT Dipstick	



Designation & Ordering code

COMPLETE FILTER

Series and size			Configuration example 1: MPF110 2 A G2 1 A16 H E P01								
MPF110 Filter element with standard spigot			Configuration example 2: MPF110 4 V G12 1 M60 N B P01								
Length											
1 2 3 4											
Seals and treatments											
A NBR			W NBR head anodized								
V FPM			Z FPM head anodized								
Main Connections		Aux size 1	Aux size 2	Main Connections		Aux size 1	Aux size 2				
G1 G 1/2"		G 3/8"	G 1/2"	G7 SAE 8 - 3/4" - 16 UNF		SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF				
G2 G 3/4"				G8 SAE 12 - 1 1/16" - 12 UN							
G3 G 1"				G9 SAE 16 - 1 5/16" - 12 UN							
G4 1/2" NPT				G10 G 1 1/4"		G 3/8"	G 1/2"				
G5 3/4" NPT		3/8" NPT	1/2" NPT	G11 1 1/4" NPT		3/8" NPT	1/2" NPT				
G6 1" NPT				G12 SAE 20 - 1 5/8" - 12 UN		SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF				
Aux connection - see previous table											
1 Aux size 1			2 Aux size 2								
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm			M25 Wire mesh 25 µm								
A06 Inorganic microfiber 6 µm			M60 Wire mesh 60 µm								
A10 Inorganic microfiber 10 µm			M90 Wire mesh 90 µm								
A16 Inorganic microfiber 16 µm			P10 Resin impregnated paper 10 µm								
A25 Inorganic microfiber 25 µm			P25 Resin impregnated paper 25 µm								

Element Δp	Filter media			Bypass valve	Execution
	Axx	Mxx	Pxx		
N 10 bar	-	•	•	E 3 bar	P01 MP Filtri standard
H 10 bar	•	-	-	B 1.75 bar	Pxx Customized

FILTER ELEMENT

Element series and size			Configuration example 1: MF100 2 A16 H B E P01								
MF100 Filter element with standard spigot			Configuration example 2: MF100 4 M60 N V P01								
Element length											
1 2 3 4											
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm			M25 Wire mesh 25 µm								
A06 Inorganic microfiber 6 µm			M60 Wire mesh 60 µm								
A10 Inorganic microfiber 10 µm			M90 Wire mesh 90 µm								
A16 Inorganic microfiber 16 µm			P10 Resin impregnated paper 10 µm								
A25 Inorganic microfiber 25 µm			P25 Resin impregnated paper 25 µm								

Element Δp	Filter media			Seals	Bypass valve	Execution
	Axx	Mxx	Pxx			
N 10 bar	-	•	•	B NBR	E 3 bar	P01 MP Filtri standard
H 10 bar	•	-	-	V FPM	- 1.75 bar	Pxx Customized

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

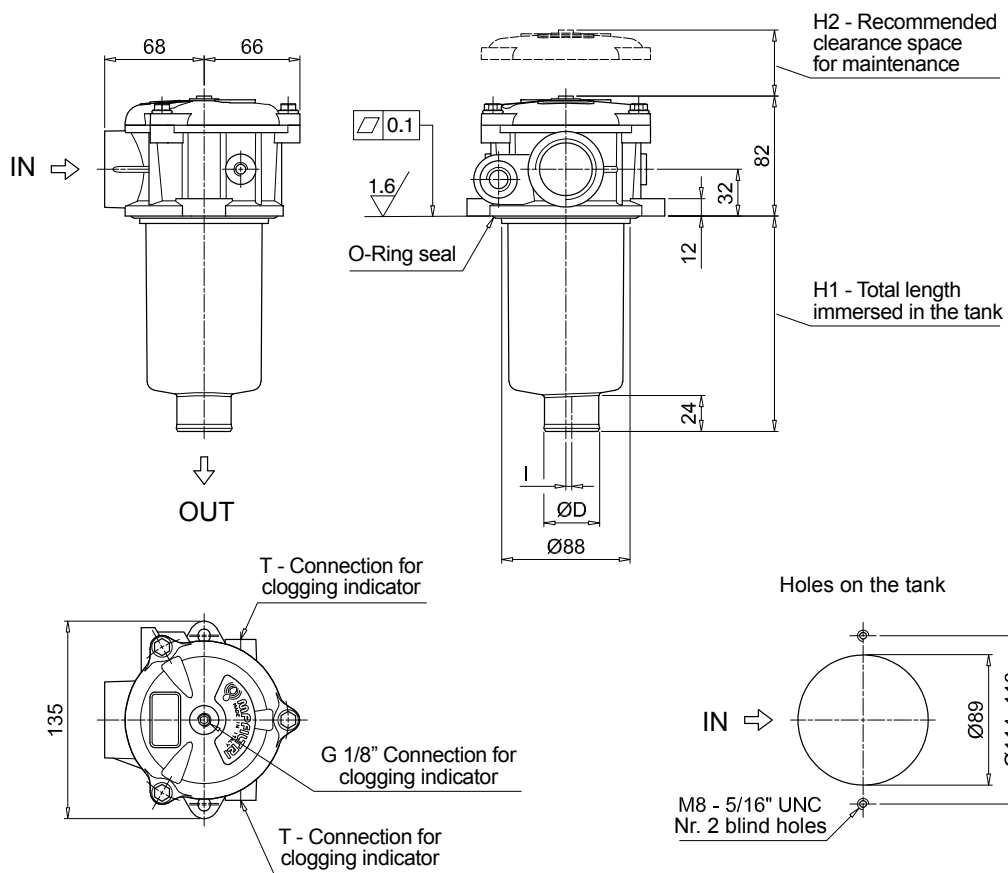
ADDITIONAL FEATURES

See page 268

TE Extension tube	T5 Filler plug M30x1.5
DFS Diffuser with fast lock connection	DPT Dipstick

MPF110				
Filter length	H1 [mm]	H2 [mm]	D [mm]	I [mm]
1	100	120	38	4
2	147	170	38	4
3	225	250	47	-
4	327	350	47	2.5

Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT
G10	G 1/8"
G11-G12	1/8" NPT



MPF MPF181 - MPF191

Designation & Ordering code

COMPLETE FILTER

Series and size			Configuration example 1: MPF181 1 A G1 A25 H E P01								
MPF181 MPF191 Filter element with standard spigot			Configuration example 2: MPF191 2 V G2 P10 N B P01								
Length		Size 181	Size 191								
1		•	-								
2		•	•								
Seals and treatments											
A NBR	B NBR	flat seal on head									
V FPM	D FPM	flat seal on head									
W NBR head anodized	L NBR	head anodized, flat seal on head									
Z FPM head anodized	M FPM	head anodized, flat seal on head									
Connections											
G1 G 1 1/4"	G5 1 1/2" NPT										
G2 G 1 1/2"	G7 SAE 20 - 1 5/8" - 12 UN										
G4 1 1/4" NPT	G8 SAE 24 - 1 7/8" - 12 UN										
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm										
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm										
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm										
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm										
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm										
Element Δp			Filter media			Bypass valve			Execution		
N 10 bar	Axx	Mxx	Pxx	E 3 bar	P01 MP Filtri standard						
H 10 bar	•	-	-	B 1.75 bar	Pxx Customized						

FILTER ELEMENT

Element series and size			Configuration example 1: MF180 1 A25 H B E P01											
MF180 MF190 Filter element with standard spigot			Configuration example 2: MF190 2 P10 N V P01											
Element length		Size 180	Size 190											
1		•	-											
2		•	•											
Filtration rating (filter media)														
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm													
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm													
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm													
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm													
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm													
Element Δp			Filter media			Seals			Bypass valve			Execution		
N 10 bar	Axx	Mxx	Pxx	B NBR	E 3 bar	P01 MP Filtri standard								
H 10 bar	•	-	-	V FPM	- 1.75 bar	Pxx Customized								

CLOGGING INDICATORS

See page 716-717

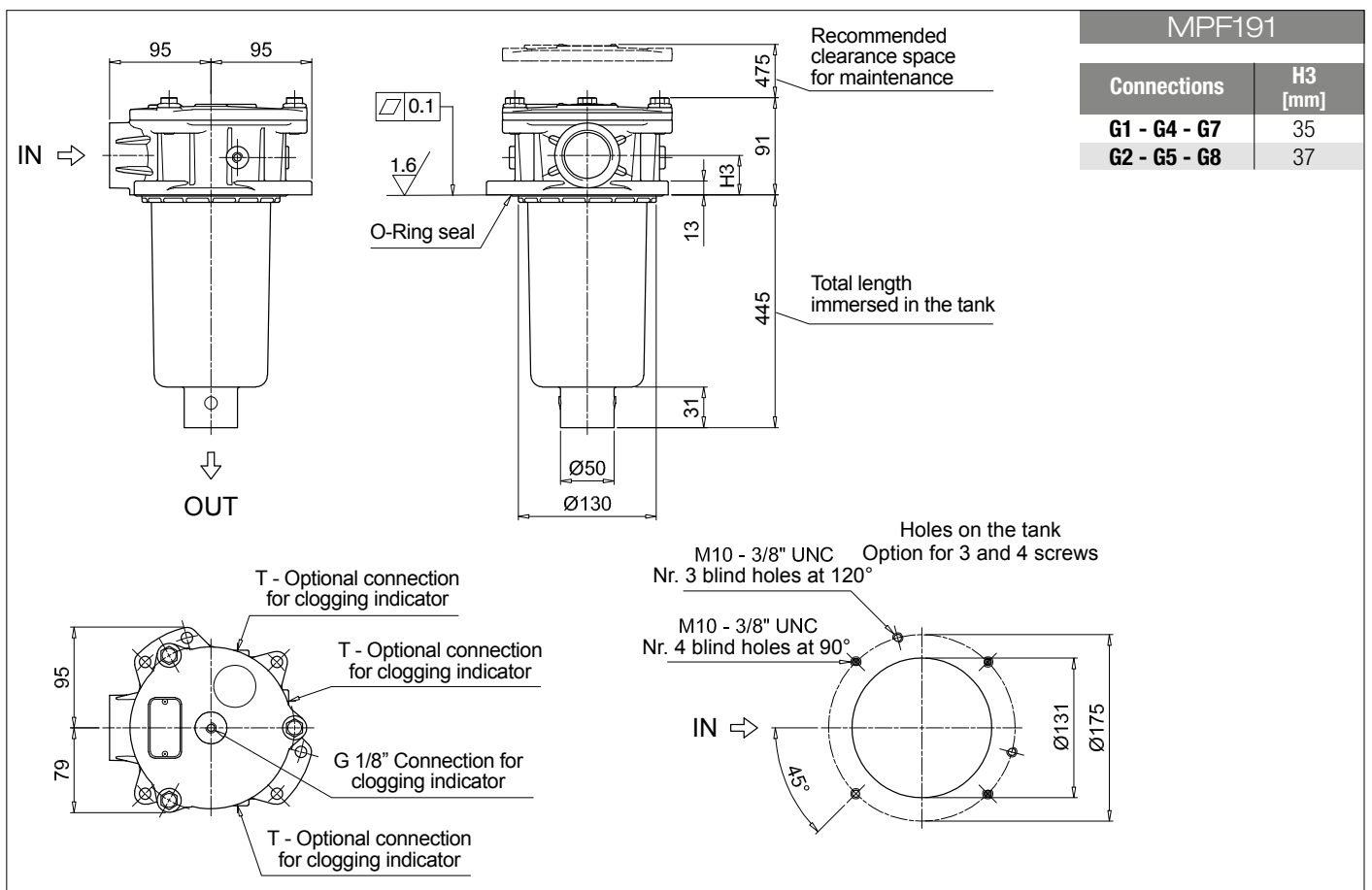
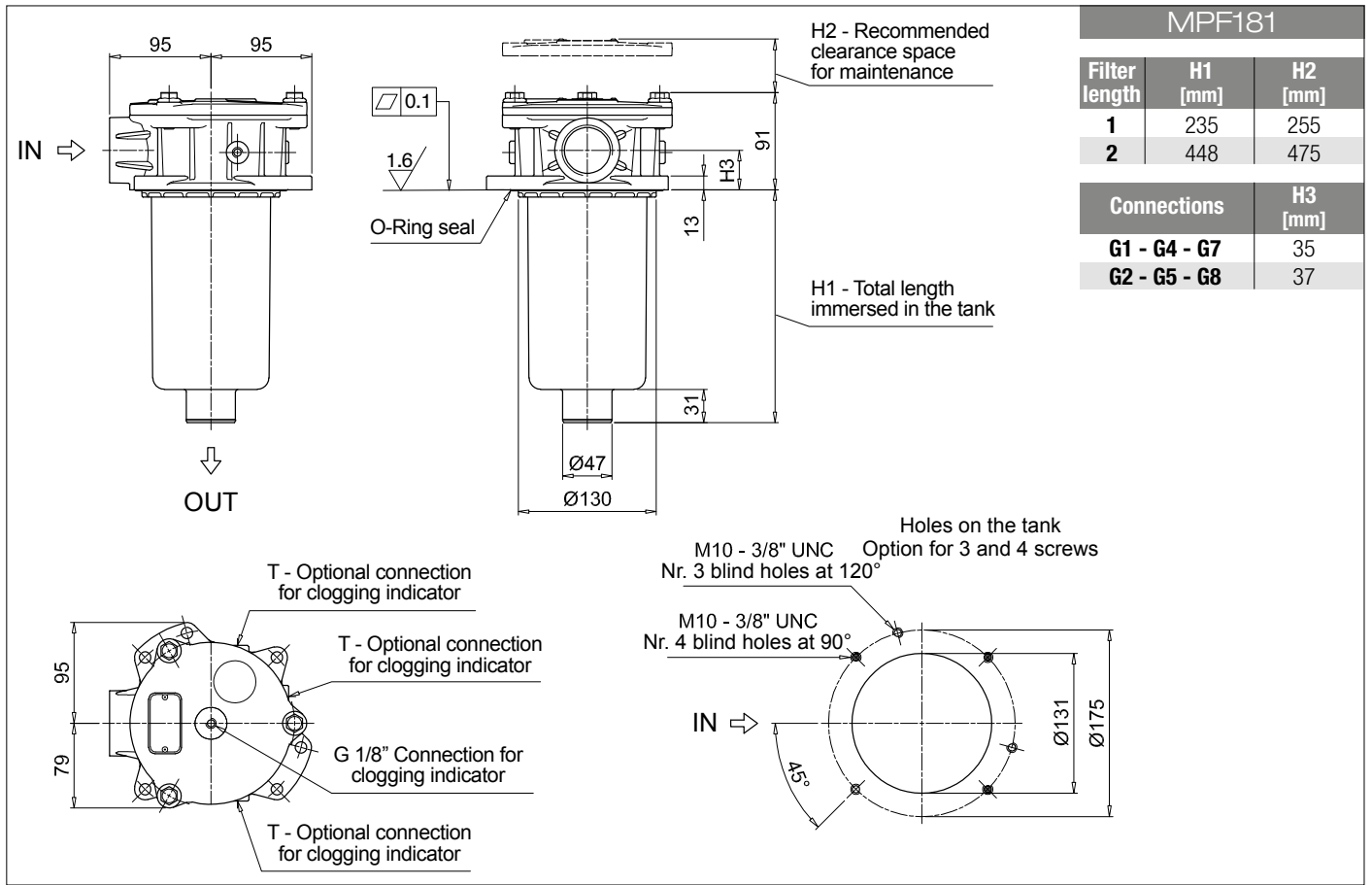
BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

ADDITIONAL FEATURES

See page 268

TE Extension tube
Sxx Extension tube
T5 Filler plug M30x1.5



MPF MPF182 - MPF192

Designation & Ordering code

COMPLETE FILTER

Series and size			Configuration example 1: MPF182 1 A G1 1 A25 H E P01								
MPF182 MPF192 Filter element with standard spigot			Configuration example 2: MPF192 2 V G4 2 P10 N B P01								
Length		Size 182	Size 192								
1		•	-								
2		•	•								
Seals and treatments											
A NBR	B NBR	flat seal on head									
V FPM	D FPM	flat seal on head									
W NBR head anodized	L NBR	head anodized, flat seal on head									
Z FPM head anodized	M FPM	head anodized, flat seal on head									
Main Connections		Aux size 1	Aux size 2								
G1 G 1 1/4"		G 1/2"	G 3/4"								
G4 1 1/4" NPT		1/2" NPT	3/4" NPT								
G7 SAE 20 - 1 5/8" - 12 UN		SAE 8 - 3/16" - 16 UNF	SAE 12 - 1 1/16" - 12 UN								
Aux connection - see previous table											
1 Aux size 1		2 Aux size 2									
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm										
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm										
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm										
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm										
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm										
Element Δp			Filter media			Bypass valve		Execution			
N 10 bar	Axx	Mxx	Pxx	E 3 bar	P01 MP Filtri standard						
H 10 bar	•	-	-	B 1.75 bar	Pxx Customized						

FILTER ELEMENT

Element series and size			Configuration example 1: MF180 1 A25 H B E P01								
MF180 MF190 Filter element with standard spigot			Configuration example 2: MF190 2 P10 N V P01								
Element length		Size 180	Size 190								
1		•	-								
2		•	•								
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm										
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm										
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm										
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm										
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm										
Element Δp			Filter media			Seals		Bypass valve		Execution	
N 10 bar	Axx	Mxx	Pxx	B NBR	E 3 bar	P01 MP Filtri standard					
H 10 bar	•	-	-	V FPM	- 1.75 bar	Pxx Customized					

CLOGGING INDICATORS

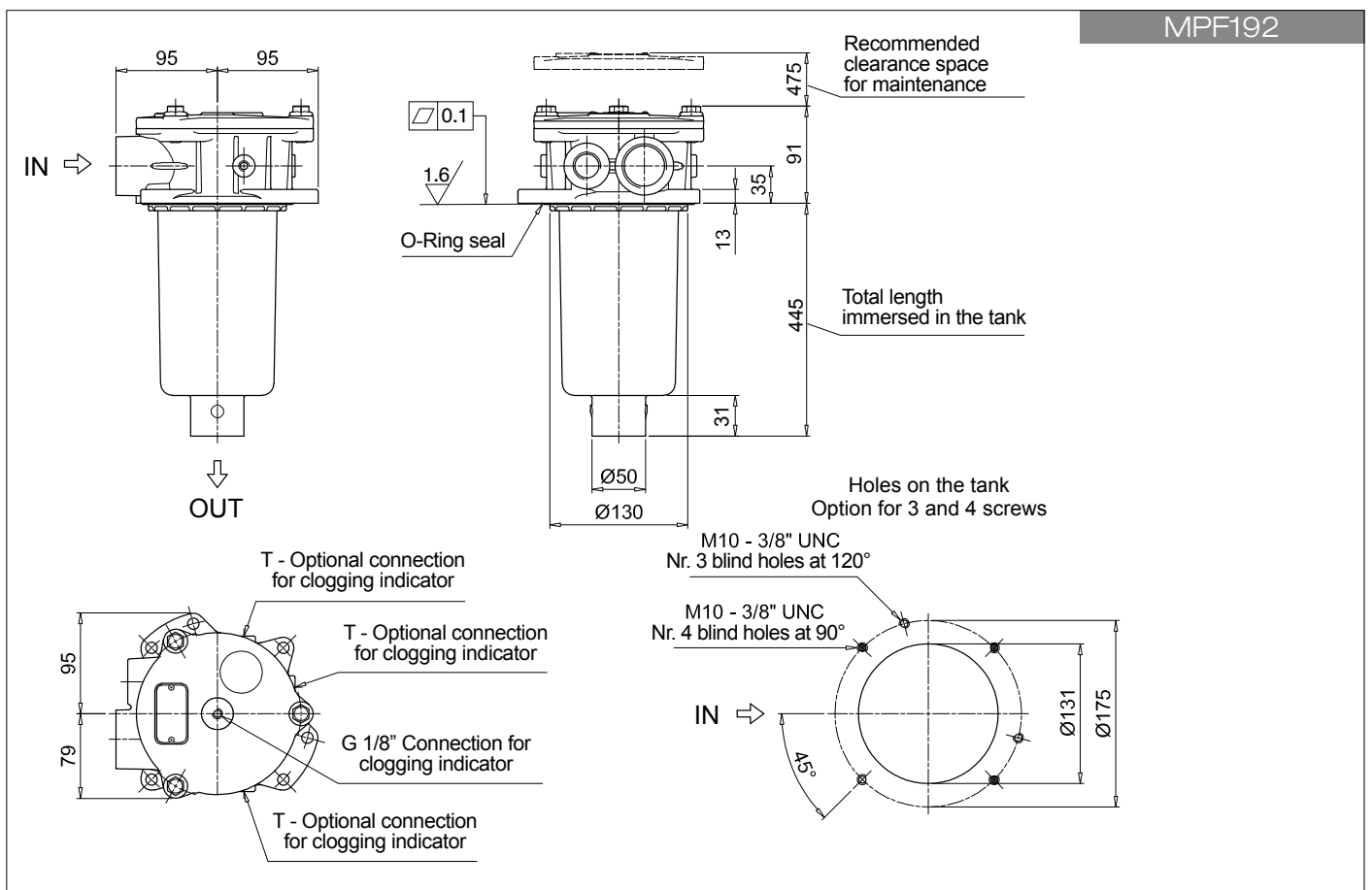
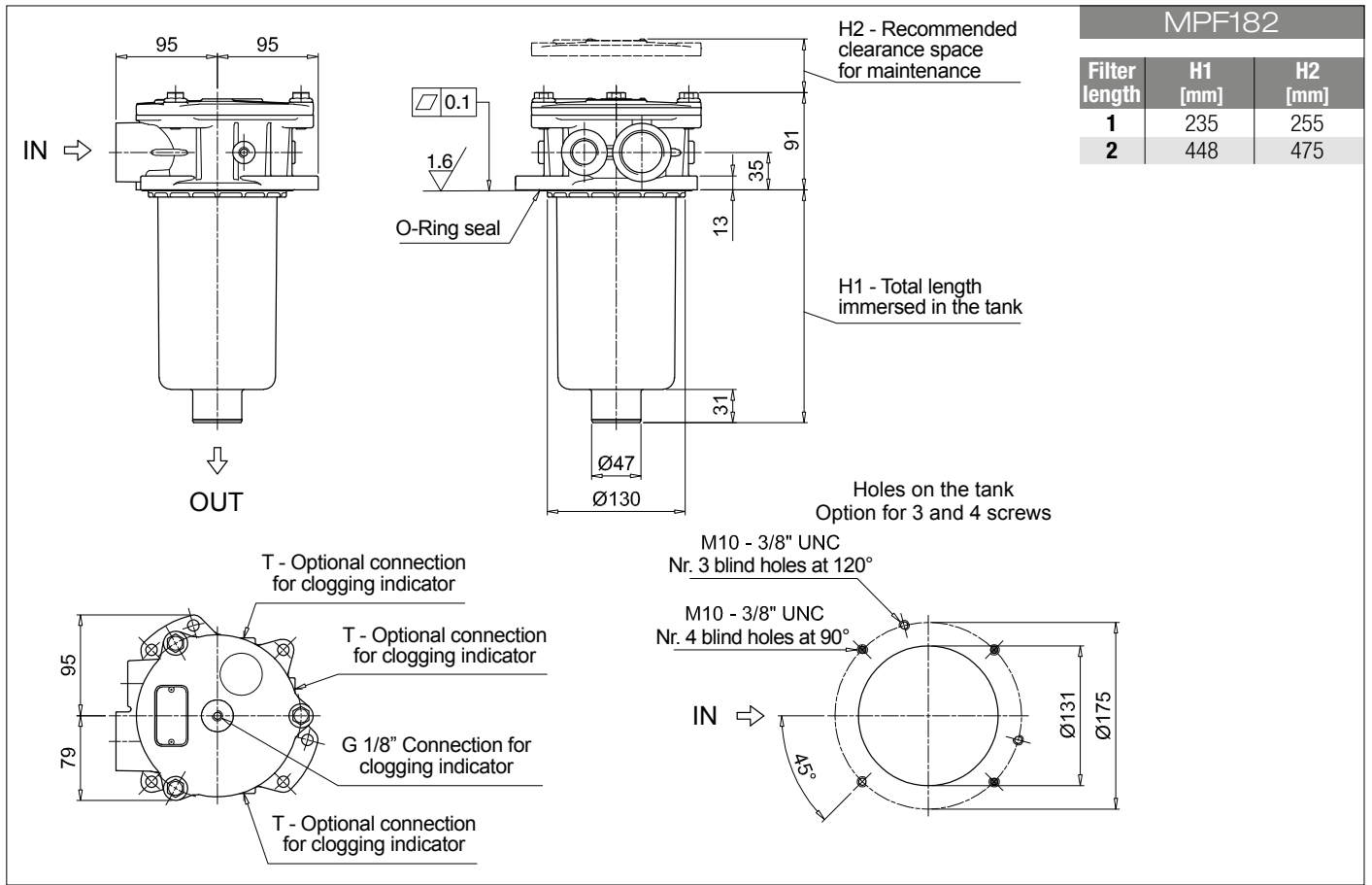
See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

ADDITIONAL FEATURES

See page 268

TE Extension tube
Sxx Extension tube
T5 Filler plug M30x1.5



MPF MPF184 - MPF194

Designation & Ordering code

COMPLETE FILTER

Series and size			Configuration example 1: MPF184 1 A G1 A25 H E P01							
MPF184	MPF194	Filter element with standard spigot	Configuration example 2: MPF194 2 V F3 P10 N B P01							
Length		Size 184	Size 194							
1		•	-							
2		•	•							
Seals and treatments										
A	NBR	W	NBR	head anodized						
V	FPM	Z	FPM	head anodized						
Main Connections		Rear connections		Main Connections		Rear connections				
G1	G 1 1/4"	-		G13	G 1 1/2"	-				
G2	G 1 1/4"	G 1 1/4"		G14	G 1 1/2"	G 1 1/4"				
G4	1 1/4" NPT	-		G15	1 1/2" NPT	-				
G5	1 1/4" NPT	1 1/4" NPT		G16	1 1/2" NPT	1 1/4" NPT				
G7	SAE 20 - 1 5/8" - 12 UN	-		F1	1 1/2" SAE 3000 psi/M	-				
G8	SAE 20 - 1 5/8" - 12 UN	SAE 20 - 1 5/8" - 12 UN		F2	1 1/2" SAE 3000 psi/UNC	-				
G10	SAE 24 - 1 7/8" - 12 UN	-		F3	1 1/2" SAE 3000 psi/M	1 1/2" SAE 3000 psi/M				
G11	SAE 24 - 1 7/8" - 12 UN	SAE 20 - 1 5/8" - 12 UN		F4	1 1/2" SAE 3000 psi/UNC	1 1/2" SAE 3000 psi/UNC				
Filtration rating (filter media)										
A03	Inorganic microfiber	3 µm		M25	Wire mesh	25 µm				
A06	Inorganic microfiber	6 µm		M60	Wire mesh	60 µm				
A10	Inorganic microfiber	10 µm		M90	Wire mesh	90 µm				
A16	Inorganic microfiber	16 µm		P10	Resin impregnated paper	10 µm				
A25	Inorganic microfiber	25 µm		P25	Resin impregnated paper	25 µm				

Element Δp		Filter media			Bypass valve		Execution	
N	10 bar	Axx	Mxx	Pxx	E	3 bar	P01	MP Filtri standard
H	10 bar	•	-	-	B	1.75 bar	Pxx	Customized

FILTER ELEMENT

Element series and size			Configuration example 1: MF180 1 A25 H B E P01							
MF180	MF190	Filter element with standard spigot	Configuration example 2: MF190 2 P10 N V P01							
Element length		Size 180	Size 190							
1		•	-							
2		•	•							
Filtration rating (filter media)										
A03	Inorganic microfiber	3 µm		M25	Wire mesh	25 µm				
A06	Inorganic microfiber	6 µm		M60	Wire mesh	60 µm				
A10	Inorganic microfiber	10 µm		M90	Wire mesh	90 µm				
A16	Inorganic microfiber	16 µm		P10	Resin impregnated paper	10 µm				
A25	Inorganic microfiber	25 µm		P25	Resin impregnated paper	25 µm				

Element Δp		Filter media			Seals		Bypass valve		Execution	
N	10 bar	Axx	Mxx	Pxx	B	NBR	E	3 bar	P01	MP Filtri standard
H	10 bar	•	-	-	V	FPM	-	1.75 bar	Pxx	Customized

CLOGGING INDICATORS

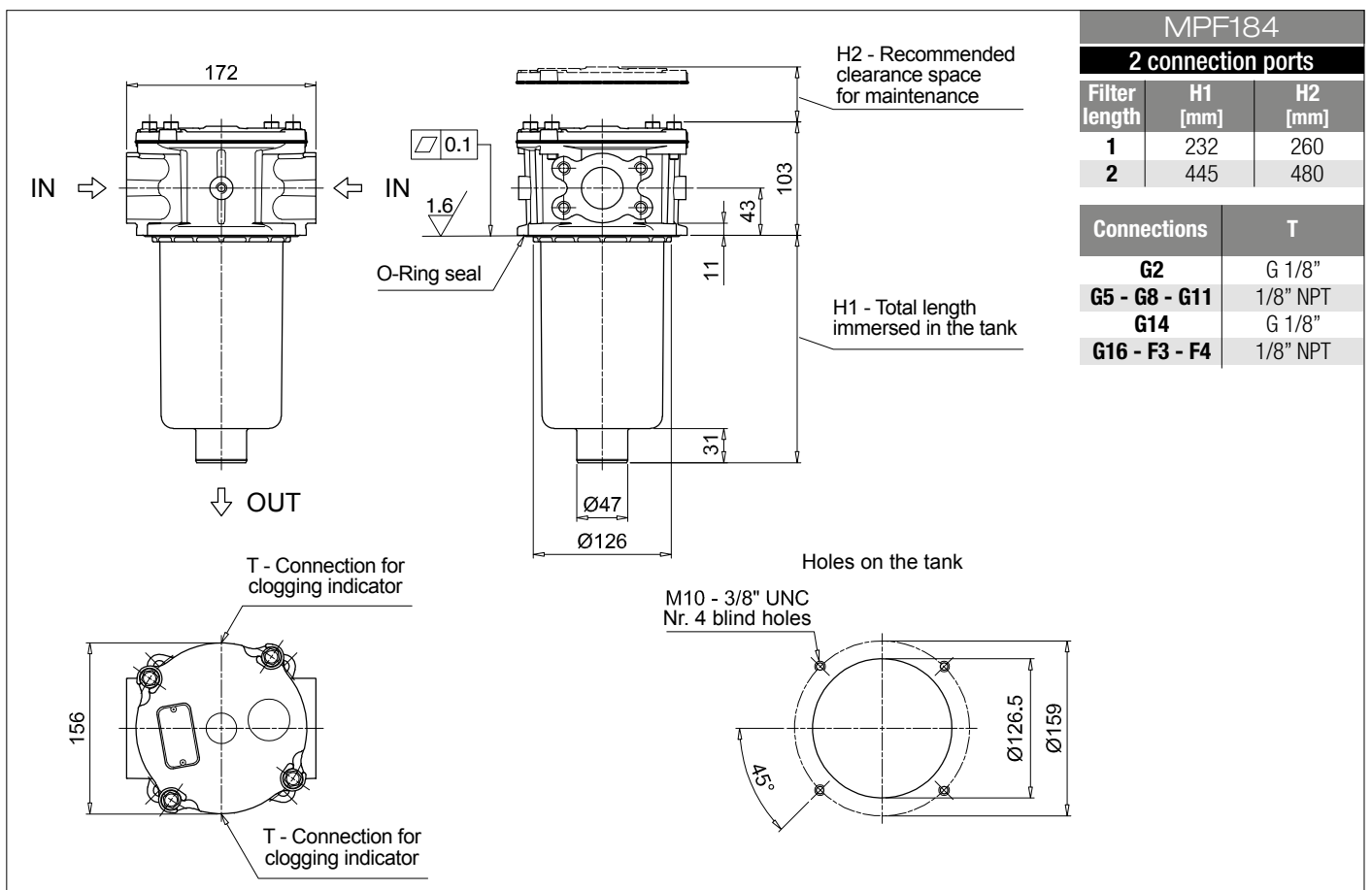
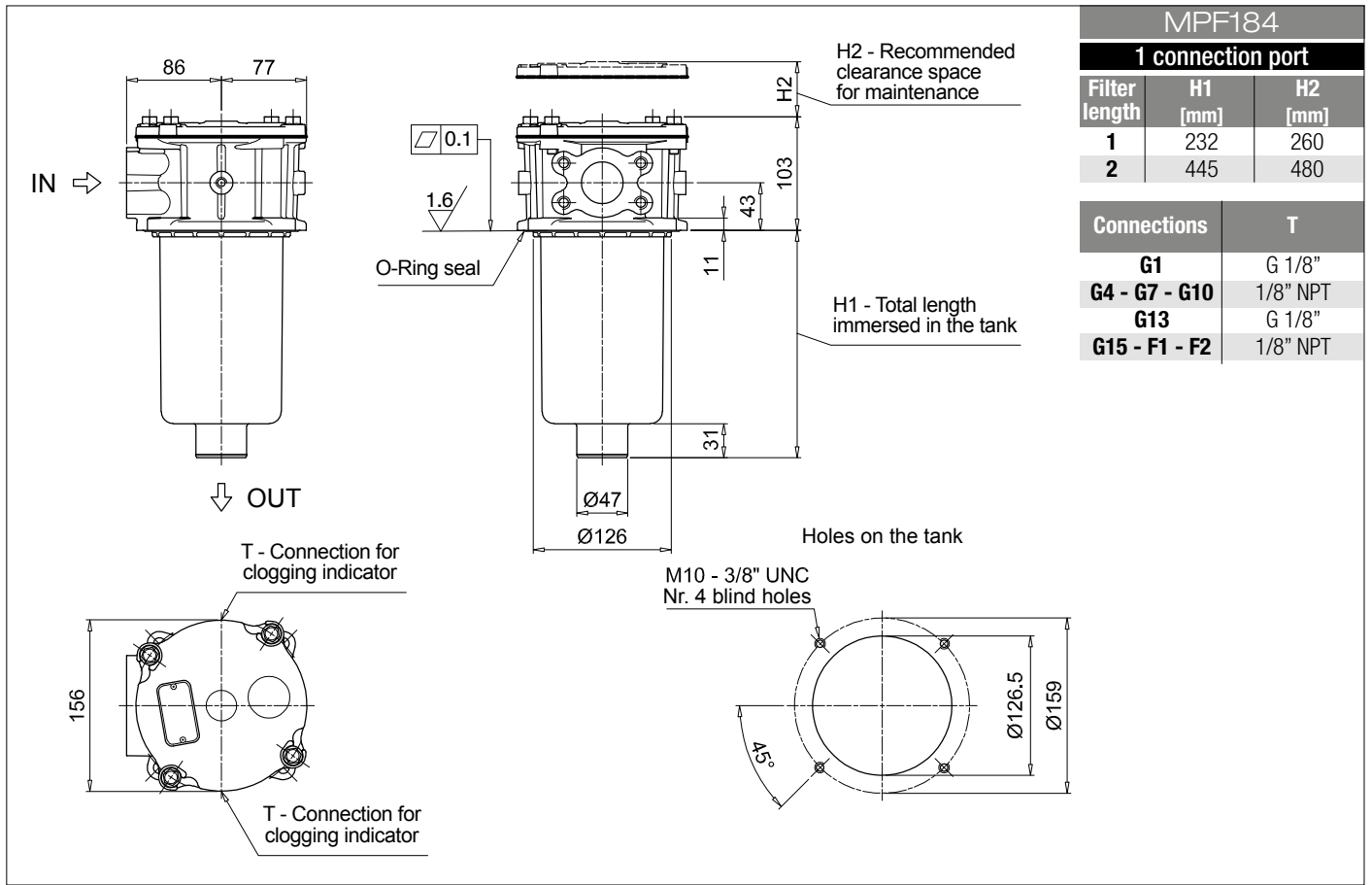
See page 716-717

BVA	Axial pressure gauge	BEA	Electrical pressure indicator
BVR	Radial pressure gauge	BEM	Electrical pressure indicator
BVP	Visual pressure indicator with automatic reset	BLA	Electrical / visual pressure indicator
BVQ	Visual pressure indicator with manual reset		

ADDITIONAL FEATURES

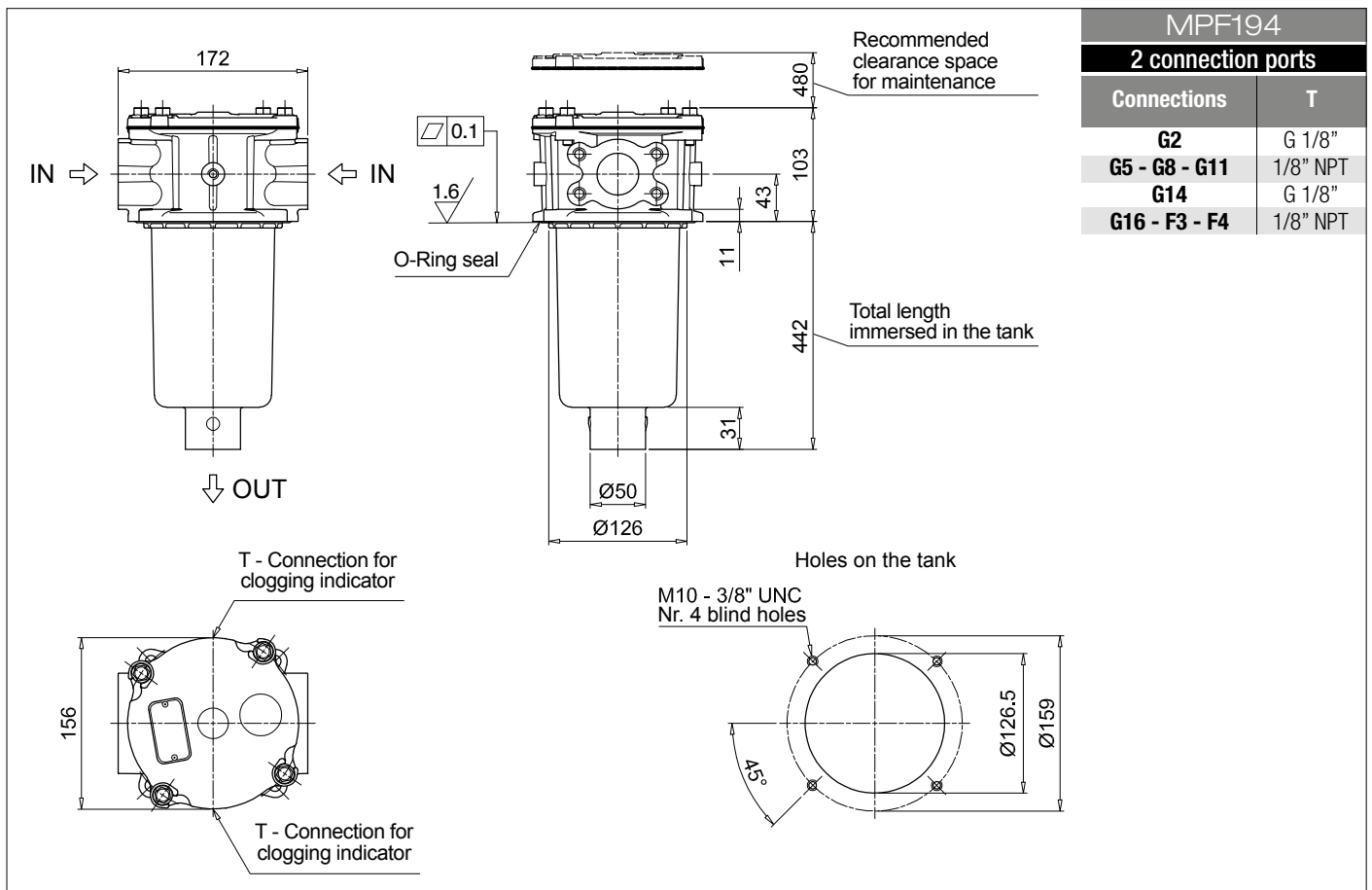
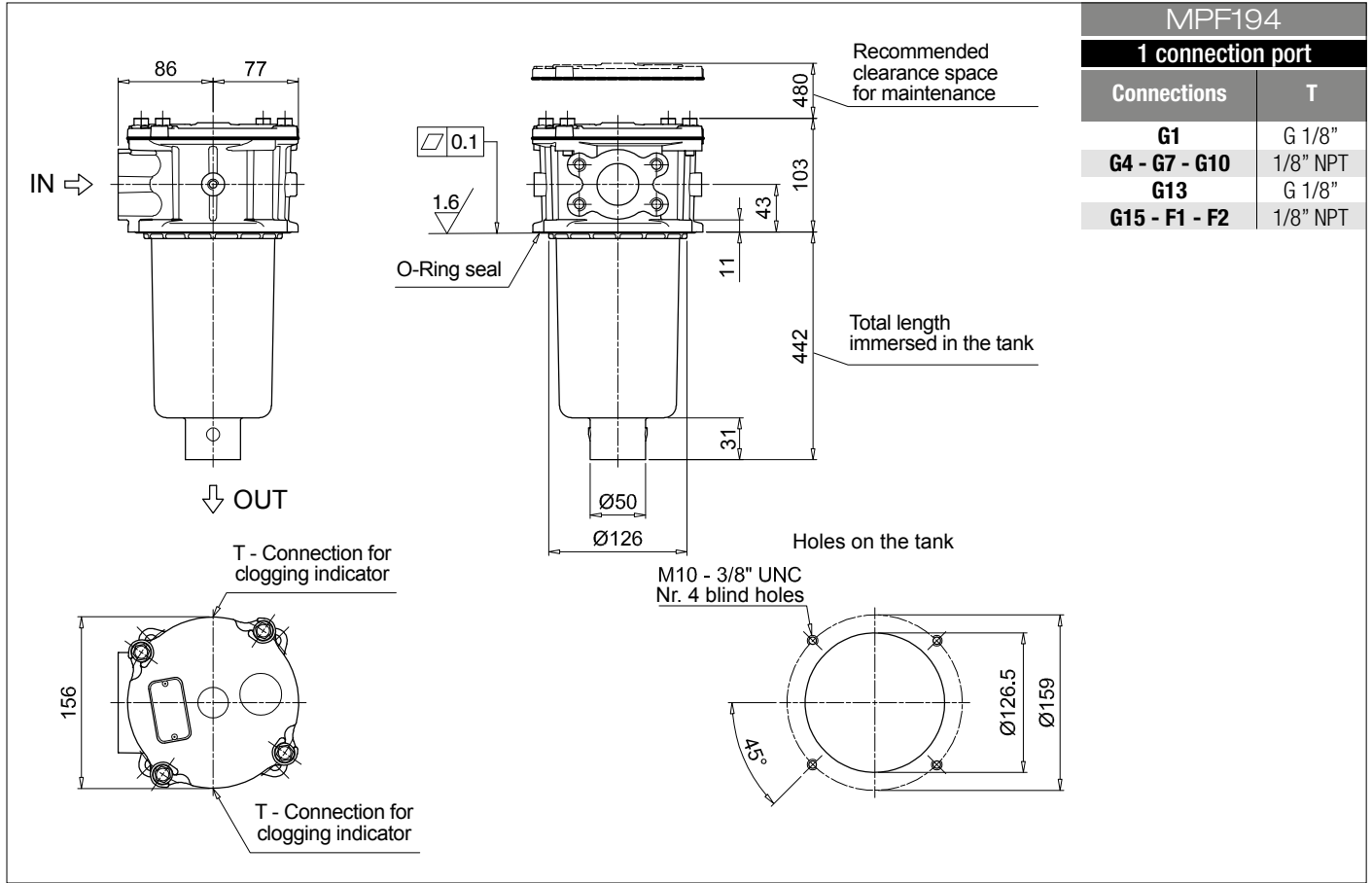
See page 268

TE	Extension tube
Sxx	Extension tube
T5	Filler plug M30x1.5



MPF MPF184 - MPF194

Dimensions



Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1:		MPF400	1	A	G9	A25	H	B	P01
MPF400 Filter element with standard spigot		Configuration example 2:		MPF400	2	V	G4	P10	N	E	P01
Length											
1 2 3											
Seals and treatments											
A NBR											
V FPM											
W NBR head anodized											
Z FPM head anodized											
Connections											
G1 G 1 1/4"		G6 2" NPT									
G2 G 1 1/2"		G7 SAE 20 - 1 5/8" - 12 UN									
G3 G 2"		G8 SAE 24 - 1 7/8" - 12 UN									
G4 1 1/4" NPT		G9 SAE 32 - 2 1/2" - 12 UN									
G5 1 1/2" NPT											
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm									
Element Δp		Filter media			Bypass valve		Execution				
N 10 bar		Axx	Mxx	Pxx	E 3 bar		P01 MP Filtri standard				
H 10 bar		•	-	-	B 1.75 bar		Pxx Customized				

FILTER ELEMENT

Element series and size		Configuration example 1:		MF400	1	A25	H	B		P01	
MF400 Filter element with standard spigot		Configuration example 2:		MF400	2	P10	N	V	E	P01	
Element length											
1 2 3											
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm									
Element Δp		Filter media			Seals		Bypass valve		Execution		
N 10 bar		Axx	Mxx	Pxx	B NBR		E 3 bar		P01 MP Filtri standard		
H 10 bar		•	-	-	V FPM		- 1.75 bar		Pxx Customized		

CLOGGING INDICATORS

See page 716-717

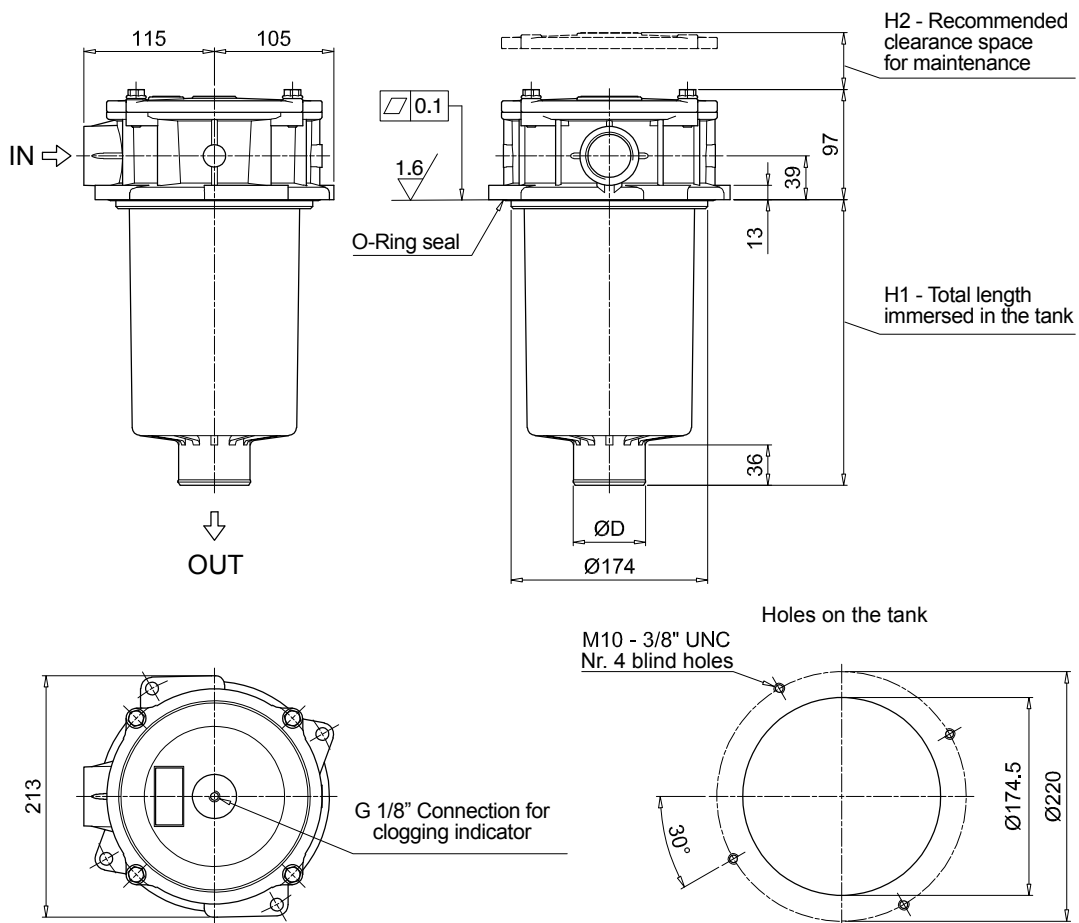
BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

ADDITIONAL FEATURES

See page 268

Sxx Extension tube
T5 Filler plug M30x1.5

MPF400			
Filter length	H1 [mm]	H2 [mm]	D [mm]
1	180	210	51
2	240	270	64
3	290	315	64



Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1: MPF410 1 A G1 1 A25 H B P01									
MPF410 Filter element with standard spigot		Configuration example 2: MPF410 1 V G4 1 P10 N E P01									
Length		1 2 3									
Seals and treatments											
A NBR											
V FPM											
W NBR head anodized											
Z FPM head anodized											
Main Connections		Aux size 1									
G1 G 1 1/4"		G 1"									
G4 1 1/4" NPT		1" NPT									
G7 SAE 20 - 1 5/8" - 12 UN		SAE 16 - 1 5/16" - 12 UN									
Aux connection - see previous table											
1 Aux size 1											
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm									
Element Δp		Filter media			Bypass valve		Execution				
N 10 bar		Axx Mxx Pxx			E 3 bar		P01 MP Filtri standard				
H 10 bar		• - -			B 1.75 bar		Pxx Customized				

FILTER ELEMENT

Element series and size		Configuration example 1: MF400 1 A25 H B P01									
MF400 Filter element with standard spigot		Configuration example 2: MF400 1 P10 N V E P01									
Element length		1 2 3									
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm									
Element Δp		Filter media			Seals		Bypass valve		Execution		
N 10 bar		Axx Mxx Pxx			B NBR		E 3 bar		P01 MP Filtri standard		
H 10 bar		• - -			V FPM		- 1.75 bar		Pxx Customized		

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

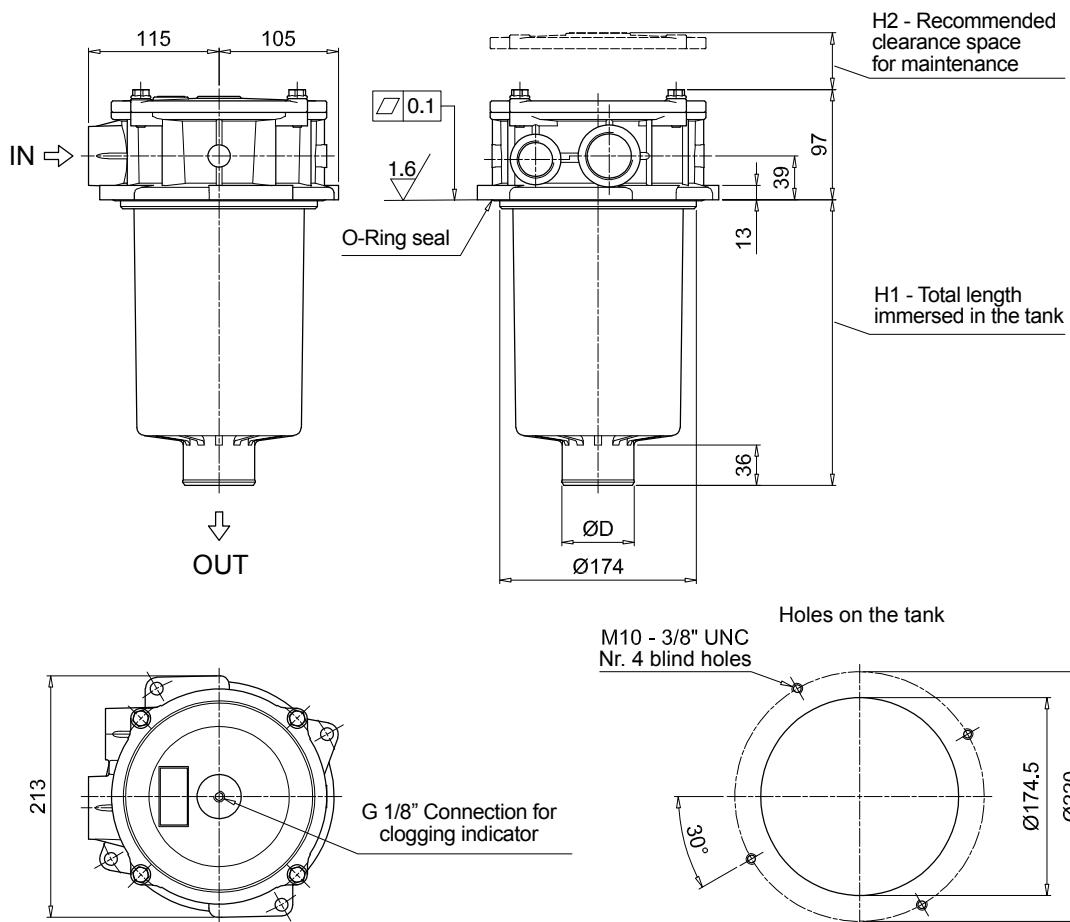
BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

ADDITIONAL FEATURES

See page 268

Sxx Extension tube
T5 Filler plug M30x1.5

MPF410			
Filter length	H1 [mm]	H2 [mm]	D [mm]
1	180	210	51
2	240	270	64
3	290	315	64



MPF MPF450 - MPF451 - MPF750

Designation & Ordering code

COMPLETE FILTER

Series and size				Configuration example 1: MPF450 1 A G1 A25 H B P01								
MPF450 MPF451 MPF750	Filter element with standard spigot			Configuration example 2: MPF750 1 V F2 P10 N E P01								
Length				MPF 450	MPF 451	MPF 750						
1		•	•	•								
2		•	•	-								
3		•	•	-								
Seals and treatments												
A NBR	W NBR	head anodized										
V FPM	Z FPM	head anodized										
Connections				Aux (only size 451)								
G1 G 2"	G 3/4"											
G4 2" NPT	3/4" NPT											
G7 SAE 32 - 2 1/2" - 12 UN	SAE 12 - 1 1/16" - 12 UN											
F1 2" SAE 3000 psi/M	G 3/4"											
F2 2" SAE 3000 psi/UNC	3/4" NPT											
Filtration rating (filter media)												
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm											
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm											
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm											
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm											
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm											
Element Δp				Filter media			Bypass valve		Execution			
N 10 bar	Axx	Mxx	Pxx	-	•	•	E 3 bar	P01 MP Filtri standard				
H 10 bar	•	-	-	•	-	-	B 1.75 bar	Pxx Customized				

FILTER ELEMENT

Element series and size				Configuration example 1: MF400 1 A25 H B P01								
MF400 IMF750	Filter element with standard spigot			Configuration example 2: MF750 1 P10 N V E P01								
Element length				MPF 450	MPF 451	MPF 750						
1		•	•	•								
2		•	•	-								
3		•	•	-								
Filtration rating (filter media)												
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm											
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm											
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm											
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm											
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm											
Element Δp				Filter media			Seals		Bypass valve		Execution	
N 10 bar	Axx	Mxx	Pxx	-	•	•	B NBR	E 3 bar	P01 MP Filtri standard			
H 10 bar	•	-	-	•	-	-	V FPM	- 1.75 bar	Pxx Customized			

CLOGGING INDICATORS

See page 716-717

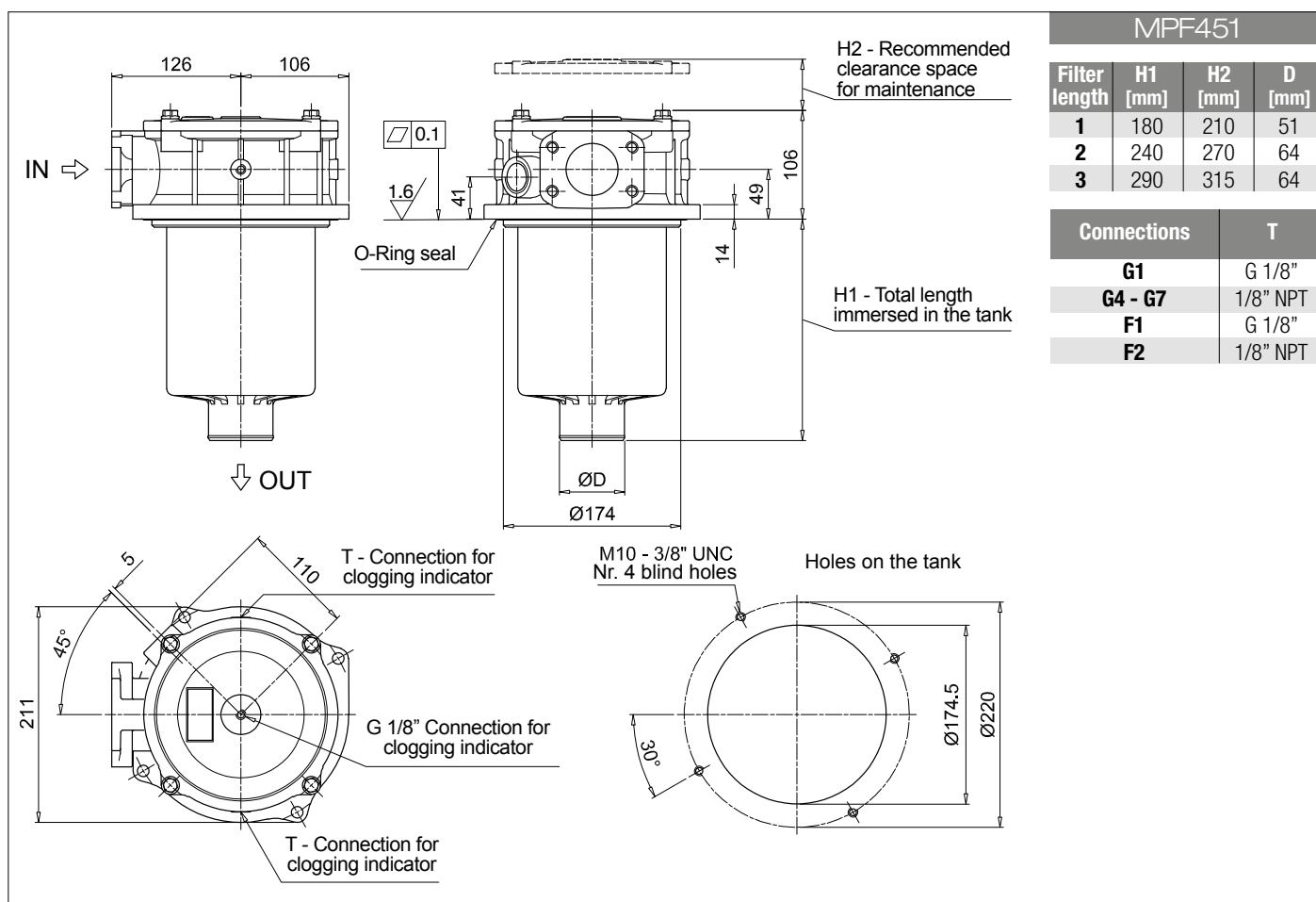
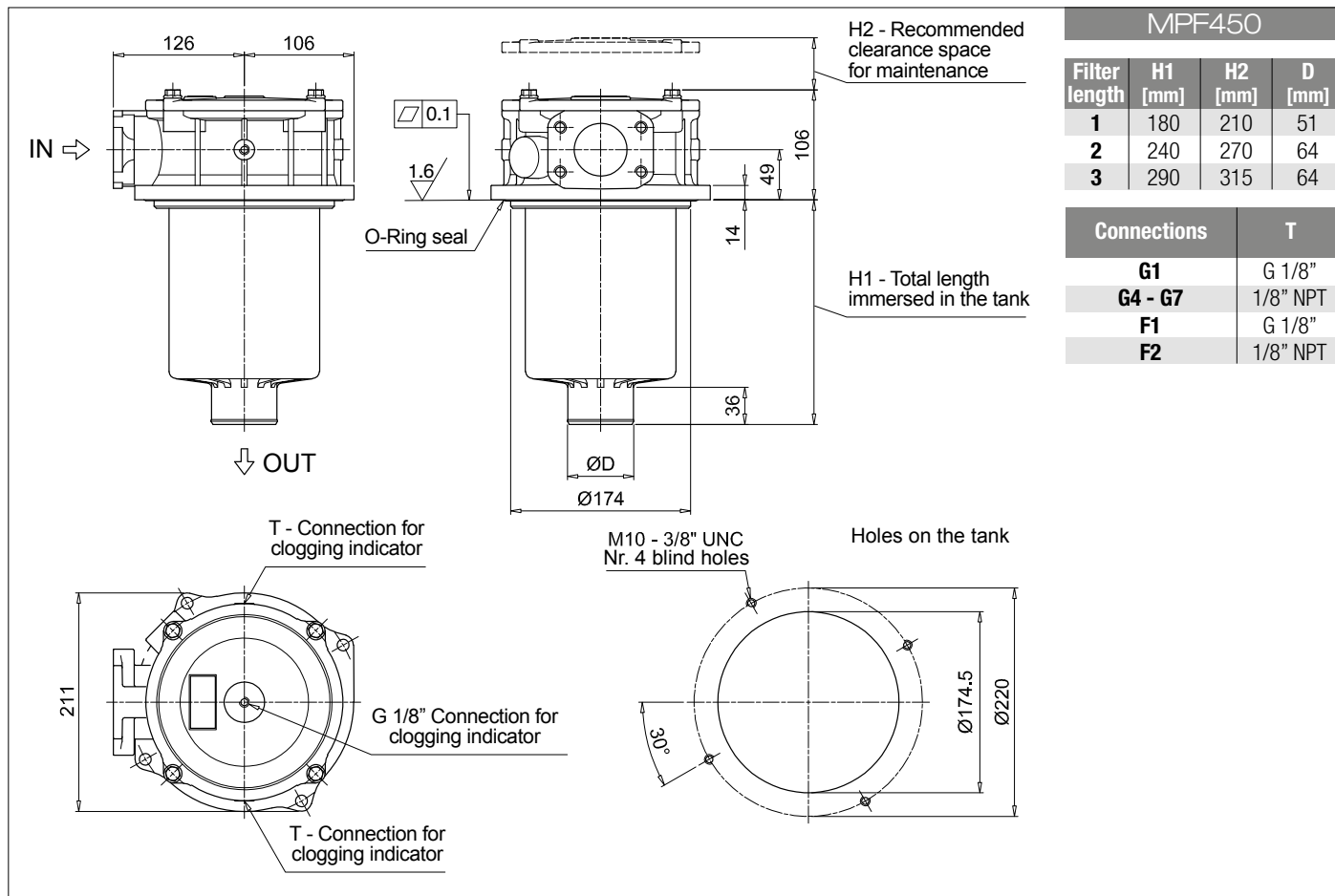
BVA Axial pressure gauge	
BVR Radial pressure gauge	
BVP Visual pressure indicator with automatic reset	
BVQ Visual pressure indicator with manual reset	

BEA Electrical pressure indicator	
BEM Electrical pressure indicator	
BLA Electrical / visual pressure indicator	

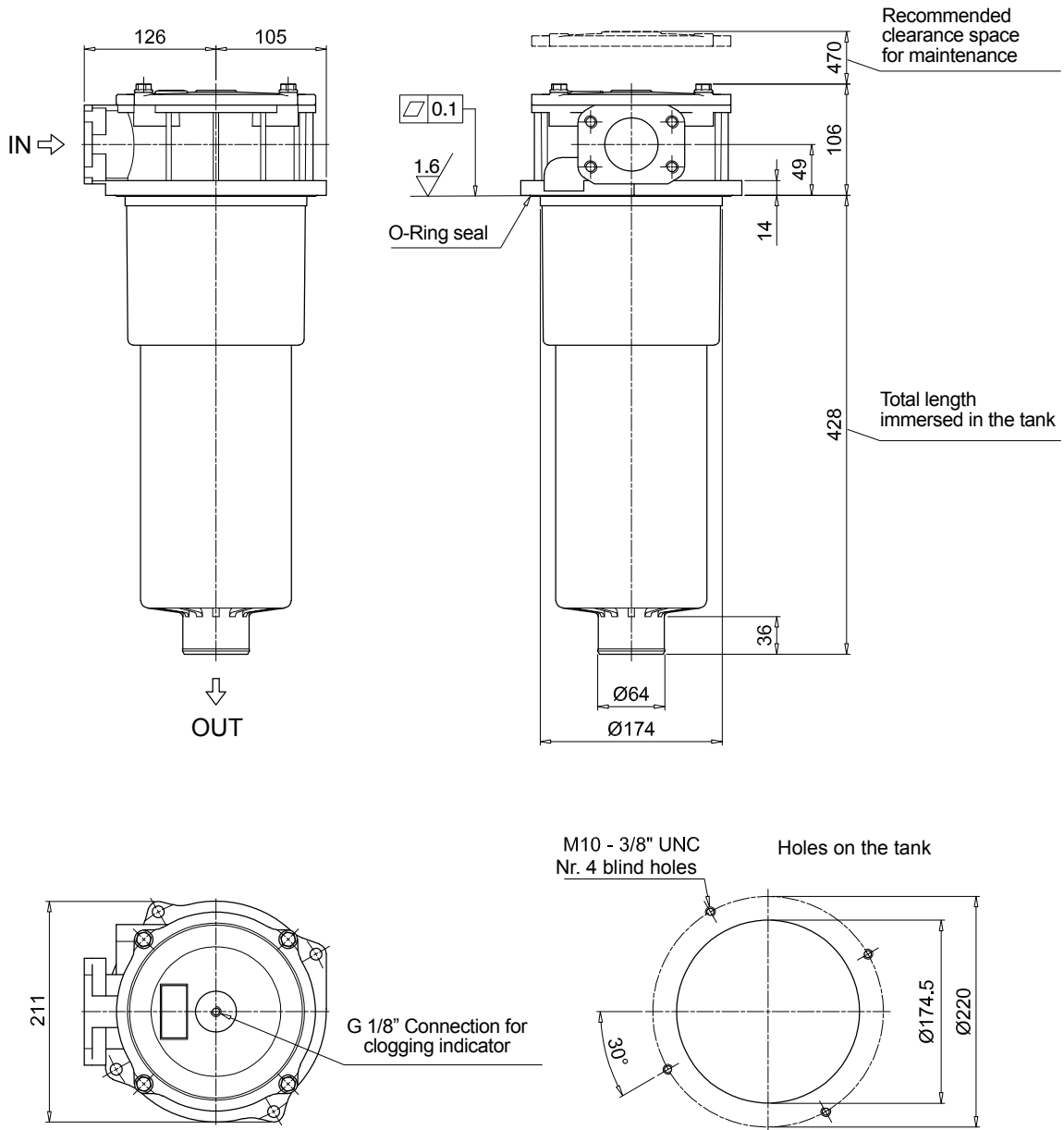
ADDITIONAL FEATURES

See page 268

Sxx Extension tube	
T5 Filler plug M30x1.5	



MPF750



MPF 100

MPF 181

O-RING SEAL

Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3d)		
	Filter series	Filter element	Seal Kit code number NBR FPM	
MPF 030	See order table		02050055	02050056
MPF 100-110			02050057	02050058
MPF 181-182			02050059	02050060
MPF 184			02050455	02050456
MPF 191-192			02050457	02050458
MPF 194			02050459	02050460
MPF 400-410			02050061	02050062
MPF 450-451			02050461	02050462
MPF 750			02050106	02050107

MPF 104

MPF 181

FLAT SEAL

Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3d)		
	Filter series	Filter element	Seal Kit code number NBR FPM	
MPF 020	See order table		02050438	02050439
MPF 104			02050350	02050408
MPF 181-182			02050659	02050660
MPF 191-192			02050661	02050662

MPT series

Maximum working pressure up to 800 kPa (8 bar) - Flow rate up to 300 l/min



Description

Technical data

Return filter

Maximum working pressure up to 800 kPa (8 bar)

Flow rate up to 300 l/min

MPT is a range of return filters with integrated breather filter, for protection of the reservoir against the system contamination.

They are directly fixed to the reservoir, in immersed or semi-immersed position.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 300 l/min
- Multiple connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve integrated into the filter element, to relieve excessive pressure drop across the filter media
- 2, 3 or 6 fixing holes for installation, to suit a variety of reservoir surfaces
- O-ring or Flat Seal to suit a variety of reservoir surfaces
- Screw-in cover with a special shape, to allow the filter element replacement without the use of specific tools
- Oil dipstick, to easily check the level of the fluid into the reservoir (sold as separate item)
- Extension tube, to be used in deep reservoirs (sold as separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise (sold as separate item)
- Integrated breather filter, to clean the air that moves into the reservoir as result of the oil level fluctuation
- Integrated breather filter with pressurization valve, to clean the air that moves into the reservoir as result of the oil level fluctuation and to guarantee the pressurization into the reservoir
- Visual, electrical and electronic clogging indicators

Common applications:

- Light industrial equipment
- Mobile application

Filter housing materials

- Head: Aluminium
- Cover: Polyamide
- Bowl: Polyamide

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$
- Opening pressure 300 kPa (3 bar) $\pm 10\%$

Δp element type

- Microfibre filter elements - series H: 10 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MPT filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]				
	Length	1	2	3	4	Length	1	2	3	4
MPT 025		0.41	0.45	0.50	-		0.24	0.35	0.42	-
MPT 027		0.44	0.48	0.55	-		0.24	0.35	0.42	-
MPT 110		1.00	1.05	1.15	1.40		0.72	0.93	1.28	1.74
MPT 114		1.10	1.15	1.25	1.50		0.72	0.93	1.28	1.74
MPT 116		1.10	1.15	1.25	1.50		0.72	0.93	1.28	1.74
MPT 120		1.00	1.05	1.15	1.40		0.72	0.93	1.28	1.74

Flow rates [l/min]

Filter series	Length	Filter element design - H series					Filter element design - N series		
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MPT 025-027	1	7	10	23	28	42	59	51	54
	2	17	20	45	48	56	72	64	67
	3	21	24	50	55	59	76	74	75
MPT 110-114 116-120	1	18	20	53	56	65	153	87	96
	2	28	38	65	75	95	158	111	123
	3	48	55	125	135	169	289	224	251
	4	79	89	180	185	198	306	264	289

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

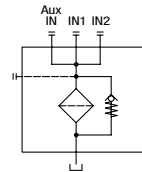
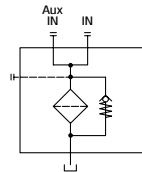
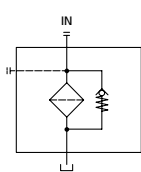
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

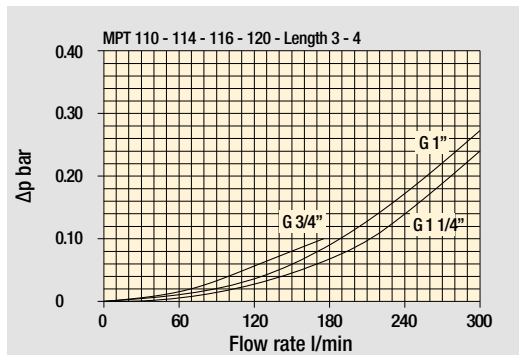
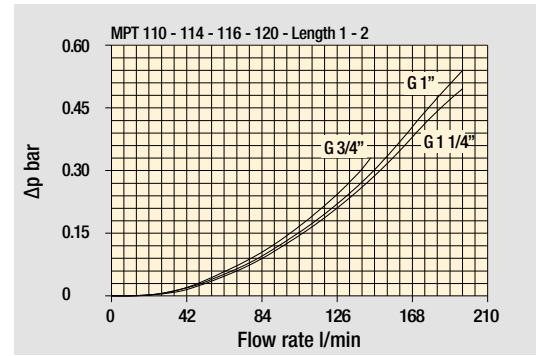
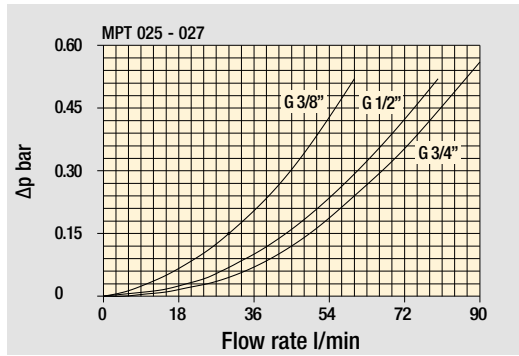
Hydraulic symbols

Filter series	Style 1 connection	Style 2 connections	Style 3 connections
MPT 025	●	-	-
MPT 027	●	-	-
MPT 110	-	●	-
MPT 114	●	-	-
MPT 116	●	-	-
MPT 120	-	-	●

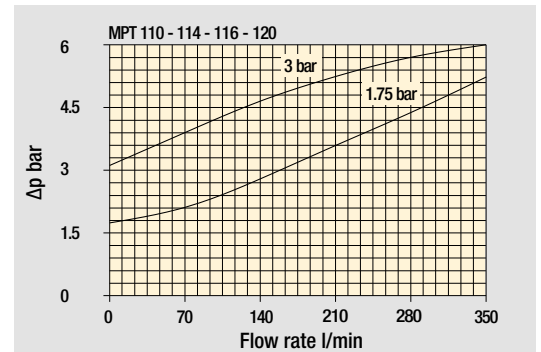
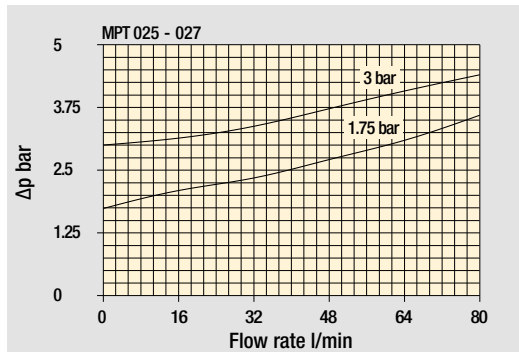


Pressure drop

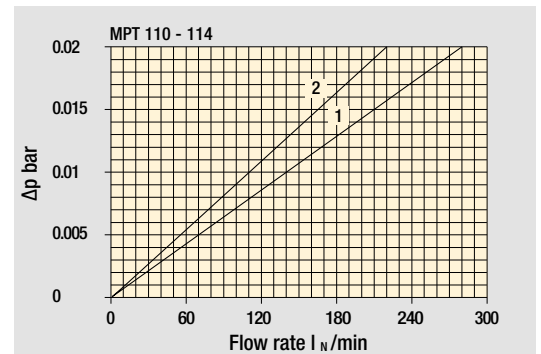
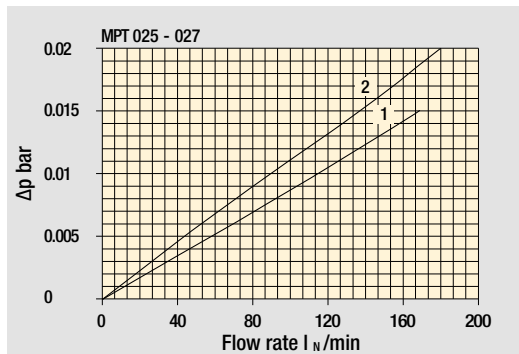
Filter housings Δp pressure drop



Bypass valve pressure drop



Air breather pressure drop







- 1 C With air breather 10 μ m
- 2 D With anti-splash and SAP50 10 μ m

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

MPT 025 -027		
Air breather port plugged Indicator port	Air breather standard Indicator port	Anti-splash air breather & pressurized Double indicator port
		

Multiport - Multifunction

MPT 110	
Standard - Single IN Port	Double IN Port - Double indicator port
	
Double IN Port Option: double drain port	Double IN Port - Indicator port Option: drain port
	

MPT 120

Triple IN port

Option: double drain port



MPT MPT025 - MPT027

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1:		MPT025	1	S	A	G3	A10	E	P01		
MPT025	MPT027	Filter element with standard spigot		Configuration example 2:		MPT027	3	C	W	G6	A03	B	P01
Length													
1		2		3									
Air breather													
S		Without air breather											
C		With air breather 10 µm											
D		With anti-splash and air breather SAP050 10 µm											
P		With anti-splash and air breather SAP050 10 µm, pressurization 0.5 bar											
Seals and treatments		Filtration rating											
		Axx		Mxx		Pxx							
A		NBR		•		•		•					
V		FPM		•		•		•					
W		NBR head anodized		•		•		-					
Z		FPM head anodized		•		•		-					
Connections													
G1		G 3/8"		G6		3/4" NPT							
G2		G 1/2"		G7		SAE 6 - 9/16" - 18 UNF							
G3		G 3/4"		G8		SAE 8 - 3/4" - 16 UNF							
G4		3/8" NPT		G9		SAE 12 - 1 1/16" - 12 UN							
G5		1/2" NPT											
Filtration rating (filter media)													
A03		Inorganic microfiber 3 µm		M25		Wire mesh 25 µm							
A06		Inorganic microfiber 6 µm		M60		Wire mesh 60 µm							
A10		Inorganic microfiber 10 µm		M90		Wire mesh 90 µm							
A16		Inorganic microfiber 16 µm		P10		Resin impregnated paper 10 µm							
A25		Inorganic microfiber 25 µm		P25		Resin impregnated paper 25 µm							
										Bypass valve		Execution	
										E		P01	
										3 bar		MP Filtri standard	
										B		Pxx	
										1.75 bar		Customized	

FILTER ELEMENT

Element series and size		Configuration example 1:		MF020	1	A10	H	B	E	P01	
MF020	Filter element with standard spigot		Configuration example 2:		MF020	3	A03	N	B	P01	
Element length											
1		2		3							
Filtration rating (filter media)											
A03		Inorganic microfiber 3 µm		M25		Wire mesh 25 µm					
A06		Inorganic microfiber 6 µm		M60		Wire mesh 60 µm					
A10		Inorganic microfiber 10 µm		M90		Wire mesh 90 µm					
A16		Inorganic microfiber 16 µm		P10		Resin impregnated paper 10 µm					
A25		Inorganic microfiber 25 µm		P25		Resin impregnated paper 25 µm					
Element Δp		Filter media									
		Axx		Mxx		Pxx					
N		10 bar		-		•		•			
H		10 bar		•		-		-			
										Seals	
										B	
										NBR	
										V	
										FPM	
										Bypass valve	
										E	
										3 bar	
										Pxx	
										1.75 bar	
										Execution	
										P01	
										MP Filtri standard	
										Pxx	
										Customized	

CLOGGING INDICATORS

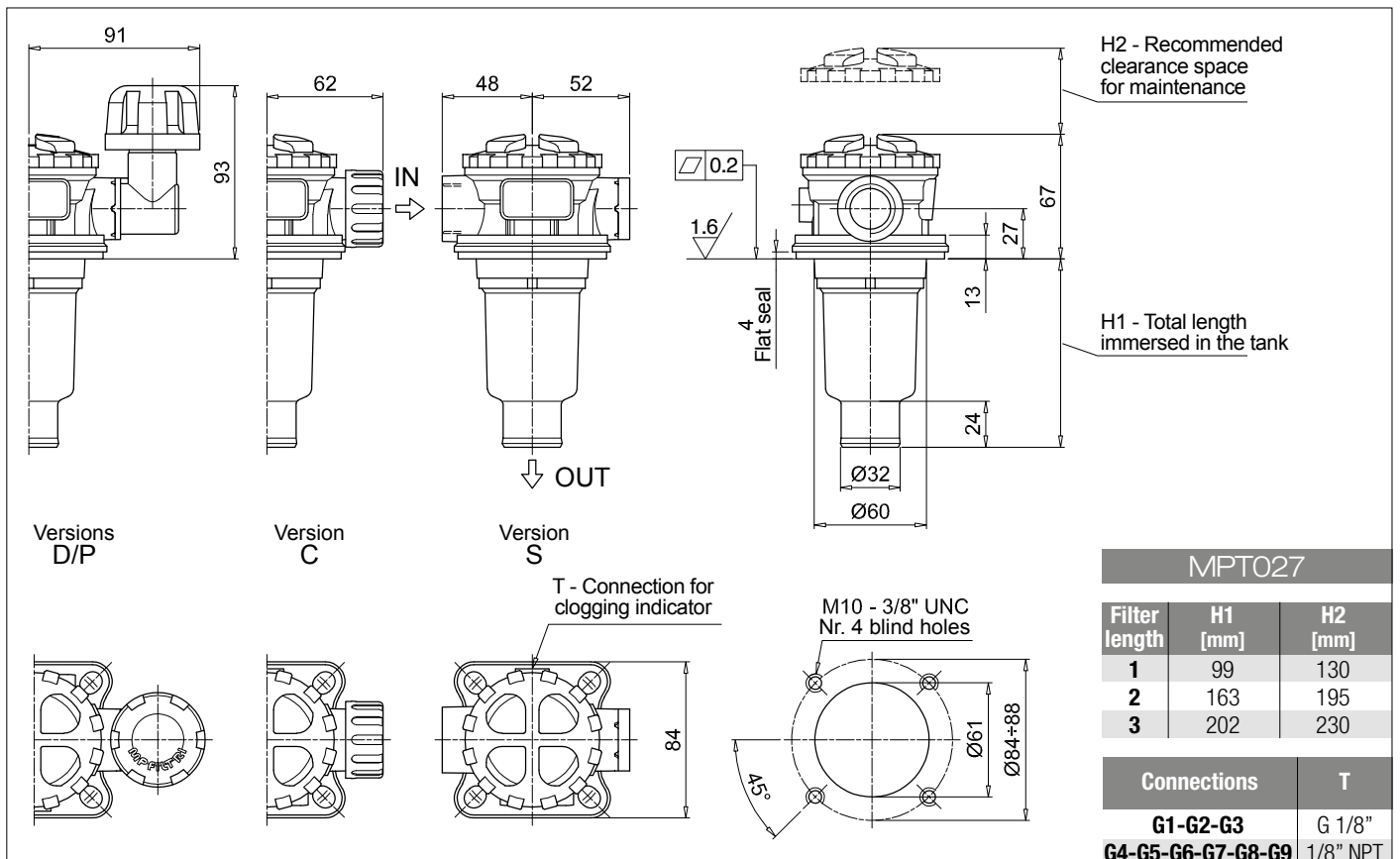
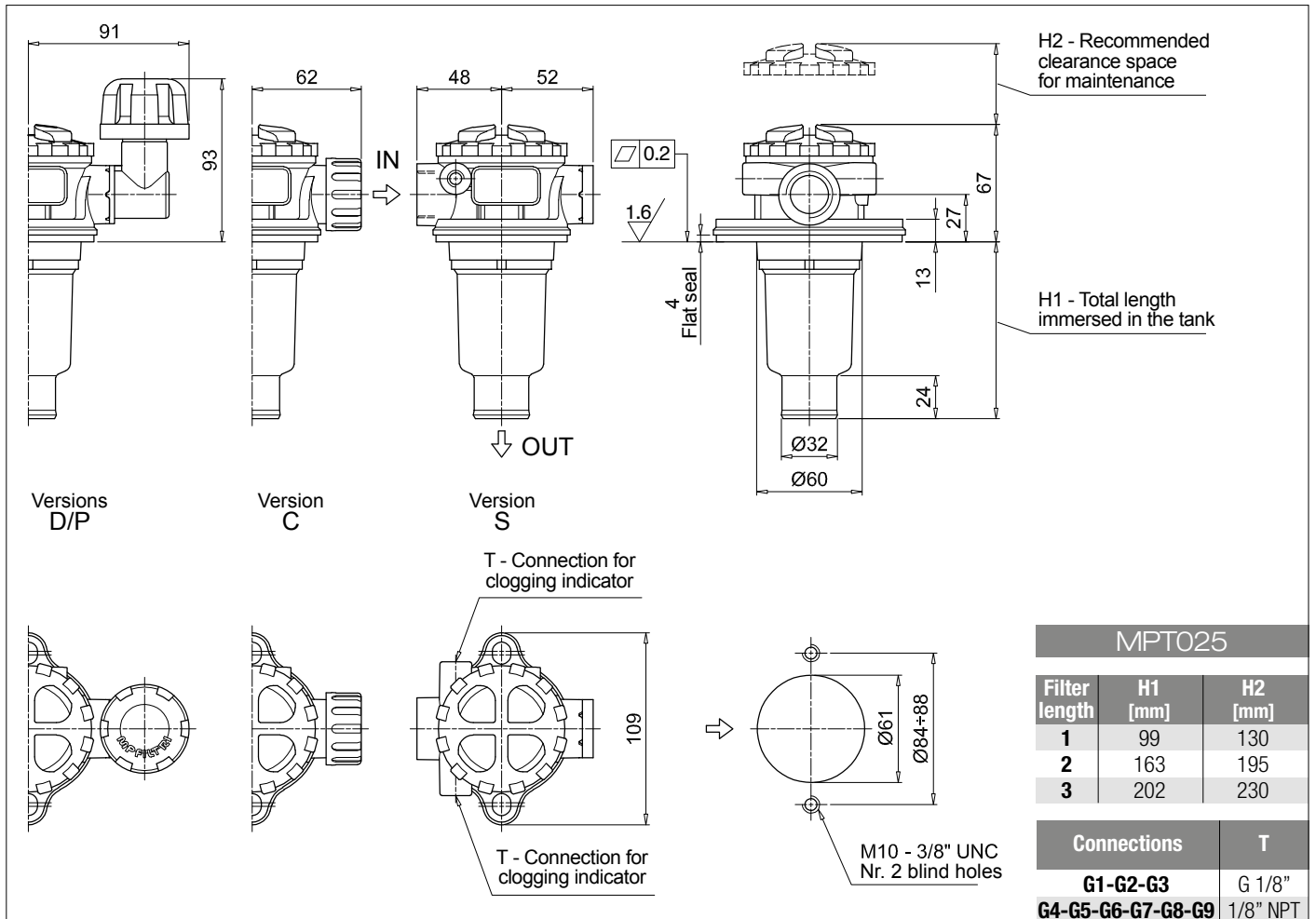
See page 716-717

BVA	Axial pressure gauge	BEA	Electrical pressure indicator
BVR	Radial pressure gauge	BEM	Electrical pressure indicator
BVP	Visual pressure indicator with automatic reset	BLA	Electrical / visual pressure indicator
BVQ	Visual pressure indicator with manual reset		

ADDITIONAL FEATURES

See page 268

TE	Extension tube
DPT	Dipstick



Designation & Ordering code

COMPLETE FILTER

Series and size			Configuration example 1: MPT110 1 S A G1 0 A06 E P01								
MPT110 Filter element with standard spigot			Configuration example 2: MPT110 3 P V G4 1 M25 B P01								
Length											
1 2 3 4											
Air breather											
S Without air breather											
C With air breather 10 µm											
D With anti-splash and air breather SAP050 10 µm											
P With anti-splash and air breather SAP050 10 µm, pressurization 0.5 bar											
Seals and treatments			Filtration rating								
			Axx	Mxx	Pxx						
A NBR			•	•	•						
V FPM			•	•	•						
W NBR head anodized			•	•	-						
Z FPM head anodized			•	•	-						
Main Connections		Aux size 1	Aux size 2	Main Connections		Aux size 1	Aux size 2				
G1 G 3/4"		G 3/8"	G 1/2"	G6 1 1/4" NPT		3/8" NPT	1/2" NPT				
G2 G 1"				G7 SAE 12 - 1 1/16" - 12 UN		SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF				
G3 G 1 1/4"				G8 SAE 16 - 1 5/16" - 12 UN							
G4 3/4" NPT		3/8" NPT	1/2" NPT	G9 SAE 20 - 1 5/8" - 12 UN							
G5 1" NPT											
Aux connection - see previous table											
0 Not machined			1 Aux size 1	2 Aux size 2							
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm			M25 Wire mesh 25 µm								
A06 Inorganic microfiber 6 µm			M60 Wire mesh 60 µm								
A10 Inorganic microfiber 10 µm			M90 Wire mesh 90 µm								
A16 Inorganic microfiber 16 µm			P10 Resin impregnated paper 10 µm								
A25 Inorganic microfiber 25 µm			P25 Resin impregnated paper 25 µm								
						Bypass valve		Execution			
						E 3 bar		P01 MP Filtri standard			
						B 1.75 bar		Pxx Customized			

FILTER ELEMENT

Element series and size			Configuration example 1: MF100 1 A06 H B E P01							
MF100 Filter element with standard spigot			Configuration example 2: MF100 3 M25 N V P01							
Element length										
1 2 3 4										
Filtration rating (filter media)										
A03 Inorganic microfiber 3 µm			M25 Wire mesh 25 µm							
A06 Inorganic microfiber 6 µm			M60 Wire mesh 60 µm							
A10 Inorganic microfiber 10 µm			M90 Wire mesh 90 µm							
A16 Inorganic microfiber 16 µm			P10 Resin impregnated paper 10 µm							
A25 Inorganic microfiber 25 µm			P25 Resin impregnated paper 25 µm							
Element Δp			Filter media			Seals		Bypass valve		Execution
			Axx	Mxx	Pxx	B NBR		E 3 bar		P01 MP Filtri standard
N 10 bar			-	•	•	V FPM		- 1.75 bar		Pxx Customized
H 10 bar			•	-	-					

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

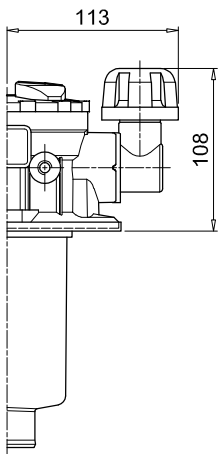
ADDITIONAL FEATURES

See page 268

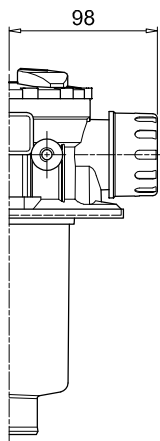
TE Extension tube	DPT Dipstick
DFS Diffuser with fast lock connection	

MPT110				
Filter length	H1 [mm]	H2 [mm]	D [mm]	I [mm]
1	97	120	38	4
2	144	170	38	4
3	222	250	47	-
4	324	350	47	2.5

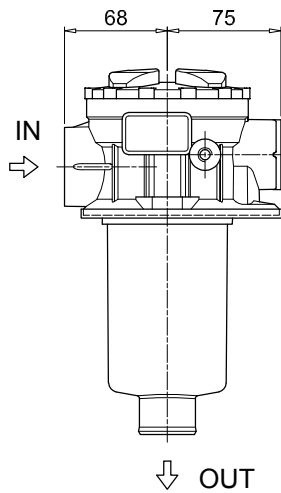
Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT



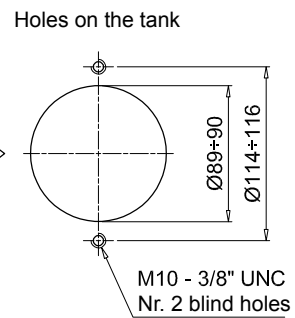
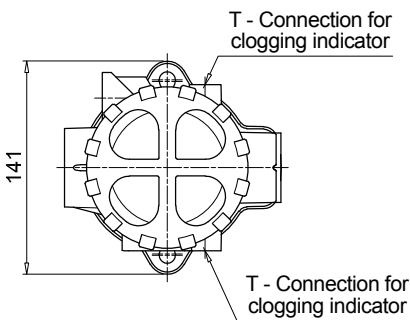
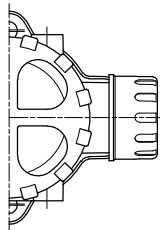
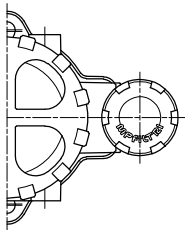
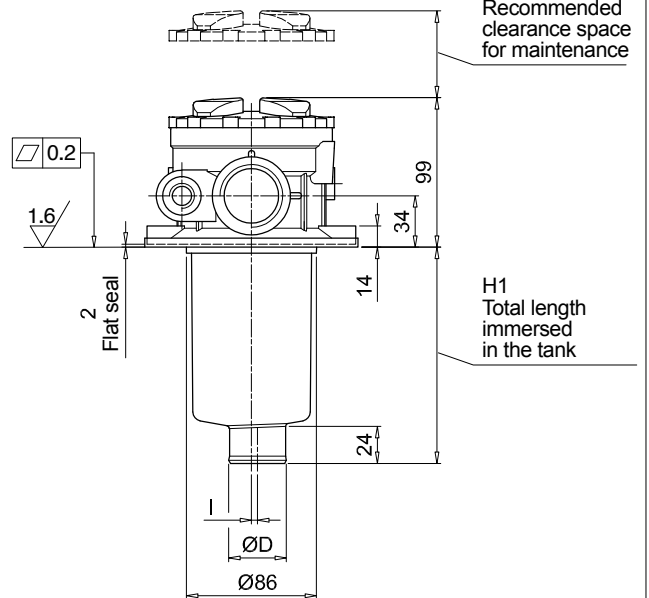
Versions D/P



Version C



Version S



Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1:	MPT114	4	S	A	G3	A10	E	P01
MPT114 Filter element with standard spigot	Configuration example 2:	MPT114	3	C	W	G6	A03	B	P01
Length									
1 2 3 4									
Air breather									
S Without air breather									
C With air breather 10 µm									
D With anti-splash and air breather SAP050 10 µm									
P With anti-splash and air breather SAP050 10 µm pressurization 0.5 bar									
Seals and treatments	Filtration rating								
	Axx	Mxx	Pxx						
A NBR	•	•	•						
V FPM	•	•	•						
W NBR head anodized	•	•	-						
Z FPM head anodized	•	•	-						
Connections									
G1 G 3/4"	G6 1 1/4" NPT								
G2 G 1"	G7 SAE 12 - 1 1/16" - 12 UN								
G3 G 1 1/4"	G8 SAE 16 - 1 5/16" - 12 UN								
G4 3/4" NPT	G9 SAE 20 - 1 5/8" - 12 UN								
G5 1" NPT									
Filtration rating (filter media)									
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm								
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm								
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm								
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm								
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm								
	Bypass valve	Execution							
	E 3 bar	P01 MP Filtri standard							
	B 1.75 bar	Pxx Customized							

FILTER ELEMENT

Element series and size	Configuration example 2:	MF100	4	A10	H	B	E	P01	
MF100 Filter element with standard spigot	Configuration example 1:	MF100	3	A03	N	B		P01	
Element length									
1 2 3 4									
Filtration rating (filter media)									
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm								
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm								
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm								
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm								
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm								
Element Δp	Filter media			Seals		Bypass valve		Execution	
	Axx	Mxx	Pxx						
N 10 bar	-	•	•	B NBR		E 3 bar		P01 MP Filtri standard	
H 10 bar	•	-	-	V FPM		- 1.75 bar		Pxx Customized	

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

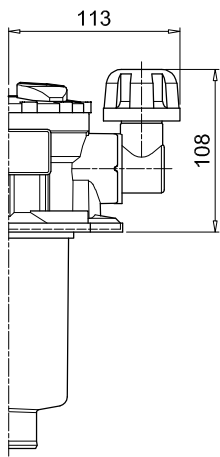
ADDITIONAL FEATURES

See page 268

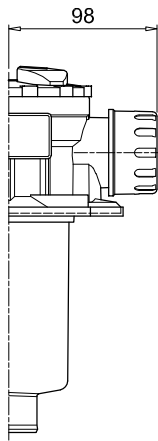
TE Extension tube	DPT Dipstick
DFS Diffuser with fast lock connection	

MPT114				
Filter length	H1 [mm]	H2 [mm]	D [mm]	I [mm]
1	97	120	38	4
2	144	170	38	4
3	222	250	47	-
4	324	350	47	2.5

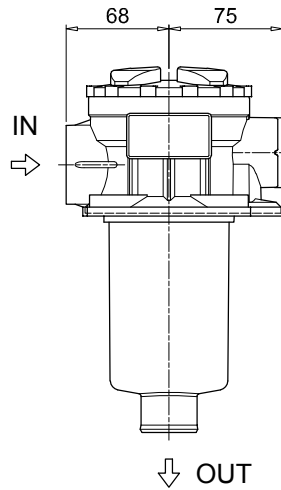
Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT



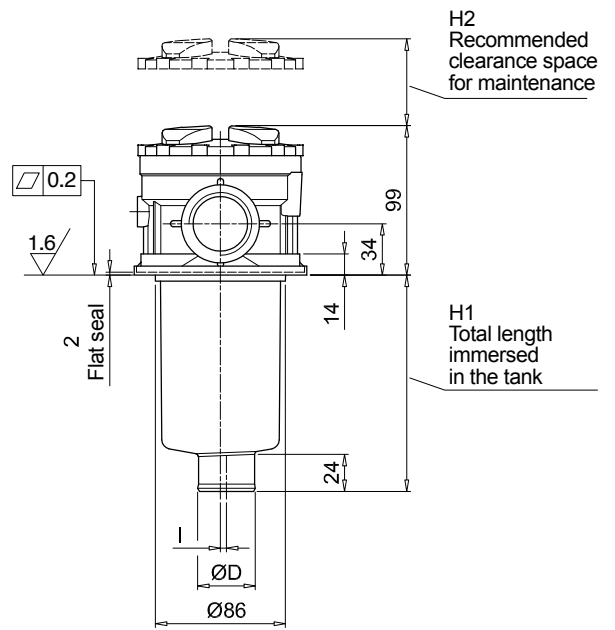
Versions D/P



Version C

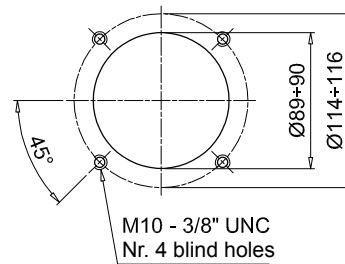
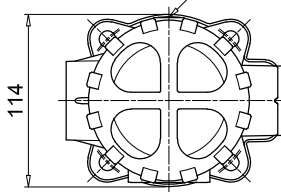
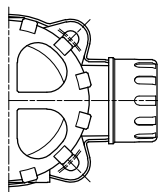
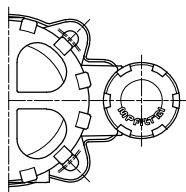


Version S



T - Connection for clogging indicator

Holes on the tank



Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1:	MPT116	1	S	A	G1	M90	E	P01
MPT116 Filter element with standard spigot	Configuration example 2:	MPT116	2	S	Z	G9	A03	B	P01

Length	1	2	3	4
---------------	---	---	---	---

Air breather	S Without air breather
---------------------	------------------------

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Flat seal on the head on request

Connections	G1 G 3/4"	G6 1 1/4" NPT
	G2 G 1"	G7 SAE 12 - 1 1/16" - 12 UN
	G3 G 1 1/4"	G8 SAE 16 - 1 5/16" - 12 UN
	G4 3/4" NPT	G9 SAE 20 - 1 5/8" - 12 UN
	G5 1" NPT	

Filtration rating (filter media)	A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
	A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
	A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
	A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
	A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Bypass valve	Execution
E 3 bar	P01 MP Filtri standard
B 1.75 bar	Pxx Customized

FILTER ELEMENT

Element series and size	Configuration example 2:	MF100	1	M90	N	B	E	P01
MF100 Filter element with standard spigot	Configuration example 1:	MF100	2	A03	H	V		P01

Element length	1	2	3	4
-----------------------	---	---	---	---

Filtration rating (filter media)	A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
	A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
	A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
	A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
	A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp	Filter media		
	Axx	Mxx	Pxx
N 10 bar	-	•	•
H 10 bar	•	-	-

Seals	Bypass valve	Execution
B NBR	E 3 bar	P01 MP Filtri standard
V FPM	- 1.75 bar	Pxx Customized

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

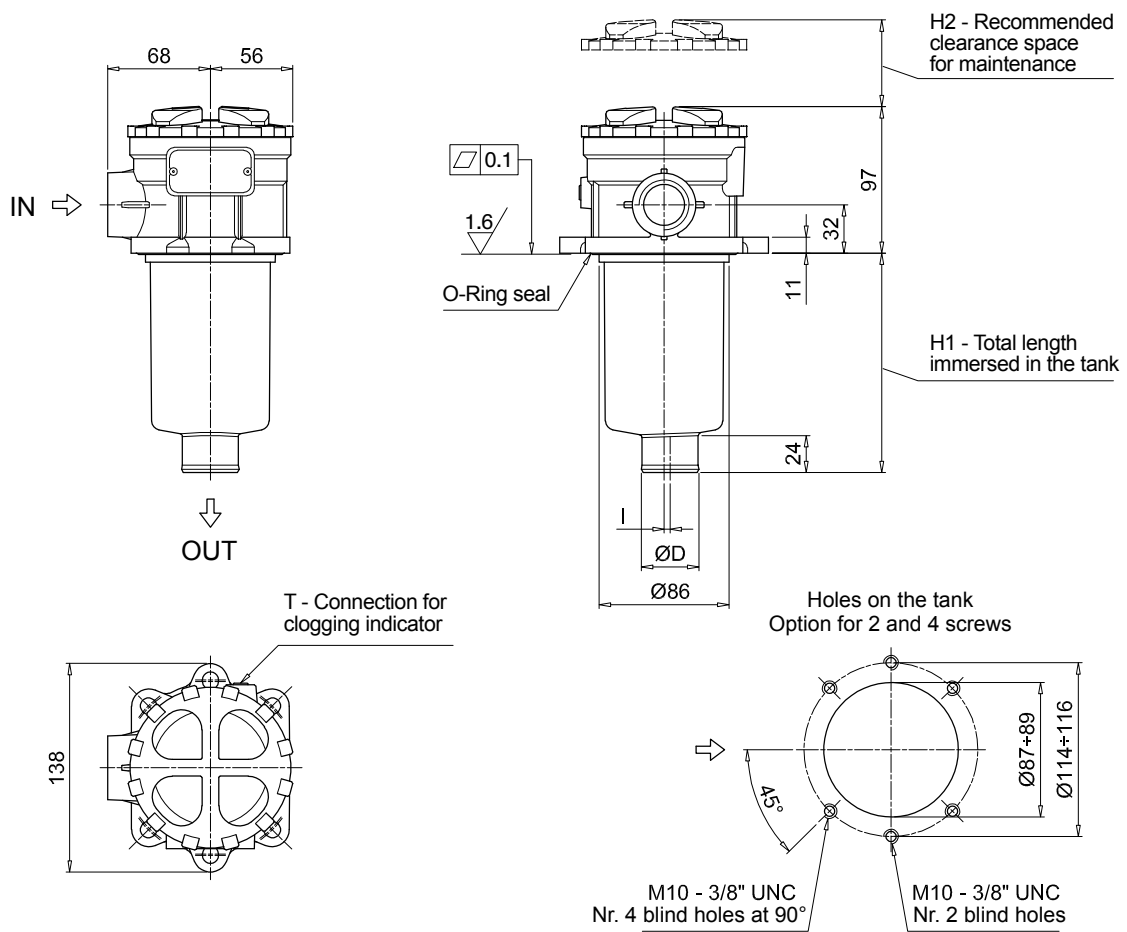
ADDITIONAL FEATURES

See page 268

TE Extension tube	DPT Dipstick
DFS Diffuser with fast lock connection	

MPT116				
Filter length	H1 [mm]	H2 [mm]	D [mm]	I [mm]
1	99	120	38	4
2	146	170	38	4
3	224	250	47	-
4	326	350	47	2.5

Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT



Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1: MPT120 1 A G1 0 A06 E P01								
MPT120 Filter element with standard spigot		Configuration example 2: MPT120 3 V G4 1 M25 B P01								
Length		1 2 3 4								
Seals and treatments		Filtration rating								
		Axx	Mxx	Pxx						
A	NBR	•	•	•						
V	FPM	•	•	•						
W	NBR head anodized	•	•	-						
Z	FPM head anodized	•	•	-						
Main Connections		Rear connections		Aux size 1		Aux size 2				
G1	G 3/4"	G 3/4"		G 3/8"		G 1/2"				
G2	G 1"	G 1"								
G3	G 1 1/4"	G 3/4"		3/8" NPT		1/2" NPT				
G4	3/4" NPT	3/4" NPT								
G5	1" NPT	1" NPT		SAE 6 - 9/16" - 18 UNF		SAE 8 - 3/4" - 16 UNF				
G6	1 1/4" NPT	3/4" NPT								
G7	SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN		SAE 6 - 9/16" - 18 UNF		SAE 8 - 3/4" - 16 UNF				
G8	SAE 16 - 1 5/16" - 12 UN	SAE 16 - 1 5/16" - 12 UN								
G9	SAE 20 - 1 5/8" - 12 UN	SAE 12 - 1 1/16" - 12 UN								
Aux connection - see previous table										
0	Not machined	1	Aux size 1	2	Aux size 2					
Filtration rating (filter media)										
A03	Inorganic microfiber 3 µm	M25		Wire mesh 25 µm						
A06	Inorganic microfiber 6 µm	M60		Wire mesh 60 µm						
A10	Inorganic microfiber 10 µm	M90		Wire mesh 90 µm						
A16	Inorganic microfiber 16 µm	P10		Resin impregnated paper 10 µm						
A25	Inorganic microfiber 25 µm	P25		Resin impregnated paper 25 µm						
		Bypass valve								
		E		3 bar						
		B		1.75 bar						
		Execution								
		P01		MP Filtri standard						
		Pxx		Customized						

FILTER ELEMENT

Element series and size		Configuration example 1: MF100 1 A06 H B E P01								
MF100 Filter element with standard spigot		Configuration example 2: MF100 3 M25 N V P01								
Element length		1 2 3 4								
Filtration rating (filter media)										
A03	Inorganic microfiber 3 µm	M25		Wire mesh 25 µm						
A06	Inorganic microfiber 6 µm	M60		Wire mesh 60 µm						
A10	Inorganic microfiber 10 µm	M90		Wire mesh 90 µm						
A16	Inorganic microfiber 16 µm	P10		Resin impregnated paper 10 µm						
A25	Inorganic microfiber 25 µm	P25		Resin impregnated paper 25 µm						
Element Δp		Filter media			Seals		Bypass valve		Execution	
N	10 bar	Axx	Mxx	Pxx	B		E		P01	
H	10 bar	-	•	•	V		-		Pxx	
		•	-	-	3 bar		1.75 bar		Customized	
					3 bar		1.75 bar		Customized	

CLOGGING INDICATORS

See page 716-717

BVA	Axial pressure gauge	BEA	Electrical pressure indicator
BVR	Radial pressure gauge	BEM	Electrical pressure indicator
BVP	Visual pressure indicator with automatic reset	BLA	Electrical / visual pressure indicator
BVQ	Visual pressure indicator with manual reset		

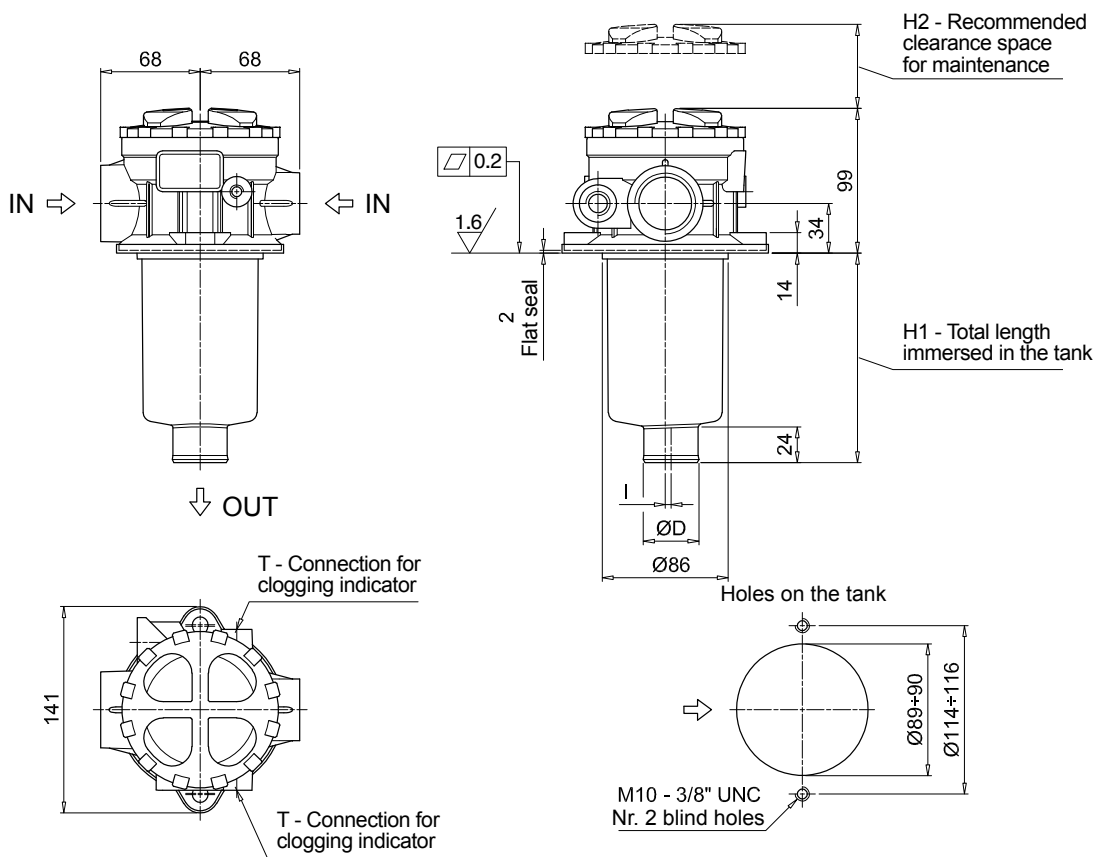
ADDITIONAL FEATURES

See page 268

TE	Extension tube	DPT	Dipstick
DFS	Diffuser with fast lock connection		

MPT120				
Filter length	H1 [mm]	H2 [mm]	D [mm]	I [mm]
1	97	120	38	4
2	147	170	38	4
3	222	250	47	-
4	324	350	47	2.5

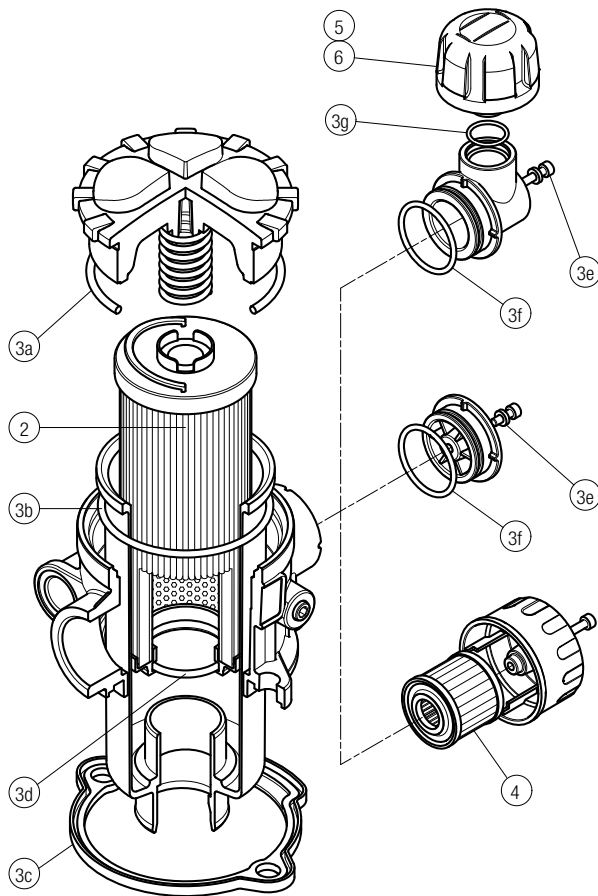
Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT



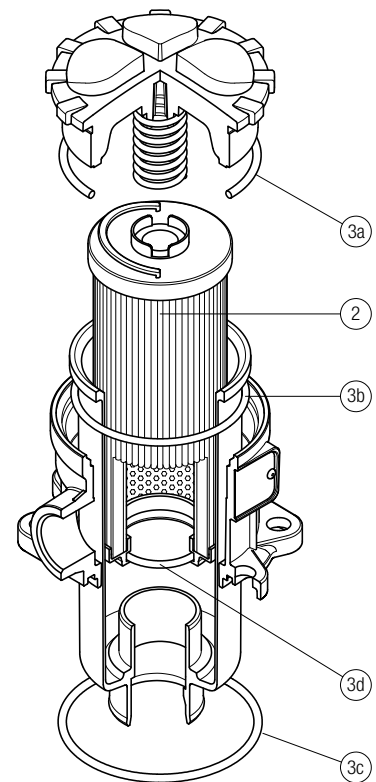
MPT SPARE PARTS

Order number for spare parts

MPT 025 - 027 - 110



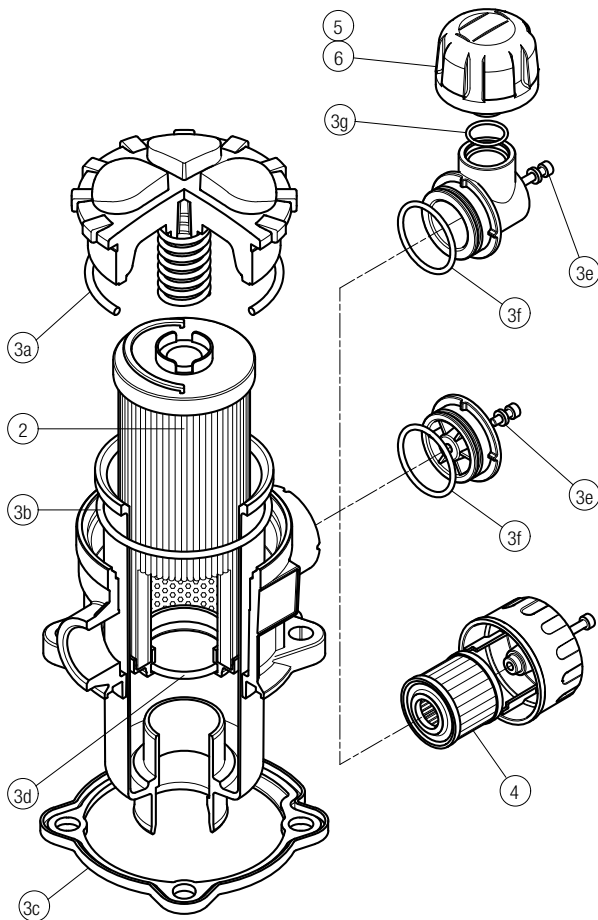
MPT 116



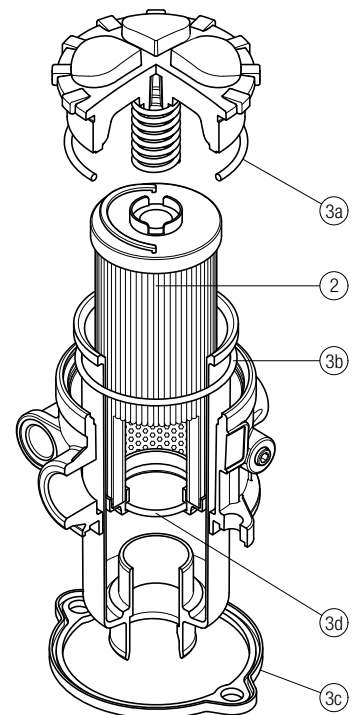
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		C	D	P
		NBR	FPM			
MPT 025	See order table	02050557	02050558	10 µm A3L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01
MPT 027		02050559	02050560	10 µm A3L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01
MPT 110		02050561	02050562	10 µm A5L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01

Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPT 116	See order table	02050466	02050467

MPT 114



MPT 120



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	Air breather filter element - version:			
		NBR	FPM	C	D	P
MPT 114	See order table	02050580	02050581	10 µm A5L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01

Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPT 120	See order table	02050563	02050564

MFB series

BOWL ASSEMBLY

Maximum working pressure up to 800 kPa (8 bar) - Flow rate up to 700 l/min



Description

Technical data

Return filter Bowl assembly

Maximum working pressure up to 800 kPa (8 bar)

Flow rate up to 700 l/min

MFB is a range of return filter kits for protection of the reservoir against the system contamination.

They are directly integrated in the moulded reservoir in immersed or semi-immersed position to save space into the tank.

Treaded or flanged covers can be provided.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve integrated into the filter element, to relieve excessive pressure drop across the filter media
- Extension tube, to be used in deep reservoirs (sold as separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise (sold as separate item)

Common applications:

Mobile machines

Bowl assembly materials

- Cover
Polyamide: MFB 020-030-100
Aluminium: MFB 180-190

- Bowl: Polyamide

Filter element materials

- Caps: Polyamide
- Spring: Spring steel

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$
- Opening pressure 300 kPa (3 bar) $\pm 10\%$

Δp element type

- Microfibre filter elements - series H: 10 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MFB filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]				
	Length	1	2	3	4	Length	1	2	3	4
MFB 020		0.25	0.35	0.40	-		0.10	0.15	0.20	-
MFB 030		0.25	-	-	-		0.15	-	-	-
MFB 100		0.50	0.60	0.75	0.95		0.35	0.50	0.80	1.10
MFB 180		1.60	2.40	-	-		1.50	2.90	-	-
MFB 190		-	2.40	-	-		-	3.00	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - H series					Filter element design - N series		
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MFB 020	1	7	10	23	28	42	59	51	54
	2	17	20	45	48	56	72	64	67
	3	21	24	50	55	59	76	74	75
MFB 030	1	7	10	24	29	47	84	60	66
MFB 100	1	18	20	53	56	65	153	87	96
	2	28	38	65	75	95	158	111	123
	3	48	55	125	135	169	289	224	251
	4	79	89	180	185	198	306	264	289
MFB 180	1	127	148	235	243	278	441	285	299
	2	231	262	358	382	388	472	404	412
MFB 190	2	261	305	489	528	546	696	583	598

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

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

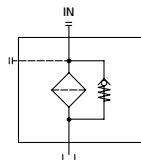
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

Hydraulic symbols

Filter series	Style 1 connection
MFB 020	•
MFB 030	•
MFB 100	•
MFB 180	•
MFB 190	•



MFB MFB020 - MFB030 - MFB100 - MFB180 - MFB190

Designation & Ordering code

COMPLETE FILTER

Series and size						Configuration example 1: MFB100 1 A 2 A10 H E P01								
MFB020	MFB030	MFB100	MFB180	MFB190		Configuration example 2: MFB180 2 V 1 M25 N B P01								
Filter element with private spigot														
Length	MFB020	MFB030	MFB100	MFB180	MFB190									
1	•	•	•	•	-									
2	•	-	•	•	•									
3	•	-	•	-	-									
4	-	-	•	-	-									
Seals														
A NBR														
V FPM														
Version														
Version	MFB020	MFB030	MFB100	MFB180	MFB190									
1 Without cover	•	•	•	•	•									
2 With flanged cover type MPF	-	•	•	•	•									
3 With threaded cover type MPT	•	-	•	-	-									
Filtration rating (filter media)														
A03 Inorganic microfiber 3 µm						M25 Wire mesh 25 µm								
A06 Inorganic microfiber 6 µm						M60 Wire mesh 60 µm								
A10 Inorganic microfiber 10 µm						M90 Wire mesh 90 µm								
A16 Inorganic microfiber 16 µm						P10 Resin impregnated paper 10 µm								
A25 Inorganic microfiber 25 µm						P25 Resin impregnated paper 25 µm								
Element Δp														
Element Δp						Filter media								
N 10 bar						Axx	Mxx	Pxx						
H 10 bar						-	•	•						
											Bypass valve		Execution	
											E 3 bar		P01 MP Filtri standard	
											B 1.75 bar		Pxx Customized	

FILTER ELEMENT

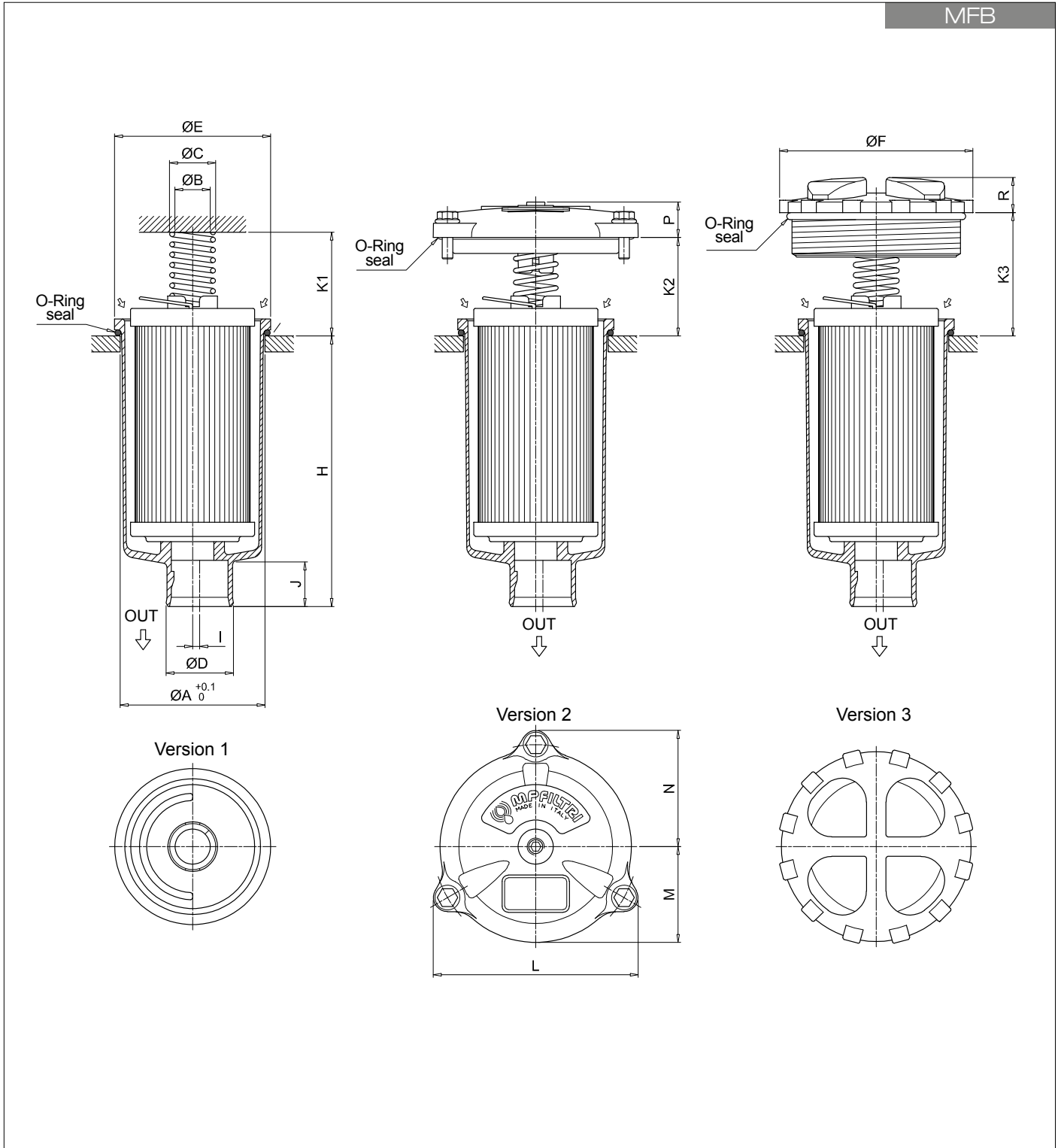
Element series and size						Configuration example 1: MF100 1 A10 H B E P01										
MF020	MF030	MF100	MF180	MF190		Configuration example 2: MF180 2 M25 N V P01										
Filter element with private spigot																
Element length	MF020	MF030	MF100	MF180	MF190											
1	•	•	•	•	-											
2	•	-	•	•	•											
3	•	-	•	-	-											
4	-	-	•	-	-											
Filtration rating (filter media)																
A03 Inorganic microfiber 3 µm						M25 Wire mesh 25 µm										
A06 Inorganic microfiber 6 µm						M60 Wire mesh 60 µm										
A10 Inorganic microfiber 10 µm						M90 Wire mesh 90 µm										
A16 Inorganic microfiber 16 µm						P10 Resin impregnated paper 10 µm										
A25 Inorganic microfiber 25 µm						P25 Resin impregnated paper 25 µm										
Element Δp																
Element Δp						Filter media										
N 10 bar						Axx	Mxx	Pxx								
H 10 bar						-	•	•								
											Seals		Bypass valve		Execution	
											B NBR		E 3 bar		P01 MP Filtri standard	
											V FPM		- 1.75 bar		Pxx Customized	

ADDITIONAL FEATURES

See page 266

	MFB020	MFB030	MFB100	MFB180	MFB190
TE Extension tube	•	•	•	•	•
DFS Diffuser with fast lock connection	-	-	•	-	-

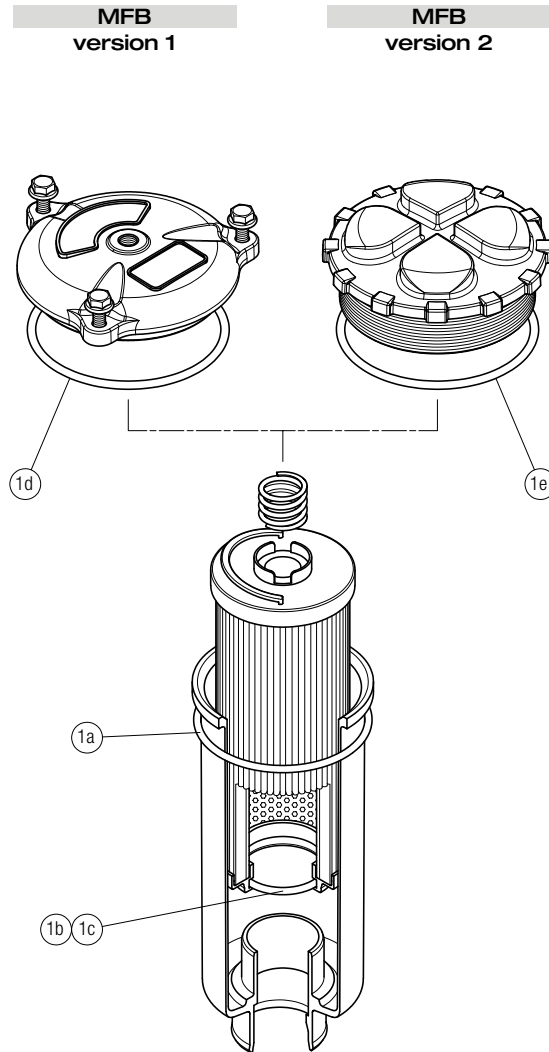
MFB



Filter size	Filter Length	ø A [mm]	ø B [mm]	ø C [mm]	ø D [mm]	ø E [mm]	ø F [mm]	H [mm]	I [mm]	J [mm]	K1 [mm]	K2 [mm]	K3 [mm]	L [mm]	M [mm]	N [mm]	P [mm]	R [mm]
020	1	52	20.5	26	32	56	75	111	0	24	42	-	36	-	-	-	-	18
	2	52	20.5	26	32	56	75	175	0	24	42	-	36	-	-	-	-	18
	3	52	20.5	26	32	56	75	214	0	24	42	-	36	-	-	-	-	18
030	1	60.5	20	25.5	32	68	-	92	3	21	33	35	-	92	42	52	18	-
	1	80.5	20	26	38	88	111	107	4	24	58	55	69	116	54	66	20	20
	2	80.5	20	26	38	88	111	154	4	24	58	55	69	116	54	66	20	20
	3	80.5	20	26	47	88	111	232	0	24	58	55	69	116	54	66	20	20
100	4	80.5	20	26	47	88	111	334	2.5	24	58	55	69	116	54	66	20	20
	1	112.5	26	33.5	47	121	-	234	0	31	58	58	69	159	76	95	21	-
	2	112.5	26	33.5	47	121	-	447	0	31	58	58	69	159	76	95	21	-
	2	112.5	26	33.5	50	121	-	454	0	38	58	58	69	159	76	95	21	-

MFB SPARE PARTS

Order number for spare parts



Q.ty: 1 pc.		
Item: 1 (1a ÷ 1e)		
Filter series	Seal Kit code number	
	NBR	FPM
MFB 020	02050572	02050573
MFB 030	02050574	02050575
MFB 100	02050555	02050556
MFB 180	02050576	02050577
MFB 190	02050578	02050579



MDH series

Maximum working pressure up to 1 MPa (10 bar) - Flow rate up to 500 l/min



Description

Technical data

Return filter

Maximum working pressure up to 1 MPa (10 bar)
Flow rate up to 500 l/min

MDH, is a technically advanced filtration product line for efficient and compact, hydraulic reservoir management. Designed to ensure overall system cleanliness, the filters are either installed in a semi immersed or fully immersed position. This new design reduces the volume of the air coming into the tank space and dramatically reduces the velocity of the air through the filter which in turn allows the separation of the air from the fluid. This insures that the system is protected against the effects caused by air contamination such as incorrect system response, cavitation, foaming and fluid degradation. The filtration from inside to outside allows for a cleaner filter element replacement which insures that any contaminated fluid remains within the used filter element.

Available features:

- Female threaded connections up to 1 1/2" and flanged connections up to 1 1/2", for a maximum flow rate of 500 l/min
- Multiple connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- Flat Seal to suit a variety of reservoir surfaces
- Oil dipstick, to easily check the level of the fluid into the reservoir (separate item)
- Anti-drain membrane, to reduce the volume of air coming to the tank
- Optimized flow path, to reduce the speed of the fluid through the filter
- Diffuser with optimized output, to promote the air separation and to reduce the risk of foaming and noise
- Optional filler plug, to fill cleaned fluid into the tank without an additional plug
- Visual, electrical and electronic clogging indicators and differential pressure clogging indicators

Common applications:

Heavy duty industrial equipment
 Large mobile machines with limited space for the tank

Filter housing materials

- Head and cover: Aluminium
- Anti-drain membrane: Polyamide
- Diffuser: AISI 430
- Valve: Polyamide / Steel

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$
- Opening pressure 300 kPa (3 bar) $\pm 10\%$

Δp element type

- Microfibre filter elements - series DH: 10 bar
- Fluid flow through the filter element from IN to OUT

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MDH filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]			Volumes [dm ³]		
	Length	2	4	Length	2	4
MDH 250		3.80	4.55		4.65	6.90

Flow rates [l/min]

Filter series	Length	A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MDH 250	2	134	120	244	255	303	480	326	370
	4	217	256	338	419	487	465	437	694

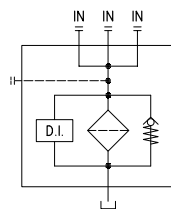
Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

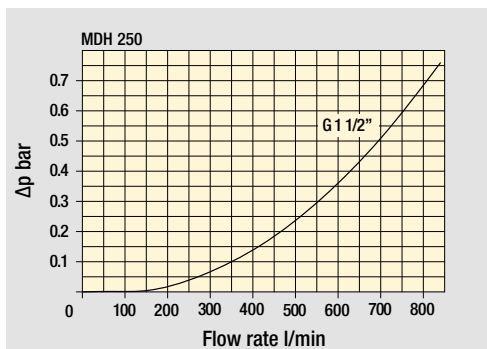
Filter series	Style B
MDH 250	•



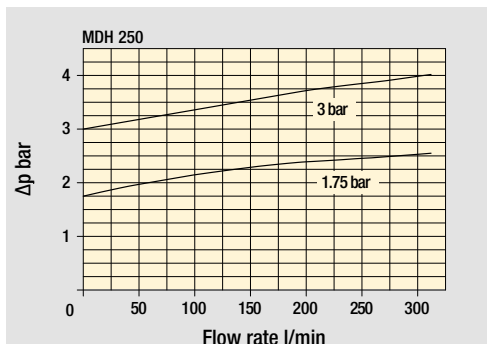
Hydraulic symbols

Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

MDH250

Designation & Ordering code

COMPLETE FILTER

Series and size MDH250	Configuration example: MDH250 2 C F S A B 2 A10 P01									
Length 2 4										
Bypass valve C 1.75 bar E 3 bar										
Diffuser F With diffuser										
Air breather S Without air breather										
Seals and treatments	Filtration rating									
A NBR	Axx	Mxx	Pxx							
V FPM	•	•	•							
W NBR head anodized	•	•	-							
Z FPM head anodized	•	•	-							
Connections										
	Front	Left	Right							
A G 1 1/2"	1 1/2" SAE 3000 psi/M + G 1 1/4"	1 1/4" SAE 3000 psi/M + G 1"								
B 1 1/2" NPT	1 1/2" SAE 3000 psi/UNC + 1 1/4" NPT	1 1/4" SAE 3000 psi/UNC + 1" NPT								
C SAE 24 - 1 7/8" - 12 UN	1 1/2" SAE 3000 psi/UNC + SAE 20 - 1 5/8" - 12 UN	1 1/4" SAE 3000 psi/UNC + SAE 16 - 1 5/16" - 12 UN								
Connection indicator										
1 Without connection										
2 With 2 plugged connections (pressure indicator + diff. pressure indicator)										
Filtration rating (filter media)										
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm									
	Execution									
	P01 MP Filtri standard									
	Pxx Customized									

FILTER ELEMENT

Element series and size DH250	Configuration example: DH250 2 A10 A P01				
Element length 2 4					
Filtration rating (filter media)					
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm				
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm				
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm				
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm				
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm				
	Seals		Execution		
	A NBR		P01 MP Filtri standard		
	V FPM		Pxx Customized		

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	DES Electrical differential pressure indicator
	DVS Visual differential pressure indicator

PLUGS

See page 743

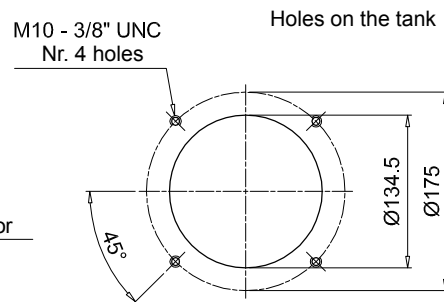
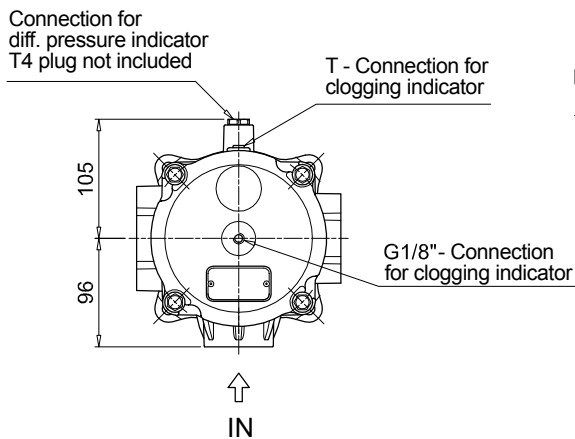
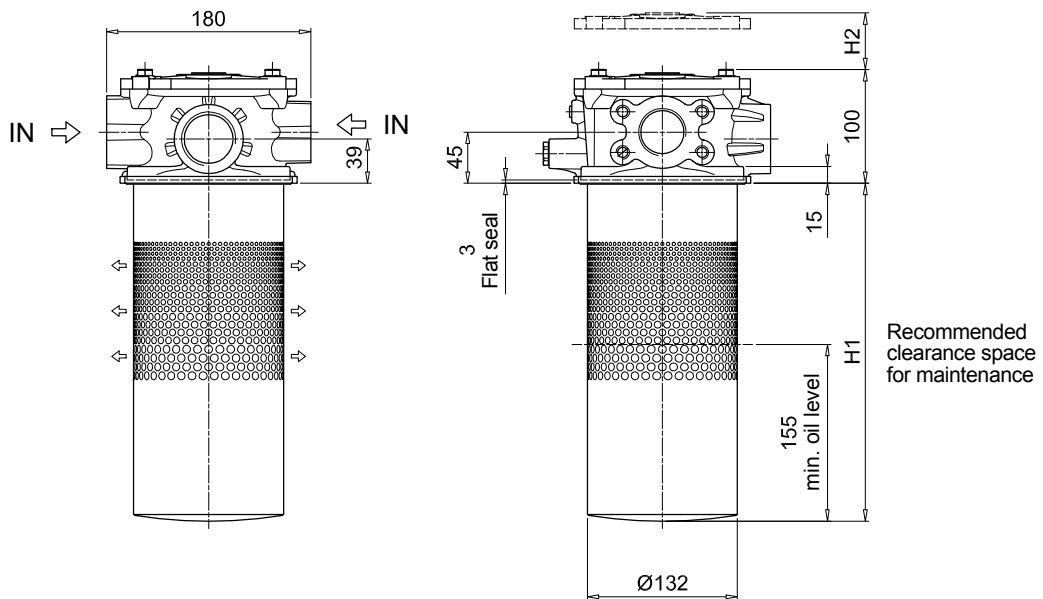
T4 Plug

MDH250

Dimensions

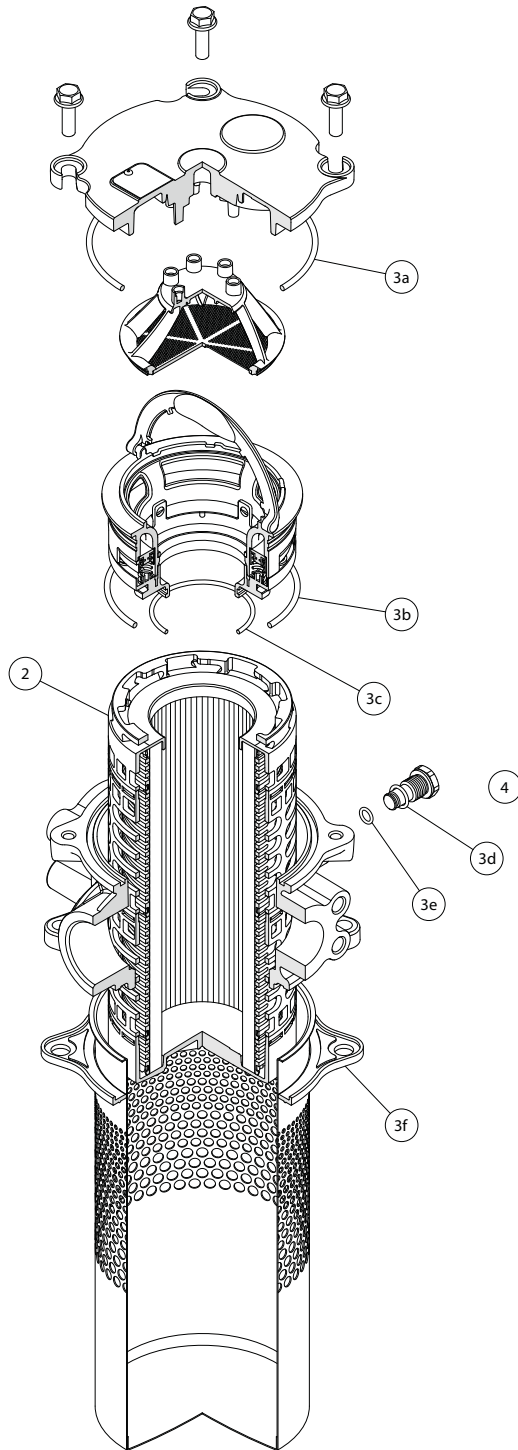
MDH250		
Filter length	H1 [mm]	H2 [mm]
2	300	380
4	485	565

Connections	T
A	G 1/8"
B-C	1/8" NPT



MDH SPARE PARTS

Order number for spare parts



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3f)	Q.ty: 1 pc. 4
Filter series	Filter element	Seal Kit code number NBR	Indicator connection plug NBR
MDH 250	See order table	02050850	T4A

MPH series

Maximum working pressure up to 1 MPa (10 bar) - Flow rate up to 3500 l/min



Return filter

Maximum working pressure up to 1 MPa (10 bar)

Flow rate up to 3500 l/min

MPH is a range of return filters for protection of the reservoir against the system contamination.

They are directly fixed to the reservoir, in immersed or semi-immersed position.

The use of the diffuser is recommended, to place the filter output always immersed into the fluid to avoid aeration or foam generation into the reservoir.

The filtration from inside to outside allows a cleaner filter element replacement, the dirty remains into the filter element.

Available features:

- Female threaded connections up to 1 1/2" and flanged connections up to 4", for a maximum flow rate of 3500 l/min
- Multiple connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- Magnetic filter, to hold the ferrous particles
- 2, 3, 4 or 8 fixing holes for installation, to suit a variety of reservoir surfaces
- Flat Seal to suit a variety of reservoir surfaces
- Oil dipstick, to easily check the level of the fluid into the reservoir (separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise
- Filler plug, to fill cleaned fluid into the tank without an additional plug
- Integrated breather filter, to clean the air that moves into the reservoir as result of the oil level fluctuation (MPH110/114)
- Integrated breather filter with pressurization valve, to clean the air that moves into the reservoir as result of the oil level fluctuation and to guarantee the pressurization into the reservoir (MPH110/114)
- Visual, electrical and electronic clogging indicators

Common applications:

Heavy duty industrial equipment

Filter housing materials

- Head
 - Aluminium: MPH 110-114-116-120-250
 - Anodized Aluminium: MPH 630-850
 - Painted Aluminium: MPH 660
- Cover
 - Polyamide: MPH 110-114-116-120
 - Aluminium: MPH 250
 - Anodized Aluminium: MPH 630
 - Painted Aluminium: MPH 660
 - Steel: MPH 850
- Insert assembly
 - Polyamide: MPH 110-114-116-120
 - Aluminium: MPH 250-630-660-850
- Diffuser: Stainless Steel
- Valve: Phosphatized Steel

Bypass valve

- Opening pressure 175 kPa (1.75 bar)±10%
- Opening pressure 250 kPa (2.5 bar) ±10%, except for MPH 850

Δp element type

- Microfibre filter elements - series MR: 10 bar
- Fluid flow through the filter element from IN to OUT

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MPH filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
MPH 110	1.60	1.70	1.80	2.20	2.60	1.60	1.70	1.80	2.20	2.60		
MPH 114	1.60	1.70	1.80	2.20	2.60	1.60	1.70	1.80	2.20	2.60		
MPH 116	1.60	1.70	1.80	2.20	2.60	1.60	1.70	1.80	2.20	2.60		
MPH 120	1.60	1.70	1.80	2.20	2.60	1.60	1.70	1.80	2.20	2.60		
MPH 250	3.60	3.90	4.20	5.60	-	4.40	4.40	5.40	8.00	-		
MPH 630	6.50	7.00	7.40	8.50	10.50	7.30	9.00	11.00	13.00	19.20		
MPH 660	-	-	-	11.50	14.00	-	-	-	14.60	21.00		
MPH 850	32.00	35.00	38.00	42.00	-	13.00	16.50	21.00	25.00	-		

Flow rates [l/min]

Filter series	Length	A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MPH 110-114 116-120	1	26	29	72	79	107	282	164	190
	2	43	46	112	114	161	318	164	190
	3	64	72	132	156	178	324	219	251
	4	90	99	184	198	216	324	266	302
	5	117	128	201	219	244	324	282	318
MPH 250	1	93	102	210	251	315	1093	339	383
	2	124	151	327	412	421	1122	460	514
	3	189	221	418	445	500	1137	544	616
	4	261	304	592	670	766	1166	832	923
MPH 630	1	160	200	369	423	518	1894	565	632
	2	240	257	571	611	1045	1929	1137	1285
	3	330	374	745	788	1308	1938	1416	1577
	4	374	403	887	1010	1348	1956	1448	1612
	5	625	698	1210	1257	1723	2121	1839	1929
MPH 660	4	370	399	903	1042	1460	2376	1596	1830
	5	624	699	1282	1343	1997	2663	2182	2331
MPH 850	1	775	1041	1246	1568	2242	3311	2371	2625
	2	1176	1522	1682	1747	2449	3378	2684	2886
	3	1490	1914	1995	2014	3035	3405	3144	3220
	4	1668	2088	2305	2363	3169	3517	3272	3378

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

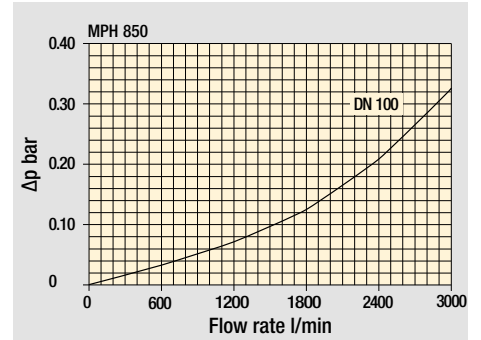
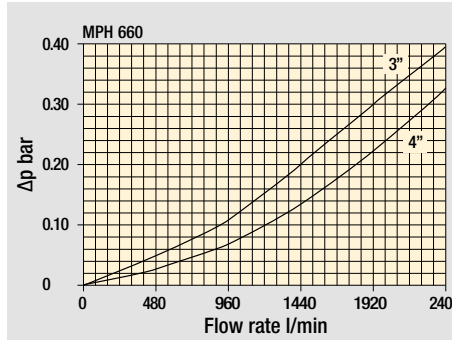
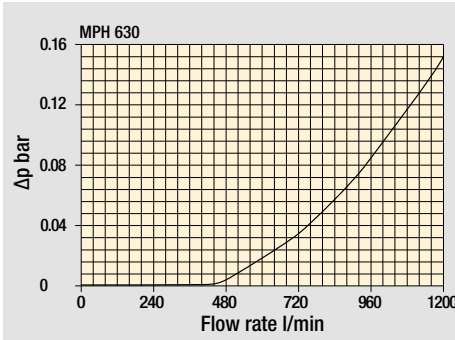
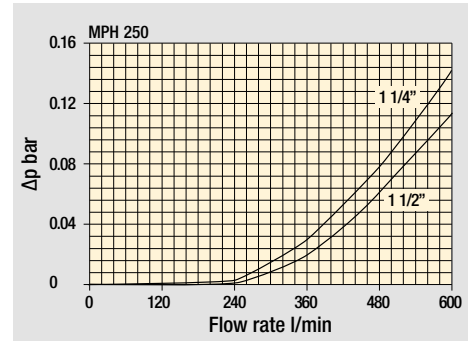
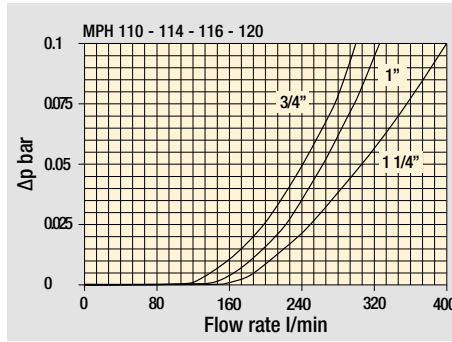
Hydraulic symbols

Filter series	Style 1 connection	Style 2 connections	Style 3 connections
MPH 110	-	•	-
MPH 114	•	-	-
MPH 116	•	-	-
MPH 120	-	-	•
MPH 250	•	•	-
MPH 630	•	•	-
MPH 660	•	-	-
MPH 850	-	•	-

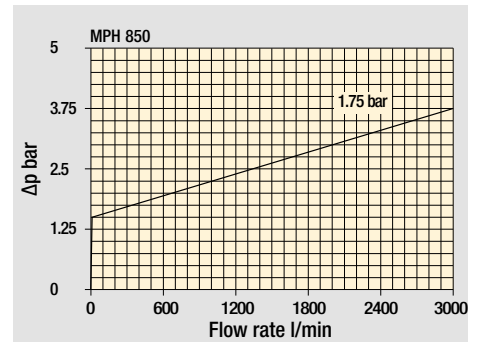
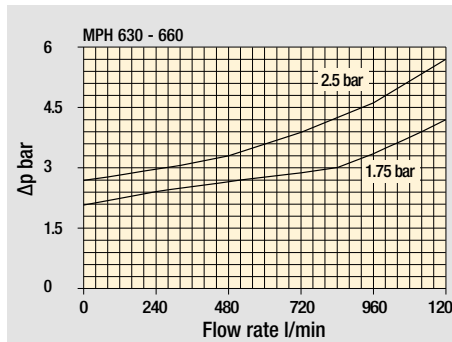
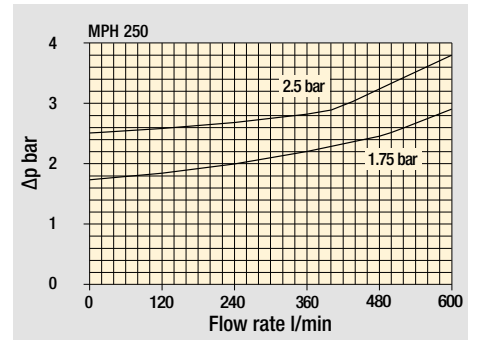
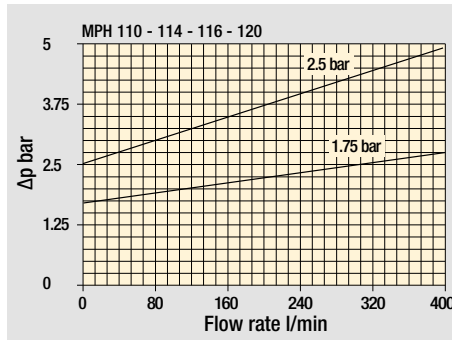
MPH GENERAL INFORMATION

Pressure drop

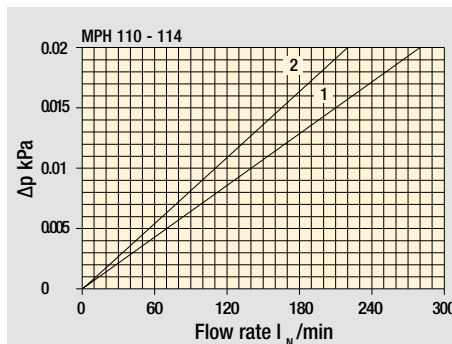
Filter housings Δp pressure drop



Bypass valve pressure drop



Air breather pressure drop



- 1 C With air breather 10 μ m
- 2 D With anti-splash and SAP50 10 μ m

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

Designation & Ordering code

COMPLETE FILTER

Configuration example: **MPH110** | **1** | **S** | **D** | **S** | **A** | **G1** | **1** | **A10** | **P01**

Series and size
MPH110

Length
1 | **2** | **3** | **4** | **5**

Bypass valve
S Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter
D With diffuser, with magnetic filter
F With diffuser, without magnetic filter
O Without diffuser, with magnetic filter
E Without diffuser, without magnetic filter

Air breather
S Without air breather
C With air breather 10 µm
D With anti-splash and air breather SAP050 10 µm
P With anti-splash and air breather SAP050 10 µm pressurization 0.5 bar

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Main Connections	Aux size 1	Aux size 2	Main Connections	Aux size 1	Aux size 2		
G1 G 3/4"	G 3/8"	G 1/2"	G7 SAE 12 - 1 1/16" - 12 UN	SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF		
G2 G 1"			G8 SAE 16 - 1 5/16" - 12 UN				
G3 G 1 1/4"			G9 SAE 20 - 1 5/8" - 12 UN				
G4 3/4" NPT			3/8" NPT	1/2" NPT			
G5 1" NPT							
G6 1 1/4" NPT							

Aux connection - see previous table
0 Not machined | **1** Aux size 1 | **2** Aux size 2

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **MR100** | **1** | **A10** | **A** | **P01**

Element series and size
MR100

Element length
1 | **2** | **3** | **4** | **5**

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals
A NBR
V FPM

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 716-717

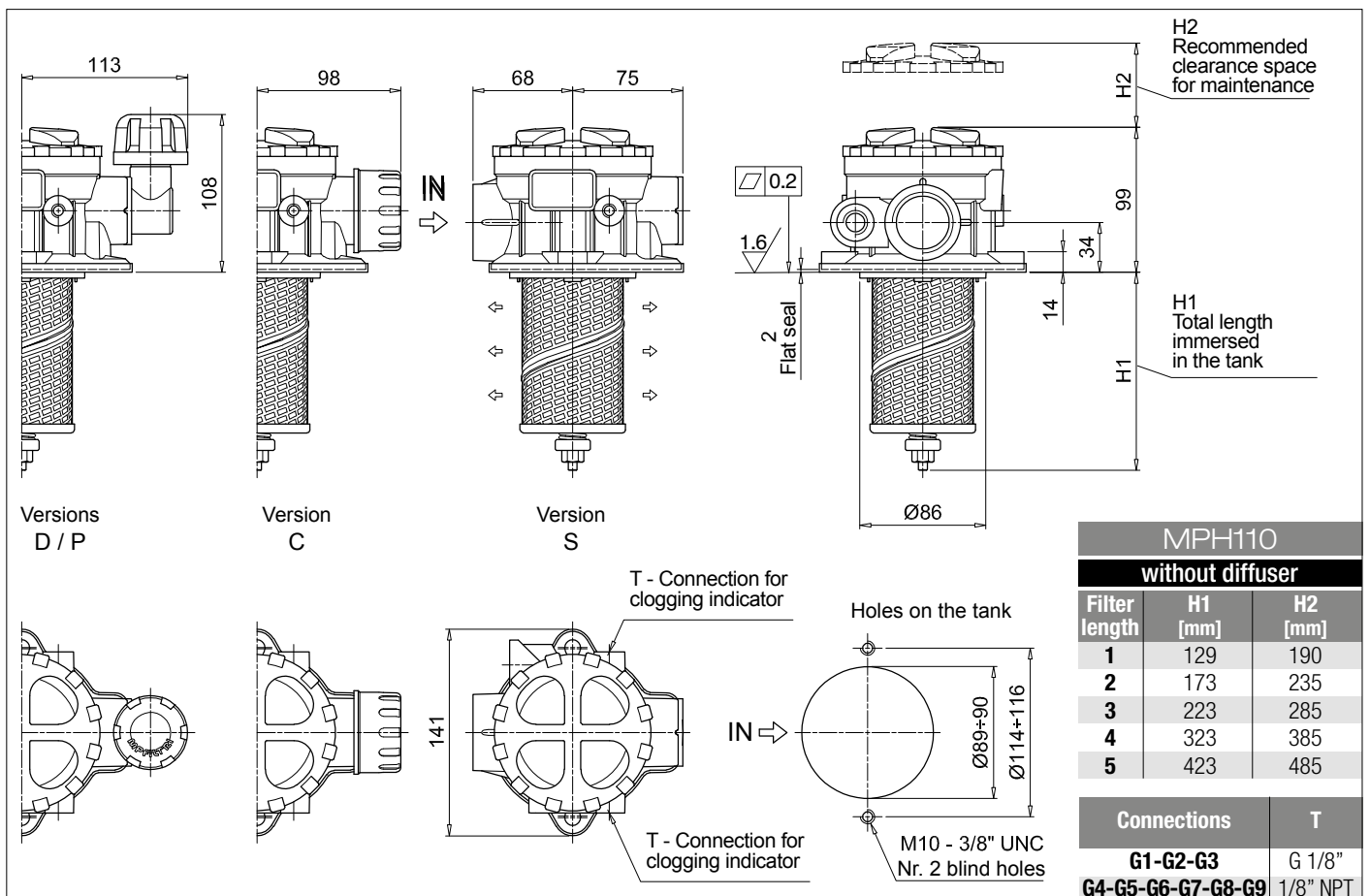
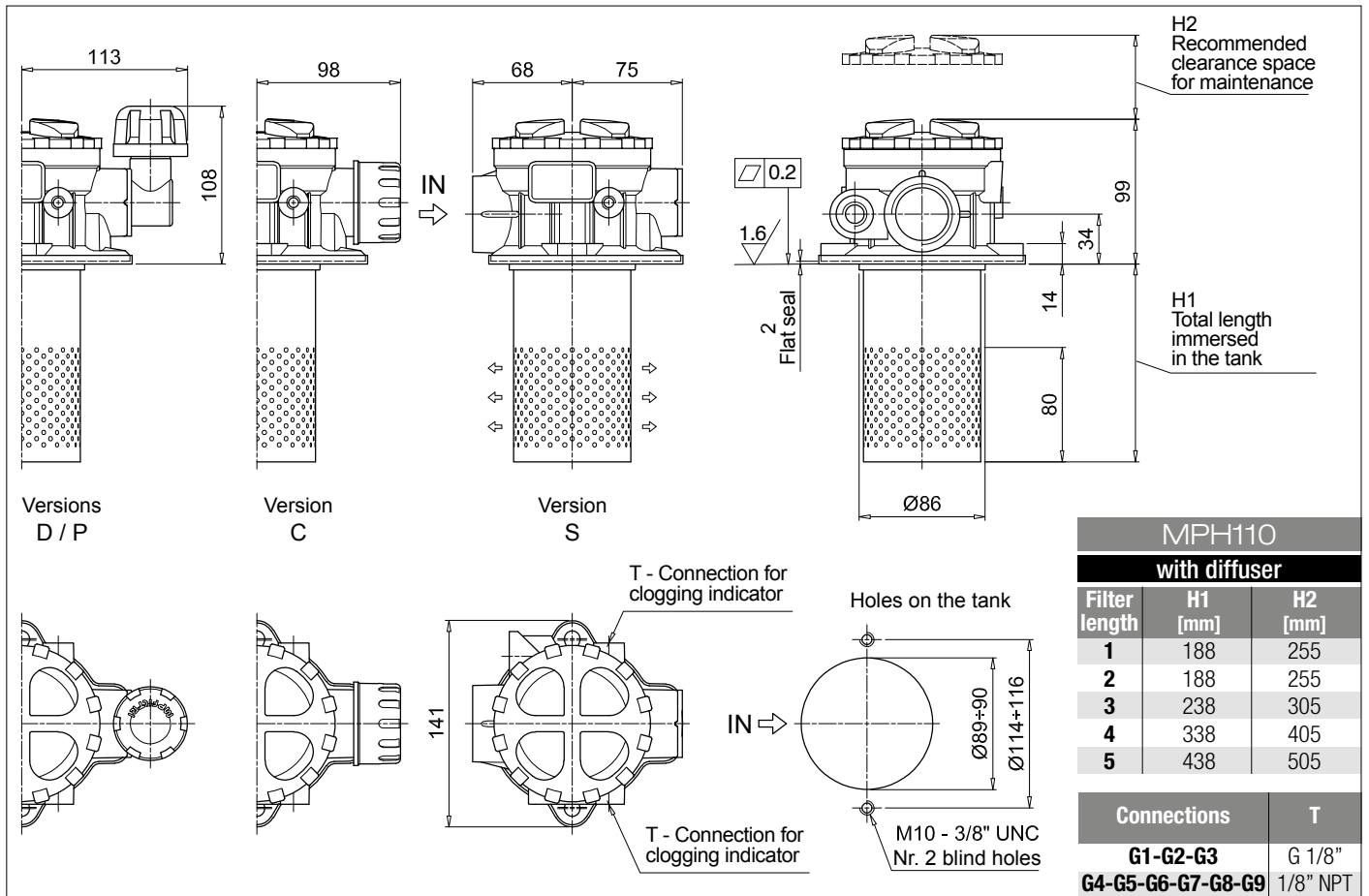
BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

ADDITIONAL FEATURES

See page 268

DPT Dipstick



Designation & Ordering code

COMPLETE FILTER

Configuration example: **MPH114** | **3** | **C** | **E** | **C** | **Z** | **G6** | **M60** | **P01**

Series and size
MPH114

Length
1 | **2** | **3** | **4** | **5** |

Bypass valve
S Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter
D With diffuser, with magnetic filter
F With diffuser, without magnetic filter
O Without diffuser, with magnetic filter
E Without diffuser, without magnetic filter

Air breather
S Without air breather
C With air breather 10 µm
D With anti-splash and air breather SAPO50 10 µm
P With anti-splash and air breather SAPO50 10 µm pressurization 0.5 bar

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Connections

G1 G 3/4"	G6 1 1/4" NPT
G2 G 1"	G7 SAE 12 - 1 1/16" - 12 UN
G3 G 1 1/4"	G8 SAE 16 - 1 5/16" - 12 UN
G4 3/4" NPT	G9 SAE 20 - 1 5/8" - 12 UN
G5 1" NPT	

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **MR100** | **3** | **M60** | **V** | **P01**

Element series and size
MR100

Element length
1 | **2** | **3** | **4** | **5** |

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals
A NBR
V FPM

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

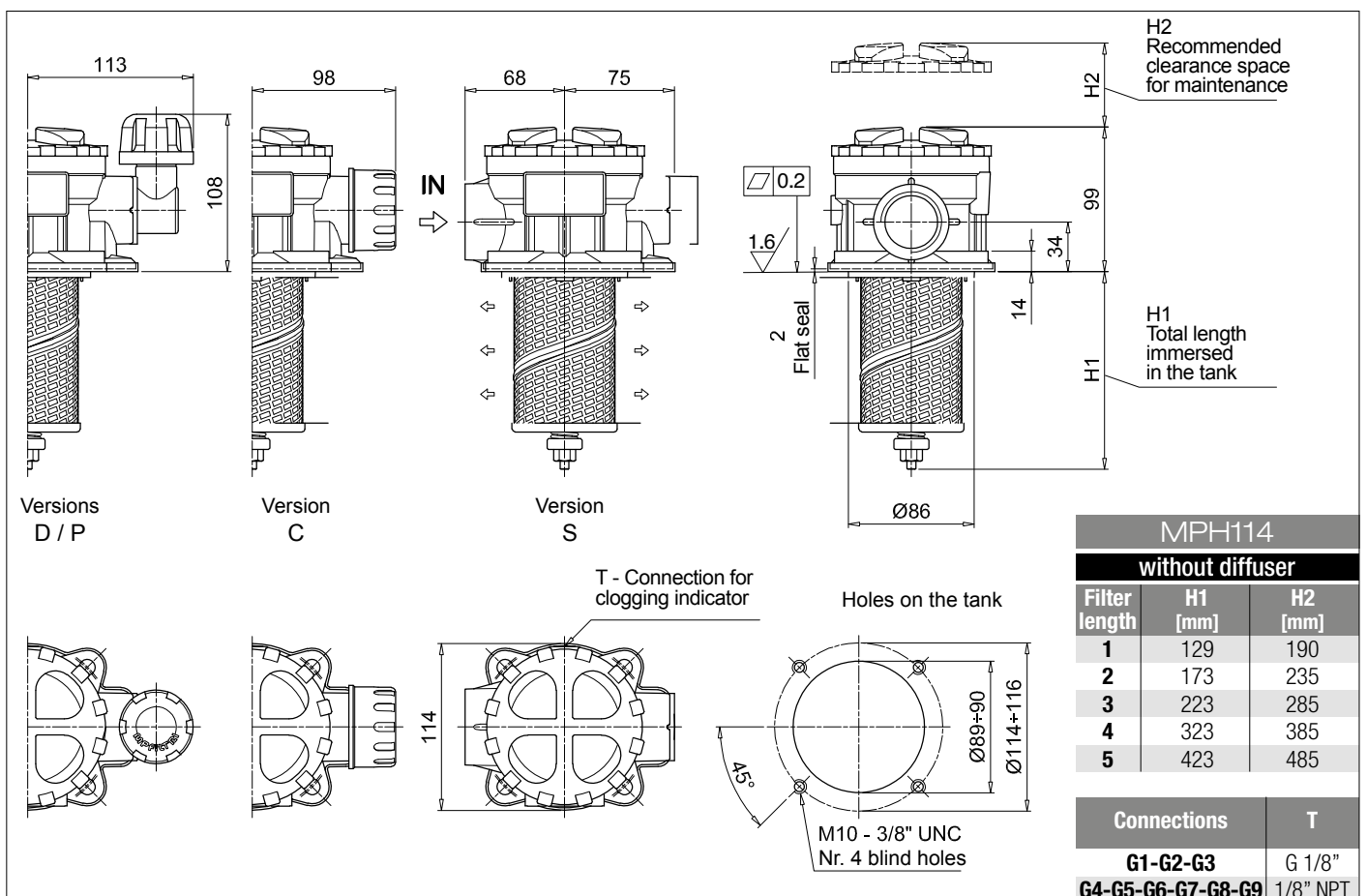
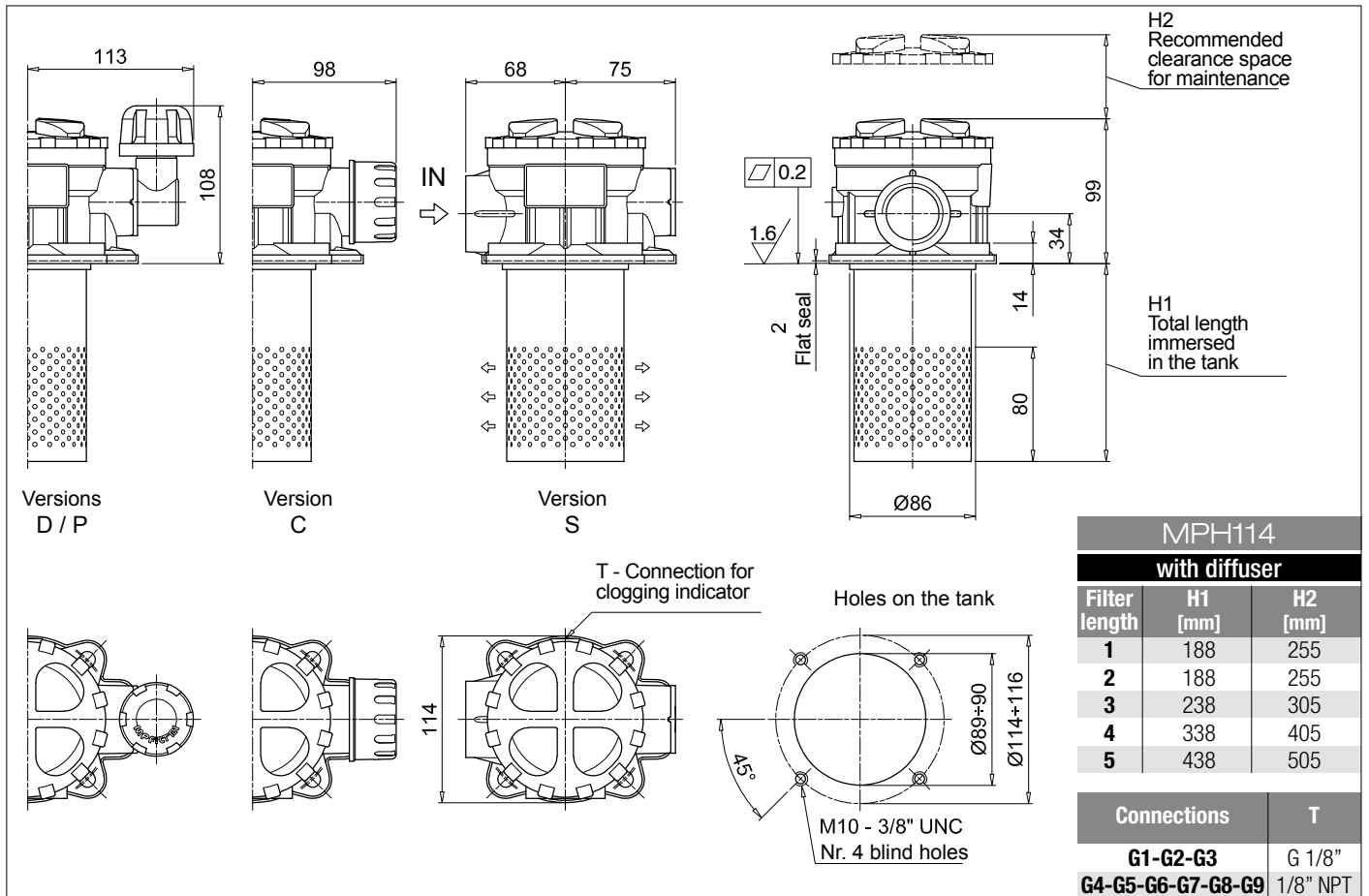
See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

ADDITIONAL FEATURES

See page 268

DPT Dipstick



Designation & Ordering code

COMPLETE FILTER

Series and size **MPH116** Configuration example: **MPH116** | **5** | **S** | **D** | **S** | **A** | **G1** | **A10** | **P01**

Length: **1** | **2** | **3** | **4** | **5**

Bypass valve: **S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter: **D** With diffuser, with magnetic filter | **F** With diffuser, without magnetic filter | **O** Without diffuser, with magnetic filter | **E** Without diffuser, without magnetic filter

Air breather: **S** Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Flat seal on the head on request

Connections	
G1 G 3/4"	G6 1 1/4" NPT
G2 G 1"	G7 SAE 12 - 1 1/16" - 12 UN
G3 G 1 1/4"	G8 SAE 16 - 1 5/16" - 12 UN
G4 3/4" NPT	G9 SAE 20 - 1 5/8" - 12 UN
G5 1" NPT	

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution	
P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Element series and size **MR100** Configuration example: **MR100** | **5** | **A10** | **A** | **P01**

Element length: **1** | **2** | **3** | **4** | **5**

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals	
A	NBR
V	FPM

Execution	
P01	MP Filtri standard
Pxx	Customized

CLOGGING INDICATORS

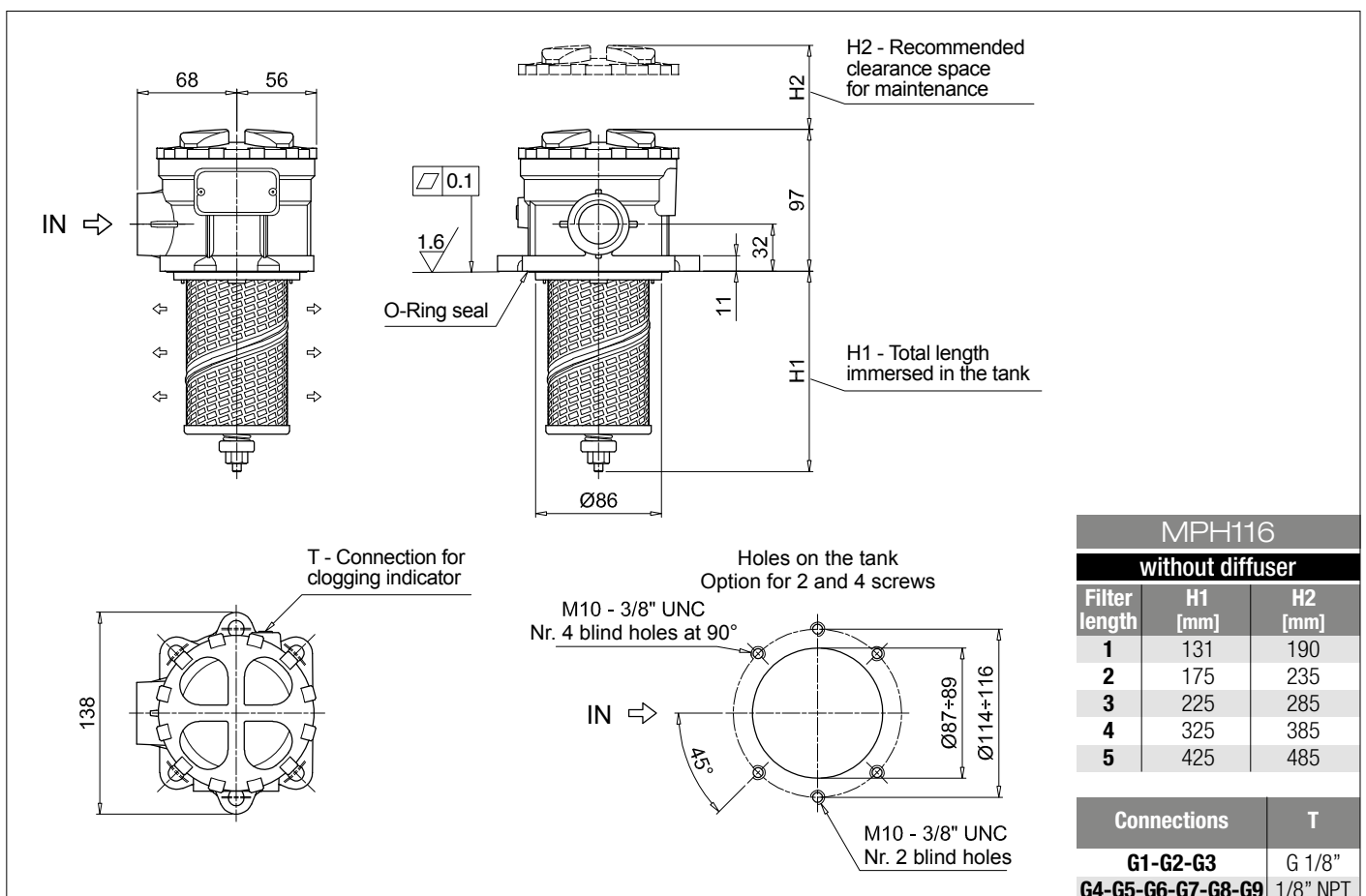
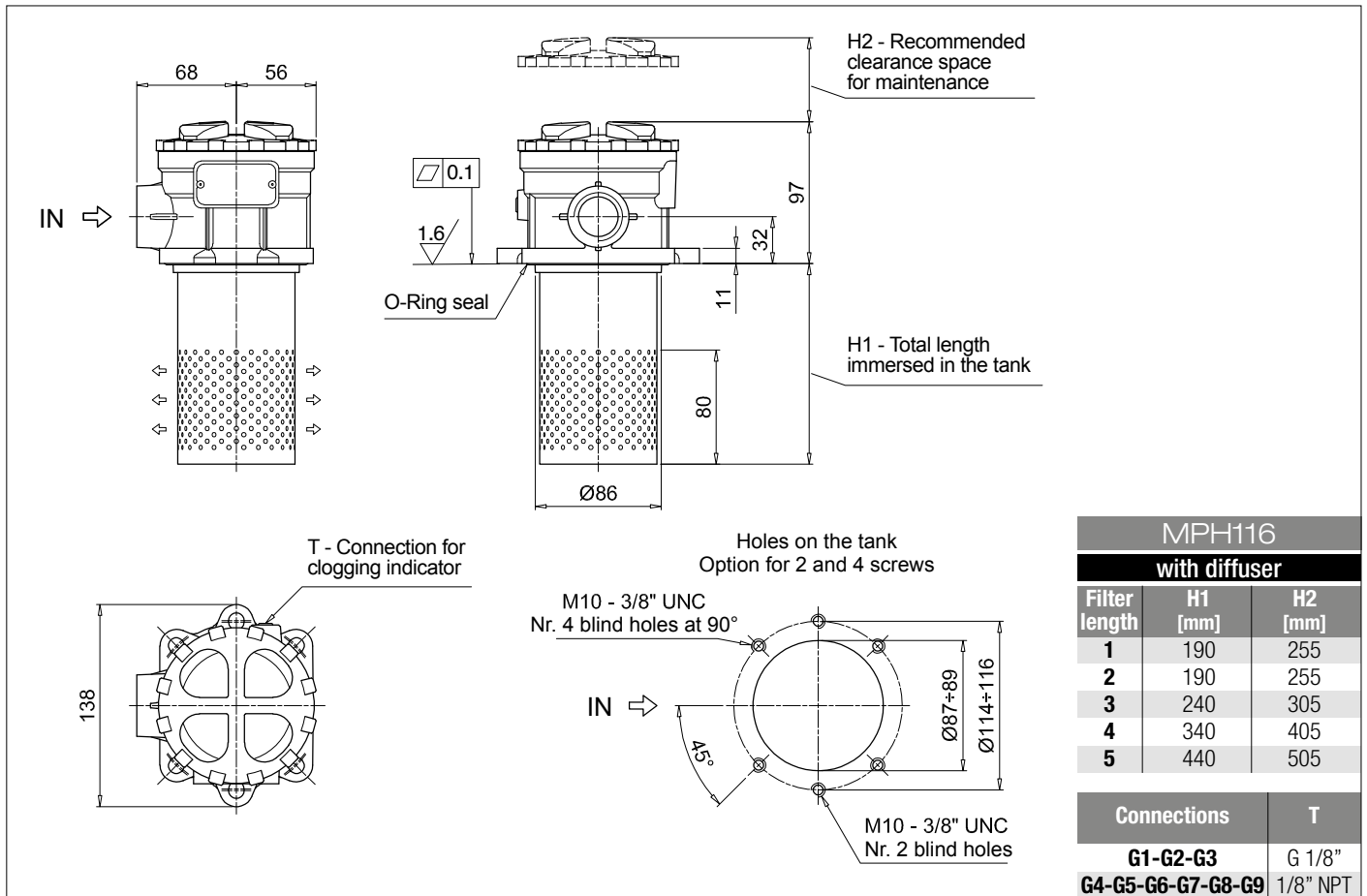
See page 716-717

BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ Visual pressure indicator with manual reset	

ADDITIONAL FEATURES

See page 268

DPT Dipstick



Designation & Ordering code

COMPLETE FILTER

Series and size **MPH120** Configuration example: **MPH120** | **1** | **S** | **D** | **A** | **G1** | **1** | **A10** | **P01**

Length: **1** | **2** | **3** | **4** | **5**

Bypass valve: **S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter: **D** With diffuser, with magnetic filter | **F** With diffuser, without magnetic filter | **O** Without diffuser, with magnetic filter | **E** Without diffuser, without magnetic filter

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Main Connections	Rear connections	Aux size 1	Aux size 2
G1 G 3/4"	G 3/4"	G 3/8"	G 1/2"
G2 G 1"	G 1"		
G3 G 1 1/4"	G 3/4"		
G4 3/4" NPT	3/4" NPT	3/8" NPT	1/2" NPT
G5 1" NPT	1" NPT		
G6 1 1/4" NPT	3/4" NPT		
G7 SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN	SAE 6 - 9/16" - 18 UNF	SAE 8 - 3/4" - 16 UNF
G8 SAE 16 - 1 5/16" - 12 UN	SAE 16 - 1 5/16" - 12 UN		
G9 SAE 20 - 1 5/8" - 12 UN	SAE 12 - 1 1/16" - 12 UN		

Aux connection - see previous table: **0** Not machined | **1** Aux size 1 | **2** Aux size 2

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution: **P01** MP Filtri standard | **Pxx** Customized

FILTER ELEMENT

Element series and size **MR100** Configuration example: **MR100** | **1** | **A10** | **A** | **P01**

Element length: **1** | **2** | **3** | **4** | **5**

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals: **A** NBR | **V** FPM

Execution: **P01** MP Filtri standard | **Pxx** Customized

CLOGGING INDICATORS

See page 716-717

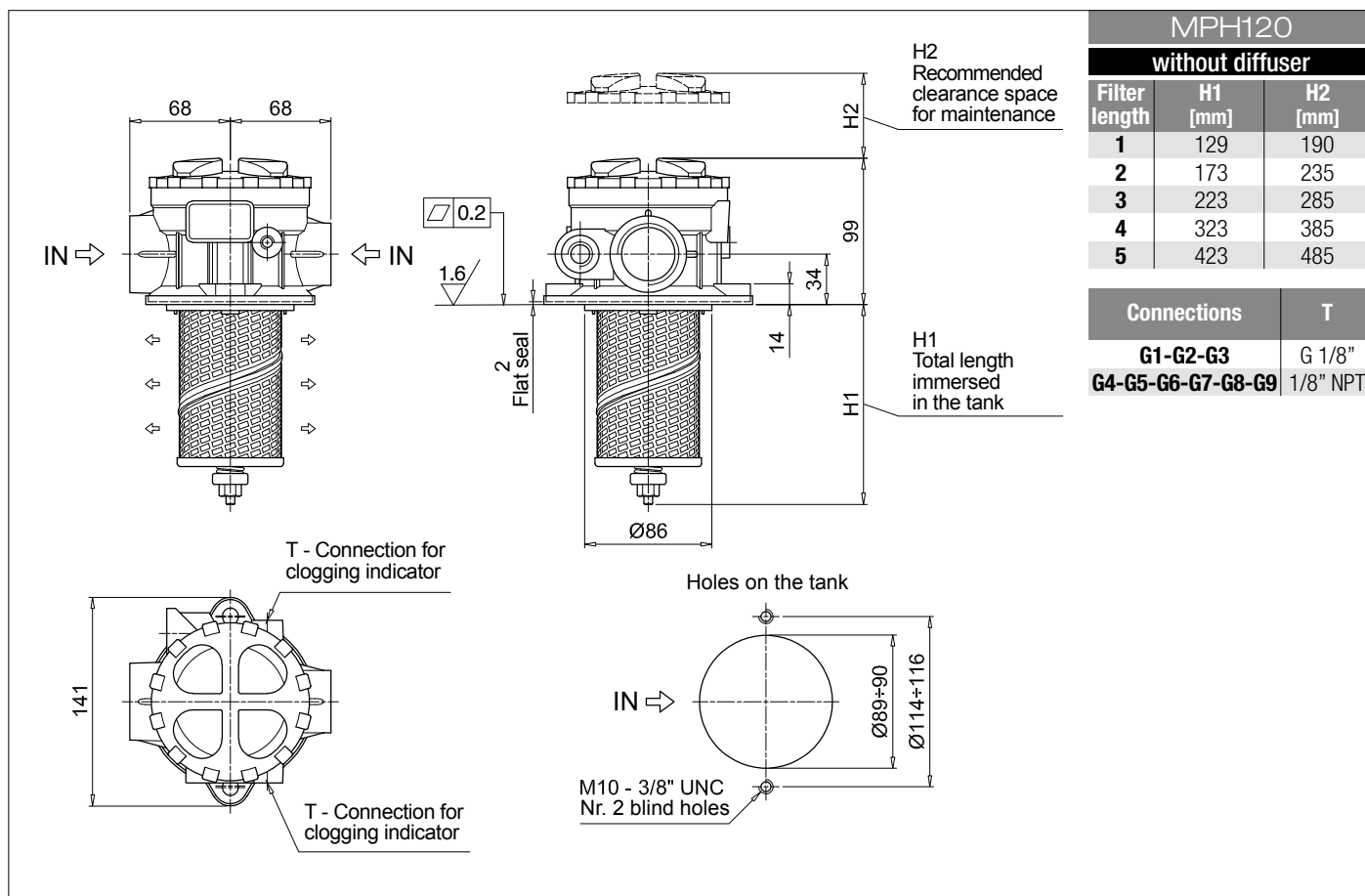
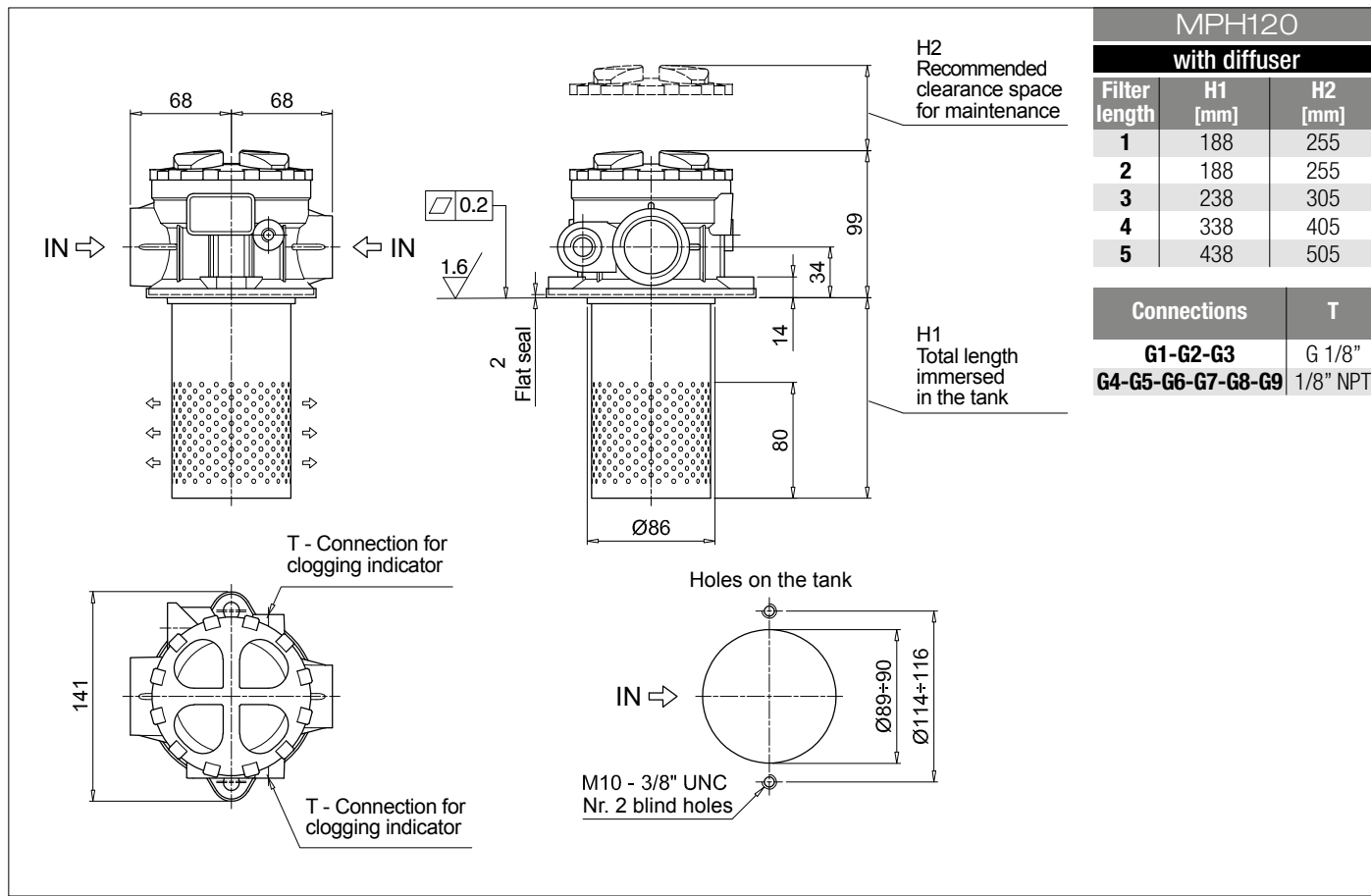
BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

ADDITIONAL FEATURES

See page 268

DPT Dipstick



Designation & Ordering code

COMPLETE FILTER

Series and size **MPH250** Configuration example: **MPH250** | **1** | **C** | **D** | **S** | **A** | **G1** | **A10** | **P01**

Length **1** | **2** | **3** | **4**

Bypass valve **S** Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter **D** With diffuser, with magnetic filter
F With diffuser, without magnetic filter
O Without diffuser, with magnetic filter
E Without diffuser, without magnetic filter

Air breather **S** Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Main Connections	Rear connections
G1 G 1 1/2"	-
G2 G 1 1/2"	G 1 1/4"
G4 1 1/2" NPT	-
G5 1 1/2" NPT	1 1/4" NPT
G7 SAE 24 - 1 7/8" - 12 UN	-
G8 SAE 24 - 1 7/8" - 12 UN	SAE 20 - 1 5/8" - 12 UN
F1 1 1/2" SAE 3000 psi/M	-
F2 1 1/2" SAE 3000 psi/M	1 1/4" SAE 3000 psi/M
F3 1 1/2" SAE 3000 psi/UNC	-
F4 1 1/2" SAE 3000 psi/UNC	1 1/4" SAE 3000 psi/UNC

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution	
P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Element series and size **MR250** Configuration example: **MR250** | **1** | **A10** | **A** | **P01**

Element length **1** | **2** | **3** | **4**

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

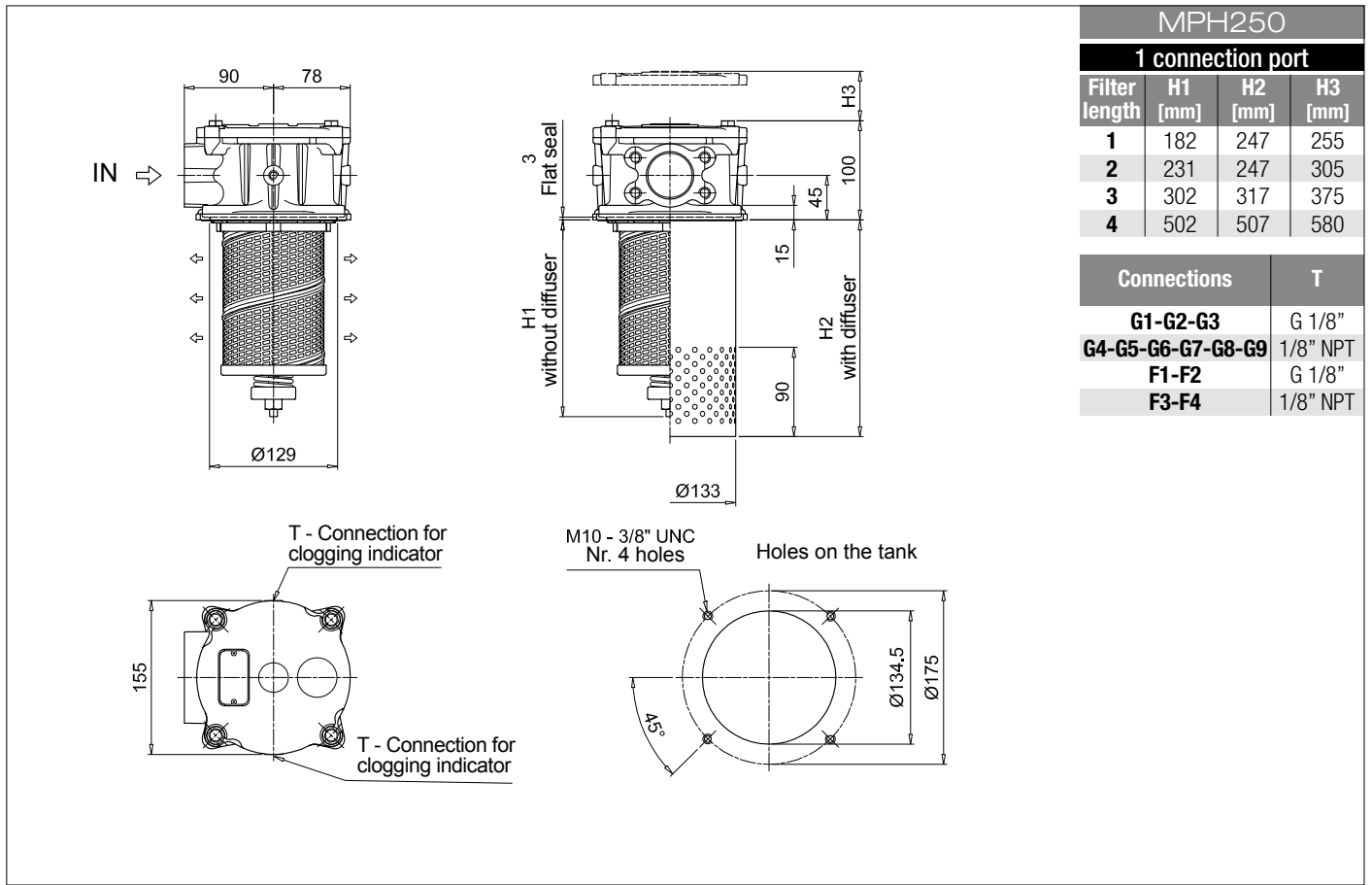
Seals	Execution
A NBR	P01 MP Filtri standard
V FPM	Pxx Customized

CLOGGING INDICATORS

See page 716-717

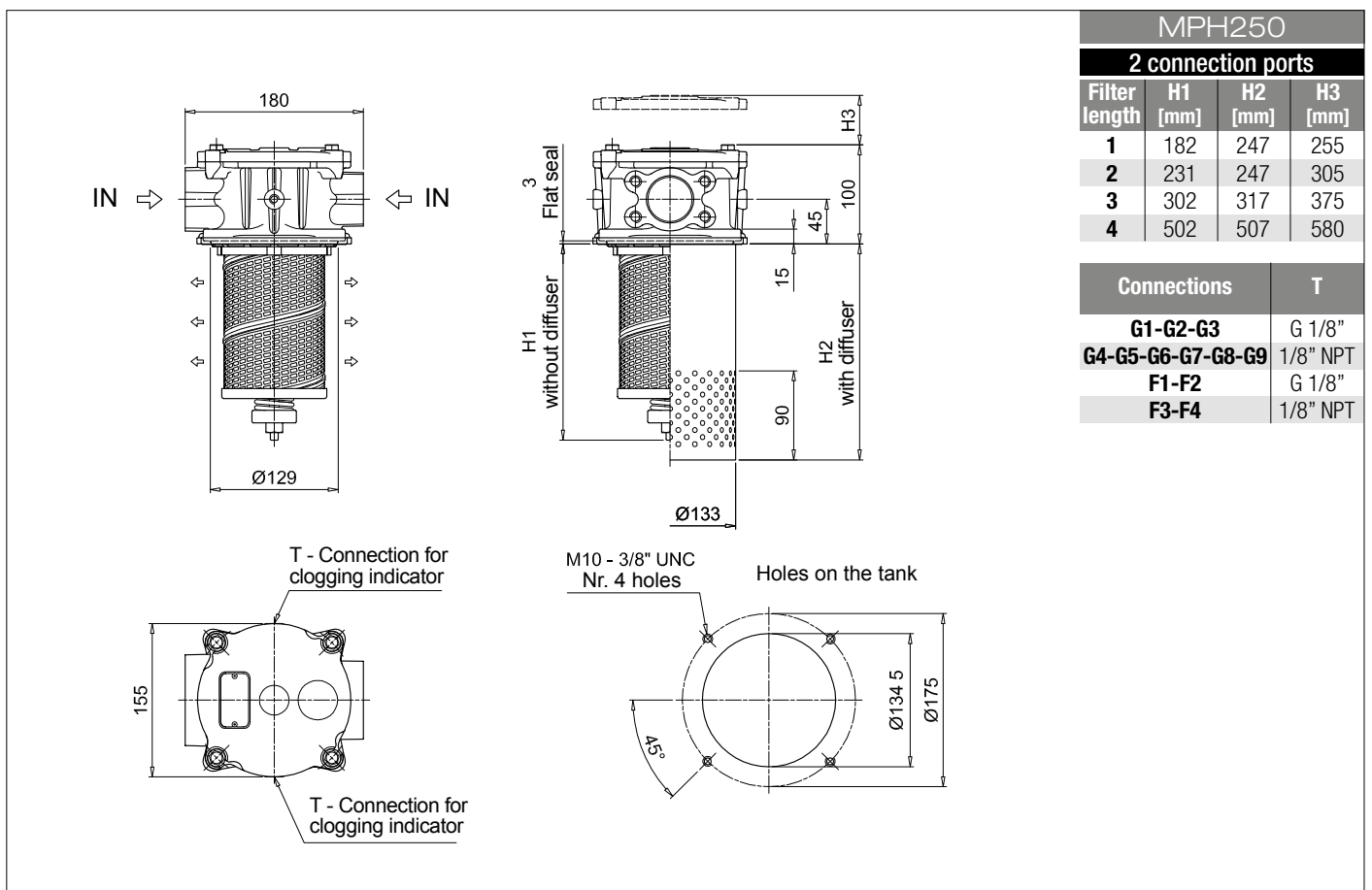
BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator



MPH250			
1 connection port			
Filter length	H1 [mm]	H2 [mm]	H3 [mm]
1	182	247	255
2	231	247	305
3	302	317	375
4	502	507	580

Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT
F1-F2	G 1/8"
F3-F4	1/8" NPT



MPH250			
2 connection ports			
Filter length	H1 [mm]	H2 [mm]	H3 [mm]
1	182	247	255
2	231	247	305
3	302	317	375
4	502	507	580

Connections	T
G1-G2-G3	G 1/8"
G4-G5-G6-G7-G8-G9	1/8" NPT
F1-F2	G 1/8"
F3-F4	1/8" NPT

Designation & Ordering code

COMPLETE FILTER

Configuration example: **MPH630** | **1** | **S** | **E** | **S** | **W** | **F1** | **M25** | **P01**

Series and size
MPH630

Length
1 | **2** | **3** | **4** | **5**

Bypass valve
S Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter
D With diffuser, with magnetic filter
F With diffuser, without magnetic filter
O Without diffuser, with magnetic filter
E Without diffuser, without magnetic filter

Air breather
S Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Main Connections	Rear connections
F1 2 1/2" SAE 3000 psi/M	-
F2 2 1/2" SAE 3000 psi/M	2" SAE 3000 psi/M
F3 2 1/2" SAE 3000 psi/UNC	-
F4 2 1/2" SAE 3000 psi/UNC	2" SAE 3000 psi/UNC

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution	
P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Configuration example: **MR630** | **1** | **M25** | **A** | **P01**

Element series and size
MR630

Element length
1 | **2** | **3** | **4** | **5**

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

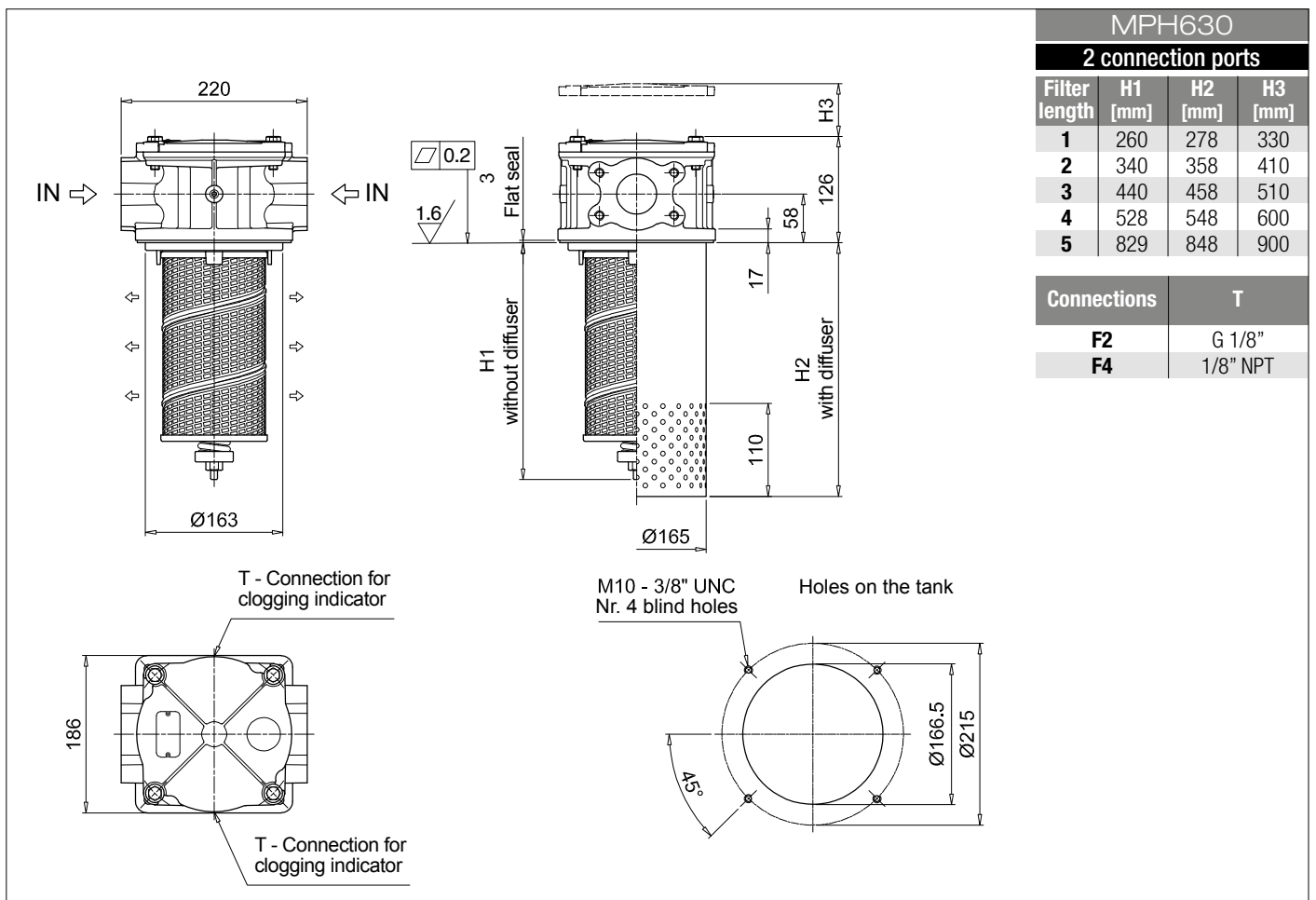
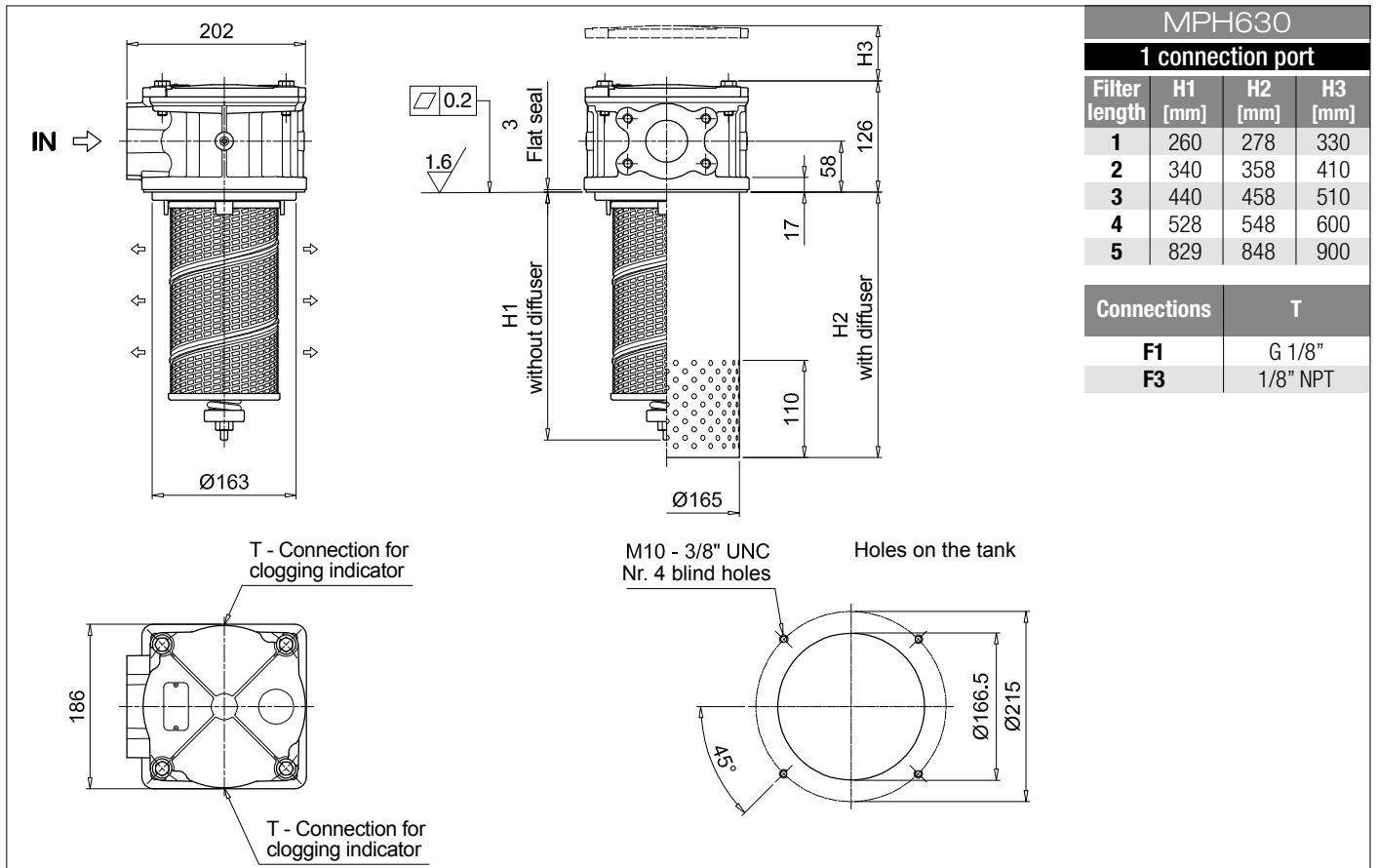
Seals	Execution
A NBR	P01 MP Filtri standard
V FPM	Pxx Customized

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator



Designation & Ordering code

COMPLETE FILTER

Configuration example: **MPH660** | **4** | **C** | **D** | **S** | **A** | **F2** | **A10** | **P01**

Series and size
MPH660

Length
4 | **5**

Bypass valve
S Without bypass | **C** 1.75 bar | **E** 2.5 bar

Diffuser and magnetic filter
D With diffuser, with magnetic filter
F With diffuser, without magnetic filter
O Without diffuser, with magnetic filter
E Without diffuser, without magnetic filter

Air breather
S Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Main Connections
F1 3" SAE 3000 psi/M
F2 4" SAE 3000 psi/M

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **MR630** | **5** | **M25** | **A** | **P01**

Element series and size
MR630

Element length
4 | **5**

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals
A NBR
V FPM

Execution
P01 MP Filtri standard
Pxx Customized

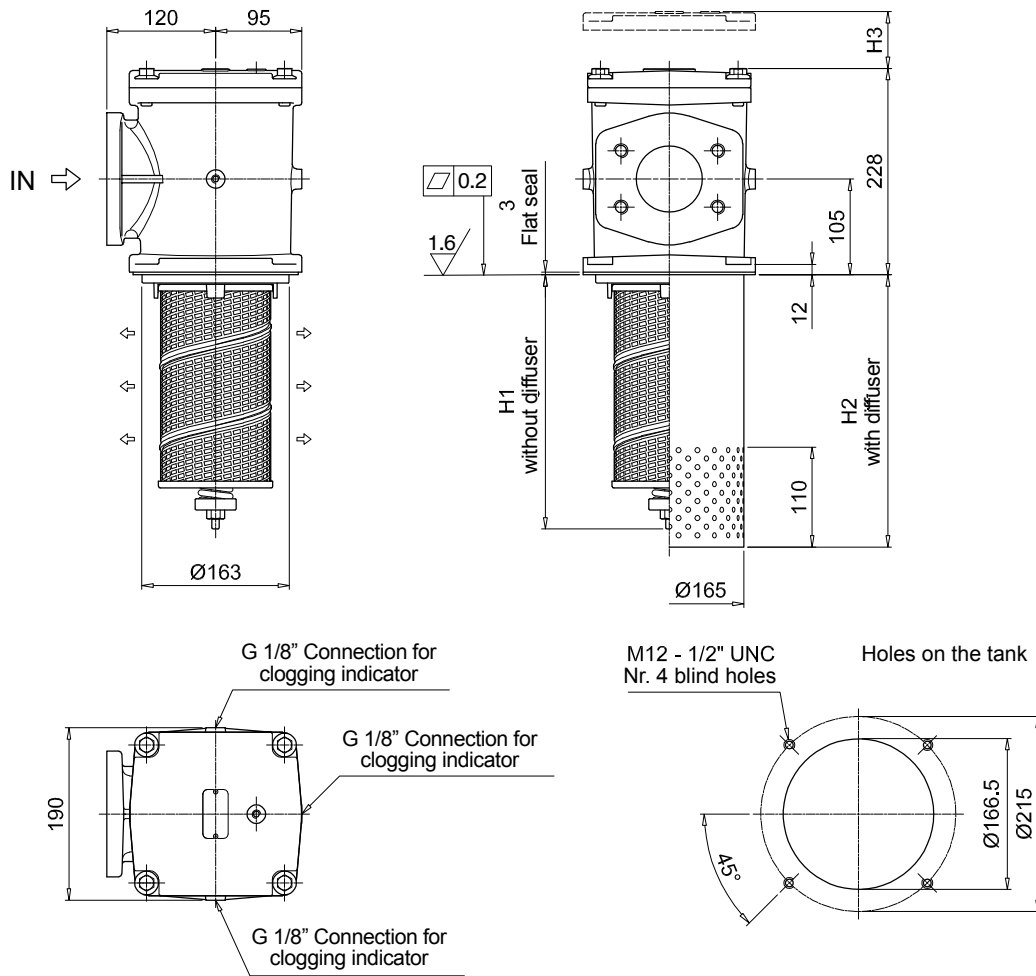
CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

MPH660			
Filter length	H1 [mm]	H2 [mm]	H3 [mm]
4	538	548	610
5	838	848	910



Designation & Ordering code

COMPLETE FILTER

Configuration example: **MPH850** | **1** | **C** | **D** | **S** | **A** | **F1** | **A10** | **P01**

Series and size
MPH850

Length
1 | **2** | **3** | **4**

Bypass valve
S Without bypass | **C** 1.75 bar

Diffuser and magnetic filter
D With diffuser, with magnetic filter
F With diffuser, without magnetic filter
O Without diffuser, with magnetic filter
E Without diffuser, without magnetic filter

Air breather
S Without air breather

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR head anodized	•	•	-
Z FPM head anodized	•	•	-

Main Connections	Rear connections
F1 UNI 2223 DN 100 PN 10/16	3" SAE 3000 psi/M
F2 UNI 2223 DN 100 PN 10/16	3" SAE 3000 psi/UNC
F5 Not machined	3" SAE 3000 psi/M
F6 Not machined	3" SAE 3000 psi/UNC
F7 4" SAE 3000 psi/M	3" SAE 3000 psi/M
F8 4" SAE 3000 psi/UNC	3" SAE 3000 psi/UNC

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution	
P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Configuration example: **MR850** | **1** | **A10** | **A** | **P01**

Element series and size
MR850

Element length
1 | **2** | **3** | **4**

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

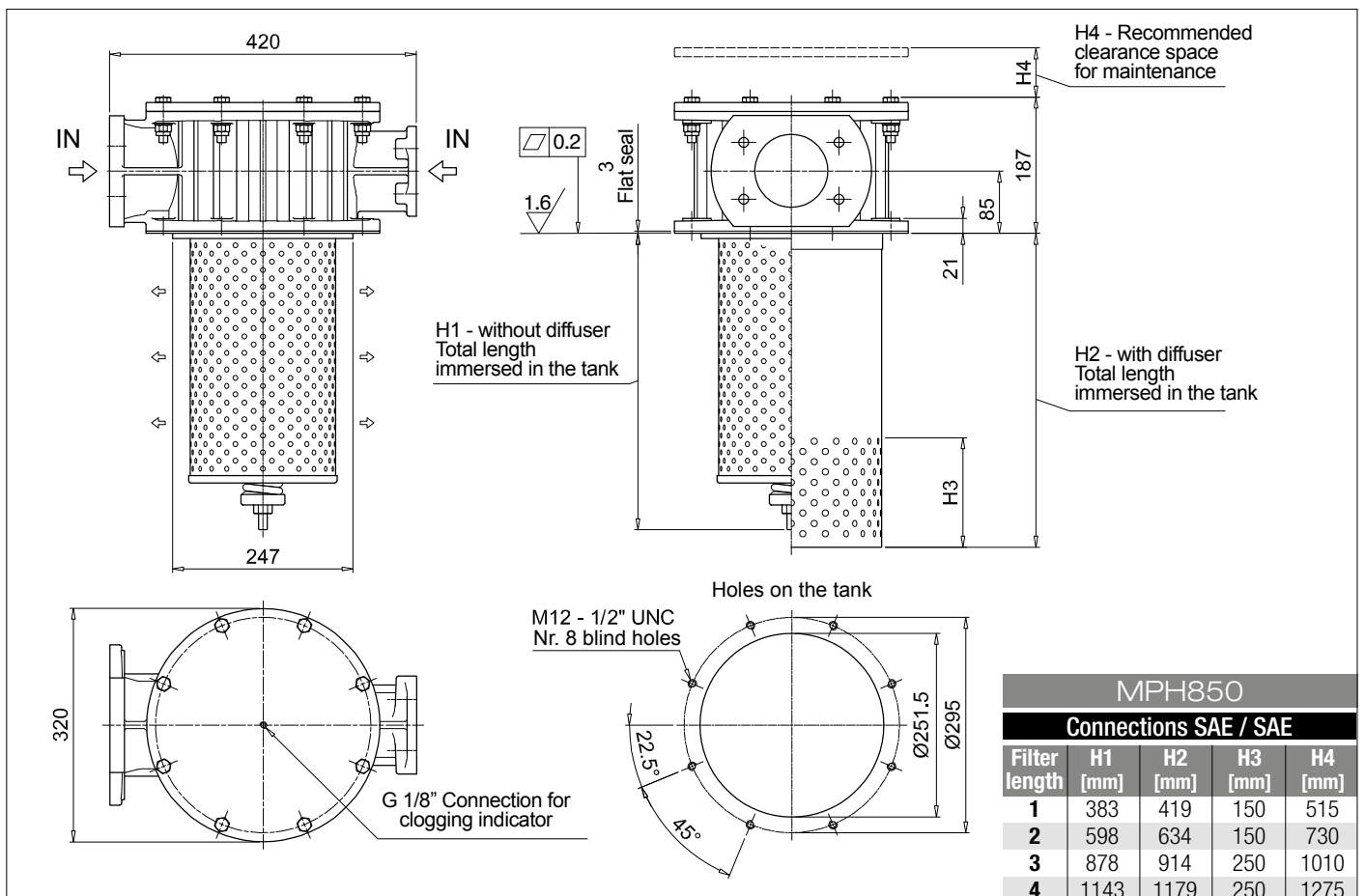
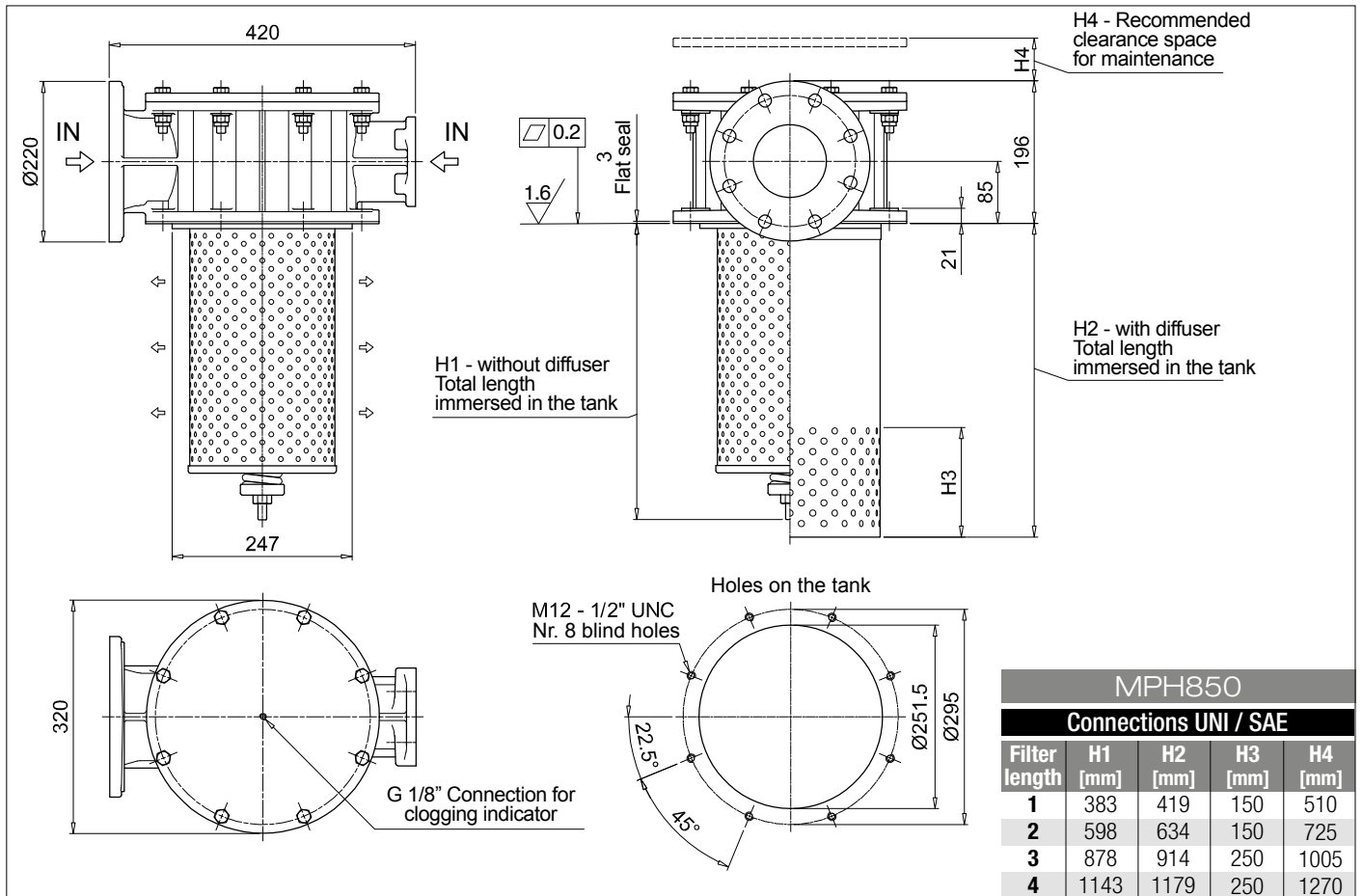
Seals	Execution
A NBR	P01 MP Filtri standard
V FPM	Pxx Customized

CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

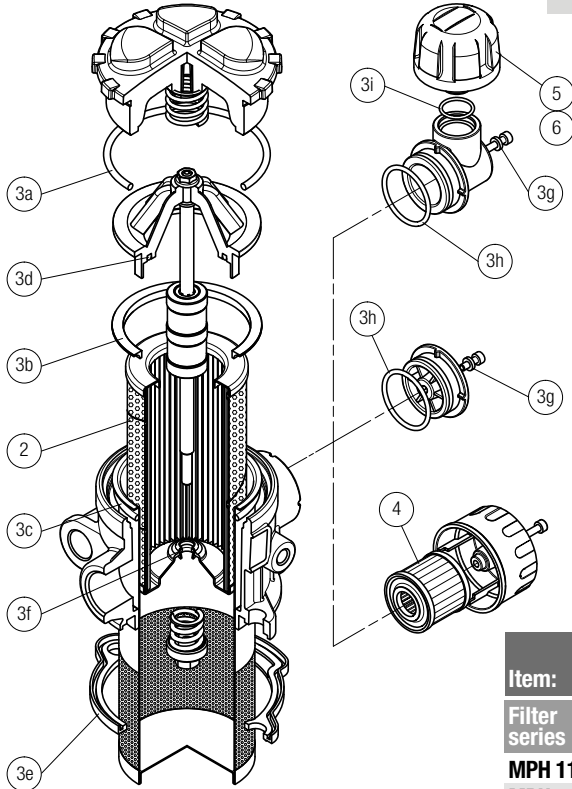
BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator



MPH SPARE PARTS

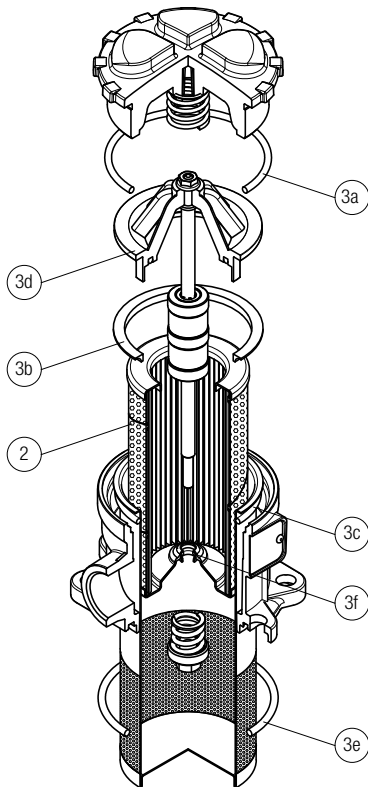
Order number for spare parts

MPH 110 - 114



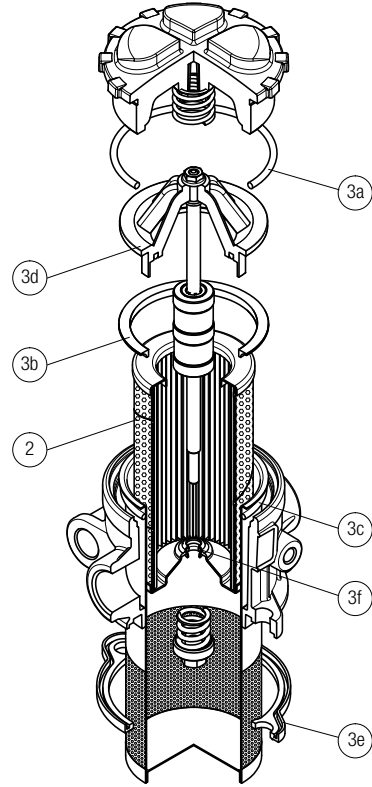
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.
Filter series	Filter element	Seal Kit code number		Air breather filter element - version:			
		NBR	FPM	C	D	P	
MPH 110	See order table	02050565	02050566	10 µm A3L03	10 µm SAP50G3L03A0P01	10 µm SAP50G3L03A1P01	
MPH 114	See order table	02050582	02050583				

MPH 116



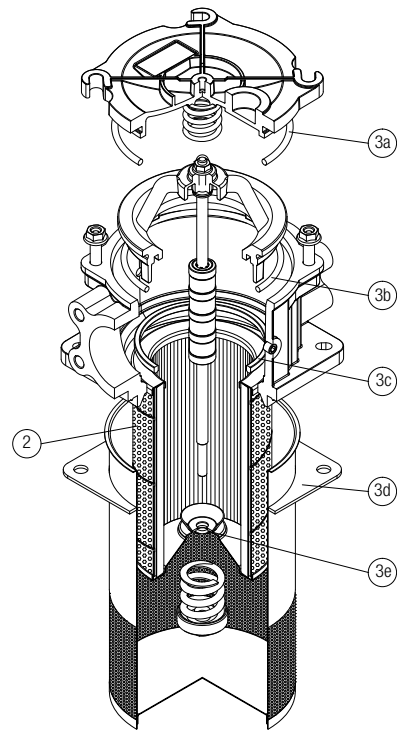
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPH 116	See order table	02050741	02050742

MPH 120



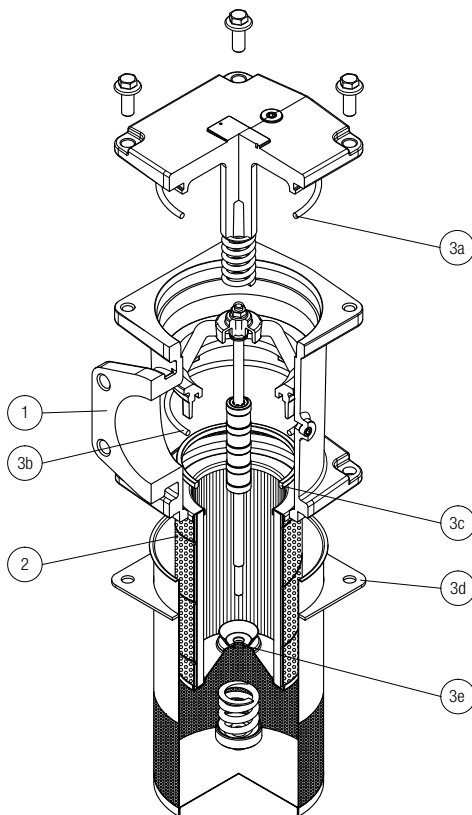
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPH 120	See order table	02050567	02050568

MPH 250 - 630



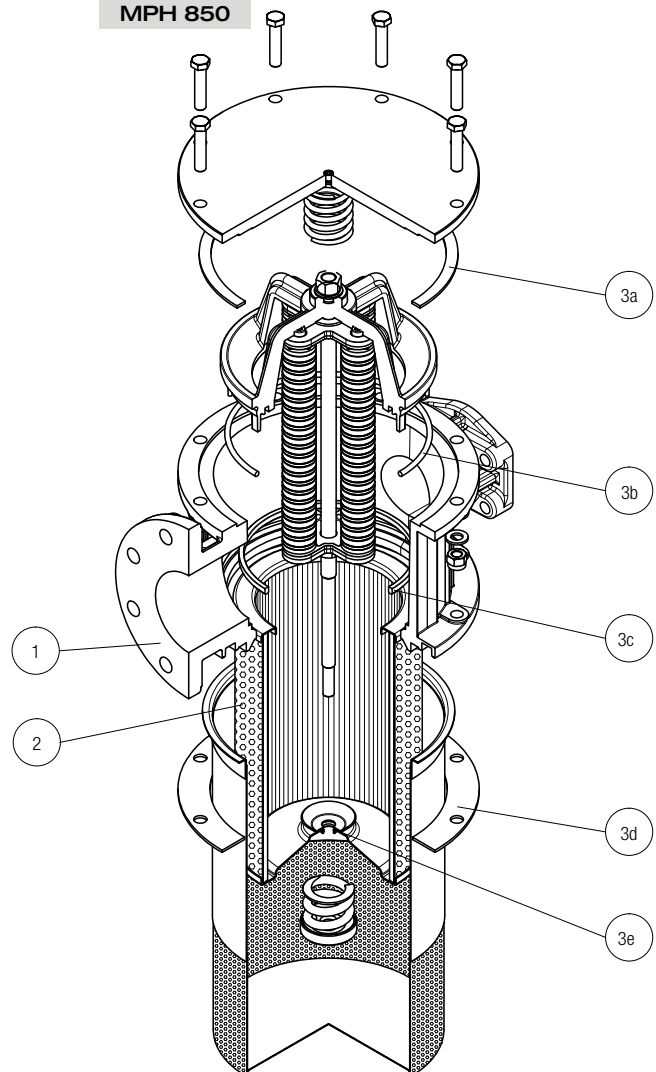
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
MPH 250	MPH 630	NBR	FPM
	2	3 (3a ÷ 3e)	
	See order table	02050151	02050152
		02050153	02050154

MPH 660



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
MPH 660	MPH 850	NBR	FPM
	2	3 (3a ÷ 3e)	
	See order table	02050153	02050154
		02050155	02050156

MPH 850



MPI series

Maximum working pressure up to 1 MPa (10 bar) - Flow rate up to 3500 l/min



Description

Technical data

Return filter

Maximum working pressure up to 1 MPa (10 bar)
Flow rate up to 3500 l/min

MPI is a range of return filter kits for protection of the reservoir against the system contamination.

They are directly integrated in the reservoir in immersed or semi-immersed position to save space into the tank.

The use of the diffuser is recommended, to place the filter output always immersed into the fluid to avoid aeration or foam generation into the reservoir.

The filtration from inside to outside allows a cleaner filter element replacement, the dirty remains into the filter element.

Available features:

- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- Magnetic filter, to hold the ferrous particles
- Oil dipstick, to easily check the level of the fluid into the reservoir (separate item)
- Diffuser, to reduce the risk of aeration, foaming and noise

Common applications:

Heavy duty industrial equipment

Filter housing materials

- Insert assembly
Polyamide, GF reinforced: MPI 100
Aluminium: MPI 250-630-850

- Diffuser: Tinned Steel

- Valve: Steel

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$
- Opening pressure 250 kPa (2.5 bar) $\pm 10\%$, except for MPI 850

Δp element type

- Microfibre filter elements - series MR: 10 bar
- Fluid flow through the filter element from IN to OUT

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

MPI filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
MPI 100		0.90	1.00	1.20	1.50	1.80		0.90	0.90	1.20	1.60	1.80
MPI 250		2.20	2.50	2.90	4.30	-		3.50	3.50	4.50	7.00	-
MPI 630		3.40	3.90	4.30	5.40	6.60		5.80	7.40	9.50	11.40	13.50
MPI 850		15.20	18.20	21.20	25.20	-		8.80	12.20	16.70	20.80	-

Flow rates [l/min]

Filters series	Length	A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
MPI 100	1	26	29	72	79	107	282	164	190
	2	43	46	112	114	161	318	164	190
	3	64	72	132	156	178	324	219	251
	4	90	99	184	198	216	324	266	302
	5	117	128	201	219	244	324	282	318
MPI 250	1	93	102	210	251	315	1093	339	383
	2	124	151	327	412	421	1122	460	514
	3	189	221	418	445	500	1137	544	616
	4	261	304	592	670	766	1166	832	923
MPI 630	1	160	200	369	423	518	1894	565	632
	2	240	257	571	611	1045	1929	1137	1285
	3	330	374	745	788	1308	1938	1416	1577
	4	374	403	887	1010	1348	1956	1448	1612
	5	625	698	1210	1257	1723	2121	1839	1929
MPI 850	1	775	1041	1246	1568	2242	3311	2371	2625
	2	1176	1522	1682	1747	2449	3378	2684	2886
	3	1490	1914	1995	2014	3035	3405	3144	3220
	4	1668	2088	2305	2363	3169	3517	3272	3378

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

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

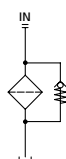
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

Hydraulic symbol

Filter series	Style 1 connection
MPI 100	•
MPI 250	•
MPI 630	•
MPI 850	•



MPI MPI100 - MPI250 - MPI630 - MPI850

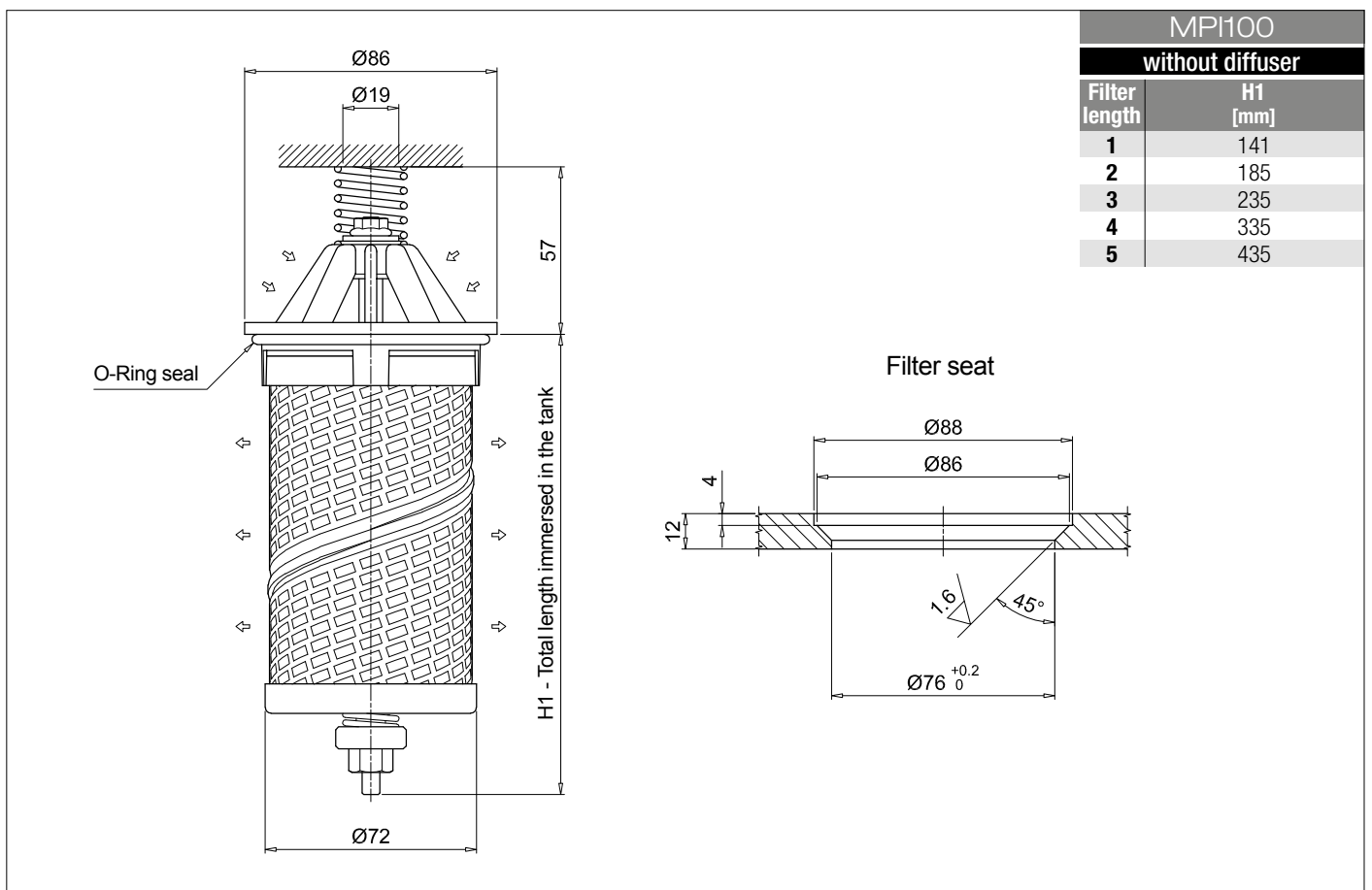
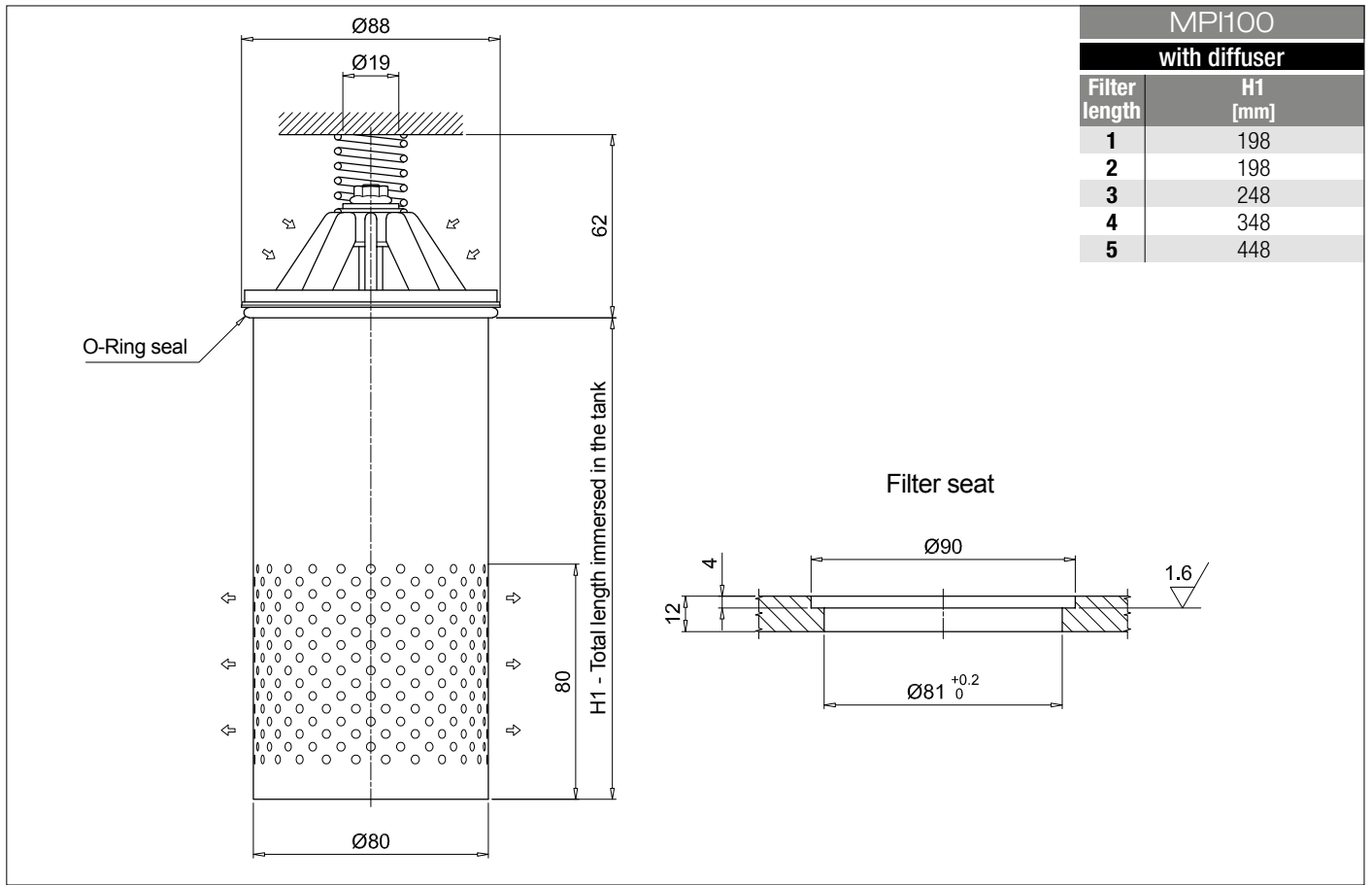
Designation & Ordering code

COMPLETE FILTER

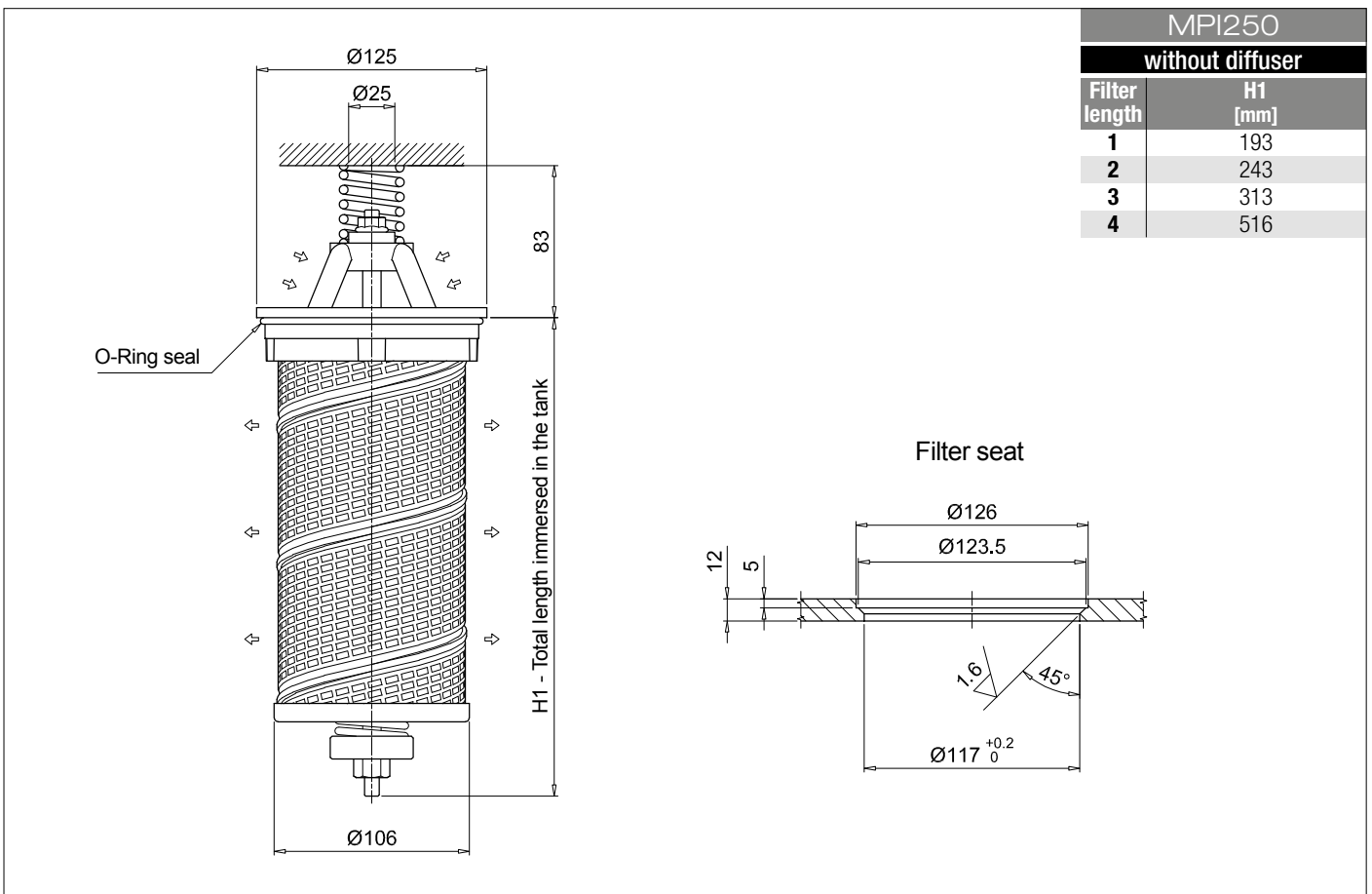
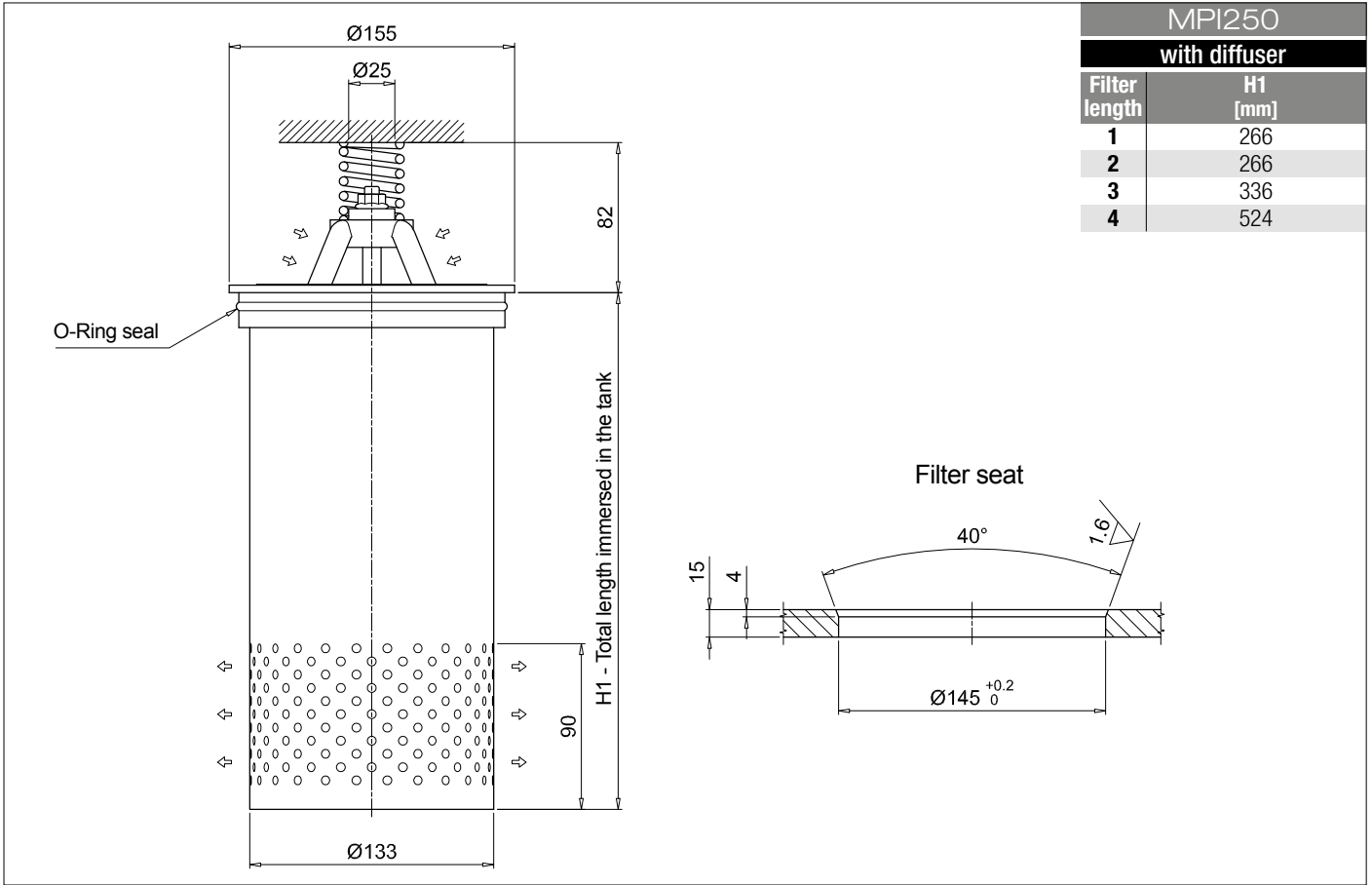
Series and size					Configuration example 1: MPI100 1 C D A A10 P01						
MPI100					Configuration example 2: MPI630 5 E D Z M25 P01						
MPI250											
MPI630											
MPI850											
Length		MPI100	MPI250	MPI630	MPI850						
1		•	•	•	•						
2		•	•	•	•						
3		•	•	•	•						
4		•	•	•	•						
5		•	-	•	-						
Bypass valve		MPI100	MPI250	MPI630	MPI850						
S	Without bypass	•	•	•	•						
C	1.75 bar	•	•	•	•						
E	2.5 bar	•	•	•	-						
Diffuser and magnetic filter											
D	With diffuser, with magnetic filter										
F	With diffuser, without magnetic filter										
O	Without diffuser, with magnetic filter										
E	Without diffuser, without magnetic filter										
Seals and treatments				Filtration rating							
A	NBR	Axx	Mxx	Pxx							
V	FPM	•	•	•							
W	NBR head anodized	•	•	-							
Z	FPM head anodized	•	•	-							
Filtration rating (filter media)											
A03	Inorganic microfiber	3 µm	M25	Wire mesh	25 µm						
A06	Inorganic microfiber	6 µm	M60	Wire mesh	60 µm						
A10	Inorganic microfiber	10 µm	M90	Wire mesh	90 µm						
A16	Inorganic microfiber	16 µm	P10	Resin impregnated paper	10 µm						
A25	Inorganic microfiber	25 µm	P25	Resin impregnated paper	25 µm						
							Execution				
							P01	MP Filtri standard			
							Pxx	Customized			

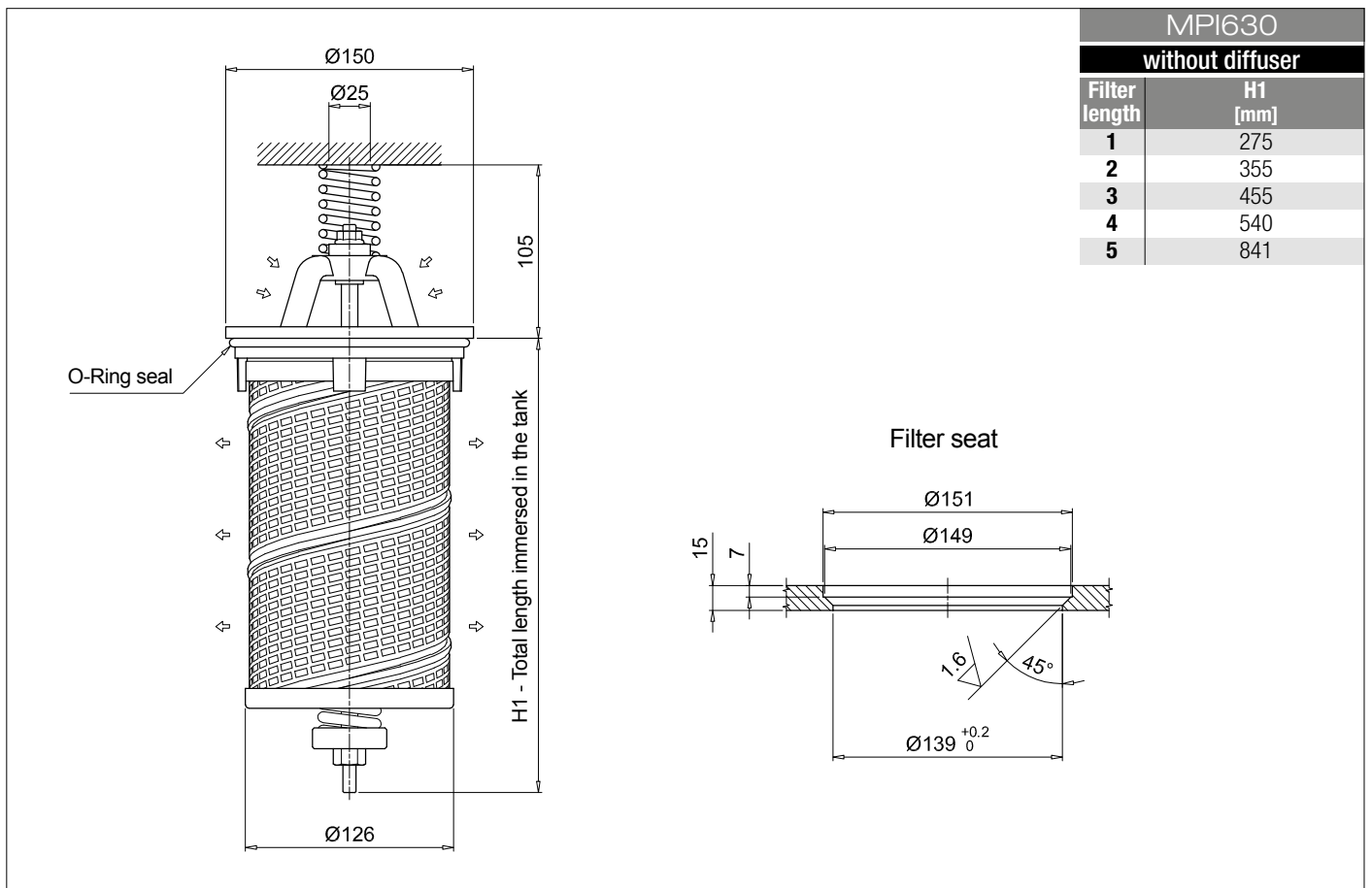
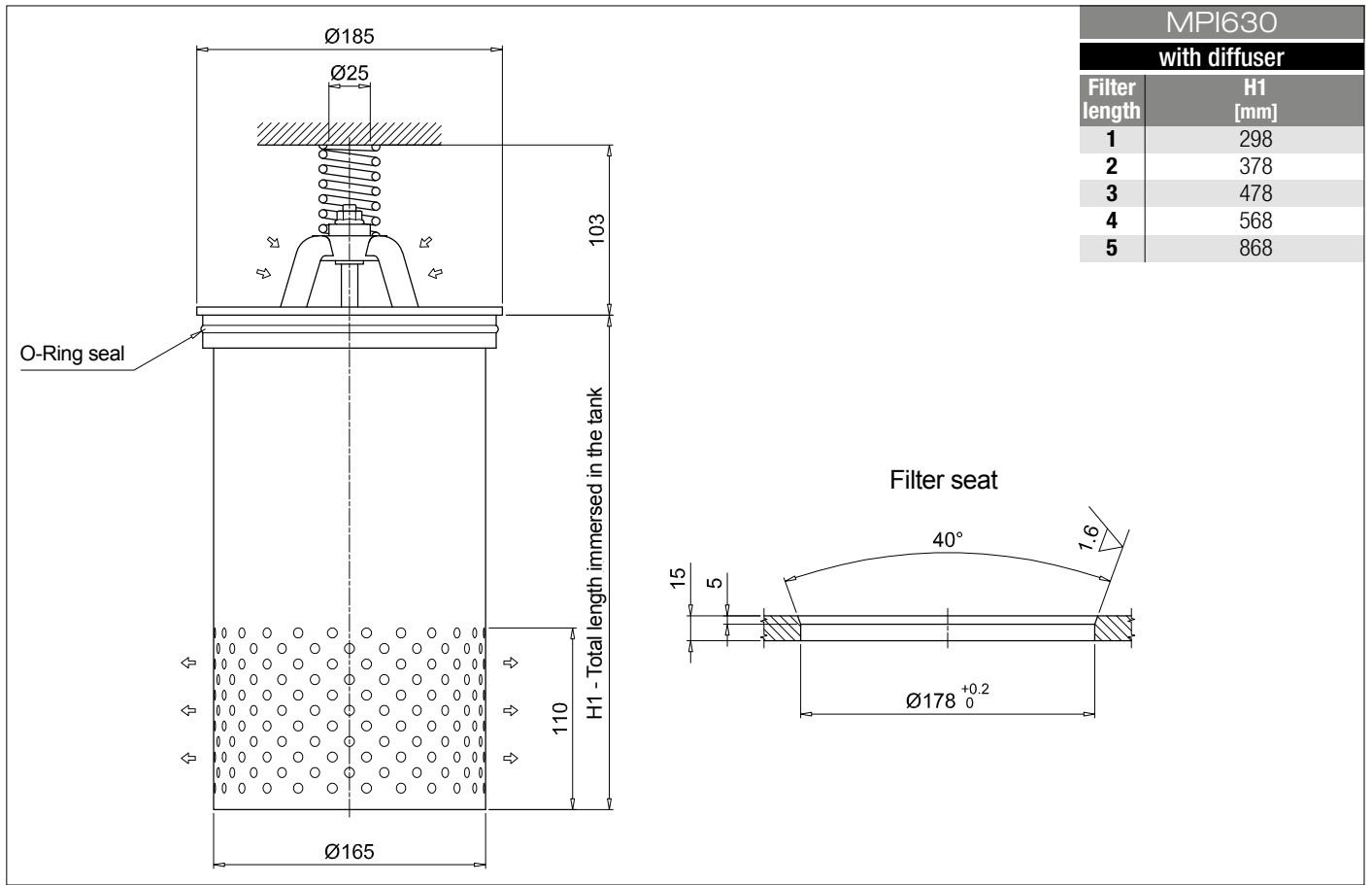
FILTER ELEMENT

Element series and size					Configuration example 1: MR100 1 A10 A P01					
MR100					Configuration example 2: MR630 5 M25 V P01					
MR250										
MR630										
MR850										
Element length		Size 100	Size 250	Size 630	Size 850					
1		•	•	•	•					
2		•	•	•	•					
3		•	•	•	•					
4		•	•	•	•					
5		•	-	•	-					
Filtration rating (filter media)										
A03	Inorganic microfiber	3 µm	M25	Wire mesh	25 µm					
A06	Inorganic microfiber	6 µm	M60	Wire mesh	60 µm					
A10	Inorganic microfiber	10 µm	M90	Wire mesh	90 µm					
A16	Inorganic microfiber	16 µm	P10	Resin impregnated paper	10 µm					
A25	Inorganic microfiber	25 µm	P25	Resin impregnated paper	25 µm					
							Seals			
							A	NBR		
							V	FPM		
							Execution			
							P01	MP Filtri standard		
							Pxx	Customized		



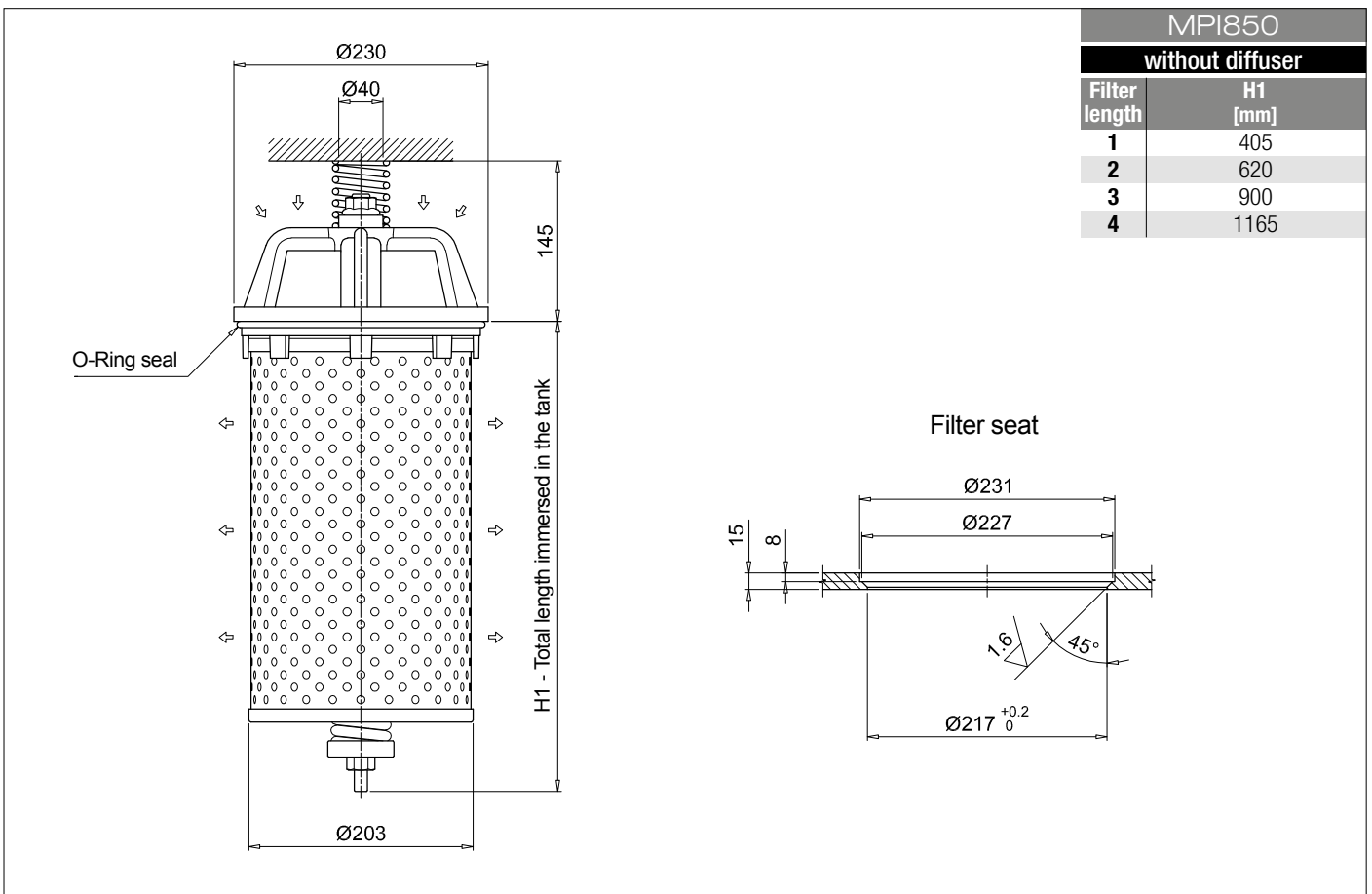
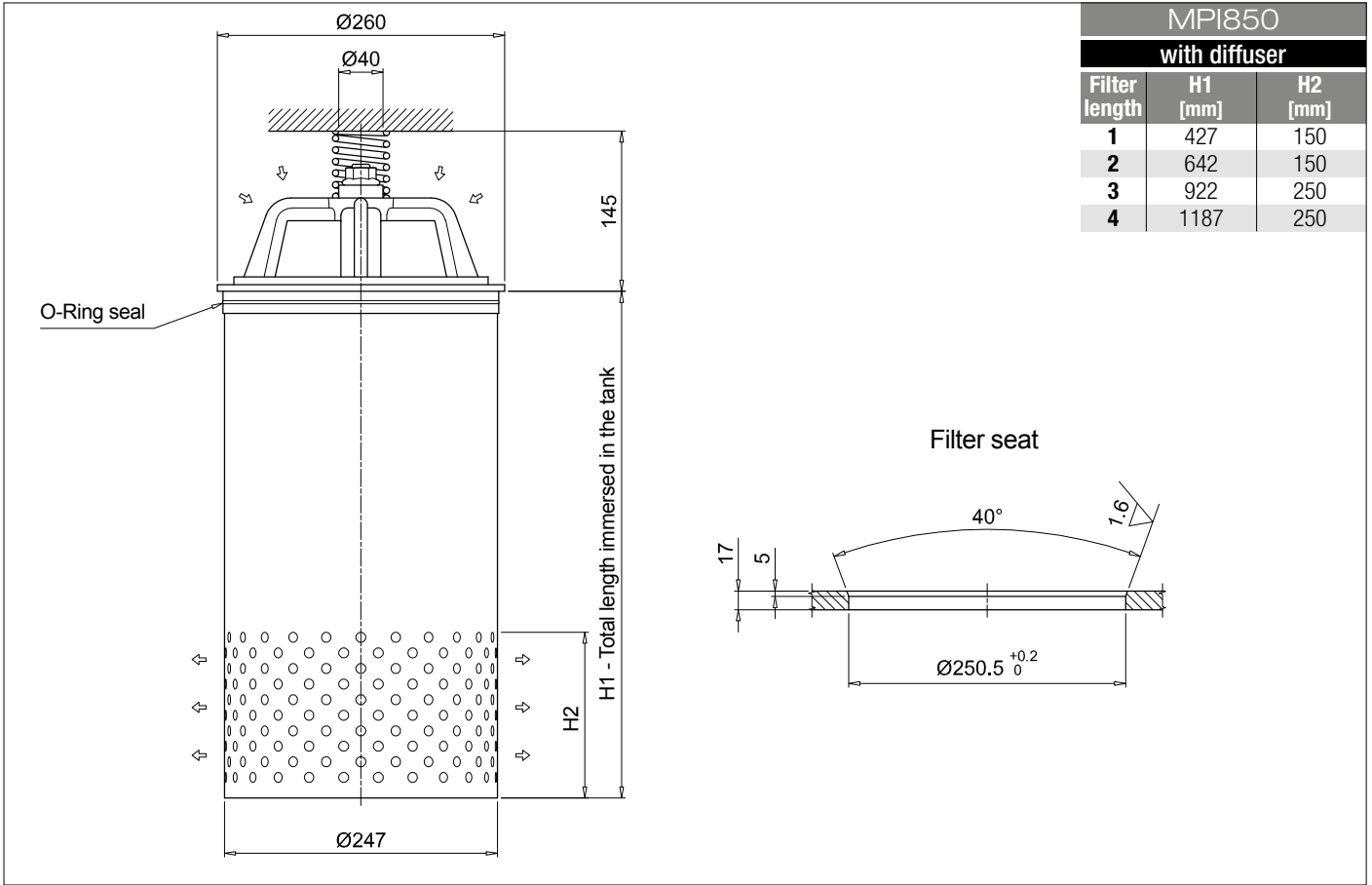
Dimensions





MPI MPI100 - MPI250 - MPI630 - MPI850

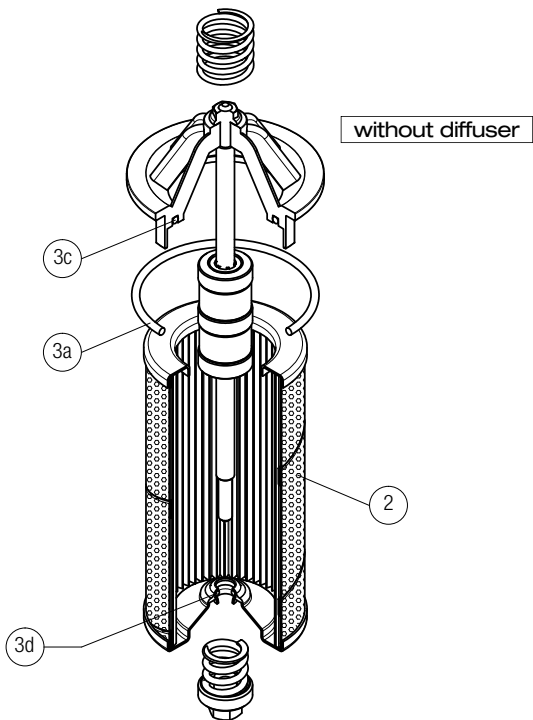
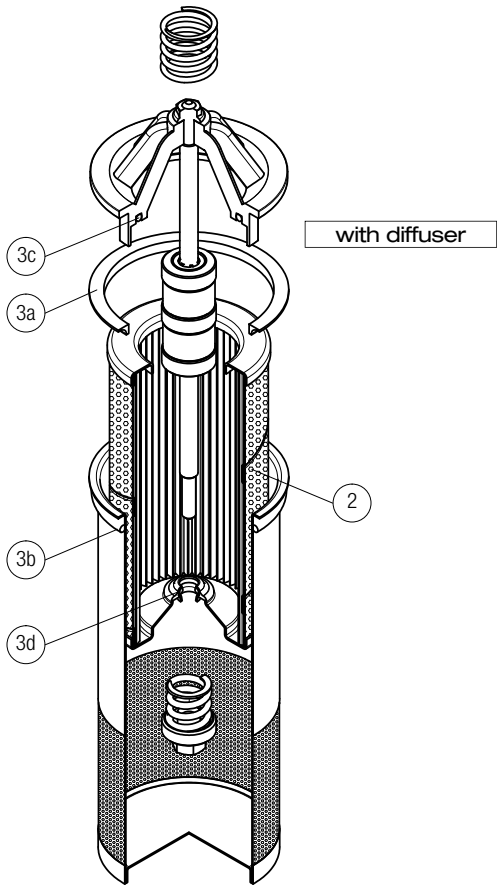
Dimensions



MPI SPARE PARTS

Order number for spare parts

MPI 100



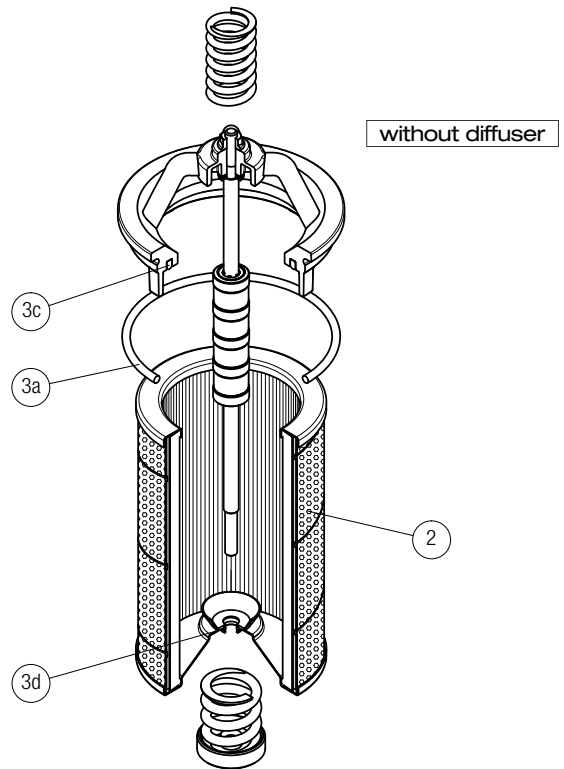
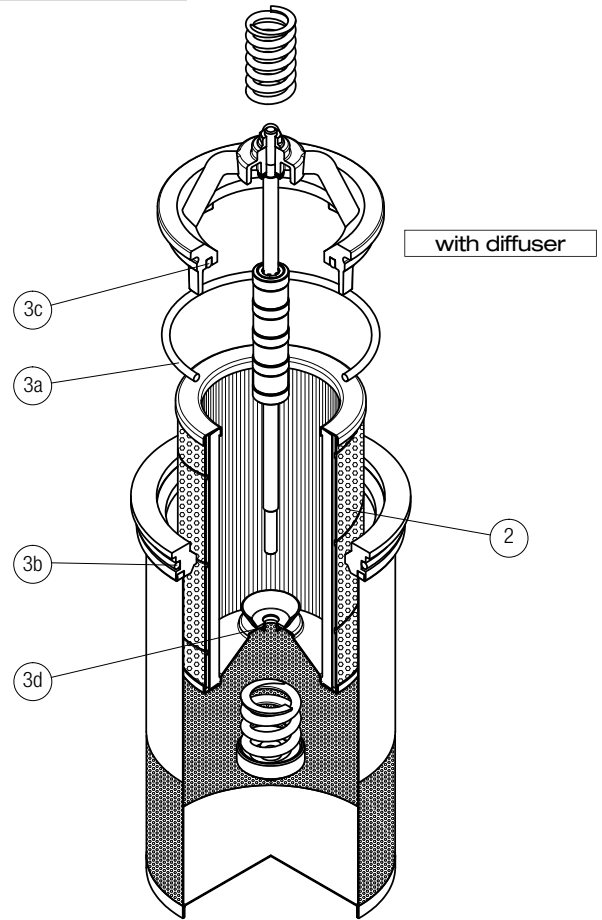
Q.ty: 1 pc.

Q.ty: 1 pc.

Item: **2** **3** (3a ÷ 3d)

Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPI 100	See order table	02050145	02050146

MPI 250 - 630



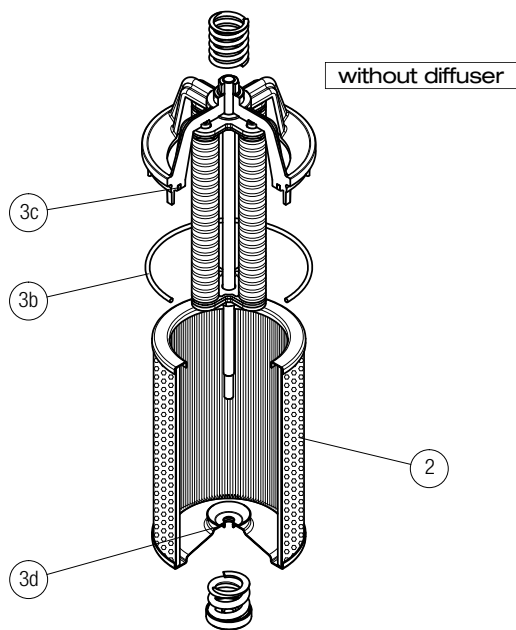
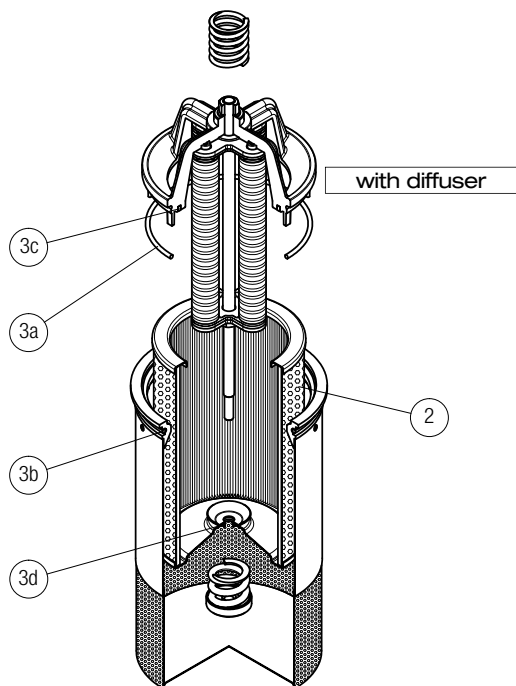
Q.ty: 1 pc.

Q.ty: 1 pc.

Item: **2** **3** (3a ÷ 3d)

Filter series	Filter element	Seal Kit code number	
		NBR	FPM
MPI 250	See order table	02050147	02050148
MPI 630		02050112	02050113

MPI 850



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3d)
Filter series	Filter element	Seal Kit code number NBR FPM
MPI 850	See order table	02050114 02050115

FRI series

Maximum working pressure up to 2 MPa (20 bar) - Flow rate up to 2500 l/min



Description

Technical data

Return filter

Maximum working pressure up to 2 MPa (20 bar)
Flow rate up to 2500 l/min

FRI is a range of return filters for protection of the reservoir against the system contamination.

They could be directly fixed to the reservoir in immersed or semi-immersed position or connected to the lines of the system through the hydraulic fittings.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Female threaded connections up to 2 1/2" and flanged connections up to 3 1/2", for a maximum flow rate of 2500 l/min
- Double input connections, to connect several return lines or drains
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical and electronic differential clogging indicators

Common applications:

Heavy duty industrial equipment

Filter housing materials

- Filter body
 - Aluminium: FRI 255
 - Anodized Aluminium: FRI 025-040-100-250-630
 - Phosphatized Steel: FRI 850
- Cover
 - Polyamide, GF reinforced: FRI 255
 - Anodized Aluminium: FRI 025-040-100-250-630-850
- Valve: Polyamide, GF reinforced - Steel

Bypass valve

Opening pressure 240 kPa (2.4 bar) ±10%

Δp element type

- Microfibre filter elements - series N: 10 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

FRI filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]		Volumes [dm ³]	
	Length	1	Length	1
FRI 025		1.0		0.28
FRI 040		2.0		0.70
FRI 100		3.8		1.09
FRI 250		6.3		2.60
FRI 255		4.2		3.20
FRI 630		13.8		7.05
FRI 850		48.0		21.50

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
FRI 025	1	6	10	17	19	43	122	43	47
FRI 040	1	19	23	43	45	94	155	94	102
FRI 100	1	32	34	89	92	187	260	187	206
FRI 250	1	144	179	271	300	448	645	448	490
FRI 255	1	144	179	271	300	448	645	448	490
FRI 630	1	242	279	508	577	834	1446	834	911
FRI 850	1	440	541	971	1143	1705	2528	1705	1880

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

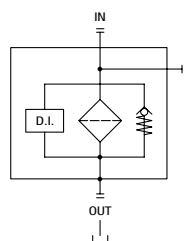
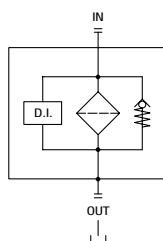
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

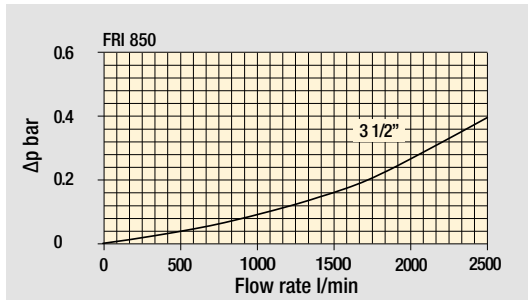
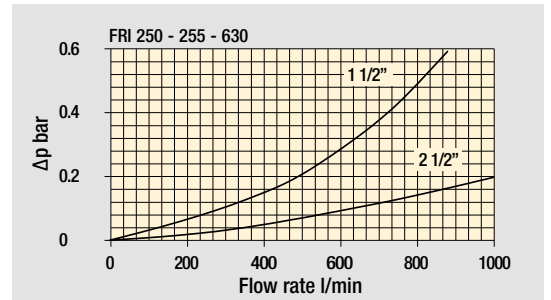
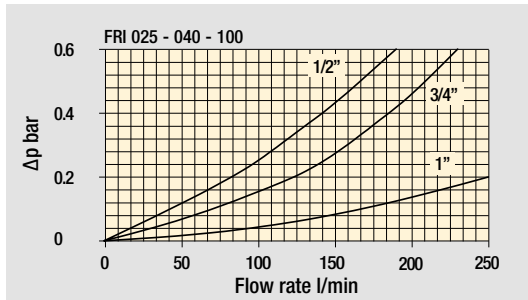
Hydraulic symbols

Filter series	Style 1 connection + Diff. indic.	Style 2 connections + Diff. indic.
FRI 025		•
FRI 040		•
FRI 100		•
FRI 250		•
FRI 255	•	
FRI 630		•
FRI 850	•	

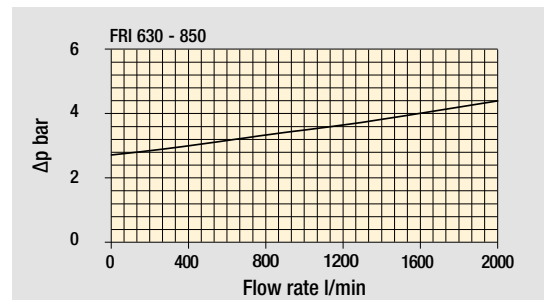
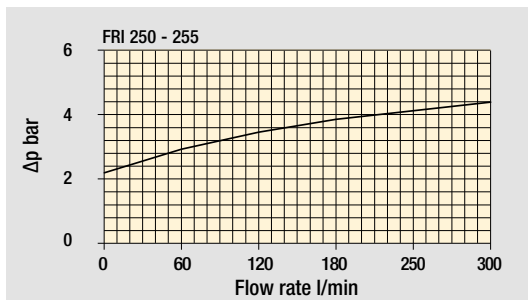
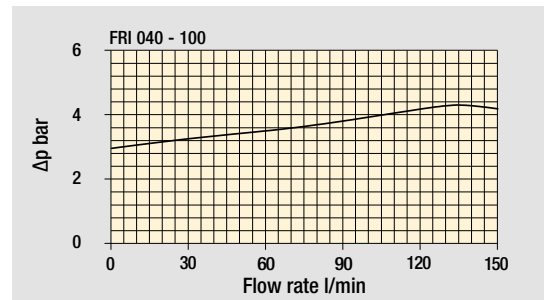
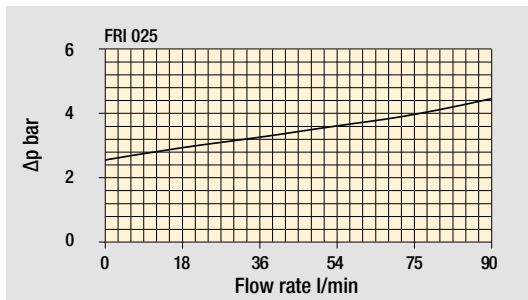


Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1: FRI025 B A G1 A25 N P01						
FRI025	Configuration example 2: FRI040 S V G2 M25 N P01						
FRI040							
Bypass valve							
B With bypass 2.4 bar							
S Without bypass							
Seals and treatments							
A NBR							
V FPM							
Connections for FRI025	Connections for FRI040						
G1 G 1/2"	G 3/4"						
G2 1/2" NPT	3/4" NPT						
G3 SAE 8 - 3/4" - 16 UNF	SAE 12 - 1 1/16" - 12 UN						
Filtration rating (filter media)							
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm						
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm						
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm						
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm						
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm						
	Element Δp			Execution			
	N 10 bar			P01 MP Filtri standard			
				Pxx Customized			

FILTER ELEMENT

Element series and size	Configuration example 1: CU025 A25 N P01			
CU025	Configuration example 2: CU040 M25 V P01			
CU040				
Filtration rating (filter media)				
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm			
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm			
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm			
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm			
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm			
Seals and treatments				
N NBR				
V FPM				
	Execution			
	P01 MP Filtri standard			
	Pxx Customized			

CLOGGING INDICATORS

See page 716-717

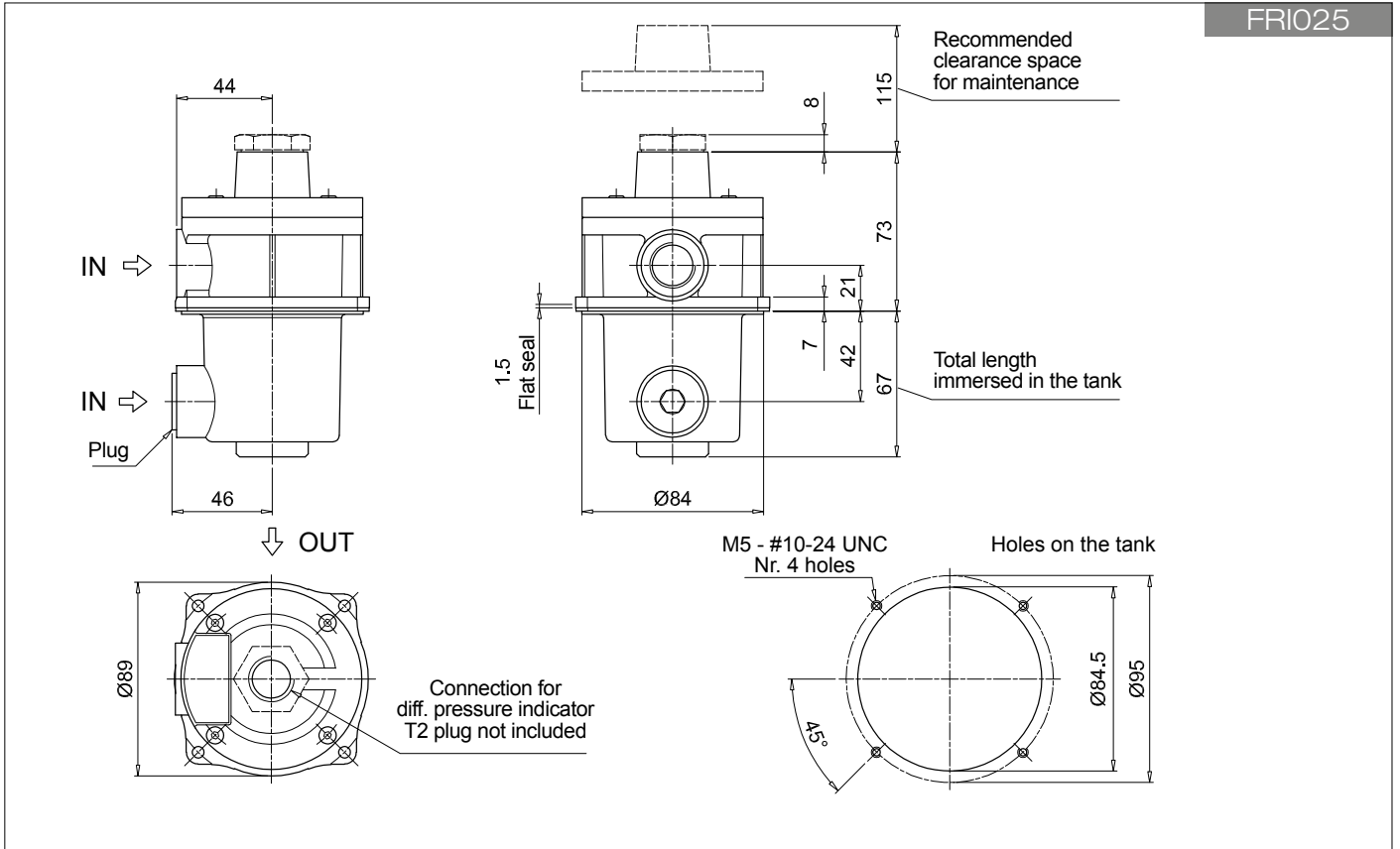
DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

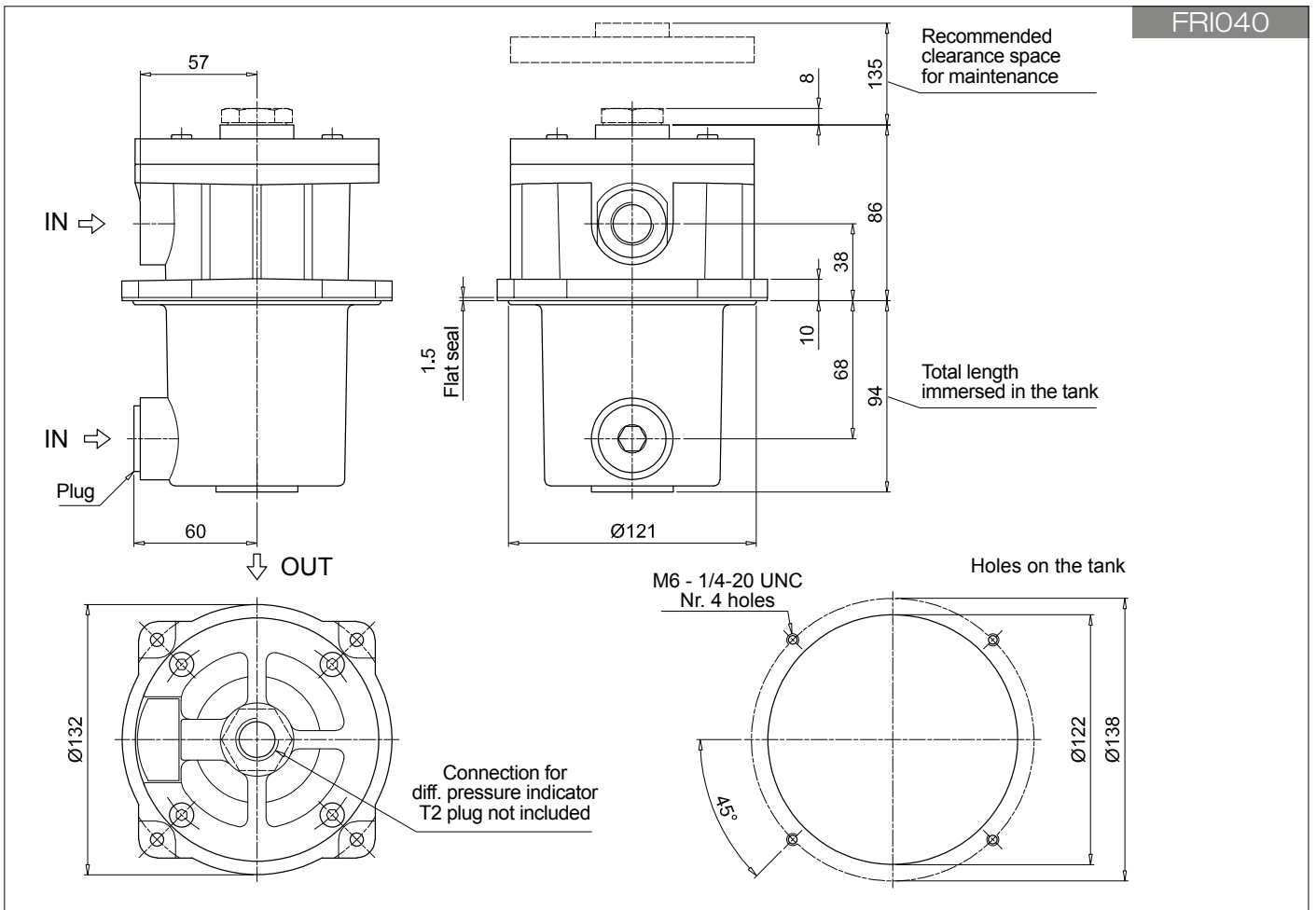
See page 743

T2 Plug (not included)

FRI025



FRI040



FRI FRI100 - FRI250 - FRI630

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example 1: FRI100 B A G1 A25 N P01						
FRI100	Configuration example 2: FRI630 S V F2 M25 N P01						
FRI250							
FRI630							
Bypass valve							
B With bypass 2.4 bar							
S Without bypass							
Seals and treatments							
A NBR							
V FPM							
Connections for FRI100	Connections for FRI250	Connections for FRI630					
G1 G 1"	G 1 1/2"	G 2 1/2"					
G2 1" NPT	1 1/2" NPT	2 1/2" NPT					
G3 SAE 16 - 1 5/16" - 12 UN	SAE 24 - 1 7/8" - 12 UN	SAE 32 - 2 1/2" - 12 UN					
F1 1" SAE 3000 psi/M	1 1/2" SAE 3000 psi/M	2 1/2" SAE 3000 psi/M					
F2 1" SAE 3000 psi/UNC	1 1/2" SAE 3000 psi/UNC	2 1/2" SAE 3000 psi/UNC					
Filtration rating (filter media)							
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm						
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm						
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm						
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm						
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm						
	Element Δp	Execution					
	N 10 bar	P01 MP Filtri standard					
		Pxx Customized					

FILTER ELEMENT

Element series and size	Configuration example 1: CU100 A25 N P01			
CU100	Configuration example 2: CU630 M25 V P01			
CU250				
CU630				
Filtration rating (filter media)				
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm			
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm			
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm			
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm			
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm			
Seals and treatments				
N NBR				
V FPM				
	Execution			
	P01 MP Filtri standard			
	Pxx Customized			

CLOGGING INDICATORS

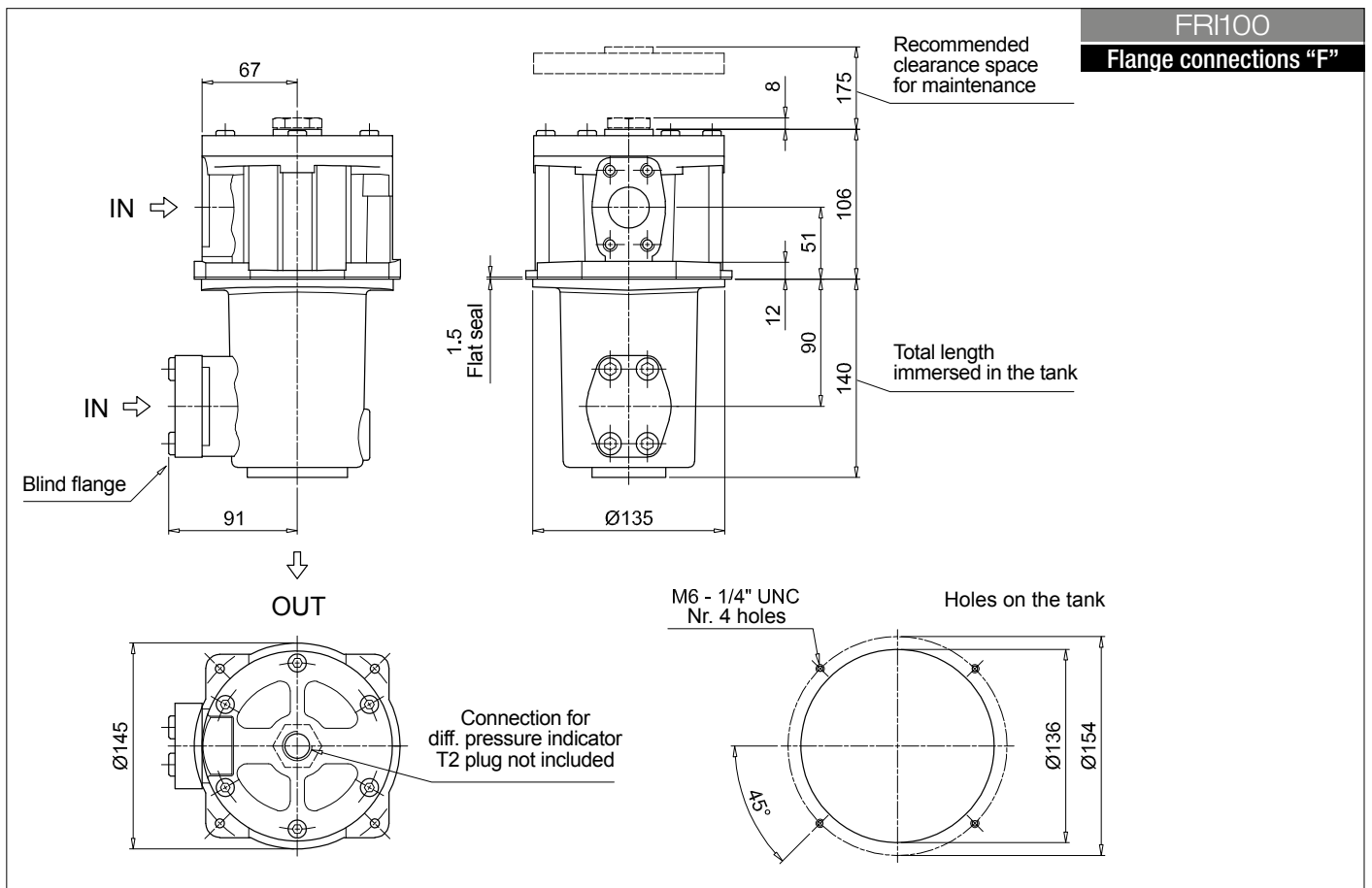
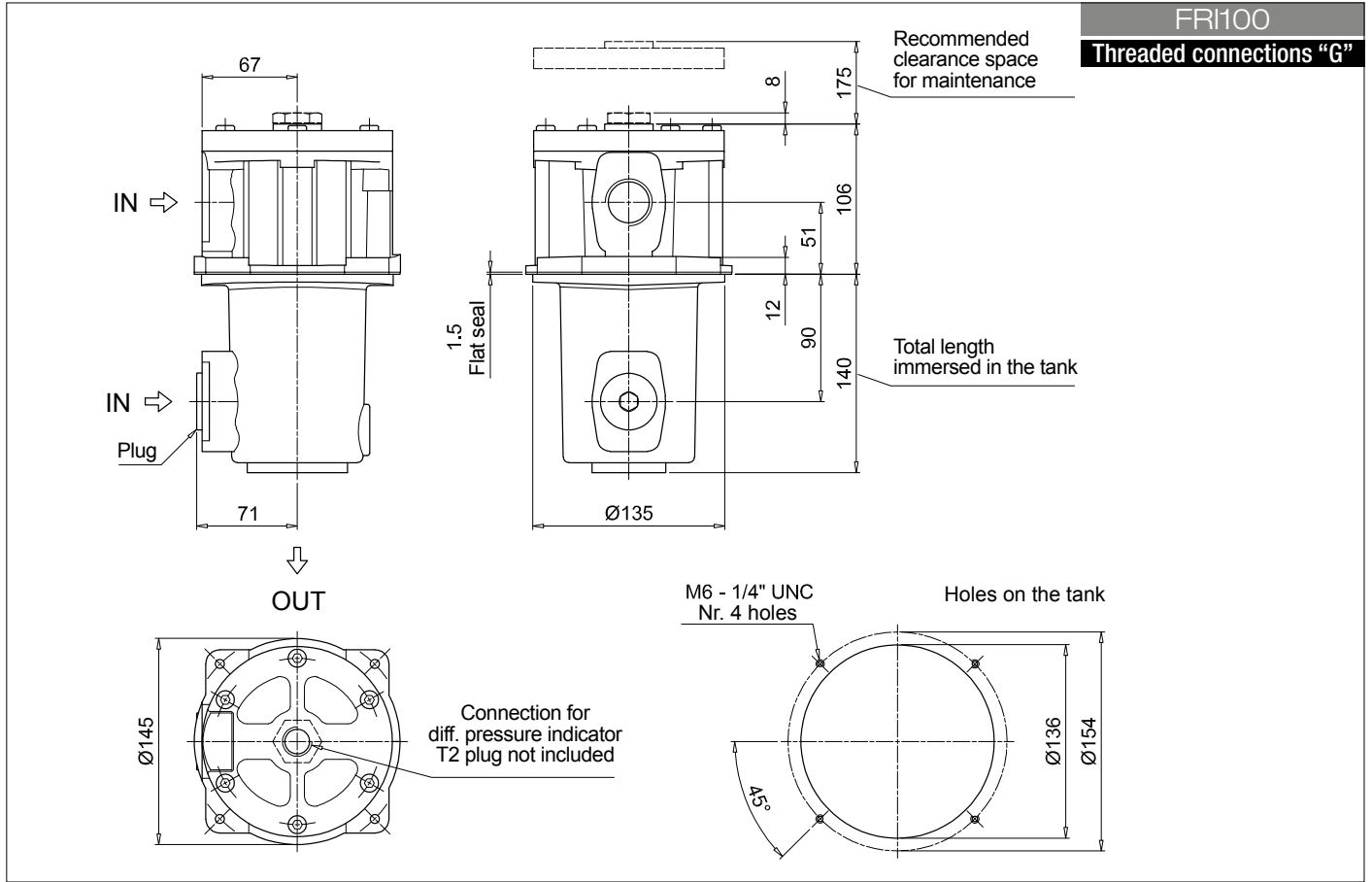
See page 716-717

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

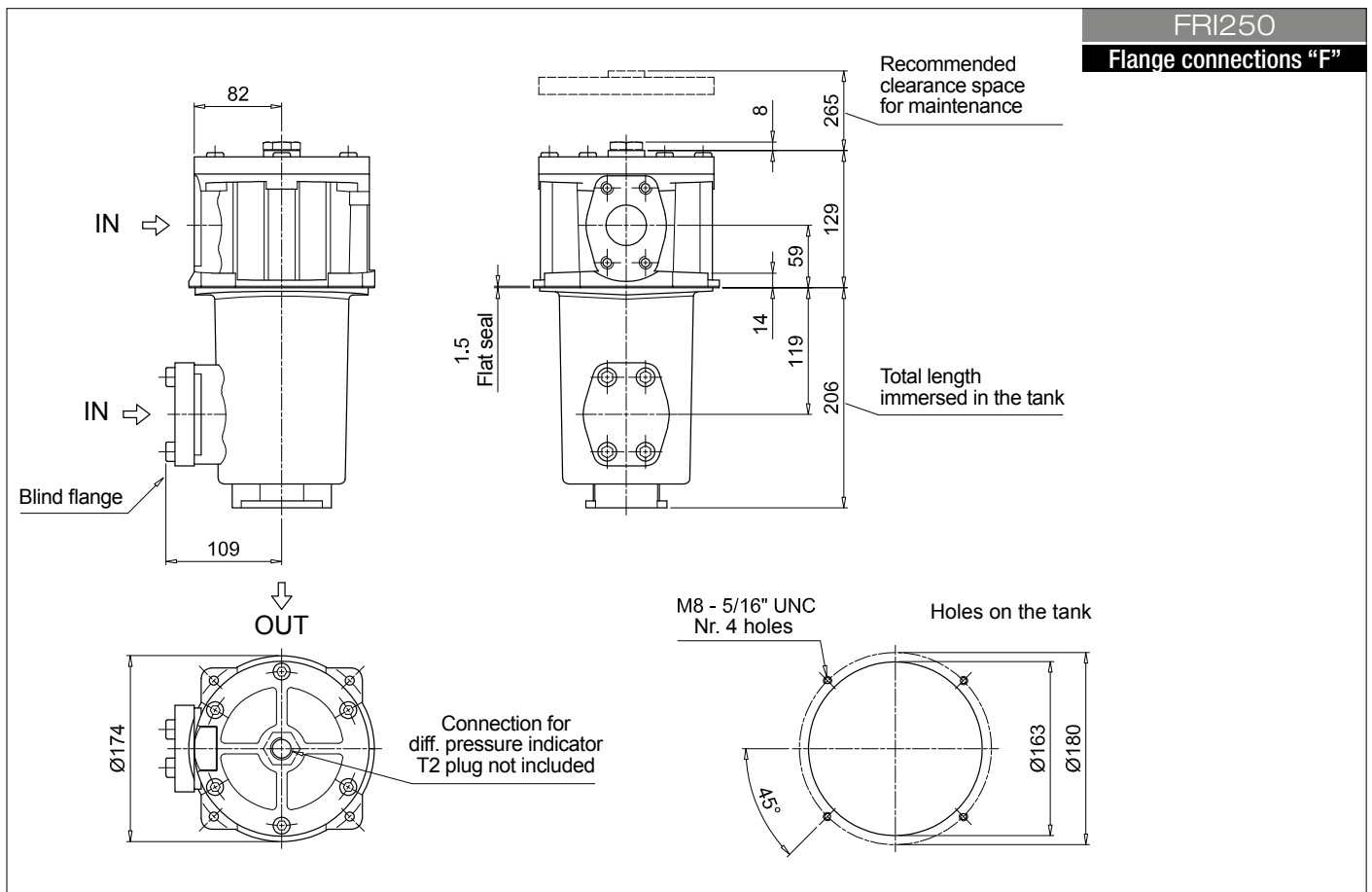
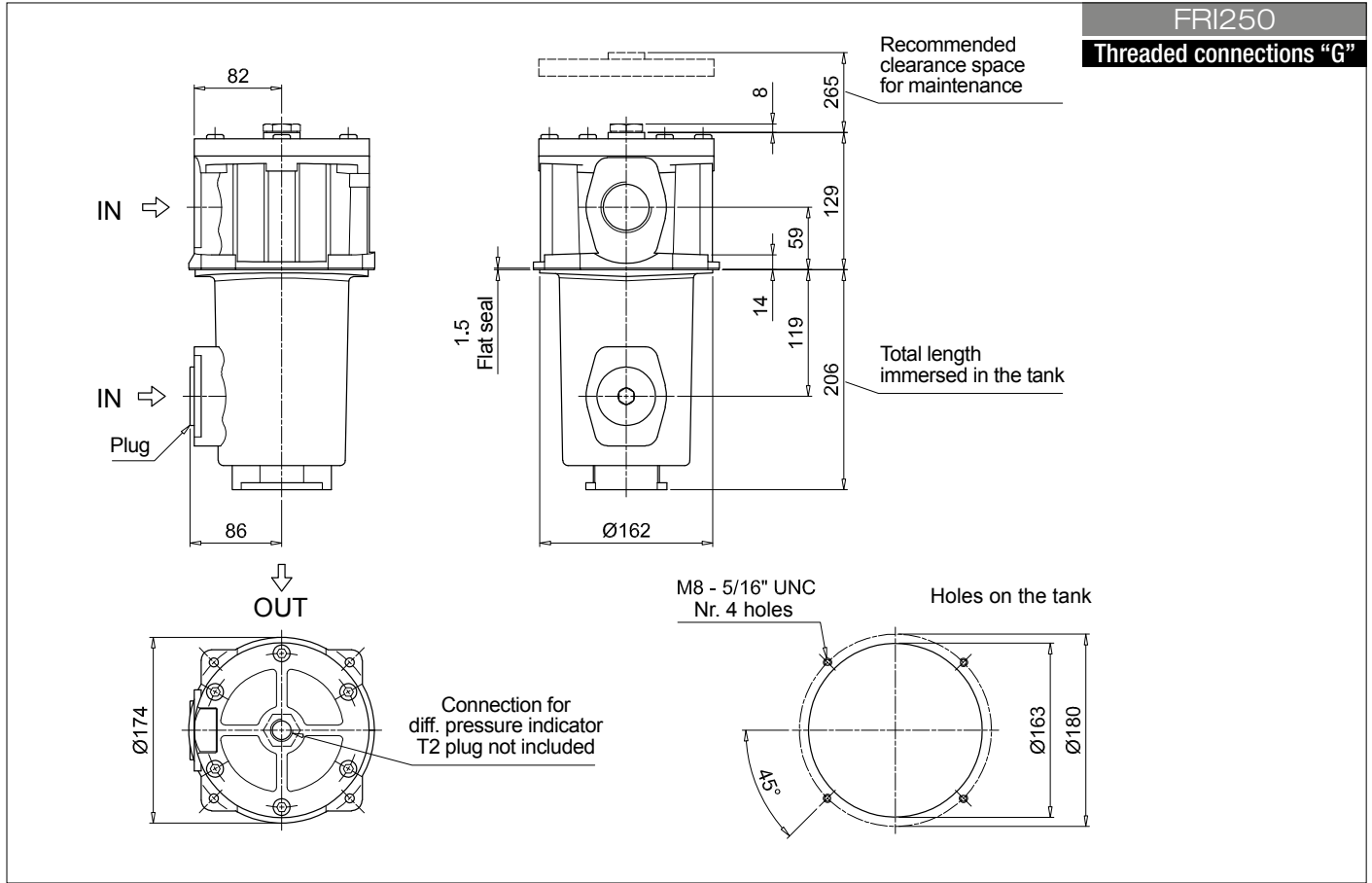
PLUGS

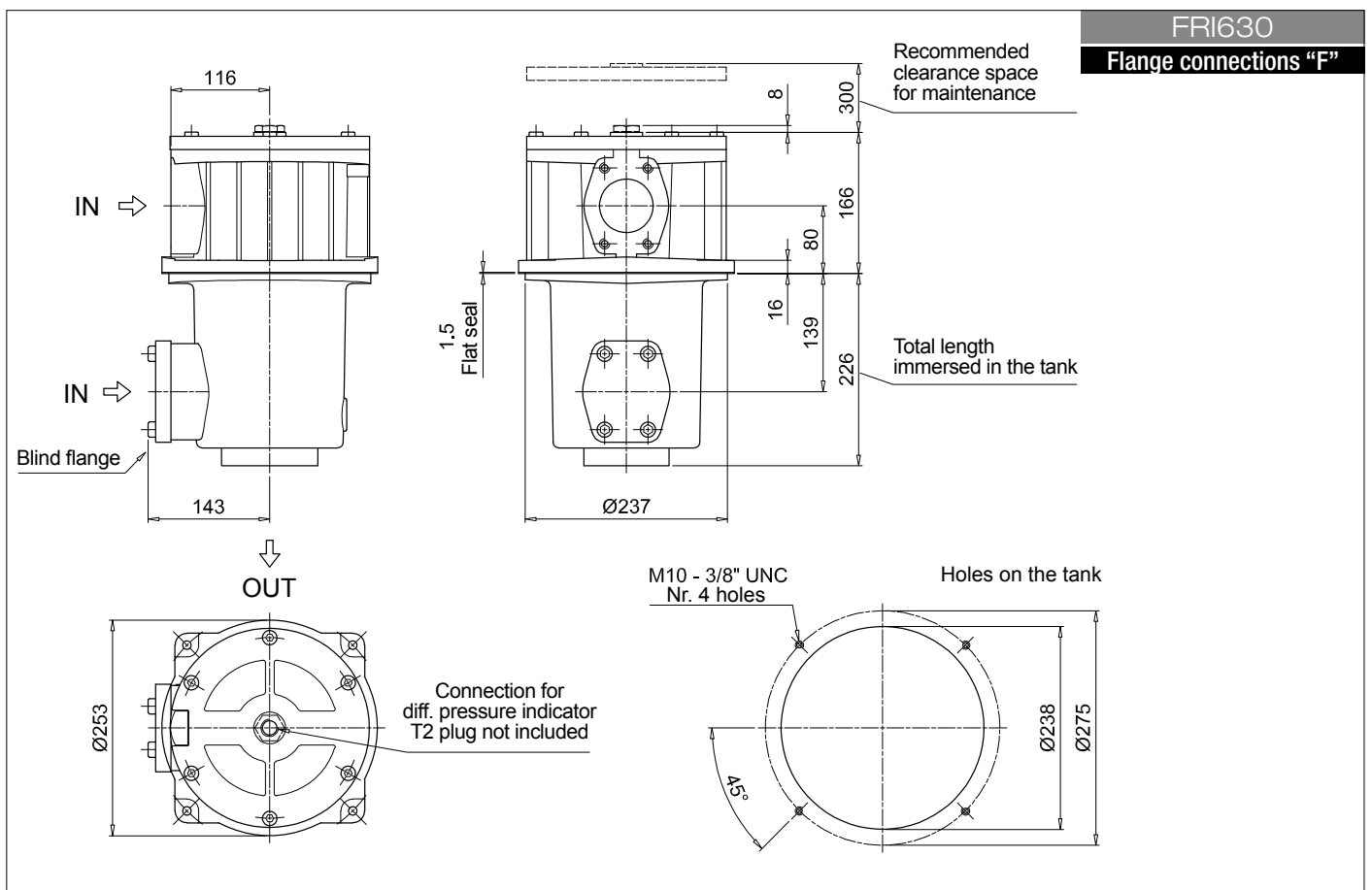
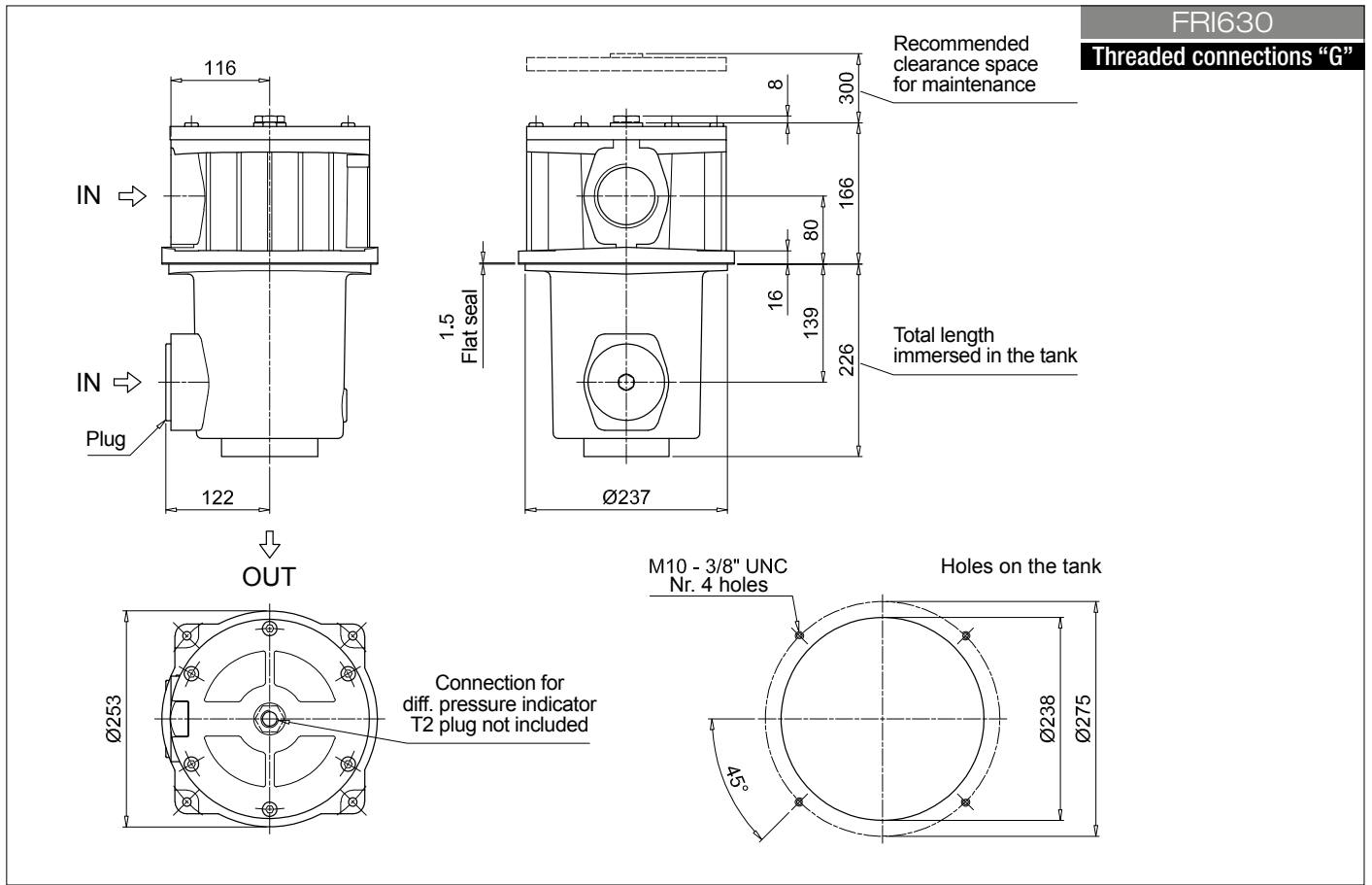
See page 743

T2 Plug (not included)



Dimensions





Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example 1:	FRI255	S	V	F2	M25	N	P01
FRI255		Configuration example 2:	FRI850	B	A	F1	A25	V	P01
FRI850									
Bypass valve									
B With bypass 2.4 bar									
S Without bypass									
Seals for FRI255		Seals and treatments for FRI850		Filtration rating					
A NBR		A NBR		Axx	Mxx	Pxx			
V FPM		V FPM		•	•	•			
		W NBR head anodized		•	•	-			
		Z FPM head anodized		•	•	-			
Connections for FRI255		Connections for FRI850							
G1 G 1 1/2"		F1 3 1/2" SAE 3000 psi/M							
G2 1 1/2" NPT		F2 3 1/2" SAE 3000 psi/UNC							
G3 SAE 24 - 1 7/8" - 12 UN									
G4 G 1 1/4"									
G5 1 1/4" NPT									
G6 SAE 20 - 1 5/8" - 12 UN									
F1 1 1/2" SAE 3000 psi/M									
F2 1 1/2" SAE 3000 psi/UNC									
Filtration rating (filter media)									
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm							
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm							
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm							
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm							
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm							
							Element Δp	Execution	
							N 10 bar	P01 MP Filtri standard	
								Pxx Customized	

FILTER ELEMENT

Element series and size		Configuration example 1:	CU250	M25	V	P01
CU250		Configuration example 2:	CU850	A25	N	P01
CU850						
Filtration rating (filter media)						
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm				
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm				
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm				
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm				
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm				
Seals for FRI255		Seals and treatments for FRI850		Filtration rating		
N NBR		N NBR		Axx	Mxx	Pxx
V FPM		V FPM		•	•	•
		W NBR head anodized		•	•	-
		Z FPM head anodized		•	•	-
						Execution
						P01 MP Filtri standard
						Pxx Customized

FRI255 CLOGGING INDICATORS

See page 716-717

BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BLA Electrical / visual pressure indicator

FRI850 CLOGGING INDICATORS

See page 716-717

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

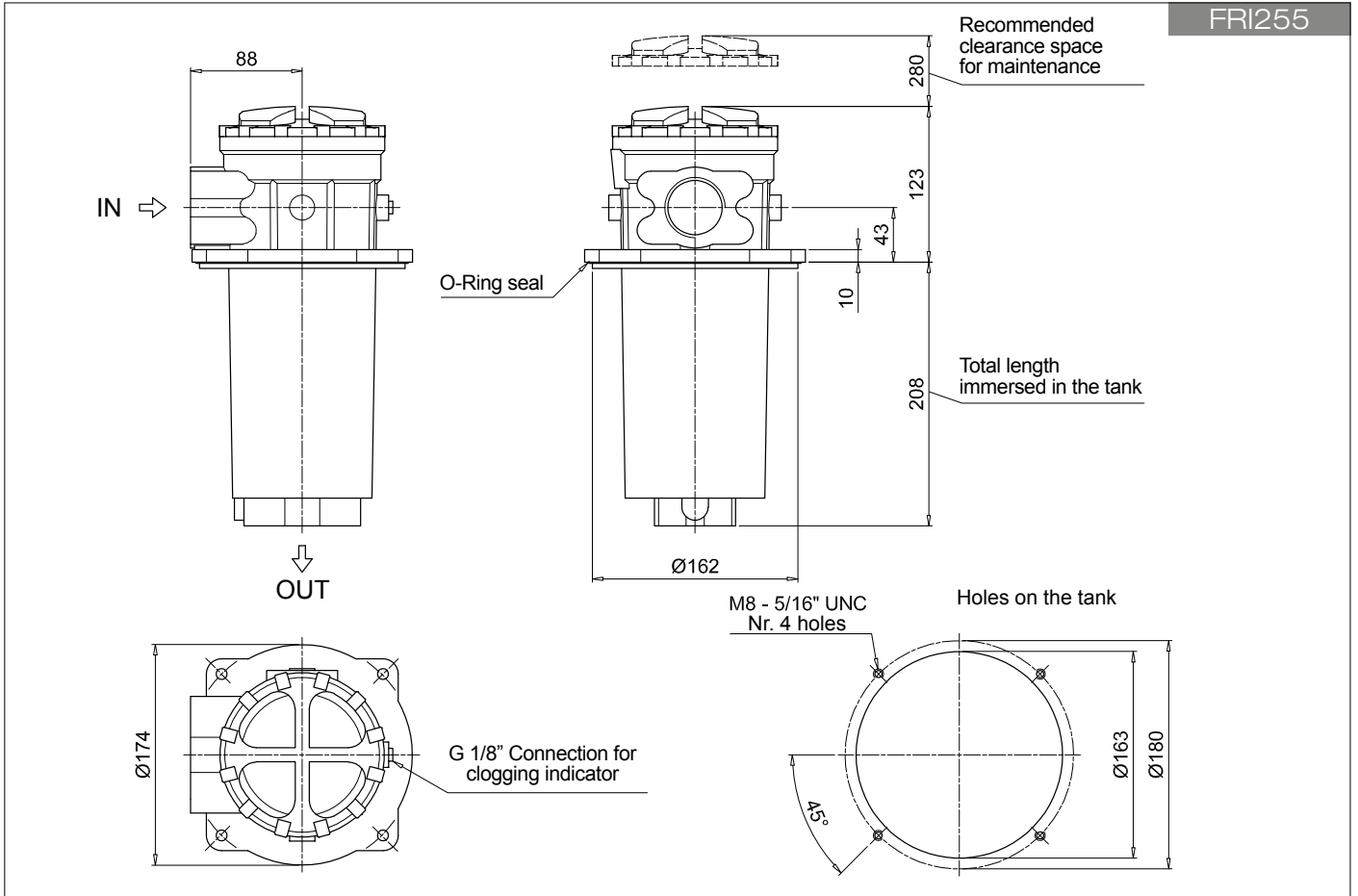
DTA Electrical differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

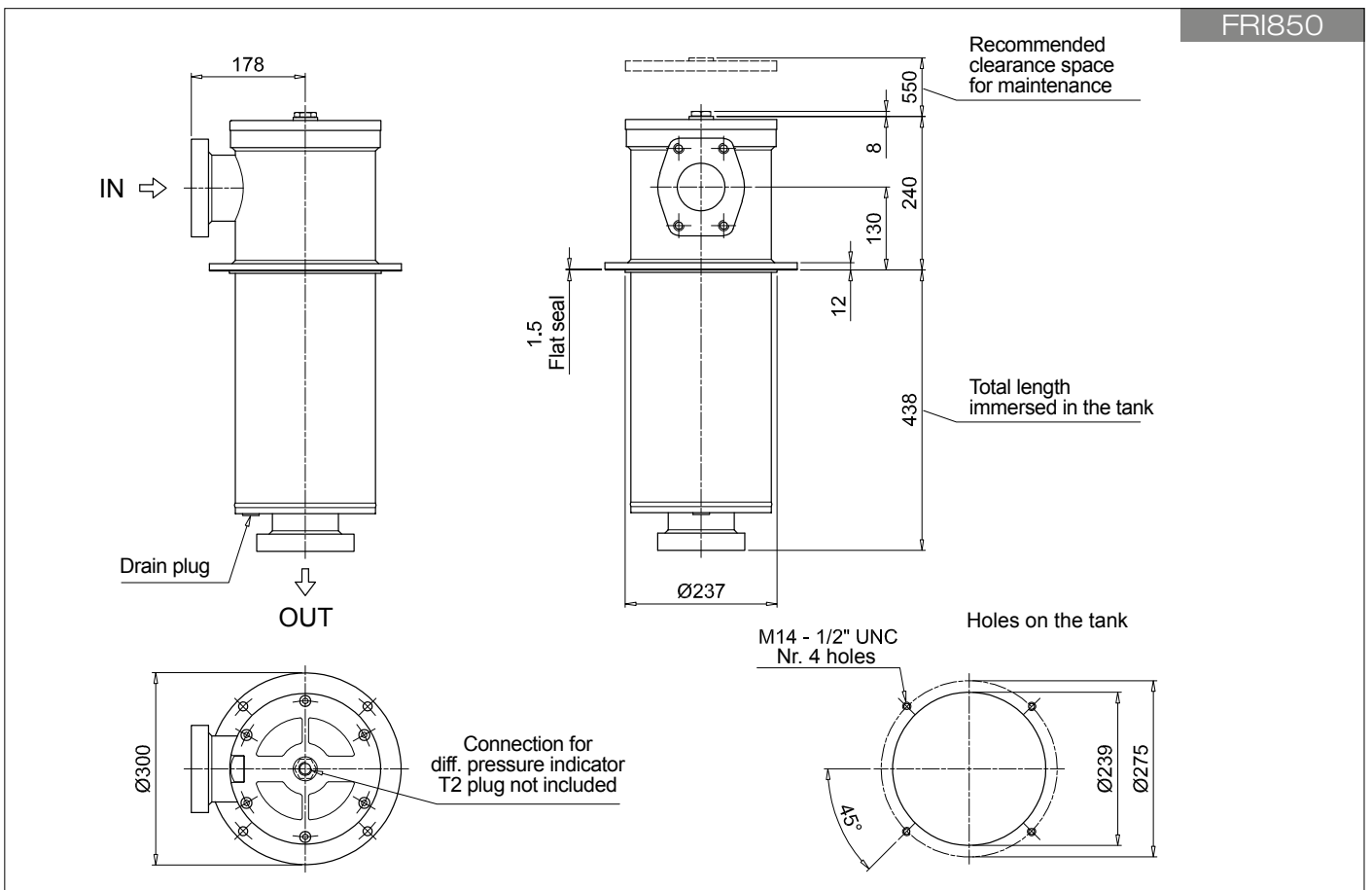
See page 743

T2 Plug (not included)

FRI255



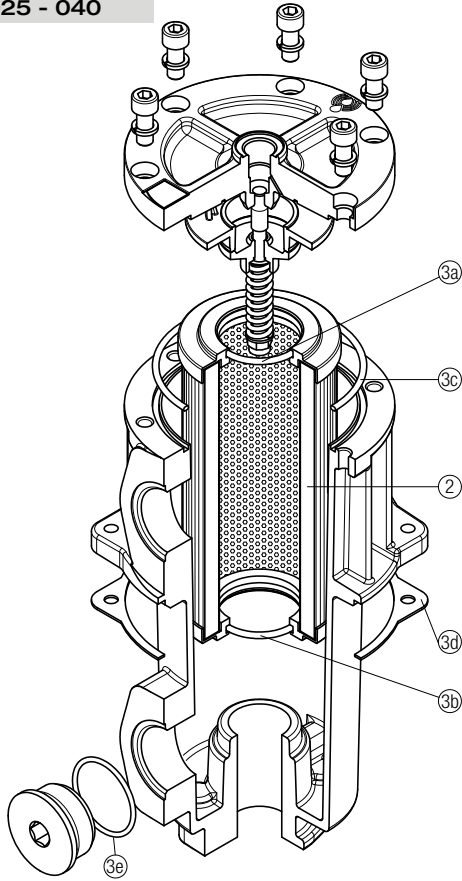
FRI850



FRI SPARE PARTS

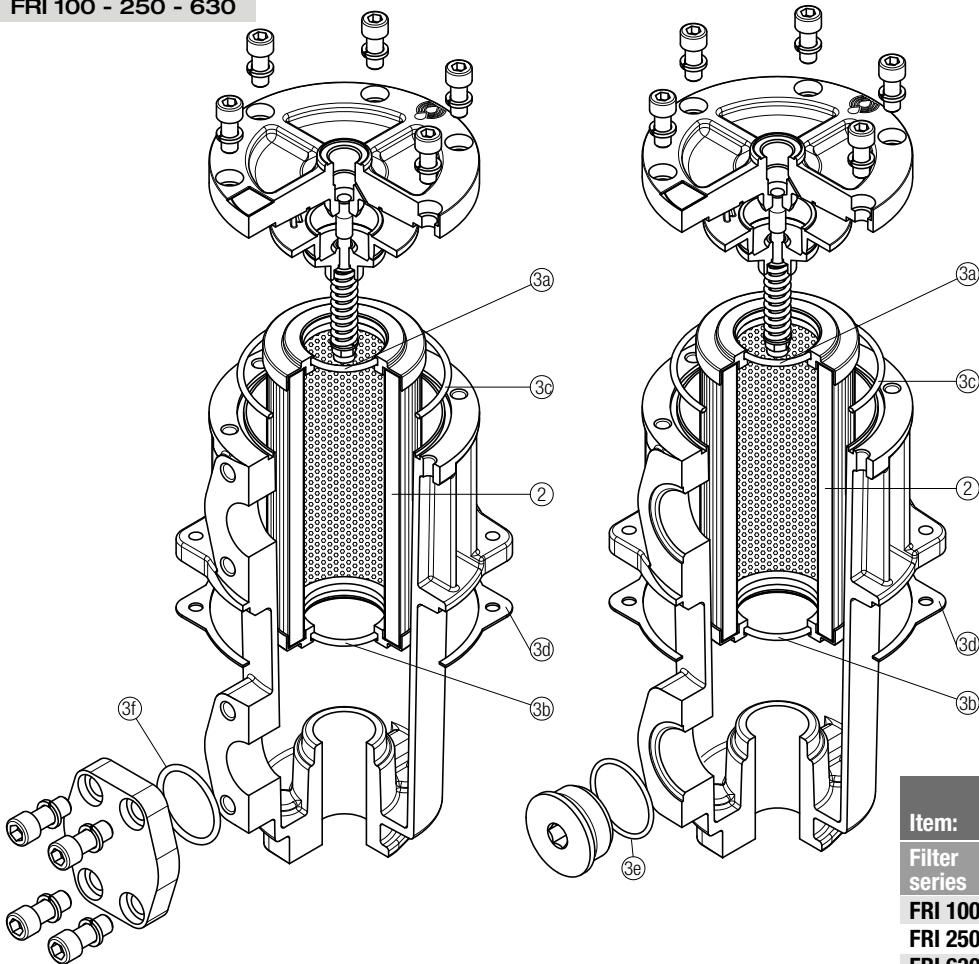
Order number for spare parts

FRI 025 - 040



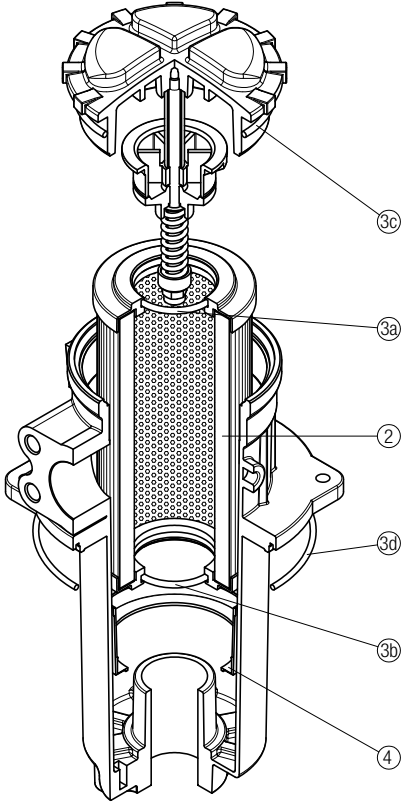
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
	2	3 (3a ÷ 3e)	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FRI 025	See order table	02050213	02050220
FRI 040		02050214	02050221

FRI 100 - 250 - 630



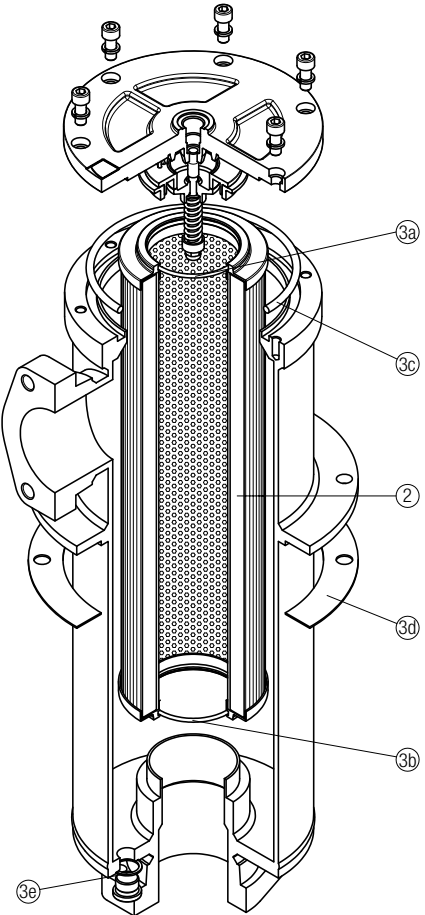
Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
	2	3 (3a ÷ 3f)	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FRI 100	See order table	02050215	02050222
FRI 250		02050216	02050223
FRI 630		02050217	02050224

FRI 255



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3d)	4
Filter series	Filter element	Seal Kit code number	
	See order table	NBR	FPM
FRI 255		02050013	02050014
		Contamination retainer binder	
		01060301	

FRI 850



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3e)
Filter series	Filter element	Seal Kit code number
	See order table	NBR
FRI 850		02050218
		FPM
		02050225

RF2 series

Maximum working pressure up to 2 MPa (20 bar) - Flow rate up to 615 l/min



Description

Technical data

Return filter

Maximum working pressure up to 2 MPa (20 bar)
Flow rate up to 615 l/min

RF2250 and RF2350 are ranges of return filters for side tank mounting with integrated shut-off valve for protection of the reservoir against the system contamination.

They are placed below the minimum oil level, directly connected to the return line of the system.

The shut-off valve closes automatically when the cover is removed, allowing the filter element replacement without the fluid drop.

Available features:

- Female threaded connections up to 1" and flanged connections up to 1 1/2", for a maximum flow rate of 615 l/min
- Bypass valve, to relieve excessive pressure drop across the filter media
- Magnetic filter, to hold the ferrous particles
- Visual, electrical and electronic clogging indicators

Common applications:

- Compact mobile machines
- Compact industrial equipment

Filter housing materials

- Filter body: Aluminium
- Cover: Polyamide, GF reinforced
- Valve: Polyamide, GF reinforced - Steel
- Anti-Emptying valve: Steel

Bypass valve

Opening pressure 175 kPa (1.75 bar) \pm 10%

Δp element type

- Microfibre filter elements - series CU: 10 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

RF2 250-350 filters mounting, see the drawings on page 263 and following

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]		Volumes [dm ³]	
	Length	1	Length	1
RF2 250		2.6		2.0
RF2 350		2.8		2.0

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
RF2 250	1	148	184	278	307	447	615	447	485
RF2 350	1	148	184	278	307	447	615	447	485

Maximum flow rate for a complete return filter with a pressure drop $\Delta p = 0.5$ bar.

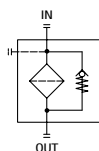
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

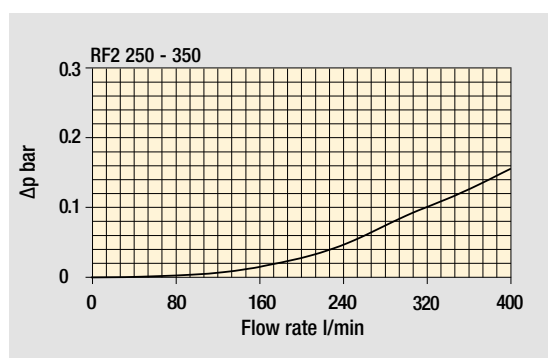
Filter series	Style B - E
RF2 250	•
RF2 350	•

Hydraulic symbols

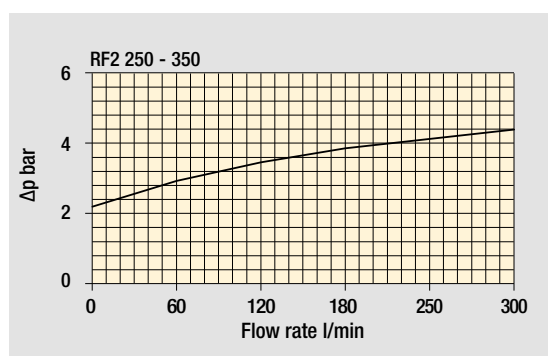


Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

RF2 RF2250 - RF2350

Designation & Ordering code

COMPLETE FILTER

Series and size

RF2250	Configuration example 1:	RF2250	V	F2	E	M25	P01
RF2350	Configuration example 2:	RF2350	A	G1	B	A25	P01

Seals and treatments

A	NBR
V	FPM

Connections

	Aux (only RF2350)	Mxx	Pxx
G1 G 1 1/2"	G 1"	•	•
G2 1 1/2" NPT	-	•	-
G3 SAE 24 - 1 7/8" - 12 UN	SAE 16 - 1 5/16" - 12 UN	•	•
G4 G 1 1/4"	-	•	-
G5 1 1/4" NPT	-	•	-
G6 SAE 20 - 1 5/8" - 12 UN	-	•	-
G7 G 1"	-	•	-
G8 1" NPT	-	•	-
G9 SAE 16 - 1 5/16" - 12 UN	-	•	-
F1 1 1/2" SAE 3000 psi/M	-	•	-
F2 1 1/2" SAE 3000 psi/UNC	-	•	-

Bypass valve

B	With bypass 1.75 bar
E	With bypass 3 bar

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Execution

P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Element series and size

CU250	Configuration example 1:	CU250	M25	N	P01
--------------	--------------------------	-------	-----	---	-----

Configuration example 2:	CU250	A25	V	P01
--------------------------	-------	-----	---	-----

Filtration rating (filter media)

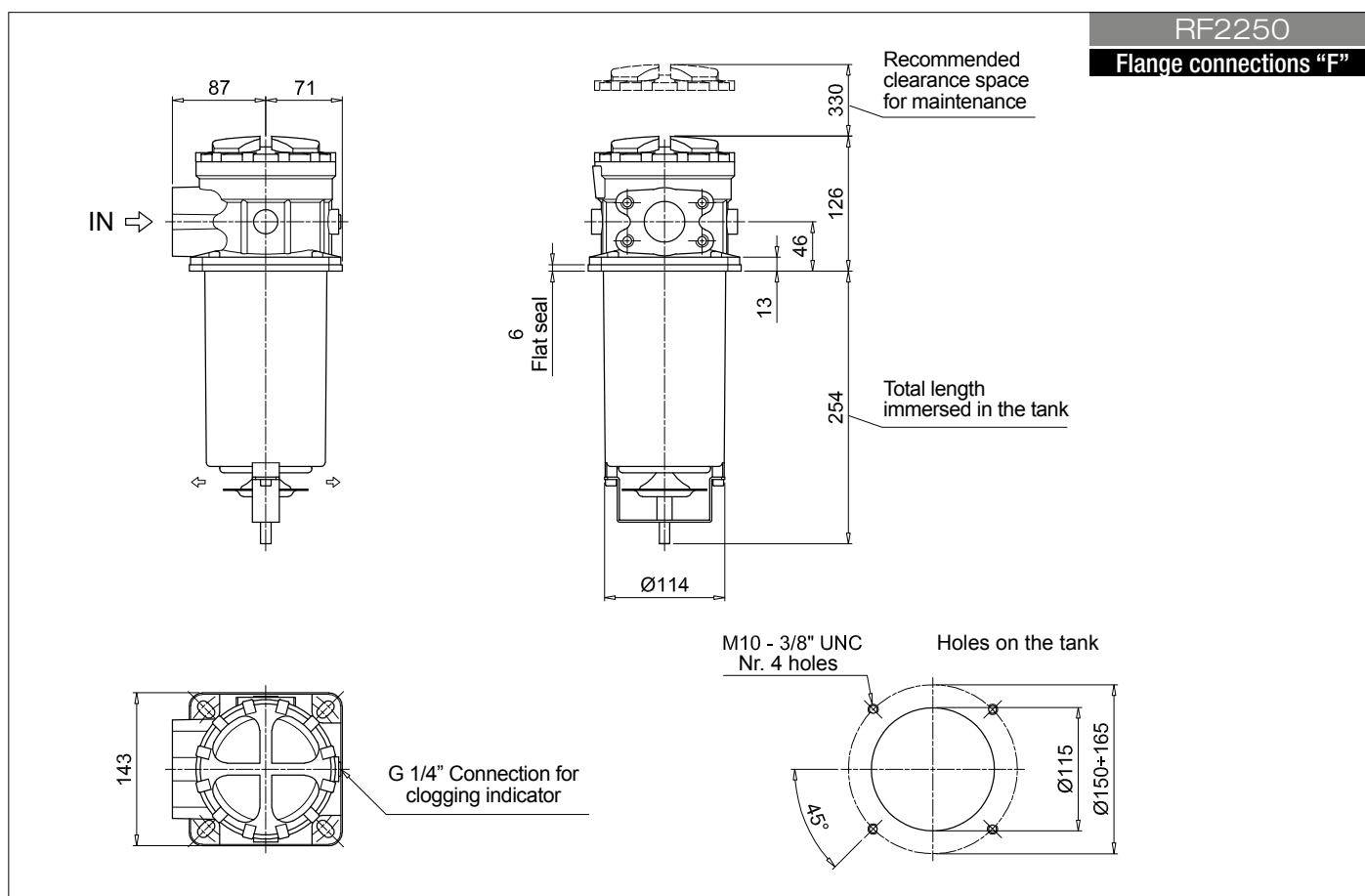
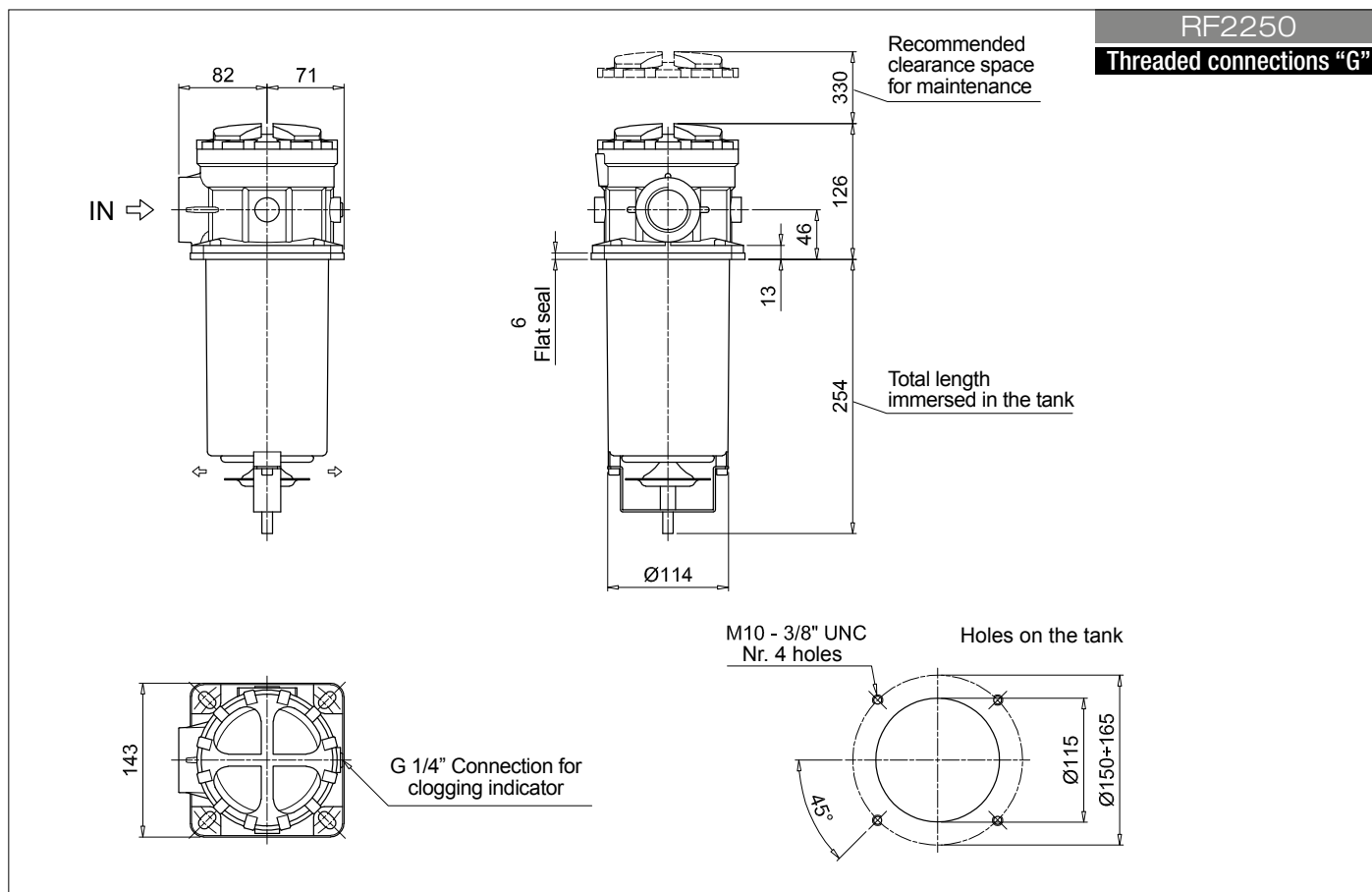
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

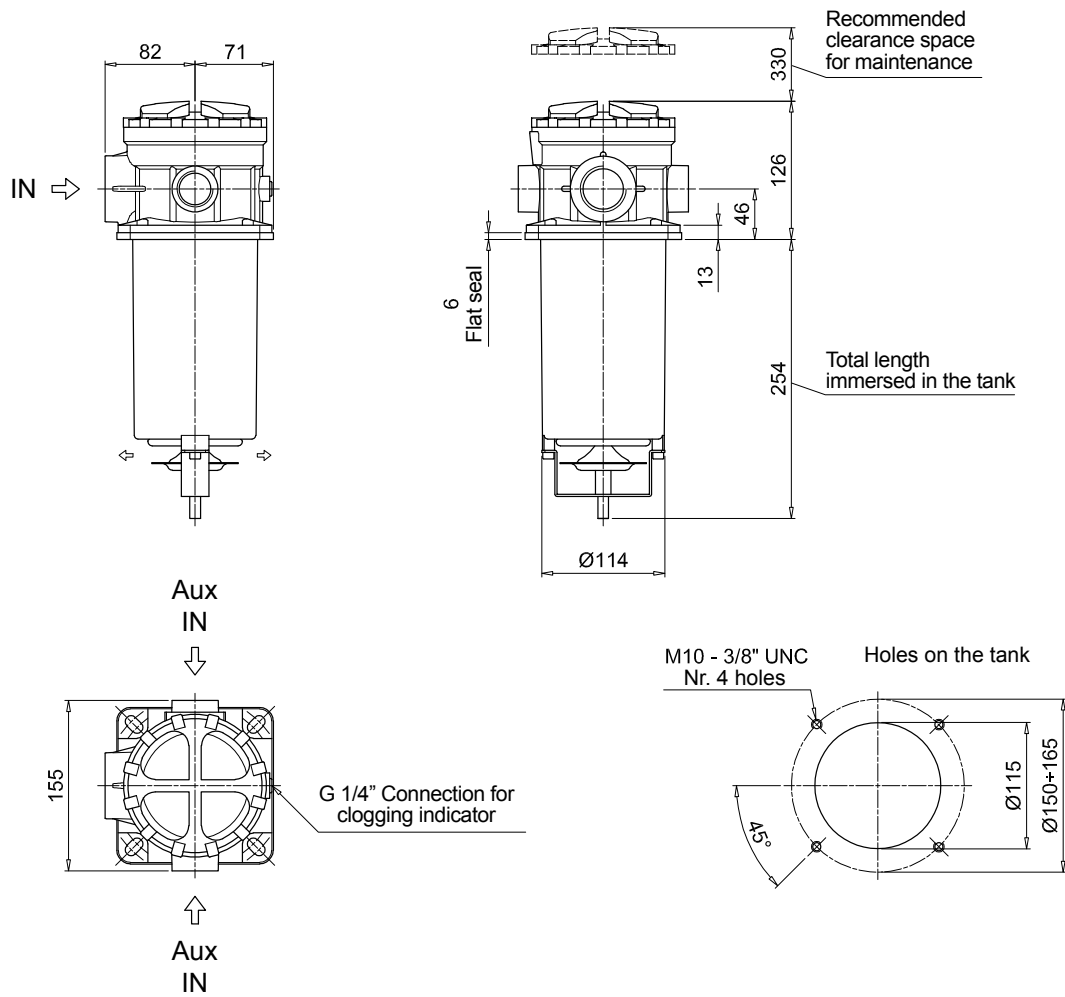
Seals and treatments

N	NBR
V	FPM

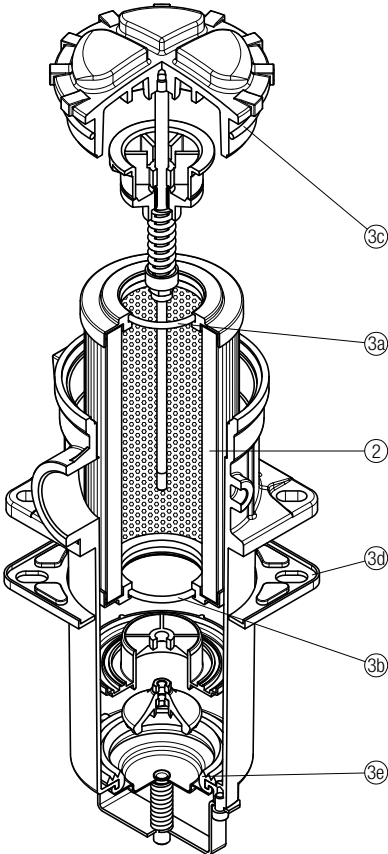
Execution

P01	MP Filtri standard
Pxx	Customized





RF2 250 - 350



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3e)
Filter series	Filter element	Seal Kit code number NBR FPM
RF2 250	See order table	02050586 02050587
RF2 350		

Accessories

POLYAMIDE EXTENSION TUBE

H1 - Total length immersed in the tank

Configuration example: **TE** **40** **A** **250**

Series	Size	Material	Length	H [mm]
TE			200	200
			250	250
			300	300
			350	350
			400	400
			450	450
			500	500

Size	Ø D [mm]	Material
25	25	A Polyamide
32	32	
40	40	

COMPATIBILITY TABLE															
Filter series	Filter size			Filter length	Tube length										
					TE25	TE32	TE40	200	250	300	350	400	450	500	
MPF - MPFX	30			1	•	-	-	266	316	366	416	466	516	566	
MPF	100	104	110	1	-	•	-	275	325	375	425	475	525	575	
				2	-	-	-	322	372	422	472	522	572	622	
				3	-	-	•	400	450	500	550	600	650	700	
				4	-	-	-	502	552	602	652	702	752	802	
MPFX	100	104	110	1	-	-	•	277	327	377	427	477	527	577	
				2	-	-	-	322	372	422	472	522	572	622	
				3	-	-	•	400	450	500	550	600	650	700	
				4	-	-	-	502	552	602	652	702	752	802	
MPF MPFX	181	182	184	1	-	-	•	410	460	510	560	610	660	710	
				2	-	-	-	623	673	723	773	823	873	923	
MPT MPTX	025		027		1	•	-	-	278	328	378	428	478	528	578
					2	-	-	-	342	392	442	492	542	592	642
					3	-	-	-	380	430	480	530	580	630	680
MPT	110	114	116	120	1	-	•	-	273	323	373	423	473	523	573
					2	-	-	-	320	370	420	470	520	570	620
					3	-	-	•	396	446	496	546	596	646	696
					4	-	-	-	498	548	598	648	698	748	798
MPTX	110	114	116	120	1	-	-	•	273	323	373	423	473	523	573
					2	-	-	-	318	368	418	468	518	568	618
					3	-	-	-	396	446	496	546	596	646	696
					4	-	-	-	498	548	598	648	698	748	798

STEEL EXTENSION TUBE

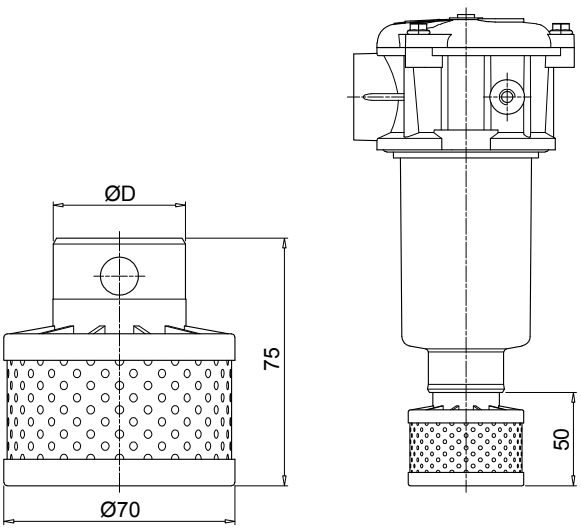
H1 - Total length immersed in the tank

Configuration example: **MPF191** **2** **A** **F1** **A10** **H** **B** **S60**

Length	H1 [mm]
S30	300
S35	350
S40	400
S45	450
S50	500
S60	600
S70	700
S80	800
S90	900

COMPATIBILITY TABLE							
Filter series	Filter size			Filter length	Ø D [mm]		
					52	65	
MPF	191	192	194	2	•	-	
				1	•	-	
	400	410	450	451	2	-	•
					3	-	•
		750			1	-	•

DIFFUSER WITH FAST LOCK CONNECTION

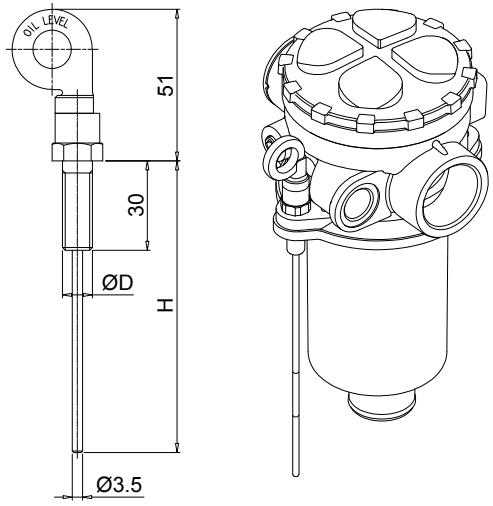


Configuration example: **DFS 32 A 075**

Series		DFS
Size	ø D [mm]	
32	32	
40	40	
Version		A Standard
Length		075 Standard

COMPATIBILITY TABLE							
Filter series	Filter size			Filter Length	DFS32	DFS40	
MPF	100	104	110	1	•	-	
				2	-	-	
				3	-	•	
				4	-	-	
MPFX	100	104	110	1	-	•	
				2	-	•	
				3	-	-	
				4	-	-	
MPT	110	114	116	120	1	•	-
					2	-	-
					3	-	•
					4	-	-
MPTX	110	114	116	120	1	-	•
					2	-	•
					3	-	-
					4	-	-

DIPSTICK



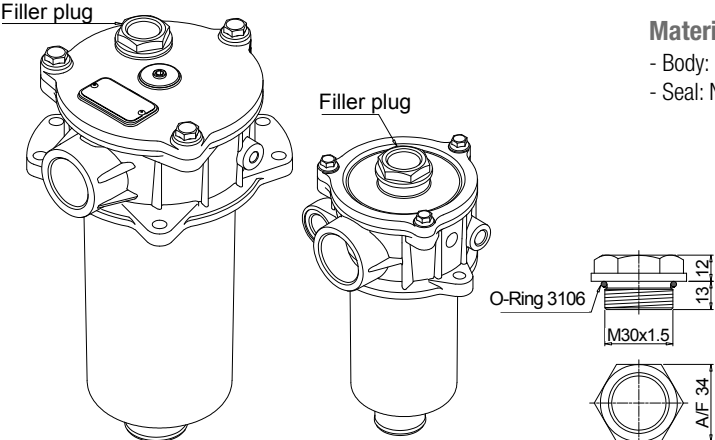
Configuration example: **DPT 20 M10 A P01**

Series		DPT
Length	H [mm]	
15	134	
20	184	
25	234	
30	284	
35	334	
Fastening		
M8	Fastening with screws ø D = M8	
M10	Fastening with screws ø D = M10	
Seals		
A	NBR	
V	FPM	
Execution		
P01	MP Filtri standard	
Pxx	Customized	

Materials
 - Screw: phosphatized steel
 - Stick: phosphatized steel
 - Handle: Polyamide

Technical data
 Working temperature: from -25 °C to +110 °C

FILLER PLUG



Configuration example: **DFS 32 A 075**

Series		DFS
Size	ø D [mm]	
32	32	
40	40	
Version		A Standard
Length		075 Standard

Materials
 - Body: Polyamide
 - Seal: NBR

Technical data
 Tightening torque: 15 N·m

O-Ring 3106
 M30x1.5
 A/F 34

For any further information, please, contact our commercial dept.

Hydraulic combined filters for installation on the return and suction lines of hydrostatic transmissions (HSTs) for commercial vehicles, construction machinery, agricultural vehicles, and mobile work equipment with hydrostatic drive.

Advantage for the installation:

- **Space-saving assembly**
- **Reduced assembly time**
- **Fewer connections to the tank**
- **Protection from the pollution of the tank**

Advantages for the operativity:

- **Absolute filtration of the oil for the hydrostatic drive**
- **Fulfilment of the purity requirements according to ISO 4406, as specified by the manufacturer of the driving drives.**
- **Protection against damages from cavitation even under adverse conditions, i.e. cold start**
- **Less formation of free air in the system**
- **Easier maintenance operations (one spare filter element instead of two)**

FILTER SIZING

For the proper calculation see pag. 22

Return / Suction filters



MRSX	page 272
LMP 124 MULTIPORT	287
INDICATORS	718



THE X CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

MRSX series

with MYCLEAN RSX Filter Element



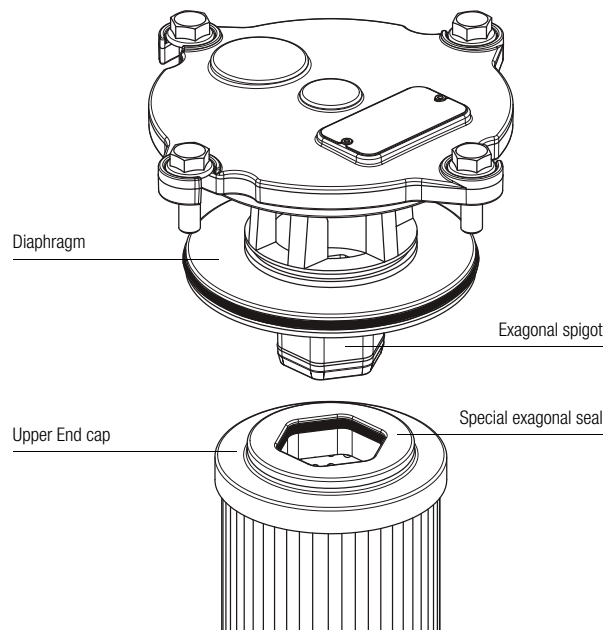
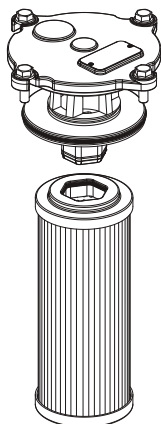
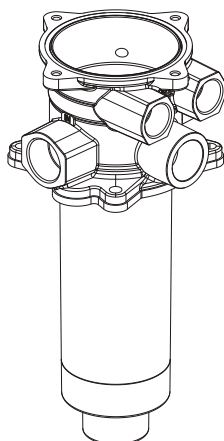
- **Protects the machine from improper use of non-original products.**
- **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.



The products identified as MRSX are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1



MRSX series

Maximum working pressure up to 1 MPa (10 bar) - Flow rate up to 250 l/min



Description

Technical data

Return / Suction filter

Tank mounted

Maximum working pressure up to 1 MPa (10 bar)
Flow rate up to 250 l/min

MRSX is a range of suction/return filters for hydraulic systems with two or more circuits (both open and closed loops). They are able to provide pressurized oil cleaned by fine filtration to the feed pump of the hydrostatic systems.

They are directly fixed to the reservoir, in immersed or semi-immersed position.

The filter output must be always immersed into the fluid to avoid aeration or foam generation into the reservoir.

Available features:

- Female threaded return connections up to 1 1/4", for a maximum return flow rate of 250 l/min
- Multiple connections, to connect several return and suction lines
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve to the tank, to relieve excessive pressure drop across the filter media when the return flow is enough higher than the suction flow
- Bypass valve to the suction line with additional suction filter element, to relieve excessive pressure drop across the filter media when the return flow is not enough higher than the suction flow
- De-pressurization valve, to reduce the pressure inside the filter during the maintenance operations
- Anti-cavitation valve with additional suction filter element, to ensure fluid to the feed pump of the hydrostatic systems during cold starts or initial filling
- O-ring or Flat Seal to suit a variety of reservoir surfaces
- Reservoir side mounting, to save space in the machines
- Visual, electrical and electronic clogging indicators
- MYclean interface connection, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

Mobile machines with hydrostatic systems on board
 (i.e. skid steer loaders, telehandlers, dumpers, road sweepers)

Filter housing materials

- Head: Aluminium
- Cover
 Polyamide: MRSX 116
 Aluminium: MRSX 165-166
- Bowl: Polyamide

Δp element type

- RSX: 10 bar
- Oil flow from exterior to interior.

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Flow rates [l/min]

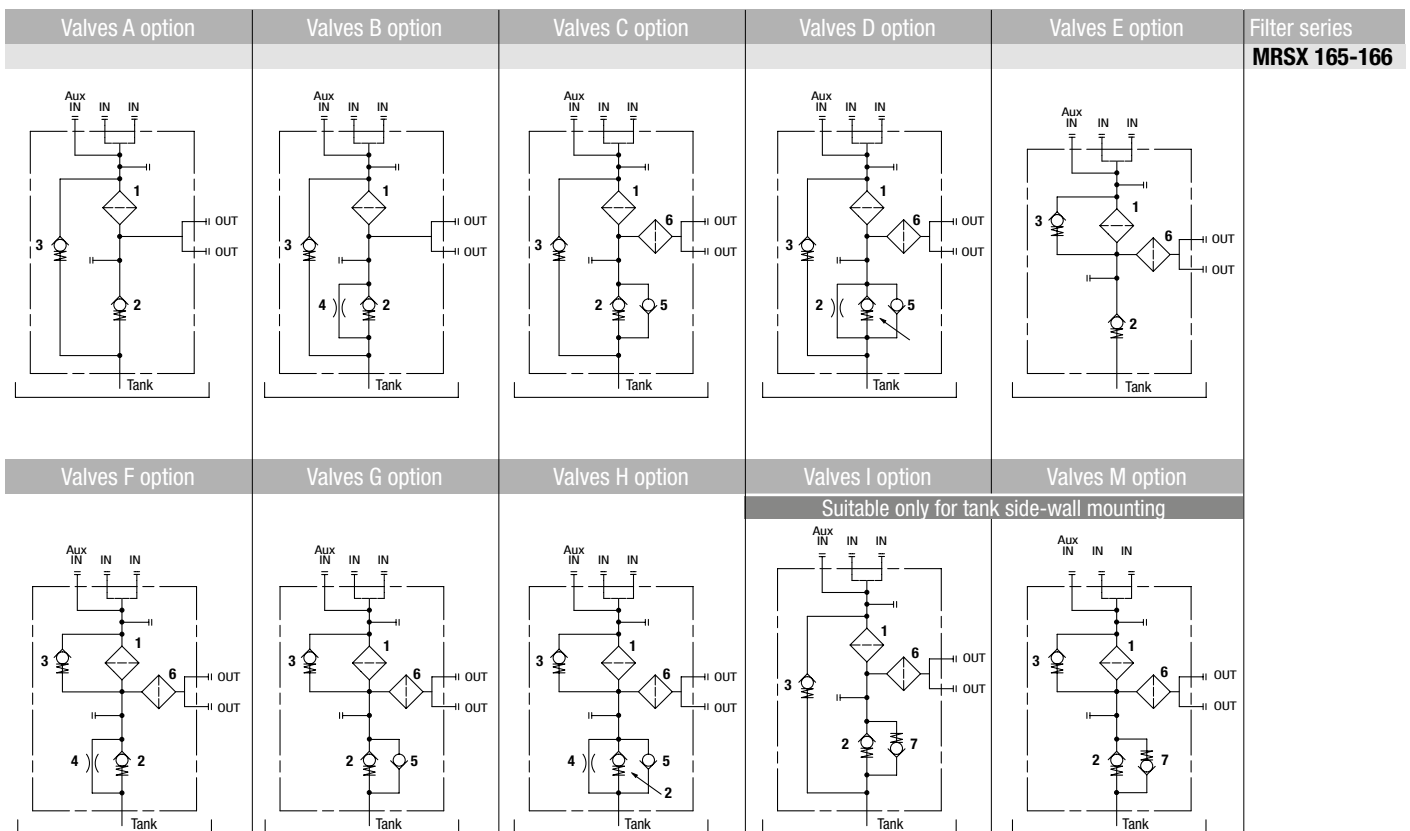
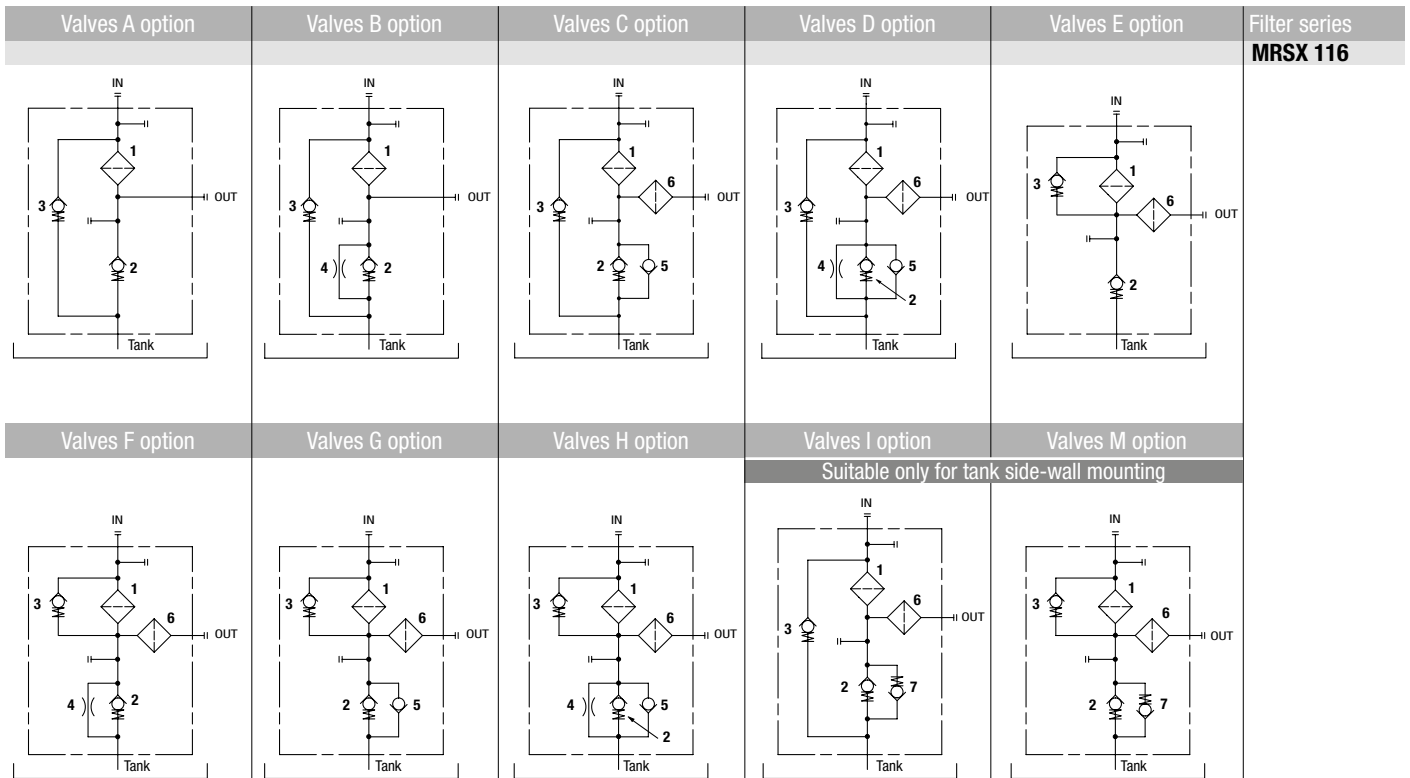
Filter series	Length	A10	A16	A25
MRSX 116	1	74	82	87
	2	108	113	124
MRSX 165 - 166	1	155	166	178
	2	187	196	200
	3	201	205	217

Maximum flow rate for a complete return/suction filter with a pressure drop Δp = 1 bar.

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

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



LEGEND

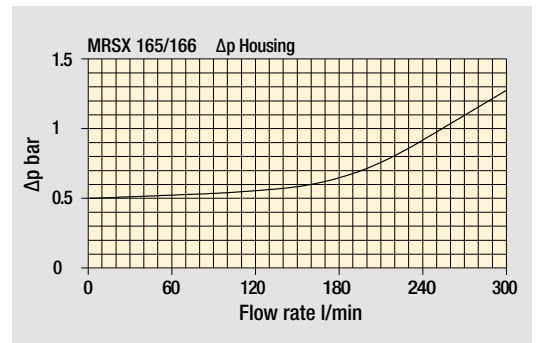
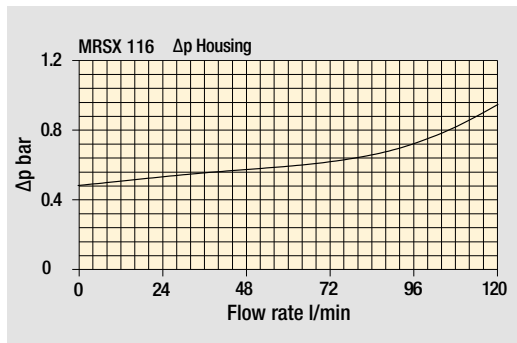
- 1 - Filter element
- 2 - Back-Pressure valve: opening pressure 0.5 bar \pm 10%
- 3 - Bypass valve: opening pressure 2.5 bar \pm 10%
- 4 - Depressurization valve

- 5 - Anti-Cavitation valve
- 6 - Safety filter element (wire mesh 60 μ m)
- 7 - Anti-Cavitation valve / Anti-Emptying valve

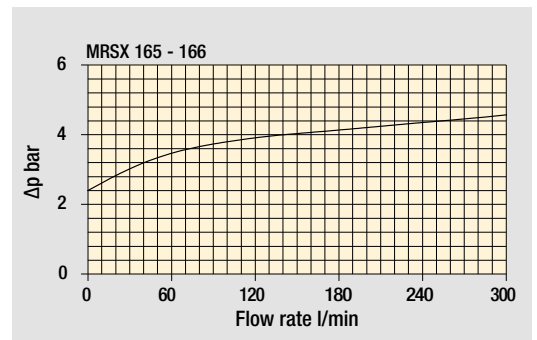
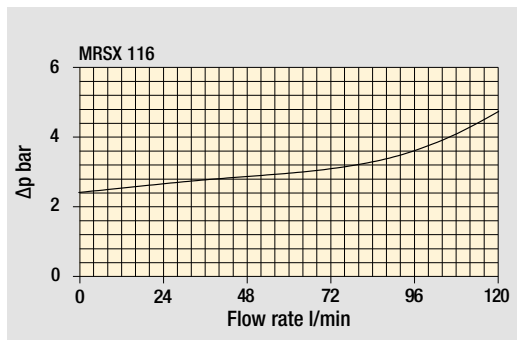
MRSX GENERAL INFORMATION

Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]			Volumes [dm ³]				
	Length	1	2	3	Length	1	2	3
MRSX 116		1.30	1.40	-		0.80	1.00	-
MRSX 165		3.40	3.80	4.10		2.00	2.60	3.00
MRSX 166		3.40	3.80	4.10		2.00	2.60	3.00

Designation & Ordering code

COMPLETE FILTER

Series and size **MRSX116** Filter featuring **MY CLEAN** Filter Element Configuration example: **MRSX116** **1** **B** **A** **G1** **0** **A16** **B** **P01**

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

Hydraulic diagram configuration - see page 275

Bypass valve to tank				Bypass valve to OUT			
A	B	C	D	•	-	-	-
E	F	G	H	-	-	•	-
I				•	-	-	-
M				-	-	•	-

Seals and treatments

A NBR, O-Ring on head	B NBR, flat seal on head
V FPM, O-Ring on head	D FPM, flat seal on head

Connections IN	Connections OUT
G1 G 3/4"	G 3/4"
G2 G 1"	G 1"
G3 3/4" NPT	3/4" NPT
G4 1" NPT	1" NPT
G5 SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN
G6 SAE 16 - 1 5/16" - 12 UN	SAE 16 - 1 5/16" - 12 UN
D1 G 1"	G 3/4"
D2 1" NPT	3/4" NPT
D3 SAE 16 - 1 5/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN

Aux IN connection **0** Without aux IN connection

Filtration rating (filter media)

A10 Inorganic microfiber 10 µm

A16 Inorganic microfiber 16 µm

A25 Inorganic microfiber 25 µm

Mounting position	Valves configuration									
	A	B	C	D	E	F	G	H	I	M
S Standard	•	•	•	•	•	•	•	•	-	-
B Tank side-wall mounting	•	•	-	-	•	•	-	-	•	•

Execution

P01 MP Filtri standard

Pxx Customized

FILTER ELEMENT

Element series and size **RSX116** Filter Element with **MY CLEAN** feature Configuration example: **RSX116** **1** **A16** **A** **P01**

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

Filtration rating (filter media)

A10 Inorganic microfiber 10 µm

A16 Inorganic microfiber 16 µm

A25 Inorganic microfiber 25 µm

Seals

A NBR

V FPM

Execution

P01 MP Filtri standard

Pxx Customized

CLOGGING INDICATORS

See page 718-719

Indicators on Return Line

BVA Axial pressure gauge
BVR Radial pressure gauge
BVP Visual pressure indicator with automatic reset
BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator
BEM Electrical pressure indicator
BET Electrical pressure indicator
BLA Electrical / visual pressure indicator

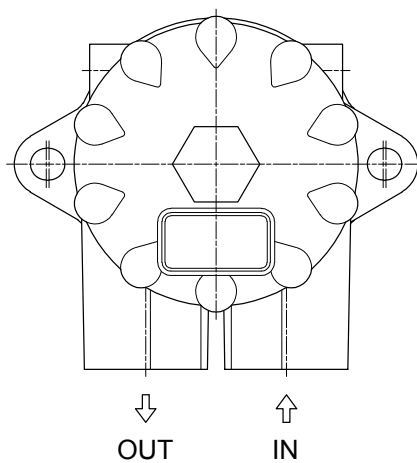
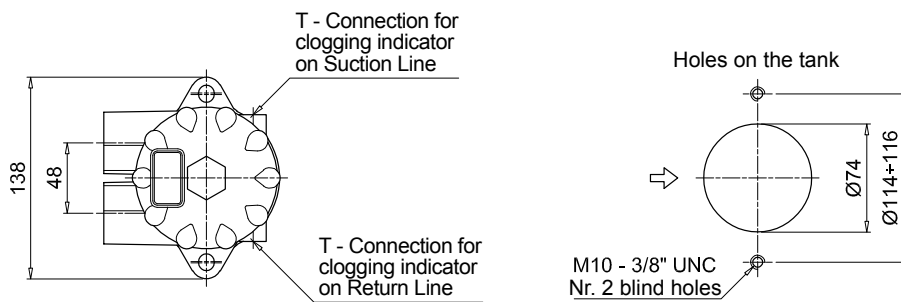
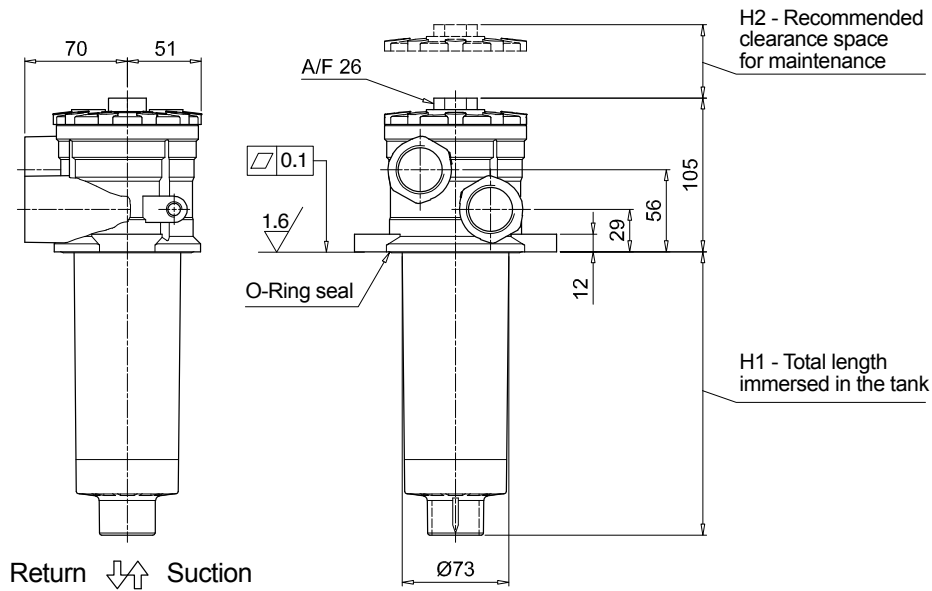
Indicators on Suction Line

VVB Axial vacuum gauge
VVS Radial vacuum gauge

VEB Electrical vacuum indicator
VLB Electrical / visual vacuum indicator

MRSX116		
Filter length	H1 [mm]	H2 [mm]
1	203	240
2	263	300

Connections	T
G1 - G2	G 1/8"
G3 - G4	1/8" NPT
G5 - G6	1/8" NPT
D1	G 1/8"
D2 - D3	1/8" NPT



MRSX MRSX165 - MRSX166

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **MRSX166** **2** **C** **V** **G3** **1** **A10** **S** **P01**

MRSX165 | **MRSX166** Filter featuring **MYCLEAN** Filter Element

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

Hydraulic diagram configuration - see page 275

				Bypass valve to tank		Bypass valve to OUT	
A	B	C	D	•	-	-	-
E	F	G	H	-	-	•	-
I				•	-	-	-
M				-	-	•	-

Seals and treatments

A	NBR, O-Ring on head	B	NBR, flat seal on head
V	FPM, O-Ring on head	D	FPM, flat seal on head

Connections

	IN (size 165)	IN (size 166)	Aux IN	OUT
G1	G 1 1/4"	G 1"	G 1 1/4"	G 1"
G2	1 1/4" NPT	1" NPT	1 1/4" NPT	1" NPT
G3	SAE 20 - 1 5/8" - 12 UN	SAE 16 - 1 5/16" - 12 UN	SAE 20 - 1 5/8" - 12 UN	SAE 16 - 1 5/16" - 12 UN

Aux IN connection

	MRSX 165	MRSX 166	
0	Without aux IN connection	•	-
1	With aux IN connection - see previous table	•	•

Filtration rating (filter media)

A10 Inorganic microfiber 10 µm

A16 Inorganic microfiber 16 µm

A25 Inorganic microfiber 25 µm

Valves configuration

Mounting position	A	B	C	D	E	F	G	H	I	M
S Standard	•	•	•	•	•	•	•	•	-	-
B Tank side-wall mounting	•	•	-	-	•	•	-	-	•	•

Execution

P01 MP Filtri standard

Pxx Customized

FILTER ELEMENT

Element series and size Configuration example: **RSX165** **2** **A10** **V** **P01**

RSX165 Filter Element with **MYCLEAN** feature

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

Filtration rating (filter media)

A10 Inorganic microfiber 10 µm

A16 Inorganic microfiber 16 µm

A25 Inorganic microfiber 25 µm

Seals

A	NBR
V	FPM

Execution

P01 MP Filtri standard

Pxx Customized

CLOGGING INDICATORS

See page 718-719

Indicators on Return Line

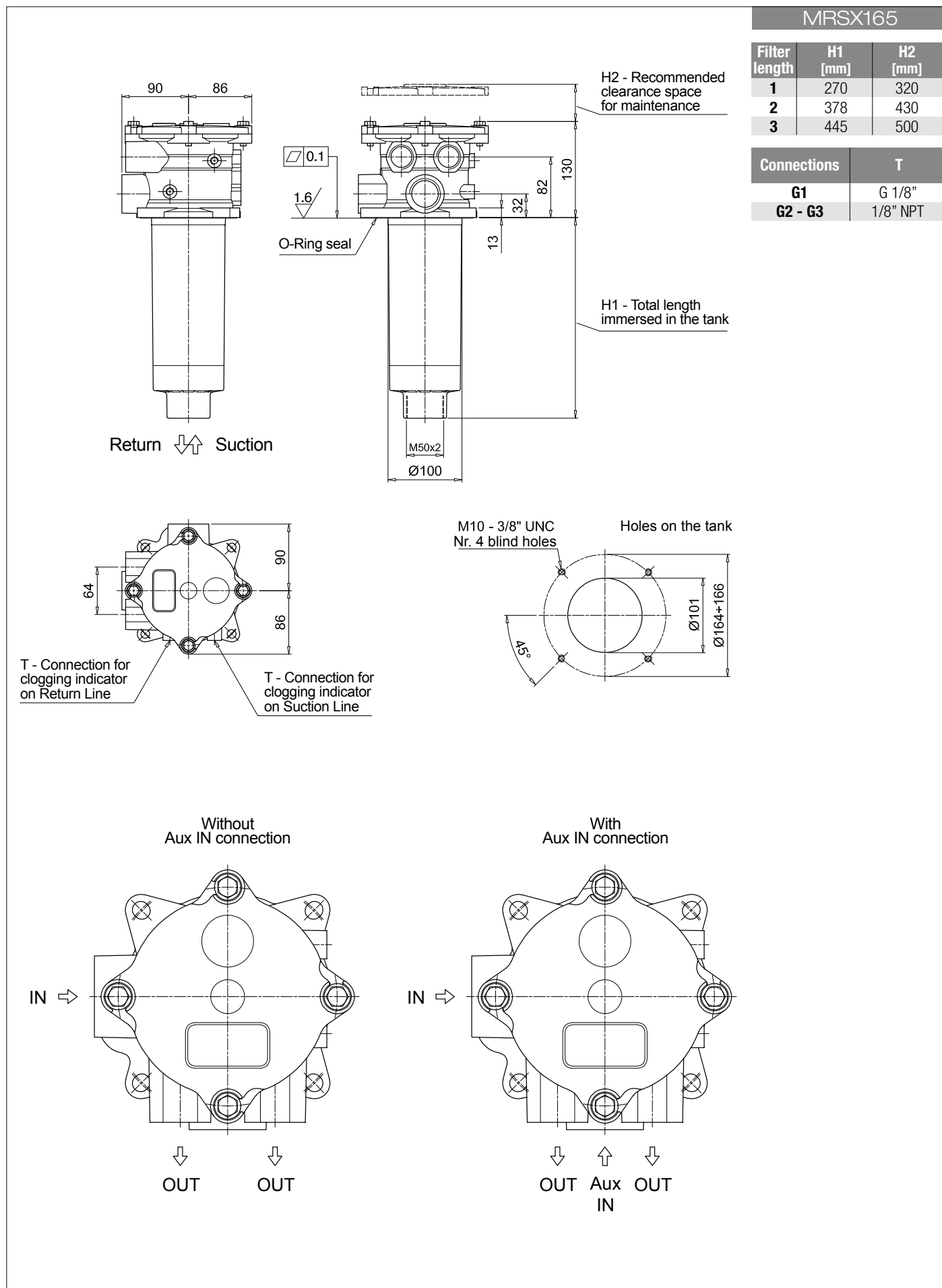
BVA	Axial pressure gauge
BVR	Radial pressure gauge
BVP	Visual pressure indicator with automatic reset
BVQ	Visual pressure indicator with manual reset

BEA	Electrical pressure indicator
BEM	Electrical pressure indicator
BET	Electrical pressure indicator
BLA	Electrical / visual pressure indicator

Indicators on Suction Line

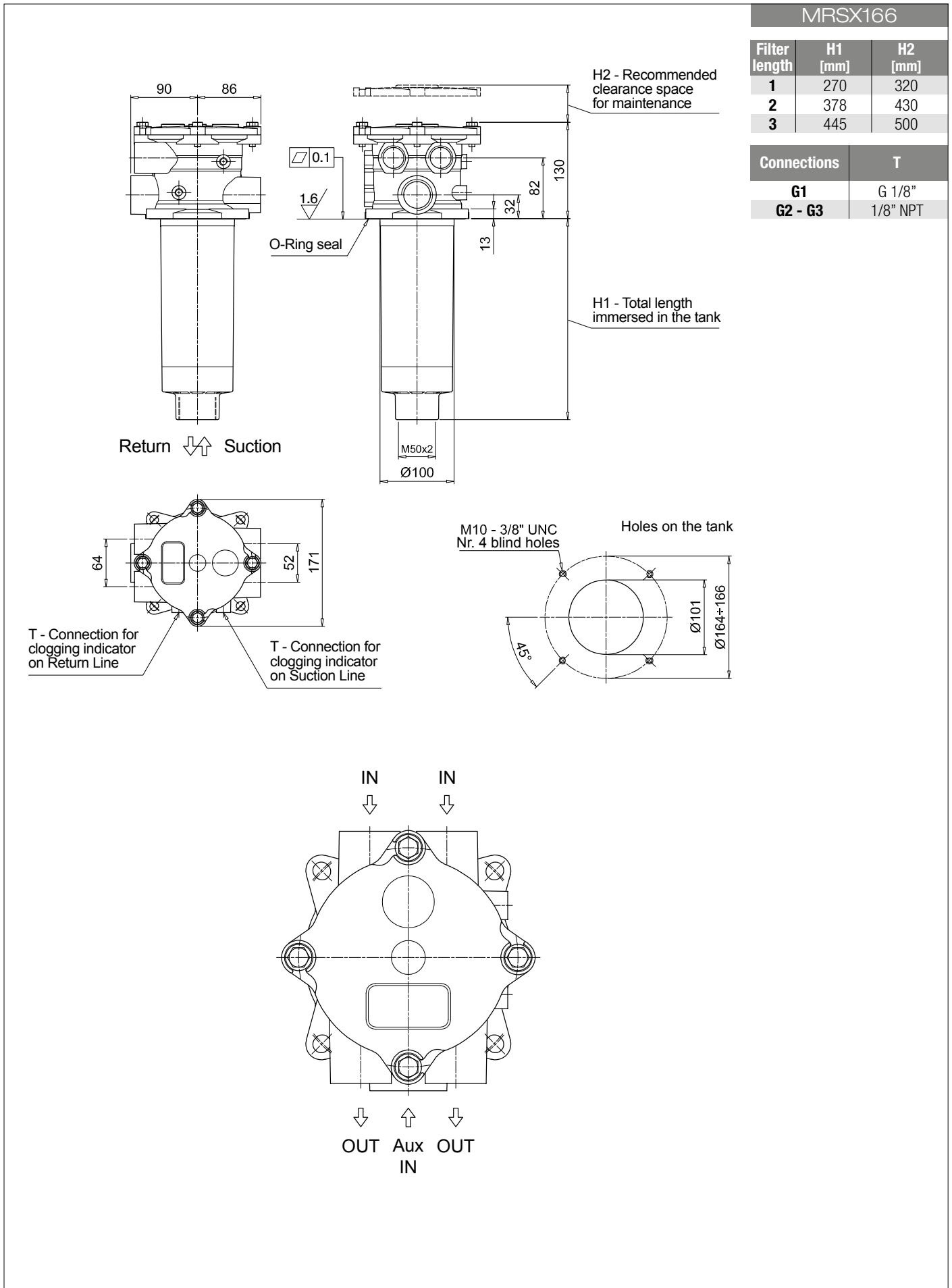
VVB	Axial vacuum gauge
VVS	Radial vacuum gauge

VEB	Electrical vacuum indicator
VLB	Electrical / visual vacuum indicator



MRSX MRSX165 - MRSX166

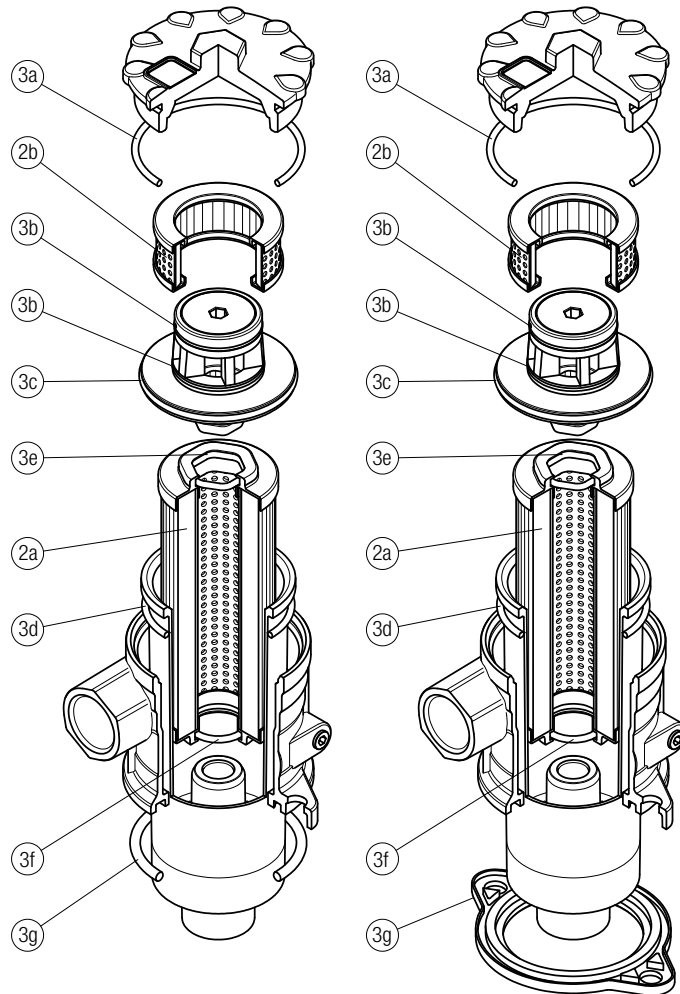
Dimensions



MRSX SPARE PARTS

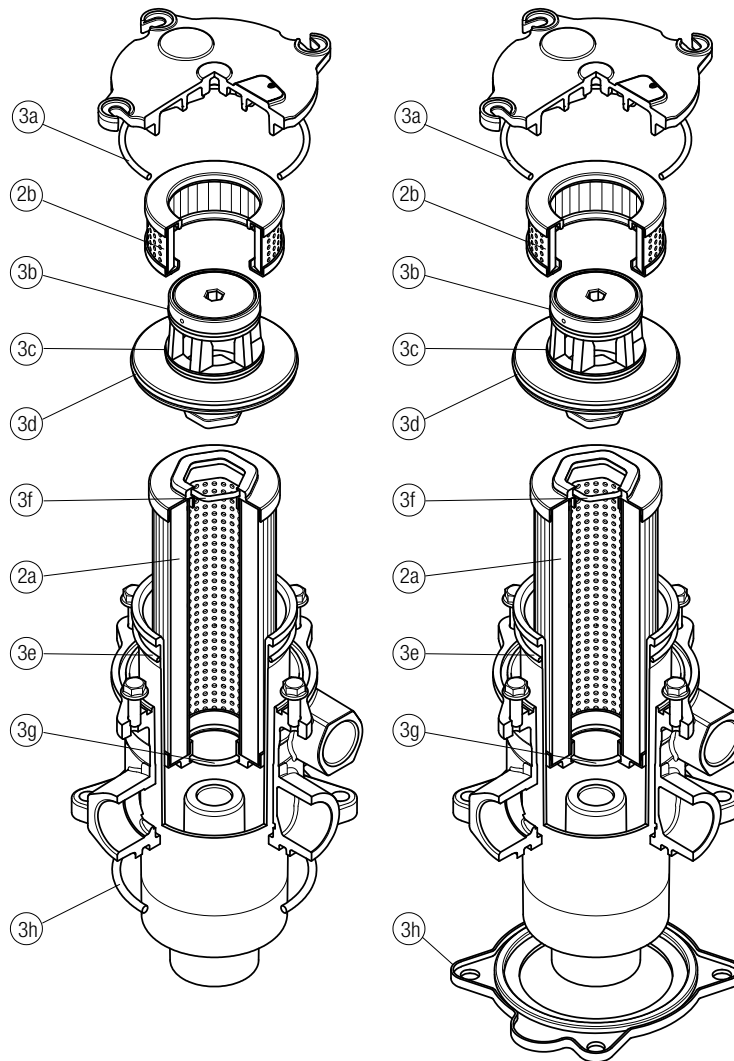
Order number for spare parts

MRSX 116



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	O-RING SEAL Q.ty: 1 pc.		FLAT SEAL Q.ty: 1 pc.	
	2a	2b	3 (3a ÷ 3g)		3 (3a ÷ 3g)	
Filter series	Filter element	Safety filter element	Seal Kit code number		Seal Kit code number	
			NBR	FPM	NBR	FPM
MRSX 116	See order table	S116M60P01	02050617	02050619	02050618	02050620

MRSX 165 - 166



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	O-RING SEAL		FLAT SEAL	
	2a	2b	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.
Filter series	Filter element	Safety filter element	3 (3a ÷ 3h)		3 (3a ÷ 3h)	
			Seal Kit code number NBR	Seal Kit code number FPM	Seal Kit code number NBR	Seal Kit code number FPM
MRSX 165	See order table	S165M60P01	02050627	02050630	02050628	02050631
MRSX 166			02050627	02050630	02050629	02050632

LMP 124 series

MULTI PORT

Maximum working pressure up to 8 MPa (80 bar) - Flow rate up to 120 l/min



Description

Technical data

Return / Suction filter

In-line

Maximum working pressure up to 8 MPa (80 bar)
Flow rate up to 120 l/min

LMP124 is a range of return/suction filters for hydraulic systems with two or more circuits (both open and closed loops). They are able to provide pressurized oil cleaned by fine filtration to the feed pump of the hydrostatic systems.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1", for a maximum return flow rate of 120 l/min
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Bypass valve to the tank, to relieve excessive pressure drop across the filter media when the return flow is enough higher than the suction flow
- Bypass valve to the suction line with additional suction filter element, to relieve excessive pressure drop across the filter media when the return flow is not enough higher than the suction flow
- De-pressurization valve, to reduce the pressure inside the filter during the maintenance operations
- Visual, electrical and electronic differential clogging indicators

Common applications:

Mobile machines with hydrostatic systems on board.
 (i.e. skid steer loaders, telehandlers, dumpers, road sweepers)

Filter housing materials

- Head: Aluminium
- Housing: Cathaphoresis - Painted steel
- Bypass valve: Brass - Aluminium

Pressure

- Test pressure: 12MPa (120 bar)
- Burst pressure: 38 MPa (380 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 80 bar (8 MPa)

Bypass valve

- Opening pressure 250 kPa (2.5 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N - W: 20 bar
- Fluid flow through the filter element from OUT to IN.

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

LMP124 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
LMP 124		1.70	1.90	2.20	2.70		0.75	0.81	1.11	1.53

Flow rates [l/min]

Filter series	Length	Filter element design - N series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
LMP 124	1	39	41	58	60	69	99	84	85
	2	47	53	68	69	77	99	90	91
	3	59	61	73	77	86	99	92	93
	4	70	78	84	86	93	100	94	95


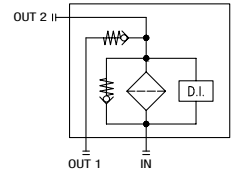
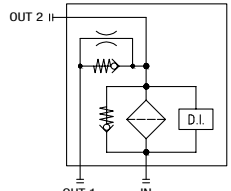
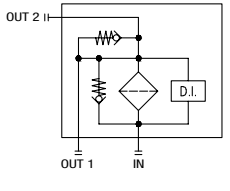
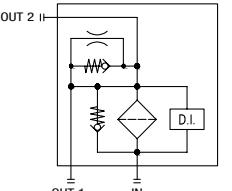

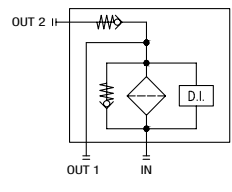
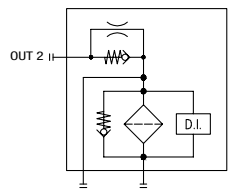
Maximum flow rate for a complete return/suction filter with a pressure drop $\Delta p = 1.2$ bar.

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

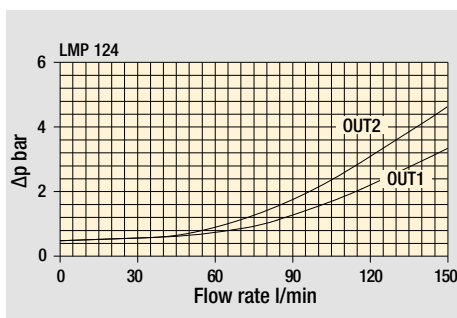
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols - Valves option

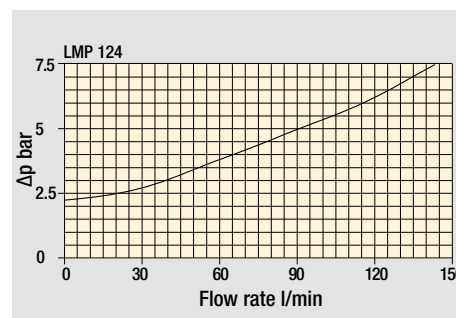
Multiport	Valves C option	Valves D option	Valves E option	Valves F option
 <p>IN - Return OUT 1 - Tank OUT 2 - Pump</p>				
Multiport	Valves G option	Valves H option		
 <p>IN - Return OUT 1 - Pump OUT 2 - Tank</p>				

Filter housings Δp pressure drop



OUT 1: Valves option G/H
OUT 2: Valves option C/D/E/F

Bypass valve pressure drop



Pressure drop

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example: LMP124 4 C A F 1 A10 N P01									
LMP124										
Filter length	1 2 3 4									
Hydraulic diagram configuration - see page 289	C D E F G H									
Seals and treatments	A NBR									
	V FPM									
Connections	B G 1"									
	F SAE 16 - 1 5/16" - 12 UN									
Connection for indicator	1 Without									
	2 With connection G 1/8" for clogging indicator									
	3 With connection G 1/4" for clogging indicator									
	4 With connection for differential pressure indicator									
Filtration rating (filter media)	A03 Inorganic microfiber 3 µm									
	A06 Inorganic microfiber 6 µm									
	A10 Inorganic microfiber 10 µm									
	A16 Inorganic microfiber 16 µm									
	A25 Inorganic microfiber 25 µm									
	M25 Wire mesh 25 µm									
	M60 Wire mesh 60 µm									
	M90 Wire mesh 90 µm									
	P10 Resin impregnated paper 10 µm									
	P25 Resin impregnated paper 25 µm									
						Element Δp		Execution		
						N 20 bar		P01 MP Filtri standard		
								Pxx Customized		

FILTER ELEMENT

Element series and size	Configuration example: CU110 4 A10 A N P01					
CU110						
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					
	M25 Wire mesh 25 µm					
	M60 Wire mesh 60 µm					
	M90 Wire mesh 90 µm					
	P10 Resin impregnated paper 10 µm					
	P25 Resin impregnated paper 25 µm					
	Seals		Element Δp		Execution	
	A NBR		N 20 bar		P01 MP Filtri standard	
	V FPM				Pxx Customized	

CLOGGING INDICATORS

See page 718-719

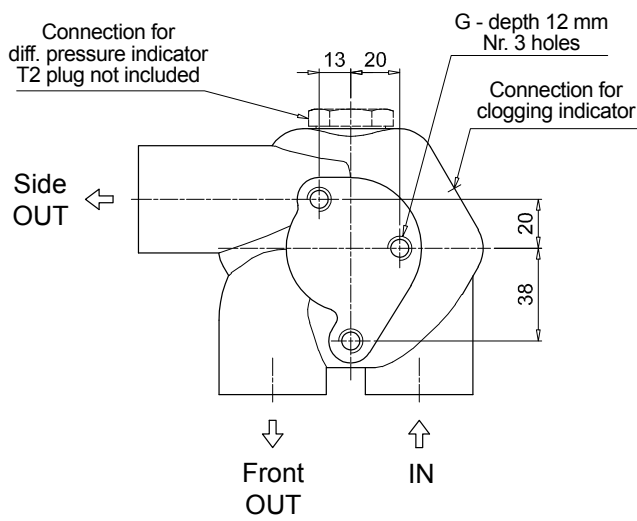
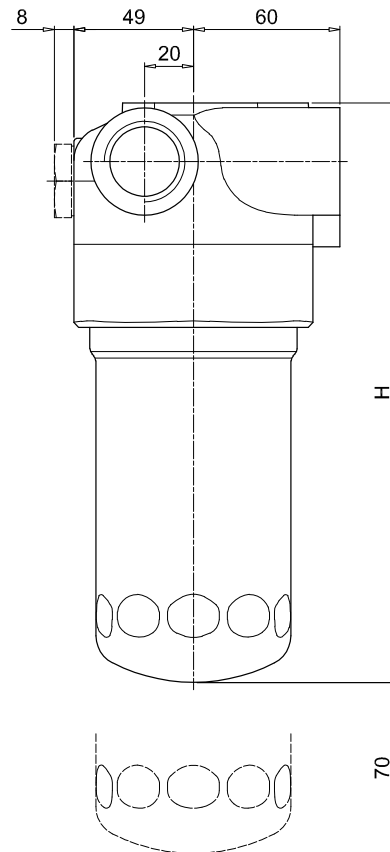
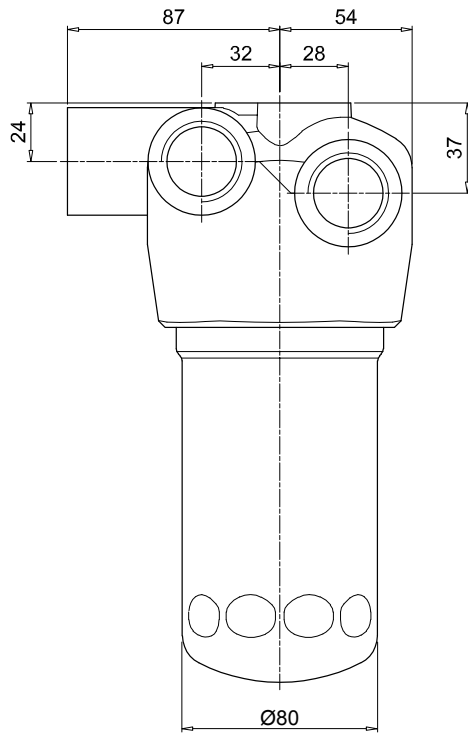
Indicators on Return Line	
BVA Axial pressure gauge	BEA Electrical pressure indicator
BVR Radial pressure gauge	BEM Electrical pressure indicator
BVP Visual pressure indicator with automatic reset	BET Electrical pressure indicator
BVQ Visual pressure indicator with manual reset	BLA Electrical / visual pressure indicator
Differential pressure indicators	
DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug (not included)

LMP 124	
MULTIPORT	
Filter length	H [mm]
1	182
2	215
3	265
4	365
Connections	R
B	M10
F	3/8" UNC

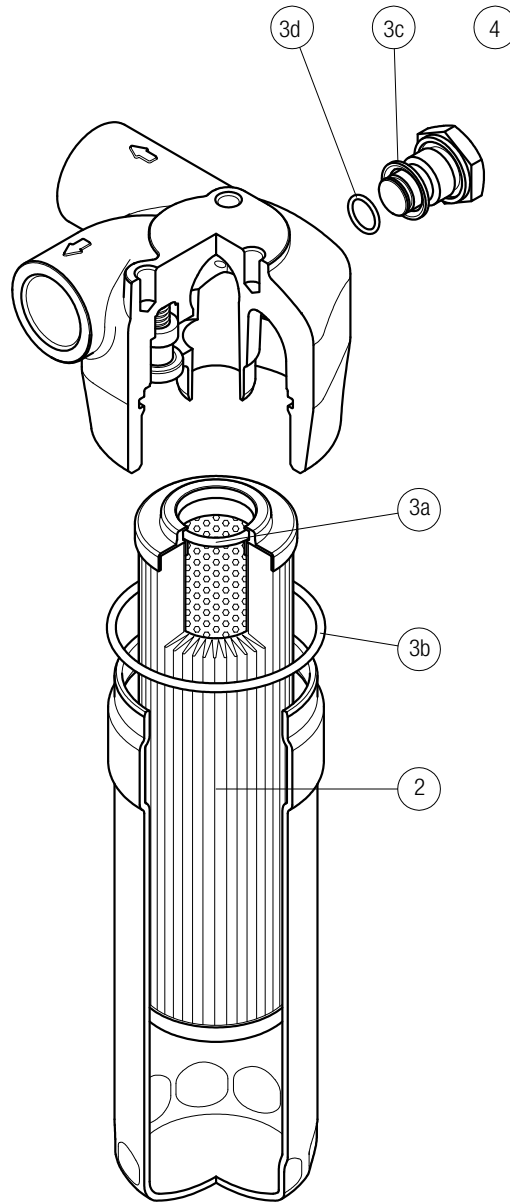


LMP 124 MULTIPORT

MULTIPORT

Order number for spare parts

LMP 124 MULTIPORT



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
LMP 124 MULTIPORT	See order table	NBR	FPM	NBR	FPM
	2	3 (3a ÷ 3d)		4	
		02050478	02050479	T2H	T2V

Spin-On filters are used as process and safety filters to protect individual pumps, valves or the entire hydraulic circuit from contamination as per ISO 4406.

In-line Spin-On filters can be used for the following purposes:

- **Suction filters**
- **On the return circuit, for mounting on the line or on the tank cover**
- **In-line for low and medium pressure applications**

Spin-On filters are available in 4 configurations:

- **Single cartridge in-line**
- **In-line with two parallel cartridges on the same axis**
- **In-line with two parallel cartridges mounted side by side**

All versions may be equipped with visual and/or electrical blockage indicators.

Spin-on filters



MPS	page 297
MSH	313
INDICATORS	720

MPS series

Maximum working pressure up to 1.2 MPa (12 bar) - Flow rate up to 365 l/min



Description

Technical data

Spin-on filters

Maximum working pressure up to 1.2 MPa (12 bar)

Flow rate up to 365 l/min

MPS is a range of spin-on filters suitable to be used in suction, return and low pressure lines.

They offer a good balance between performances, dimensions and prices. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/2" and flanged connections up to 1 1/2", for a maximum flow rate of 365 l/min
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Water removal elements (CW), to remove the free water from the hydraulic fluid
- Double connection for the cans, to fit both European and American standard elements
- Double cans fitting, to increase the life time of the filter
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical and electronic clogging indicators for suction and return applications
- Visual, electrical and electronic differential clogging indicators for low pressure applications

Common applications:

- Suction lines, Return lines, Delivery lines, in economic industrial equipment or mobile machines.
- Off-line filtration tank in economic industrial equipment or mobile machines

Filter housing materials

- Head: Aluminium
- Bypass valve: Polyamide - Steel
- Element: Zinc-Plated Steel - Painted steel

Bypass valve

- Inline / Return filter opening pressure: 175 kPa (1.75 bar) $\pm 10\%$
- Inline / Suction filter opening pressure: 30 kPa (0.3 bar) $\pm 10\%$

Δp element type

- Δp : 5 bar
- Fluid flow through the filter element from OUT to IN

Seals

Standard NBR - series A

Temperature

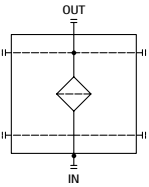
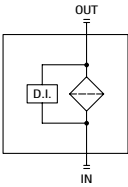
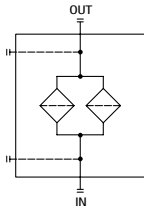
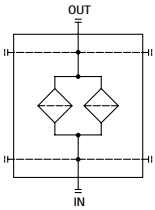
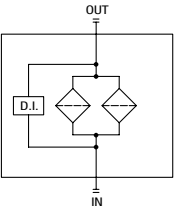
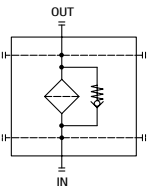
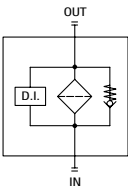
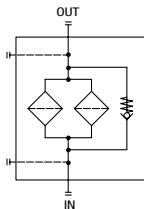
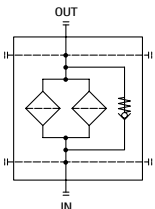
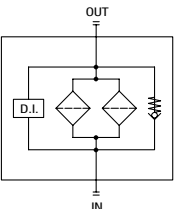
From -20 °C to +110 °C

Note

MPS filters are provided for vertical mounting

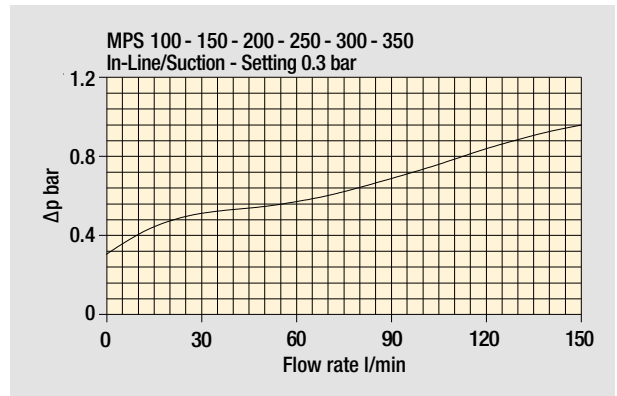
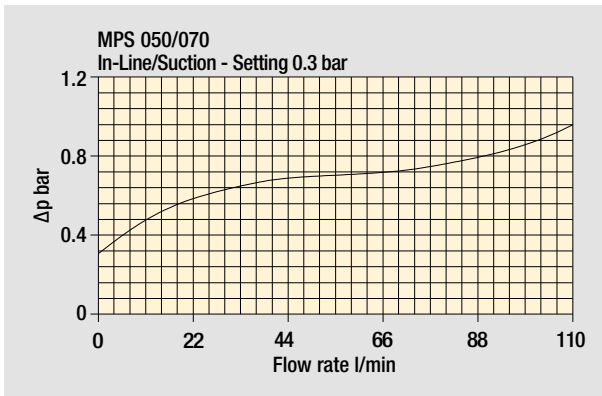
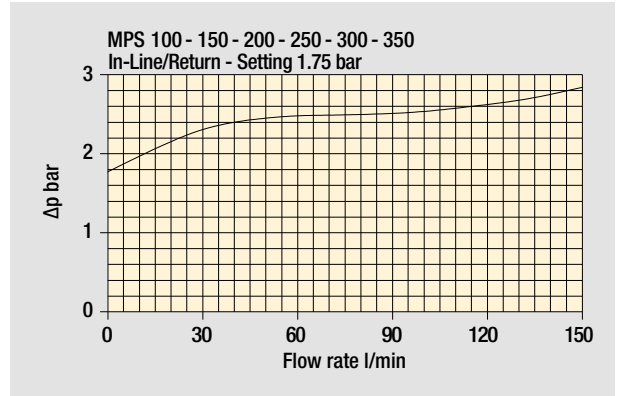
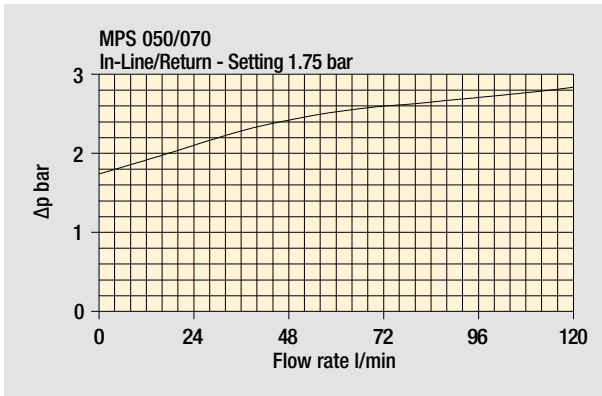
Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
MPS 050	1.00	0.70
MPS 051	1.05	0.70
MPS 070	1.20	0.95
MPS 071	1.25	0.95
MPS 100	2.10	1.65
MPS 101	2.20	1.65
MPS 150	2.40	2.00
MPS 151	2.50	2.00
MPS 200	3.90	3.00
MPS 250	4.60	3.70
MPS 300-301	5.30	3.40
MPS 350-351	6.00	4.10

Filter series					
MPS 050	•	-	-	-	-
MPS 051	-	•	-	-	-
MPS 070	•	-	-	-	-
MPS 071	-	•	-	-	-
MPS 100	•	-	-	-	-
MPS 101	-	•	-	-	-
MPS 150	•	-	-	-	-
MPS 151	-	•	-	-	-
MPS 200	-	-	•	-	-
MPS 250	-	-	•	-	-
MPS 300	-	-	-	•	-
MPS 301	-	-	-	-	•
MPS 350	-	-	-	•	-
MPS 351	-	-	-	-	•
	Style U/P	Style U/P	Style U	Style U/P	Style U/P
					
	Style R/S	Style R/S	Style R/S	Style R/S	Style R/S
					

Pressure drop

Bypass valve
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.

CS 050 - 070 - 100 - 150

CG - CW 050 - 070



CG - CW 100 - 150



CW

This series of cartridge removes water from oil while filtering the oil at the same time.

Water absorbent polymers up to 800 times their own weight provide this major feature.

Water holding capacities:
CW 050= 240 ml

Ordering code: **CW050P10AP01**

CW 150= 788 ml

Ordering code: **CW150P10AP01**

Thread connections

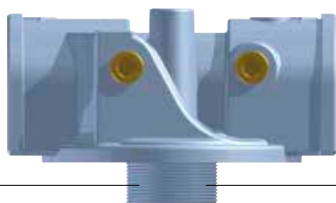
Element	Connection
CS 050 - 070	G 3/4"
CS 100 - 150	G 1 1/4"
CG / CW 050 - 070	1" - 12 UNF
CG / CW 100 - 150	1 1/2" - 16 UN

Water holding capacities CW

	good	poor
Viscosity	30/46 mm ² /s (cSt)	> 46 mm ² /s (cSt)
H₂O p.p.m.	600/800 p.p.m.	> 800 p.p.m.
Flow rate	CW050 7/15 l/min CW150 20/40 l/min	CW050 > 20 l/min CW150 > 50 l/min
Temperature	40/60 °C	< 30 °C

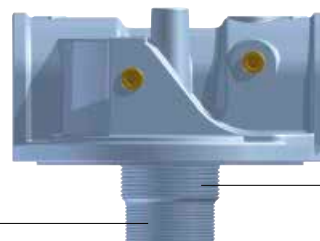
Heads

CG / CW
1" - 12 UNF



CS
G 3/4"

CG / CW
1 1/2" - 16 UN



CS
G 1 1/4"

MPS MPS050 - MPS070 MPS051 - MPS071

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example: MPS050 R G1 A10 A P01				
MPS050 MPS070	With connections for clogging indicators					
MPS051 MPS071	With connections for differential pressure indicators					
Bypass valve		MPS 050 - 070	MPS 051 - 071			
R	Inline / Return: with bypass 1.75 bar	•	•			
S	Inline / Suction: with bypass 0.3 bar	•	-			
U	Without bypass	•	-			
P	Without bypass	-	•			
Connections						
G1	G 3/4"					
G2	3/4" NPT					
G3	SAE 12 - 1 1/16" - 12 UN					
Filtration rating (filter media)						
A03	Inorganic microfiber 3 µm	M25	Wire mesh 25 µm			
A06	Inorganic microfiber 6 µm	M60	Wire mesh 60 µm			
A10	Inorganic microfiber 10 µm	M90	Wire mesh 90 µm			
A25	Inorganic microfiber 25 µm	P10	Resin impregnated paper 10 µm			
		P25	Resin impregnated paper 25 µm			
		Seal		Execution		
		A NBR		P01 MP Filtri standard		

CARTRIDGE

Cartridge series and size		Configuration example: CS050 A10 A P01			
CS050 CS070					
Filtration rating (filter media)					
A03	Inorganic microfiber 3 µm	M25	Wire mesh 25 µm		
A06	Inorganic microfiber 6 µm	M60	Wire mesh 60 µm		
A10	Inorganic microfiber 10 µm	M90	Wire mesh 90 µm		
A25	Inorganic microfiber 25 µm	P10	Resin impregnated paper 10 µm		
		P25	Resin impregnated paper 25 µm		
		Seals		Execution	
		A NBR		P01 MP Filtri standard Pxx Customized	

CLOGGING INDICATORS

See page 720-721

Clogging indicators on RETURN line

BVA	Axial pressure gauge
BVR	Radial pressure gauge
BVP	Visual pressure indicator with automatic reset
BVQ	Visual pressure indicator with manual reset

BEA	Electrical pressure indicator
BEM	Electrical pressure indicator
BLA	Electrical / visual pressure indicator

Clogging indicators on SUCTION line

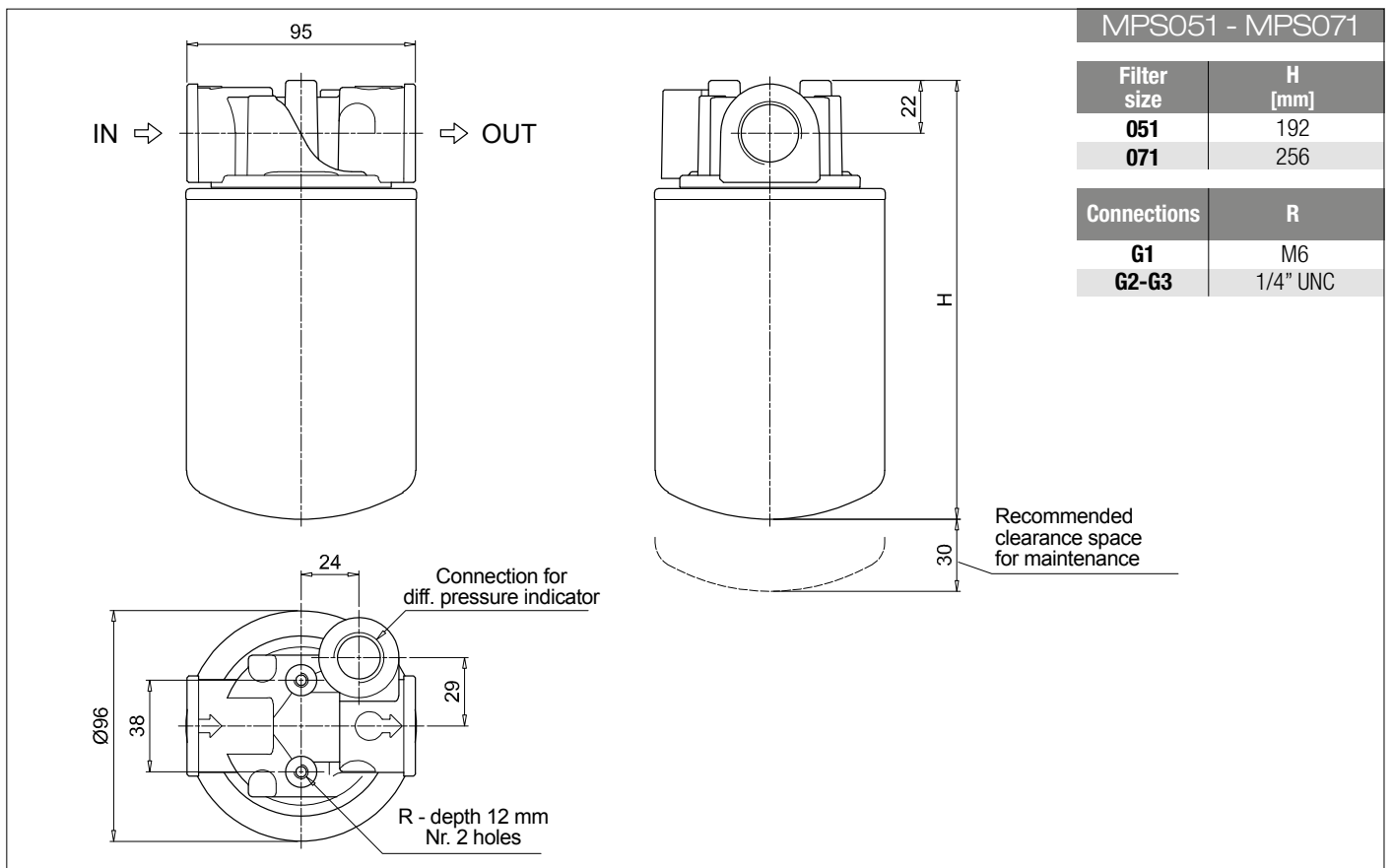
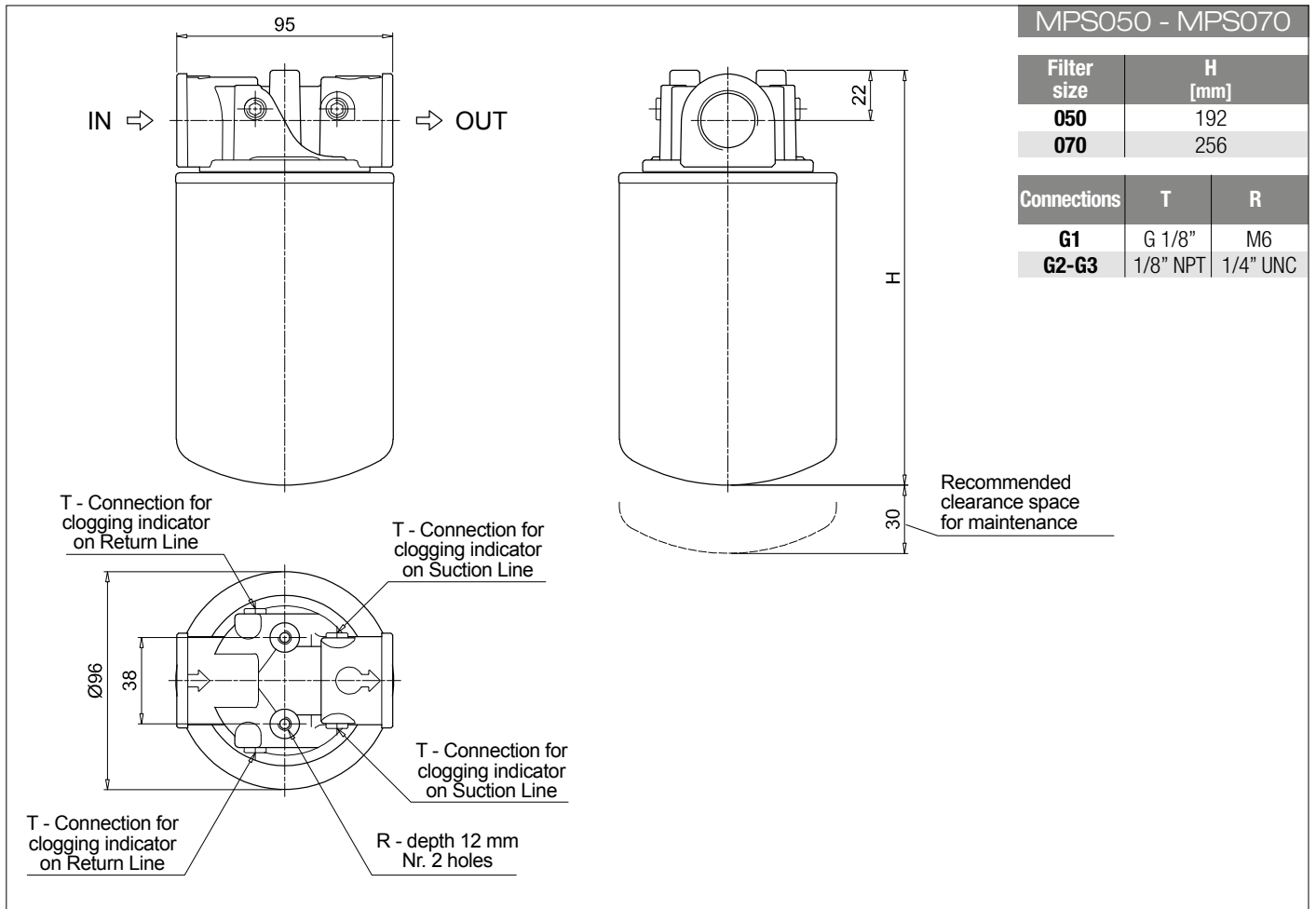
VVB	Axial pressure gauge
VVS	Radial pressure gauge

VEB	Electrical vacuum indicator
VLB	Electrical / visual vacuum indicator

Differential pressure indicators

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

DLE	Electrical / visual differential pressure indicator
DTA	Electronic differential pressure indicator
DVA	Visual differential pressure indicator
DVM	Visual differential pressure indicator



MPS MPS100 - MPS150 MPS101 - MPS151

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example: MPS100 R G1 A10 A P01				
MPS100 MPS150	With connections for clogging indicators					
MPS101 MPS151	With connections for differential pressure indicators					
Bypass valve		MPS 100 - 150	MPS 101 - 151			
R	Inline / Return: with bypass 1.75 bar	•	•			
S	Inline / Suction: with bypass 0.3 bar	•	-			
U	Without bypass	•	-			
P	Without bypass	-	•			
Connections						
G1	G 1 1/4"					
G2	1 1/4" NPT					
G3	SAE 20 - 1 5/8" - 12 UN					
Filtration rating (filter media)						
A03	Inorganic microfiber 3 µm					
A06	Inorganic microfiber 6 µm					
A10	Inorganic microfiber 10 µm					
A25	Inorganic microfiber 25 µm					
		M25	Wire mesh 25 µm			
		M60	Wire mesh 60 µm			
		M90	Wire mesh 90 µm			
		P10	Resin impregnated paper 10 µm			
		P25	Resin impregnated paper 25 µm			
		Seal				
		A	NBR			
		Execution				
		P01	MP Filtri standard			

CARTRIDGE

Cartridge series and size		Configuration example: CS100 A10 A P01			
CS100 CS150					
Filtration rating (filter media)					
A03	Inorganic microfiber 3 µm				
A06	Inorganic microfiber 6 µm				
A10	Inorganic microfiber 10 µm				
A25	Inorganic microfiber 25 µm				
		M25	Wire mesh 25 µm		
		M60	Wire mesh 60 µm		
		M90	Wire mesh 90 µm		
		P10	Resin impregnated paper 10 µm		
		P25	Resin impregnated paper 25 µm		
		Seals			
		A	NBR		
		Execution			
		P01	MP Filtri standard		
		Pxx	Customized		

CLOGGING INDICATORS

See page 720-721

Clogging indicators on RETURN line

BVA	Axial pressure gauge
BVR	Radial pressure gauge
BVP	Visual pressure indicator with automatic reset
BVQ	Visual pressure indicator with manual reset

BEA	Electrical pressure indicator
BEM	Electrical pressure indicator
BLA	Electrical / visual pressure indicator

Clogging indicators on SUCTION line

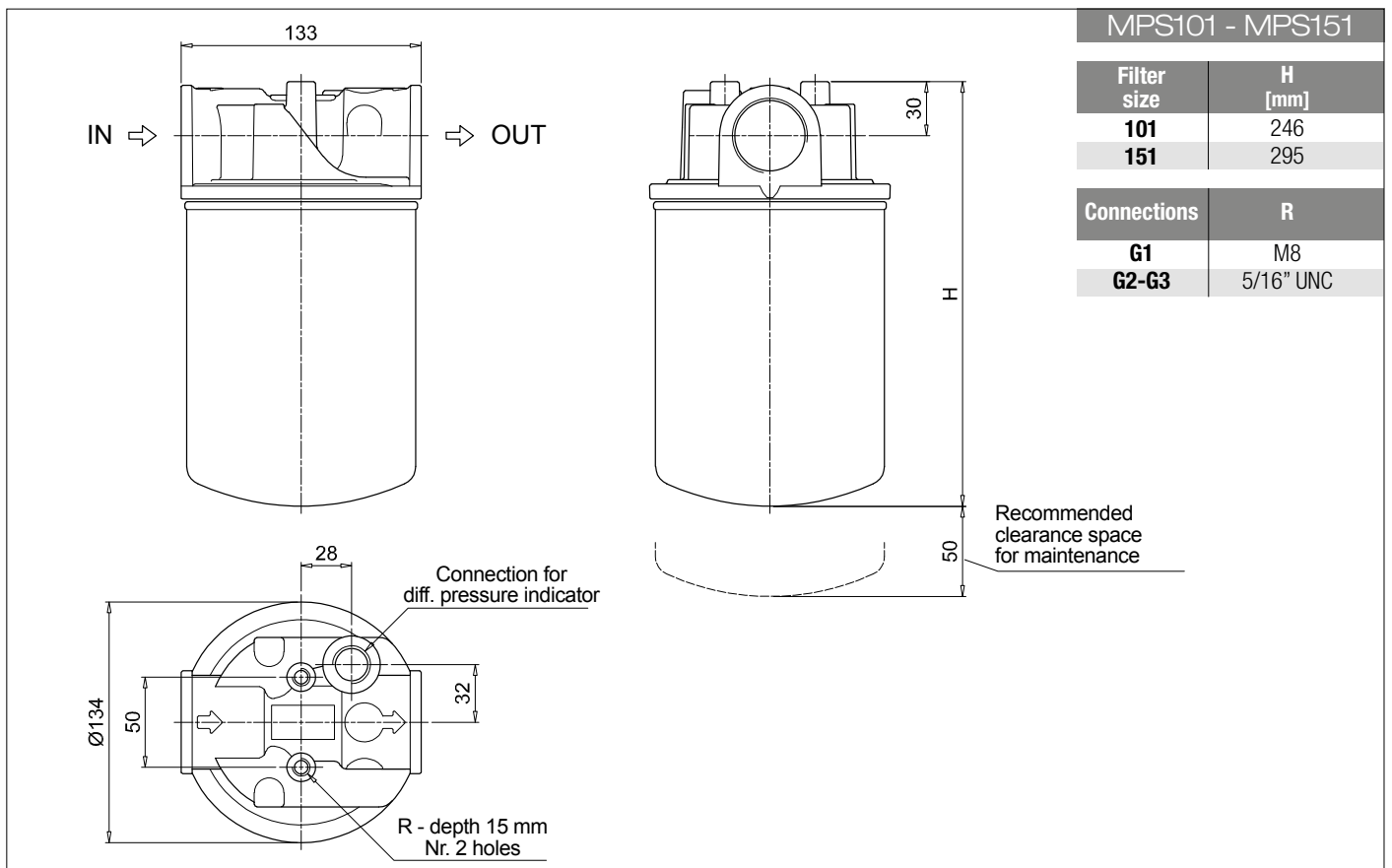
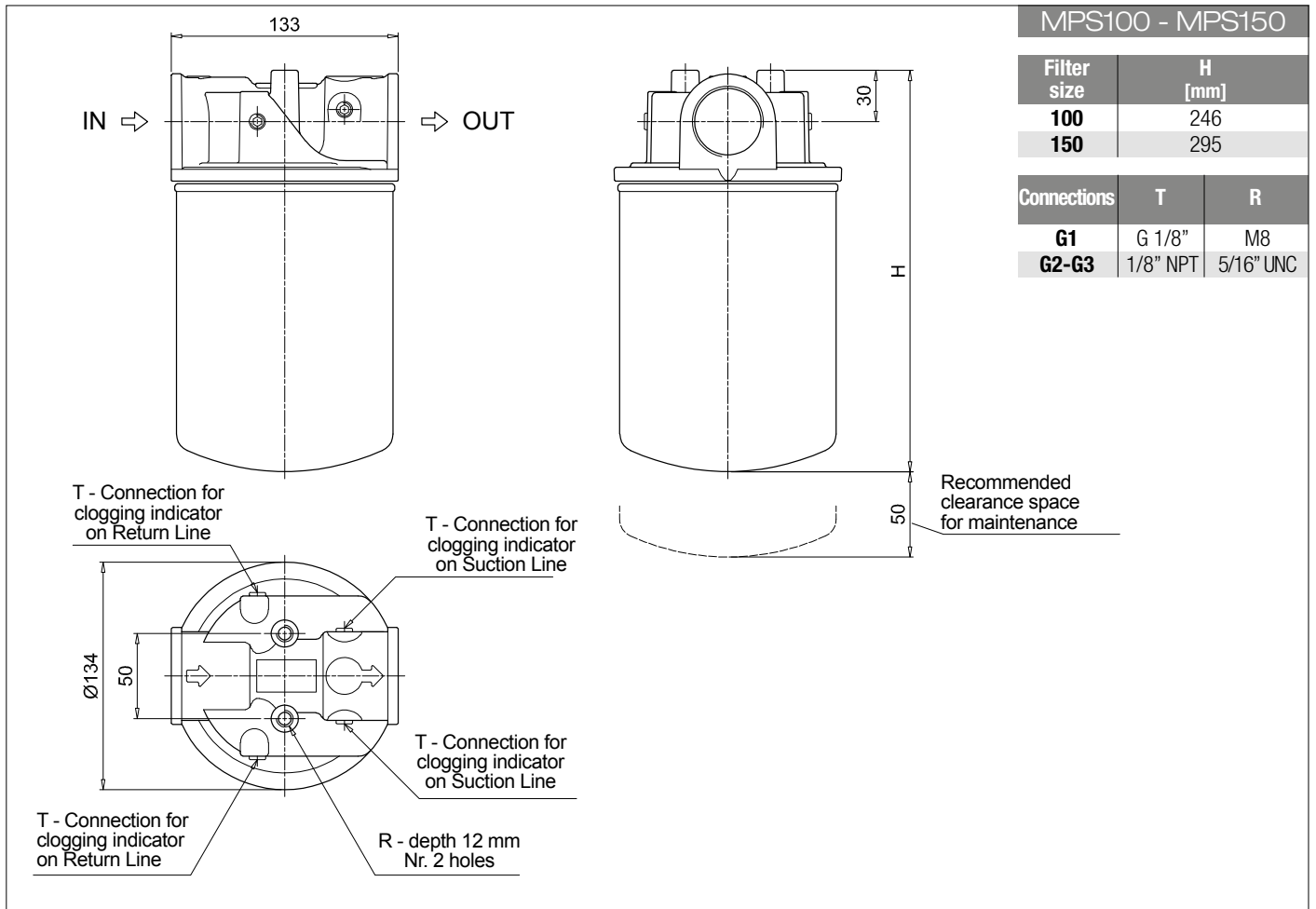
VVB	Axial pressure gauge
VVS	Radial pressure gauge

VEB	Electrical vacuum indicator
VLB	Electrical / visual vacuum indicator

Differential pressure indicators

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

DLE	Electrical / visual differential pressure indicator
DTA	Electronic differential pressure indicator
DVA	Visual differential pressure indicator
DVM	Visual differential pressure indicator



MPS MPS200 - MPS250

Designation & Ordering code

COMPLETE FILTER

Series and size

MPS200 | **MPS250**

Configuration example: **MPS200** **R** **G1** **A10** **A** **P01**

Bypass valve

R Inline / Return: with bypass 1.75 bar

S Inline / Suction: with bypass 0.3 bar

U Without bypass

Connections

G1 G 1 1/2"

G2 1 1/2" NPT

G3 SAE 24 - 1 7/8" - 12 UN

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm

A06 Inorganic microfiber 6 µm

A10 Inorganic microfiber 10 µm

A25 Inorganic microfiber 25 µm

M25 Wire mesh 25 µm

M60 Wire mesh 60 µm

M90 Wire mesh 90 µm

P10 Resin impregnated paper 10 µm

P25 Resin impregnated paper 25 µm

Seal

A NBR

Execution

P01 MP Filtri standard

CARTRIDGE

Cartridge series and size

CS100 | **CS150**

Configuration example: **CS100** **A10** **A** **P01**

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm

A06 Inorganic microfiber 6 µm

A10 Inorganic microfiber 10 µm

A25 Inorganic microfiber 25 µm

M25 Wire mesh 25 µm

M60 Wire mesh 60 µm

M90 Wire mesh 90 µm

P10 Resin impregnated paper 10 µm

P25 Resin impregnated paper 25 µm

Seals

A NBR

Execution

P01 MP Filtri standard

Pxx Customized

CLOGGING INDICATORS

See page 720-721

Clogging indicators on RETURN line

BVA Axial pressure gauge

BVR Radial pressure gauge

BVP Visual pressure indicator with automatic reset

BVQ Visual pressure indicator with manual reset

BEA Electrical pressure indicator

BEM Electrical pressure indicator

BLA Electrical / visual pressure indicator

Clogging indicators on SUCTION line

VVB Axial pressure gauge

VVS Radial pressure gauge

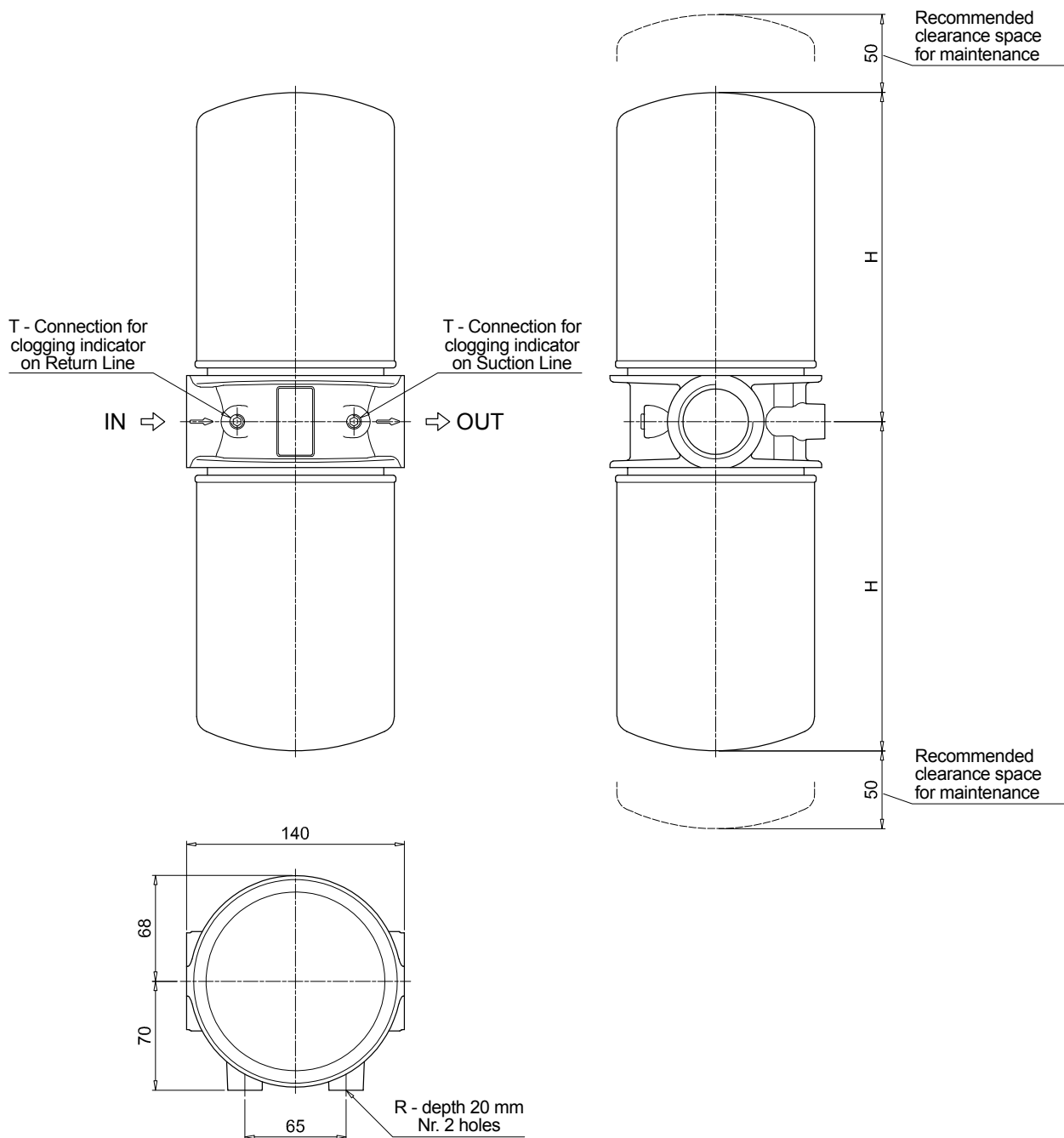
VEB Electrical vacuum indicator

VLB Electrical / visual vacuum indicator

MPS200 - MPS250

Filter size	H [mm]
200	213
250	262

Connections	T	R
G1	G 1/8"	M10
G2-G3	1/8" NPT	7/16" UNC



MPS MPS300 - MPS350 MPS301 - MPS351

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example: MPS300 R F1 A10 A P01					
MPS300 MPS350	With connections for clogging indicators						
MPS301 MPS351	With connections for differential pressure indicators						
Bypass valve		MPS 300 - 350	MPS 301 - 351				
R	Inline / Return: with bypass 1.75 bar	•	•				
S	Inline / Suction: with bypass 0.3 bar	•	-				
U	Without bypass	•	-				
P	Without bypass	-	•				
Connections							
G1	G 1 1/2"						
G2	1 1/2" NPT						
G3	SAE 24 - 1 7/8" - 12 UN						
F1	1 1/2" SAE 3000 psi/M						
F2	1 1/2" SAE 3000 psi/UNC						
Filtration rating (filter media)							
A03	Inorganic microfiber 3 µm	M25	Wire mesh 25 µm				
A06	Inorganic microfiber 6 µm	M60	Wire mesh 60 µm				
A10	Inorganic microfiber 10 µm	M90	Wire mesh 90 µm				
A25	Inorganic microfiber 25 µm	P10	Resin impregnated paper 10 µm				
		P25	Resin impregnated paper 25 µm				
		Seal		Execution			
		A NBR		P01 MP Filtri standard			

CARTRIDGE

Cartridge series and size		Configuration example: CS100 A10 A P01					
CS100 CS150							
Filtration rating (filter media)							
A03	Inorganic microfiber 3 µm	M25	Wire mesh 25 µm				
A06	Inorganic microfiber 6 µm	M60	Wire mesh 60 µm				
A10	Inorganic microfiber 10 µm	M90	Wire mesh 90 µm				
A25	Inorganic microfiber 25 µm	P10	Resin impregnated paper 10 µm				
		P25	Resin impregnated paper 25 µm				
		Seals		Execution			
		A NBR		P01 MP Filtri standard Pxx Customized			

CLOGGING INDICATORS

See page 720-721

Clogging indicators on RETURN line		
BVA	Axial pressure gauge	BEA Electrical pressure indicator
BVR	Radial pressure gauge	BEM Electrical pressure indicator
BVP	Visual pressure indicator with automatic reset	BLA Electrical / visual pressure indicator
BVQ	Visual pressure indicator with manual reset	
Clogging indicators on SUCTION line		
VVB	Axial pressure gauge	VEB Electrical vacuum indicator
VVS	Radial pressure gauge	VLB Electrical / visual vacuum indicator
Differential indicators		
DEA	Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM	Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU	Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA	Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

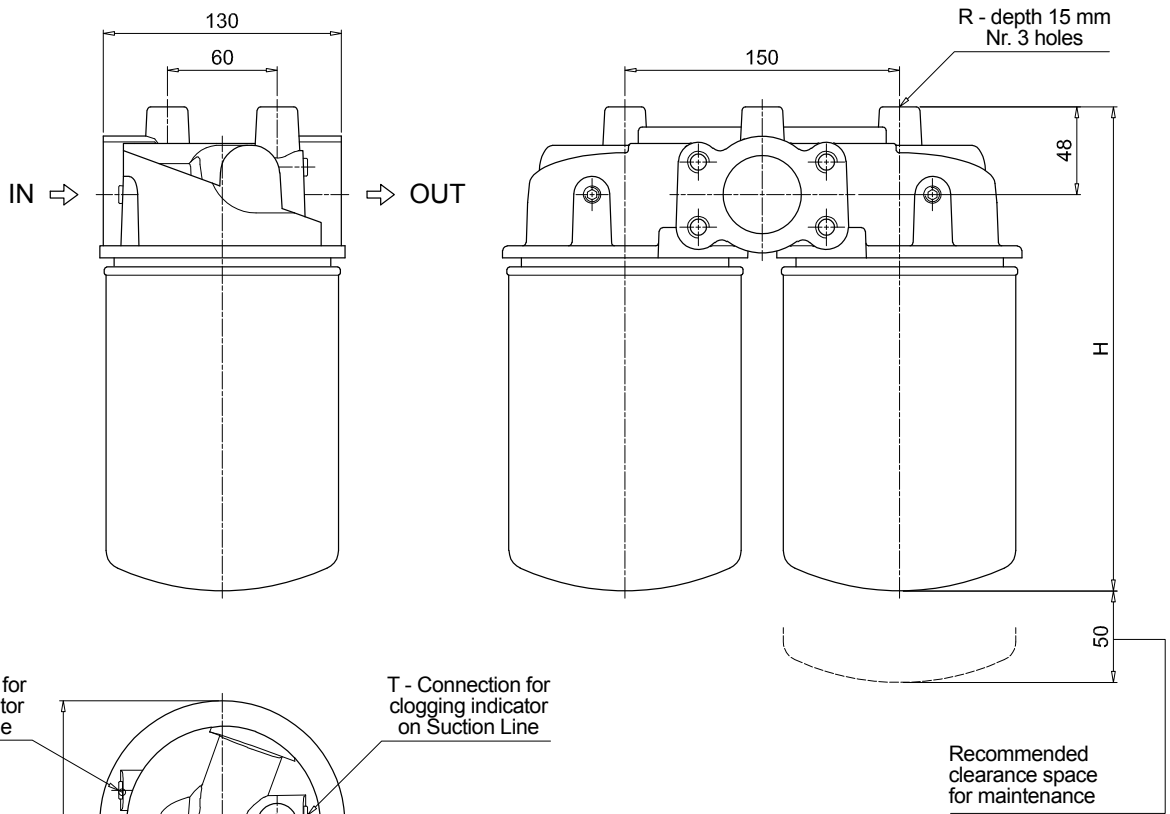
See page 743

T2	Plug (not included)
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MPS300 - MPS350

Filter size	H [mm]
300	266
350	315

Connections	T	R
G1	G 1/8"	M10
G2-G3	1/8" NPT	7/16" UNC
F1	G 1/8"	M10
F2	1/8" NPT	7/16" UNC



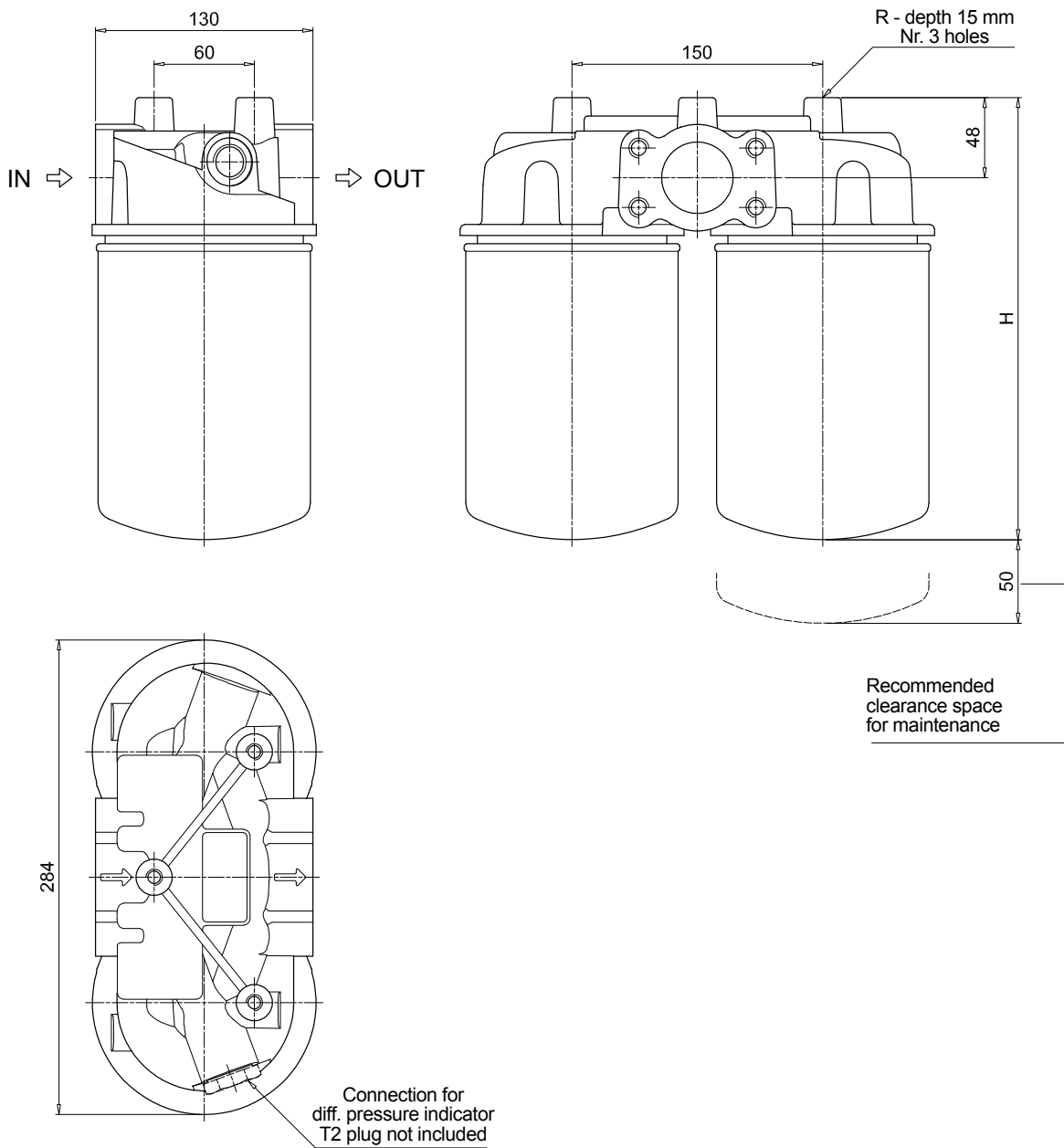
MPS MPS300 - MPS350 MPS301 - MPS351

Dimensions

MPS301 - MPS351

Filter size	H [mm]
301	266
351	315

Connections	R
G1	M10
G2-G3	7/16" UNC
F1	M10
F2	7/16" UNC



MSH series

Maximum working pressure up to 3.5 MPa (35 bar) - Flow rate up to 195 l/min



Description

Technical data

Spin-on filters

Maximum working pressure up to 3.5 MPa (35 bar)

Flow rate up to 195 l/min

MSH is a range of spin-on filters suitable to be used in low pressure lines. They offer a good balance between performances, dimensions and prices. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 195 l/min
- Fine filtration rating, to get a good cleanliness level into the reservoir
- Strong sealing between the housing and cans, to be used in heavy applications
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical and electronic differential clogging indicators for low pressure applications

Common applications:

- Delivery lines, in economic industrial equipment or mobile machines

Filter housing materials

- Head: Anodized Aluminium
- Bypass valve: Nylon - Steel
- Element: Aluminium - Painted Steel

Bypass valve

Opening pressure: 250 kPa (2.5 bar) ±10%

Δp element type

- Δp: 5 bar
- Oil flow from OUT to IN

Seals

- Standard NBR - series A
- Optional FPM - series V

Temperature

From -20 °C to +110 °C

Note

MSH filters are provided for vertical mounting



Weights [kg] and volumes [dm³]

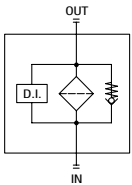
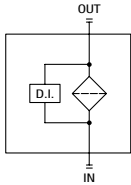
Filter series	Weights [kg]	Volumes [dm ³]
MSH 050	1.50	0.65
MSH 070	1.90	0.95
MSH 100	3.30	1.80
MSH 150	3.80	2.20

Cartridge

Thread connections	
Type	Connection
CH 050 - 070	M32 x 2
CH 100 - 150	M45 x 2

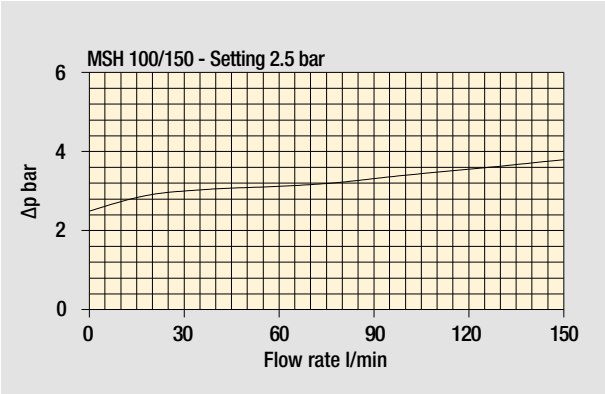
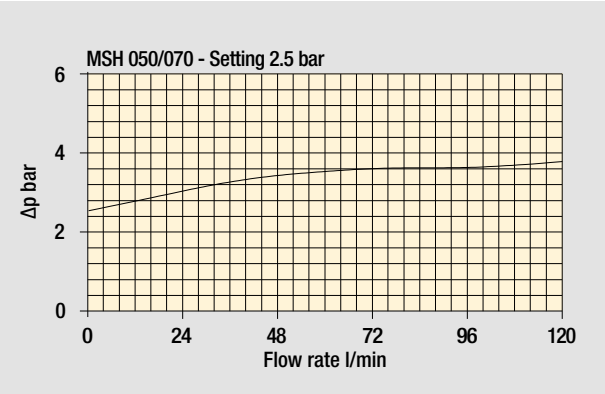
CH

Filter series	Style S	Style B
MSH 050	•	•
MSH 070	•	•
MSH 100	•	•
MSH 150	•	•



Pressure drop

Bypass valve 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.

MSH MSH050 - MSH070 MSH100 - MSH150

Designation & Ordering code

COMPLETE FILTER

Series and size **MSH050** | **MSH070** | **MSH100** | **MSH150** Configuration example: **MSH050** **B** **A** **G1** **A10** **P01**

Bypass valve
S Without bypass
B 2.5 bar

Seal
A NBR

Connections	MSH 050 - 070	MSH 100 - 150
G1	G 1"	G 1 1/2"
G2	G 3/4"	G 1 1/4"
G3	1" NPT	1 1/2" NPT
G4	3/4" NPT	1 1/4" NPT
G5	SAE 16 - 1 5/16" - 12 UN	SAE 24 - 1 7/8" - 12 UN
G6	SAE 12 - 1 1/16" - 12 UN	SAE 20 - 1 5/8" - 12 UN

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A25 Inorganic microfiber 25 µm	P10 Resin impregnated paper 10 µm
	P25 Resin impregnated paper 25 µm

Execution
P01 MP Filtri standard

CARTRIDGE

Cartridge series and size **CH050** | **CH070** | **CH100** | **CH150** Configuration example: **CH050** **A10** **A** **P01**

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A25 Inorganic microfiber 25 µm	P10 Resin impregnated paper 10 µm
	P25 Resin impregnated paper 25 µm

Seal
A NBR

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 720-721

Differential pressure indicators

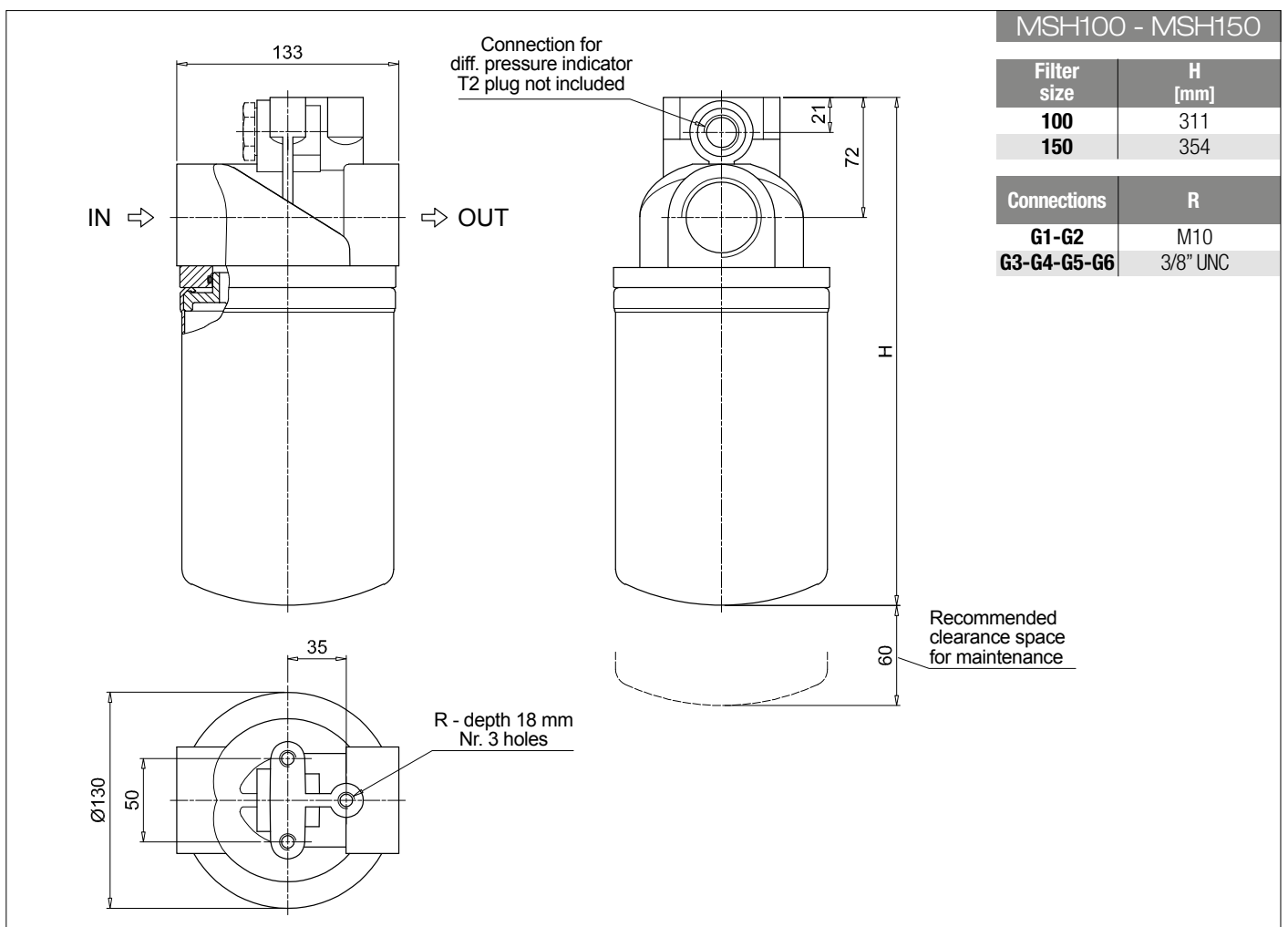
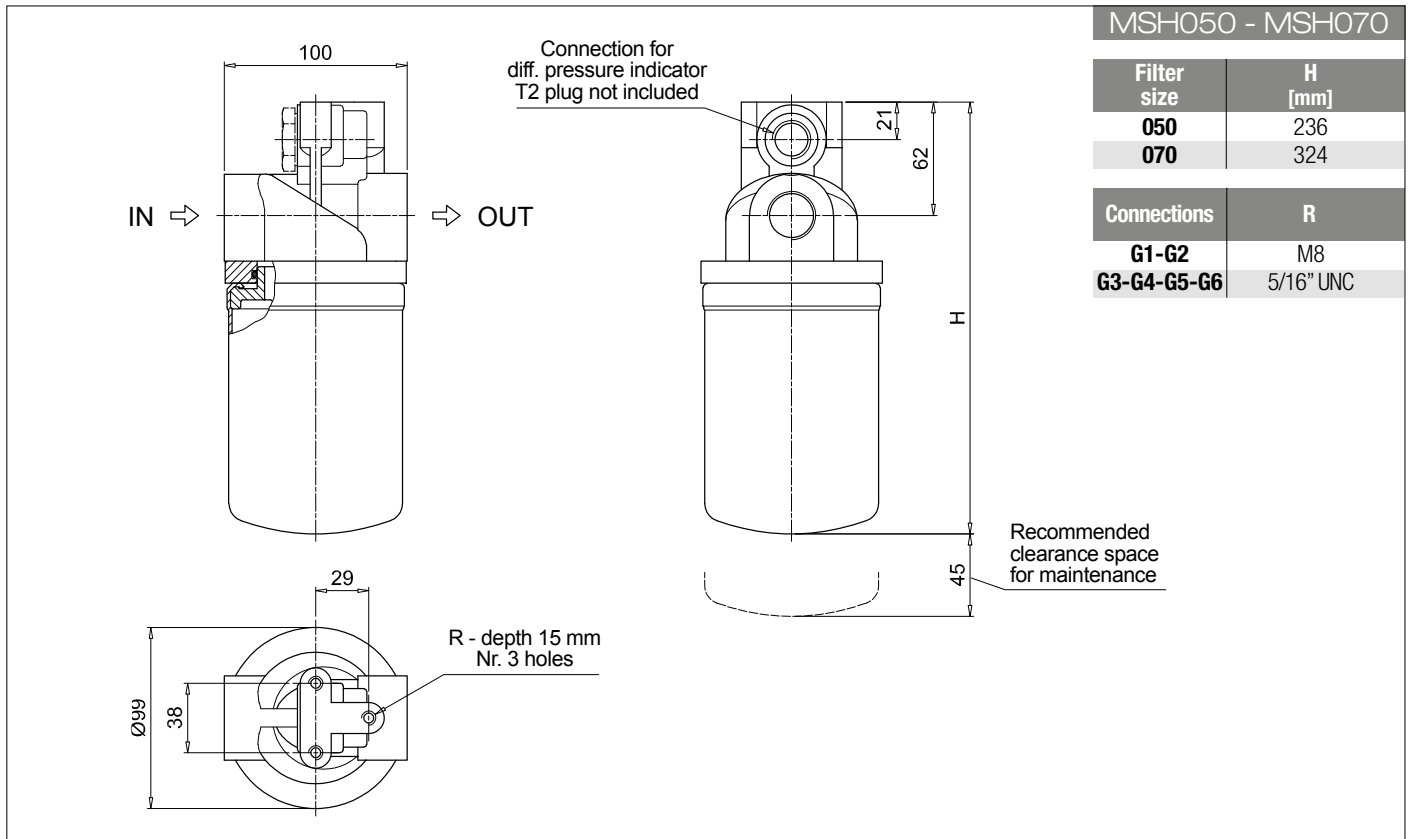
DEA Electrical differential pressure indicator
DEM Electrical differential pressure indicator
DLA Electrical / visual differential pressure indicator
DLE Electrical / visual differential pressure indicator

DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

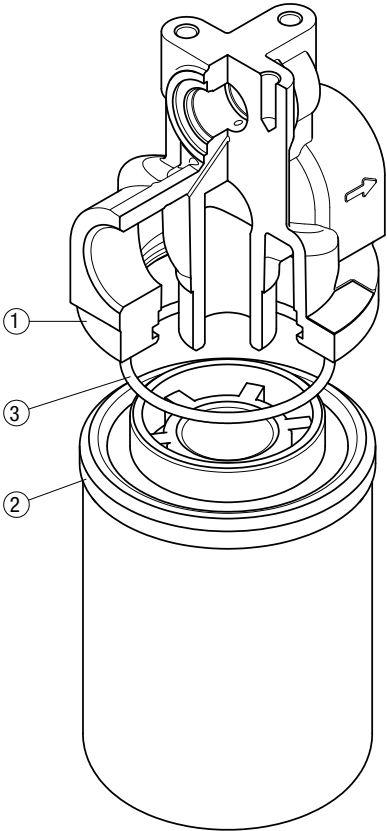
See page 743

T2 Plug (not included)



MSH SPARE PARTS

Order number for spare parts



Item:	Q.ty: 1 pc. 1	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3
Filter series	Filter assembly	Cartridge	Seal code number
MSH 050-070	See order table	See order table	0-R 167 (ø 63.50 x 3.53)
MSH 100-150	See order table	See order table	0-R 4362 (ø 91.67 x 3.53)

LMP - low and medium pressure filters are used as process filters to protect pumps, pressure reducers and hydraulic circuits from damage due to oil contamination as per ISO 4406.

LMP series is available in 5 different sizes: 100, 200, 400, 900 and 950 and a wide range of versions.

LMP filters are available with several working pressures suitable for all hydraulic circuits as:

- **return filters in external tank mounting construction for medium and high flow rates in single and duplex versions**
- **in-line filters for low and medium pressures for off-line applications**
- **in-line process filters for medium pressures, for example, for forced lubrication applications, in single or duplex versions**
- **in-line filters for medium pressures for filtering hydraulic boost circuits**
- **in-line filters as high holding capacity filters on test beds**

LMP filters are thus specifically designed to be suitable for a wide range of application: from steel plants to mobile equipments, from test benches to naval application, providing the right solution for filtering requirements in all sectors.

LMP filters are available in single, manifold and duplex versions (LMD series).

FILTER SIZING

For the proper calculation see pag. 22

Low & Medium Pressure filters



LFEX ELIXIR®	page 322
LMP 110	333
LMP 113 - 123 MULTIPORT	341
LMP 210 - 211	357
LPH 630	367
LMP 400 - 401	375
LMP 430 - 431	383
LMP 950 - 951	391
LMP 952 - 953 - 954	399

LMD 211	page 411
LMD 400 - 401 & 431	419
LMD 951	435

Filter element according to DIN 24550	page 443
LDP - LDD	445
LMP 900 - 901	455
LMP 902 - 903	463
ACCESSORIES	472
INDICATORS	722



THE **X** CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

LFEX series

with **MYCLEAN** FEX Filter Element



- **Protects the machine from improper use of non-original products.**
- **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.



The products identified as LFEX are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1

LFEX series

Maximum working pressure up to 1.6 MPa (16 bar) - Flow rate up to 300 l/min



ELIXIR®

INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



Please scan the QR codes to get updated electronic version of the related document:



LFEX060



LFEX080



LFEX110



LFEX160

Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 1.6 MPa (16 bar)
Flow rate up to 300 l/min

LFEX is a range of low pressure filter for protection of sensitive components in low pressure hydraulic systems. They are also suitable for the off-line filtration of small reservoirs. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4" and SAE connections up to 1 5/8", for a maximum flow rate of 300 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid
- Bypass valve, to relieve excessive pressure drop across the filter media
- NEW Visual and electrical differential clogging indicators, capable to hold the overall dimension
- MYclean interface connection for the filter element, to protect the product against non-original spare parts
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

Delivery lines, in any low pressure industrial equipment or mobile machines

Filter housing materials

- Head: Aluminium
- Bypass valve: Polyamide - Steel
- Bowl: Polyamide

Bypass valve

Opening pressure 350 kPa (3.5 bar) ±10%

Δp element type

- Microfibre filter elements - series N: 8 bar
- Fluid flow through the filter element from OUT to IN

Seals

Standard NBR series A

Temperature

From -25 °C to +110 °C

Note

LFEX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
LFEX 060	1.00	0.60
LFEX 080	1.15	0.80
LFEX 110	1.90	1.60
LFEX 160	2.10	2.00

Hydraulic symbols

Filter series	Style S	Style B
LFEX 060	•	•
LFEX 080	•	•
LFEX 110	•	•
LFEX 160	•	•

Flow rates [l/min]

Filter element design - N Series										
Filter series	A03	A06	A10	A16	A25	M25	M60	M90	P10	P25
LFE^X 060	49	51	75	77	80	104	105	107	74	95
LFE^X 080	67	67	86	87	92	107	108	110	96	112

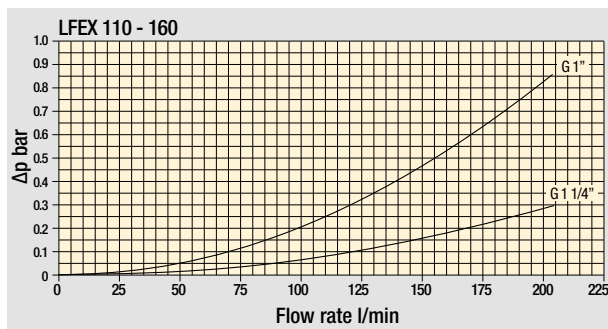
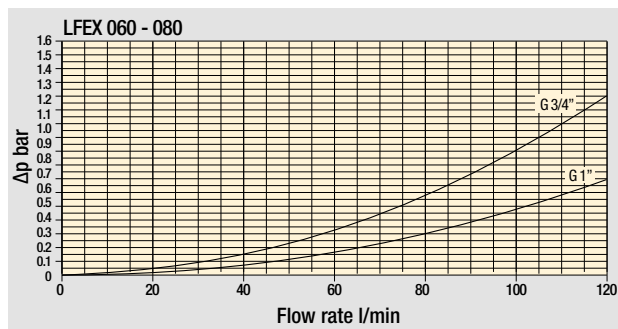
Filter series	A03	A06	A10	A16	A25	M25	M60	M90	P10	P25
LFE^X 110	107	115	182	195	216	295	298	300	232	242
LFE^X 160	146	150	210	212	237	300	303	304	254	262

Maximum flow rate for a complete delivery filter with a pressure drop $\Delta p = 0.7$ bar.

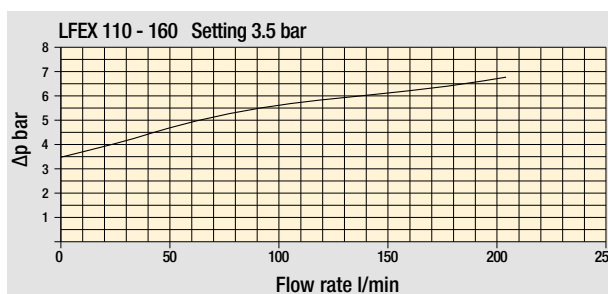
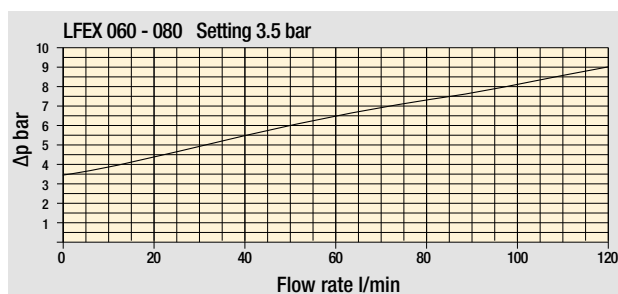
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

Please, contact our Sales Department for further additional information.



Pressure drop
Filter housings
 Δp pressure drop



Bypass valve
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.

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **LFEX060** **B** **A** **A** **6** **A10** **N** **P01**

LFEX060 | **LFEX080** Filter featuring  Filter Element

Bypass valve

- S** Without bypass
- B** With bypass 3.5 bar

Seals and treatments

- A** NBR

Connections

- A** G 3/4"
- B** G 1"
- C** 3/4" NPT
- D** 1" NPT
- E** SAE 12 - 1 1/16" - 12 UN
- F** SAE 16 - 1 5/16" - 12 UN

Connection for clogging indicator

- 1** Without
- 6** With plugged connections

Filtration rating

A03 Inorganic microfiber	3 µm	M25 Wire mesh	25 µm
A06 Inorganic microfiber	6 µm	M60 Wire mesh	60 µm
A10 Inorganic microfiber	10 µm	M90 Wire mesh	90 µm
A16 Inorganic microfiber	16 µm	P10 Resin impregnated paper	10 µm
A25 Inorganic microfiber	25 µm	P25 Resin impregnated paper	25 µm

WA025 Water absorber inorganic microfiber 25 µm

Element Δp

N 8 bar

Execution

P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size Configuration example: **FEX060** **A10** **A** **N** **P01**

FEX060 | **FEX080** Filter Element with  feature

Filtration rating

A03 Inorganic microfiber	3 µm	M25 Wire mesh	25 µm
A06 Inorganic microfiber	6 µm	M60 Wire mesh	60 µm
A10 Inorganic microfiber	10 µm	M90 Wire mesh	90 µm
A16 Inorganic microfiber	16 µm	P10 Resin impregnated paper	10 µm
A25 Inorganic microfiber	25 µm	P25 Resin impregnated paper	25 µm

WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments

- A** NBR

Element Δp

N 8 bar

Execution

P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

DES Electrical differential pressure indicator

DVS Visual differential pressure indicator

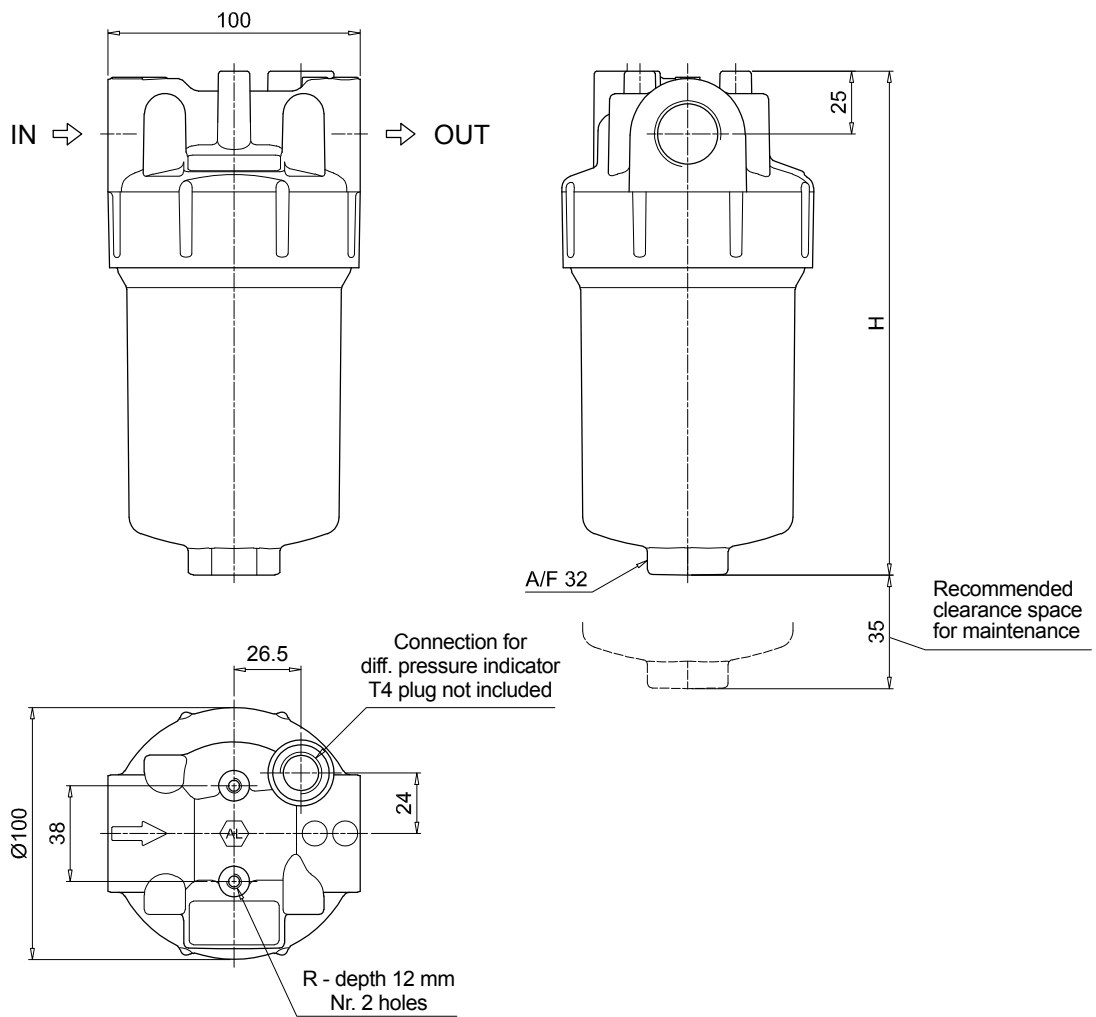
PLUGS

See page 743

T4 Plug

Filter size	H [mm]
060	202
080	265

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



LFEX LFEX110 - LFEX160

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **LFEX110** **B** **A** **A** **6** **A10** **N** **P01**

LFEX110 | **LFEX160** Filter featuring  Filter Element

Bypass valve

- S** Without bypass
- B** With bypass 3.5 bar

Seals and treatments

- A** NBR

Connections

- A** G 1"
- B** G 1 1/4"
- C** 1" NPT
- D** 1 1/4" NPT
- E** SAE 16 - 1 5/16" - 12 UN
- F** SAE 20 - 1 5/8" - 12 UN

Connection for clogging indicator

- 1** Without
- 6** With plugged connections

Filtration rating

A03 Inorganic microfiber	3 µm	M25 Wire mesh	25 µm
A06 Inorganic microfiber	6 µm	M60 Wire mesh	60 µm
A10 Inorganic microfiber	10 µm	M90 Wire mesh	90 µm
A16 Inorganic microfiber	16 µm	P10 Resin impregnated paper	10 µm
A25 Inorganic microfiber	25 µm	P25 Resin impregnated paper	25 µm

WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 8 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size Configuration example: **FEX110** **A10** **A** **N** **P01**

FEX110 | **FEX160** Filter Element with  feature

Filtration rating

A03 Inorganic microfiber	3 µm	M25 Wire mesh	25 µm
A06 Inorganic microfiber	6 µm	M60 Wire mesh	60 µm
A10 Inorganic microfiber	10 µm	M90 Wire mesh	90 µm
A16 Inorganic microfiber	16 µm	P10 Resin impregnated paper	10 µm
A25 Inorganic microfiber	25 µm	P25 Resin impregnated paper	25 µm

WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments

- A** NBR

Element Δp
N 8 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

DES Electrical differential pressure indicator

DVS Visual differential pressure indicator

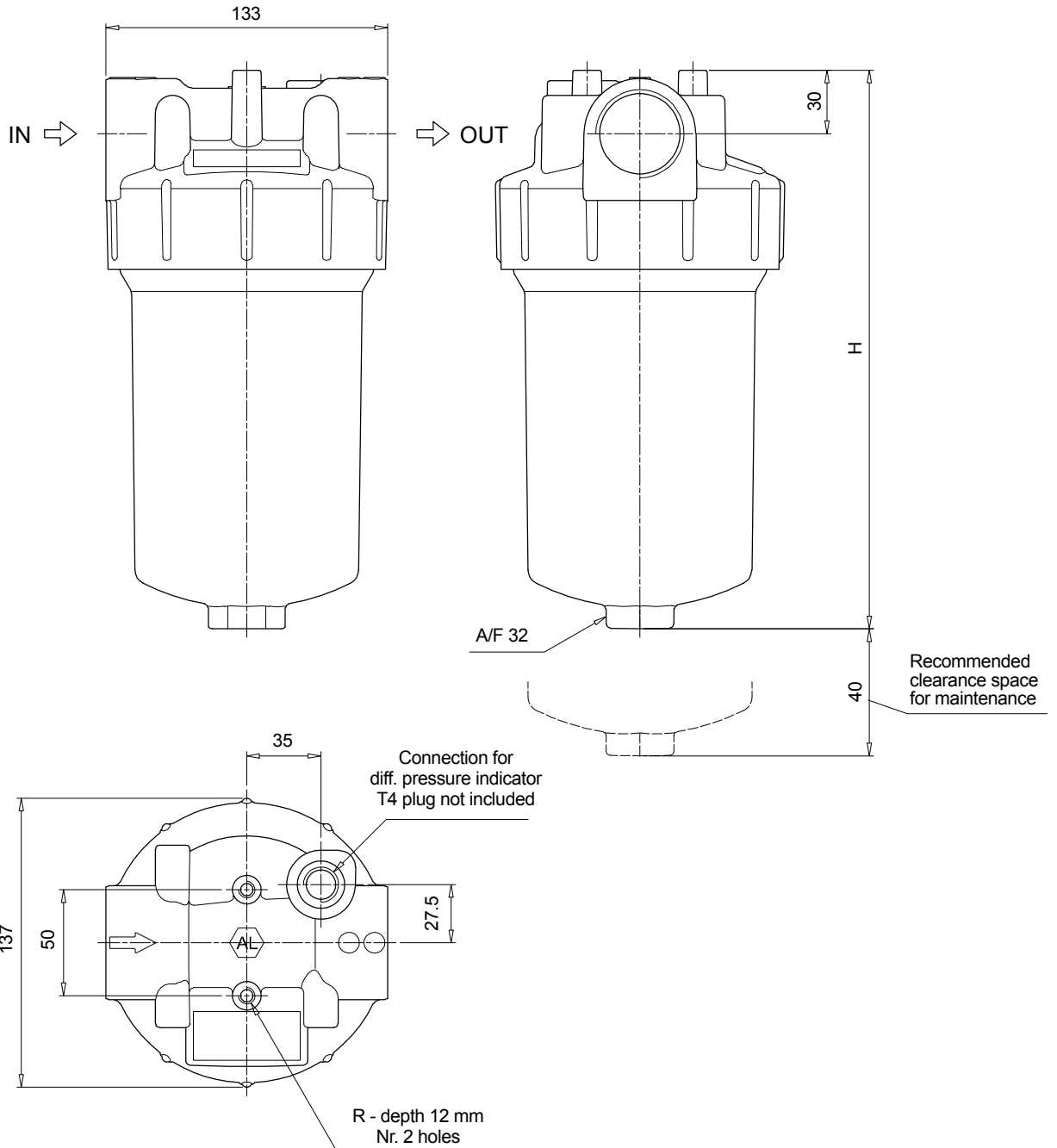
PLUGS

See page 743

T4 Plug

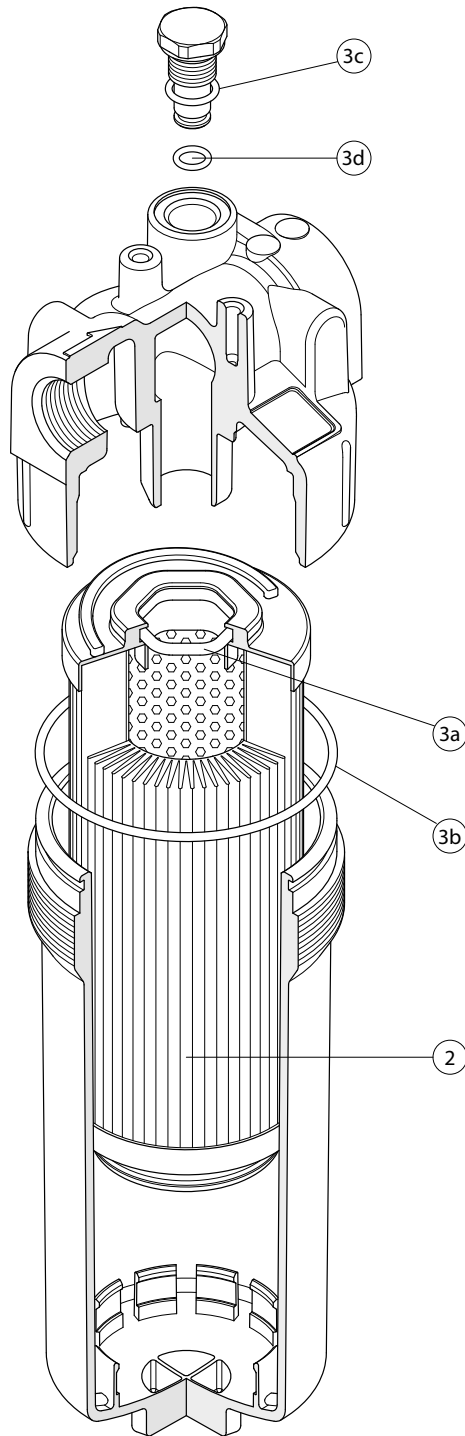
Filter size	H [mm]
110	266
160	315

Connections	R
A	M8
B	M8
C	5/16" UNC
D	5/16" UNC
E	5/16" UNC
F	5/16" UNC



LFEX SPARE PARTS

Order number for spare parts



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.
	2	3 (3a ÷ 3d)	4
Filter series	Filter element	Seal Kit code number NBR	Indicator connection plug NBR
LFEX 060-080	See order table	02050771	T4A
LFEX 110-160		02050772	

LMP 110 series

Maximum working pressure up to 8 MPa (80 bar) - Flow rate up to 165 l/min



LMP 110 GENERAL INFORMATION

Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 8 MPa (80 bar)
Flow rate up to 165 l/min

LMP110 is a range of versatile low pressure filter for transmission, protection of sensitive components in low pressure hydraulic systems and filtration of the coolant into the machine tools. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1", for a maximum return flow rate of 165 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
- Visual, electrical and electronic differential clogging indicators.

Common applications:

Delivery lines, in any low pressure industrial equipment or mobile machines

Filter housing materials

- Head: Aluminium
- Housing: Cataphoresis - Painted steel
- Bypass valve: Brass - Aluminium

Pressure

- Test pressure: 12 MPa (120 bar)
- Burst pressure: 29 MPa (290 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 8 MPa (80 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) $\pm 10\%$
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N - W: 20 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

LMP filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
LMP 110		1.60	1.80	2.10	2.60		0.75	0.81	1.11	1.53

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
LMP 110	1	40	42	65	69	85	163	117	120
	2	49	57	83	83	101	163	136	138
	3	66	70	92	102	124	164	142	144
	4	86	102	118	124	144	165	148	149

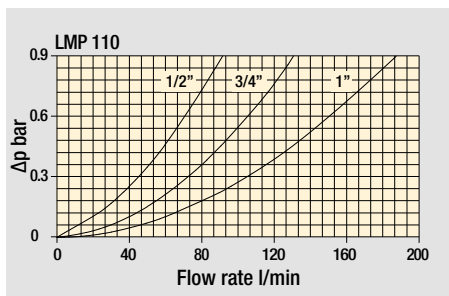
Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

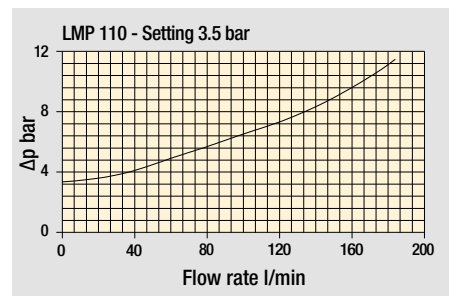
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Pressure drop



Filter housings Δp pressure drop



Bypass valve 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.

Hydraulic symbols

Filter series	In-Line filter
LMP 110	

LMP 110

Designation & Ordering code

COMPLETE FILTER

Series and size **LMP110** Configuration example: **LMP110** **4** **B** **A** **D** **1** **A10** **N** **P01**

Length
1 | **2** | **3** | **4** |

Bypass valve
S Without bypass | **B** With bypass 3.5 bar

Seals and treatments
A NBR
V FPM

Connections

	Aux (only LMP 112 - 116)
A G 3/4"	G 3/4"
B G 1"	G 3/4"
C 3/4" NPT	3/4" NPT
D 1" NPT	3/4" NPT
E SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN
F SAE 16 - 1 5/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN

Connection for differential pressure indicator
1 Without
2 With standard connection
3 With connection on the opposite side
6 With two connections on both sides

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size **CU110** Configuration example: **CU110** **4** **A10** **A** **N** **P01**

Element length
1 | **2** | **3** | **4** |

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals and treatments
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

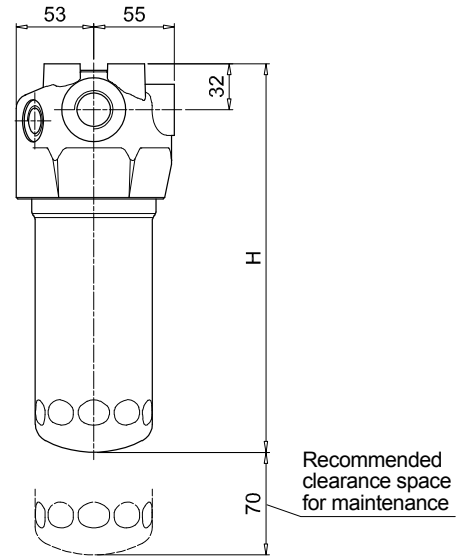
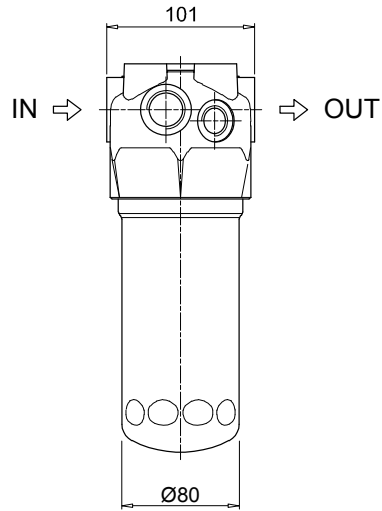
DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

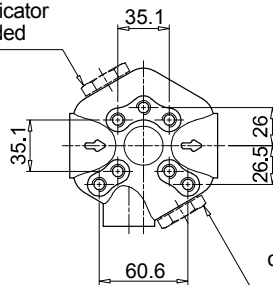
See page 743

T2 Plug (not included)

LMP110	
Filter length	H [mm]
1	182
2	215
3	265
4	365

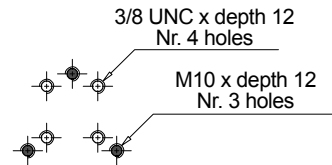


2 - Standard connection for diff. pressure indicator
T2 plug not included

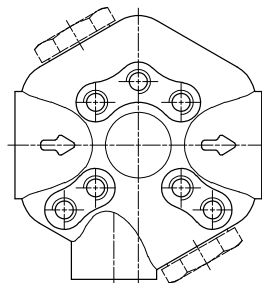


3 - Connection for diff. pressure indicator on the opposite side
T2 plug not included

Fixing holes
Option for Metric and UNC screws

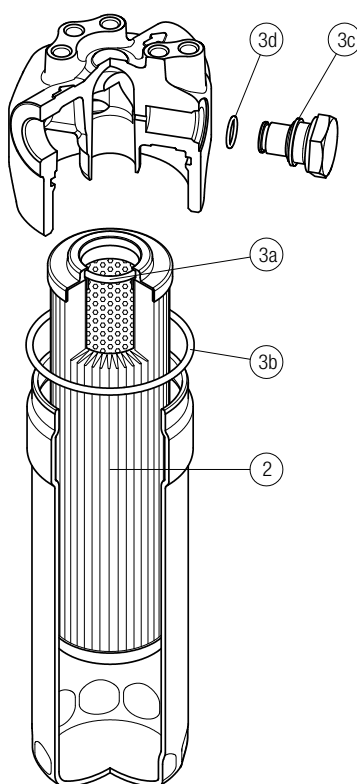


LMP 110



Order number for spare parts

LMP 110



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
		NBR	FPM	NBR	FPM
LMP 110	See order table	02050478	02050479	T2H	T2V

LMP 112 / 123 series

MULTI PORT

Maximum working pressure up to 8 MPa (80 bar) - Flow rate up to 175 l/min



Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 8 MPa (80 bar)
Flow rate up to 175 l/min

LMP MULTIPOINT filters is a range of versatile low pressure filter for transmission, protection of sensitive components in low pressure hydraulic systems and filtration of the coolant into the machine tools. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1", for a maximum return flow rate of 175 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
- Visual, electrical and electronic differential clogging indicators
- Multiport and multifunction schemes, to meet any type of application.
- LMP112: 3/4" additional input port
- LMP116: 3/4" additional output port
- LMP118: 3/4" bypass port, to send the bypass flow to the reservoir instead of the system
- LMP119: 3/4" relief port, to relief the input pressure in the filter, protecting the components downstream the filter against back pressure caused by the pressure drop (cold starts)
- LMP120: connections placed in the same side
- LMP122: connections placed in the same side and 1" additional output port
- LMP123: 2 and 3 bar integrated relief valve

Common applications:

Delivery lines, in any low pressure industrial equipment or mobile machines

Filter housing materials

- Head: Aluminium
- Housing: Cataphoresis - Painted steel
- Bypass valve: Brass - Aluminium

Pressure

- Test pressure: 12 MPa (120 bar)
- Burst pressure:
 - LMP 112/119: 29 MPa (290 bar)
 - LMP 120/123: 38 MPa (380 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 8 MPa (80 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N - W: 20 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

LMP MULTIPOINT filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
LMP 112-116-118-119		1.60	1.80	2.10	2.60		0.75	0.81	1.11	1.53
LMP 120-122		1.90	2.10	2.40	2.90		0.75	0.81	1.11	1.53
LMP 123		1.70	1.90	2.20	2.70		0.75	0.81	1.11	1.53

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
LMP 112	1	36	38	55	57	67	105	84	86
	2	44	49	66	66	76	105	93	94
	3	56	58	71	77	87	106	96	97
	4	67	77	85	88	97	106	99	99
LMP 116	1	36	38	54	56	64	96	79	80
	2	43	49	63	64	72	96	86	87
	3	54	57	68	73	82	96	88	89
	4	65	73	79	82	89	96	91	91
LMP 118	1	40	42	65	69	85	163	117	120
	2	49	57	83	83	101	163	136	138
LMP 119	3	66	70	92	102	124	164	142	144
	4	86	102	118	124	144	165	148	149
LMP 120	1	40	43	66	70	87	172	121	125
	2	50	58	85	85	104	172	142	144
	3	67	71	94	105	129	173	149	151
	4	88	106	122	129	151	174	155	157
LMP 122	1	39	42	64	67	81	146	109	111
	2	49	56	80	80	96	146	124	126
	3	65	68	88	96	114	146	129	130
	4	82	97	110	115	131	147	134	135

Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
LMP 123	1	35	37	50	52	59	83	70	71
	2	41	46	58	58	65	83	76	76
	3	51	53	62	65	72	83	77	78
	4	59	65	70	72	78	83	79	79

Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 2.7$ bar.

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

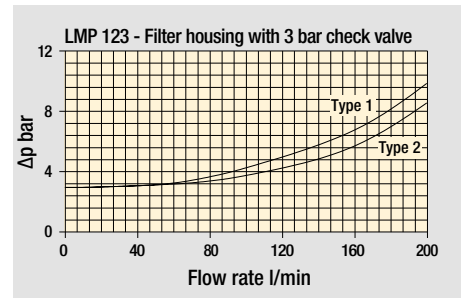
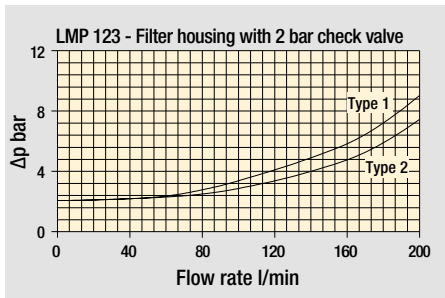
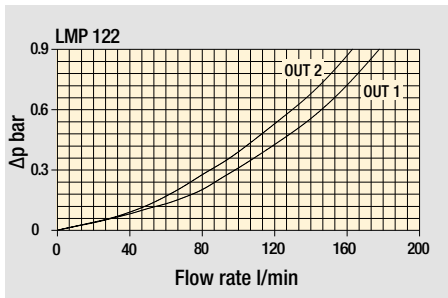
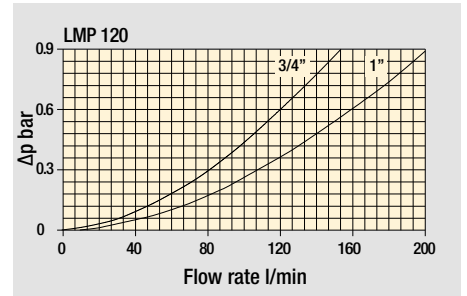
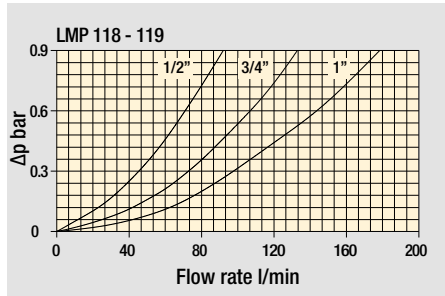
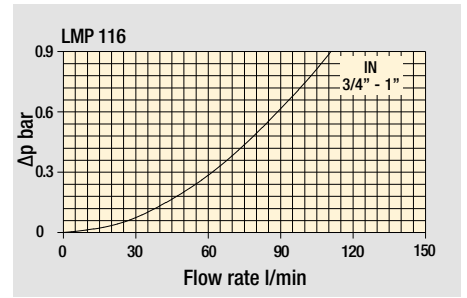
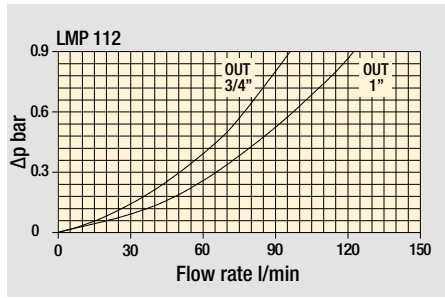
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

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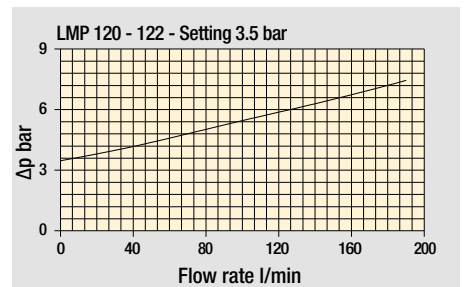
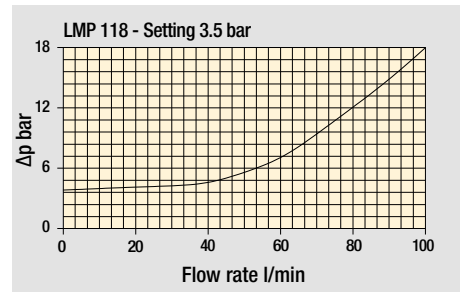
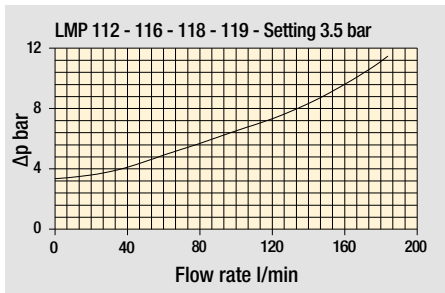
Please, contact our Sales Department for further additional information.

Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

LMP 112 Double IN port

LMP 120 Port IN-OUT on the same side

LMP 116 Double OUT port

LMP 122 Lateral OUT port high flow

OUT 1 Plug not provided

LMP 118 Bypass lateral
Always cleaning fluid in OUT port

LMP 123 Bypass valve
Type 1 for heat exchanger high flow

LMP 119 Safety valve 6 bar
for heat exchanger

LMP 123 Type 2

Designation & Ordering code

COMPLETE FILTER

Series and size **LMP112 | LMP116** Configuration example: **LMP112** **4** **B** **A** **D** **1** **A10** **N** **P01**

Length **1** | **2** | **3** | **4**

Bypass valve **S** Without bypass **B** With bypass 3.5 bar

Seals and treatments **A** NBR **V** FPM

Connections		Aux (only LMP 112 - 116)
A G 3/4"	G 3/4"	G 3/4"
B G 1"	G 3/4"	G 3/4"
C 3/4" NPT	3/4" NPT	3/4" NPT
D 1" NPT	3/4" NPT	3/4" NPT
E SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN
F SAE 16 - 1 5/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN

Connection for differential pressure indicator **1** Without **2** With standard connection **3** With connection on the opposite side **6** With two connections on both sides

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp **N** 20 bar Execution **P01** MP Filtri standard **Pxx** Customized

FILTER ELEMENT

Element series and size **CU110** Configuration example: **CU110** **4** **A10** **A** **N** **P01**

Element length **1** | **2** | **3** | **4**

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals and treatments **A** NBR **V** FPM Element Δp **N** 20 bar Execution **P01** MP Filtri standard **Pxx** Customized

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

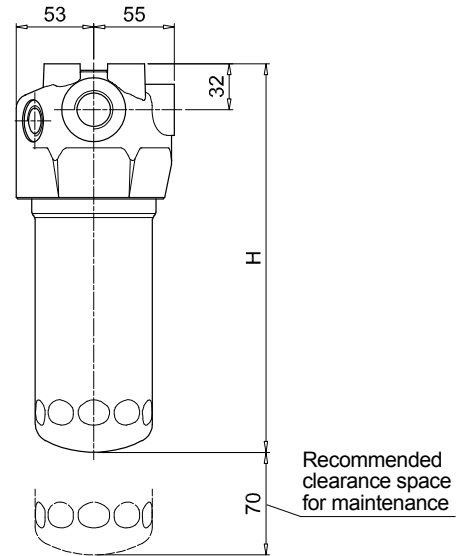
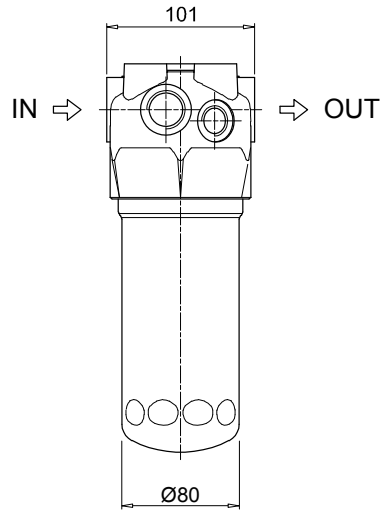
PLUGS

See page 743

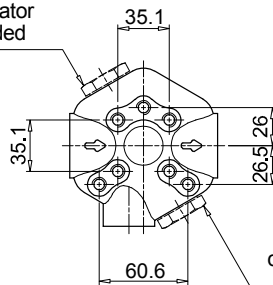
T2 Plug (not included)

LMP112 - LMP116

Filter length	H [mm]
1	182
2	215
3	265
4	365

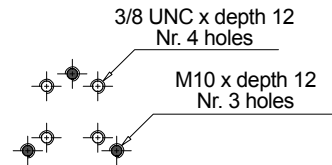


2 - Standard connection for diff. pressure indicator
T2 plug not included

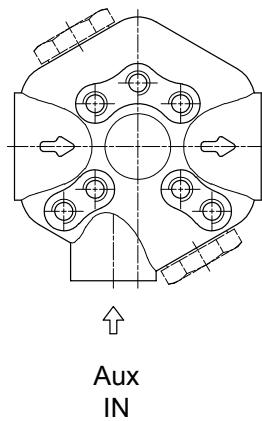


3 - Connection for diff. pressure indicator
on the opposite side
T2 plug not included

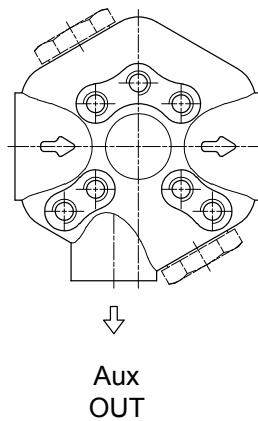
Fixing holes
Option for Metric and UNC screws



LMP 112



LMP 116



Designation & Ordering code

COMPLETE FILTER

Series and size **LMP118 | LMP119** Configuration example: **LMP118** **4** **B** **A** **D** **1** **A10** **N** **P01**

Length
1 | **2** | **3** | **4** |

Bypass valve
B With bypass 3.5 bar

Seals and treatments
A NBR
V FPM

Connections		Aux OUT
A G 3/4"	G 3/4"	
B G 1"	G 3/4"	
C 3/4" NPT	3/4" NPT	
D 1" NPT	3/4" NPT	
E SAE 12 - 1 1/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN	
F SAE 16 - 1 5/16" - 12 UN	SAE 12 - 1 1/16" - 12 UN	

Connection for differential pressure indicator
1 Without
2 With standard connection

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size **CU110** Configuration example: **CU110** **4** **A10** **A** **N** **P01**

Element length
1 | **2** | **3** | **4** |

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals and treatments
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

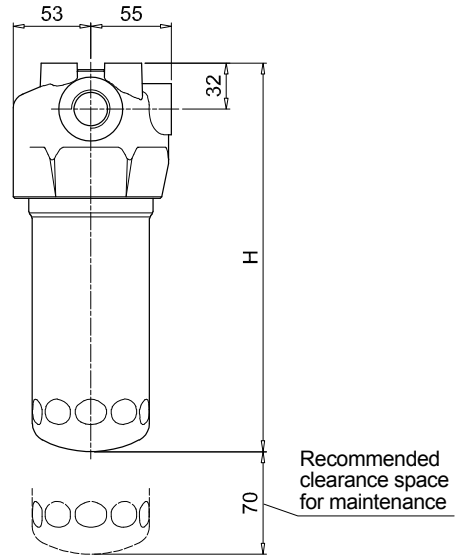
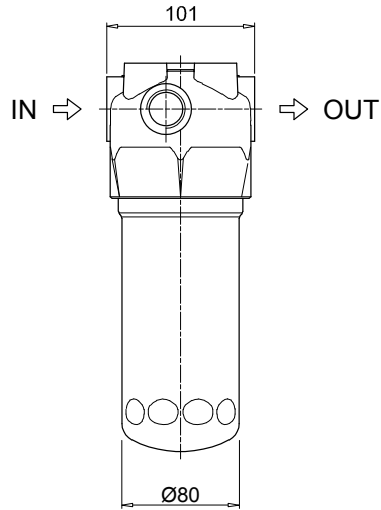
PLUGS

See page 743

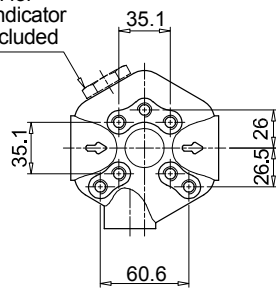
T2 Plug (not included)

LMP118 - LMP119

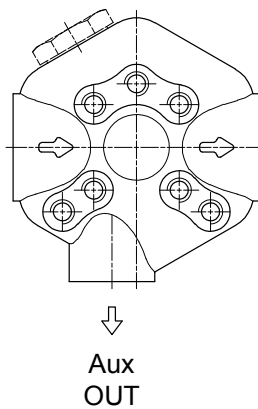
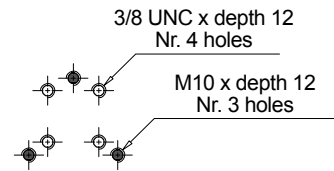
Filter length	H [mm]
1	182
2	215
3	265
4	365



Connection for diff. pressure indicator
T2 plug not included



Fixing holes
Option for Metric and UNC screws



Designation & Ordering code

COMPLETE FILTER

Series and size **LMP120 | LMP122** Configuration example: **LMP120** **4** **B** **A** **D** **1** **A10** **N** **P01**

Length
1 | 2 | 3 | 4

Bypass valve
S Without bypass **B** With bypass 3.5 bar

Seals and treatments
A NBR
V FPM

Connections	LMP120	LMP122
A G 3/4"	•	-
B G 1"	•	•
C 3/4" NPT	•	-
D 1" NPT	•	•
E SAE 12 - 1 1/16" - 12 UN	•	-
F SAE 16 - 1 5/16" - 12 UN	•	•

Connection for differential pressure indicator
1 Without
2 With standard connection

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size **CU110** Configuration example: **CU110** **4** **A10** **A** **N** **P01**

Element length
1 | 2 | 3 | 4

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

Seals and treatments
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

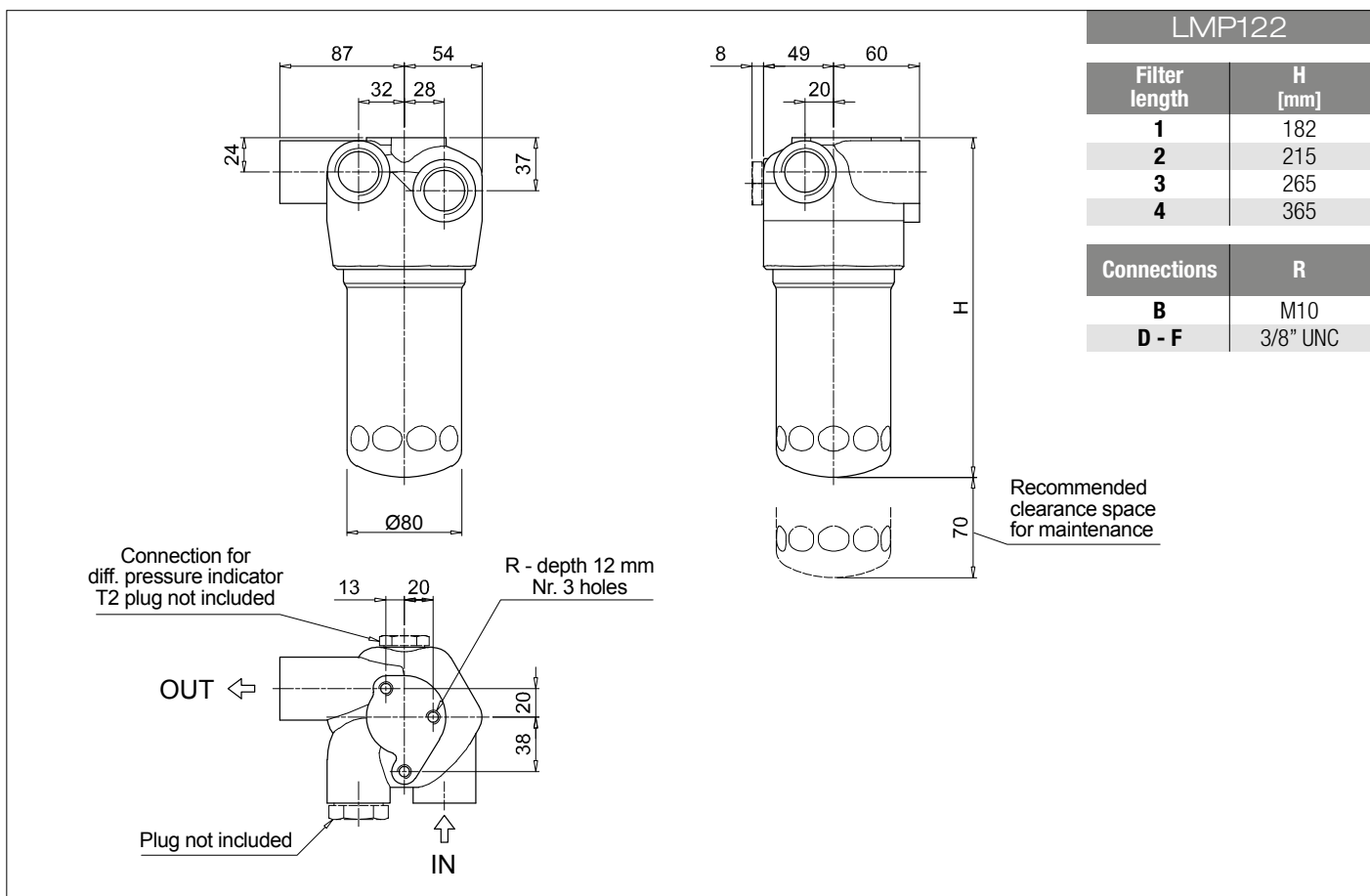
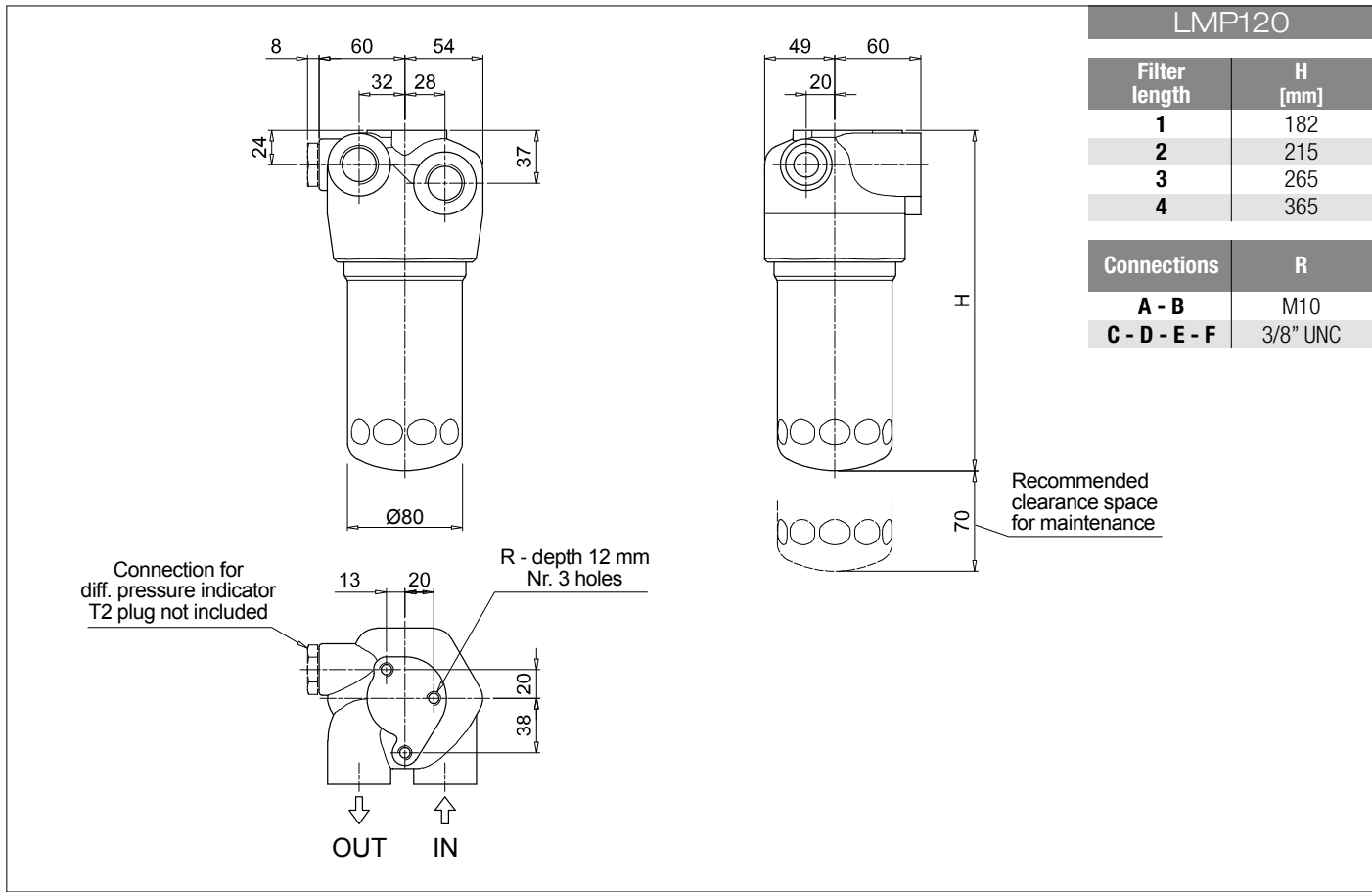
See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug



Designation & Ordering code

COMPLETE FILTER

Series and size **LMP123** Configuration example: **LMP123** **4** **R** **A** **F** **1** **A10** **N** **P01**

Length
1 | 2 | 3 | 4

Valves	Bypass	OUT to cooler	Check valve
C	without	front	2 bar
D			3 bar
G		side	2 bar
H			3 bar
M	With bypass 3.5 bar	front	2 bar
N			3 bar
Q		side	2 bar
R			3 bar

Seals and treatments
A NBR
V FPM

Connections
B G 1"
F SAE 16 - 1 5/16" - 12 UN

Connection for differential pressure indicator
1 Without
2 With standard 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
M25 Wire mesh 25 µm
M60 Wire mesh 60 µm
M90 Wire mesh 90 µm
P10 Resin impregnated paper 10 µm
P25 Resin impregnated paper 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size **CU110** Configuration example: **CU110** **4** **A10** **A** **N** **P01**

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
M25 Wire mesh 25 µm
M60 Wire mesh 60 µm
M90 Wire mesh 90 µm
P10 Resin impregnated paper 10 µm
P25 Resin impregnated paper 25 µm

Seals and treatments
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

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

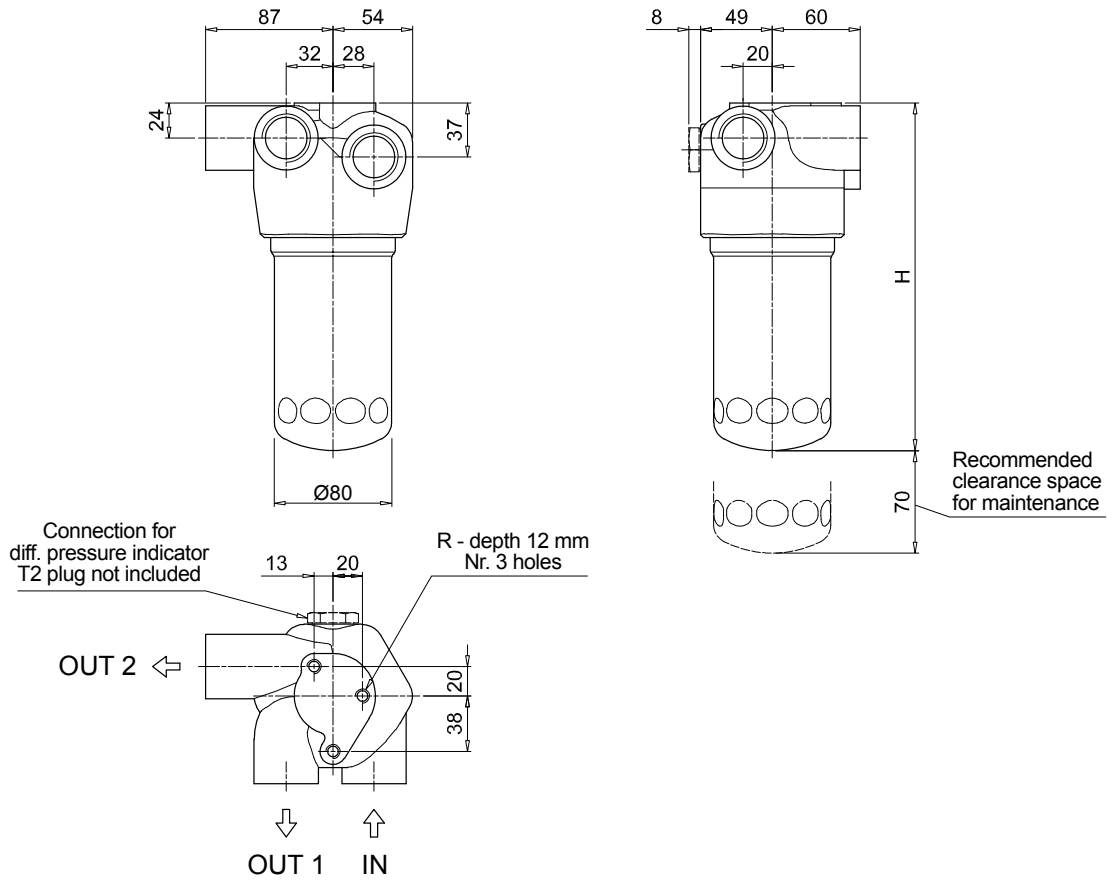
DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug

LMP123	
Filter length	H [mm]
1	182
2	215
3	265
4	365
Connections	R
B	M10
F	3/8" UNC

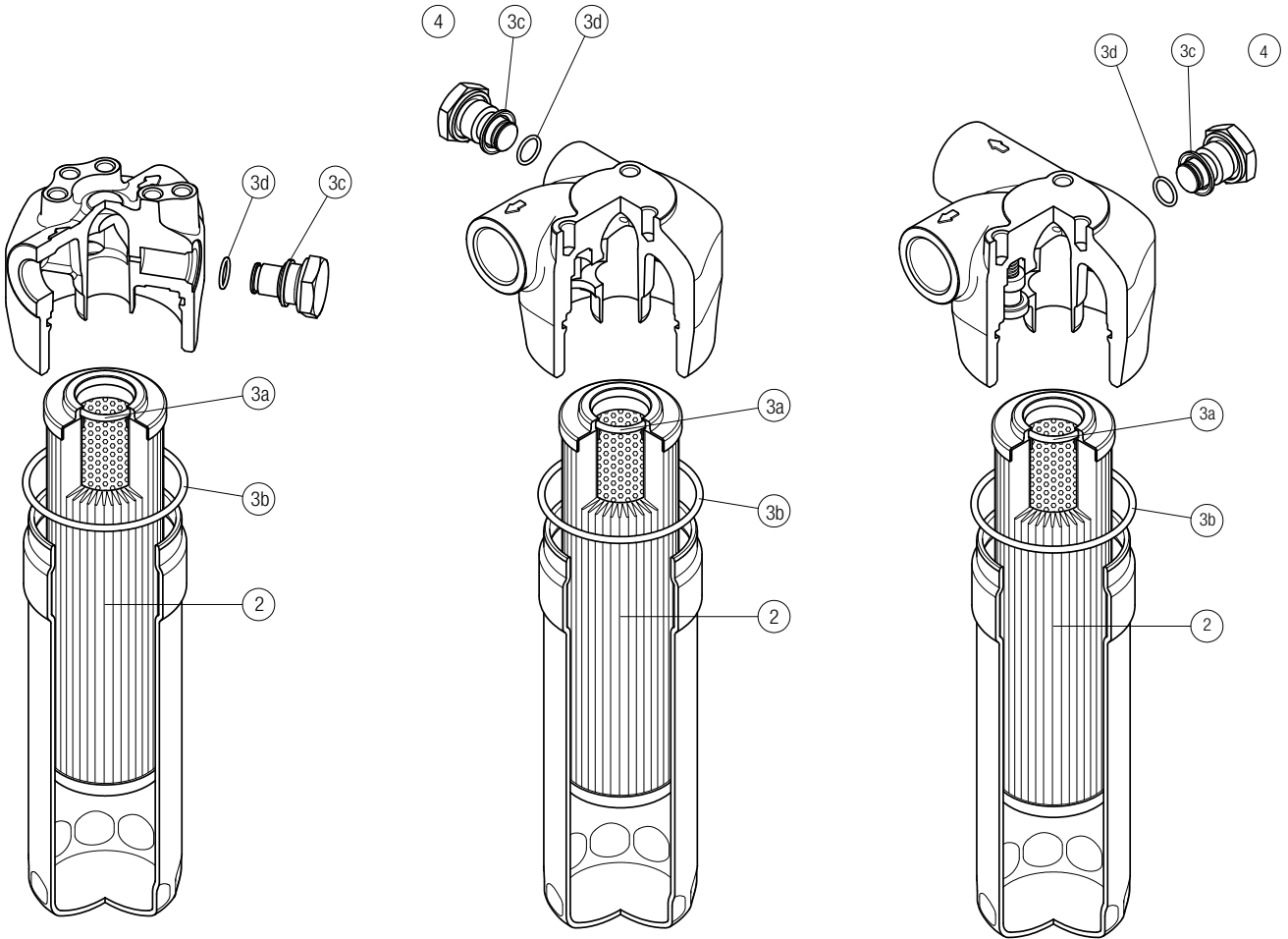


Order number for spare parts

LMP 112 - 116 - 118 - 119

LMP 120

LMP 122 - 123



Item:	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		
LMP 112-116 -118-119	See order table	NBR	FPM	NBR	FPM	
LMP 120		02050478	02050479	T2H	T2V	
LMP 122-123						

LMP 210-211

Maximum working pressure up to 6 MPa (60 bar) - Flow rate up to 365 l/min



LMP 210-211 GENERAL INFORMATION

Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 6 MPa (60 bar)
Flow rate up to 365 l/min

LMP210 is a range of versatile low pressure filter for transmission, protection of sensitive components in low pressure hydraulic systems and filtration of the coolant into the machine tools.

They are also suitable for the off-line filtration of small reservoirs. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Flanged connections up to 1 1/2", for a maximum flow rate of 365 l/min (LMP210)
- Female threaded connections up to 1 1/2", for a maximum return flow rate of 365 l/min (LMP211)
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any low pressure industrial equipment or mobile machines

Filter housing materials

- Head: Aluminium
- Bowl: Cataphoretic painted steel
- Bypass valve: AISI 304 - Polyamide

Pressure

- Test pressure: 9 MPa (90 bar)
- Burst pressure: 21 MPa (210 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 6 MPa (60 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) \pm 10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

Inlet/Outlet In-Line

Note

LMP 210 - 211 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]			Volumes [dm ³]				
	Length	1	2	3	Length	1	2	3
LMP 210-211		3.10	4.80	6.40		1.60	2.10	2.80

GENERAL INFORMATION LMP 210-211

Flow rates [l/min]

Filter series	Length	Filter element design - N Series									
		A03	A06	A10	A16	A25	M25	M60	M90	P10	P25
LMP 210	1	106	130	190	200	221	286	287	287	261	265
	2	153	175	220	237	249	288	289	290	265	269
	3	204	214	248	260	265	289	290	291	277	281
LMP 211	1	118	149	227	240	269	358	359	360	324	330
	2	178	207	268	292	307	361	362	363	329	335
	3	247	260	306	323	329	362	363	364	345	351

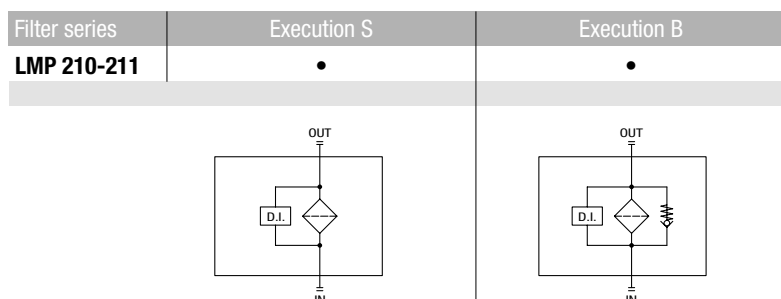
Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

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

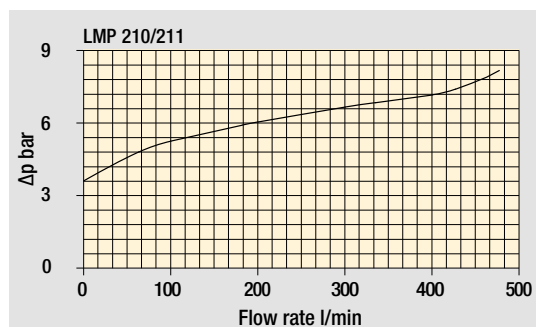
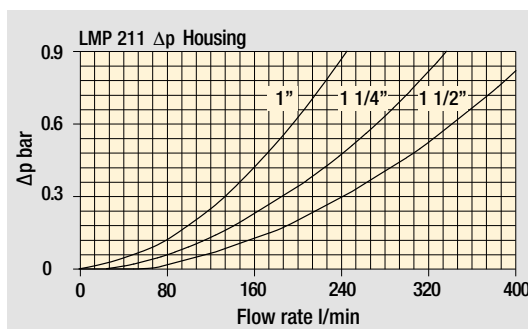
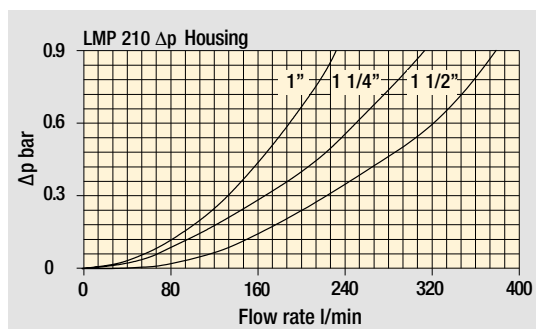
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols



Pressure drop

Filter housings
 Δp pressure drop



Bypass valve
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.

LMP 210

Designation & Ordering code

COMPLETE FILTER

Configuration example: **LMP210** | **3** | **B** | **A** | **F1** | **A10** | **N** | **P01**

Series and size
LMP210

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

Bypass valve
S Without bypass | **B** With bypass 3.5 bar

Seals and treatments
A NBR
V FPM

Connections
F1 1" SAE 3000 psi/M
F2 1 1/4" SAE 3000 psi/M
F3 1 1/2" SAE 3000 psi/M
F4 1" SAE 3000 psi/UNC
F5 1 1/4" SAE 3000 psi/UNC
F6 1 1/2" SAE 3000 psi/UNC

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm | **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm | **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm | **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm | **P10** Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm | **P25** Resin impregnated paper 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **CU210** | **3** | **A10** | **A** | **N** | **P01**

Element series and size
CU210

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

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm | **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm | **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm | **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm | **P10** Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm | **P25** Resin impregnated paper 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

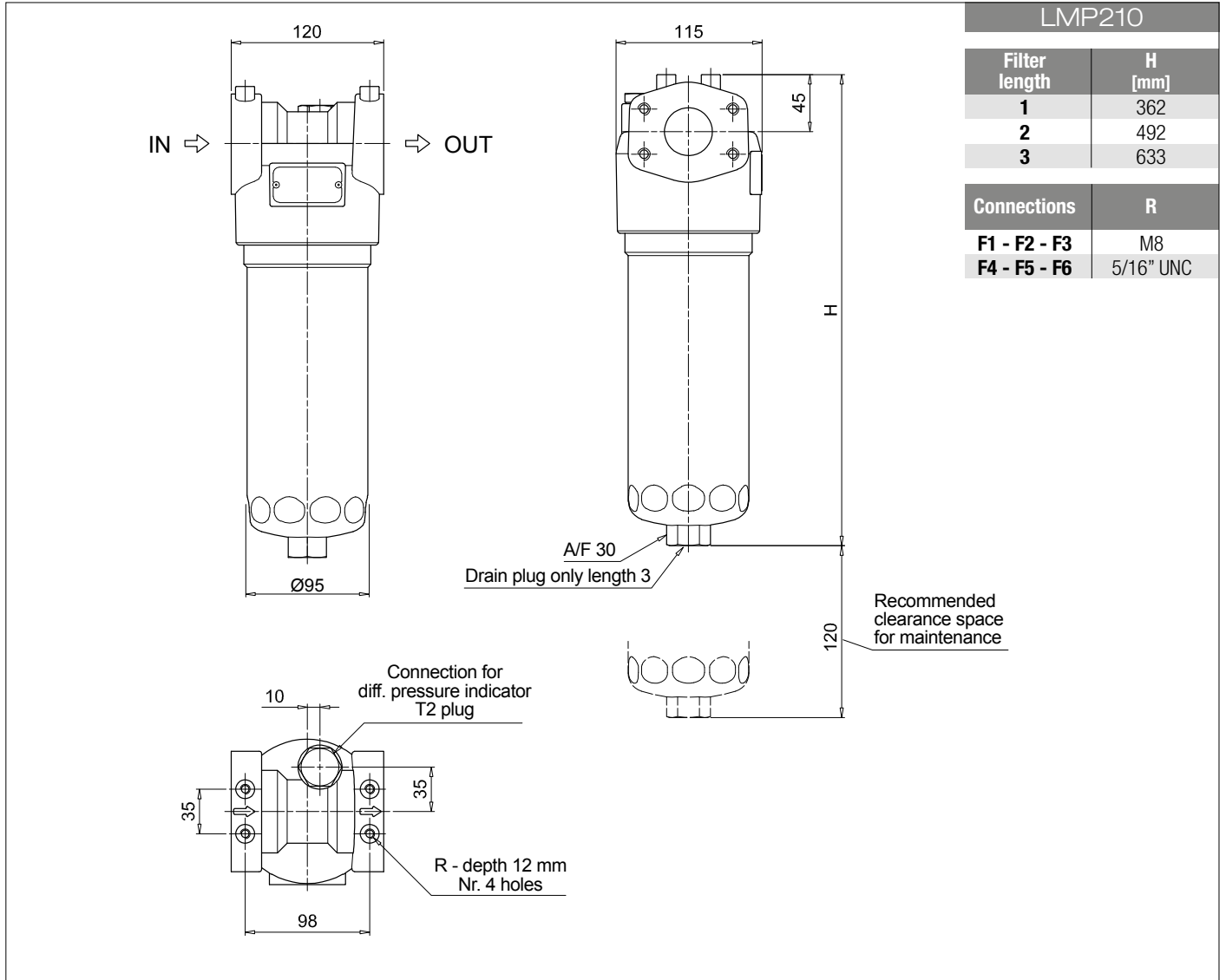
DEA Electrical differential pressure indicator
DEM Electrical differential pressure indicator
DEU Electrical differential pressure indicator
DLA Electrical / visual differential pressure indicator

DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug



LMP210	
Filter length	H [mm]
1	362
2	492
3	633
Connections	R
F1 - F2 - F3	M8
F4 - F5 - F6	5/16" UNC

LMP 211

Designation & Ordering code

COMPLETE FILTER

Series and size **LMP211** Configuration example: **LMP211** **3** **B** **A** **D** **6** **A10** **N** **P01**

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

Bypass valve
S Without bypass | **B** With bypass 3.5 bar

Seals and treatments
A NBR
V FPM

Connections
A G 1"
B G 1 1/4"
C G 1 1/2"
D 1" NPT
E 1 1/4" NPT
F 1 1/2" NPT
G SAE 16 - 1 5/16" - 12 UN
H SAE 20 - 1 5/8" - 12 UN
I SAE 24 - 1 7/8" - 12 UN

Connection for differential pressure indicator
6 With plugged connection

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm | **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm | **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm | **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm | **P10** Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm | **P25** Resin impregnated paper 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size **CU210** Configuration example: **CU210** **3** **A10** **A** **N** **P01**

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

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm | **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm | **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm | **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm | **P10** Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm | **P25** Resin impregnated paper 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

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

DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

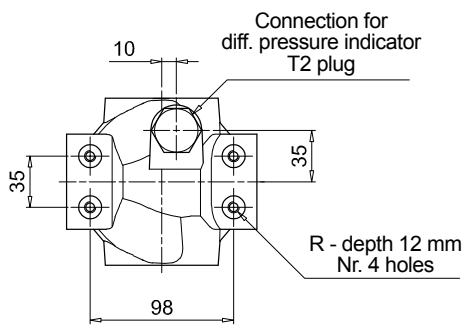
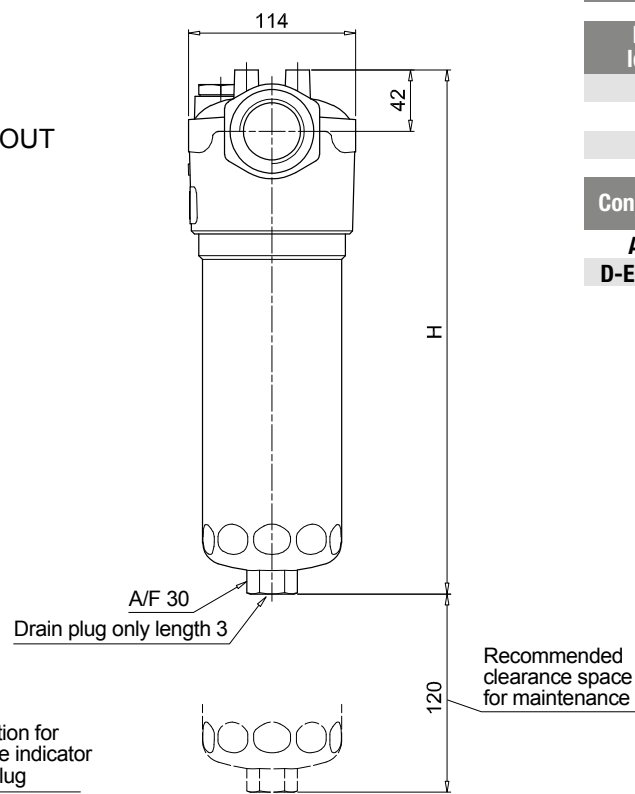
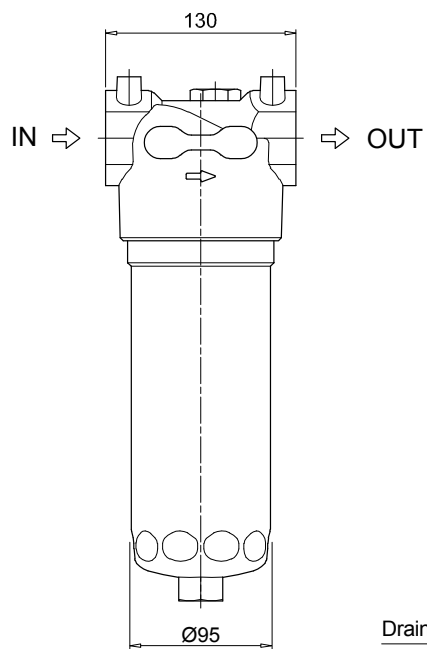
PLUGS

See page 743

T2 Plug

LMP 211

Dimensions



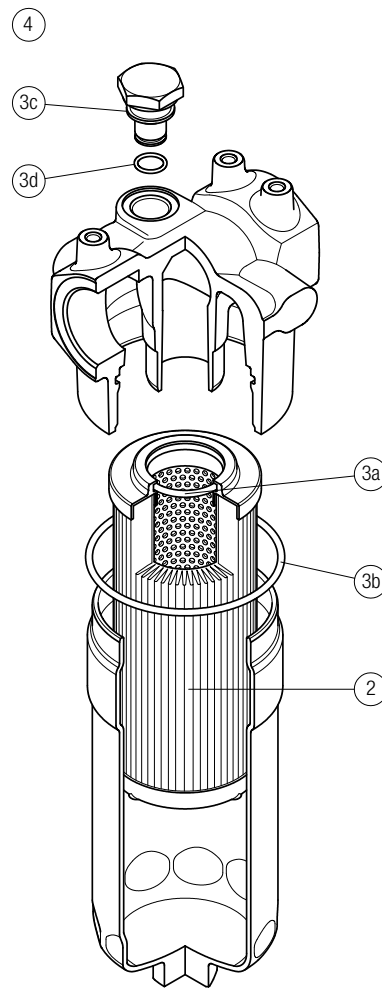
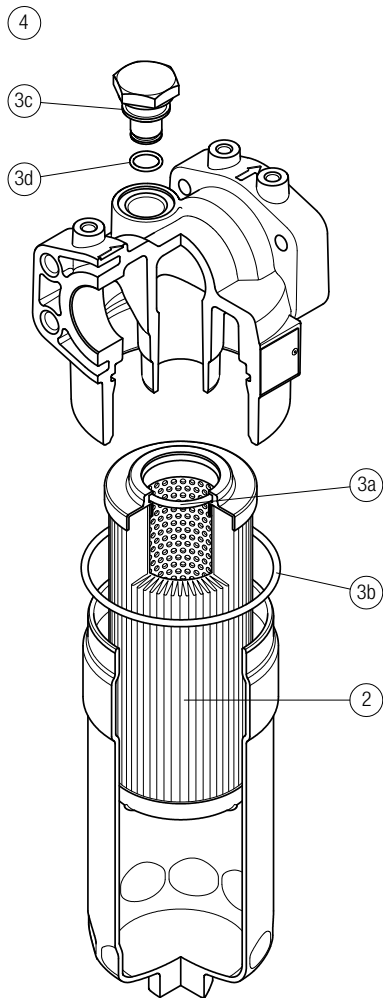
LMP211	
Filter length	H [mm]
1	358
2	488
3	629
Connections	R
A-B-C	M8
D-E-F-G-H-I	5/16" UNC

LMP 210-211 SPARE PARTS

Order number for spare parts

LMP 210

LMP 211



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
LMP 210-211	See order table	NBR	FPM	NBR	FPM
	2	02050435	02050436	T2H	T2V

LPH 630 series

Maximum working pressure up to 1 MPa (10 bar) Flow rate up to 1600 l/min



LPH 630 GENERAL INFORMATION

Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 1 MPa (10 bar)
Flow rate up to 1600 l/min

LPH630 is a high capacity low pressure filter with large filtration surface particularly suitable for industrial applications and off-line filtration of the lubrication system reservoirs.

Available features:

- 2 1/2" flanged connection connections, for a maximum flow rate of 1600 l/min
- Versatile orientation of the connections, to suite a variety of hydraulic systems
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid.
- Bypass valve, to relieve excessive pressure drop across the filter media
- Magnetic filter, to hold the ferrous particles
- Visual, electrical and electronic differential clogging indicators.

Common applications:

- Lubrication
- Off-line filtration of reservoirs
- Filtration systems

Filter housing materials

- Head & Cover: Anodized Aluminium
- Bypass valve: Phosphatized steel
- Bowl: Phosphatized steel

Bypass valve

- Opening pressure 175 kPa (1.75 bar) $\pm 10\%$
- Opening pressure 250 kPa (2.5 bar) $\pm 10\%$

Δp element type

- Microfibre filter elements - series MR: 10 bar
- Fluid flow through the filter element from IN to OUT

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

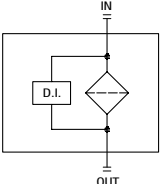
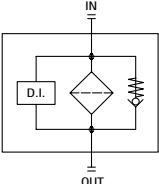
Note

LPH filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
	Length 7	Length 7
LPH 630	1.50	0.60

Hydraulic symbols

Filter series	Style S	Style C-E
LPH 630		

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
LPH 630	7	633	671	1091	1130	1217	1669	1518	1602

Maximum flow rate for a complete delivery filter with a pressure drop $\Delta p = 0.7$ bar.

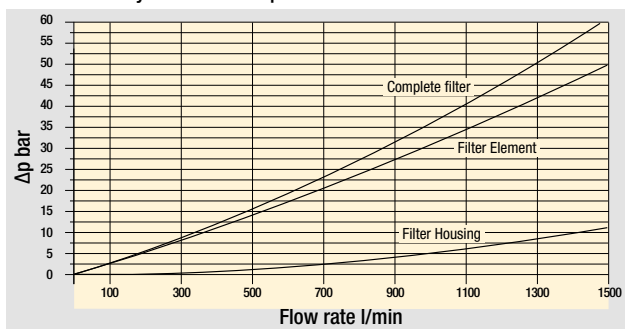
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

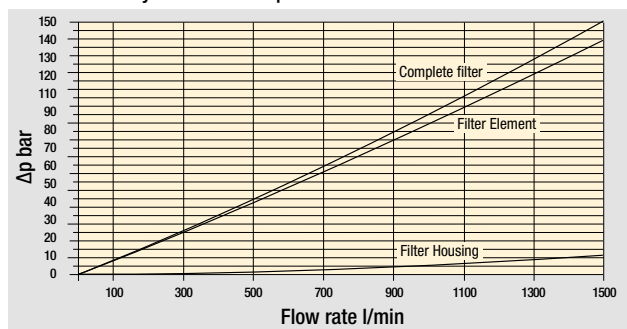
Please, contact our Sales Department for further additional information.

Filter housings
 Δp pressure drop

MR630
Viscosity at the test temperature: 30 cSt



MR630
Viscosity at the test temperature: 90 cSt



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

LPH 630

Designation & Ordering code

COMPLETE FILTER

Configuration example: **LPH630** **7** **C** **E** **1** **1** **A** **F1** **A10** **P01**

Series and size
LPH630

Length
7

Bypass valve
S Without bypass
C With bypass 1.75 bar
E With bypass 2.5 bar

Diffuser and magnetic filter
O With magnetic filter
E Without magnetic filter

Port IN position
1 On the left of the bracket

Port OUT position
1 On the left of the bracket

Seals and treatments
A NBR
V FPM

Connection
F1 2 1/2" SAE 3000 psi/M
F3 2 1/2" SAE 3000 psi/UNC

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

WA025 Water absorber inorganic microfiber 25 µm

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **MR630** **7** **M25** **A** **P01**

Element series and size
MR630

Element length
7

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments
A NBR
V FPM

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

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

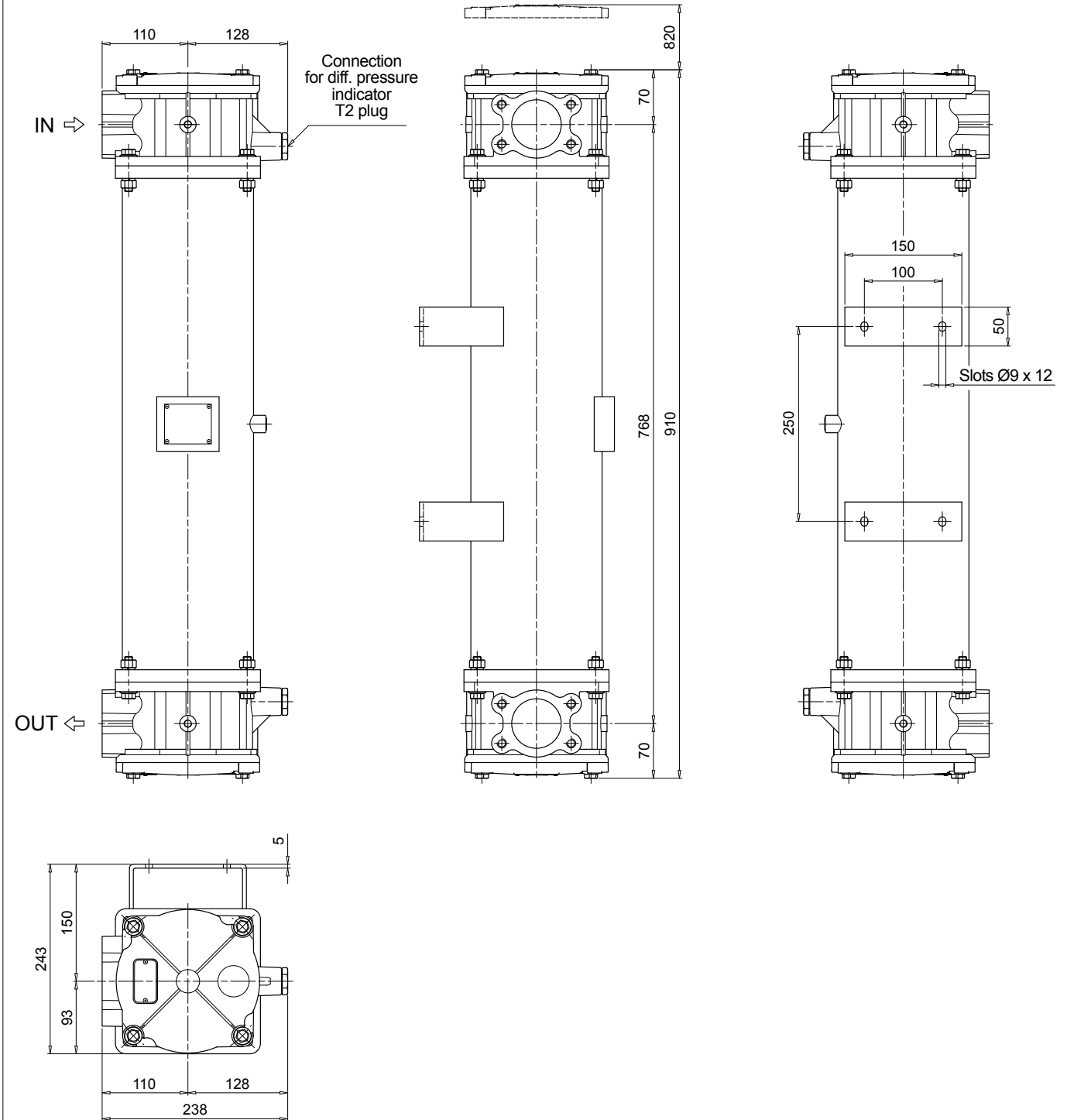
DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug

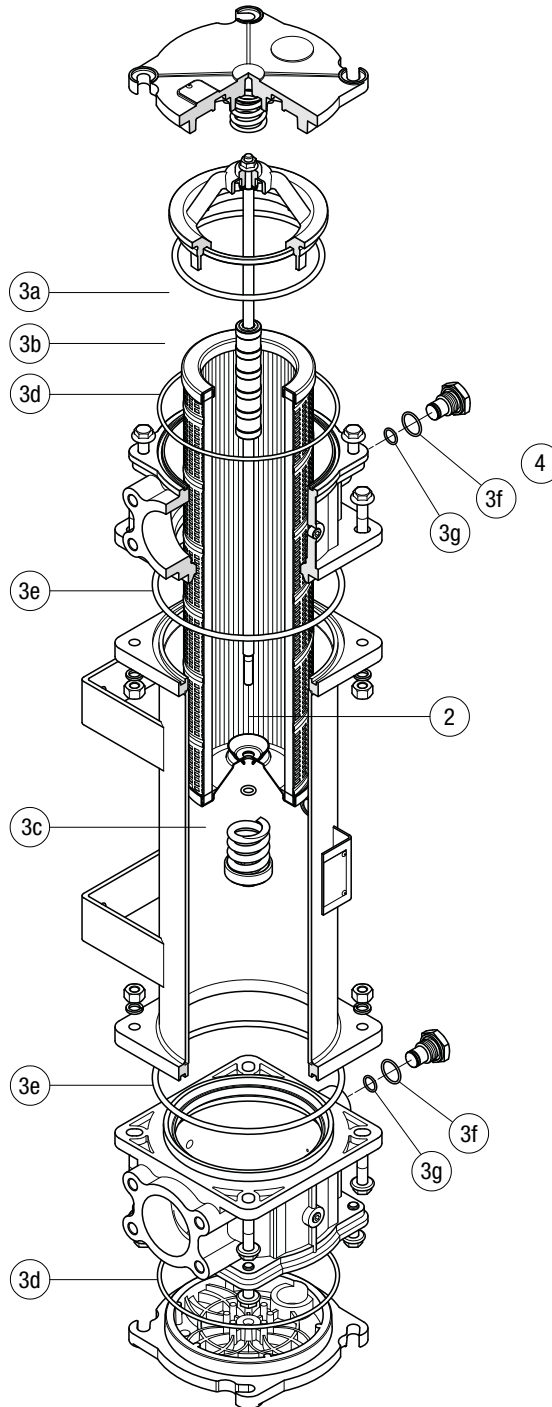
LPH630



LPH 630

Order number for spare parts

LPH 630



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 2 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
LPH 630	See order table	NBR	FPM	NBR	FPM
	2	3 (3a ÷ 3g)		4	
		02050640	02050641	T2H	T2V

LMP 400-401 series

Maximum working pressure up to 6 MPa (60 bar) - Flow rate up to 780 l/min



Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 6 MPa (60 bar)
Flow rate up to 780 l/min

LMP400 is a range of low pressure filter with large filtration surface mainly suitable for lubrication, off-line filtration of the reservoirs and filtration equipment.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 2" and flanged connections up to 2 1/2", for a maximum flow rate of 780 l/min
- In line or 90° connections, to meet any type of application
- Base-mounting design also available, for ease of the replacement of the filter element
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-line filtration of reservoirs
- Filtration systems

Filter housing materials

- Head: Anodized Aluminium
- Housing: Anodized Aluminium
- Bypass valve: Steel

Pressure LMP 400-401 length 2 - 3 - 4

- Working pressure: 6 MPa (60 bar)
- Test pressure: 9 MPa (90 bar)
- Burst pressure: 21 MPa (210 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 6 MPa (60 bar)

Pressure LMP 400-401 length 5 - 6

- Working pressure: 5 MPa (50 bar)
- Test pressure: 7.5 MPa (75 bar)
- Burst pressure: 15 MPa (150 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 5 MPa (50 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N - W: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

LMP 400: In-line Inlet/Outlet
 LMP 401: 90° Inlet/Outlet

Note

LMP 400 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]						Volumes [dm ³]					
	Length	2	3	4	5	6	Length	2	3	4	5	6
LMP 400-401		7.20	8.10	8.80	11.90	14.40		3.50	5.00	6.50	9.50	13.50

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
LMP 400	2	205	244	370	411	515	720	524	556
	3	280	333	474	515	602	760	637	660
	4	347	400	535	564	637	769	660	688
	5	459	501	610	660	717	781	700	721
	6	504	575	676	689	728	783	708	727
LMP 401	2	200	236	347	382	468	628	475	501
	3	268	315	434	468	537	659	565	582
	4	328	373	484	507	565	665	582	603
	5	423	456	544	582	626	674	613	629
	6	459	516	594	604	634	676	619	633

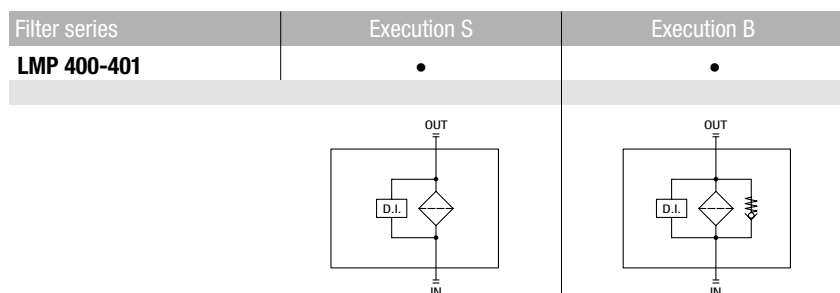
Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

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

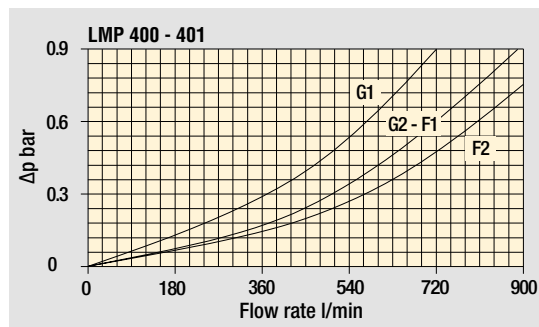
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

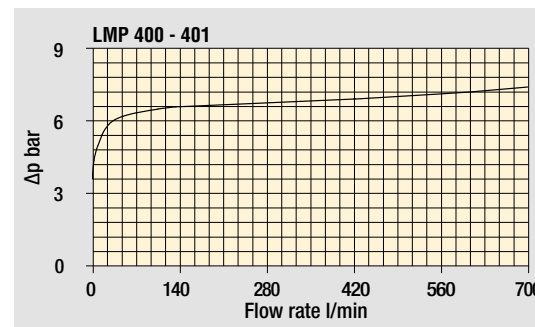


Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

LMP 400-401

Designation & Ordering code

COMPLETE FILTER

Series and size **LMP400 | LMP401** Configuration example: **LMP401** **3** **B** **A** **G1** **A10** **N** **P01**

Length **2** | **3** | **4** | **5** | **6** |

Bypass valve **S** Without bypass **B** With bypass 3.5 bar

Seals and treatments	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR	•	•	-

Connections

G1 G 1 1/2"	F1 2" SAE 3000 psi/M
G2 G 2"	F2 2 1/2" SAE 3000 psi/M
G3 1 1/2" NPT	F3 2" SAE 3000 psi/UNC
G4 2" NPT	F4 2 1/2" SAE 3000 psi/UNC
G5 SAE 24 - 1 7/8" - 12 UN	
G6 SAE 32 - 2 1/2" - 12 UN	

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm
WA025 Water absorber inorganic microfiber 25 µm	

Element Δp	Filter length					
	2	3	4	5	6	
N 20 bar						
Execution						
P01 MP Filtri standard	•	•	•	•	•	
P02 Maintenance from the bottom of the housing						• •
Pxx Customized						

FILTER ELEMENT

Element series and size **CU400** Configuration example: **CU400** **3** **A10** **A** **N** **P01**

Element length **2** | **3** | **4** | **5** | **6** |

Filtration rating (filter media)	
A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm
WA025 Water absorber inorganic microfiber 25 µm	

Seals	Filtration rating		
	Axx	Mxx	Pxx
A NBR	•	•	•
V FPM	•	•	•
W NBR	•	•	-

Element Δp	Execution					
	2	3	4	5	6	
N 20 bar						
Execution						
P01 MP Filtri standard	•	•	•	•	•	
Pxx Customized						

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator

DEM Electrical differential pressure indicator

DEU Electrical differential pressure indicator

DLA Electrical / visual differential pressure indicator

DLE Electrical / visual differential pressure indicator

DTA Electronic differential pressure indicator

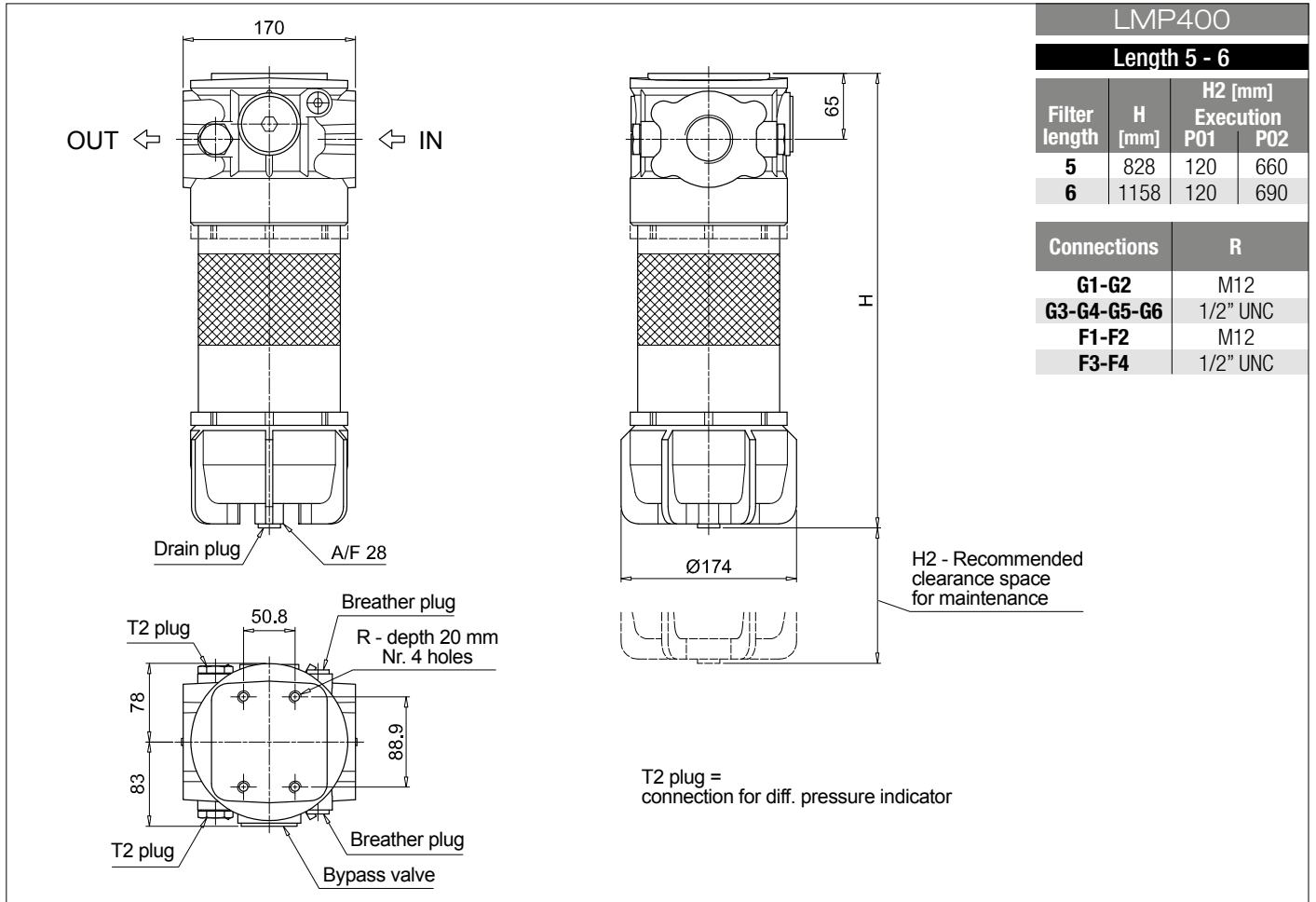
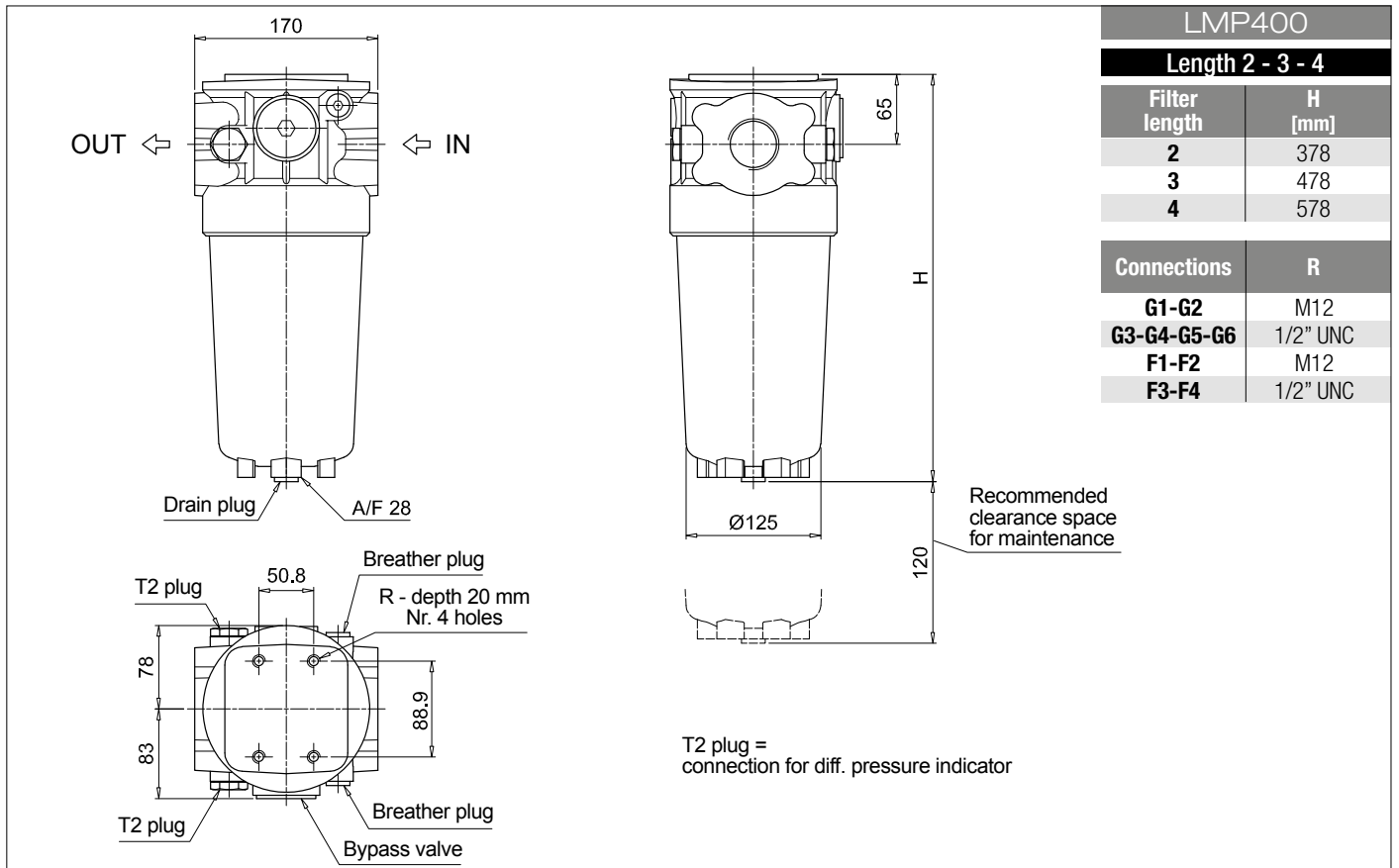
DVA Visual differential pressure indicator

DVM Visual differential pressure indicator

PLUGS

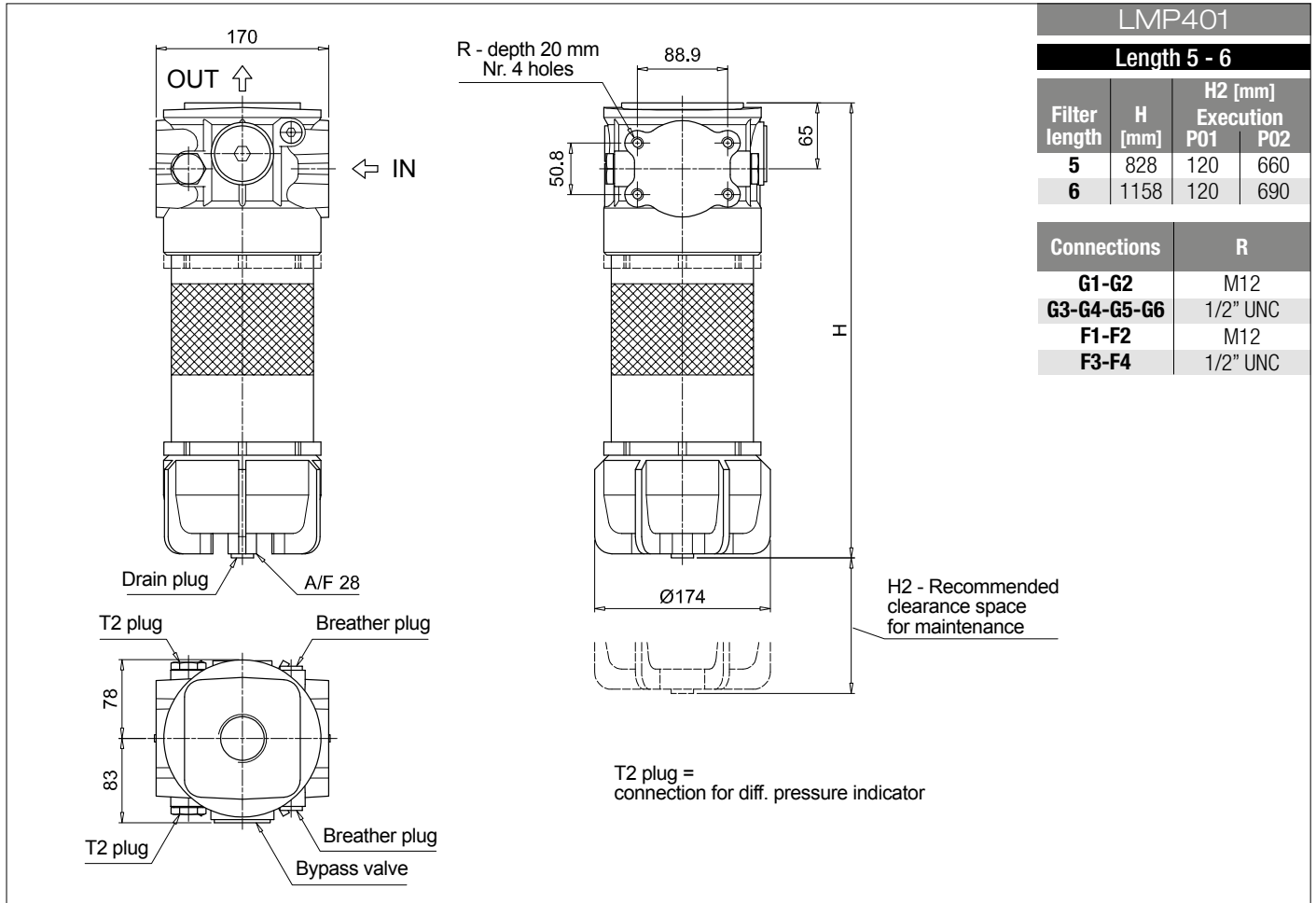
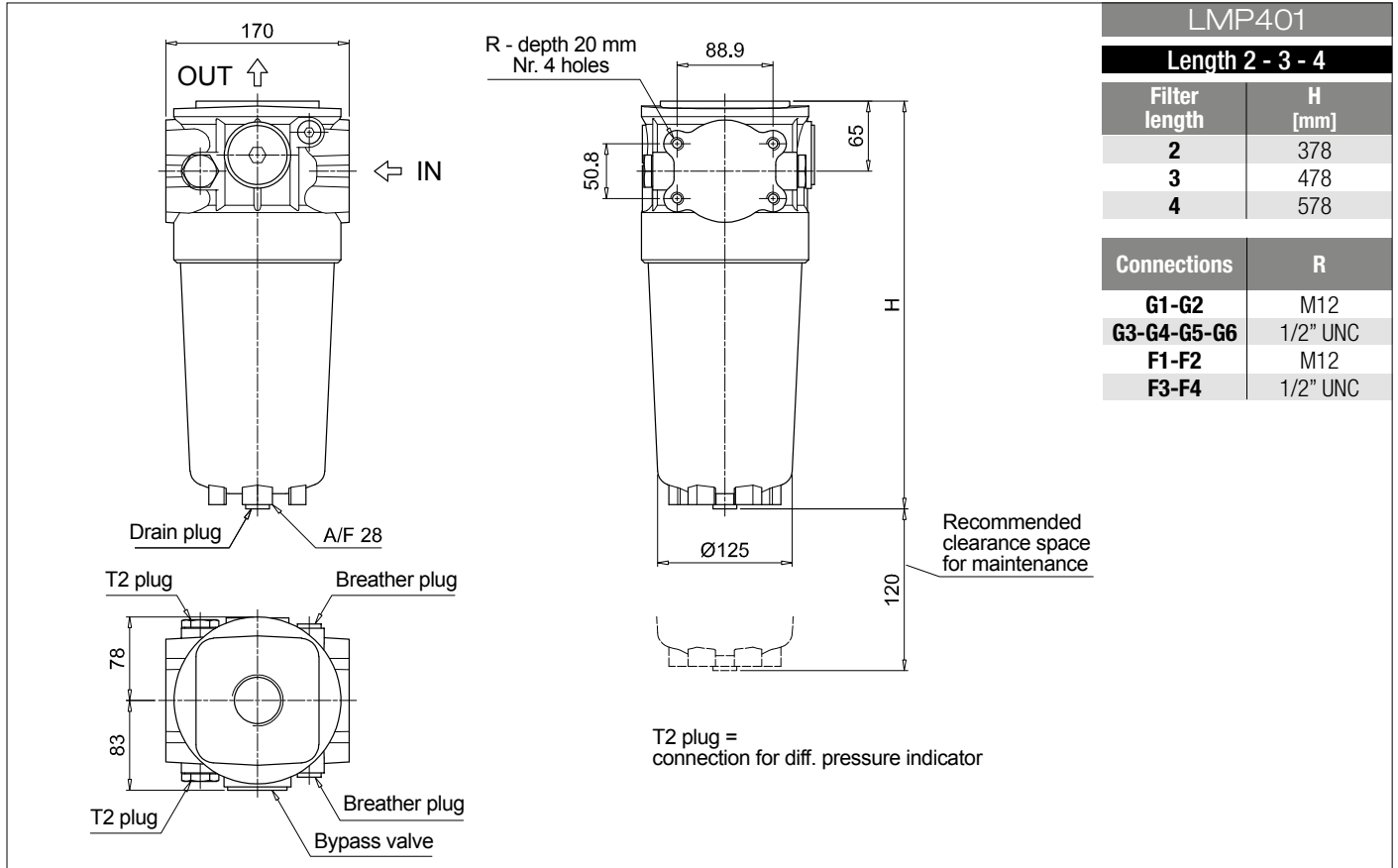
See page 743

T2 Plug



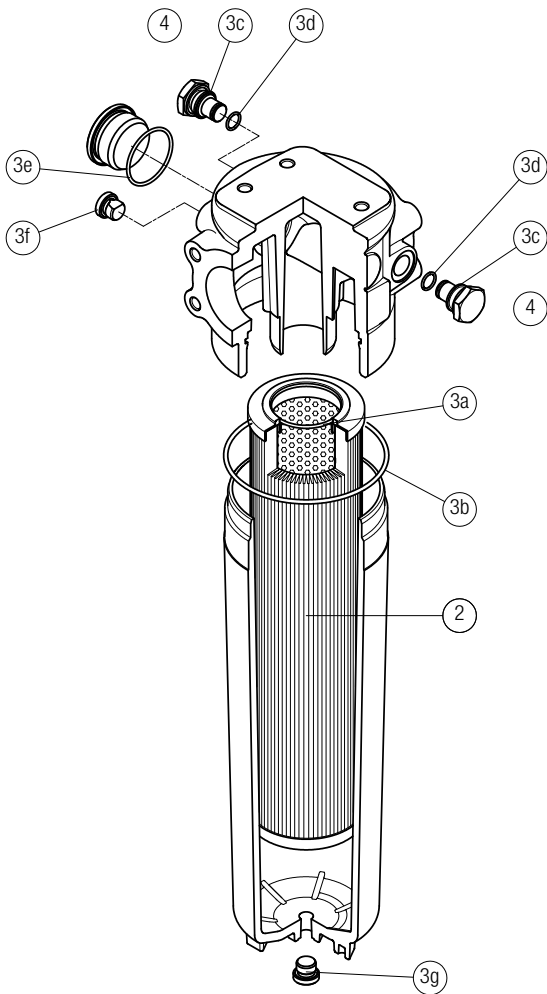
LMP 400-401

Dimensions

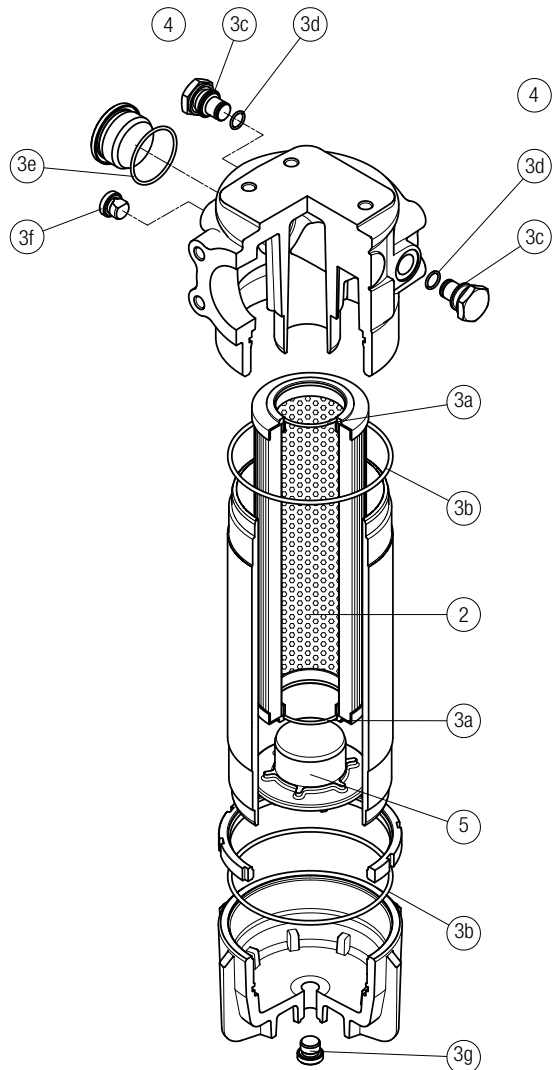


LMP 400 - 401

length 2 - 3 - 4



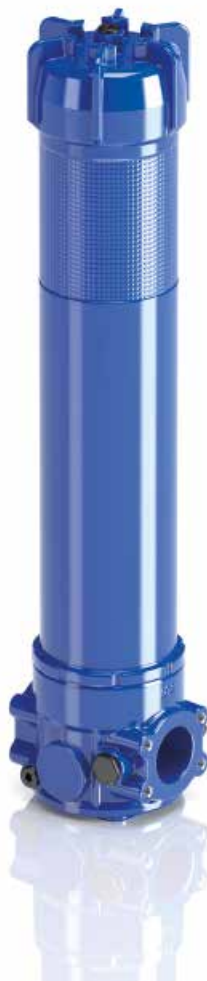
length 5 - 6



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3g)	Q.ty: 2 pcs. 4	Q.ty: 2 pcs. 5
Filter series	Filter element	Seal Kit code number NBR FPM	Indicator connection plug NBR FPM	Housing spigot no bypass
LMP 400-401 length 2-3-4	See order table	02050391 02050392	T2H T2V	-
LMP 400-401 length 5-6		02050393 02050394		01044108

LMP 430-431 series

Maximum working pressure up to 6 MPa (60 bar) - Flow rate up to 780 l/min



Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 6 MPa (60 bar)
Flow rate up to 780 l/min

LMP431-431 is a range of low pressure filter with large filtration surface mainly suitable for lubrication, off-line filtration of the reservoirs and filtration equipment.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 2" and flanged connections up to 2 1/2", for a maximum flow rate of 780 l/min
- In line or 90° connections, to meet any type of application
- Base-mounting design also available, for ease of the replacement of the filter element
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-line filtration of reservoirs
- Filtration systems

Filter housing materials

- Head: Anodized Aluminium
- Housing: Anodized Aluminium
- Bypass valve: Steel

Pressure LMP 430-431 length 5 - 6

- Working pressure: 5 MPa (50 bar)
- Test pressure: 7.5 MPa (75 bar)
- Burst pressure: 15 MPa (150 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 5 MPa (50 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N - W: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

LMP 400 - 430: In-line Inlet/Outlet
 LMP 401 - 431: 90° Inlet/Outlet

Note

LMP 400 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Length	Weights [kg]		Length	Volumes [dm ³]	
		5	6		5	6
LMP 430 - 431		11.90	14.40		9.50	13.50

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
LMP 430	5	459	501	610	660	717	781	700	721
	6	504	575	676	689	728	783	708	727
LMP 431	5	423	456	544	582	626	674	613	629
	6	459	516	594	604	634	676	619	633

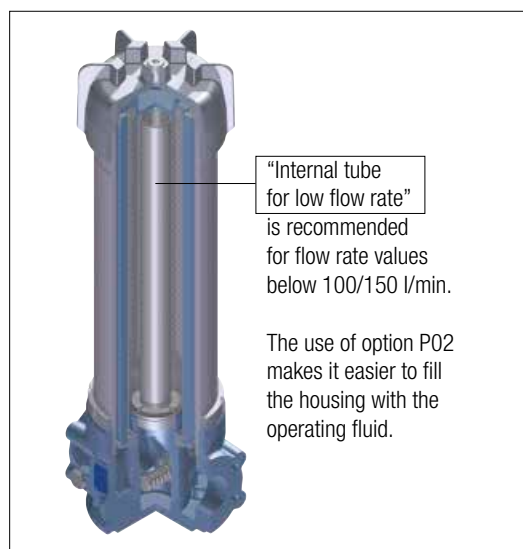
Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

LMP 430-431: execution P02

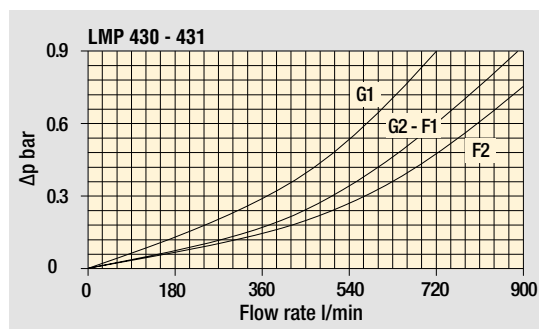


Hydraulic symbols

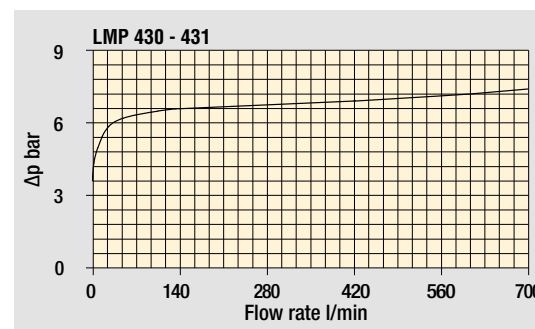
Filter series	Execution S	Execution B
LMP 430-431	•	•

Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

LMP 430-431

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example: LMP431 5 B A G1 A10 N P01									
LMP430 LMP431											
Length		5 6									
Bypass valve		S Without bypass B With bypass 3.5 bar									
Seals and treatments		Filtration rating									
		Axx	Mxx	Pxx							
A NBR		•	•	•							
V FPM		•	•	•							
W NBR		•	•	-							
Connections											
G1 G 1 1/2"		F1 2" SAE 3000 psi/M									
G2 G 2"		F2 2 1/2" SAE 3000 psi/M									
G3 1 1/2" NPT		F3 2" SAE 3000 psi/UNC									
G4 2" NPT		F4 2 1/2" SAE 3000 psi/UNC									
G5 SAE 24 - 1 7/8" - 12 UN											
G6 SAE 32 - 2 1/2" - 12 UN											
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm									
WA025 Water absorber inorganic microfiber 25 µm											
Element Δp		N 20 bar									
Execution		P01 MP Filtri standard									
		P02 With internal tube for low flow rate									
		Pxx Customized									

FILTER ELEMENT

Element series and size		Configuration example: CU400 5 A10 A N P01									
CU400											
Element length		5 6									
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm									
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm									
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm									
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm									
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm									
WA025 Water absorber inorganic microfiber 25 µm											
Seals		Filtration rating									
		Axx	Mxx	Pxx							
A NBR		•	•	•							
V FPM		•	•	•							
W NBR		•	•	-							
Element Δp		N 20 bar									
Execution		P01 MP Filtri standard									
		Pxx Customized									

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 737

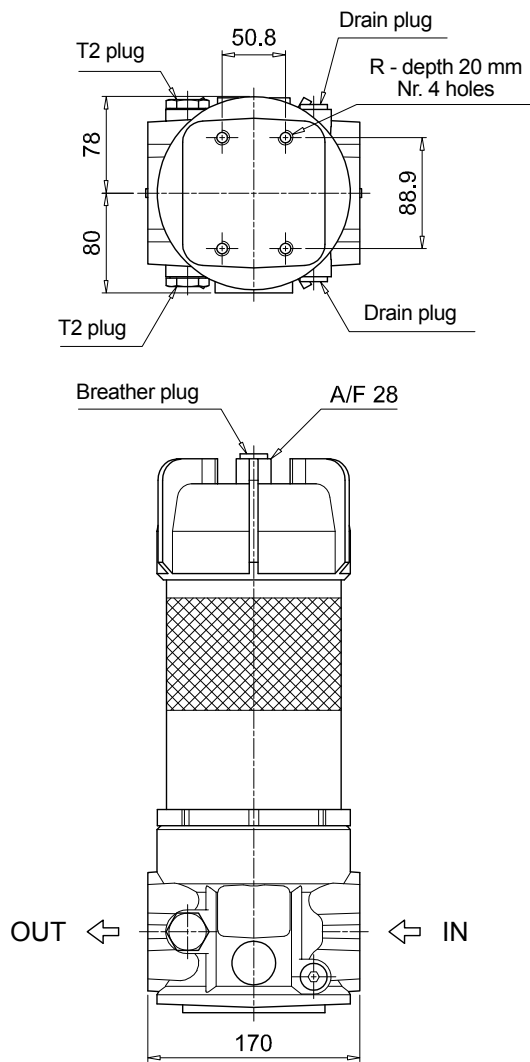
T2 Plug

LMP 430-431

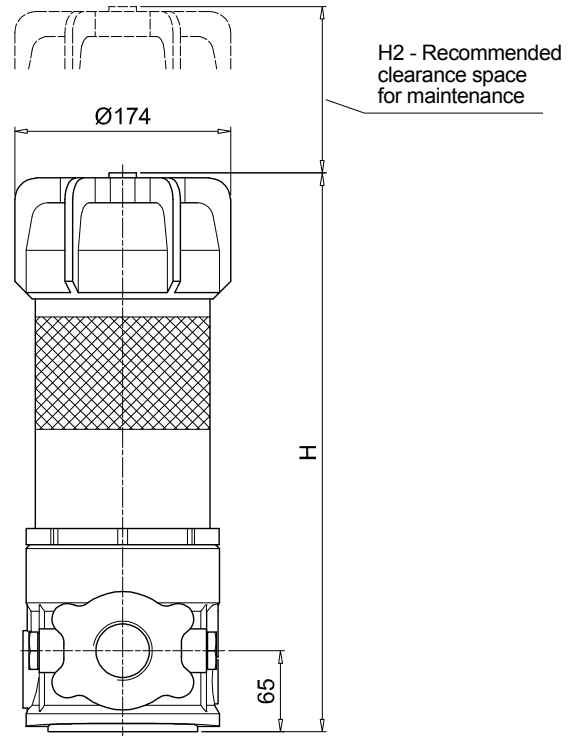
Dimensions

LMP430		
Filter length	H [mm]	H2 [mm]
5	828	660
6	1158	690

Connections	R
G1-G2	M12
G3-G4-G5-G6	1/2" UNC
F1-F2	M12
F3-F4	1/2" UNC



T2 plug =
connection for diff. pressure indicator



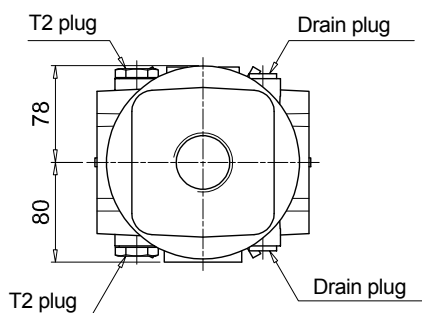
LMP 430-431

Dimensions

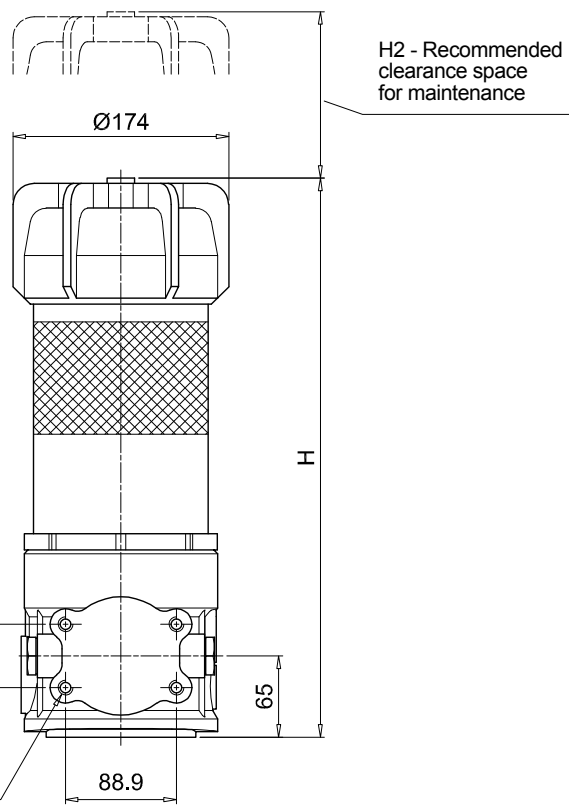
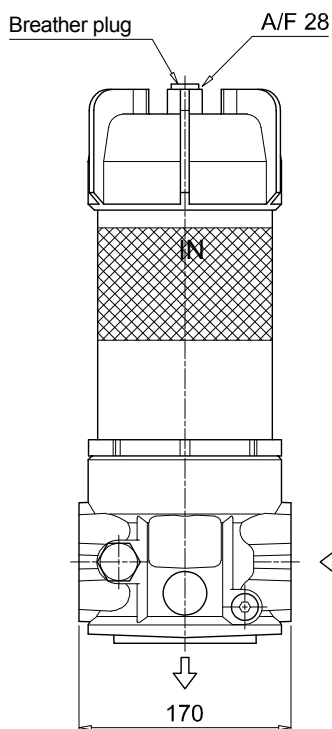
LMP431

Filter length	H [mm]	H2 [mm]
5	828	660
6	1158	690

Connections	R
G1-G2	M12
G3-G4-G5-G6	1/2" UNC
F1-F2	M12
F3-F4	1/2" UNC

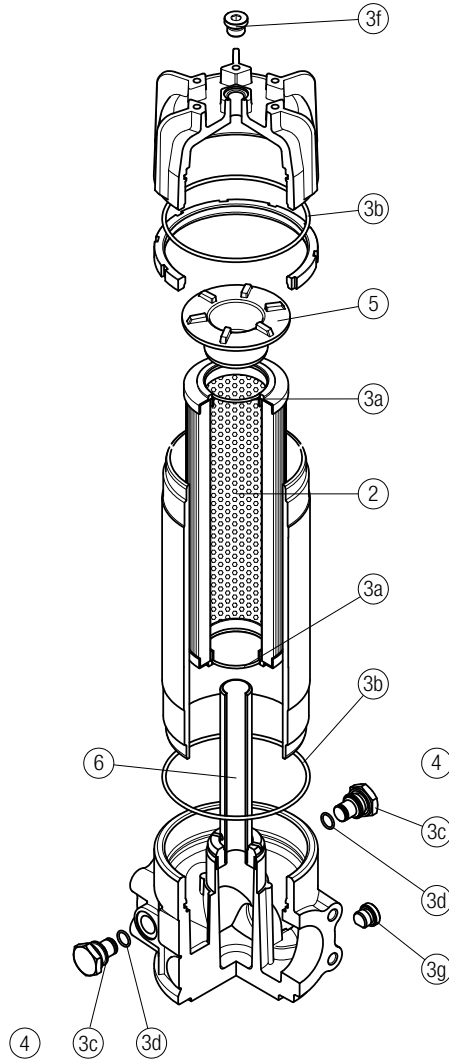


T2 plug =
connection for diff. pressure indicator



LMP 430 - 431

length 5 - 6



Item:	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 2 pcs.		Q.ty: 2 pcs.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number NBR	Seal Kit code number FPM	Indicator connection plug NBR	Indicator connection plug FPM	Housing spigot no bypass	Housing spigot with bypass	Internal tube for low flow rate, execution P02		
LMP 430-431 length 5-6	See order table	02050393	02050394	T2H	T2V	01044108	02001414	Length 5: 02025041	Length 6: 02025042	

LMP 950-951 series

Maximum working pressure up to 3 MPa (30 bar) - Flow rate up to 2400 l/min



LMP 950-951 GENERAL INFORMATION

Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 3 MPa (30 bar)
Flow rate up to 2400 l/min

LMP950 is a range of low pressure filter with large filtration surface mainly suitable for lubrication, off-line filtration of the reservoirs and filtration equipment.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Flanged connections up to 4", for a maximum flow rate of 2400 l/min
- In line or 90° connections, to meet any type of application
- Base-mounting design, for ease of the replacement of the filter element
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-line filtration of reservoirs
- Filtration systems
- Lubrication systems

Filter housing materials

- Head: Anodized Aluminium
- Housing: Anodized Aluminium
- Bypass valve: Anodized Aluminium

Pressure

- Test pressure: 4,5 MPa (45 bar)
- Burst pressure: 12 MPa (120 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 3 MPa (30 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

LMP 950: In-line Inlet/Outlet
 LMP 951: 90° Inlet/Outlet

Note

LMP 950 - 951 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]			Volumes [dm ³]		
	Length	2	3	Length	2	3
LMP 950-951		25.1	33.5		15	28

GENERAL INFORMATION LMP 950-951

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25 M60 M90
LMP 950	2	613	756	953	1219	1515	2170
	3	1148	1219	1502	1713	1808	2293
LMP 951	2	635	789	1007	1308	1649	2420
	3	1226	1308	1634	1881	1993	2566

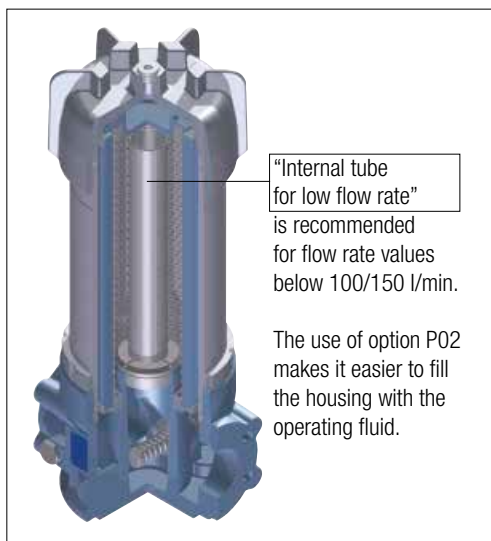
Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

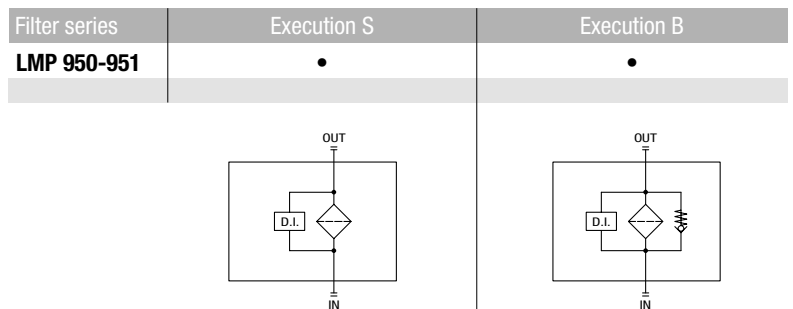
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Execution P02

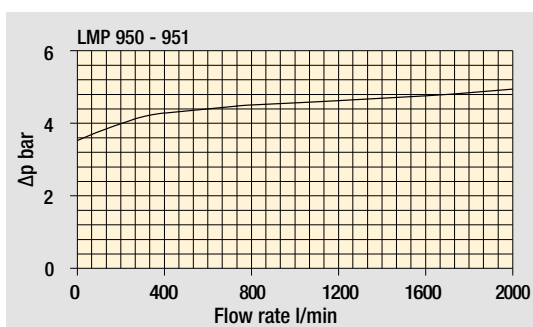
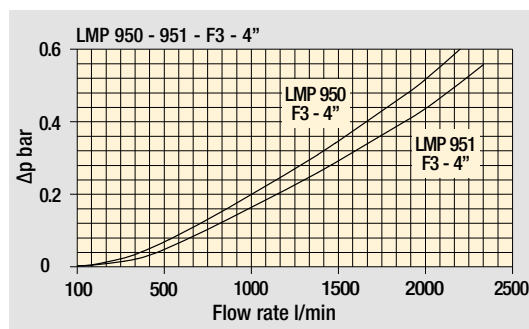
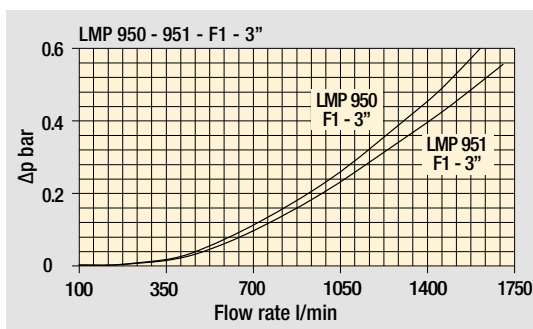


Hydraulic symbols



Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

LMP 950-951

Designation & Ordering code

COMPLETE FILTER

Configuration example: **LMP951** | **2** | **B** | **A** | **F2** | **A10** | **N** | **P01**

Series and size
LMP950 | **LMP951**

Length
2 | **3**

Bypass valve
S Without bypass | **B** With bypass 3.5 bar

Seals and treatments
A NBR
V FPM

Connections
F1 3" SAE 3000 psi/M
F2 3" SAE 3000 psi/UNC
F3 4" SAE 3000 psi/M
F4 4" SAE 3000 psi/UNC

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm | **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm | **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm | **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
P02 With internal tube for low flow rate
Pxx Customized

FILTER ELEMENT

Configuration example: **CU950** | **2** | **A10** | **A** | **N** | **P01**

Element series and size
CU950

Element length
2 | **3**

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm | **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm | **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm | **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Seals
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

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

DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug

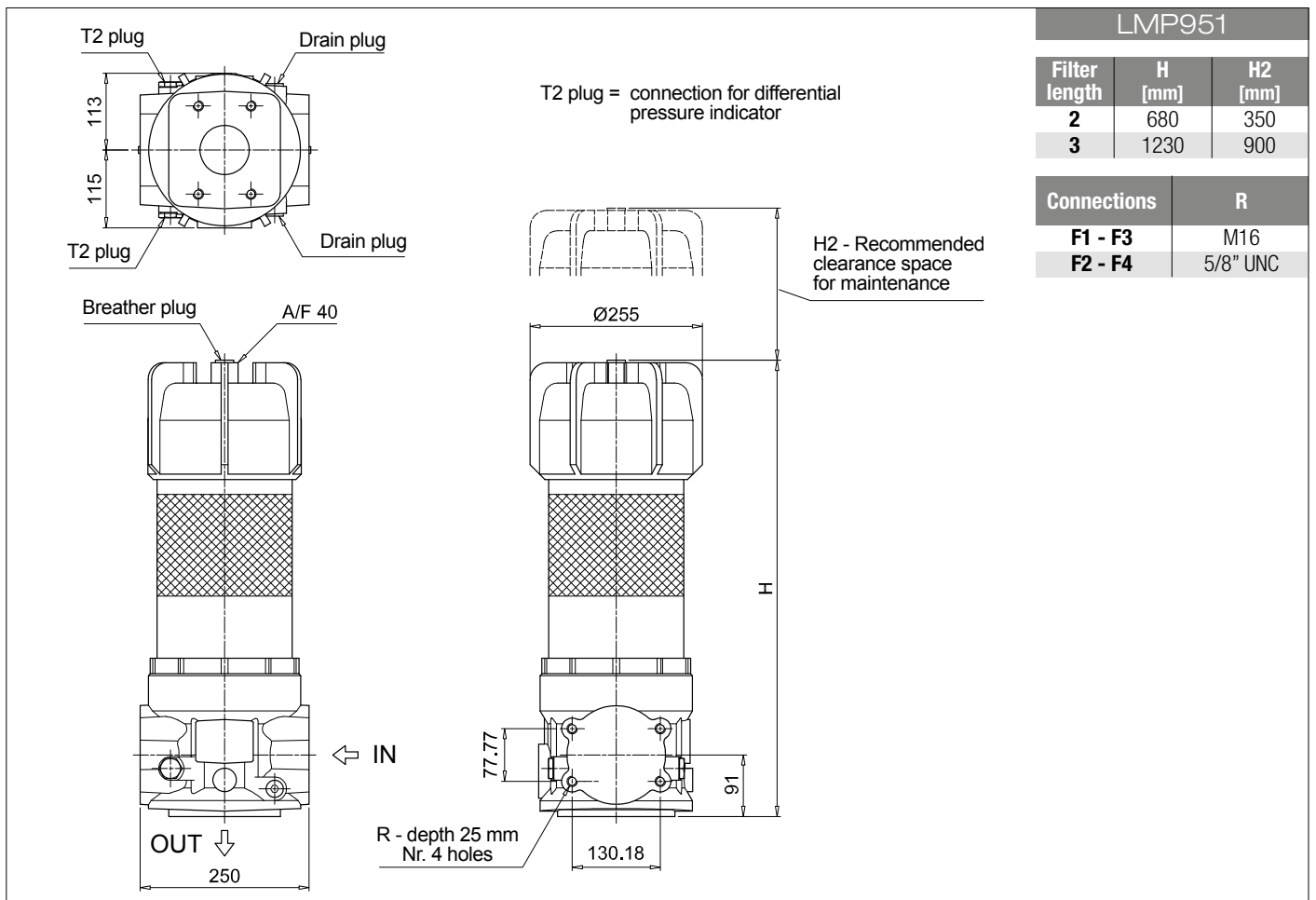
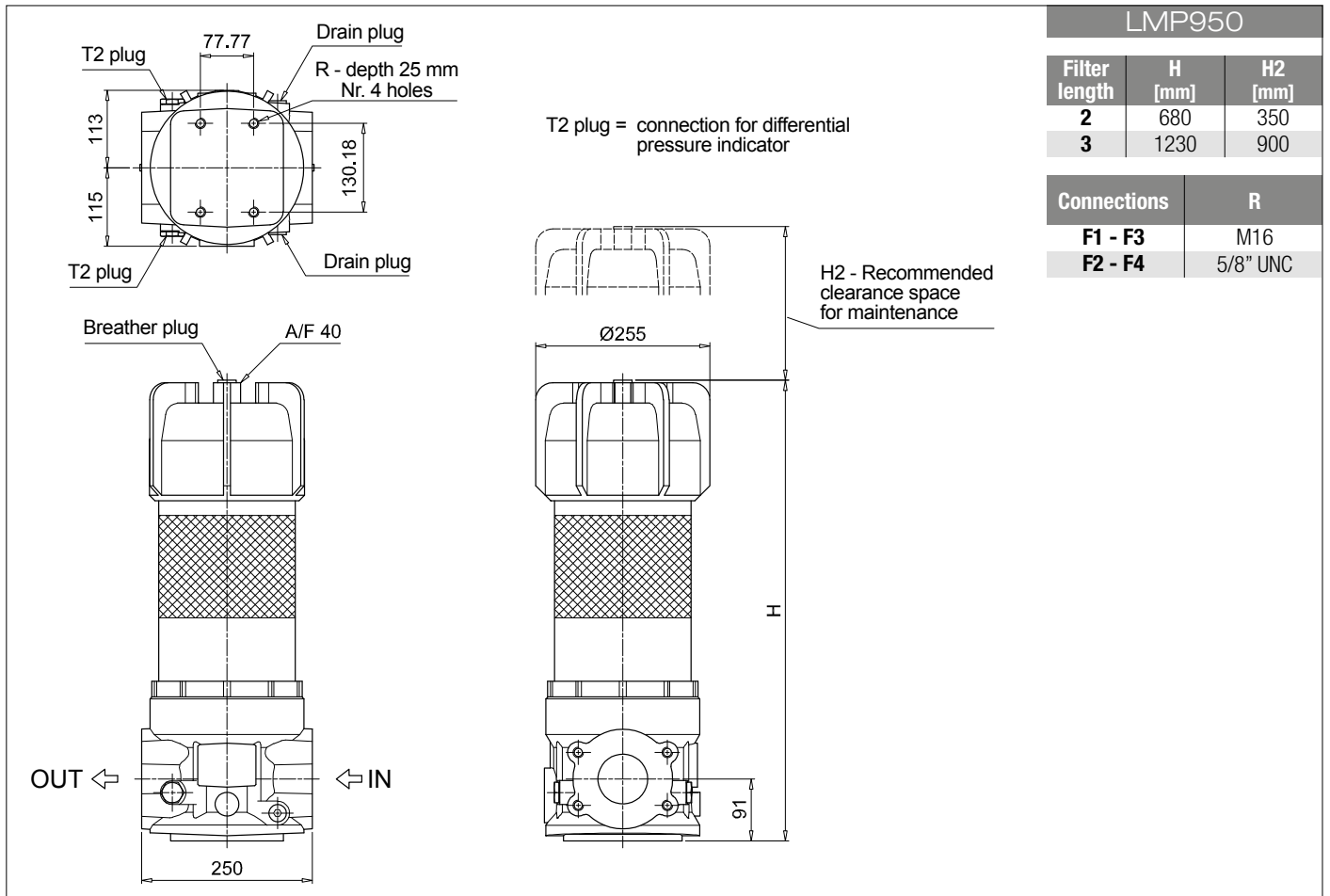
ACCESSORIES

See page 472

CFA Retaining clamp

LMP 950-951

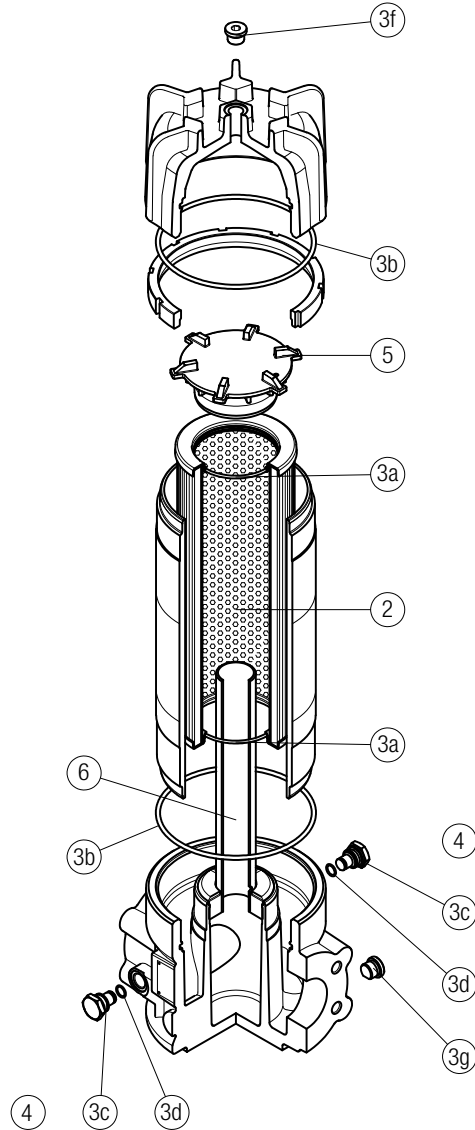
Dimensions



LMP 950-951 SPARE PARTS

Order number for spare parts

LMP 950 - 951



Item:	Q.ty: 2 pcs.		Q.ty: 1 pc.		Q.ty: 2 pcs.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		Housing spigot		Internal tube for low flow rate, exec. P02		
LMP 950-951 length 2-3	See order table	NBR	FPM	NBR	FPM	no bypass	with bypass	length 2	length 3	
		02050367	02050368	T2H	T2V	01044106	02001379	02025032	02025033	

LMP 952-953-954 series

Maximum working pressure up to 2.5 MPa (25 bar) - Flow rate up to 4500 l/min



LMP 952-953-954 GENERAL INFORMATION

Description

Technical data

Low & Medium Pressure filters

Maximum working pressure up to 2.5 MPa (25 bar)
Flow rate up to 4500 l/min

LMP952, LMP953 and LMP954 are ranges of low pressure filter with large filtration surface mainly suitable for lubrication, off-line filtration of the reservoirs and filtration equipment.

Multiple LMP950 filters are connected to a manifold to reduce the pressure drop caused by the filter media and to increase the life time of the filter element.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- 4" flanged connections, for a maximum flow rate of 4500 l/min
- Base-mounting design, for ease of the replacement of the filter element
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-line filtration of reservoirs
- Filtration systems

Filter housing materials

- Head: Anodized Aluminium
- Housing: Anodized Aluminium
- Manifolds: Welded - Phosphatized Steel
- Bypass valve: Anodized Aluminium

Pressure

Test pressure: 3.5 MPa (35 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) \pm 10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Number of filter elements

- LMP 952: 2 filter elements CU950-3
- LMP 953: 3 filter elements CU950-3
- LMP 954: 4 filter elements CU950-3

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

LMP 952-953-954:
In-line Inlet/Outlet

Note

LMP 952 - 953 - 954 filters
are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]		Volumes [dm ³]	
	Length	3	Length	3
LMP 952		96		66
LMP 953		138		99
LMP 954		192		132

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25 M60 M90
LMP 952	3	2172	2294	2766	3106	3256	3998
LMP 953	3	2842	2964	3403	3696	3820	4395
LMP 954	3	3259	3372	3770	4026	4133	4618

Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

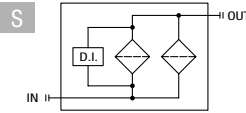
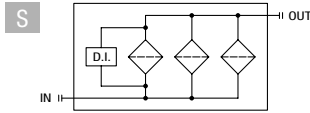
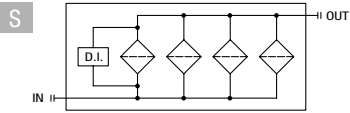
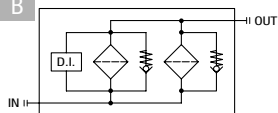
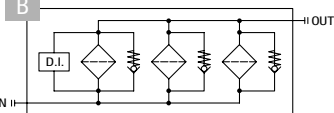
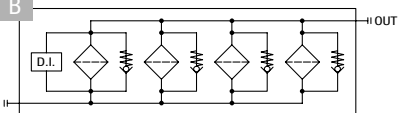
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

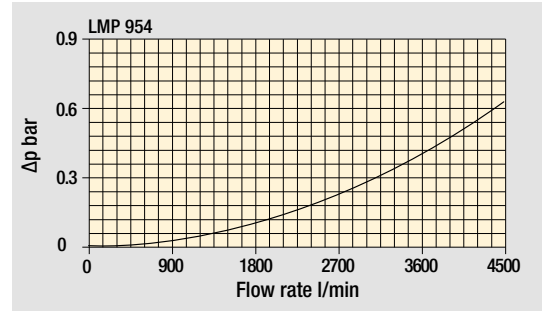
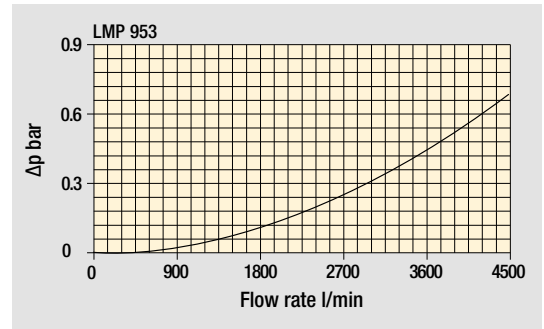
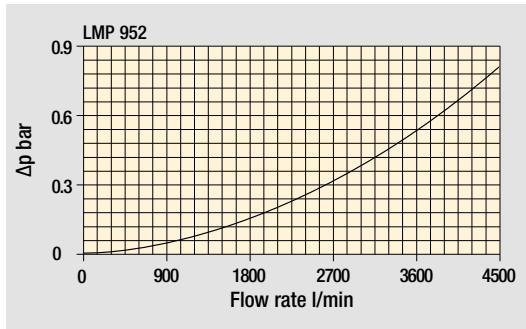
Filter series	Execution S - Execution B	Execution S - Execution B	Execution S - Execution B
LMP 952	•	-	-
LMP 953	-	•	-
LMP 954	-	-	•

S		S		S	
B		B		B	

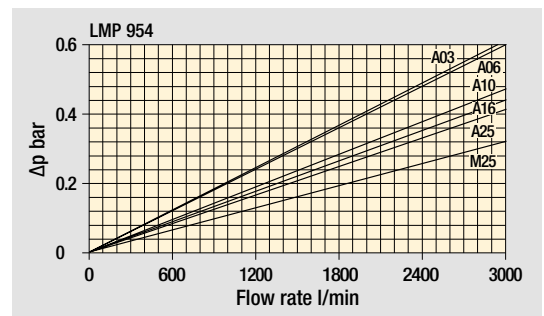
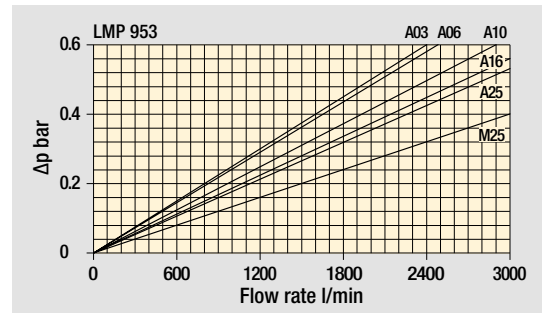
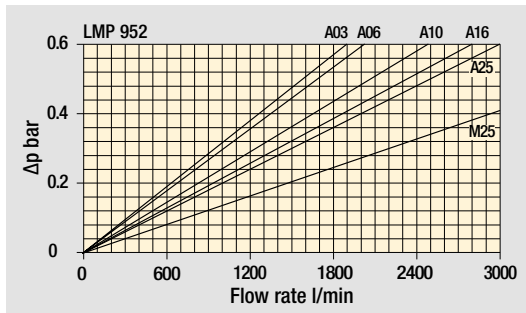
LMP 952-953-954 GENERAL INFORMATION

Pressure drop

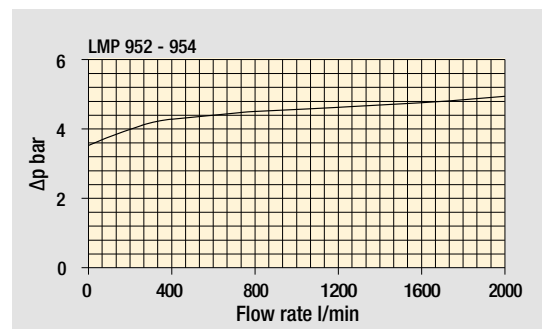
Filter housings Δp pressure drop



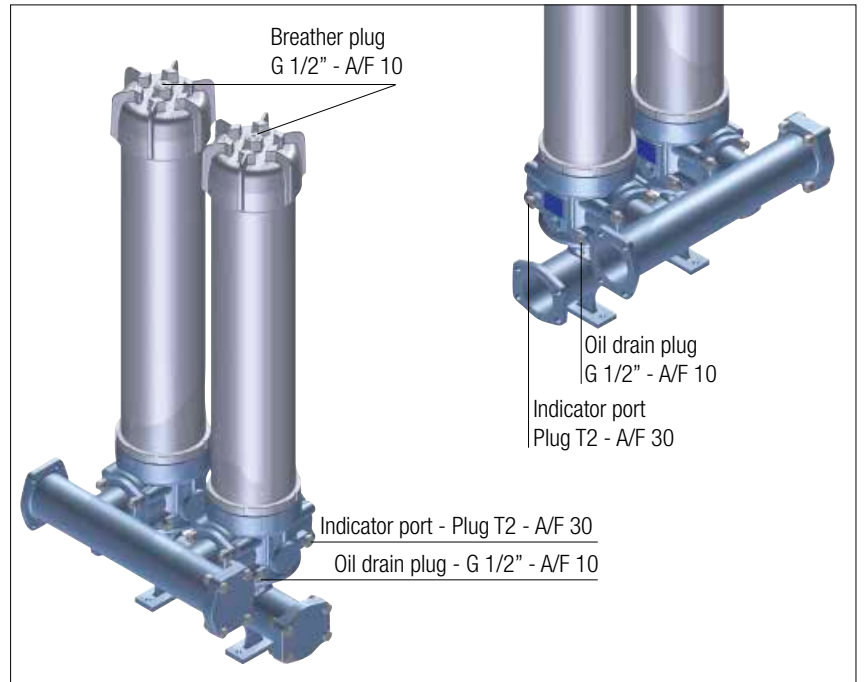
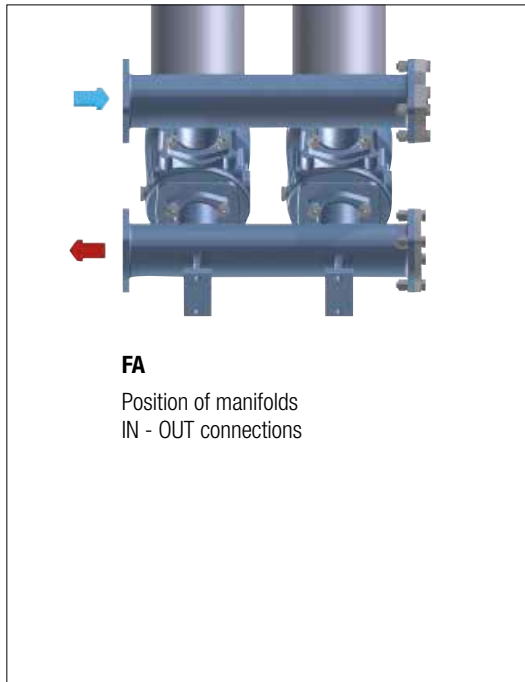
Pressure drop of filter complete with cartridge, oil viscosity 30 mm²/s (cSt)



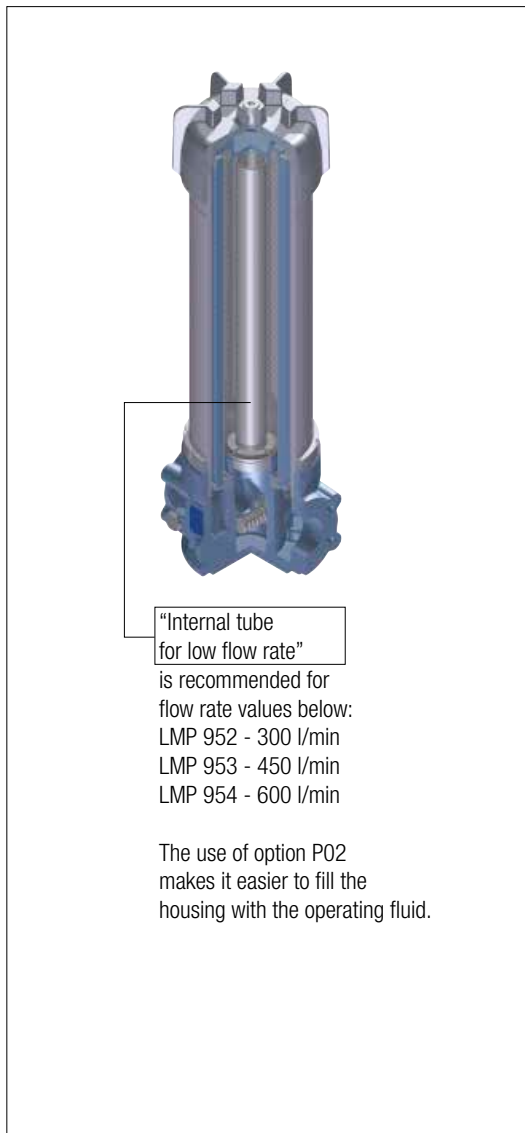
Bypass valve pressure drop



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

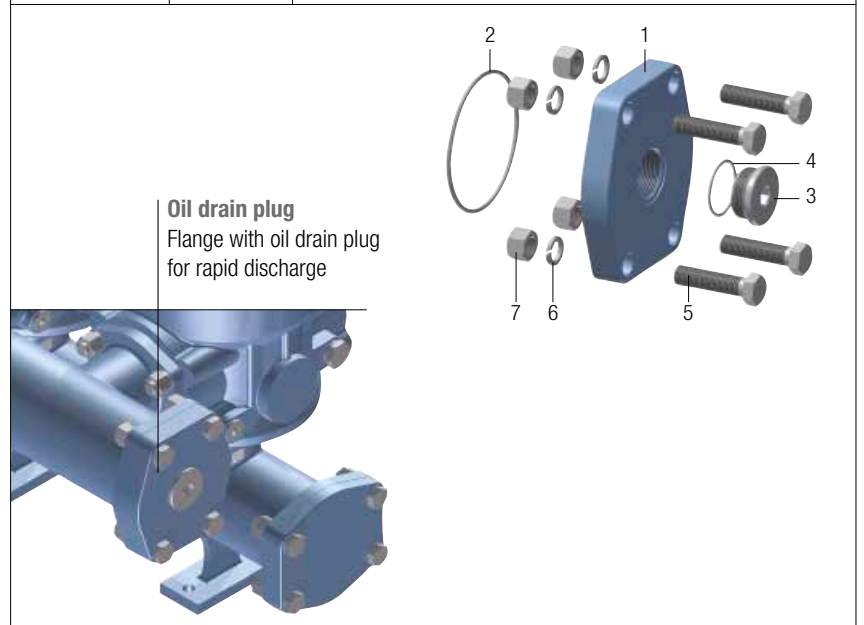


Execution P02



CMV4 & CUV4 Flange options

Code	Thread	Materials
CMV4	G 1 1/4"	1 - 4" SAE flange 2 - O-R 4437 (FPM) for flange 3 - Plug G 1-1/4" 4 - O-R 3168 for plug (FPM) 5 - No. 4 Hex bolt screws UNI-EN 24017 M16 x 65-10.9 6 - No. 4 Spring washers UNI 1751-B 16 7 - No. 4 Nuts UNI 5587 - M16
CUV4	SAE 20	1 - 4" SAE flange 2 - O-R 4437 (FPM) for flange 3 - Plug SAE 20 1 5/8" - 12 UN 4 - 1147 O-R for plug (FPM) 5 - No. 4 Hex bolt screws 5/8" UNC x 2 1/2" 6 - No. 4 Spring washers UNI 1751-B 16 7 - No. 4 Nuts 5/8" UNC



LMP 952-953-954

Designation & Ordering code

COMPLETE FILTER

Series and size **LMP952 | LMP953 | LMP954** Configuration example: **LMP952** **3** **B** **A** **FA** **A10** **N** **P01**

Length **3**

Bypass valve **S** Without bypass **B** With bypass 3.5 bar

Seals and treatments **A** NBR **V** FPM

Connections **FA** 4" SAE 3000 psi

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	
A25 Inorganic microfiber 25 µm	

WA025 Water absorber inorganic microfiber 25 µm

Element Δp **N** 20 bar

Execution **P01** MP Filtri standard
P02 With internal tube for low flow rate
Pxx Customized

FILTER ELEMENT

Element series and size **CU950** Configuration example: **CU950** **3** **A10** **A** **N** **P01**

Element length **3**

Filter series and size

LMP952 Nr. 2 filter elements
LMP953 Nr. 3 filter elements
LMP954 Nr. 4 filter elements

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	
A25 Inorganic microfiber 25 µm	

WA025 Water absorber inorganic microfiber 25 µm

Seals **A** NBR **V** FPM

Element Δp **N** 20 bar

Execution **P01** MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

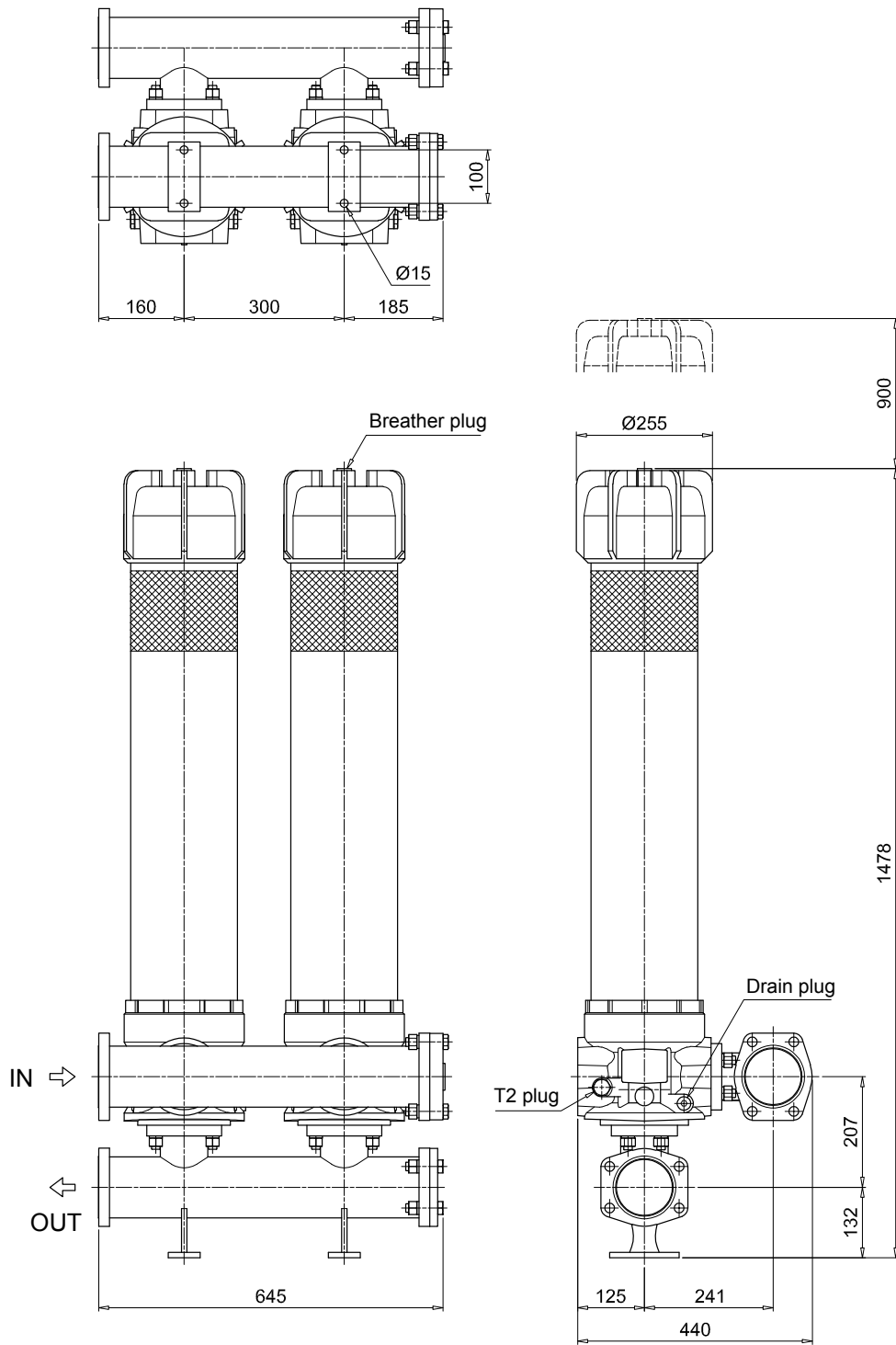
See page 743

T2 Plug

LMP 952-953-954

Dimensions

LMP952

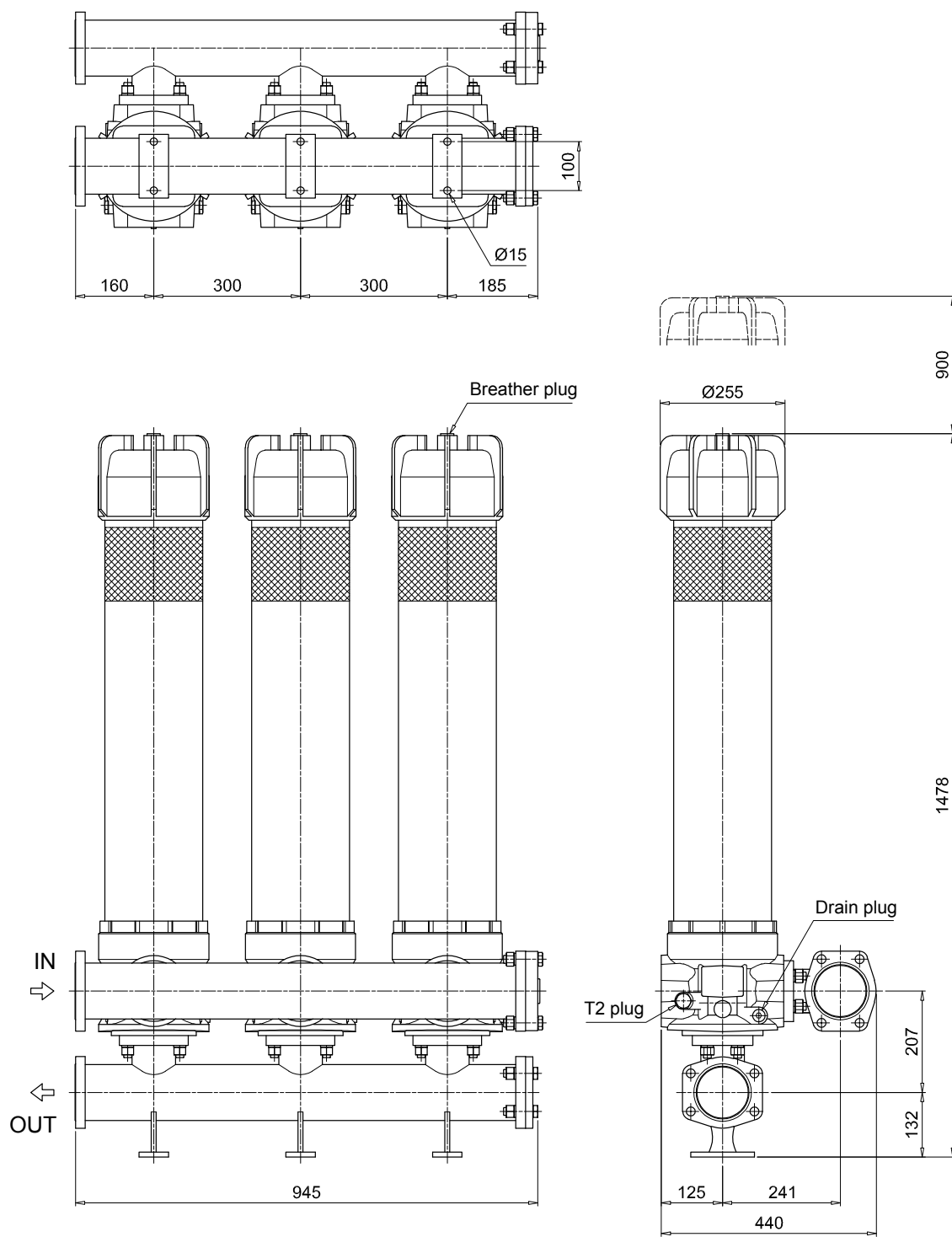


T2 plug = connection for differential pressure indicator

LMP 952-953-954

Dimensions

LMP953

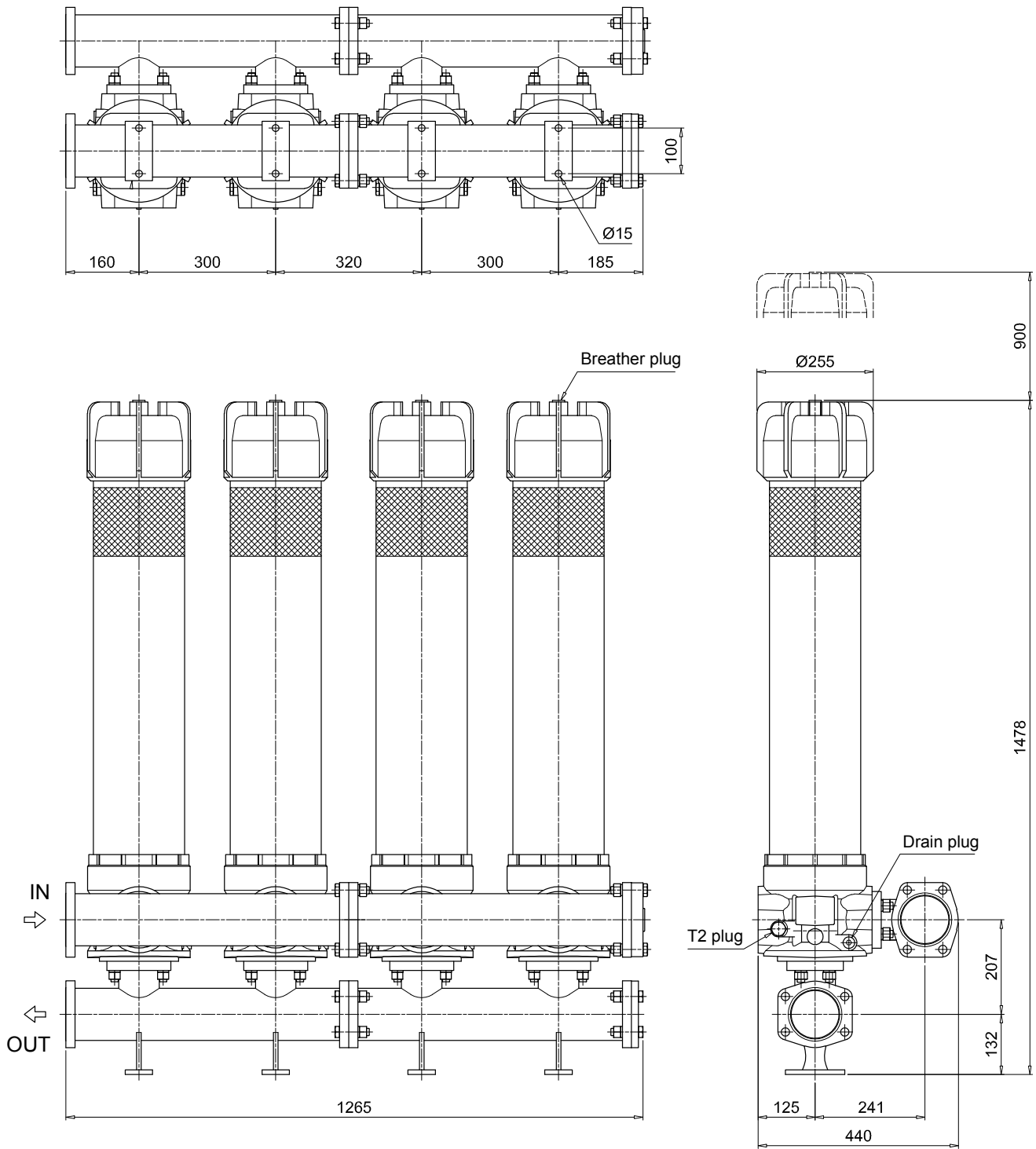


T2 plug = connection for differential pressure indicator

LMP 952-953-954

Dimensions

LMP954

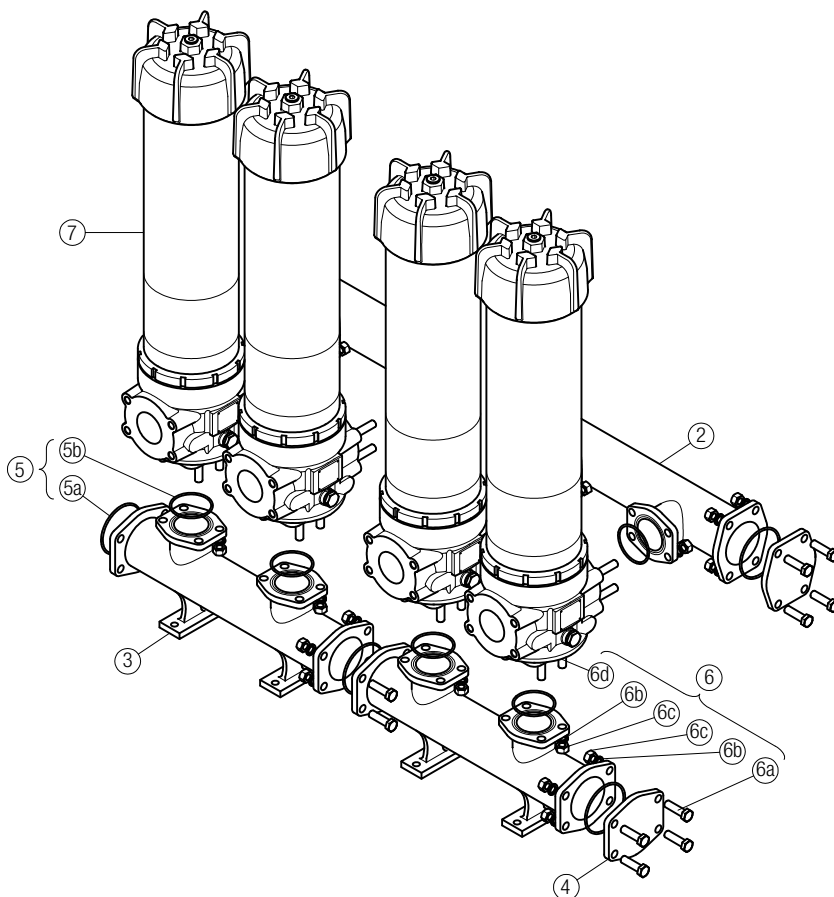


T2 plug = connection for differential pressure indicator

LMP 952-953-954 SPARE PARTS

Order number for spare parts

LMP 952 - 953 - 954



Item 7:
for complete filter code and
spare parts, see
LMP 950 - 951 series chapter

Quantity:
- filter spare parts:
LMP 952 - 2 pcs.
LMP 953 - 3 pcs.
LMP 954 - 4 pcs.

- filter seal kit:
LMP 952 - 2 pcs.
LMP 953 - 3 pcs.
LMP 954 - 4 pcs.

Item:	2		3		4		5 (5a-5b)		6 (6a ÷ 6d)		7	
Filter series	Q.ty	Manifold IN	OUT	4" SAE 3000 psi plugged flange Q.ty	Q.ty	Manifolds seal kit		Q.ty	Threaded fasteners kit		Q.ty	Filter
						NBR	FPM					
LMP 952	1 pc.	01039270	01039271	2 pcs.	01042012	1 pc.	02050404	02050405	1 pc.	02049051	2 pcs.	LMP9513xxF1xxxNP0x
LMP 953	1 pc.	01039337	01039338	2 pcs.		1 pc.	02050404	02050405	1 pc.	02049052	3 pcs.	
LMP 954	2 pcs.	01039270	01039271	2 pcs.		1 pc.	02050406	02050407	1 pc.	02049053	4 pcs.	

LMD 211 series

Maximum working pressure up to 6 MPa (60 bar) - Flow rate up to 200 l/min



LMD 211 GENERAL INFORMATION

Description

Technical data

Low & Medium Pressure filters

Duplex

Maximum working pressure up to 6 MPa (60 bar)

Flow rate up to 200 l/min

LMD211 is a range of versatile low 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 1 1/2" and flanged connections up to 1 1/2", for a maximum flow rate of 200 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- Balancing valve integrated in the changeover lever, 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
- Optional sampling ports, to get samples of fluid or to connect additional instrument to the system
- Visual, electrical and electronic differential clogging indicators

Common applications:

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

Filter housing materials

- Head: Aluminium
- Bowl: Cataphoretic painted steel
- Bypass valve: AISI 304 - Polyamide

Pressure

- Test pressure: 9 MPa (90 bar)
- Burst pressure: 21 MPa (210 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 6 MPa (60 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) \pm 10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25° C to +110° C

Connections

Inlet/Outlet In-Line

Note

LMD 211 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]			Volumes [dm ³]				
	Length	1	2	3	Length	1	2	3
LMD 211		9.5	11.2	12.8		4.1	4.6	5.3

Flow rates [l/min]

Filter series	Length	Filter element design - N Series									
		A03	A06	A10	A16	A25	M25	M60	M90	P10	P25
LMD 211	1	90	95	140	147	156	191	192	192	177	181
	2	113	121	158	162	173	192	192	193	181	183
	3	131	146	166	169	177	193	194	194	184	187

Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

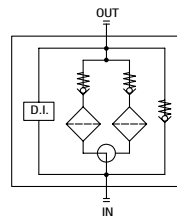
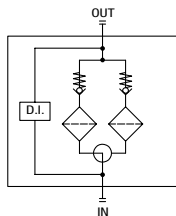
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

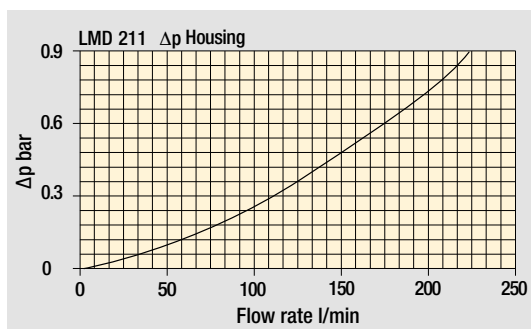
Hydraulic symbols

Filter series	Style S	Style B
LMD 211	•	•

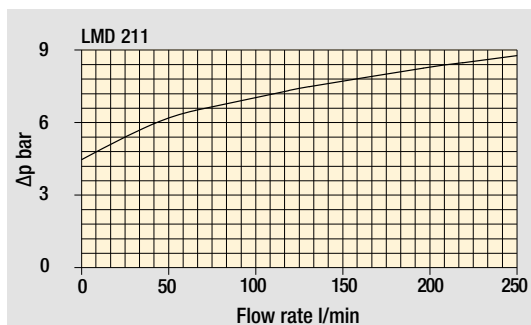


Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

LMD 211

Designation & Ordering code

COMPLETE FILTER

Series and size **LMD211** Configuration example: **LMD211** **3** **B** **A** **C** **6** **A10** **N** **P01**

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

Bypass valve
S Without bypass | **B** With bypass 3.5 bar

Seals and treatments
A NBR
V FPM

Connections
C G 1 1/2"
F 1 1/2" NPT
I SAE 24 - 1 7/8" - 12 UN
L 1 1/2" SAE 3000 psi/M + G 1 1/4"
M 1 1/2" SAE 3000 psi/UNC + 1 1/4" NPT
N 1 1/2" SAE 3000 psi/UNC + SAE 20 - 1 5/8" UN

Connection for differential pressure indicator
6 With plugged connection

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series and size **CU210** Configuration example: **CU210** **3** **A10** **A** **N** **P01**

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

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator

DEM Electrical differential pressure indicator

DEU Electrical differential pressure indicator

DLA Electrical / visual differential pressure indicator

DLE Electrical / visual differential pressure indicator

DTA Electronic differential pressure indicator

DVA Visual differential pressure indicator

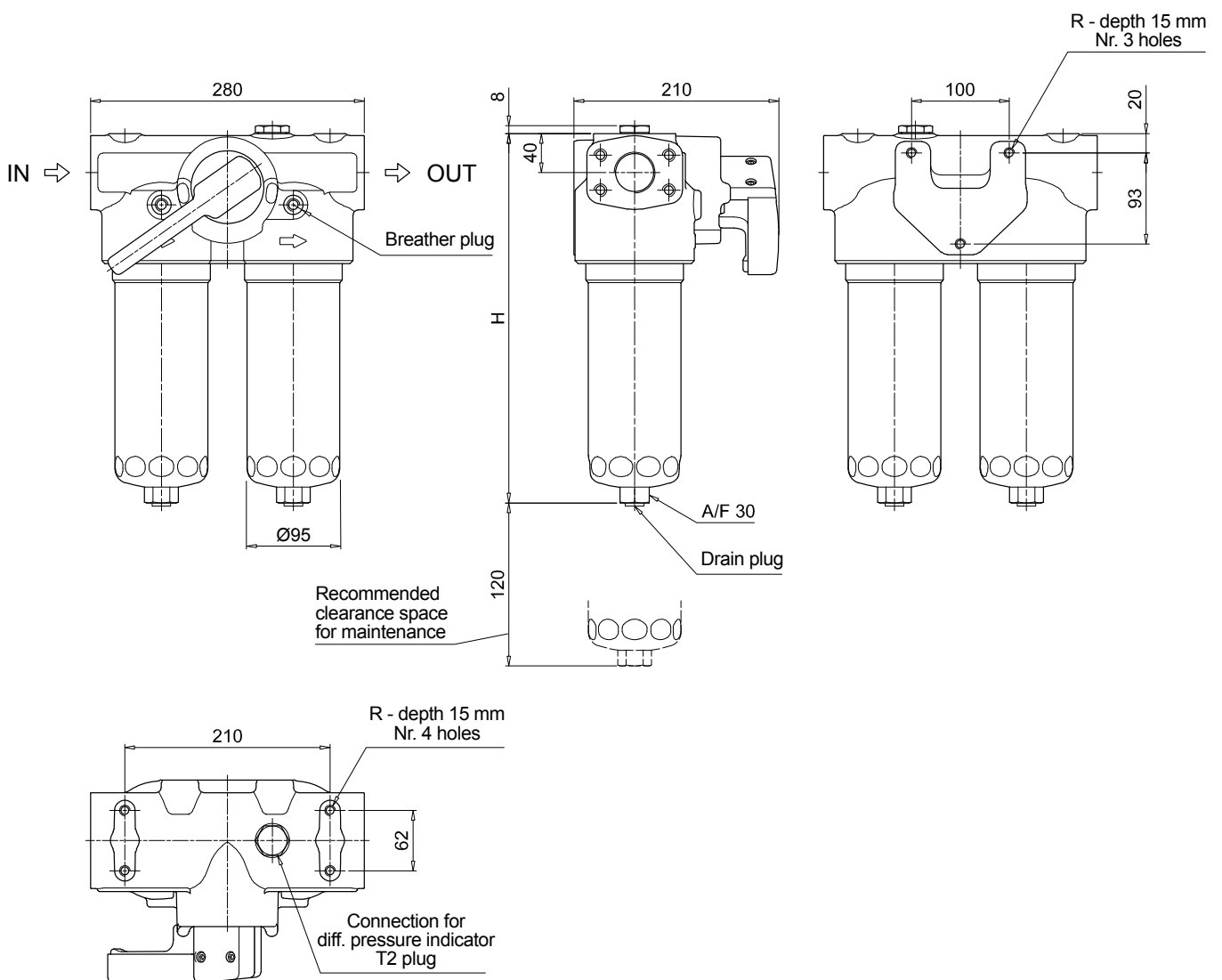
DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug

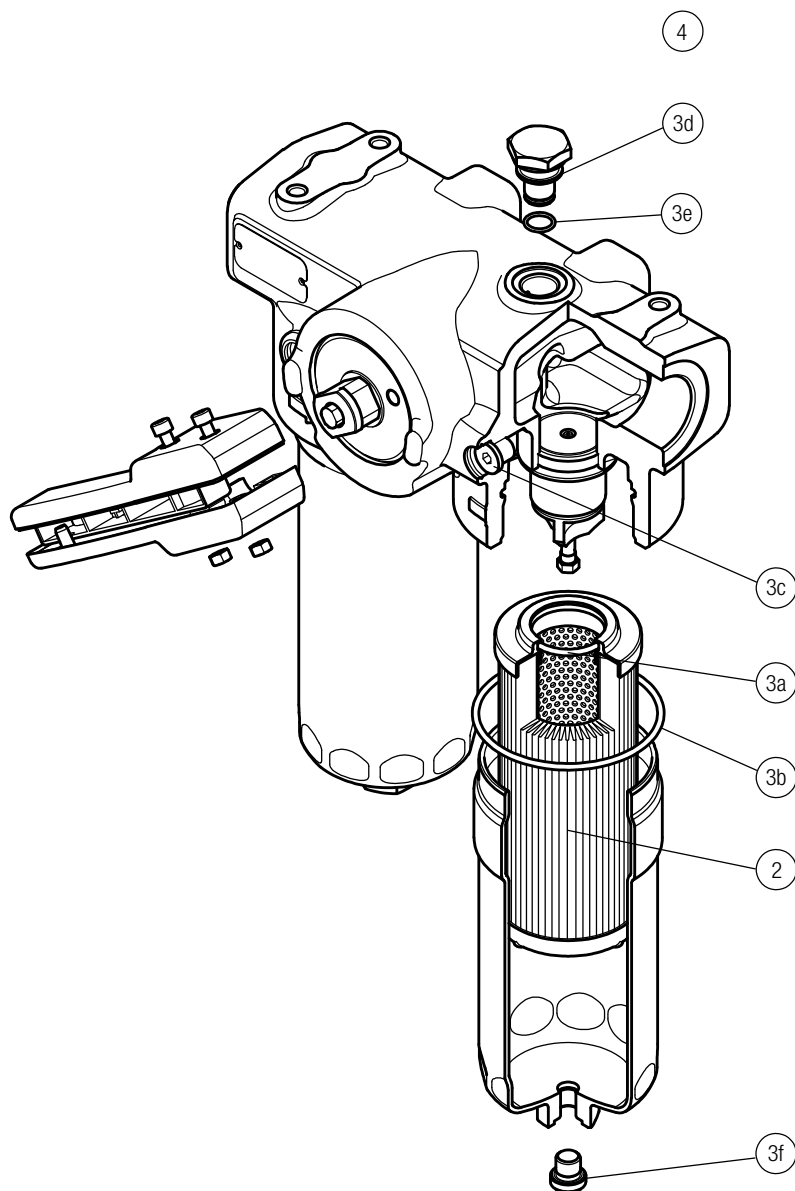
LMD211	
Filter length	H [mm]
1	383
2	513
3	651
Connections	R
C	M10
F - I	3/8" UNC
L	M10
M - N	3/8" UNC



LMD 211 SPARE PARTS

Order number for spare parts

LMD 211



Item:	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 2 pcs.	
Filter series	Filter element	Seal Kit code number NBR	FPM	Indicator connection plug NBR	FPM	
LDD	See order table	02050671	02050672	T2H	T2V	

LMD 400-401 & 431 series

Maximum working pressure up to 1.6 MPa (16 bar) - Flow rate up to 600 l/min



Description

Technical data

Low & Medium Pressure filters**Duplex****Maximum working pressure up to 1.6 MPa (16 bar)****Flow rate up to 600 l/min**

LMD400 is a range of versatile low 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:

- 2 1/2" flanged connections, for a maximum flow rate of 600 l/min
- LMD400: In-line connections
- LMD401: In-line connections with compact design
- LMD431: In-line connections with compact design and base mounting
- Base-mounting design also available, for ease of the replacement of the filter element
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid.
For further information, see the Contamination Management document and the dedicate leaflet.
- Balancing valve, 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

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

Filter housing materials

- Head: Anodized Aluminium
- Housing: Anodized Aluminium
- Manifolds: Steel - Painted black
- Bypass valve: Steel
- 3-way ball valve: Steel housings - Stainless Steel ball
- Valve: Phosphatized Steel - Stainless Steel

Pressure

Test pressure: 2.5 MPa (25 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) \pm 10%
- Other opening pressures on request.

 Δp element type

- Microfibre filter elements - series N - W: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

FPM series V

Temperature

From -25° C to +110° C

Connections

- LMD 400-401: In-line Inlet/Outlet
- LMD 401: Same side
- LMD 400-401-431: In-Line

Note

LMD 400 - 401 - 431 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]			
	Length	4	5	6	Length	4	5	6
LMD 400 - 401	60	65	72		20	28	33	
LMD 431	-	68	78		-	28	33	

Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
LMD 400 - 401	4	308	349	453	474	530	628	547	567
	5	395	427	509	547	589	637	577	592
	6	429	483	558	568	597	639	583	597
LMD 431	5	395	427	509	547	589	637	577	592
	6	429	483	558	568	597	639	583	597

Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

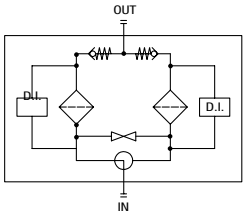
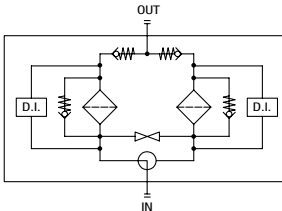
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

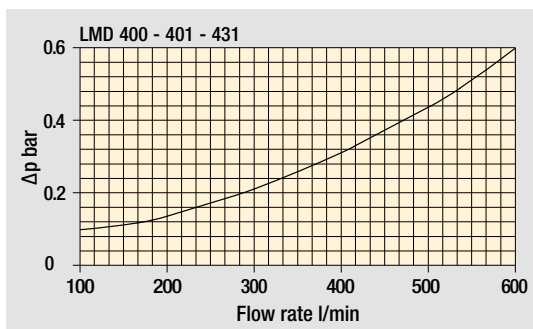
Hydraulic symbols

Filter series	Execution S	Execution B
LMD 400 - 401	•	•
LMD 431	•	•

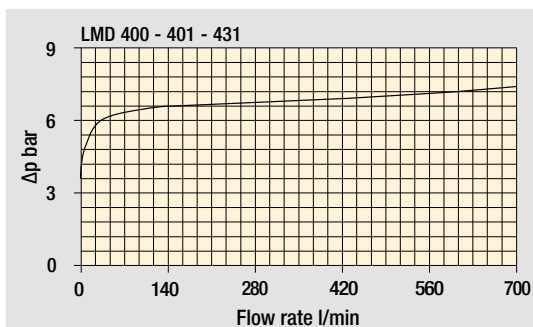



Pressure drop

Filter housings Δp pressure drop



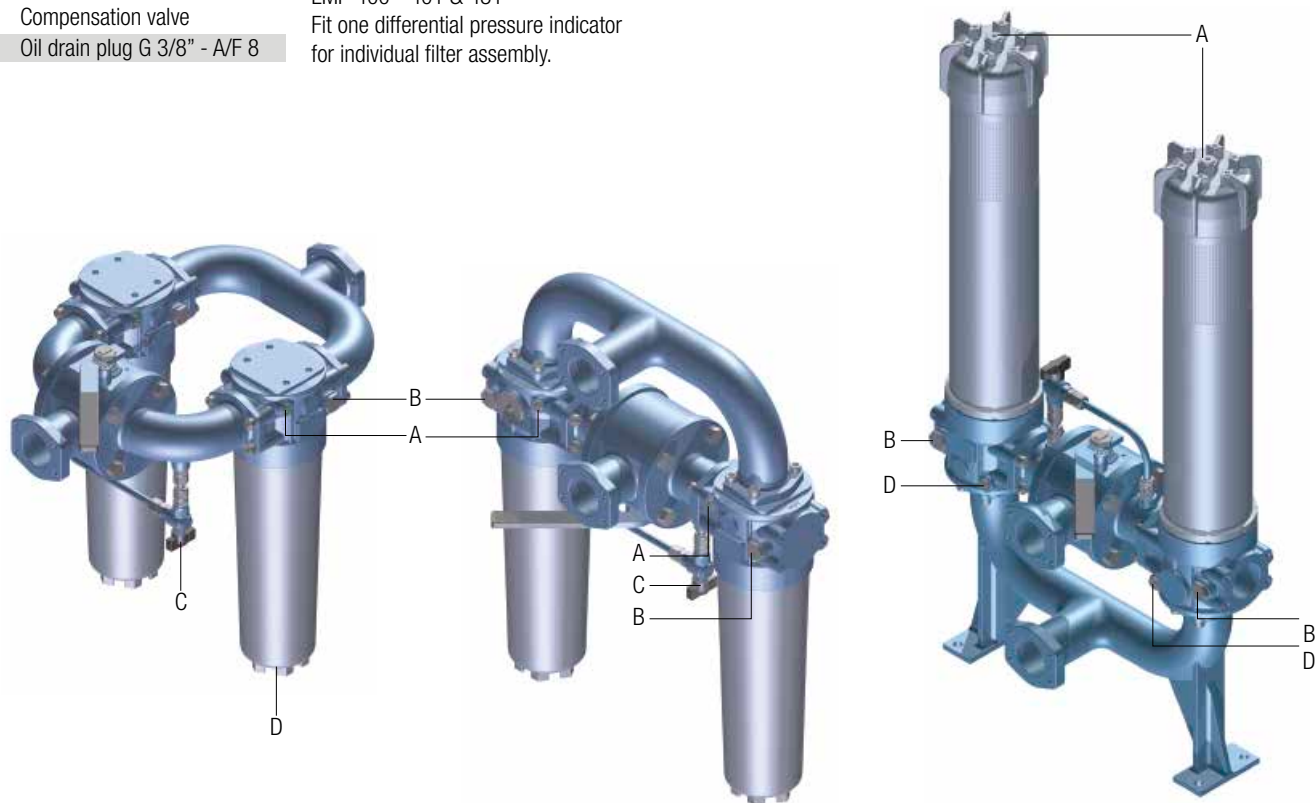
Bypass valve pressure drop



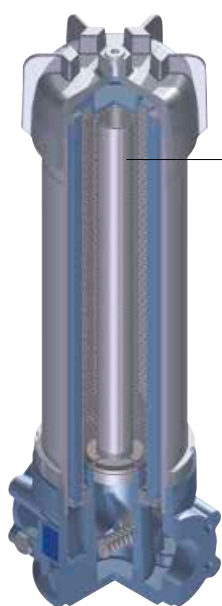
The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968. Δp varies proportionally with density.

Focus on

- A** Breather plug G 3/8" - A/F 8
 - B** Indicator port Plug T2 - A/F 30
 - C** Compensation valve
 - D** Oil drain plug G 3/8" - A/F 8
- LMP 400 - 401 & 431
Fit one differential pressure indicator
for individual filter assembly.



LMD 431: Execution P02



"Internal tube for low flow rate" is recommended for flow rate values below 150 l/min.

The use of option P02 makes it easier to fill the housing with the operating fluid.

LMD 400-401

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example: LMD401 4 B V F1 A10 N P01							
LMD400 LMD401									
Length									
4 5 6									
Bypass valve									
S Without bypass		B With bypass 3.5 bar							
Seals and treatments									
V FPM									
Connections									
		LMD400		LMD401					
F1 2 1/2" SAE 3000 psi/M		•		•					
F2 2 1/2" SAE 3000 psi/UNC		•		•					
F3 2 1/2" SAE 3000 psi/M, In-line connections		-		•					
F4 2 1/2" SAE 3000 psi/UNC, In-line connections		-		•					
Filtration rating (filter media)									
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm							
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm							
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm							
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm							
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm							
WA025 Water absorber inorganic microfiber 25 µm									
Element Δp		Execution						Filter length	
N 20 bar									
		P01 MP Filtri standard						• • •	
		P02 Maintenance from the bottom of the housing						- • •	
		Pxx Customized						- - -	

FILTER ELEMENT

Element series and size		Configuration example: CU400 4 A10 V N P01					
CU400							
Element length							
4 5 6							
Filtration rating (filter media)							
A03 Inorganic microfiber 3 µm		M25 Wire mesh 25 µm					
A06 Inorganic microfiber 6 µm		M60 Wire mesh 60 µm					
A10 Inorganic microfiber 10 µm		M90 Wire mesh 90 µm					
A16 Inorganic microfiber 16 µm		P10 Resin impregnated paper 10 µm					
A25 Inorganic microfiber 25 µm		P25 Resin impregnated paper 25 µm					
WA025 Water absorber inorganic microfiber 25 µm							
Seals							
V FPM							
Element Δp		Execution					
N 20 bar		P01 MP Filtri standard					
		Pxx Customized					

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

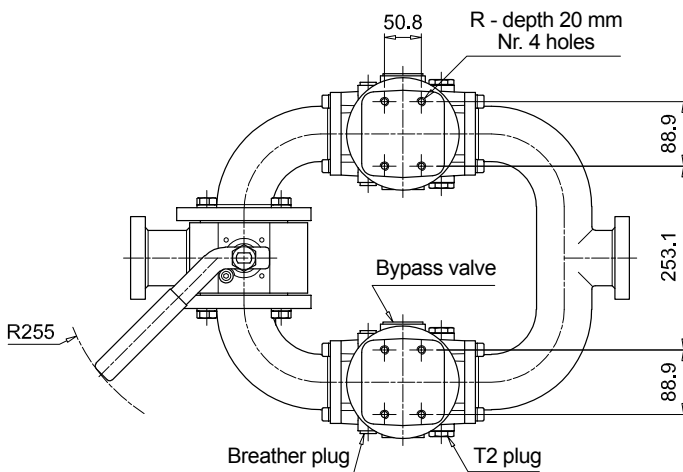
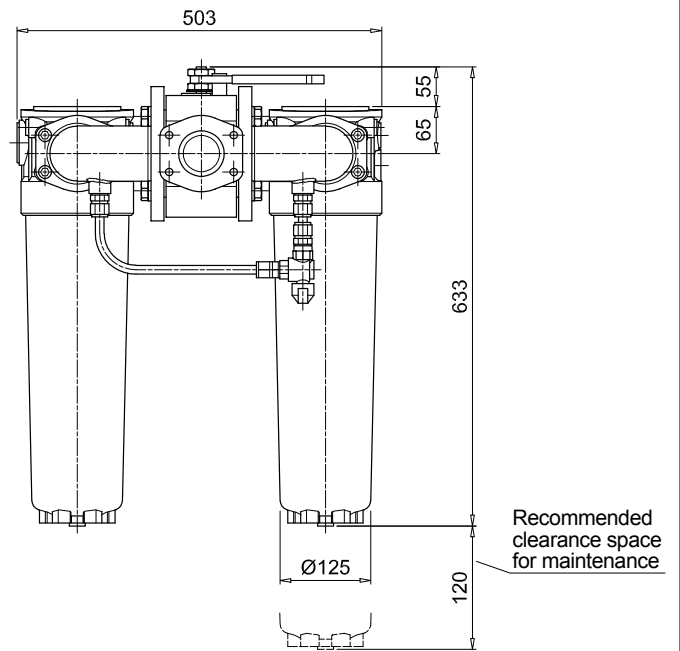
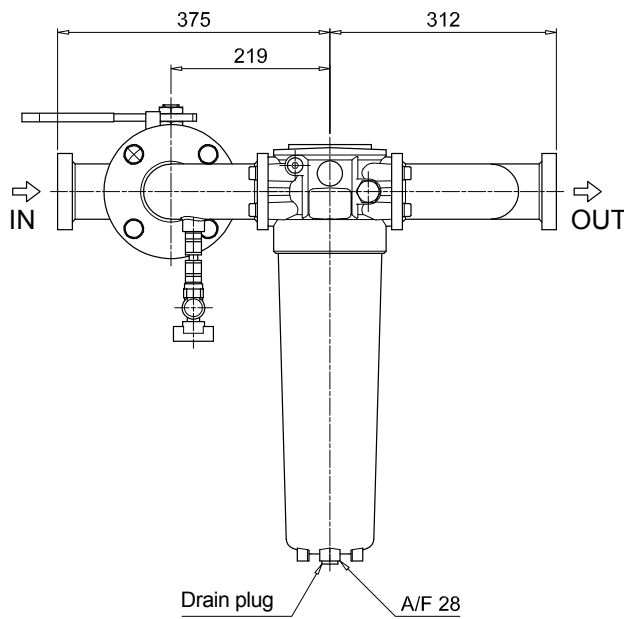
See page 743

T2 Plug

LMD 400-401

Dimensions

LMD400	
Length 4	
Connections	R
F1	M12
F2	1/2" UNC
F3	M12
F4	1/2" UNC



T2 plug = connection for differential pressure indicator

LMD 400-401

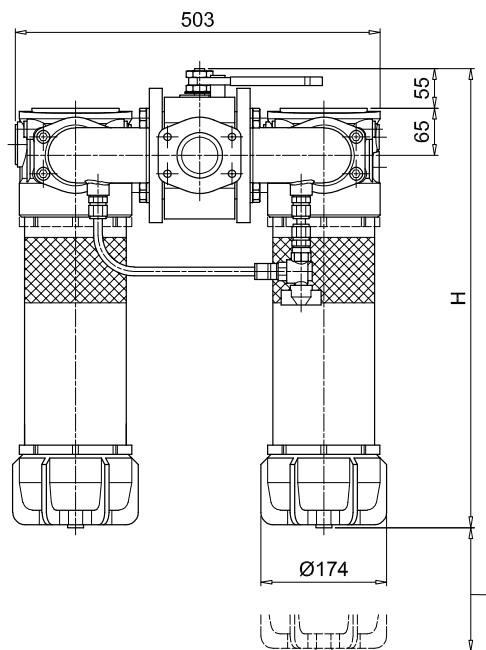
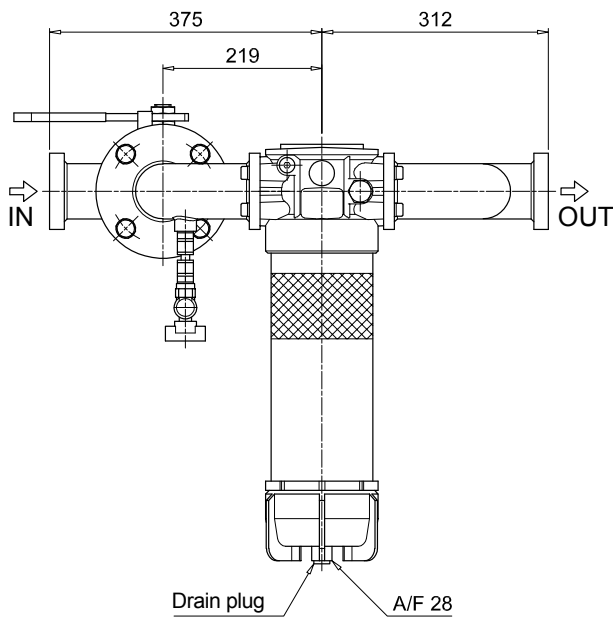
Dimensions

LMD400

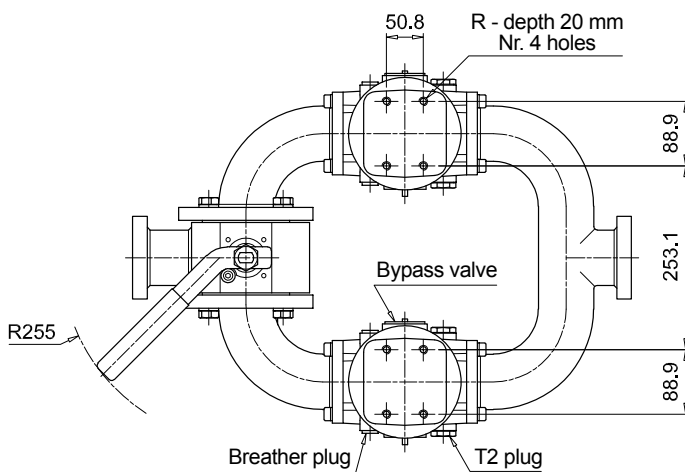
Length 5 - 6

Filter length	H [mm]	H2 [mm] Execution	
		P01	P02
5	883	120	660
6	1213	120	690

Connections	R
F1	M12
F2	1/2" UNC
F3	M12
F4	1/2" UNC



H2 - Recommended clearance space for maintenance

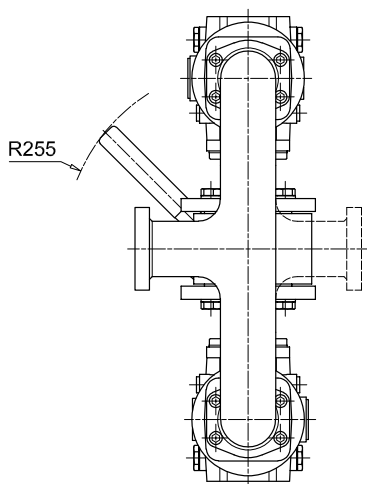
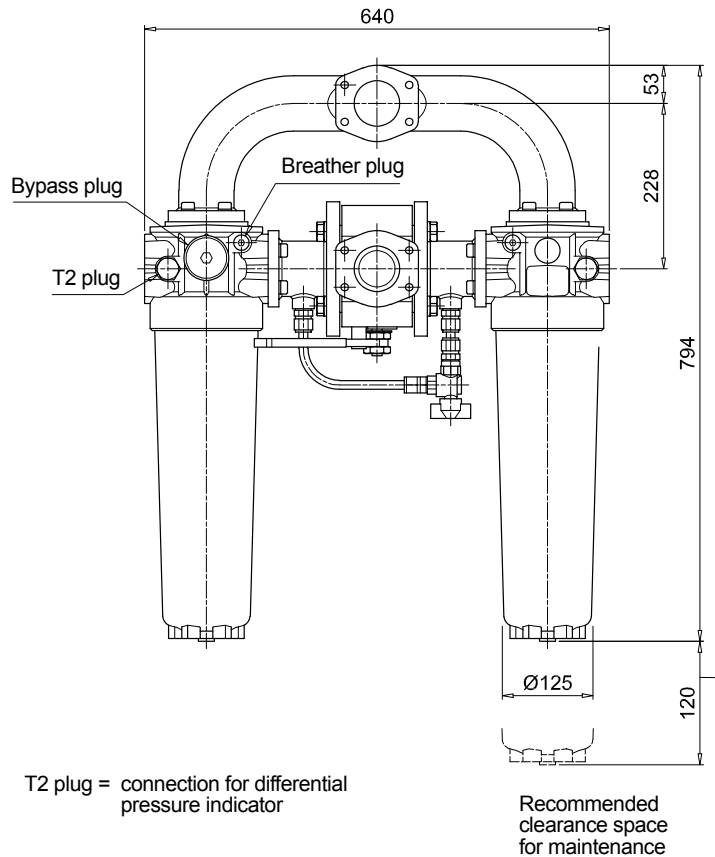
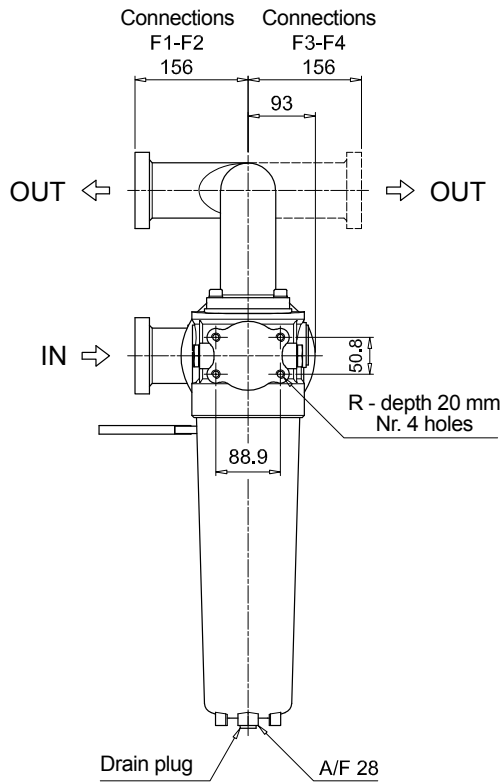


T2 plug = connection for differential pressure indicator

LMD 400-401

Dimensions

LMD401	
Length 4	
Connections	R
F1	M12
F2	1/2" UNC
F3	M12
F4	1/2" UNC



LMD 400-401

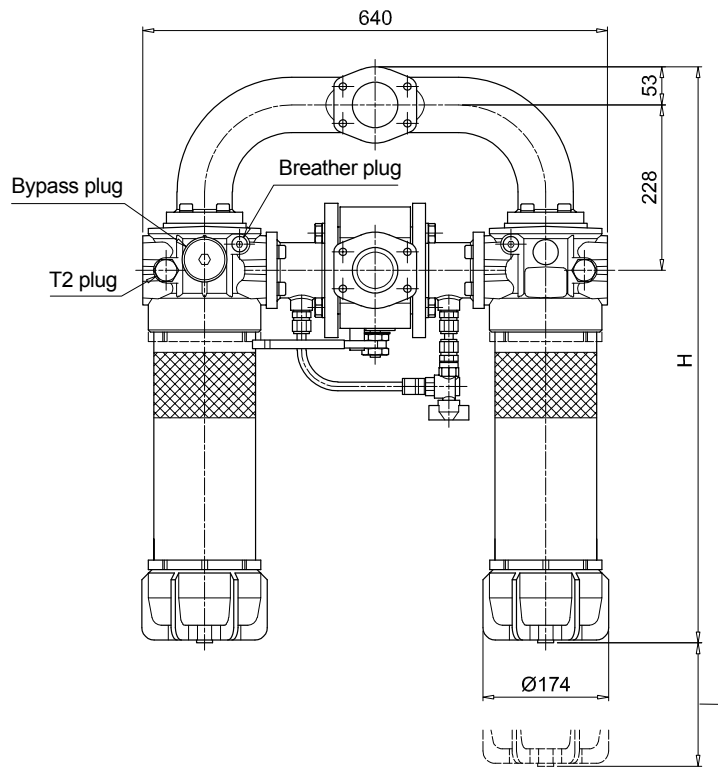
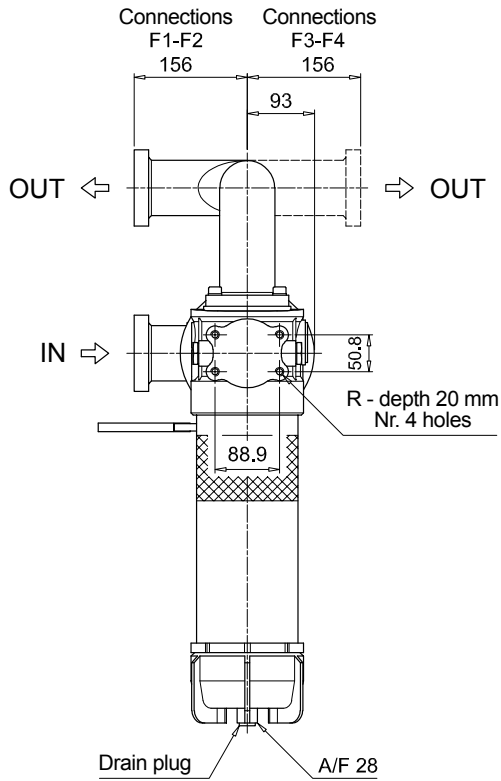
Dimensions

LMD401

Length 5 - 6

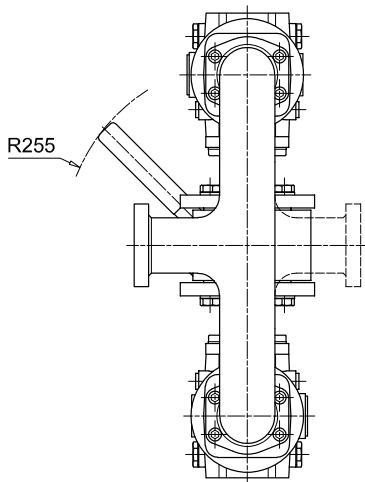
Filter length	H [mm]	H2 [mm] Execution	
		P01	P02
5	1044	120	660
6	1374	120	690

Connections	R
F1	M12
F2	1/2" UNC
F3	M12
F4	1/2" UNC



T2 plug = connection for differential pressure indicator

H2 - Recommended clearance space for maintenance



LMD 431

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example: LMD431 5 B V F1 A10 N P01									
LMD431										
Length	5 6									
Bypass valve	S Without bypass B With bypass 3.5 bar									
Seals and treatments	V FPM									
Connections	F1 2 1/2" SAE 3000 psi/M F2 2 1/2" SAE 3000 psi/UNC F3 2 1/2" SAE 3000 psi/M, In-line connections F4 2 1/2" SAE 3000 psi/UNC, In-line connections									
Filtration rating (filter media)	A03 Inorganic microfiber 3 µm M25 Wire mesh 25 µm A06 Inorganic microfiber 6 µm M60 Wire mesh 60 µm A10 Inorganic microfiber 10 µm M90 Wire mesh 90 µm A16 Inorganic microfiber 16 µm P10 Resin impregnated paper 10 µm A25 Inorganic microfiber 25 µm P25 Resin impregnated paper 25 µm WA025 Water absorber inorganic microfiber 25 µm									
Element Δp	N 20 bar									
Execution	P01 MP Filtri standard P02 With internal tube for low flow rate Pxx Customized									

FILTER ELEMENT

Element series and size	Configuration example: CU400 5 A10 V N P01						
CU400							
Element length	5 6						
Filtration rating (filter media)	A03 Inorganic microfiber 3 µm M25 Wire mesh 25 µm A06 Inorganic microfiber 6 µm M60 Wire mesh 60 µm A10 Inorganic microfiber 10 µm M90 Wire mesh 90 µm A16 Inorganic microfiber 16 µm P10 Resin impregnated paper 10 µm A25 Inorganic microfiber 25 µm P25 Resin impregnated paper 25 µm WA025 Water absorber inorganic microfiber 25 µm						
Seals	V FPM						
Element Δp	N 20 bar						
Execution	P01 MP Filtri standard Pxx Customized						

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

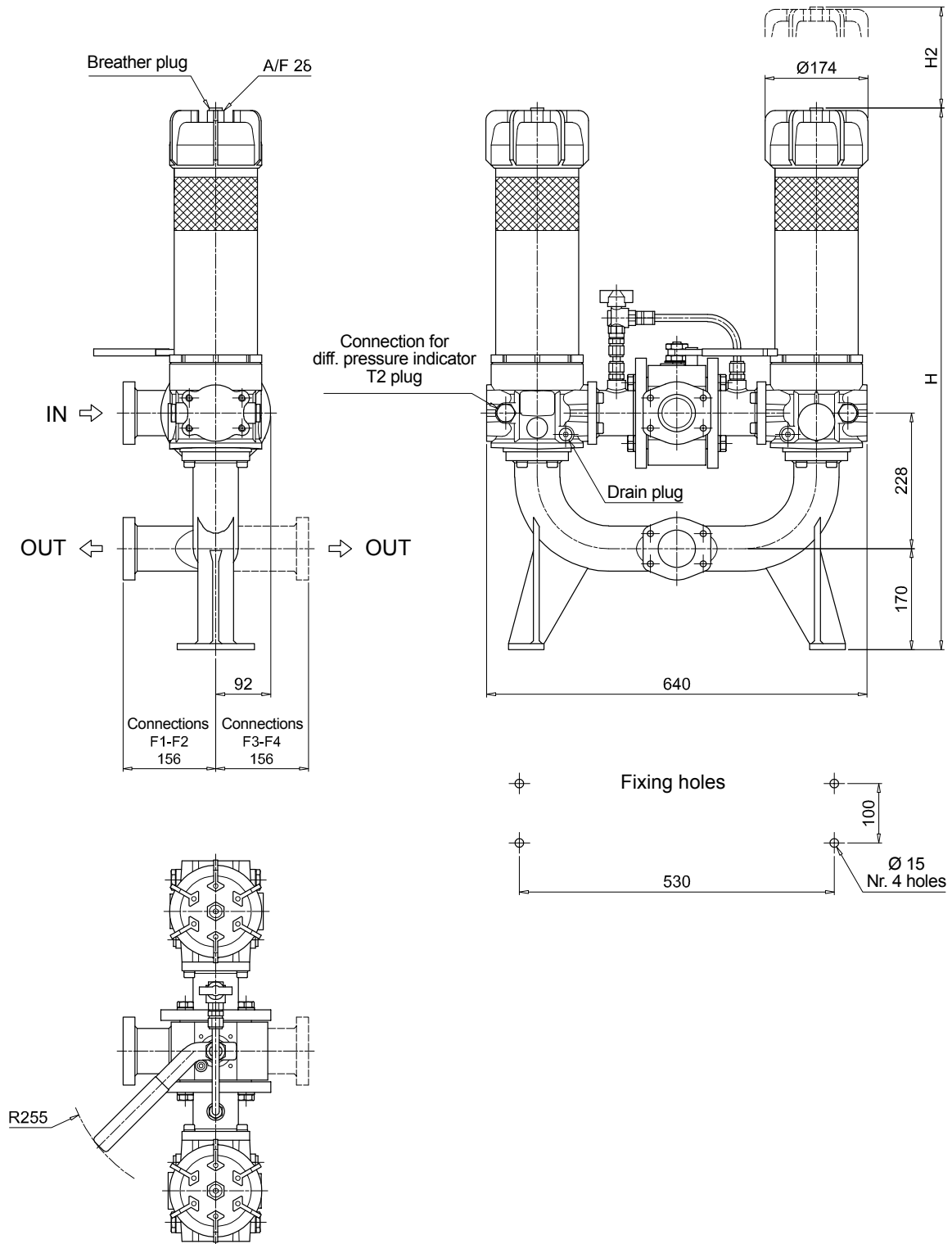
PLUGS

See page 743

T2 Plug

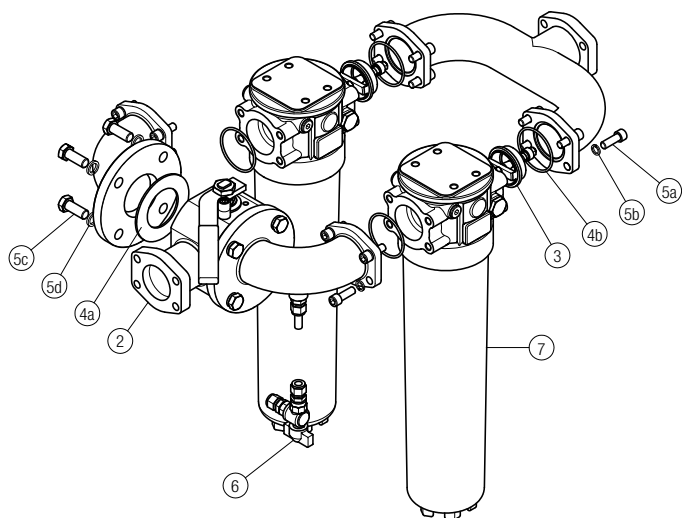
LMD431

Filter length	H [mm]	H2 [mm]
5	1161	660
6	1491	690

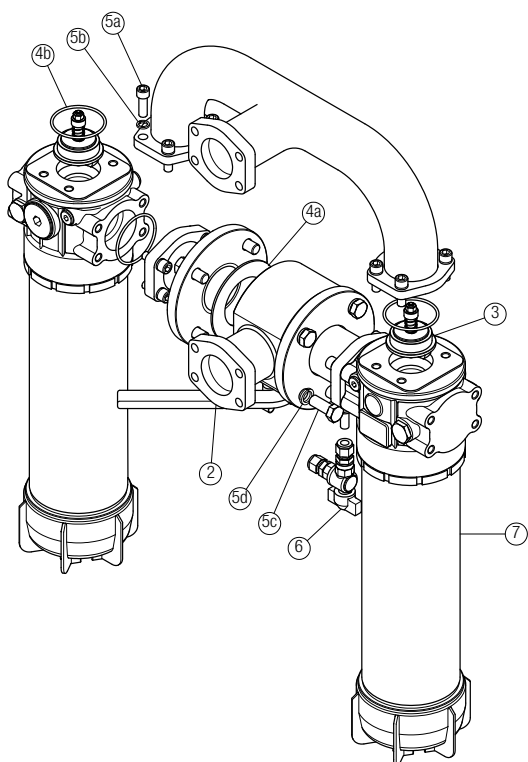


Order number for spare parts

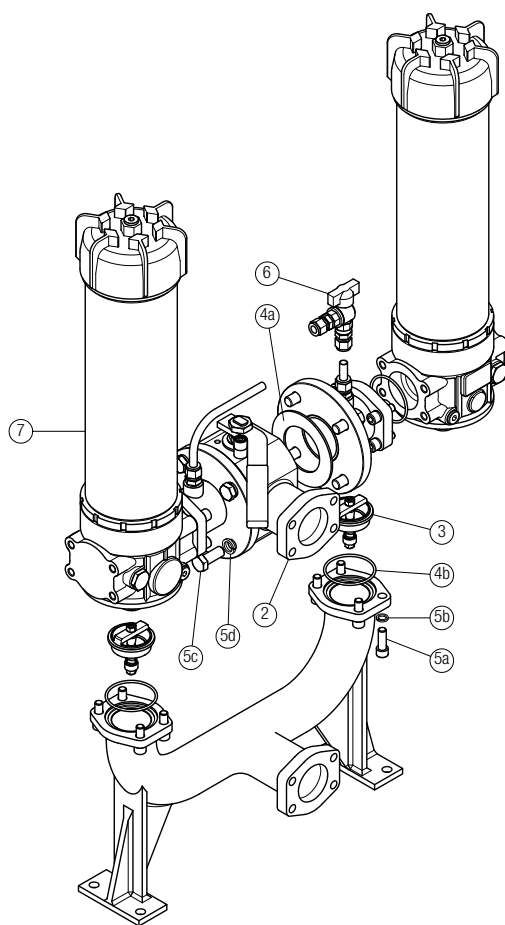
LMD 400



LMD 401



LMD 431



Item:	Q.ty: 1 pc.		Q.ty: 2 pcs.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 2 pcs.
Filter series	3-way ball valve PN 16 2 1/2" SAE 3000 psi/M 2 1/2" SAE 3000 psi/UNC		One-way valve	Seal Kit	Threaded fasteners kit	Kit ball valve with hose fitting	Filter See order table
LMD 400-401-431	02001440	02001441	02001429	02050399	02049062	02025043	LMP400xF2.....

LMD 951 series

Maximum working pressure up to 1.6 MPa (16 bar) - Flow rate up to 1200 l/min



LMD 951 GENERAL INFORMATION

Description

Technical data

Low & Medium Pressure filters

Duplex

Maximum working pressure up to 1.6 MPa (16 bar)

Flow rate up to 1200 l/min

LMD950 is a range of versatile low 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:

- Flanged connections up to 4", for a maximum flow rate of 1200 l/min
- Base-mounting design, for ease of the replacement of the filter element
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- Balancing valve, to equalize the housing pressure before the switch
- Bypass valve, to relieve excessive pressure drop across the filter media
- Drain ports, to remove the fluid from the housing prior the maintenance work
- Visual, electrical and electronic differential clogging indicators

Common applications:

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

Filter housing materials

- Head: Anodized Aluminium
- Housing: Anodized Aluminium
- Manifolds: Welded - Painted black
- Bypass valve: Steel
- 3-way ball valve: Steel body - Stainless steel ball
- Check valve: Cast Iron body - AISI 304 leaf

Pressure

- SAE + DIN Flange
- Test pressure: 2.5 MPa (25 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) $\pm 10\%$
- Other opening pressures on request.

Number of filter elements

LMD 951: 2 filter elements CU950-3

Δp element type

- Microfibre filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

FPM series V

Temperature

From -25°C to $+110^{\circ}\text{C}$

Connections

- LMD 951: In-line Inlet/Outlet
- Same side

Note

LMD 951 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]		Volumes [dm ³]	
	DN 80	DN 100	DN 80	DN 100
LMD 951	102	130	62	66

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25 M60 M90
LMD 951	3	853	884	995	1066	1096	1233

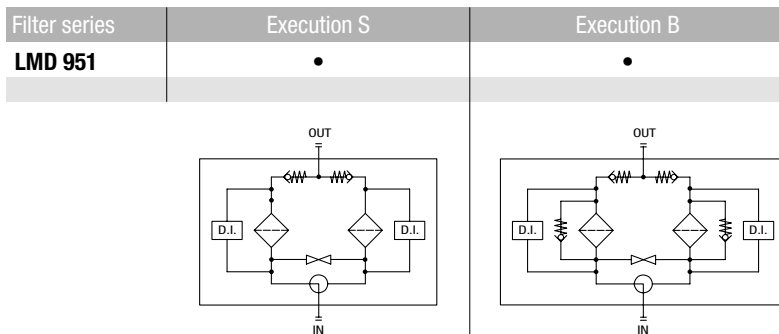
Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

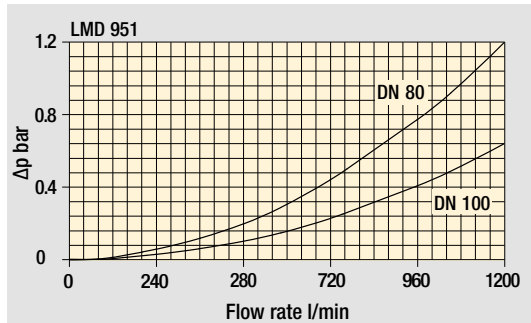
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

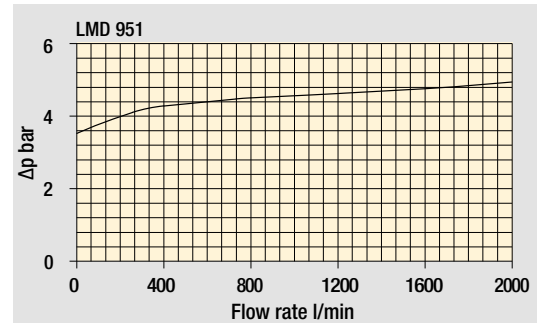
Hydraulic symbols



Pressure drop



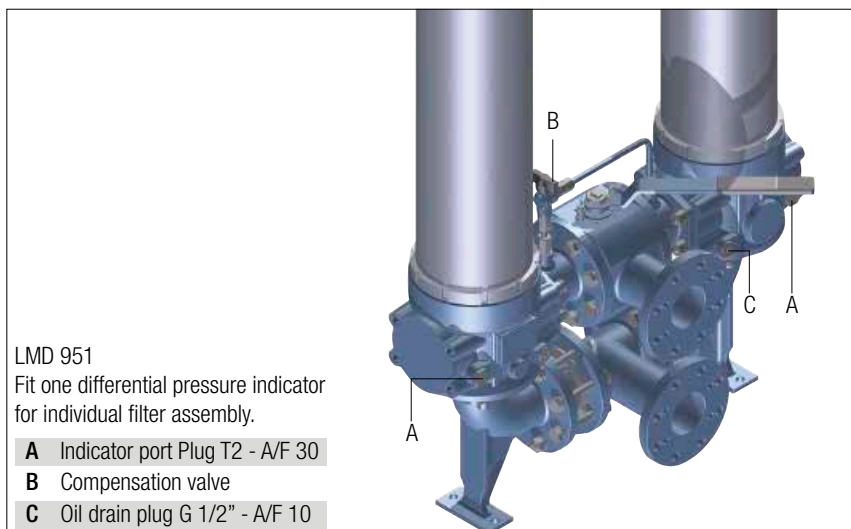
Filter housings
 Δp pressure drop



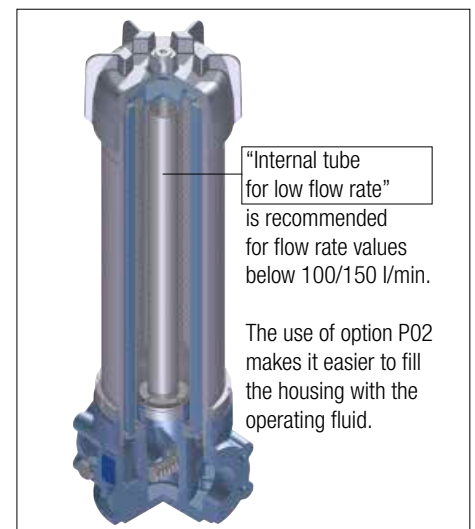
Bypass valve
pressure drop

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

Focus on



Execution P02



LMD 951

Designation & Ordering code

COMPLETE FILTER

Series and size	Configuration example: LMD951 3 B V F1 A10 N P01							
LMD951								
Length	3							
Bypass valve	S Without bypass		B With bypass 3.5 bar					
Seals and treatments	V FPM							
Connections	F1 3" SAE 3000 psi/M F2 3" SAE 3000 psi/UNC F3 4" SAE 3000 psi/M F4 4" SAE 3000 psi/UNC F5 3" SAE 3000 psi/M, In-line connections F6 3" SAE 3000 psi/UNC, In-line connections F7 4" SAE 3000 psi/M, In-line connections F8 4" SAE 3000 psi/UNC, In-line connections							
Filtration rating (filter media)	A03 Inorganic microfiber 3 µm M25 Wire mesh 25 µm A06 Inorganic microfiber 6 µm M60 Wire mesh 60 µm A10 Inorganic microfiber 10 µm M90 Wire mesh 90 µm A16 Inorganic microfiber 16 µm A25 Inorganic microfiber 25 µm WA025 Water absorber inorganic microfiber 25 µm							
	Element Δp				Execution			
	N 20 bar				P01 MP Filtri standard P02 With internal tube for low flow rate Pxx Customized			

FILTER ELEMENT

Element series and size	Configuration example: CU950 3 A10 V N P01					
CU950						
Element length	3					
Filtration rating (filter media)	A03 Inorganic microfiber 3 µm M25 Wire mesh 25 µm A06 Inorganic microfiber 6 µm M60 Wire mesh 60 µm A10 Inorganic microfiber 10 µm M90 Wire mesh 90 µm A16 Inorganic microfiber 16 µm A25 Inorganic microfiber 25 µm WA025 Water absorber inorganic microfiber 25 µm					
Seals	V FPM					
	Element Δp			Execution		
	N 20 bar			P01 MP Filtri standard Pxx Customized		

CLOGGING INDICATORS

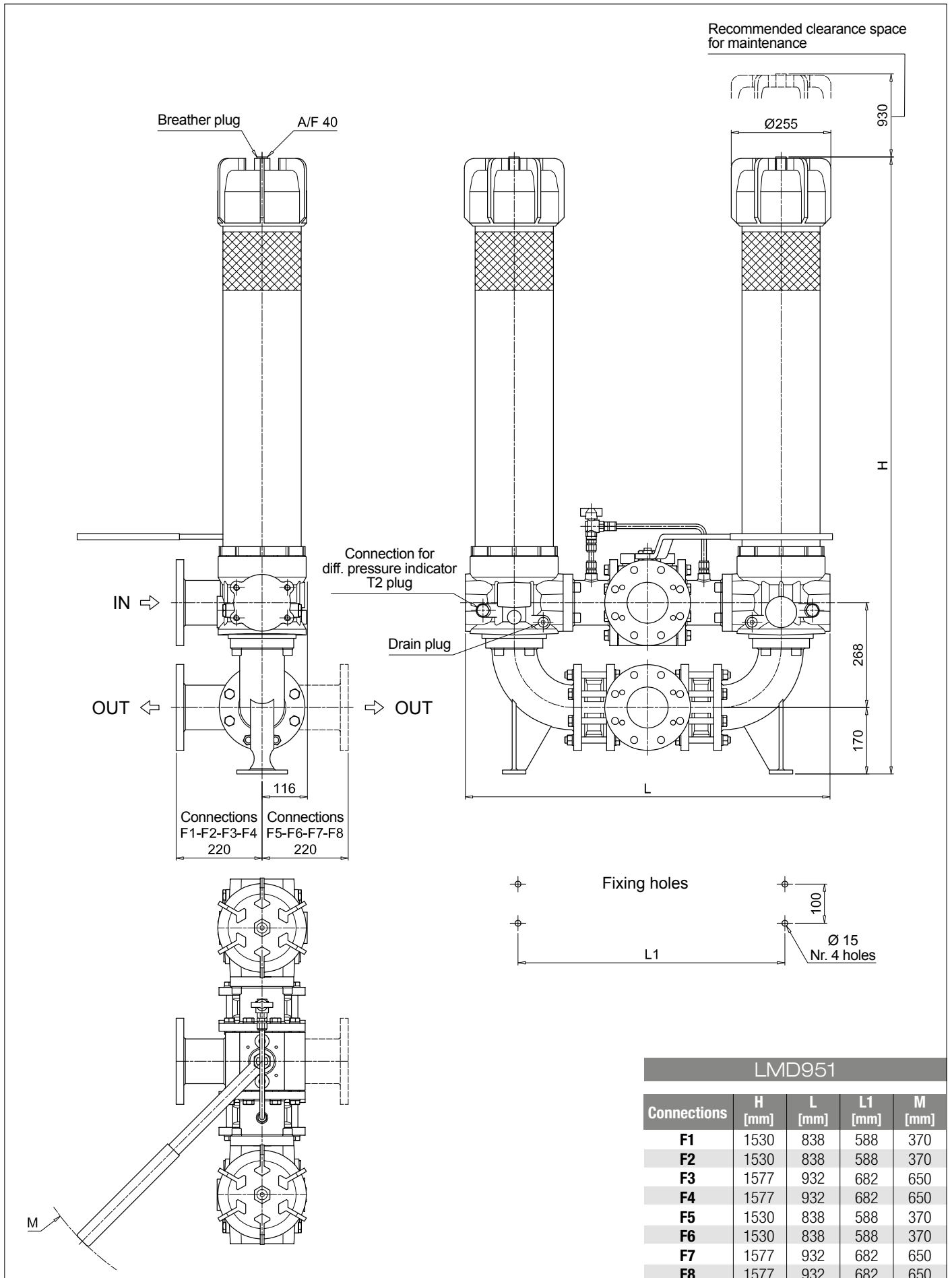
See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

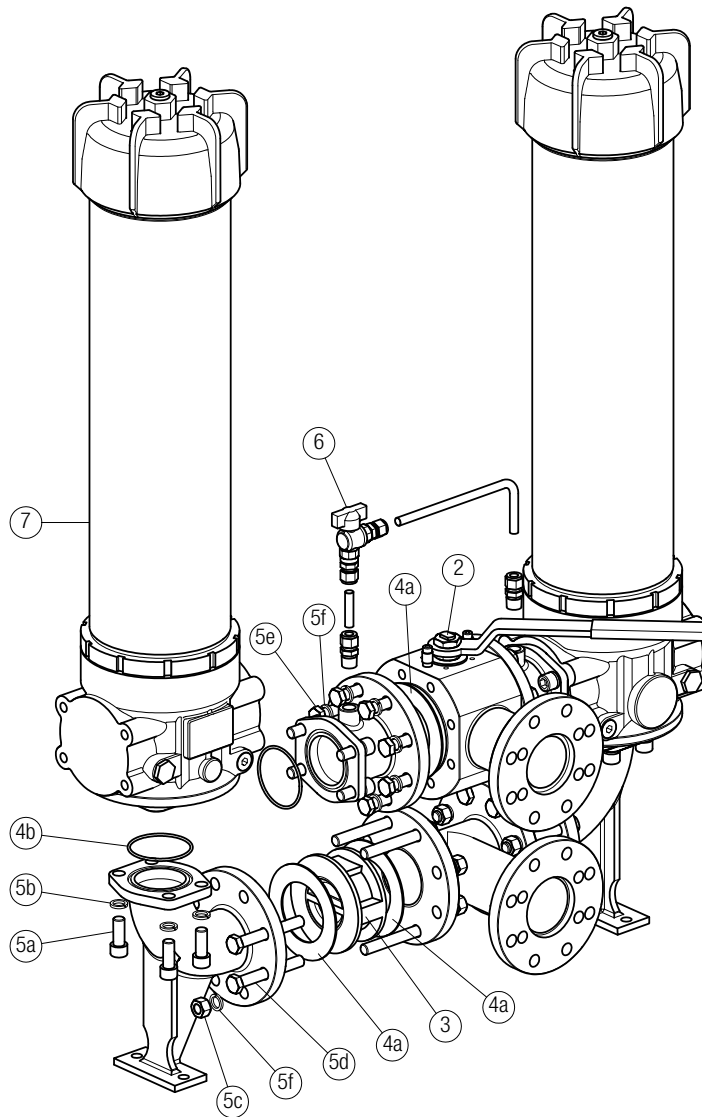
T2 Plug



LMD 951 SPARE PARTS

Order number for spare parts

LMD 951



Item 7:
for complete filter code and
spare parts, see
LMP 950 - 951 series chapter

Quantity:
- filter spare parts: 2 pcs.
- filter seal kit: 2 pcs.

Item:	Q.ty: 1 pc. 2		Q.ty: 2 pcs. 3	Q.ty: 1 pc. 4	Q.ty: 1 pc. 5 (5a ÷ 5f)	Q.ty: 1 pc. 6	Q.ty: 2 pcs. 7
Filter series LMD 951	3-way ball valve PN 16		One-way valve	Seal Kit	Threaded fasteners kit	G 1/2" Ball Valve Kit with straight fittings	Filter
F1 - F2 - F5 - F6 / D1 - D3 (3" SAE / DIN PN16 DN 80)	3" SAE 3000 psi/M 02001135	3" SAE 3000 psi/UNC 02001438	02001418	02050388	02049056	02025043	LMP9513xVF1xxxNP01
F3 - F4 - F7 - F8 / D2 - D4 (4" SAE / DIN PN16 DN 100)	4" SAE 3000 psi/M 02001162	4" SAE 3000 psi/UNC 02001439	02001419	02050389	02049057		LMP9513xVF3xxxNP01

DIN 24550 **Filter element according to DIN 24550**

LDP & LDD series

Maximum working pressure up to 6 MPa (60 bar)

Flow rate up to 360 l/min

LMP 900-901 series

Maximum working pressure up to 3 MPa (30 bar)

Flow rate up to 2000 l/min

LMP 902-903 series

Maximum working pressure up to 2 MPa (20 bar)

Flow rate up to 3000 l/min

LDP & LDD series

Filter element according to DIN 24550

Maximum working pressure up to 6 MPa (60 bar) - Flow rate up to 360 l/min

LDP & LDD GENERAL INFORMATION

Filter element according to DIN 24550

Descriptions

Low & Medium Pressure filters

Maximum working pressure up to 6 MPa (60 bar)
Flow rate up to 360 l/min

LDP is a range of versatile low pressure filter for transmission, protection of sensitive components in low pressure hydraulic systems and filtration of the coolant into the machine tools.

They are also suitable for the off-line filtration of small reservoirs. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/2", for a maximum return flow rate of 360 l/min
- Filter element designed in accordance with DIN 24550 regulation
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- Bypass valve, to relieve excessive pressure drop across the filter media
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in low pressure industrial equipment or mobile machines

LDD is a range of versatile low 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 1 1/2" and flanged connections up to 1 1/2", for a maximum flow rate of 360 l/min
- Filter element designed in accordance with DIN 24550 regulation
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- Balancing valve integrated in the changeover lever, 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
- Optional sampling ports, to get samples of fluid or to connect additional instrument to the system
- Visual, electrical and electronic differential clogging indicators

Common applications:

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

Technical data

Filter housing materials

- Head: Aluminium
- Bowl: Cataphoretic painted steel
- Bypass valve: AISI 304 - Polyamide

Pressure

- Test pressure: 9 MPa (90 bar)
- Burst pressure: 21 MPa (210 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 6 MPa (60 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) \pm 10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25° C to +110° C

Connections

Inlet/Outlet In-Line

Note

LDP - LDD filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]	Volumes [dm ³]
LDP 016	2.0	1.2
LDP 025	3.0	1.6
LDP 040	5.0	2.2
LDD 016	9.3	3.6
LDD 025	9.5	4.1
LDD 040	11.3	4.8

GENERAL INFORMATION LDP & LDD

Filter element according to DIN 24550

Flow rates [l/min]

Filter series	Filter element design - N Series									
	A03	A06	A10	A16	A25	M25	M60	M90	P10	P25
LDP 016	83	91	178	198	222	350	353	358	295	309
LDP 025	124	134	227	245	265	357	358	358	319	330
LDP 040	173	191	274	284	311	359	360	361	332	337
LDD 016	68	73	120	130	140	189	190	192	169	174
LDD 025	93	98	142	149	157	191	192	192	178	181
LDD 040	118	126	161	165	175	192	192	193	182	184

Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

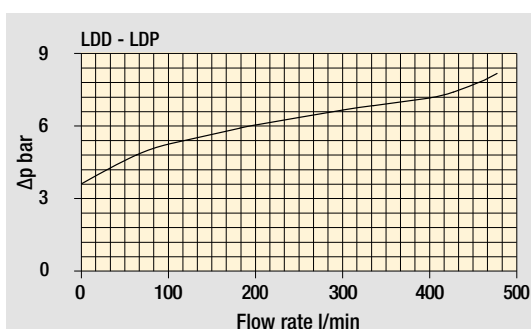
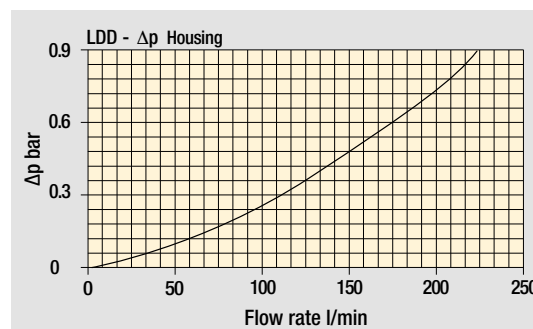
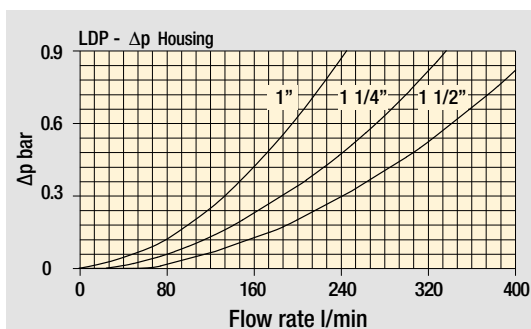
Hydraulic symbols

Filter series	Execution S	Execution B	Execution S	Execution B
LDP 016	•	•	-	-
LDP 025	•	•	-	-
LDP 040	•	•	-	-
LDD 016	-	-	•	•
LDD 025	-	-	•	•
LDD 040	-	-	•	•

Filter series	Execution S	Execution B	Execution S	Execution B
LDP 016				
LDP 025				
LDP 040				

Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

LDP Filter element according to DIN 24550

Designation & Ordering code

COMPLETE FILTER

Configuration example: **LDP** **025** **B** **A** **D** **6** **A10** **N** **P01**

Series
LDP

Size
016 Element according to DIN 24550 - T3 DN160
025 Element according to DIN 24550 - T3 DN250
040 Element according to DIN 24550 - T3 DN400

Bypass valve
S Without bypass **B** With bypass 3.5 bar

Seals and treatments
A NBR
V FPM

Connections
A G 1" **F** 1 1/2" NPT
B G 1 1/4" **G** SAE 16 - 1 5/16" - 12 UN
C G 1 1/2" **H** SAE 20 - 1 5/8" - 12 UN
D 1" NPT **I** SAE 24 - 1 7/8" - 12 UN
E 1 1/4" NPT

Connection for differential pressure indicator
6 With plugged connection

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm **P10** Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm **P25** Resin impregnated paper 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **DN** **025** **A10** **A** **N** **P01**

Element series
DN

Element size
016 Element according to DIN 24550 - T3 DN160
025 Element according to DIN 24550 - T3 DN250
040 Element according to DIN 24550 - T3 DN400

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm **P10** Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm **P25** Resin impregnated paper 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

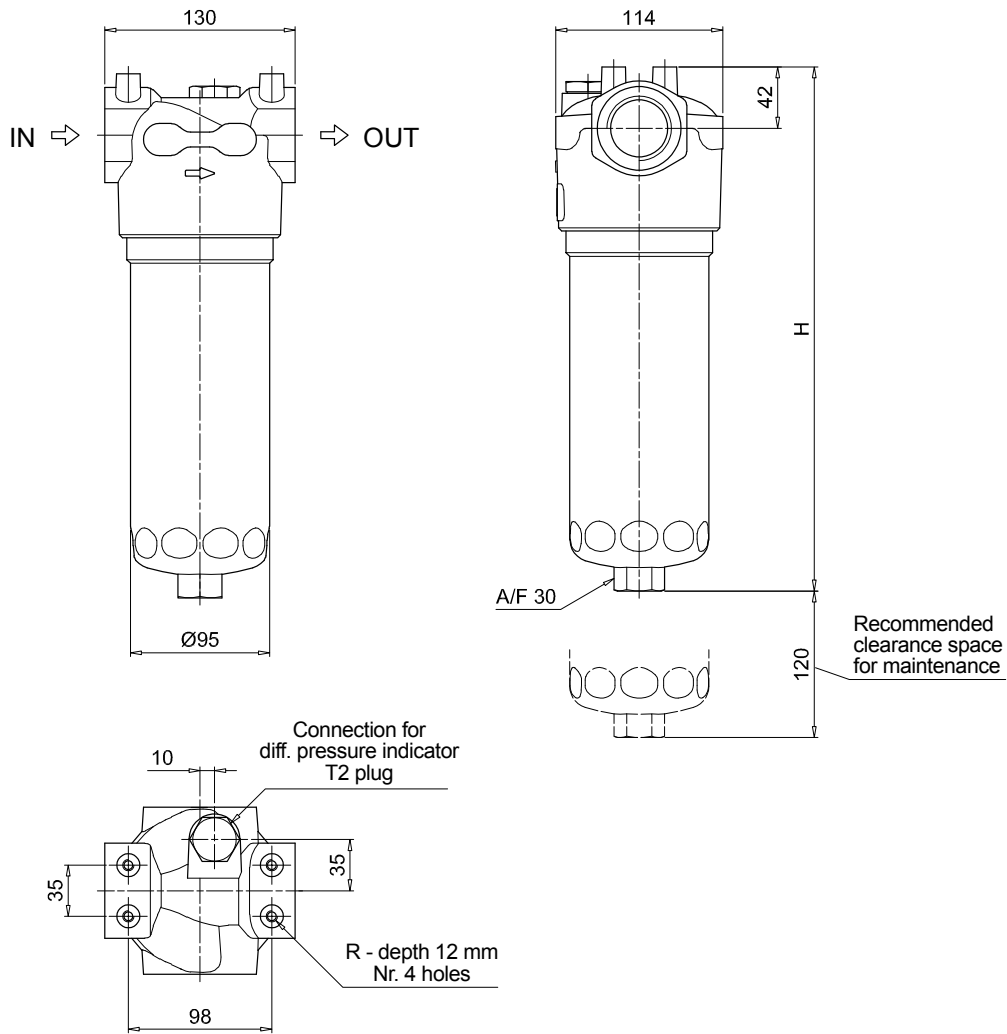
See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug



LDP	
Filter size	H [mm]
016	268
025	358
040	508
Connections	R
A-B-C	M8
D-E-F-G-H-I	5/16" UNC

LDD Filter element according to DIN 24550

Designation & Ordering code

COMPLETE FILTER

Series **LDD** Configuration example: **LDD 025 B A C 6 A10 N P01**

Size

016 Element according to DIN 24550 - T3 DN160
025 Element according to DIN 24550 - T3 DN250
040 Element according to DIN 24550 - T3 DN400

Bypass valve

S Without bypass **B** With bypass 3.5 bar

Seals and treatments

A NBR
V FPM

Connections

C G 1 1/2"
F 1 1/2" NPT
I SAE 24 - 1 7/8" - 12 UN
L 1 1/2" SAE 3000 psi/M + G 1 1/4"
M 1 1/2" SAE 3000 psi/UNC + 1 1/4" NPT
N 1 1/2" SAE 3000 psi/UNC + SAE 20 - 1 5/8" UN

Connection for differential pressure indicator

6 With plugged connection

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

WA025 Water absorber inorganic microfiber 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Element series **DN** Configuration example: **DN 025 A10 A N P01**

Element size

016 Element according to DIN 24550 - T3 DN160
025 Element according to DIN 24550 - T3 DN250
040 Element according to DIN 24550 - T3 DN400

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	P10 Resin impregnated paper 10 µm
A25 Inorganic microfiber 25 µm	P25 Resin impregnated paper 25 µm

WA025 Water absorber inorganic microfiber 25 µm

Seals and treatments

A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 722

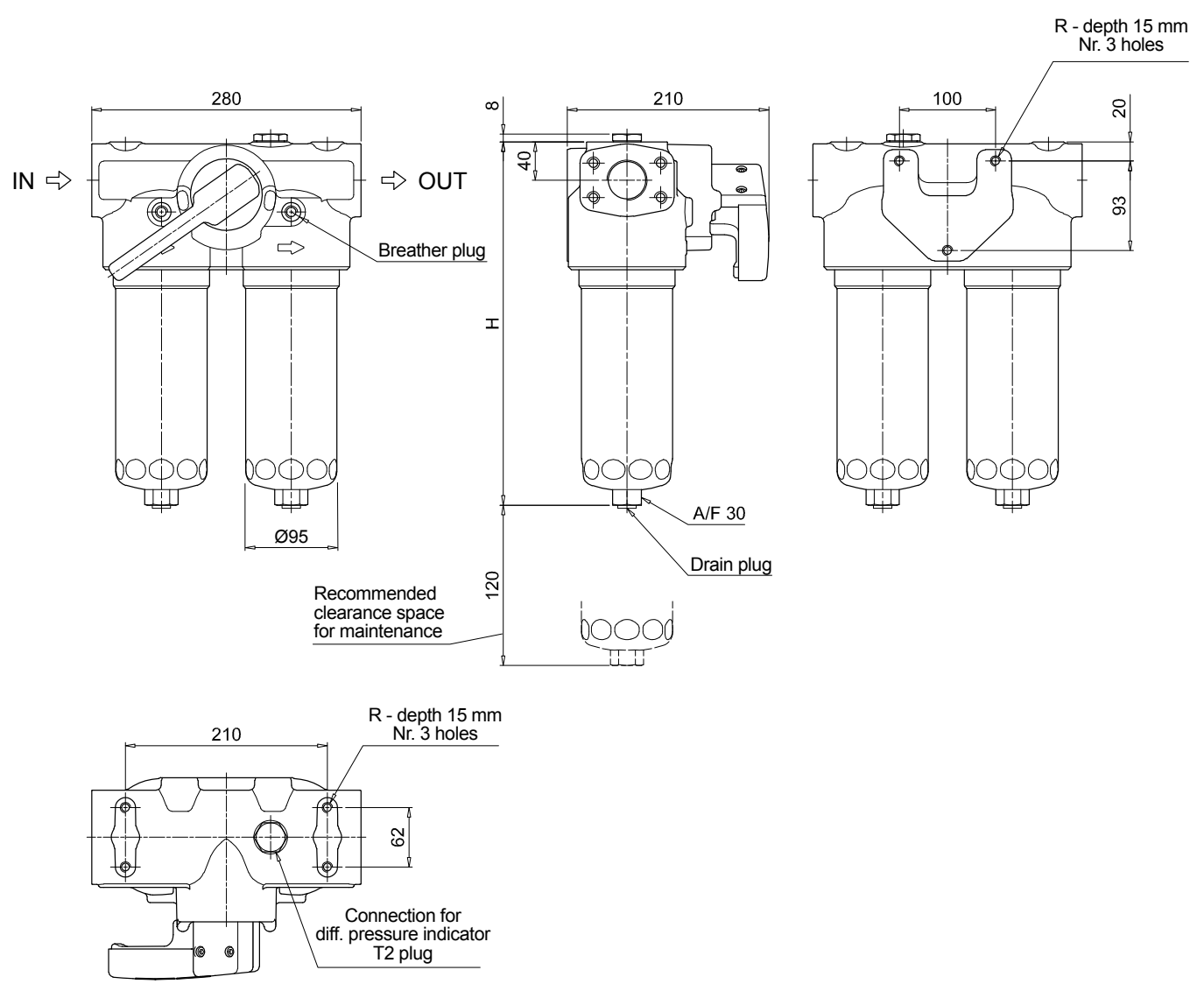
DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug

LDD	
Filter size	H [mm]
016	293
025	383
040	533
Connections	R
C	M10
F - I	3/8" UNC
L	M10
M - N	3/8" UNC

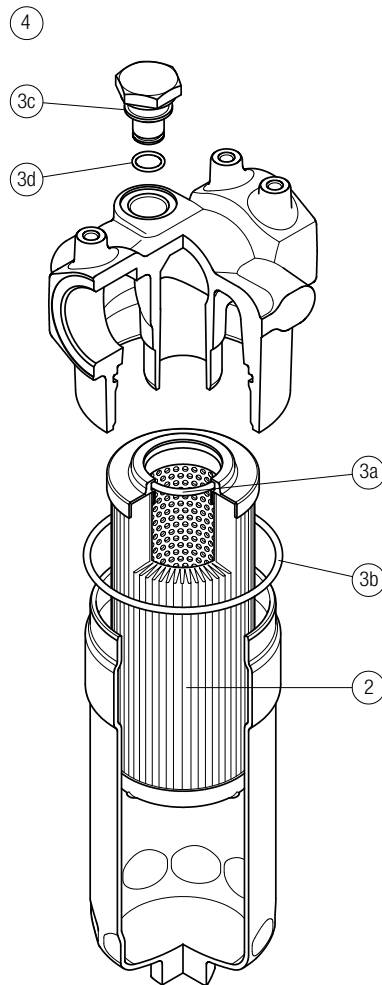


LDP SPARE PARTS

Filter element according to DIN 24550

Order number for spare parts

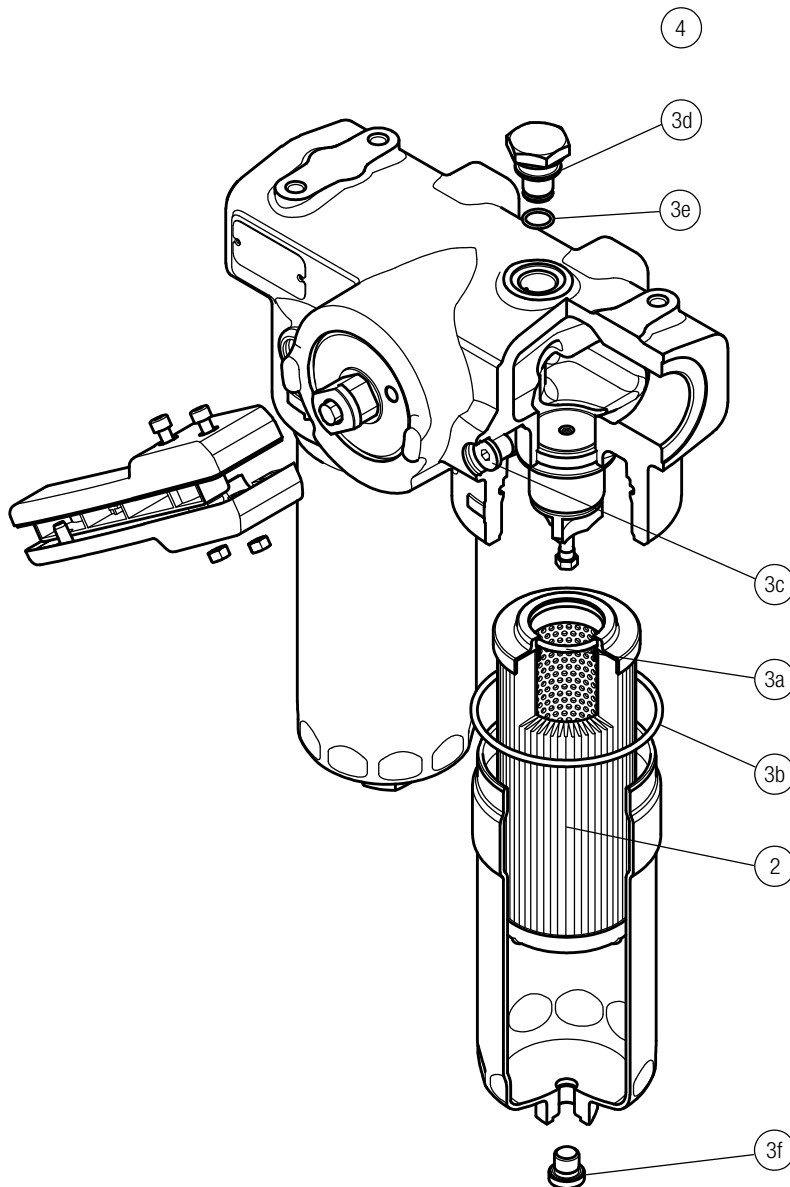
LDP



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
LDP	See order table	NBR	FPM	NBR	FPM
	2	3 (3a ÷ 3d)		4	
		02050435	02050436	T2H	T2V

Order number for spare parts

LDD



Item:	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 2 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		
LDD	See order table	NBR	FPM	NBR	FPM	
	2	3 (3a ÷ 3f)		4		
		02050671	02050672	T2H	T2V	

LMP 900-901 series

Filter element according to DIN 24550

Maximum working pressure up to 3 MPa (30 bar) - Flow rate up to 2000 l/min



LMP 900-901 GENERAL INFORMATION

Filter element according to DIN 24550

Description

Low & Medium Pressure filters

Maximum working pressure up to 3 MPa (30 bar)

Flow rate up to 2000 l/min

LMP900 is a range of low pressure filter with large filtration surface mainly suitable for lubrication, off-line filtration of the reservoirs and filtration equipment.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Flanged connections up to 4", for a maximum flow rate of 2000 l/min
- In line or 90° connections, to meet any type of application
- Filter element designed in accordance with DIN 24550 regulation
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid. For further information, see the Contamination Management document and the dedicate leaflet.
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-line filtration of reservoirs
- Filtration systems
- Lubrication systems

Technical data

Filter housing materials

- Head: Anodized aluminium
- Housing: Anodized aluminium
- Manifolds: Anodized aluminium
- Bypass valve: Steel

Pressure

- Test pressure: 4.5 MPa (45 bar)
- Burst pressure: 12 MPa (120 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 3 MPa (30 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) $\pm 10\%$
- Other opening pressures on request.

Number of filter elements

LMP 900-1: 1 filter element CU900

LMP 900-2: 2 filter elements CU900

Filter elements

Filter element according to DIN 24550

Size: 1000

Δp element type

- Microfibre filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Connections

LMP 900: In-line Inlet/Outlet

LMP 901: 90° Inlet/Outlet

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

LMP 900 - 901 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]			Volumes [dm ³]		
	Length	1	2	Length	1	2
LMP 900-901		19.2	30.4		16	24

GENERAL INFORMATION LMP 900-901

Filter element according to DIN 24550

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25 M60 M90
LMP 900	1	706	877	1264	1291	1444	1803
	2	1100	1264	1556	1573	1668	1867
LMP 901	1	715	899	1337	1369	1552	2000
	2	1147	1337	1689	1710	1828	2081

Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

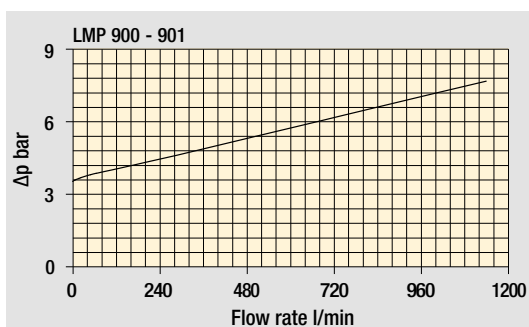
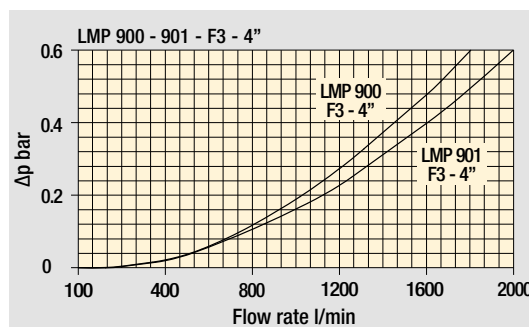
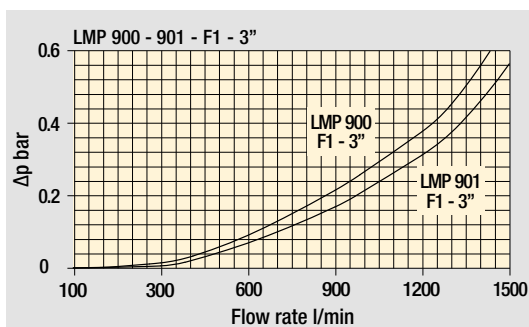
LMP 900-901 Length 2



Hydraulic symbols

Filter series	Execution S	Execution B
LMP 900-901	●	●

Pressure drop Filter housings Δp pressure drop



Bypass valve 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.

LMP 900-901 Filter element according to DIN 24550

Designation & Ordering code

COMPLETE FILTER

Series and size **LMP900 | LMP901** Configuration example: **LMP901** **2** **B** **A** **F2** **A10** **N** **P01**

Length
1 | **2**

Bypass valve
S Without bypass | **B** With bypass 3.5 bar

Seals and treatments
A NBR | **V** FPM

Connections
F1 3" SAE 3000 psi/M
F2 3" SAE 3000 psi/UNC
F3 4" SAE 3000 psi/M
F4 4" SAE 3000 psi/UNC

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm | **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm | **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm | **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Element Δp	Execution	Filter length	
		1	2
N 20 bar	P01 MP Filtri standard	•	•
	P02 Maintenance from the bottom of the housing	-	•
	Pxx Customized		

FILTER ELEMENT

Element series and size **CU900** Configuration example: **CU900** **A10** **A** **N** **P01**

Length
1 Nr. 1 filter element
2 Nr. 2 filter elements

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm | **M25** Wire mesh 25 µm
A06 Inorganic microfiber 6 µm | **M60** Wire mesh 60 µm
A10 Inorganic microfiber 10 µm | **M90** Wire mesh 90 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
WA025 Water absorber inorganic microfiber 25 µm

Seals
A NBR | **V** FPM

Element Δp	Execution	Filter length	
		1	2
N 20 bar	P01 MP Filtri standard		
	Pxx Customized		

CLOGGING INDICATORS

See page 722

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

DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug - Filter length 1 - 2

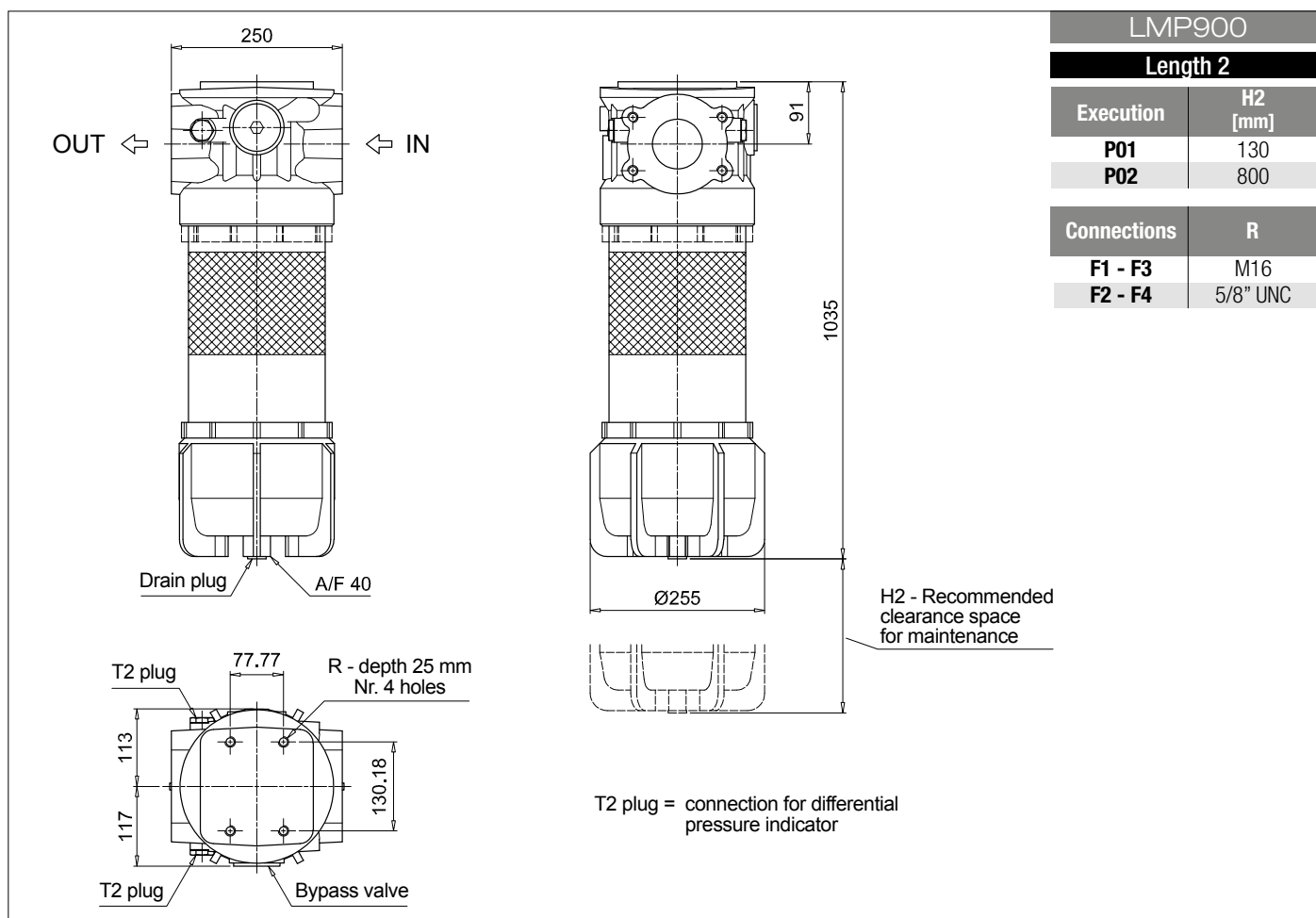
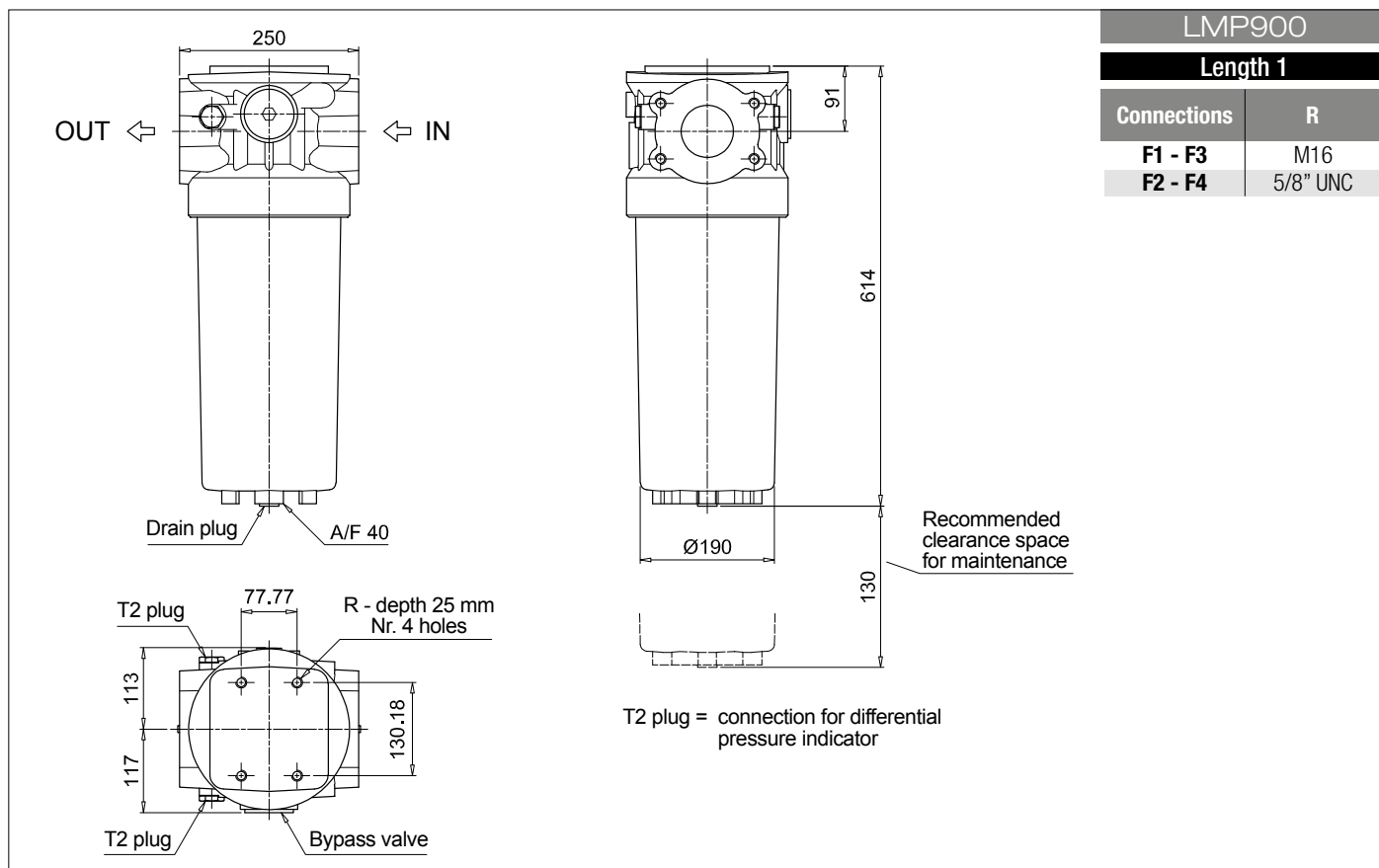
ACCESSORIES

See page 472

CFA Retaining clamp - Filter length 2

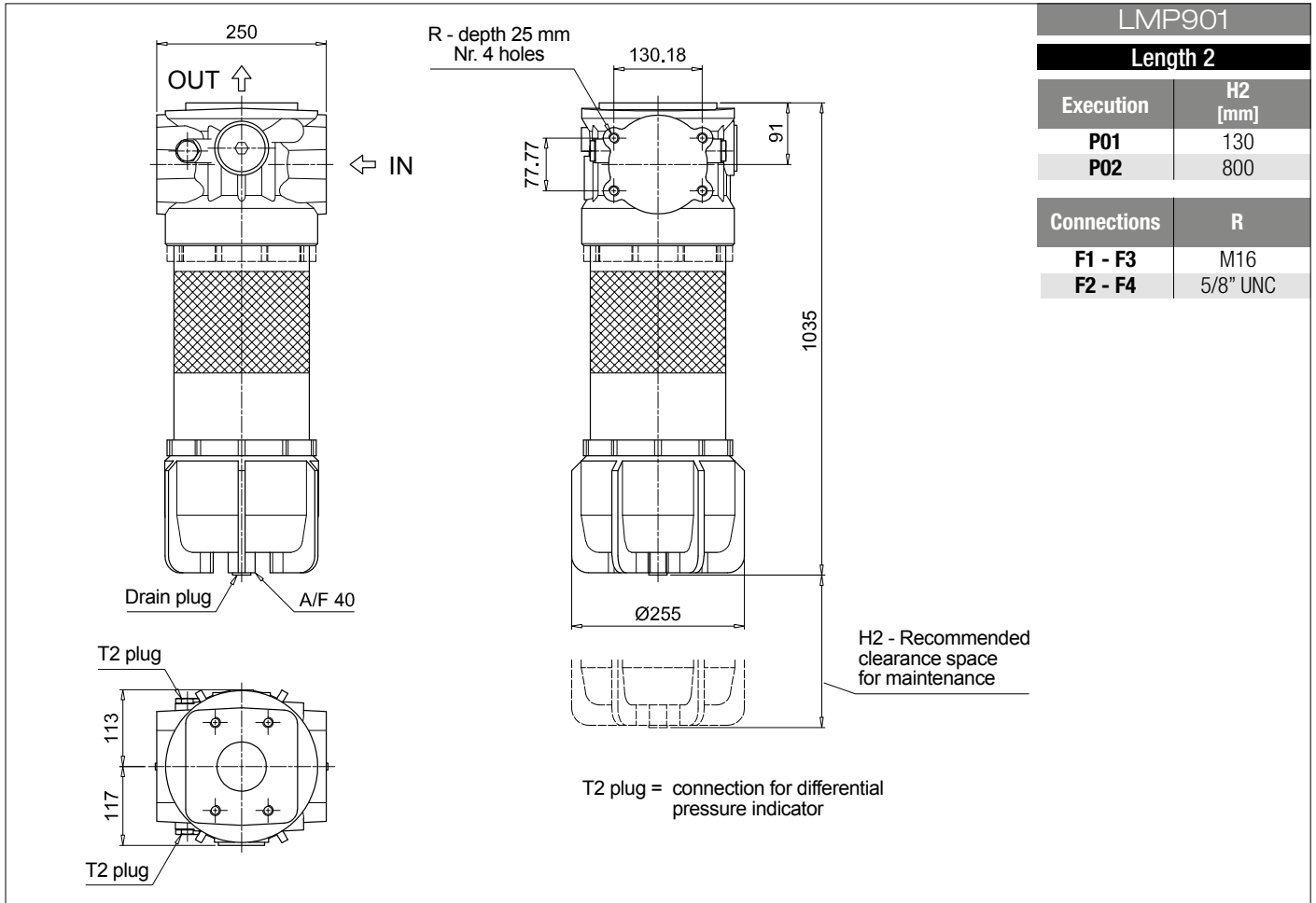
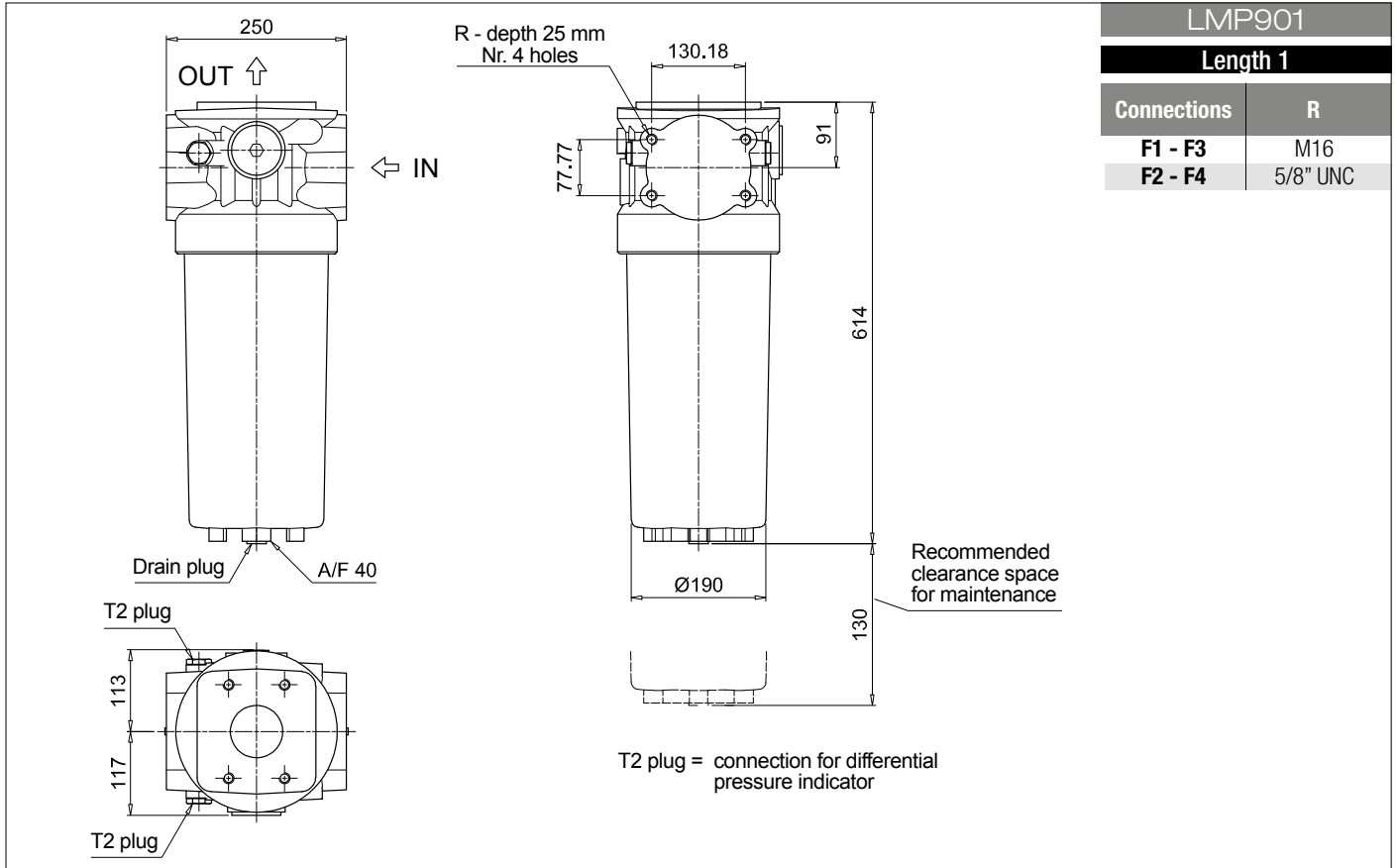
Filter element according to DIN 24550 LMP 900-901

Dimensions



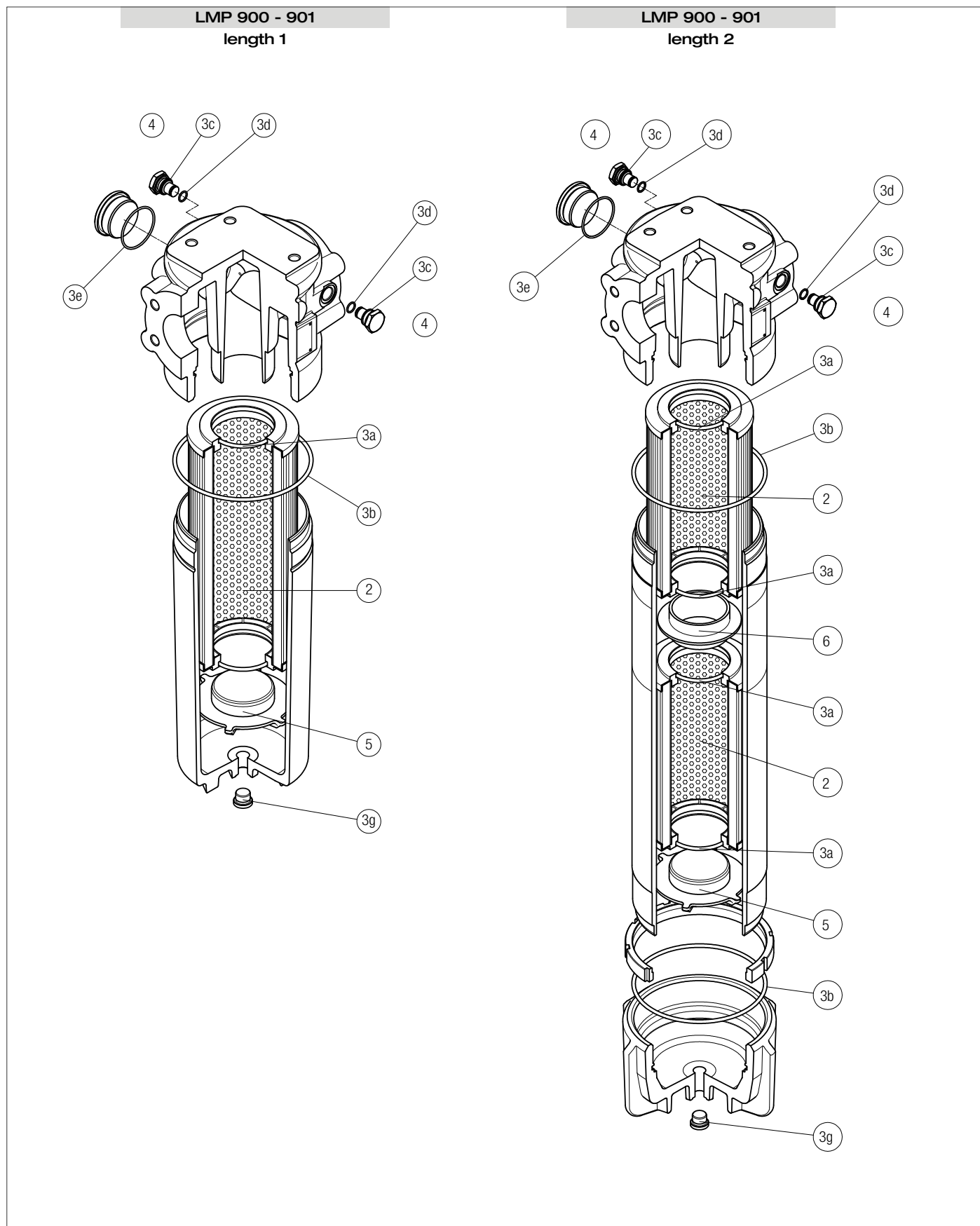
LMP 900-901 Filter element according to DIN 24550

Dimensions



SPARE PARTS LMP 900-901

Order number for spare parts



Item:	2		3 (3a ÷ 3g)		4		5		6			
Filter series	Filter element	Seal Kit code number	Indicator connection plug	Housing spigot	Coupling spigot							
	Q.ty	Q.ty	NBR	FPM	Q.ty	NBR	FPM	Q.ty	Q.ty	Q.ty		
LMP 900-901 length 1	1 pc.	See order table	1 pc.	02050363	02050364	2 pcs.	T2H	T2V	1 pc.	01044104	-	01044099
LMP 900-901 length 2	2 pcs.	See order table	1 pc.	02050365	02050366	2 pcs.	T2H	T2V	1 pc.	01044104	1 pc.	01044099

LMP 902-903 series

Filter element according to DIN 24550

Maximum working pressure up to 2 MPa (20 bar) - Flow rate up to 3000 l/min



LMP 902-903 GENERAL INFORMATION

Filter element according to DIN 24550

Description

Low & Medium Pressure filters

Maximum working pressure up to 2 MPa (20 bar)

Flow rate up to 3000 l/min

LMP902 and LMP903 are ranges of low pressure filter with large filtration surface mainly suitable for lubrication, off-line filtration of the reservoirs and filtration equipment.

Multiple LMP950 filters are connected to a manifold to reduce the pressure drop caused by the filter media and to increase the life time of the filter element.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- 4" flanged connections, for a maximum flow rate of 3000 l/min
- Filter element designed in accordance with DIN 24550 regulation
- Fine filtration rating, to get a good cleanliness level into the system
- Water removal elements, to remove the free water from the hydraulic fluid.
For further information, see the Contamination Management document and the dedicate leaflet.
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Off-line filtration of reservoirs
- Filtration systems

Technical data

Filter housing materials

- Head: Anodized aluminium
- Housing: Anodized aluminium
- Manifolds: Welded - Phosphatized steel
- Bypass valve: Steel
- Size 1000 filter elements complying with DIN 24550 standard

Pressure

- Test pressure: 3.5 MPa (35 bar)

Bypass valve

- Opening pressure 350 kPa (3.5 bar) $\pm 10\%$
- Other opening pressures on request.

Number of filter elements

LMP 902: 4 filter elements CU900

LMP 903: 6 filter elements CU900

Filter elements

Filter element according to DIN 24550

Size: 1000

Δp element type

- Microfibre filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Connections

LMP 902-903: In-line Inlet/Outlet

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

LMP 902 - 903 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]		Volumes [dm ³]	
	Length	2	Length	2
LMP 902		89.6		58
LMP 903		129.2		87

GENERAL INFORMATION LMP 902-903

Filter element according to DIN 24550

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25 M60 M90
LMP 902	2	2217	2576	3241	3282	3506	3987
LMP 903	2	2838	3170	3720	3755	3926	4278

Maximum flow rate for a complete low and medium pressure filter with a pressure drop $\Delta p = 0.7$ bar.

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

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

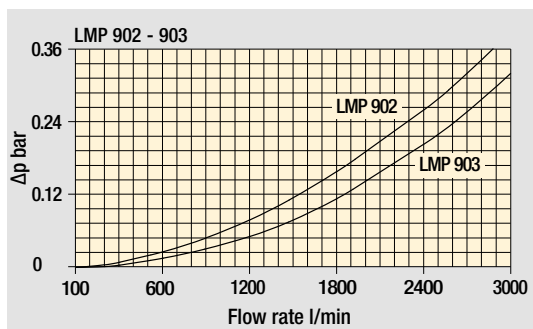
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

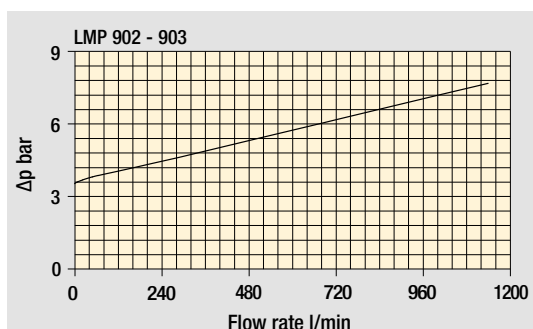
Filter series	Execution S	Execution B	Execution S	Execution B
LMP 902	•	•	-	-
LMP 903	-	-	•	•

Pressure drop

Filter housings Δp pressure drop



Bypass valve pressure drop

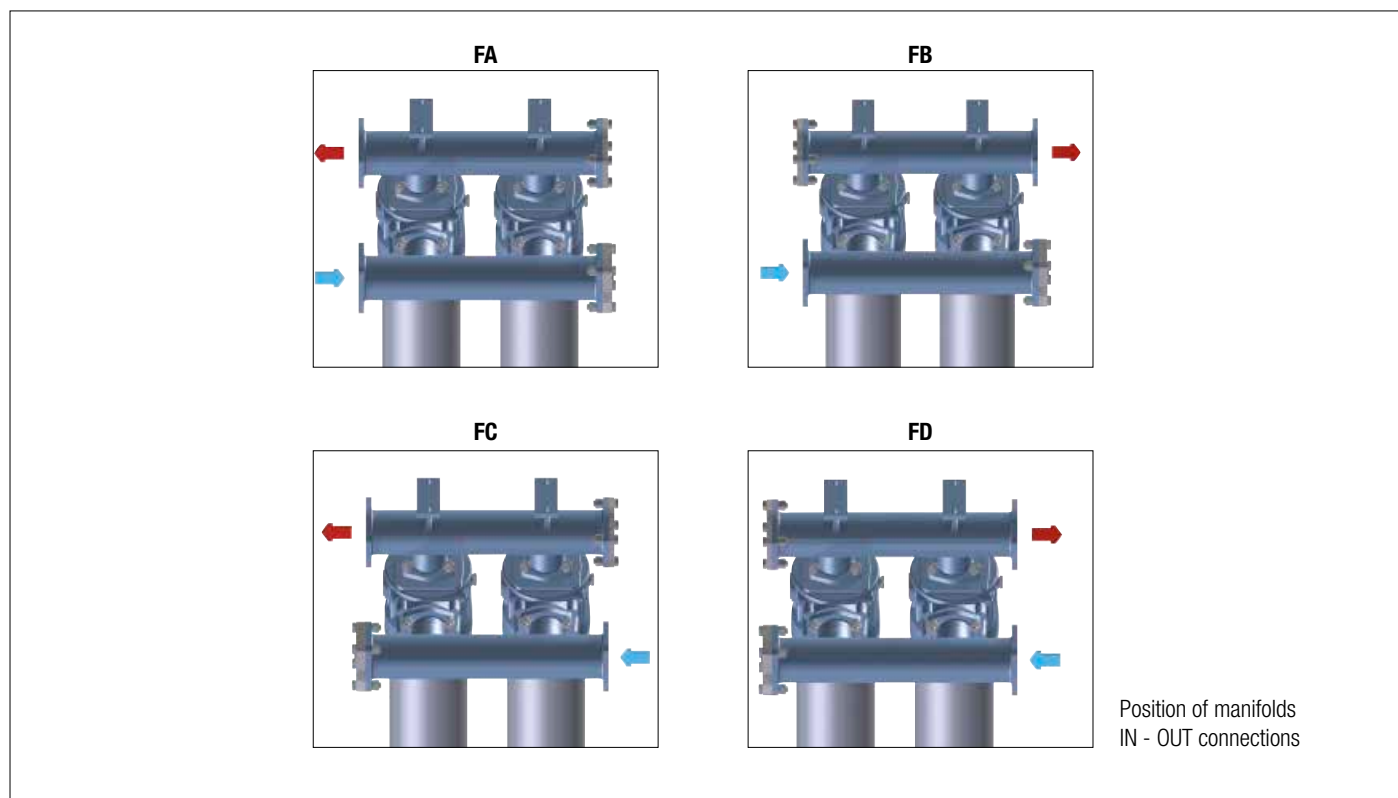


The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968. Δp varies proportionally with density.

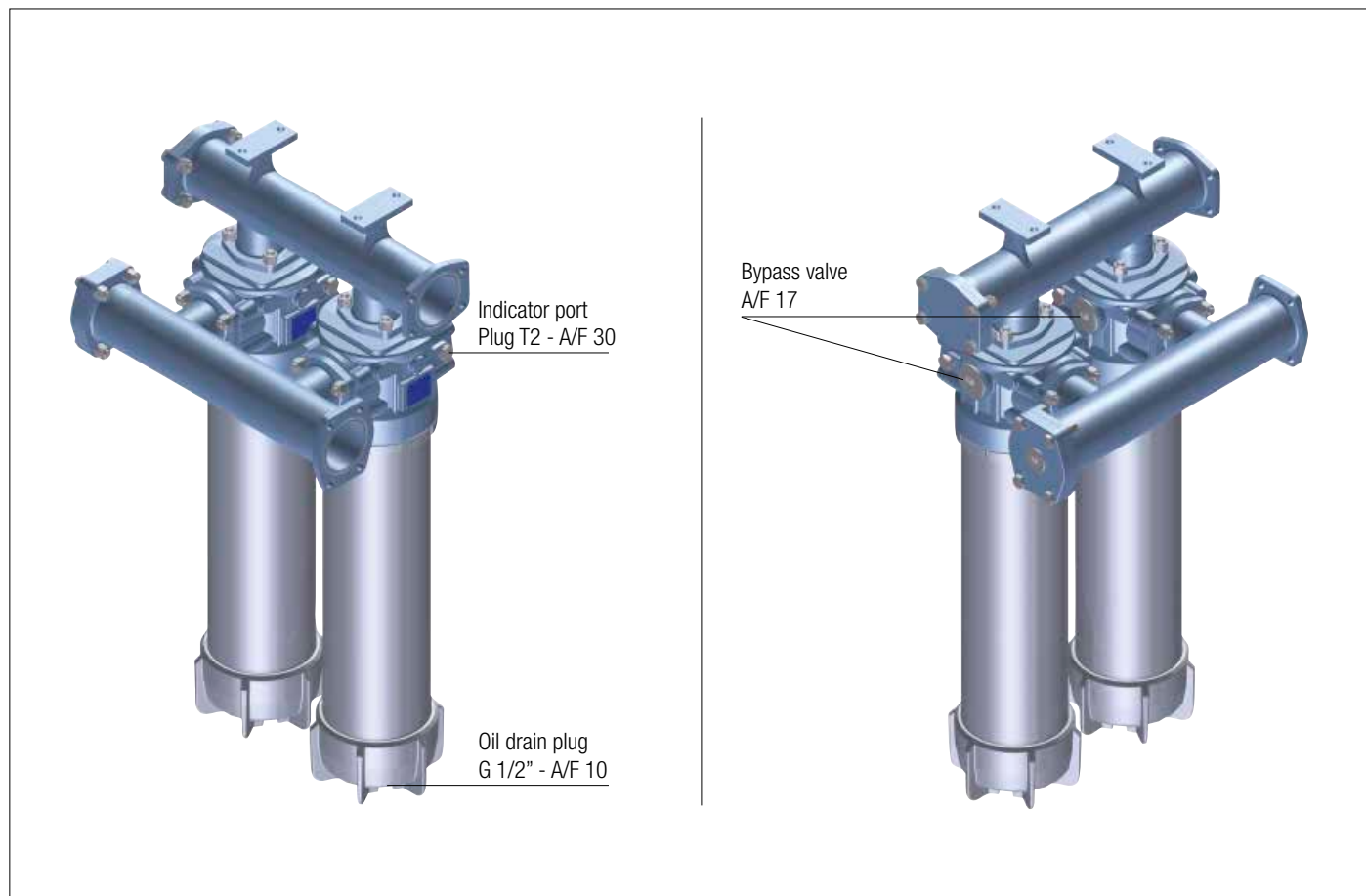
LMP 902-903 GENERAL INFORMATION

Filter element according to DIN 24550

Manifolds



Focus on



LMP 902-903 Filter element according to DIN 24550

Designation & Ordering code

COMPLETE FILTER

Series and size **LMP902 | LMP903** Configuration example: **LMP902** **2** **B** **A** **FA** **A10** **N** **P01**

Length **2**

Bypass valve **S** Without bypass **B** With bypass 3.5 bar

Seals and treatments **A** NBR **V** FPM

Connections	IN	OUT
FA 4" SAE 3000 psi	left	left
FB 4" SAE 3000 psi	left	right
FC 4" SAE 3000 psi	right	left
FD 4" SAE 3000 psi	right	right

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	
A25 Inorganic microfiber 25 µm	

WA025 Water absorber inorganic microfiber 25 µm

Element Δp	Execution
N 20 bar	P01 MP Filtri standard
	Pxx Customized

FILTER ELEMENT

Element series and size **CU900** Configuration example: **CU900** **A10** **A** **N** **P01**

Filter series and size **LMP902** Nr. 4 filter elements **LMP903** Nr. 6 filter elements

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	M25 Wire mesh 25 µm
A06 Inorganic microfiber 6 µm	M60 Wire mesh 60 µm
A10 Inorganic microfiber 10 µm	M90 Wire mesh 90 µm
A16 Inorganic microfiber 16 µm	
A25 Inorganic microfiber 25 µm	

WA025 Water absorber inorganic microfiber 25 µm

Seals **A** NBR **V** FPM

Element Δp	Execution
N 20 bar	P01 MP Filtri standard
	Pxx Customized

CLOGGING INDICATORS

See page 722

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

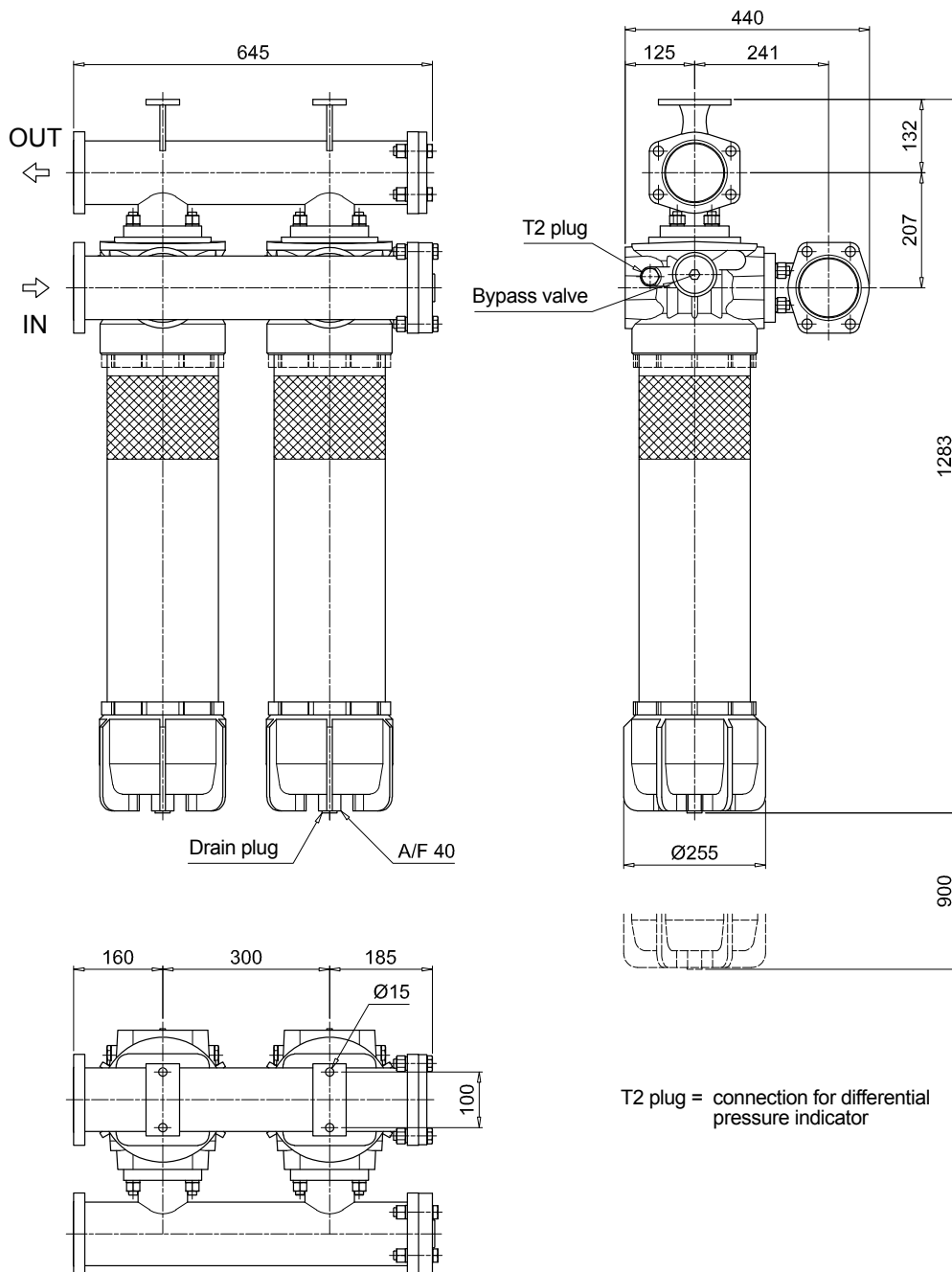
See page 743

T2 Plug

Filter element according to DIN 24550 LMP 902-903

Dimensions

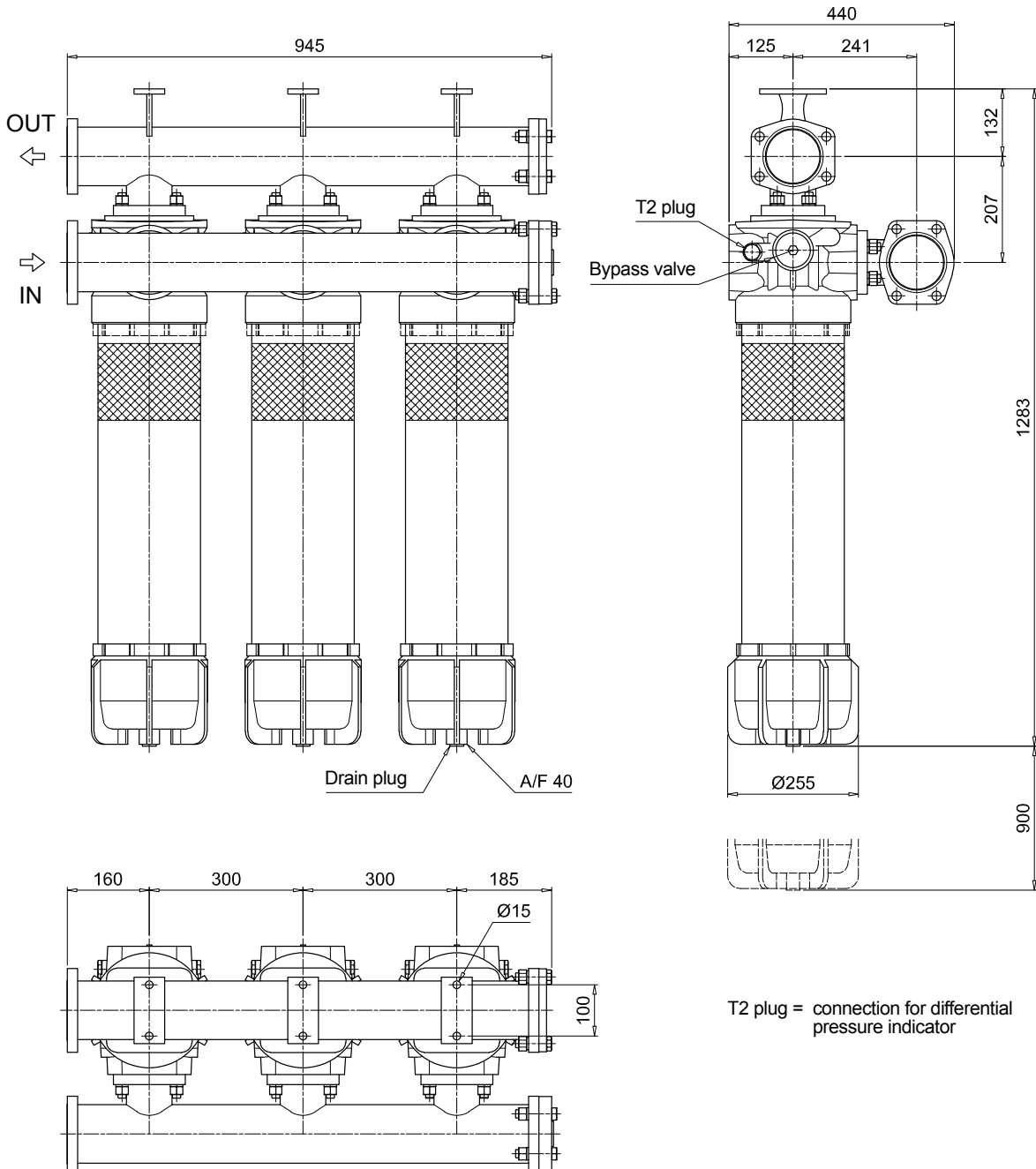
LMP902



LMP 902-903 Filter element according to DIN 24550

Dimensions

LMP903

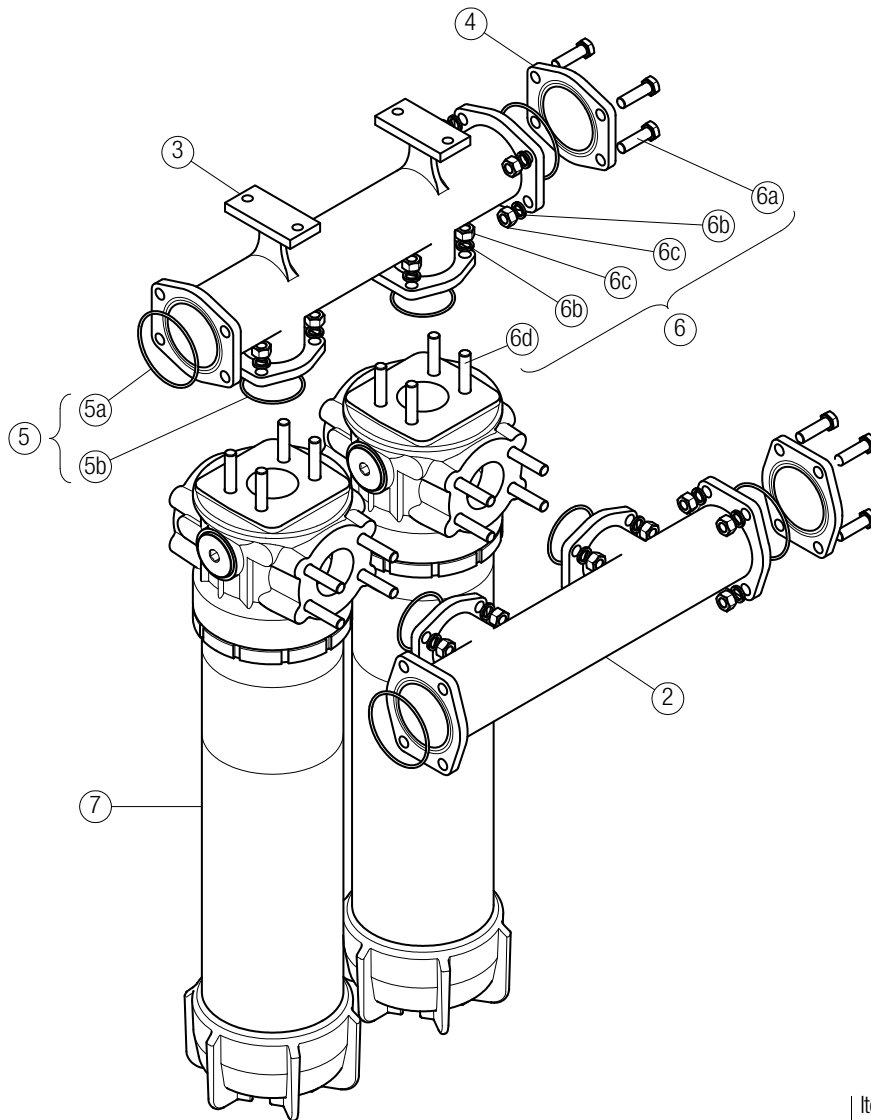


T2 plug = connection for differential pressure indicator

SPARE PARTS LMP 902-903

Order number for spare parts

LMP 902 - 903



Item 7:
for complete filter code and
spare parts, see
LMP 900 - 901 series chapter

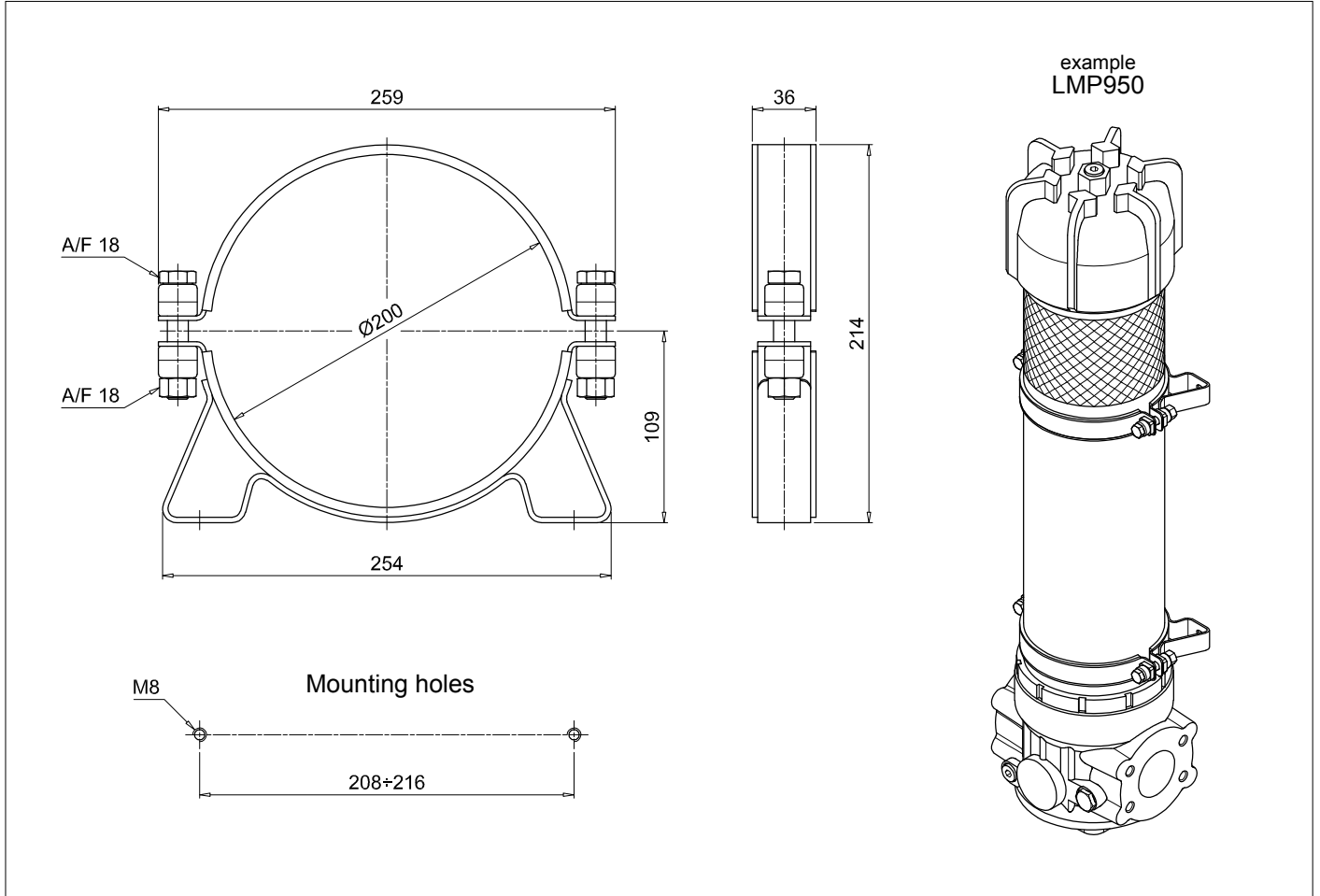
Quantity:
- filter spare parts:
LMP 902 - 2 pcs.
LMP 903 - 3 pcs.

- filter seal kit:
LMP 902 - 2 pcs.
LMP 903 - 3 pcs.

Item:	2		3	4		5 (5a-5b)			6 (6a ÷ 6d)		7	
Filter series	Q.ty	Manifold IN	OUT	Q.ty	4" SAE 3000 psi plugged flange	Q.ty	Manifolds seal kit NBR	FPM	Q.ty	Threaded fasteners kit	Q.ty	Filter
LMP 902	1 pc.	01039270	01039271	2 pcs.	01042012	1 pc.	02050404	02050405	1 pc.	02049051	2 pcs.	LMP9012xxF1xxxNP02
LMP 903	1 pc.	01039337	01039338	2 pcs.		1 pc.	02050404	02050405	1 pc.	02049052	3 pcs.	

Accessories

RETAINING CLAMP



Series		Configuration example:	CFA	20	M	P01
CFA	Retaining clamp					
Size						
20						
Screw						
M	Metric					
Execution						
P01	MP Filtri standard					

High pressure filters are used as process filters to protect individual valves or the entire hydraulic circuit from contamination as per ISO 4406.

9 versions are available with operating pressures range from 110 bar up to 560 bar.

A range of products is available to resolve all filter mounting problems, in the following configurations:

- In-line, with threaded and flange mounting
- Manifold top mounting
- Manifold side mounting
- Manifold mounting, to DIN 24340 CETOP R 35 H
- Manifold threaded/flange mounting in the top extraction filter cartridge version
- Duplex versions for continuous operation requirements

FMP series is specifically designed and suitable for:

- feed pumps of hydrostatic drives
- pressure lubrication
- hydraulic systems in the high pressure range

FMMX & FMM series is optimized for the protection of servo and proportional hydraulics:

- in agricultural machinery
- in construction machinery
- in commercial vehicles

HPB are kits designed for the direct integration into the control block; they can be easily integrated into the block through a simple cavity.

FHP & FHA series are the typical high-pressure filters optimized for industrial applications.

FHM series is designed for intermediate plate construction, CETOP design.

FHB series is designed for block mounting; the filter head can be screwed in from the outside.

FHF series is designed to assemble HF4 filter element according to SAE J2066.

FHD series is the duplex high pressure filter; with two independent filter heads, the flow can be switched without interruption during operation.

The range includes a complete set of valves:

- Bypass valve
- Check valve
- Bypass + check valve
- Reverse-flow valve
- Reverse-flow + bypass valve

FILTER SIZING

For the proper calculation see pag. 22

High pressure filters



FMMX	page 476
FMM	485
FHA	495
FMP 039	503
FMP	511
FHP	523

FHM	page 543
FHB	561
FHF	575
FHD	585
HPB	599
INDICATORS	723



THE X CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.
Quality and efficiency are fundamental for MP Filtri:
this exclusive new filter element possesses polygon shape geometry and specific seal
that ensures only original spare parts can be used - ensuring correct operation and
higher system reliability.

FMMX 050 series

with MY CLEAN HPX 050 Filter Element



- Protects the machine from improper use of non-original products.
- Safety of constant quality protection & reliability

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.



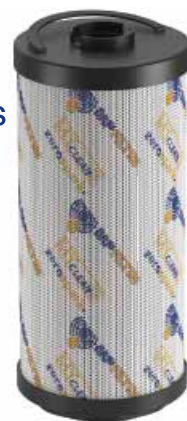
The products identified as FMMX 050 are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1

TOGETHER WITH MY CLEAN, AS OPTION, FMMX 050 SERIES CAN BE PROVIDED WITH

zerospark®
THE ANTI-STATIC FILTERS

THE Z CONCEPT FOR OUR FILTERS



Zerospark® is a specialist solution designed to solve the problem of electrostatic discharge inside hydraulic filters. Caused by the electrical charge build-up due to the passage of oil through the filters, this can result in damage to filter elements, oils and circuit components. It can even cause fire hazards in environments where flammable materials are present.

FMMX 050 series

Maximum working pressure up to 42 MPa (420 bar) - Flow rate up to 154 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



Please scan the QR codes
to get updated electronic version
of the related document.



FMMX 050 GENERAL INFORMATION

Description

Technical data

High Pressure filters

In-line

Maximum working pressure up to 42 MPa (420 bar)

Flow rate up to 154 l/min

FMMX is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 250 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
- Visual, electrical and electronic differential clogging indicators
- MYclean interface connection for the filter element, to protect the product against non-original spare parts.
- External protective wrap, to optimize the flow through the element and to save the element efficiency against non-proper handling

Common applications:

- Agricultural machines
- Mobile machines

Filter housing materials

- Head: Painted cast iron, black RAL 9005
- Housing: Phosphatized steel
- Bypass valve: Steel

Pressure

- Test pressure: 63 MPa (630 bar)
- Burst pressure: 126 MPa (1260 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 42 MPa (420 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) \pm 10%
- Other opening pressures on request.

Δp element type

- Microfiber filter elements - series N: 20 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

In-line Inlet/Outlet

Note

FMMX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FMMX 050		3.11	3.48	3.90	4.36	5.54		0.34	0.48	0.63	0.81	1.23

GENERAL INFORMATION FMMX 050

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25
FMMX 050	1	42	43	79	82	106	147
	2	52	57	85	96	121	149
	3	66	69	97	106	130	150
	4	83	89	113	115	134	152
	5	107	110	130	134	141	154

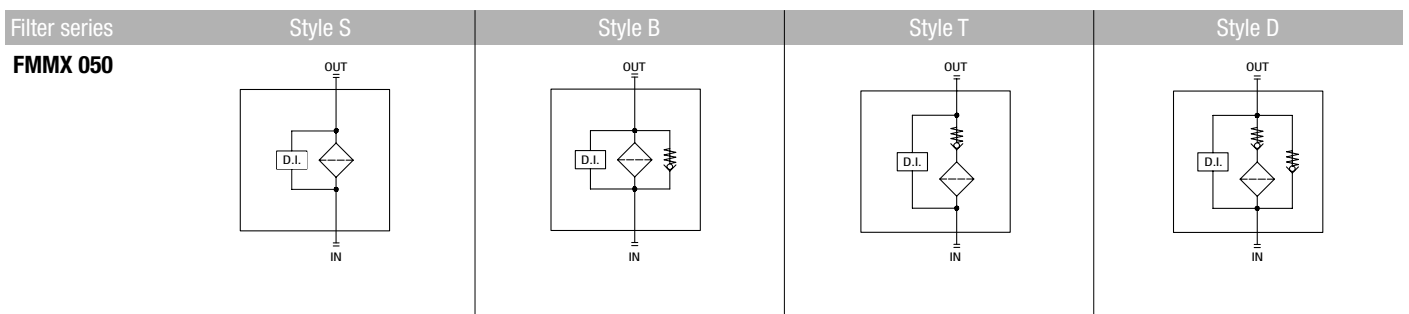
Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

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

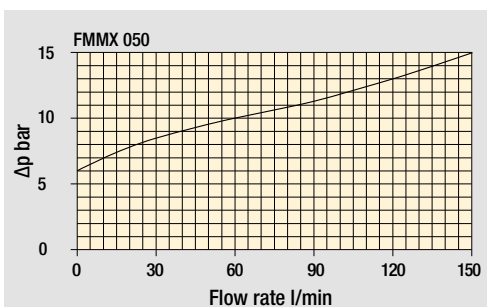
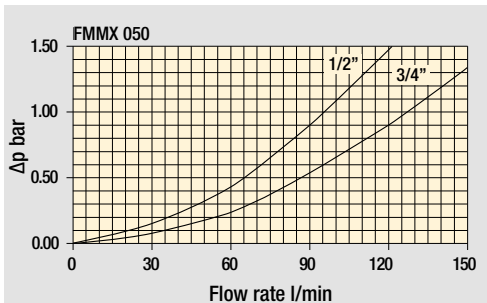
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

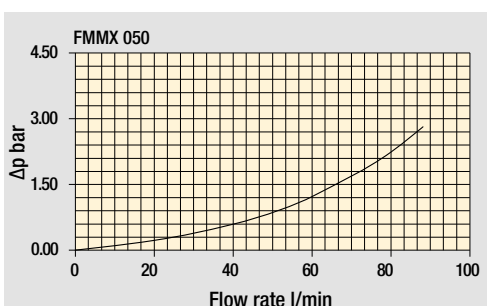
Hydraulic symbols



Pressure drop
Filter housings
 Δp pressure drop



Bypass valve
pressure drop



Filter housing
with check valve

Valves

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

FMMX 050

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **FMMX050** | **3** | **B** | **A** | **G** | **A10** | **N** | **P01**

FMMX050 Filter featuring **MYCLEAN** Filter Element

Length
1 | **2** | **3** | **4** | **5**

Valves
B With bypass 6 bar
D With check valve, with bypass 6 bar

Seals
A NBR
V FPM

Connections
A M18x1.5 - ISO 6149 **E** 1/2" NPT
B M22x1.5 - ISO 6149 **F** 3/4" NPT
C G 1/2" **G** SAE 8 - 3/4" - 16 UNF
D G 3/4" **H** SAE 12 - 1 1/16" - 12 UN

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm
A06 Inorganic microfiber 6 µm
A10 Inorganic microfiber 10 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
M25 Wire mesh 25 µm

Element Δp
N 20 bar

Executions		
Base	zérospark+	
P01	Z01 *	Upper connection for clogging indicator
P02	Z02 *	Without connection for clogging indicator
P03	Z03 *	Frontal connection for clogging indicator
Pxx	Zxx *	Customized

* Not for Mxx filter media

FILTER ELEMENT

Element series and size Configuration example: **HPX050** | **3** | **A10** | **A** | **N** | **P01**

HPX050 Filter Element with **MYCLEAN** feature

Element length
1 | **2** | **3** | **4** | **5**

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm
A06 Inorganic microfiber 6 µm
A10 Inorganic microfiber 10 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
M25 Wire mesh 25 µm

Seals
A NBR
V FPM

Element Δp
N 20 bar

Executions		
Base	zérospark+	
P01	Z01 *	MP Filtri standard
Pxx	Zxx *	Customized

* Not for Mxx filter media

CLOGGING INDICATORS

See page 723

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

DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

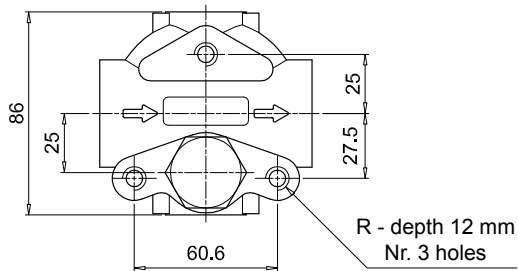
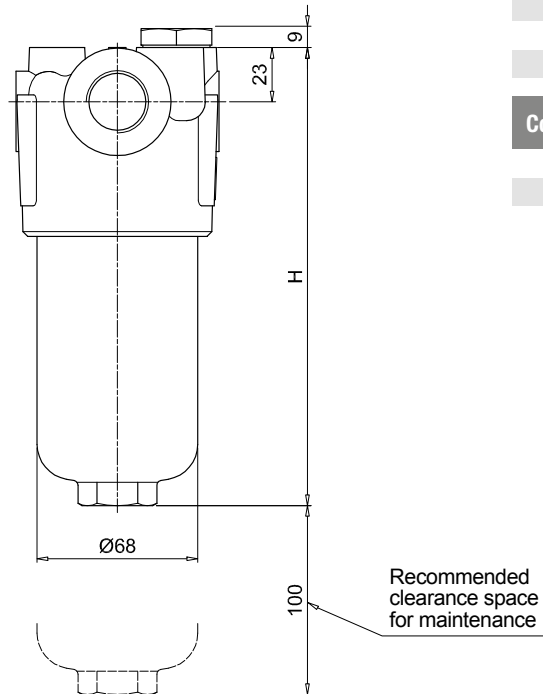
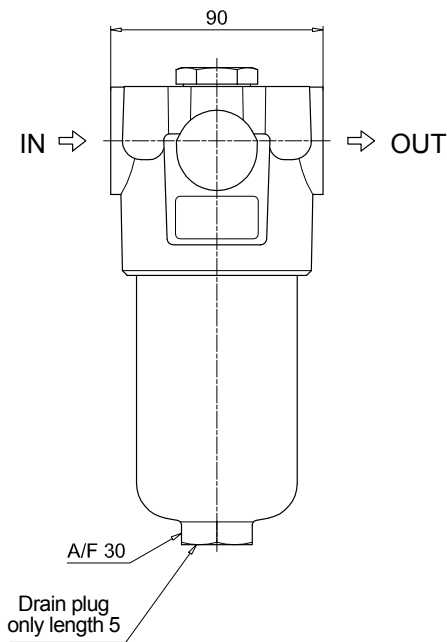
PLUGS

See page 743

T2 Plug

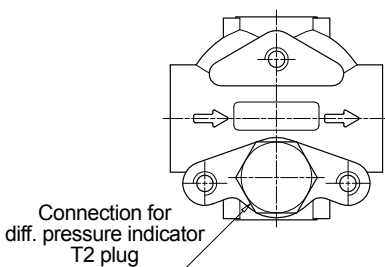
FMMX 050

Dimensions

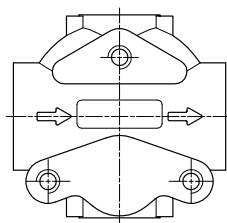


FMMX050	
Filter length	H [mm]
1	158
2	195
3	237
4	285
5	407
Connections	R
A-B-C-D	M10
E-F-G-H	3/8" UNC

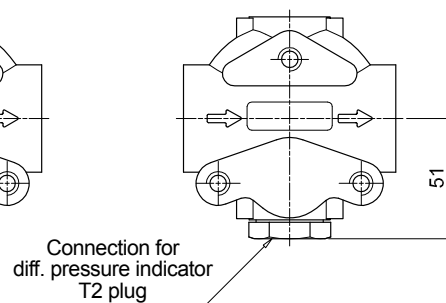
Execution P01



Execution P02



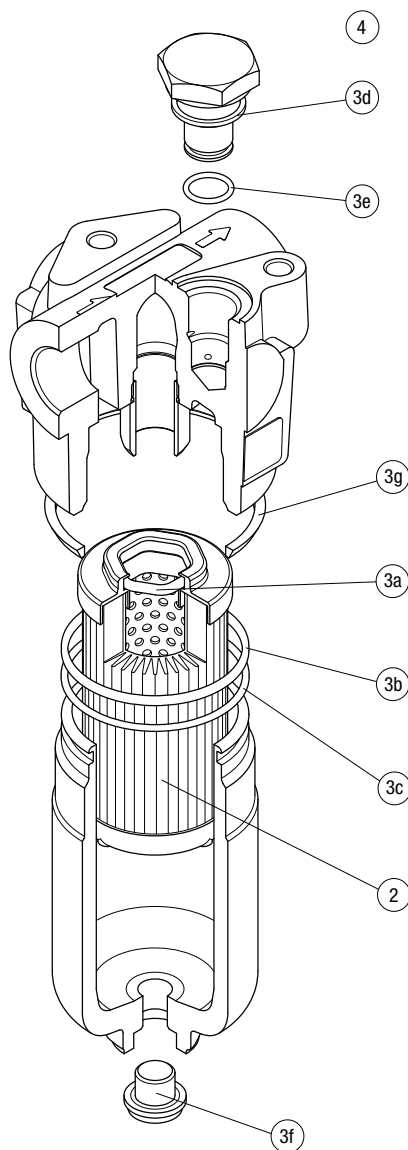
Execution P03



FMMX 050 SPARE PARTS

Order number for spare parts

FMMX 050



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FMMX 050	See order table	NBR	FPM	NBR	FPM
	2	3 (3a ÷ 3g)		4	
		02050864	02050865	T2H	T2V

FMM series

Maximum working pressure up to 42 MPa (420 bar) - Flow rate up to 300 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



FMM050



FMM150

Please scan the QR codes
to get updated electronic version
of the related document.



Description

Technical data

High Pressure filters

In-line

Maximum working pressure up to 42 MPa (420 bar)

Flow rate up to 300 l/min

FMM is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 250 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
- Low collapse filter element with external support "R", for filter element protection against the back pressure caused by the check valve 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 in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

Common applications:

- Agricultural machines
- Mobile machines

Filter housing materials

- Head: Painted cast iron, black RAL 9005
- Housing: Phosphatized steel
- Bypass valve: Steel

Pressure

- Test pressure: 63 MPa (630 bar)
- Burst pressure: 126 MPa (1260 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 42 MPa (420 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfiber filter elements - series N-R: 20 bar
- Microfiber filter elements - series S: 210 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

In-line Inlet/Outlet

Note

FMM filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FMM 050		3.11	3.48	3.90	4.36	5.54		0.34	0.48	0.63	0.81	1.23
FMM 150		7.50	9.50	10.90	-	-		0.60	1.00	1.25	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - N Series						Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
FMM 050	1	42	43	79	82	106	147	29	39	57	59	74
	2	52	57	85	96	121	149	45	49	76	88	114
	3	66	69	97	106	130	150	58	61	89	99	125
	4	83	89	113	115	134	152	74	80	106	108	129
	5	107	110	130	134	141	154	93	95	111	121	139
FMM 150	1	81	88	156	163	179	295					
	2	142	145	227	230	236	312					
	3	170	180	242	245	263	315					

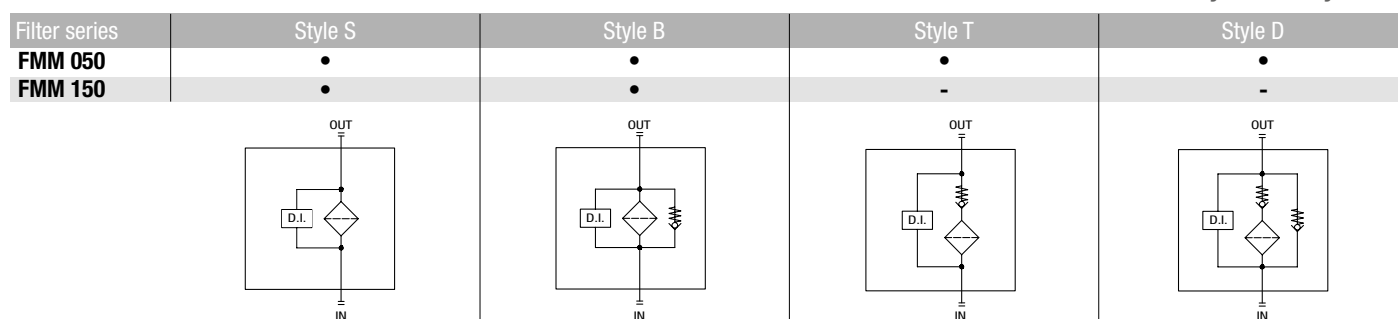
Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

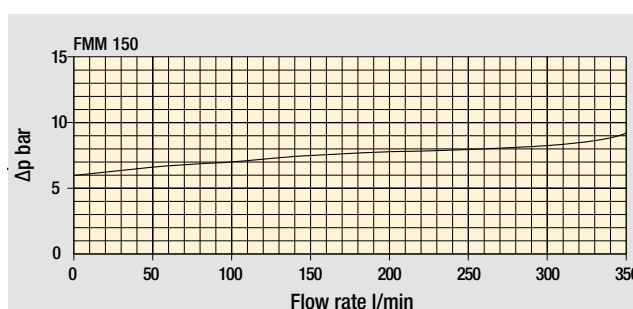
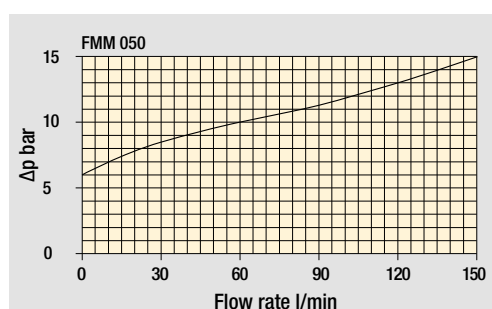
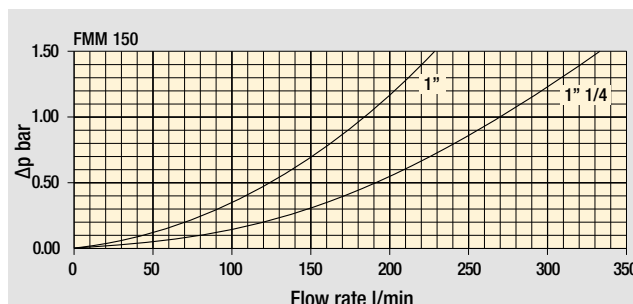
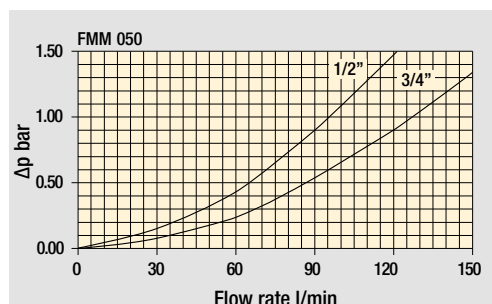
Hydraulic symbols



Pressure drop

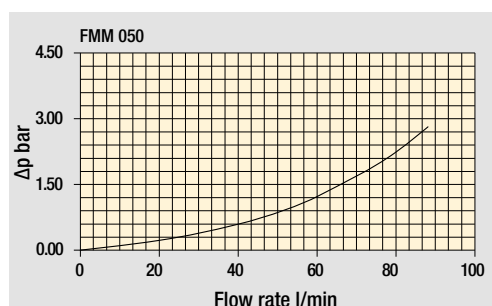
Filter housings

Δp pressure drop



Bypass valve

pressure drop



Filter housing
with check valve

Valves

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

Designation & Ordering code

COMPLETE FILTER

Series and size **FMM050** Configuration example: **FMM050** **3** **B** **A** **G** **A10** **N** **P01**

Length
1 | **2** | **3** | **4** | **5**

Valves
S Without bypass
B With bypass 6 bar
T With check valve, without bypass
D With check valve, with bypass 6 bar

Seals
A NBR
V FPM

Connections
A M18x1.5 - ISO 6149 **E** 1/2" NPT
B M22x1.5 - ISO 6149 **F** 3/4" NPT
C G 1/2" **G** SAE 8 - 3/4" - 16 UNF
D G 3/4" **H** SAE 12 - 1 1/16" - 12 UN

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm
A06 Inorganic microfiber 6 µm
A10 Inorganic microfiber 10 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
M25 Wire mesh 25 µm

Element Δp	Valves			
	S	B	T	D
N 20 bar	-	•	-	-
R 20 bar	-	-	-	•
S 210 bar	•	-	•	-

Executions
P01 Upper connection for clogging indicator
P02 Without connection for clogging indicator
P03 Frontal connection for clogging indicator
Pxx Customized

FILTER ELEMENT

Element series and size **HP050** Configuration example: **HP050** **3** **A10** **A** **N** **P01**

Element length
1 | **2** | **3** | **4** | **5**

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm
A06 Inorganic microfiber 6 µm
A10 Inorganic microfiber 10 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
M25 Wire mesh 25 µm

Seals
A NBR
V FPM

Element Δp
N 20 bar
R 20 bar
S 210 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 723

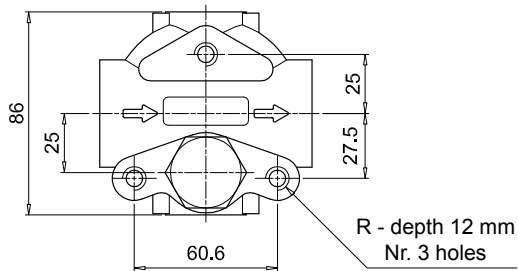
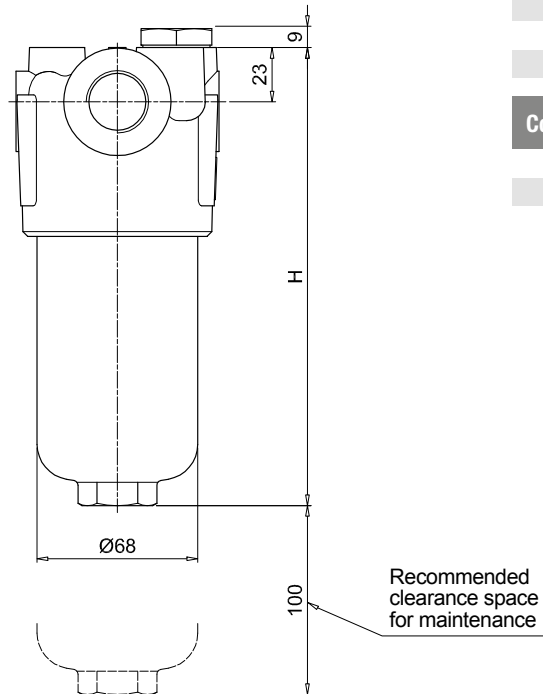
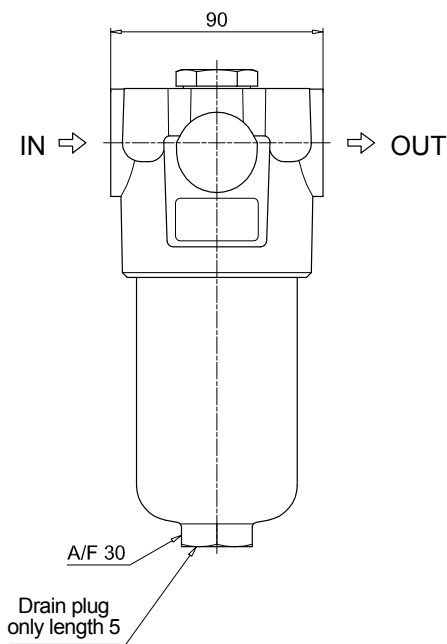
DEA Electrical differential pressure indicator
DEM Electrical differential pressure indicator
DEU Electrical differential pressure indicator
DLA Electrical / visual differential pressure indicator

DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

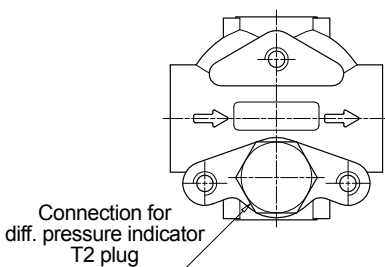
See page 743

T2 Plug

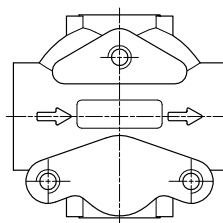


FMM050	
Filter length	H [mm]
1	158
2	195
3	237
4	285
5	407
Connections	R
A-B-C-D	M10
E-F-G-H	3/8" UNC

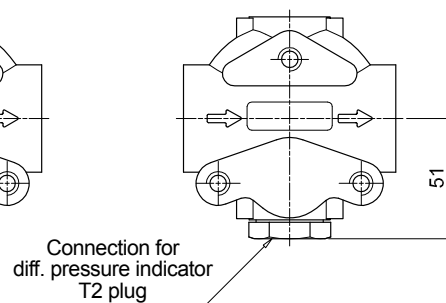
Execution P01



Execution P02



Execution P03



Designation & Ordering code

COMPLETE FILTER

Configuration example: **FMM150** | **2** | **B** | **A** | **D** | **2** | **M25** | **N** | **P01**

Series and size
FMM150

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

Valves
S Without bypass
B With bypass 6 bar

Seals
A NBR
V FPM

Connections
C G 1" **F** 1 1/4" NPT
D G 1 1/4" **G** SAE 16 - 1 5/16" - 12 UN
E 1" NPT **H** SAE 20 - 1 5/8" - 12 UN

Connection for differential pressure indicator
1 Without connection
2 Upper connection
3 Frontal 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
M25	Wire mesh	25 µm

Element Δp	S	B
N	20 bar	- •
S	210 bar	• •

Execution	
P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Configuration example: **HP150** | **2** | **M25** | **A** | **N** | **P01**

Element series and size
HP150

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
M25	Wire mesh	25 µm

Seals	
A	NBR
V	FPM

Element Δp	
N	20 bar
S	210 bar

Execution	
P01	MP Filtri standard
Pxx	Customized

CLOGGING INDICATORS

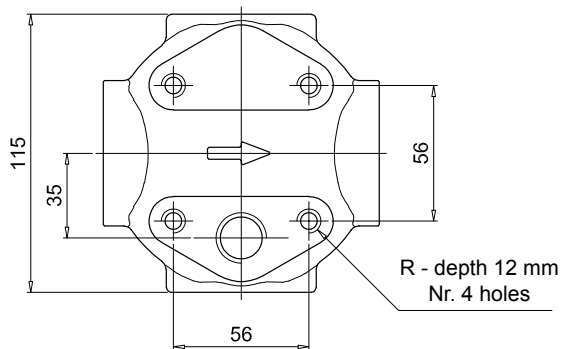
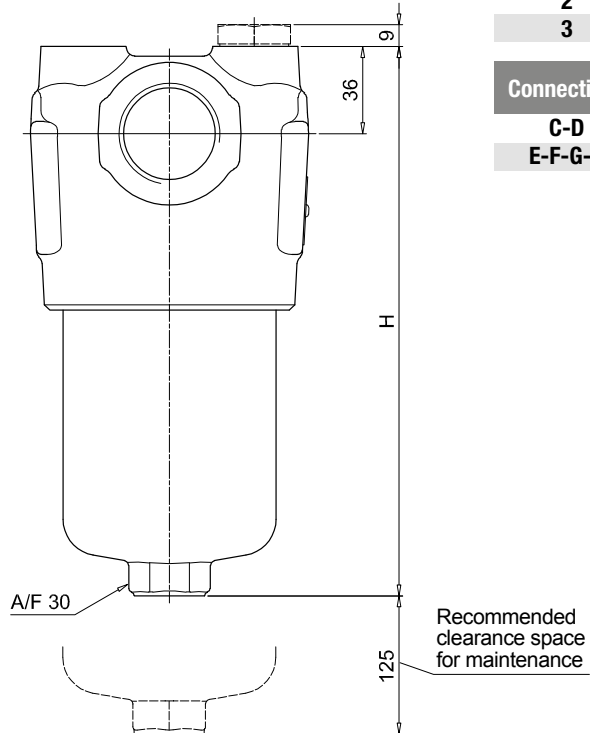
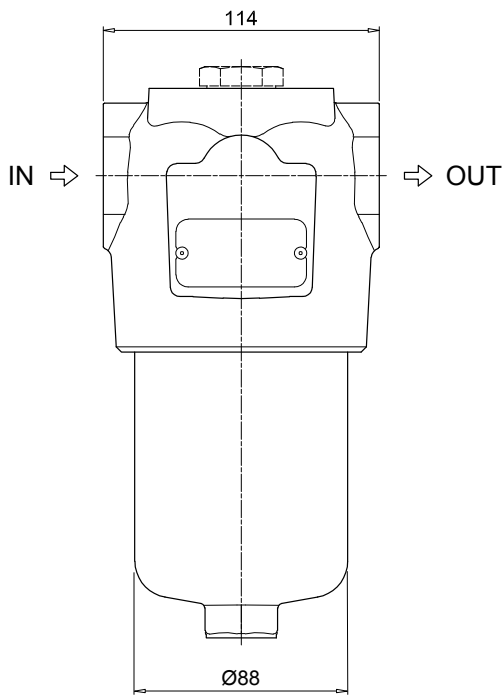
See page 723

DEA	Electrical differential pressure indicator	DLE	Electrical / visual differential pressure indicator
DEM	Electrical differential pressure indicator	DTA	Electronic differential pressure indicator
DEU	Electrical differential pressure indicator	DVA	Visual differential pressure indicator
DLA	Electrical / visual differential pressure indicator	DVM	Visual differential pressure indicator

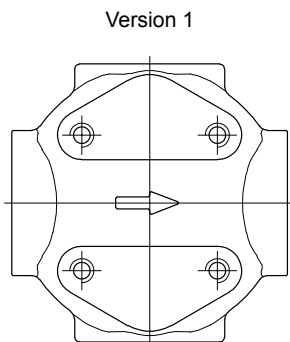
PLUGS

See page 743

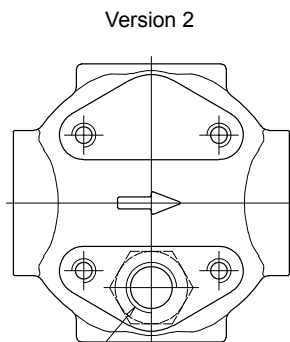
T2	Plug (not included)
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FMM150	
Filter length	H [mm]
1	230
2	340
3	415
Connections	R
C-D	M10
E-F-G-H	3/8" UNC

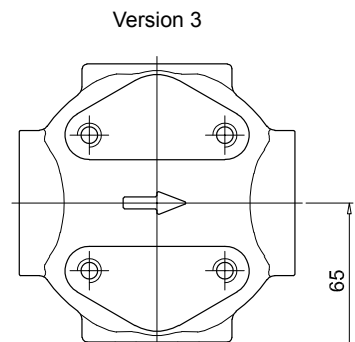


Version 1



Version 2

Connection for diff. pressure indicator
T2 plug not included



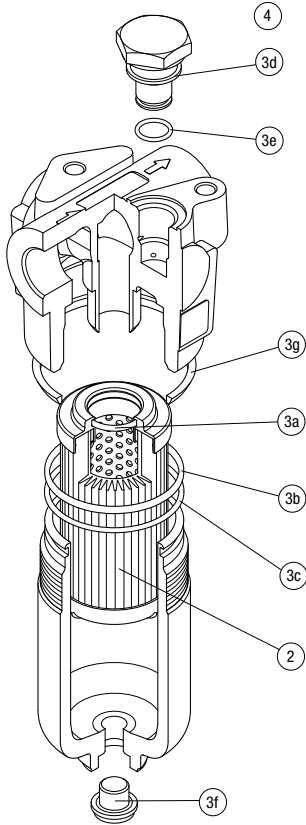
Version 3

Connection for diff. pressure indicator
T2 plug not included

FMM SPARE PARTS

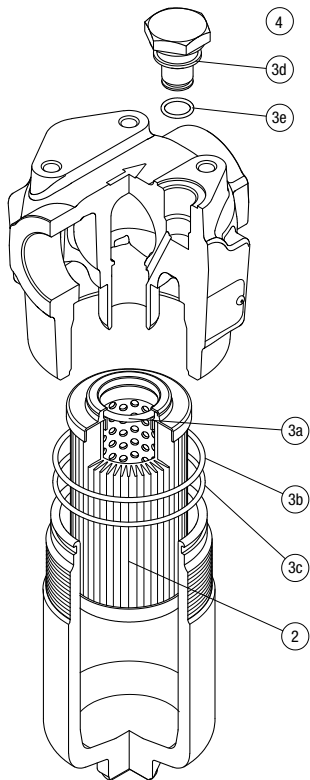
Order number for spare parts

FMM 050



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		Indicator connection plug	
		NBR	FPM	NBR	FPM
FMM 050	See order table	02050314	02050315	T2H	T2V

FMM 150



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		Indicator connection plug	
		NBR	FPM	NBR	FPM
FMM 150	See order table	02050731	02050732	T2H	T2V

FHA 051 series

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



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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of the related document.



Description

Technical data

High Pressure filters

In-line

Maximum working pressure up to 56 MPa (560 bar)

Flow rate up to 150 l/min

FHA is a range of high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 3/4", for a maximum flow rate of 150 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Bypass valve, to relieve excessive pressure drop across the filter media
- Check valve, to protect the system against reverse flow
- Reverse flow valve, to allow bidirectional flow through the filter housing. The back flow is not filtered
- Low collapse filter element "N", for use with filters provided with bypass valve
- Low collapse filter element with external support "R", for filter element protection against the back pressure caused by the check valve or the reverse flow in filters provided with the bypass valve
- High collapse filter element with external support "S", for filter element protection against the back pressure caused by the check valve or the reverse flow in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any heavy duty industrial equipment or mobile machines

Filter housing materials

- Head: Steel (chemical heat treatment)
- Housing: Steel (chemical heat treatment)
- Bypass valve: Steel

Pressure

- Test pressure: 84 MPa (840 bar)
- Burst pressure: 168 MPa (1680 bar)
- Pulse pressure fatigue test: 1 00 000 cycles with pressure from 0 to 56 MPa (560 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N-R: 20 bar
- Microfibre filter elements - series S: 210 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

In-line Inlet/Outlet

Note

FHA filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

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

Flow rates [l/min]

Filter series	Length	Filter element design - N Series						Filter element design - R Series					Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FHA 051	1	42	41	82	85	110	156	42	41	82	85	110	30	40	58	60	76
	2	53	58	87	100	127	158	53	58	87	100	127	45	50	78	91	120
	3	68	71	101	111	137	160	68	71	101	111	137	59	62	92	103	131
	4	86	92	118	121	142	162	86	92	118	121	142	77	83	110	113	137
	5	112	115	137	142	150	165	112	115	137	142	150	96	99	116	128	147

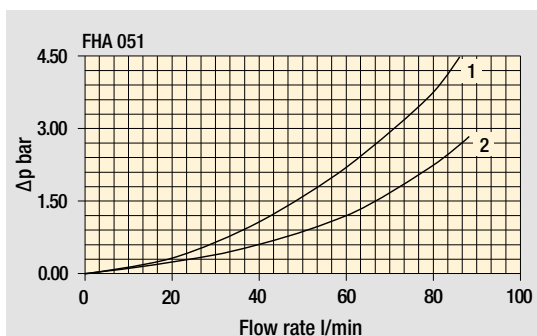
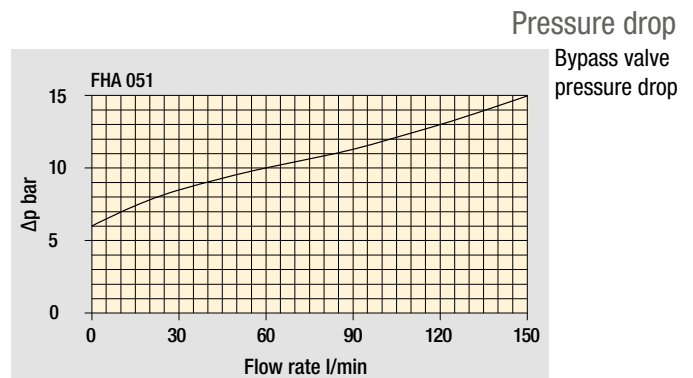
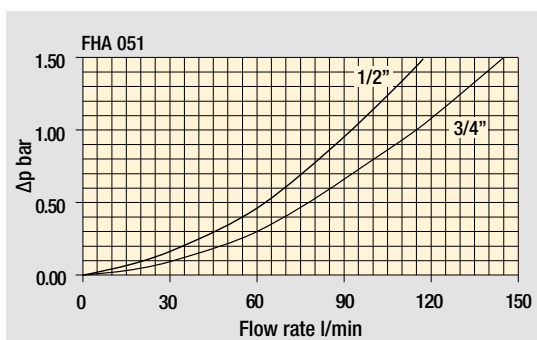
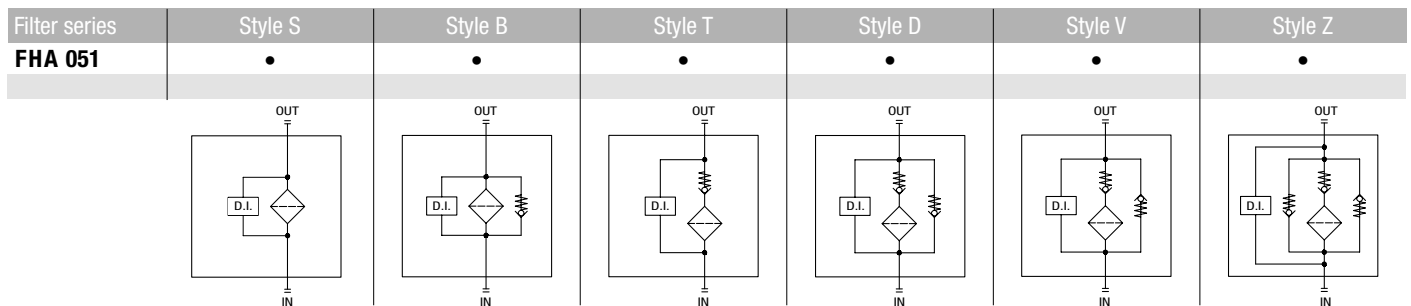
Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols



Pressure drop in reverse flow valves

- 1 - Reverse flow
- 2 - In filter direction

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

COMPLETE FILTER

Series and size **FHA051** Configuration example: **FHA051** **3** **B** **A** **G** **A10** **N** **P01**

Length

1 | 2 | 3 | 4 | 5

Valves

- S** Without bypass
- B** With bypass 6 bar
- T** With check valve, without bypass
- D** With check valve, with bypass 6 bar
- V** With reverse flow, without bypass
- Z** With reverse flow, with bypass 6 bar

Seals

- A** NBR
- V** FPM

Connections

- | | |
|-----------------------------|-----------------------------------|
| A M18x1.5 - ISO 6149 | E 1/2" NPT |
| B M22x1.5 - ISO 6149 | F 3/4" NPT |
| C G 1/2" | G SAE 8 - 3/4" - 16 UNF |
| D G 3/4" | H SAE 12 - 1 1/16" - 12 UN |

Filtration rating (filter media)

- A03** Inorganic microfiber 3 µm
- A06** Inorganic microfiber 6 µm
- A10** Inorganic microfiber 10 µm
- A16** Inorganic microfiber 16 µm
- A25** Inorganic microfiber 25 µm
- M25** Wire mesh 25 µm

Element Δp	Valves						
	S	B	T	D	V	Z	
N 20 bar	-	•	-	-	-	-	
R 20 bar	-	-	-	•	-	•	
S 210 bar	•	-	•	-	•	-	

Execution

- P01** Upper connection for clogging indicator
- P02** Without connection for clogging indicator
- P03** Frontal connection for clogging indicator
- Pxx** Customized

FILTER ELEMENT

Element series and size **HP050** Configuration example: **HP050** **3** **A10** **A** **N** **P01**

Element length

1 | 2 | 3 | 4 | 5

Filtration rating (filter media)

- A03** Inorganic microfiber 3 µm
- A06** Inorganic microfiber 6 µm
- A10** Inorganic microfiber 10 µm
- A16** Inorganic microfiber 16 µm
- A25** Inorganic microfiber 25 µm
- M25** Wire mesh 25 µm

Seals	
A	NBR
V	FPM

Element Δp	
N	20 bar
R	20 bar
S	210 bar

Execution	
P01	MP Filtri standard
Pxx	Customized

CLOGGING INDICATORS

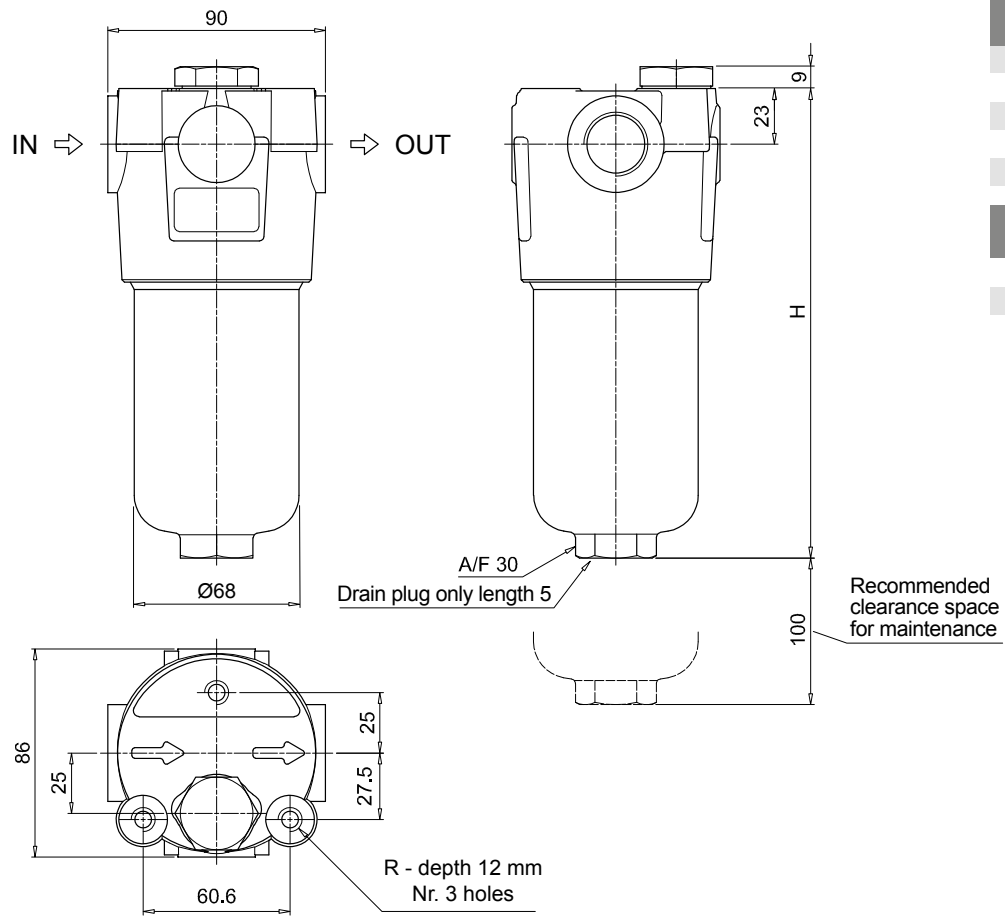
See page 723

- | | |
|--|--|
| DEA Electrical differential pressure indicator | DLE Electrical / visual differential pressure indicator |
| DEM Electrical differential pressure indicator | DTA Electronic differential pressure indicator |
| DEU Electrical differential pressure indicator | DVA Visual differential pressure indicator |
| DLA Electrical / visual differential pressure indicator | DVM Visual differential pressure indicator |

PLUGS

See page 743

- T2** Plug (not included)



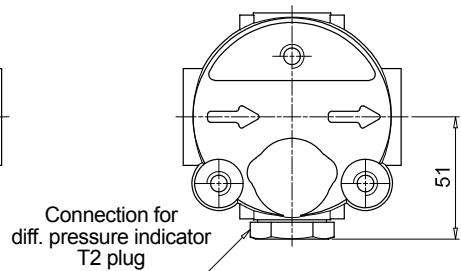
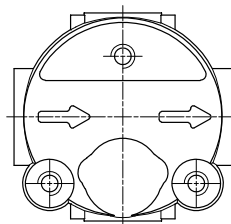
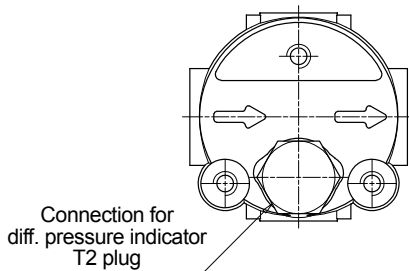
FHA051	
Filter length	H [mm]
1	158
2	195
3	237
4	285
5	407
Connections	R
A-B-C-D	M10
E-F-G-H	3/8" UNC

Valves S - B - T - D

Execution P01

Execution P02

Execution P03

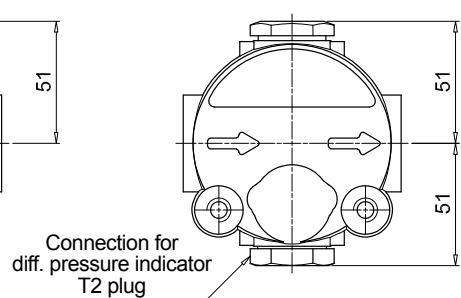
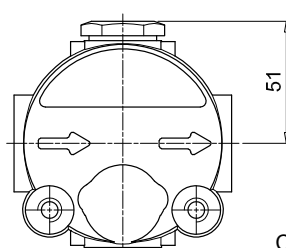
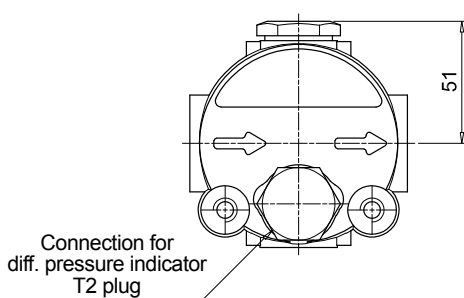


Valves V - Z

Execution P01

Execution P02

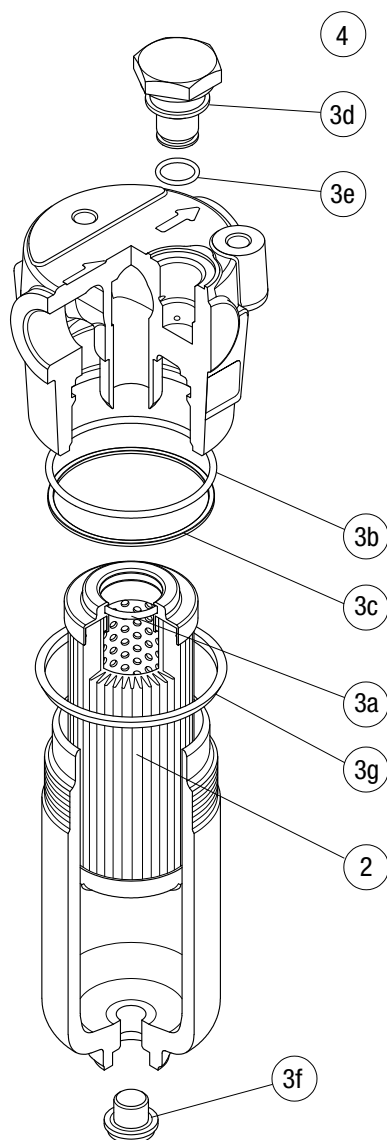
Execution P03



FHA 051 SPARE PARTS

Order number for spare parts

FHA 051



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

FMP 039 series

Maximum working pressure up to 11 MPa (110 bar) - Flow rate up to 80 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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FMP 039 GENERAL INFORMATION

Description

Technical data

High Pressure filters

In-line

Maximum working pressure up to 11 MPa (110 bar)

Flow rate up to 80 l/min

FMP039 is a range of versatile medium pressure filter for transmission, protection of sensitive components in medium pressure hydraulic systems and filtration of the coolant into the machine tools. 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"
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any medium pressure industrial equipment or mobile machines

Filter housing materials

- Head: Anodized aluminium
- Housing: Anodized aluminium
- Bypass valve: Steel

Pressure

- Test pressure: 17 MPa (170 bar)
- Burst pressure: 33 MPa (330 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 11 MPa (110 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) \pm 10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN.

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

In-line Inlet/Outlet

Note

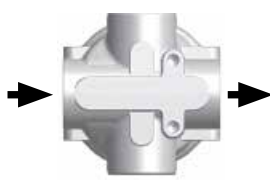
FMP 039 filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

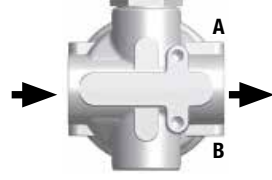
Filter series	Weights [kg]				Volumes [dm ³]			
	Length	2	3	4	Length	2	3	4
FMP 039		0.60	0.70	0.80		0.19	0.26	0.34

Executions

Execution 1:
without indicator connection



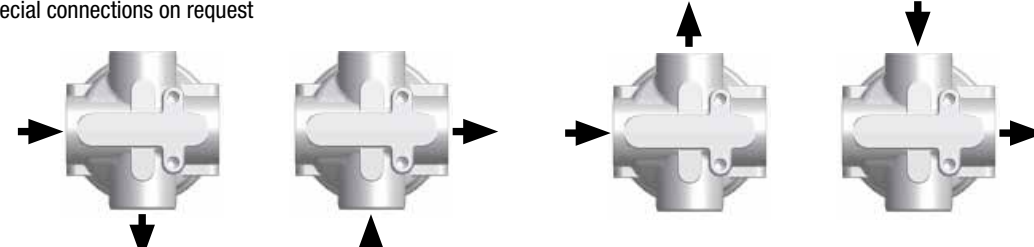
Execution 6:
double indicator connection (A - B)



A:
Closure cap with standard T2 steel. The position of the cap is reversible.

B:
Standard closure cap with plastic thread protection. If necessary, a second T2 plug is available, see ordering information.

Special connections on request



Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25
FMP 039	2	20	26	45	52	61	97
	3	35	39	56	64	76	98
	4	44	48	66	71	82	92

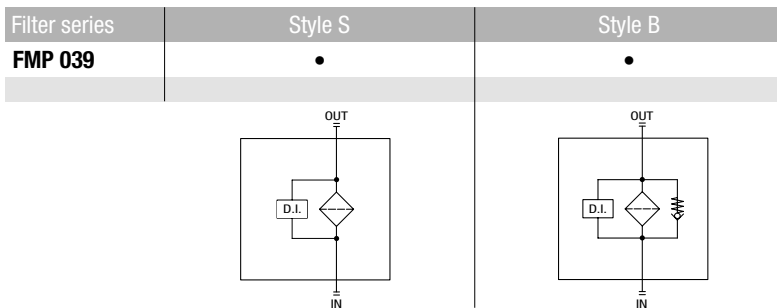
Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

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

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

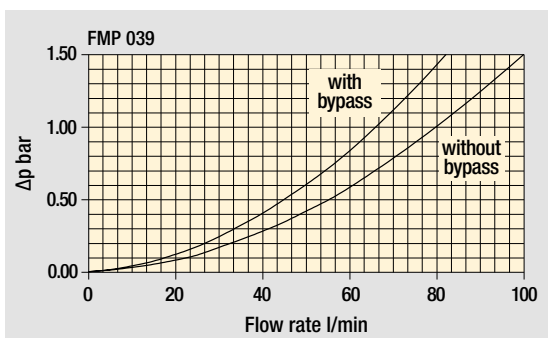
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

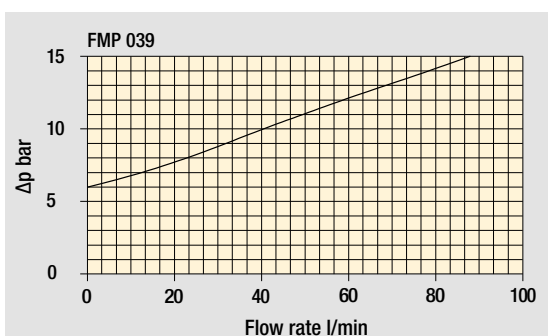


Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

FMP 039

Designation & Ordering code

COMPLETE FILTER

Configuration example: **FMP039** | **3** | **B** | **A** | **B** | **6** | **A03** | **N** | **P01**

Series and size
FMP039

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

Valves
S Without bypass
B With bypass 6 bar

Seals
A NBR
V FPM

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

Connection for differential pressure indicator
1 Without connections
6 With two connections on both sides

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	A16 Inorganic microfiber 16 µm
A06 Inorganic microfiber 6 µm	A25 Inorganic microfiber 25 µm
A10 Inorganic microfiber 10 µm	M25 Wire mesh 25 µm

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

FILTER ELEMENT

Configuration example: **HP039** | **3** | **A03** | **A** | **N** | **P01**

Element series and size
HP039

Element length
2 | **3** | **4**

Filtration rating (filter media)

A03 Inorganic microfiber 3 µm	A16 Inorganic microfiber 16 µm
A06 Inorganic microfiber 6 µm	A25 Inorganic microfiber 25 µm
A10 Inorganic microfiber 10 µm	M25 Wire mesh 25 µm

Seals
A NBR
V FPM

Element Δp
N 20 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

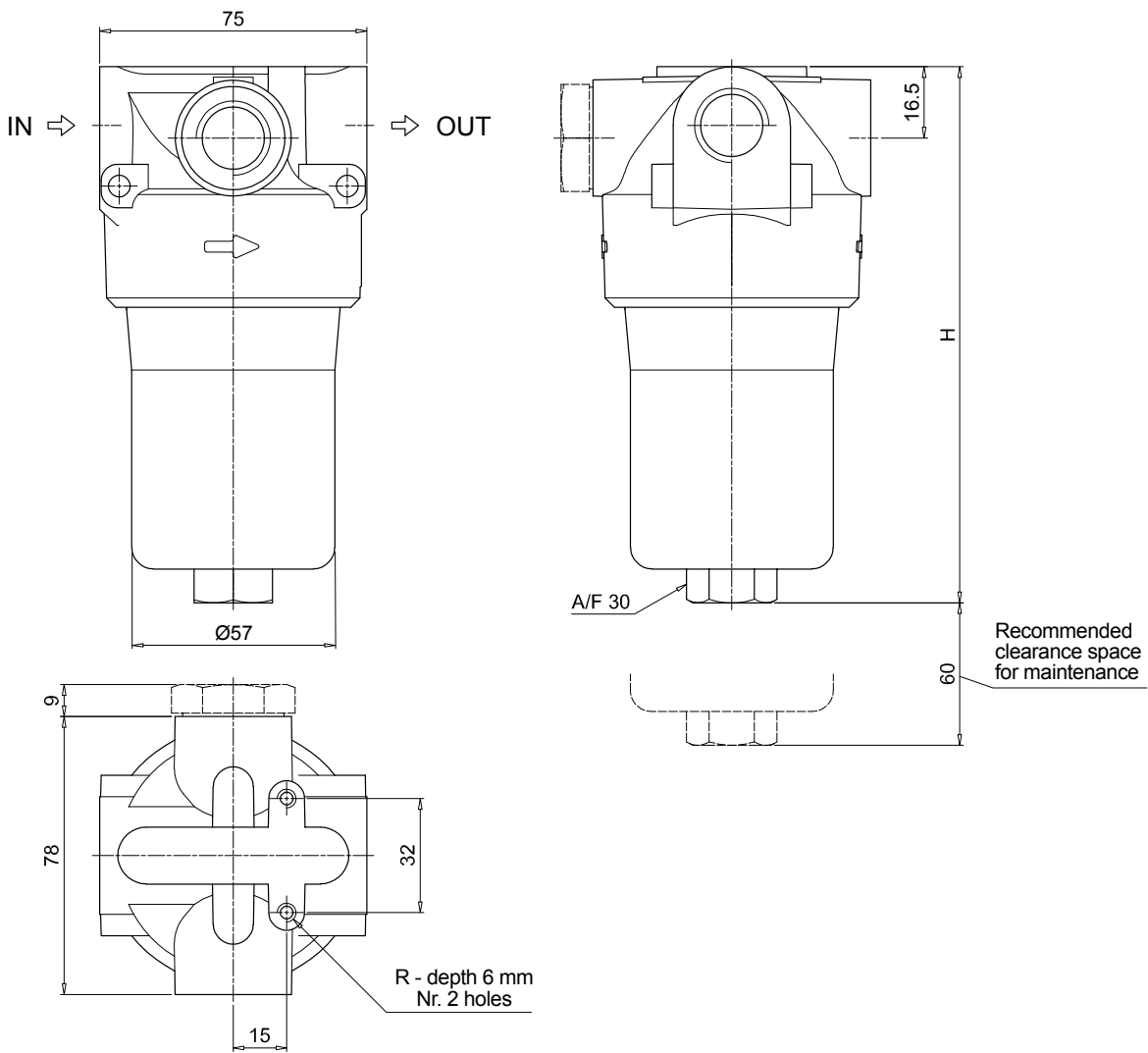
See page 723

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

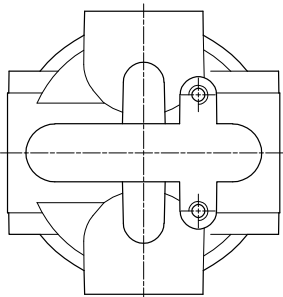
PLUGS

See page 743

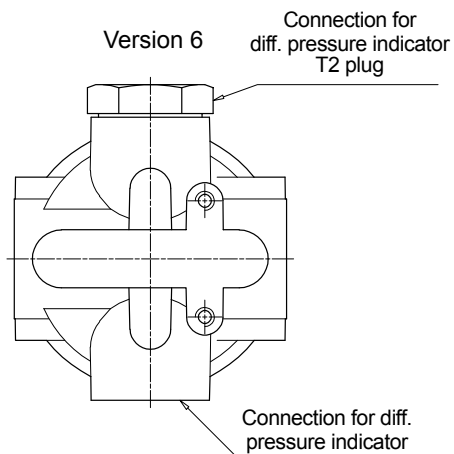
T2 Plug (not included)



Version 1



Version 6



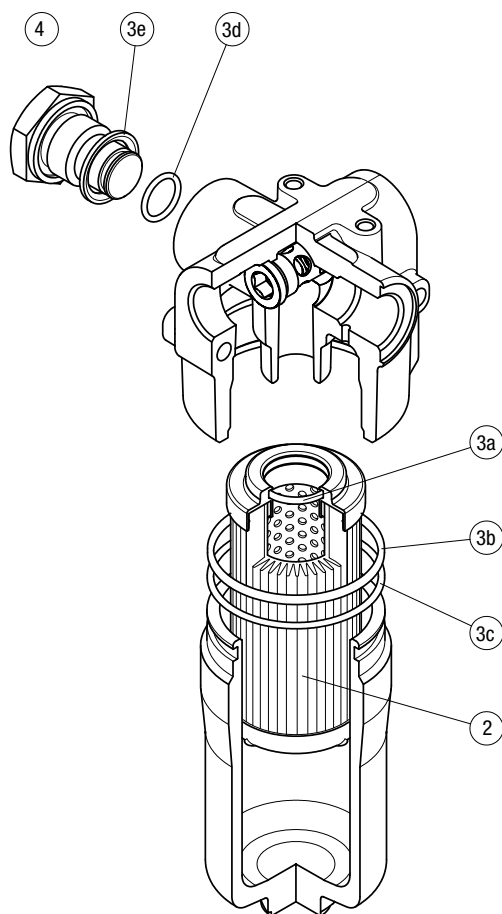
The position of the T2 plug is reversible

FMP039	
Filter length	H [mm]
2	151
3	194
4	238
Connections	R
A	M6
B - C	1/4" UNC

FMP 039 SPARE PARTS

Order number for spare parts

FMP 039



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
FMP 039	See order table	02050509	02050510

FMP series

Maximum working pressure up to 32 MPa (320 bar) - Flow rate up to 500 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



FMP065



FMP135



FMP320

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High Pressure filters

In-line

Maximum working pressure up to 32 MPa (320 bar)

Flow rate up to 500 l/min

FMP is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the industrial equipment.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/2" and flanged connections up to 1 1/2", for a maximum flow rate of 500 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Bypass valve, to relieve excessive pressure drop across the filter media
- Check valve, to protect the system against reverse flow
- 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 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 in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any high pressure industrial equipment or mobile machines

Filter housing materials

- Head: Phosphatized cast iron
- Housing: Phosphatized steel
- Bypass valve: Brass
- Reverse Flow: Steel (only for series FMP 320)
- Check valve: Steel

Pressure

- Test pressure: 48 MPa (480 bar)
- Burst pressure: 96 MPa (960 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 32 MPa (320 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N-R: 20 bar
- Microfibre filter elements - series H-S: 210 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

In-line Inlet/Outlet

Note

FMP filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]				
	Length	1	2	3	4	Length	1	2	3	4
FMP 065		3.26	3.62	4.83	-		0.36	0.47	0.84	-
FMP 135		5.61	7.21	8.27	-		0.45	0.78	1.00	-
FMP 320		10.95	13.08	15.37	17.85		1.03	1.75	2.52	3.35

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25
FMP 065	1	23	30	48	54	72	105
	2	31	45	60	65	82	106
	3	52	60	80	84	94	108
FMP 135	1	69	73	120	129	171	201
	2	110	117	149	152	211	232
	3	151	152	192	195	212	233
FMP 320	1	130	144	244	296	361	477
	2	267	291	417	438	492	509
	3	348	390	476	493	503	519
	4	389	415	483	502	525	534

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

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

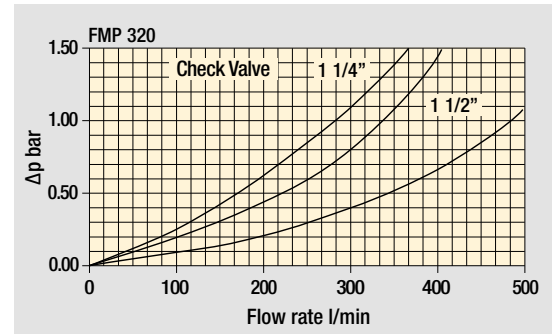
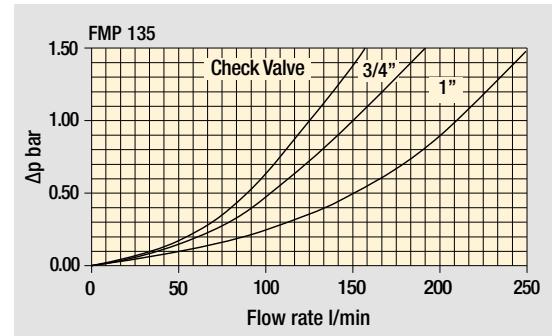
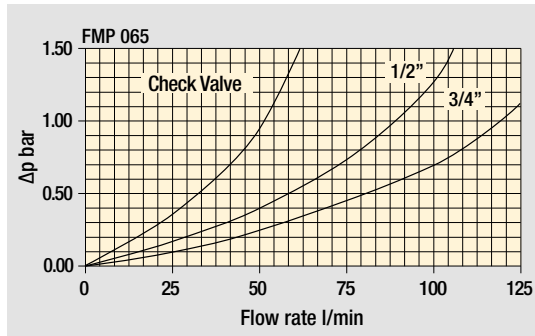
Hydraulic symbols

Filter series	Style S - E	Style B - C	Style T	Style D
FMP 065	•	•	•	•
FMP 135	•	•	•	•
FMP 320	•	•	•	•

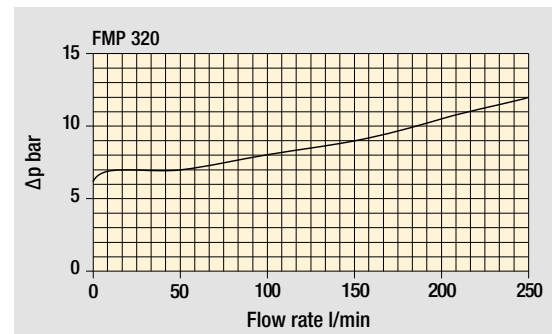
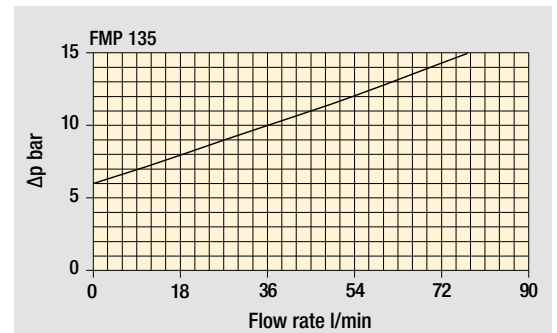
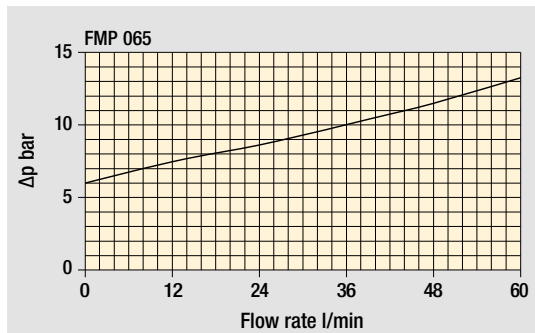
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Pressure drop

Filter housings Δp pressure drop



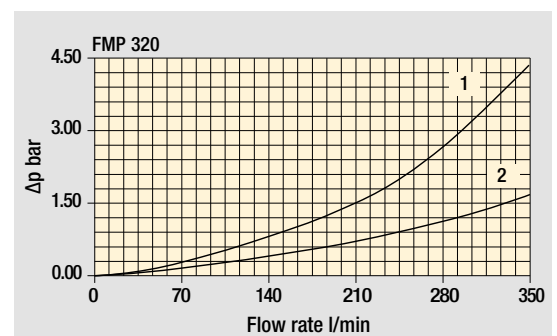
Bypass valve pressure drop



Valves

Filter housing with check valve

- 1 - Reverse flow
- 2 - In filter direction



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

FMP FMP065 - FMP135 - FMP320

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **FMP065** **3** **T** **A** **G1** **M25** **S** **P01**

FMP065 | **FMP135** | **FMP320**

Length	FMP065	FMP135	FMP320
1	•	•	•
2	•	•	•
3	•	•	•
4	-	-	•

Valves

S Without bypass	C With bypass 6 bar, plug on the opposite side
E Without bypass, plug on the opposite side	T With check valve, without bypass
B With bypass 6 bar	D With check valve, with bypass

Seals

A NBR	V FPM
--------------	--------------

Connections	FMP065	FMP135	FMP320
G1	G 1/2"	G 3/4"	G 1 1/4"
G2	G 3/4"	G 1"	G 1 1/2"
G3	1/2" NPT	3/4" NPT	1 1/4" NPT
G4	3/4" NPT	1" NPT	1 1/2" NPT
G5	SAE 8 - 3/4" - 16 UNF	SAE 12 - 1 1/16" - 12 UN	SAE 20 - 1 5/8" - 12 UN
G6	SAE 12 - 1 1/16" - 12 UN	SAE 16 - 1 5/16" - 12 UN	SAE 24 - 1 7/8" - 12 UN
F1	-	3/4" SAE 3000 psi/M	1 1/4" SAE 3000 psi/M
F2	-	1" SAE 3000 psi/M	1 1/2" SAE 3000 psi/M
F3	-	3/4" SAE 3000 psi/UNC	1 1/4" SAE 3000 psi/UNC
F4	-	1" SAE 3000 psi/UNC	1 1/2" SAE 3000 psi/UNC

Filtration rating (filter media)

A03 Inorganic microfiber	3 µm
A06 Inorganic microfiber	6 µm
A10 Inorganic microfiber	10 µm
A16 Inorganic microfiber	16 µm
A25 Inorganic microfiber	25 µm
M25 Wire mesh	25 µm

Element Δp	Valves					
	S	E	B	C	T	D
N 20 bar	-	-	•	•	-	-
R 20 bar	-	-	-	-	-	•
H 210 bar	•	•	-	-	-	-
S 210 bar	-	-	-	-	•	-

Execution	Filter length			
	1	2	3	4
P01 MP Filtri standard	•	•	•	•
P02 Maintenance from the bottom of the housing	-	-	-	•
Pxx Customized	-	-	-	-

FILTER ELEMENT

Element series and size Configuration example: **HP065** **3** **M25** **A** **S** **P01**

HP065 | **HP135** | **HP320**

Element length	HP065	HP135	HP320
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
M25 Wire mesh	25 µm

Seals	
A	NBR
V	FPM

Element Δp	
N	20 bar
R	20 bar
H	210 bar
S	210 bar

Execution	
P01	MP Filtri standard
Pxx	Customized

CLOGGING INDICATORS

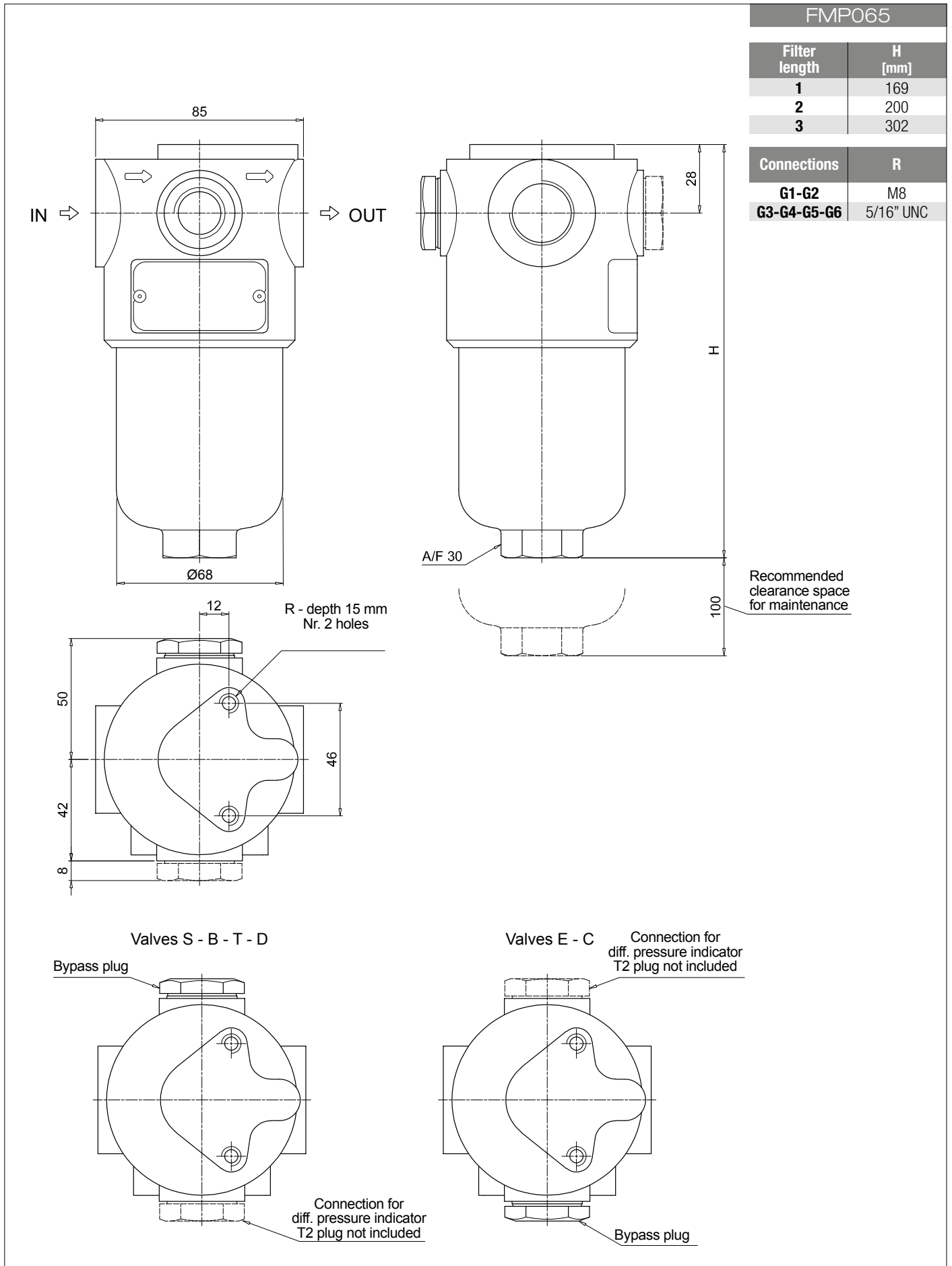
See page 723

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

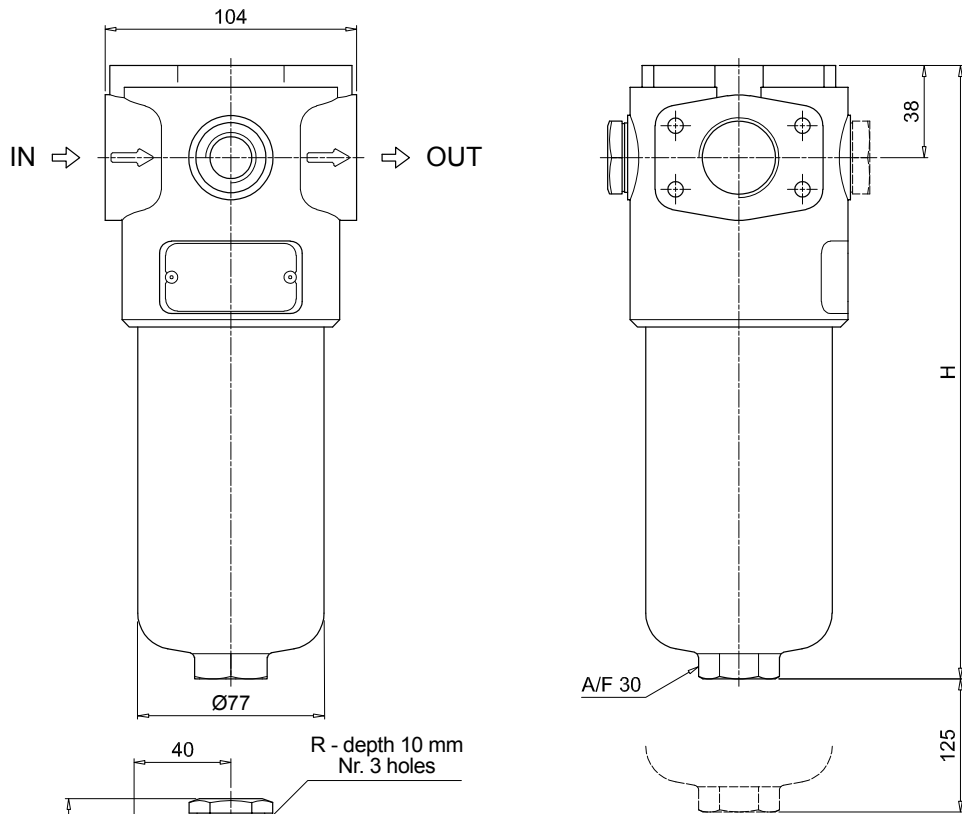
T2 Plug (not included)



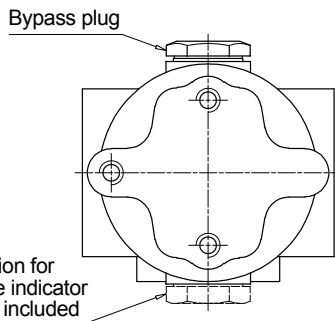
FMP065	
Filter length	H [mm]
1	169
2	200
3	302
Connections	R
G1-G2	M8
G3-G4-G5-G6	5/16" UNC

FMP FMP065 - FMP135 - FMP320

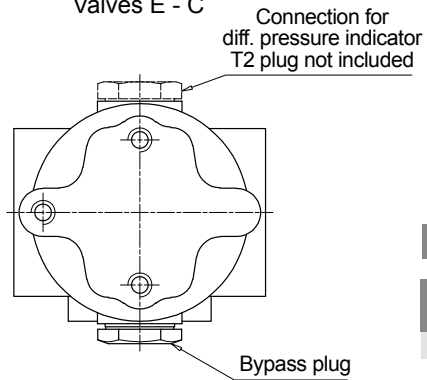
Dimensions



Valves S - B - T - D



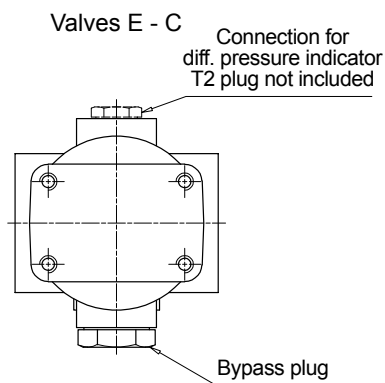
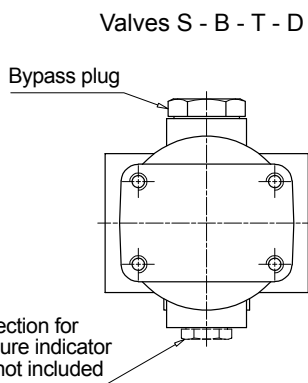
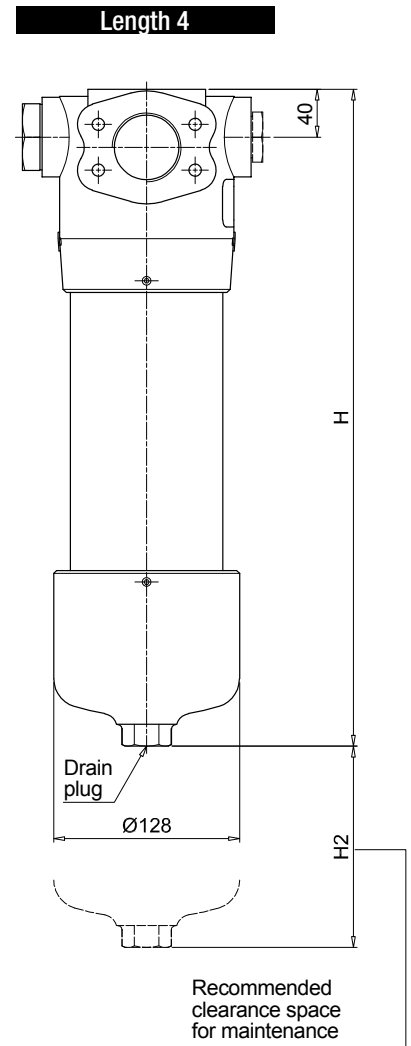
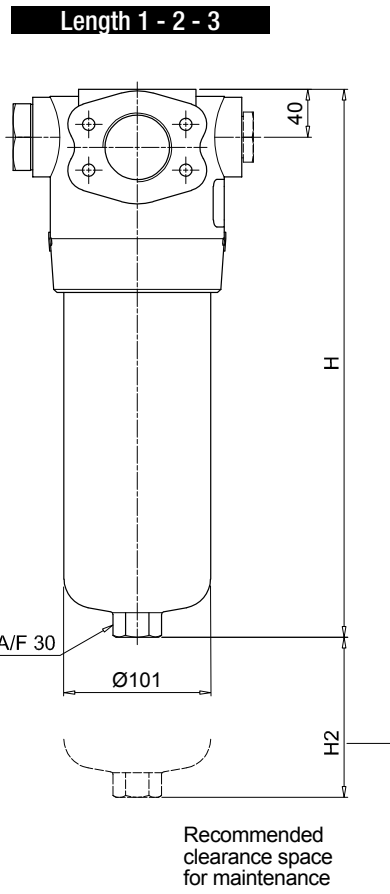
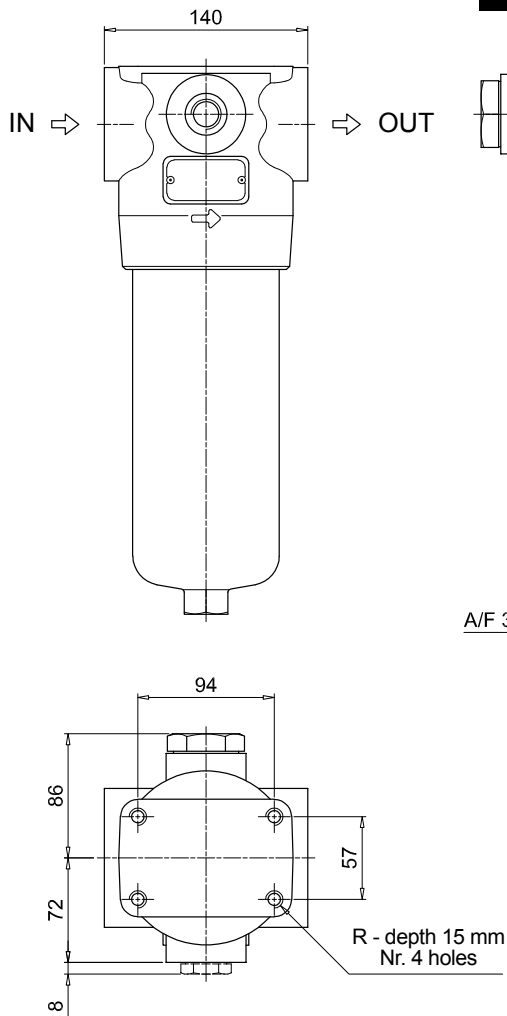
Valves E - C



FMP135

Filter length	H [mm]
1	221
2	334
3	409

Connections	R
G1-G2	M10
G3-G4-G5-G6	3/8" UNC
F1-F2	M10
F3-F4	3/8" UNC



FMP320

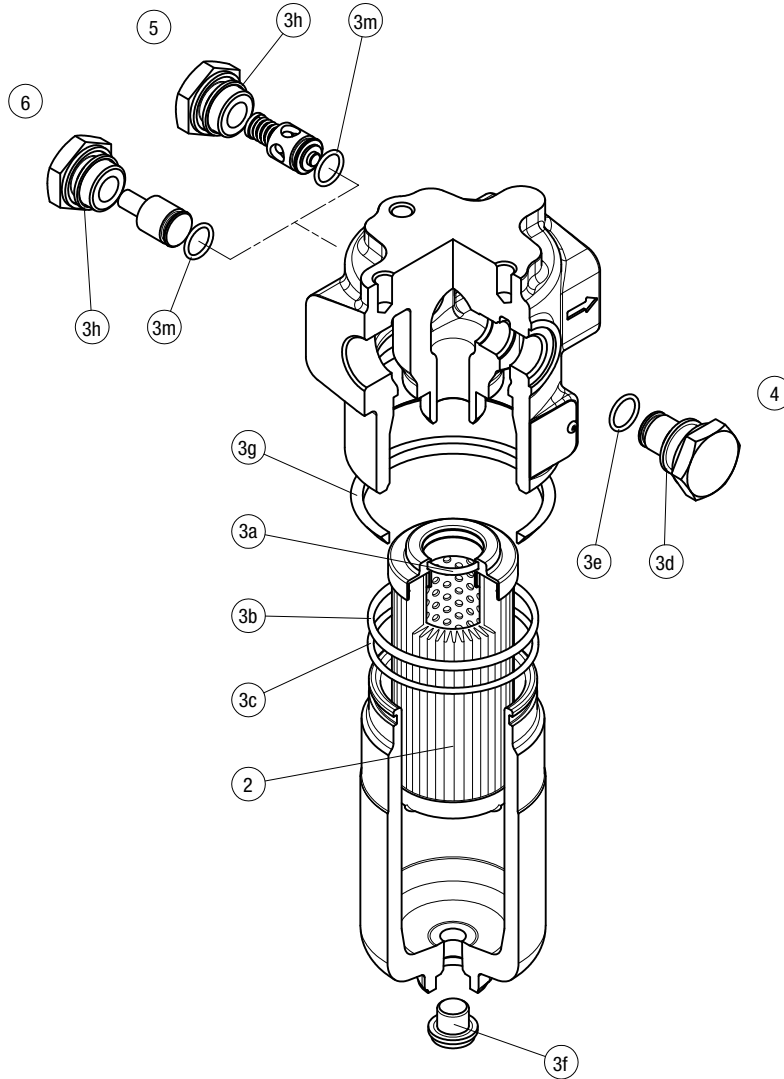
Filter length	H [mm]	H2 [mm]	
		Execution P01	Execution P02
1	263	150	-
2	386	150	-
3	518	150	-
4	671	150	550

Connections	R
G1-G2	M12
G3-G4-G5-G6	1/2" UNC
F1-F2	M12
F3-F4	1/2" UNC

FMP SPARE PARTS

Order number for spare parts

FMP 065 - 135 - 320



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		Bypass assembly		Non-bypass assembly	
		NBR	FPM	NBR	FPM	NBR	FPM	NBR	FPM
FMP 065	See order table	02050267	02050278			02001312	02001385	02001314	02001386
FMP 135		02050293	02050294	T2H	T2V	02001312	02001385	02001314	02001386
FMP 320		02050274	02050285			02001396	02001397	02001398	02001399

FHP series

Maximum working pressure up to 42 MPa (420 bar) - Flow rate up to 630 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



Please scan the QR codes to get updated electronic version of the related document:



FHP010



FHP011



FHP065



FHP135



FHP350



FHP351



FHP500

Description

Technical data

High Pressure filters

In-line

Maximum working pressure up to 42 MPa (420 bar)

Flow rate up to 630 l/min

FHP is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the industrial equipment.

They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/2" and flanged connections up to 2", for a maximum return flow rate of 630 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Bypass valve, to relieve excessive pressure drop across the filter media
- Check valve, to protect the system against reverse flow
- Reverse flow valve, to allow bidirectional flow through the filter housing. The back flow is not filtered. The filter requires the use of internal check valves to direct the flow through the element in one direction and around the element in the other
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any high pressure industrial equipment or mobile machines

Filter housing materials

- Head: Phosphatized cast iron

- Housing: Phosphatized steel

- Bypass valve

AISI 316L: FHP 010 - 011

Brass: FHP 065 - 135

Brass / AISI 304: FHP 350-351

Steel: FHP 500

- Reverse Flow

Steel: FHP 350 - FHP 500

- Check valve: Steel

Pressure

- Test pressure: 63 MPa (630 bar)

- Burst pressure: 126 MPa (1260 bar)

- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 42 MPa (420 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%

- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar

- Microfibre filter elements - series R: 20 bar (not available for FHP 010-011 and FHP 500)

- Microfibre filter elements - series H: 210 bar

- Microfibre filter elements - series S: 210 bar (only for FHP 500)

- Wire mesh filter elements - series N: 20 bar

- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A

- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

FHP 010 - 065 - 135 - 350 - 351 - 500:

In-line Inlet/Outlet

FHP 011:

90° Inlet/Outlet

Note

FHP filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FHP 010 - 011		2.05	2.18	2.64	3.13	-		0.10	0.12	0.15	0.20	-
FHP 065		4.26	4.62	5.83	-	-		0.25	0.30	0.50	-	-
FHP 135		7.11	8.71	9.76	-	-		0.43	0.76	0.97	-	-
FHP 350 - 351		13.95	16.08	18.37	20.85	-		1.00	1.72	2.49	3.32	-
FHP 500		27.00	31.17	34.69	46.70	52.5		1.71	2.43	3.04	5.18	6.51

Flow rates [l/min]

Filter series	Length	Filter element design - H Series					Filter element design - N Series					
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25	M25
FHP 010	1	3	5	6	7	8	4	6	8	9	10	37
	2	5	7	13	16	22	6	8	16	19	24	40
	3	10	13	22	25	30	11	14	23	26	31	41
	4	12	15	25	27	32	16	19	27	30	33	41
FHP 011	1	3	5	6	7	9	4	6	8	9	11	47
	2	5	7	14	17	24	7	9	17	21	28	52
	3	11	14	25	29	36	11	14	26	30	37	53
	4	12	16	28	32	38	17	21	32	36	40	54
FHP 065	1	24	25	50	59	84	25	33	56	63	90	142
	2	33	38	68	77	98	34	52	72	79	106	143
	3	61	70	100	107	123	61	73	101	108	125	147
FHP 135	1	49	55	95	98	147	67	72	115	122	159	184
	2	89	106	129	131	163	105	111	140	142	192	209
	3	120	132	158	166	180	141	143	176	179	193	211
FHP 350 FHP 351	1	108	115	188	197	301	127	140	234	282	343	451
	2	196	225	317	323	396	256	278	394	415	465	480
	3	266	310	384	392	440	331	370	450	466	475	490
	4	308	333	391	398	445	369	393	456	474	495	503
FHP 500	1	144	157	265	268	355	269	305	390	406	444	612
	2	232	262	350	363	398	321	357	433	441	484	619
	3	293	301	398	408	455	396	416	497	499	537	622
	4	336	377	452	455	507	430	475	516	524	545	626
	5	420	428	494	500	544	475	493	535	545	569	627

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

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

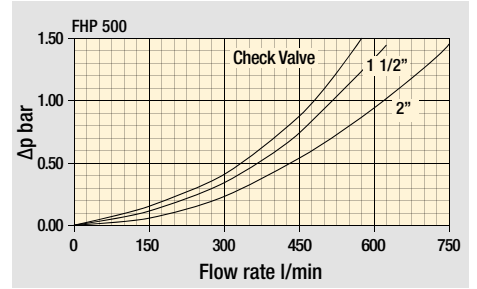
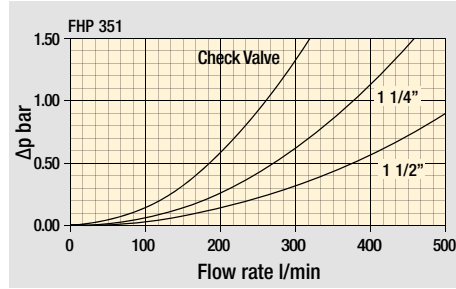
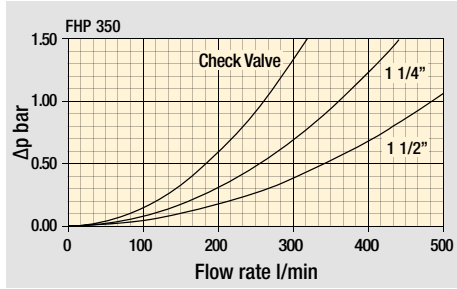
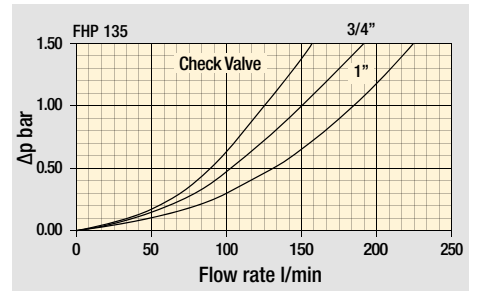
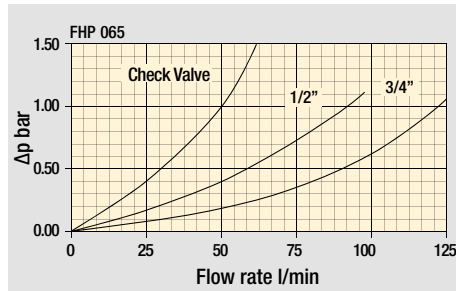
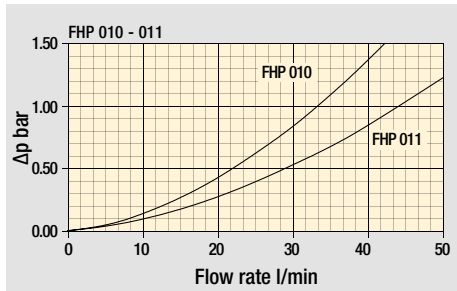
Hydraulic symbols

Filter series	Style S	Style B	Style T	Style D	Style V	Style Z
FHP 010 - 011	•	•	-	-	•	•
FHP 065	•	•	•	-	-	-
FHP 135	•	•	•	-	-	-
FHP 350-351	•	•	•	•	•	•
FHP 500	•	•	•	•	•	•

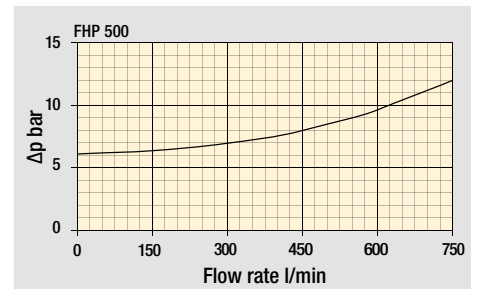
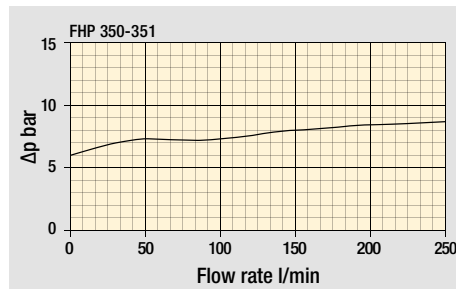
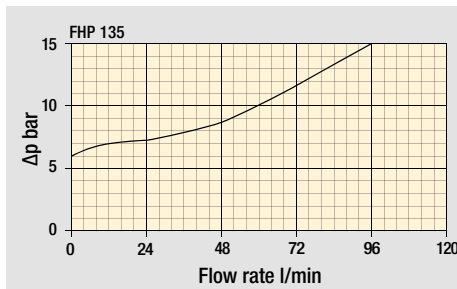
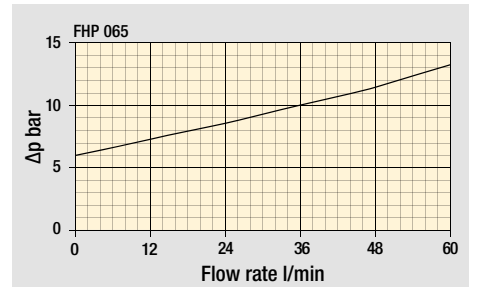
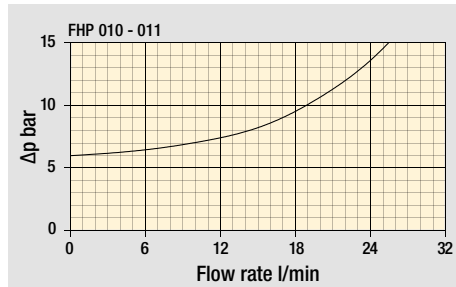
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Pressure drop

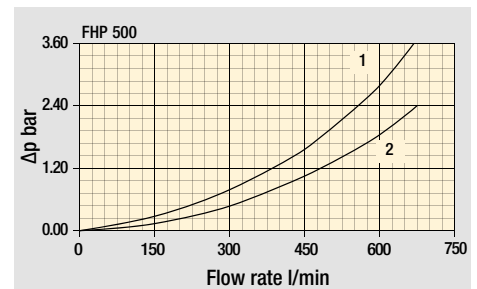
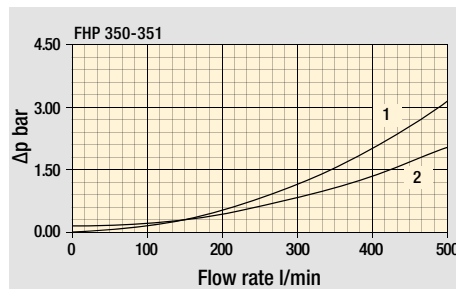
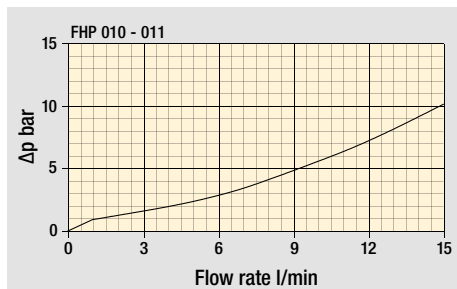
Filter housings Δp pressure drop



Bypass valve pressure drop



Valves



Filter housing with check valve

Pressure drop with reverse flow valve in
1 - Filtering direction
2 - Opposite direction

Pressure drop with reverse flow valve in
1 - Opposite direction
2 - Filtering direction

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

FHP FHP010 - FHP011

Designation & Ordering code

COMPLETE FILTER

Configuration example: **FHP010** | **2** | **B** | **A** | **B** | **2** | **A03** | **N** | **P01**

Series and size
FHP010 | **FHP011**

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

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 pressure indicator
1 Without
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
M25	Wire mesh	25 µm

Element Δp	S	B	V	Z	Execution
N 20 bar	-	•	-	•	P01 MP Filtri standard
H 210 bar	•	-	•	-	Pxx Customized

FILTER ELEMENT

Configuration example: **HP011** | **2** | **A03** | **A** | **N** | **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
M25	Wire mesh	25 µm

Seals	Element Δp	Execution
A NBR	N 20 bar	P01 MP Filtri standard
V FPM	H 210 bar	Pxx Customized

CLOGGING INDICATORS

See page 723

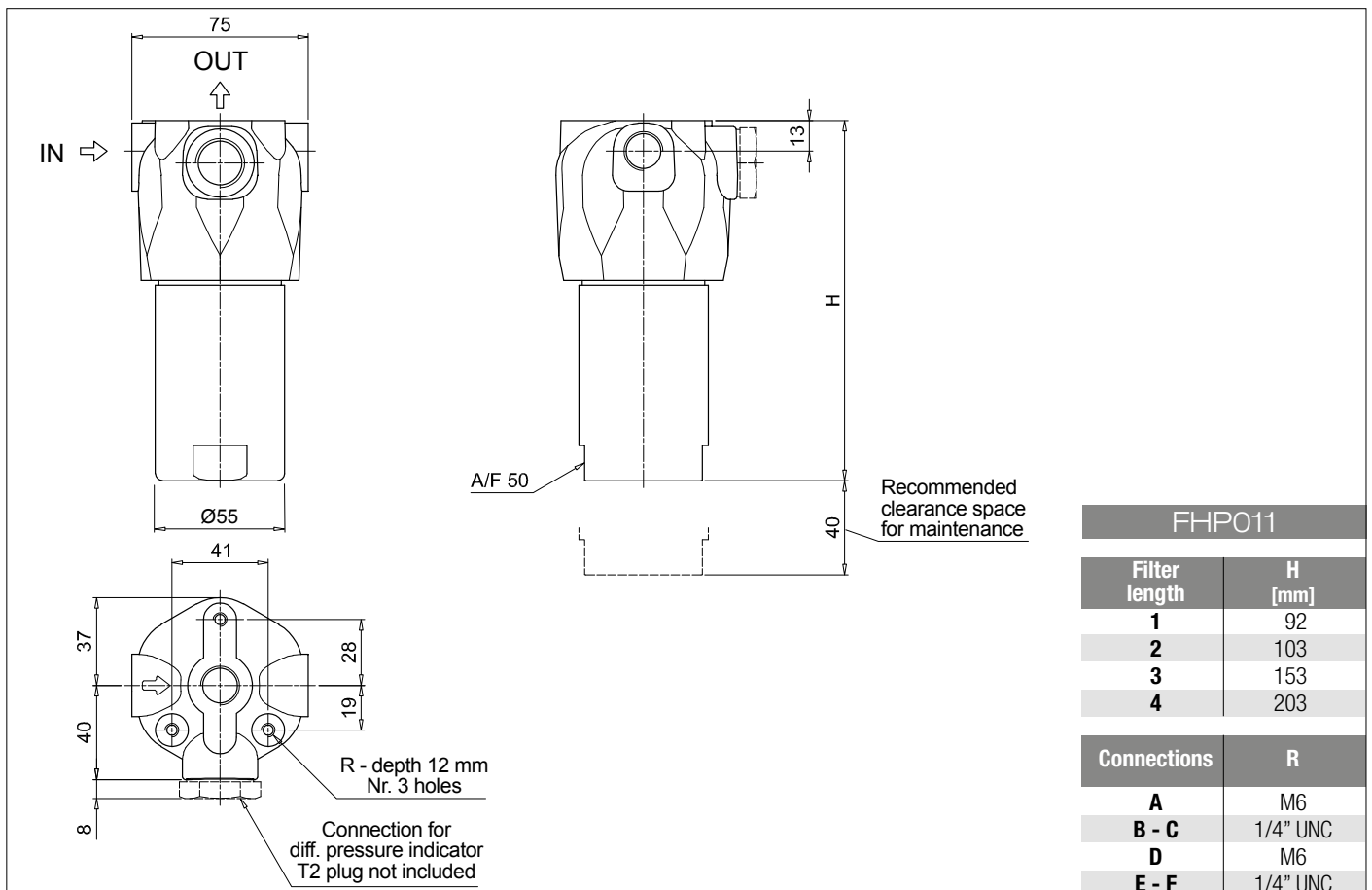
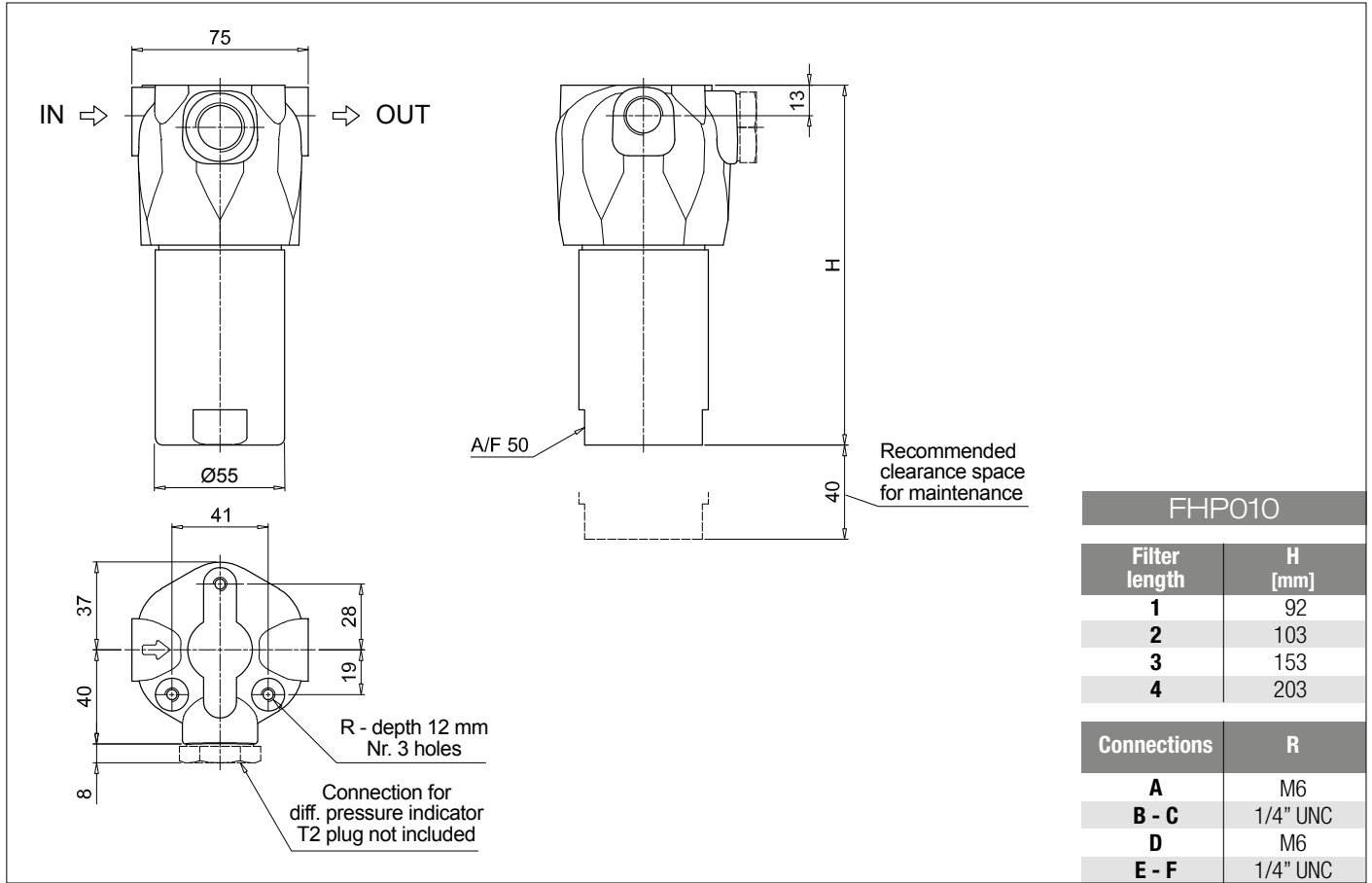
DEA Electrical differential pressure indicator
DEM Electrical differential pressure indicator
DEU Electrical differential pressure indicator
DLA Electrical / visual differential pressure indicator

DLE Electrical / visual differential pressure indicator
DTA Electronic differential pressure indicator
DVA Visual differential pressure indicator
DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug (not included)



FHP FHP065 - FHP135

Designation & Ordering code

COMPLETE FILTER

Series and size **FHP065** | **FHP135** Configuration example: **FHP135** **2** **B** **A** **G3** **A06** **S** **P01**

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

Valves
S Without bypass
B With bypass 6 bar
T With check valve, without bypass

Seals
A NBR
V FPM

Connections	FHP065	FHP135
G1	G 1/2"	G 3/4"
G2	G 3/4"	G 1"
G3	1/2" NPT	3/4" NPT
G4	3/4" NPT	1" NPT
G5	SAE 8 - 3/4" - 16 UNF	SAE 12 - 1 1/16" - 12 UN
G6	SAE 12 - 1 1/16" - 12 UN	SAE 16 - 1 5/16" - 12 UN
F1	-	3/4" SAE 3000 psi/M
F2	-	1" SAE 3000 psi/M
F3	-	3/4" SAE 3000 psi/UNC
F4	-	1" SAE 3000 psi/UNC
F5	-	3/4" SAE 6000 psi/M
F6	-	3/4" SAE 6000 psi/UNC

Filtration rating (filter media)	
A03	Inorganic microfiber 3 µm
A06	Inorganic microfiber 6 µm
A10	Inorganic microfiber 10 µm
A16	Inorganic microfiber 16 µm
A25	Inorganic microfiber 25 µm
M25	Wire mesh 25 µm

Element Δp	Valves			Execution
	S	B	T	
N 20 bar	-	•	-	P01 MP Filtri standard
H 210 bar	•	-	-	Pxx Customized
S 210 bar	-	-	•	

FILTER ELEMENT

Element series and size **HP065** | **HP135** Configuration example: **HP135** **2** **A06** **A** **S** **P01**

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
M25	Wire mesh 25 µm

Seals	Element Δp	Execution
A NBR	N 20 bar	P01 MP Filtri standard
V FPM	H 210 bar	Pxx Customized
	S 210 bar	

CLOGGING INDICATORS

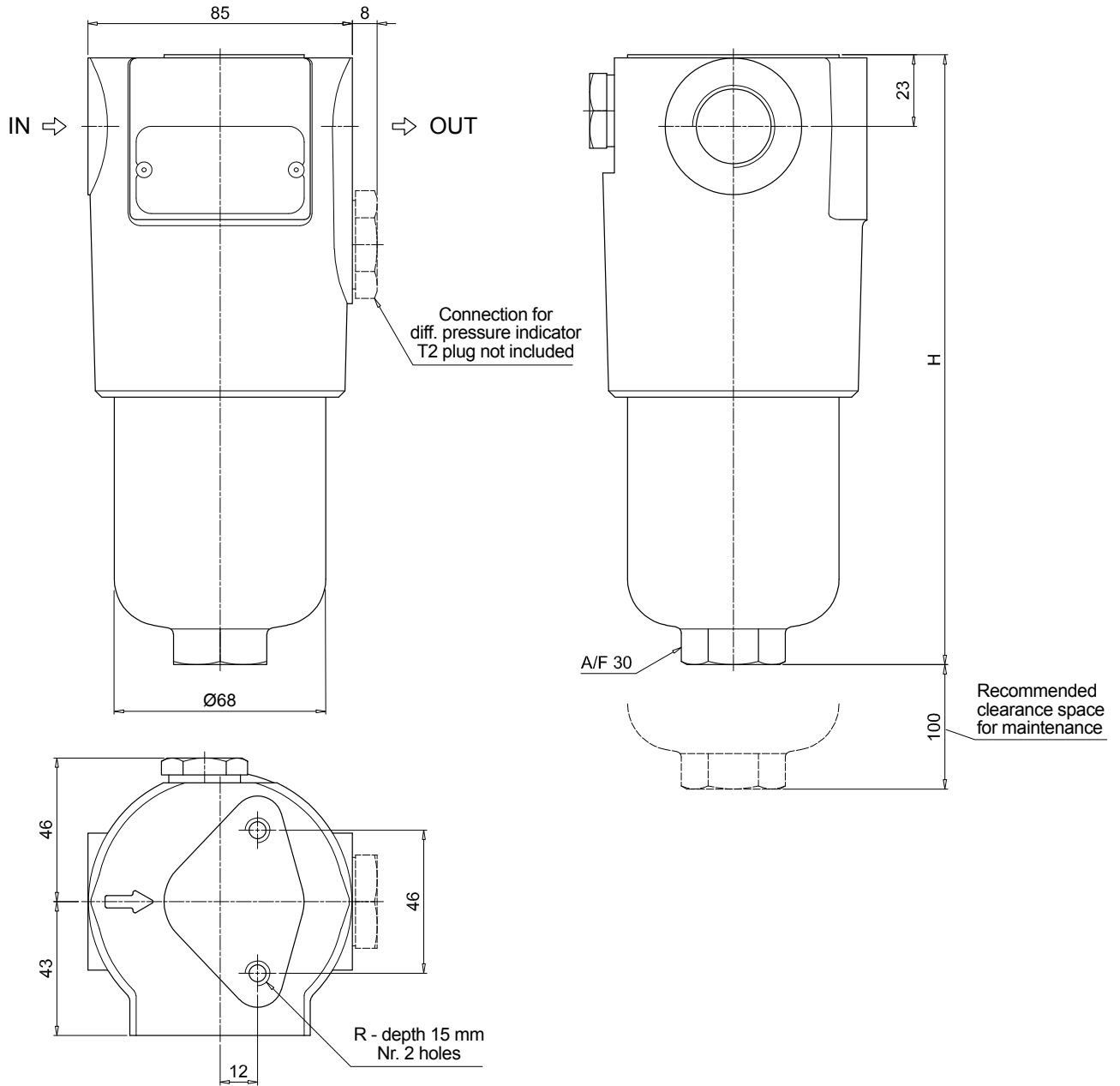
See page 723

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug (not included)



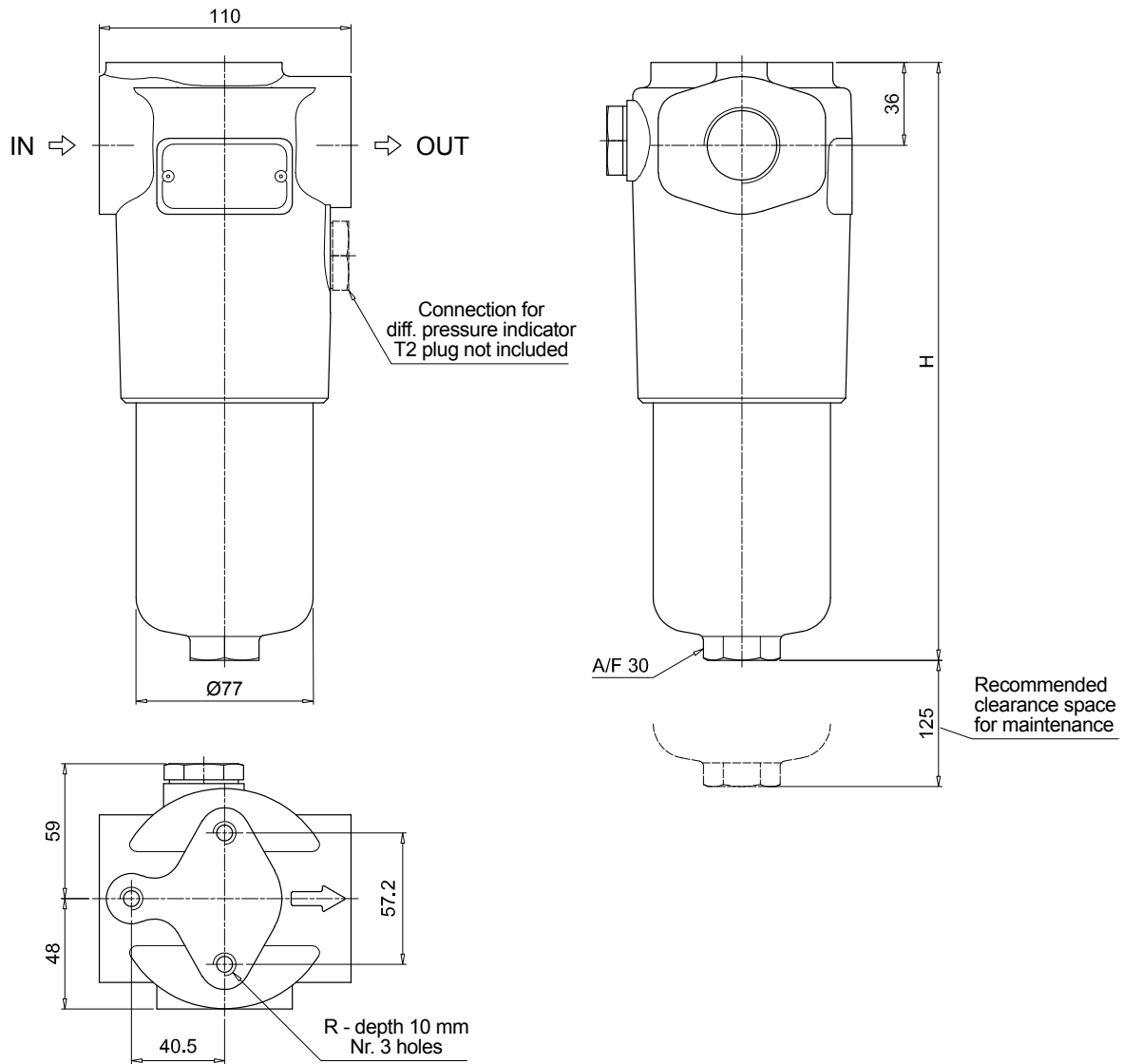
FHP065

Filter length	H [mm]
1	196
2	227
3	329

Connections	R
G1-G2	M8
G3-G4-G5-G6	5/16" UNC

FHP FHP065 - FHP135

Dimensions



FHP135

Filter length	H [mm]
1	260
2	373
3	448

Connections	R
G1-G2	M10
G3-G4-G5-G6	3/8" UNC
F1-F2	M10
F3-F4	3/8" UNC
F5	M10
F6	3/8" UNC

FHP FHP350 - FHP351

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **FHP350** | **4** | **B** | **A** | **D** | **2** | **A06** | **N** | **P01**

FHP350
FHP351

Length
1 | **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

Connections
A G 1 1/2" **F** 1 1/2" SAE 3000 psi/UNC + SAE 20 - 1 5/8" - 12 UN
B 1 1/2" NPT **G** 1 1/4" SAE 3000 psi/M
C SAE 24 - 1 7/8" - 12 UN **H** 1 1/4" SAE 3000 psi/UNC
D 1 1/2" SAE 3000 psi/M + G 1 1/4" **I** 1 1/4" SAE 6000 psi/M (bolts M12, IAW ISO 6162-2:2018)
E 1 1/2" SAE 3000 psi/UNC + 1 1/4" NPT **L** 1 1/4" SAE 6000 psi/UNC

Connection for differential pressure indicator
2 With connection

Filtration rating (filter media)		Valves						Filter length				
Code	Media	Element Δp	S	B	T	D	V	Z	1	2	3	4
A03	Inorganic microfiber 3 μm	N	20 bar	-	•	-	-	-	•	•	•	•
A06	Inorganic microfiber 6 μm	R	20 bar	-	-	-	•	-	-	-	-	•
A10	Inorganic microfiber 10 μm	H	210 bar	•	-	-	-	-	-	-	-	-
A16	Inorganic microfiber 16 μm	S	210 bar	-	-	•	-	•	-	-	-	-
A25	Inorganic microfiber 25 μm											
M25	Wire mesh 25 μm											

FILTER ELEMENT

Element series and size Configuration example: **HP320** | **4** | **A06** | **A** | **N** | **P01**

HP320

Element length
1 | **2** | **3** | **4** |

Filtration rating (filter media)		Seals		Element Δp		Execution	
Code	Media	A	V	N	R	H	S
A03	Inorganic microfiber 3 μm	NBR	FPM	20 bar	20 bar	210 bar	210 bar
A06	Inorganic microfiber 6 μm						
A10	Inorganic microfiber 10 μm						
A16	Inorganic microfiber 16 μm						
A25	Inorganic microfiber 25 μm						
M25	Wire mesh 25 μm						

CLOGGING INDICATORS

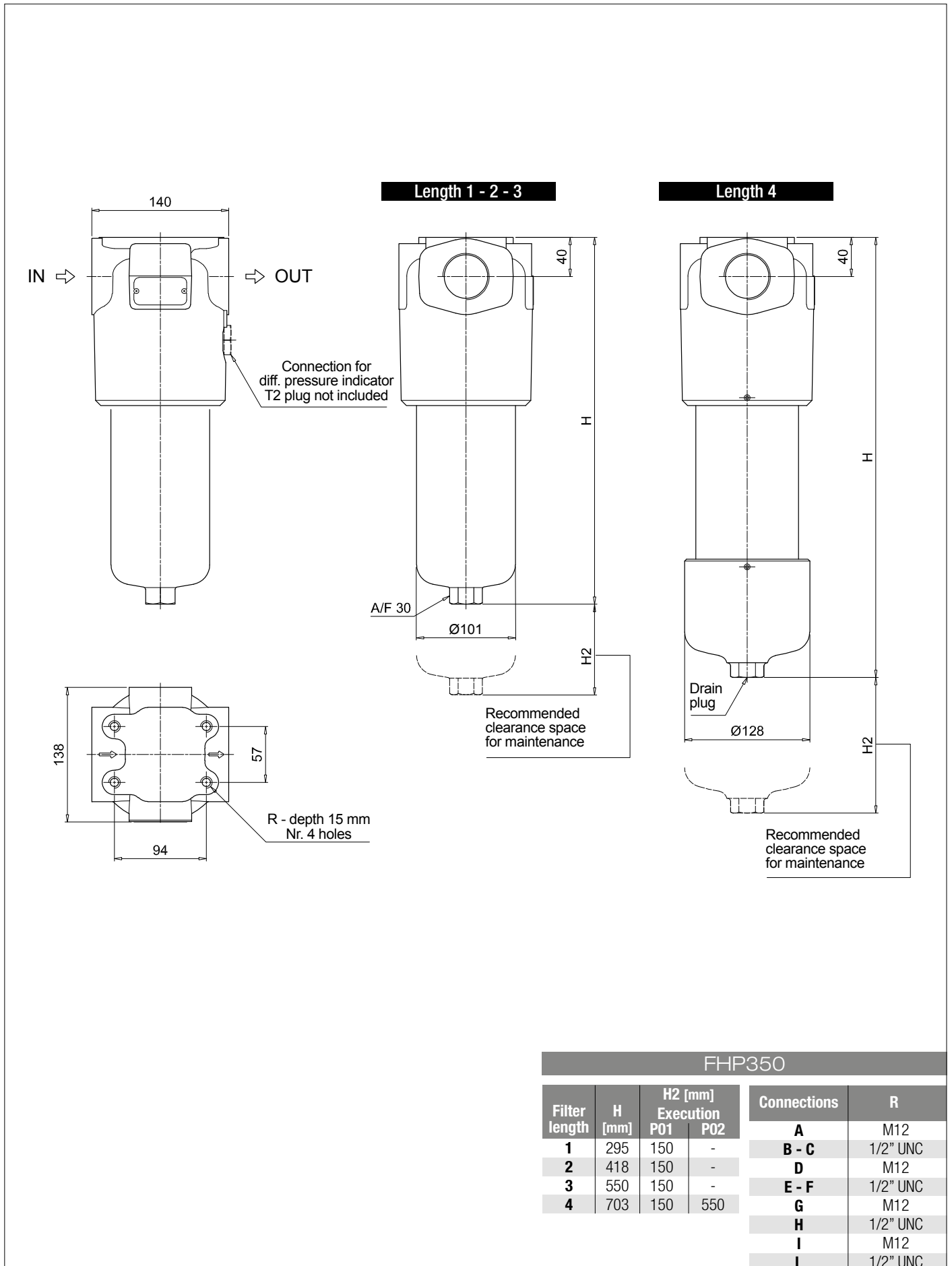
See page 723

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

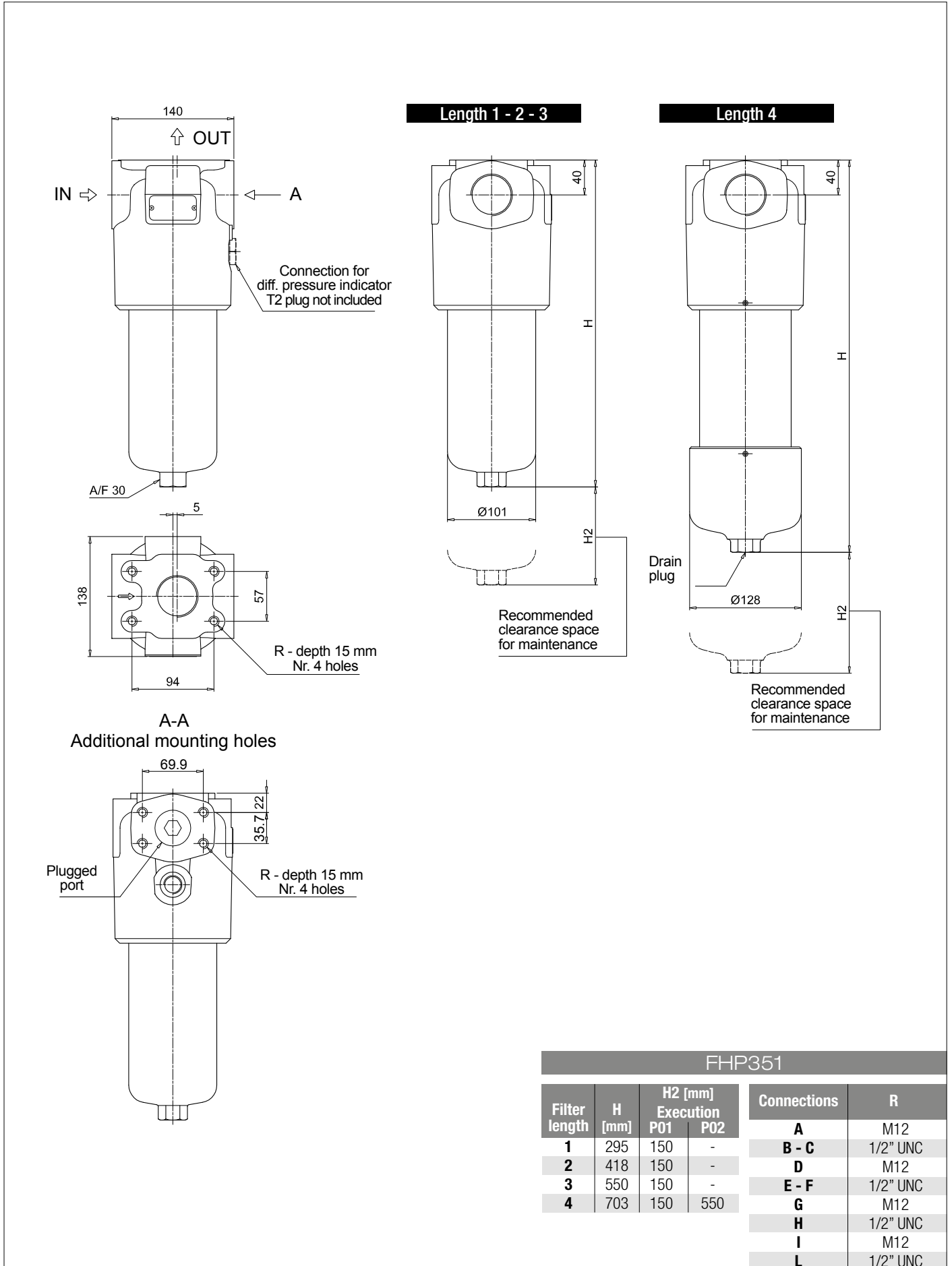
PLUGS

See page 743

T2 Plug (not included)



Dimensions



FHP351					
Filter length	H [mm]	H2 [mm]		Connections	R
		Execution P01	Execution P02		
1	295	150	-	A	M12
2	418	150	-	B - C	1/2" UNC
3	550	150	-	D	M12
4	703	150	550	E - F	1/2" UNC
				G	M12
				H	1/2" UNC
				I	M12
				L	1/2" UNC

Designation & Ordering code

COMPLETE FILTER

Series and size **FHP500** Configuration example: **FHP500** | **4** | **V** | **A** | **F1** | **A06** | **S** | **P01**

Length

1 | 2 | 3 | 4 | 5

Valves

- S** Without bypass
- B** With bypass 6 bar
- T** With check valve, without bypass
- D** With check valve, with bypass 6 bar
- V** With reverse flow, without bypass
- Z** With reverse flow, with bypass 6 bar

Seals

- A** NBR
- V** FPM

Connections

- F1** 1 1/2" SAE 3000 psi/M
- F2** 1 1/2" SAE 3000 psi/UNC
- F3** 2" SAE 3000 psi/M
- F4** 2" SAE 3000 psi/UNC + 1 1/2" NPT
- F5** 1 1/2" SAE 6000 psi/M
- F6** 1 1/2" SAE 6000 psi/UNC
- F7** 2" SAE 6000 psi/M + G 1 1/2"
- F8** 2" SAE 6000 psi/UNC + SAE 24 - 1 7/8" - 12 UN

Filtration rating (filter media)

- A03** Inorganic microfiber 3 µm
- A06** Inorganic microfiber 6 µm
- A10** Inorganic microfiber 10 µm
- A16** Inorganic microfiber 16 µm
- A25** Inorganic microfiber 25 µm
- M25** Wire mesh 25 µm

Element Δp	Valves					
	S	B	T	D	V	Z
N 20 bar	-	•	-	-	-	-
R 20 bar	-	-	-	•	-	•
S 210 bar	•	-	•	-	•	-

Execution	Filter length				
	1	2	3	4	5
P01 MP Filtri standard	•	•	•	•	•
P02 Maintenance from the bottom of the housing	-	-	-	•	•
P03 Drain plug	•	•	-	-	-
Pxx Customized	•	•	•	•	•

FILTER ELEMENT

Element series and size **HP500** Configuration example: **HP500** | **4** | **A06** | **A** | **S** | **P01**

Element length

1 | 2 | 3 | 4 | 5

Filtration rating (filter media)

- A03** Inorganic microfiber 3 µm
- A06** Inorganic microfiber 6 µm
- A10** Inorganic microfiber 10 µm
- A16** Inorganic microfiber 16 µm
- A25** Inorganic microfiber 25 µm
- M25** Wire mesh 25 µm

Seals	
A	NBR
V	FPM

Element Δp	
N	20 bar
R	20 bar
S	210 bar

Execution	
P01	MP Filtri standard
Pxx	Customized

CLOGGING INDICATORS

See page 723

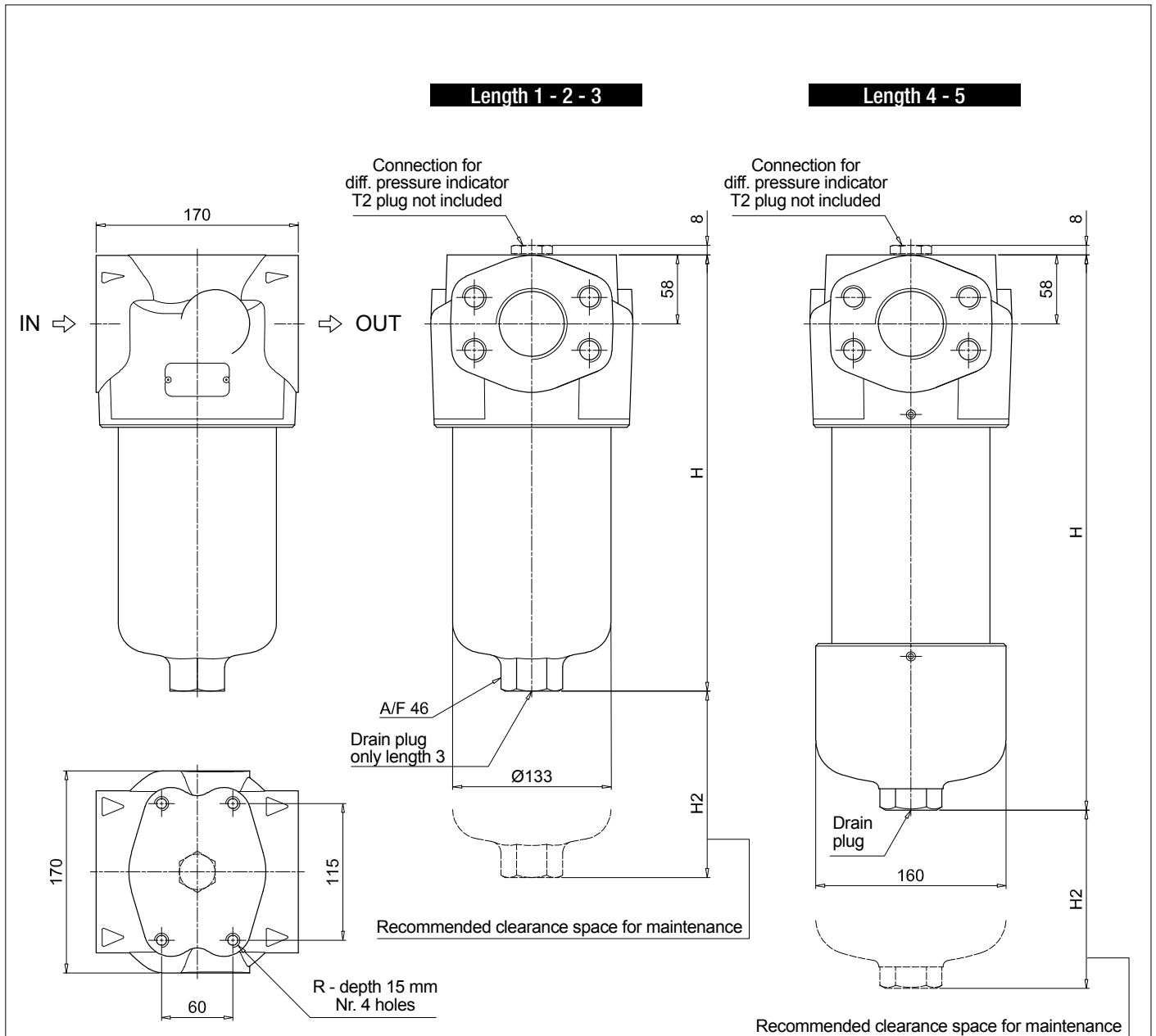
- DEA** Electrical differential pressure indicator
- DEM** Electrical differential pressure indicator
- DEU** Electrical differential pressure indicator
- DLA** Electrical / visual differential pressure indicator

- DLE** Electrical / visual differential pressure indicator
- DTA** Electronic differential pressure indicator
- DVA** Visual differential pressure indicator
- DVM** Visual differential pressure indicator

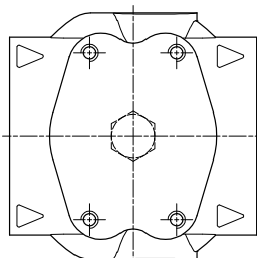
PLUGS

See page 743

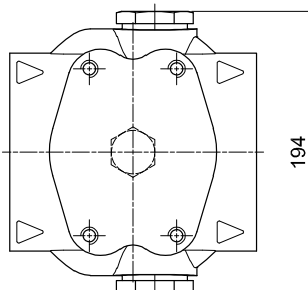
- T2** Plug (not included)



Valves S - B - T - D



Valves V - Z



FHP500

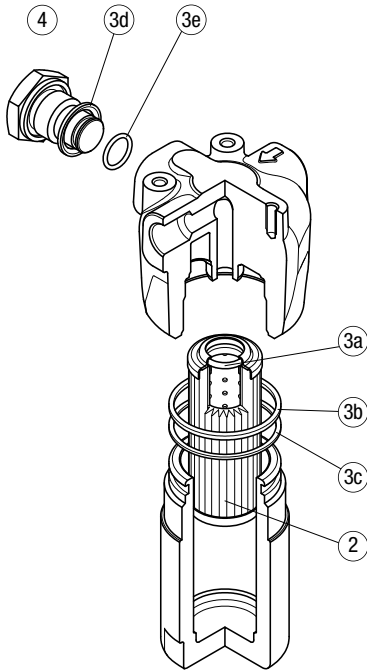
Filter length	H [mm]	H2 [mm]	
		Execution P01	Execution P02
1	330	150	-
2	420	150	-
3	496	150	-
4	654	150	480
5	820	150	650

Connections	R
F1	M12
F2	1/2" UNC
F3	M12
F4	1/2" UNC
F5	M12
F6	1/2" UNC
F7	M12
F8	1/2" UNC

FHP SPARE PARTS

Order number for spare parts

FHP 010 - 011

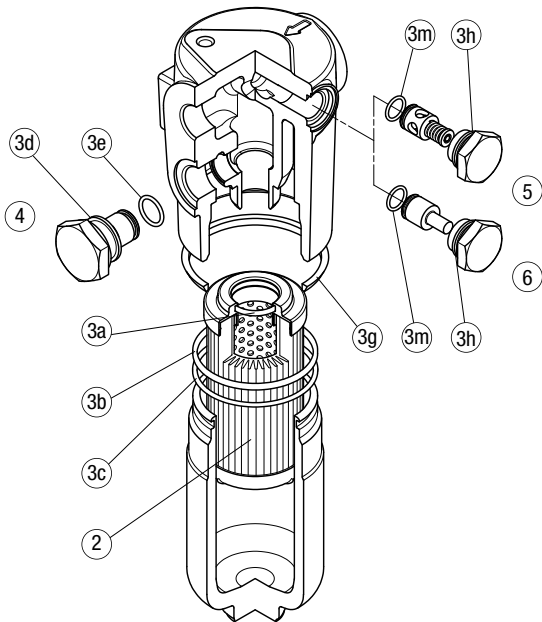


Q.ty:
nr. 0 pcs. for version 1
(without indicator port)

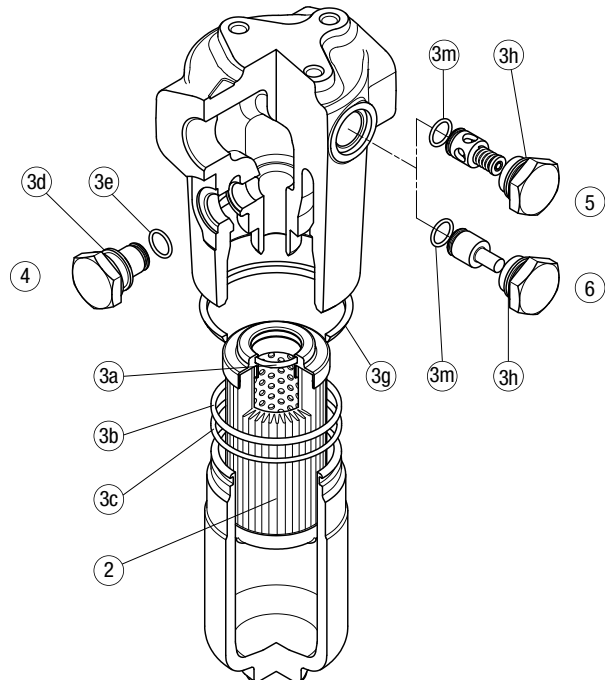
nr. 1 pc. for version 2
(with indicator port)

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		Indicator connection plug	
		NBR	FPM	NBR	FPM
FHP 010-011	See order table	02050501	02050492	T2H	T2V

FHP 065



FHP 135

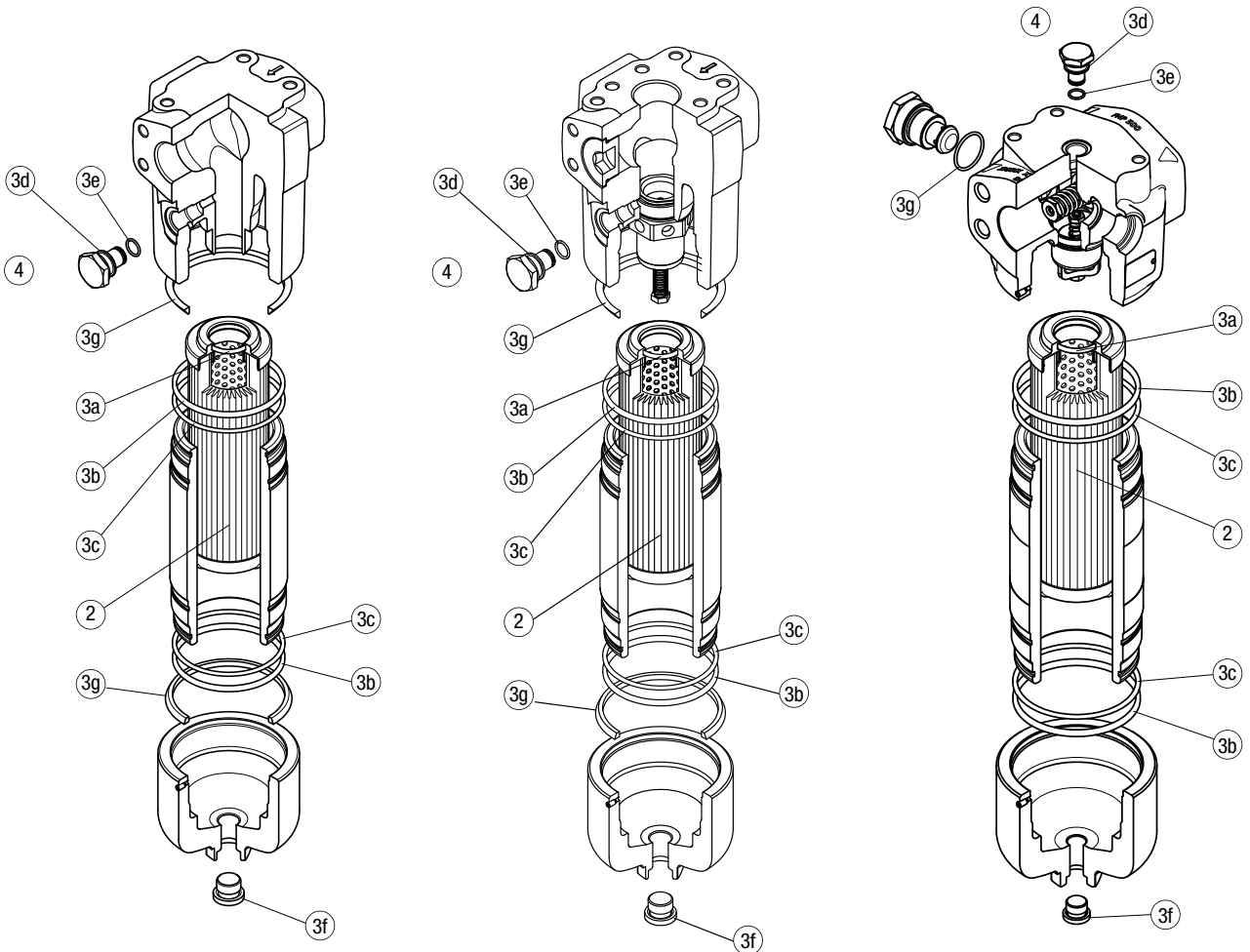


Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3m)		Q.ty: 1 pc. 4		Q.ty: 1 pc. 5		Q.ty: 1 pc. 6	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		Bypass assembly		Non-bypass assembly	
		NBR	FPM	NBR	FPM	NBR	FPM	NBR	FPM
FHP 065	See order table	02050265	02050276	T2H	T2V	02001116	02001136	02001142	02001139
FHP 135	See order table	02050269	02050280			02001117	02001137	02001143	02001392

FHP 350

FHP 351

FHP 500



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
		NBR	FPM	NBR	FPM
FHP 350 - 351	See order table	02050272	02050283	T2H	T2V
FHP 500		02050330	02050331		

FHM series

Maximum working pressure up to 32 MPa (320 bar) - Flow rate up to 400 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



Please scan the QR codes to get updated electronic version of the related document:



FHM006



FHM007



FHM010



FHM050



FHM065



FHM135



FHM320



FHM500

Description

Technical data

High Pressure filters

Manifold

Maximum working pressure up to 32 MPa (320 bar)

Flow rate up to 400 l/min

FHM is a range of high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines. They are directly connected to the top of the manifold, through the proper flanged interface.

Available features:

Available features:

- Manifold connections up to Ø30 mm, for a maximum flow rate of 400 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
- Check valve, to protect the system against reverse flow
- 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
- High collapse filter element with external support "S", for filter element protection against the back pressure caused by the check valve in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any high pressure industrial equipment

Filter housing materials

- Head
Phosphatized cast iron: FHM 006-007-010
Phosphatized steel: FHM 050-065-135-320-500
- Housing: Phosphatized steel
- Bypass valve: Steel
- Check valve: Steel

Pressure

- Test pressure: 48 MPa (480 bar)
- Burst pressure: 96 MPa (960 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 32 MPa (320 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar (not available for FHM 006, FHM 007 and FHM 010)
- Microfibre filter elements - series H: 210 bar (not available for FHM 050 and FHM 500)
- Microfibre filter elements - series S: 210 bar (only for FHM 050 and FHM 500)
- Wire mesh filter elements - series N: 20 bar (not available for FHM 006)
- Wire mesh filter elements - series H: 210 bar (not available for FHM 050 and FHM 500)
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

Manifold mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FHM 006		2.17	-	-	-	-		0.12	-	-	-	-
FHM 007		-	4.74	5.95	-	-		-	0.30	0.50	-	-
FHM 010		-	4.74	5.95	-	-		-	0.30	0.50	-	-
FHM 050		5.31	5.68	6.09	6.56	7.74		0.29	0.38	0.48	0.60	0.89
FHM 065		5.47	5.83	7.04	-	-		0.27	0.34	0.56	-	-
FHM 135		8.78	10.38	11.43	-	-		0.49	0.82	1.03	-	-
FHM 320		19.80	21.93	24.22	26.70	-		1.04	1.76	2.53	3.36	-
FHM 500		35.00	39.17	42.69	54.70	60.50		1.63	2.35	2.96	5.11	6.44

Flow rates [l/min]

Filter series	Length	Filter element design - H Series					
		A03	A06	A10	A16	A25	M25
FHM 006	1	9	10	13	14	15	16
	2	13	13	15	16	16	16
FHM 007	3	15	15	16	16	17	17
	2	23	25	32	34	37	38
FHM 010	3	31	33	37	38	39	40

Filter series	Length	Filter element design - N Series						Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
FHM 050	1	38	37	65	67	81	101	28	36	50	52	62
	2	46	50	69	75	89	102	41	44	63	71	85
	3	57	59	76	81	93	103	51	53	71	77	90
	4	68	71	84	86	95	103	62	66	81	82	93
	5	82	83	93	95	98	105	73	75	83	89	97

Filter series	Length	Filter element design - N Series						Filter element design - H Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
FHM 065	1	23	30	48	53	71	102	22	23	43	50	67
	2	30	45	59	64	81	103	30	34	56	62	76
	3	52	60	78	82	92	105	51	58	77	81	91
FHM 135	1	61	65	99	104	131	149	46	51	83	86	122
	2	91	96	118	119	155	167	79	92	109	111	134
	3	118	119	144	146	156	168	103	112	130	137	146
FHM 320	1	112	121	187	217	252	312	97	102	156	162	228
	2	200	214	281	293	320	328	161	181	237	241	282
	3	245	267	312	320	325	333	207	233	275	280	306
	4	267	281	315	325	336	341	232	247	279	283	309

Filter series	Length	Filter element design - N Series						Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
FHM 500	1	211	232	281	289	309	394	126	135	208	210	261
	2	242	262	303	308	330	397	187	206	258	266	285
	3	284	294	336	338	357	399	226	230	285	290	315
	4	302	325	346	350	361	401	251	273	314	315	341
	5	325	334	356	361	373	401	296	301	335	338	360

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

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

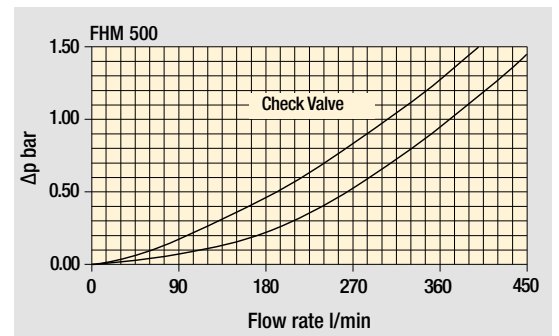
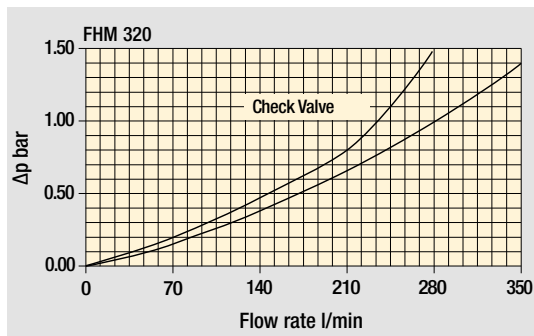
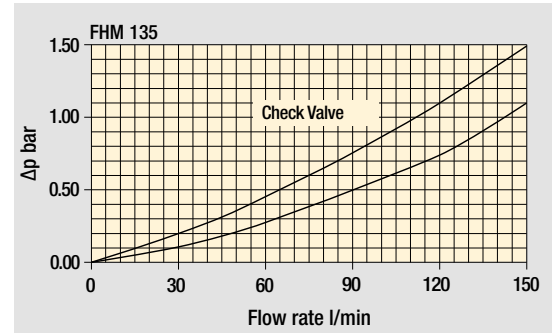
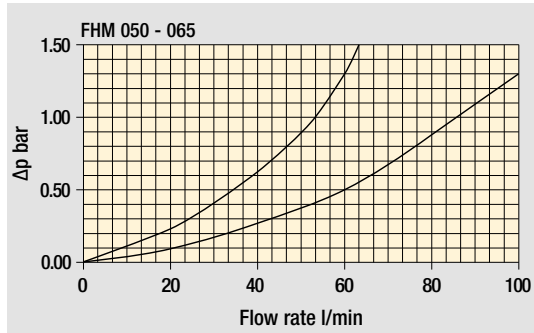
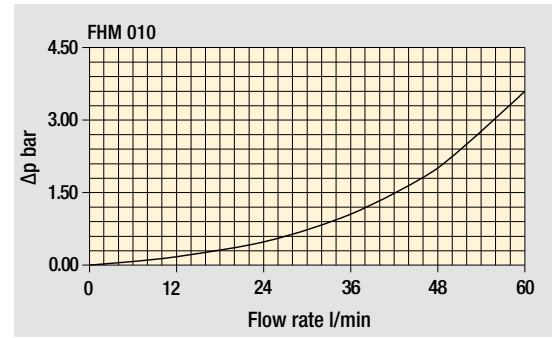
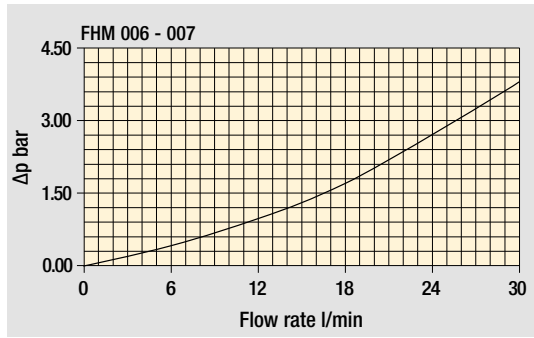
Hydraulic symbols

Filter series	Stile S	Stile S	Stile S	Stile B	Stile T	Stile D
FHM 006	•	-	-	-	-	-
FHM 007	•	-	-	-	-	-
FHM 010	-	•	-	-	-	-
FHM 050	-	-	•	•	•	•
FHM 065	-	-	•	•	•	•
FHM 135	-	-	•	•	•	•
FHM 320	-	-	•	•	•	•
FHM 500	-	-	•	•	•	•

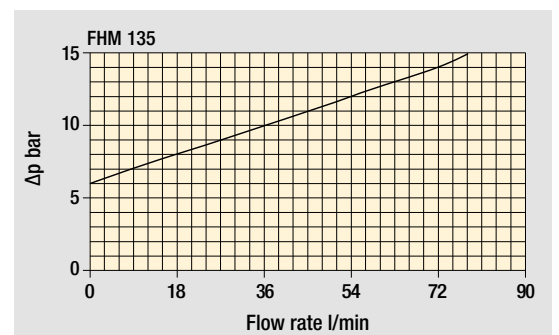
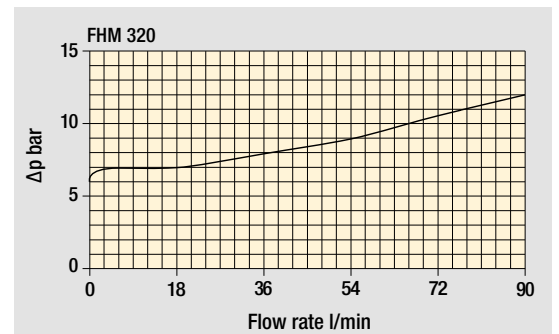
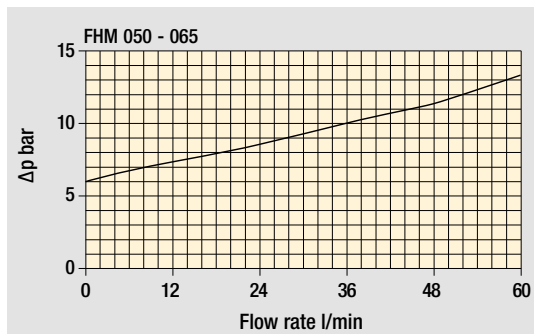
FHM GENERAL INFORMATION

Pressure drop

Filter housings Δp pressure drop



Bypass valve 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.

FHM FHM006 - FHM007 - FHM010

Designation & Ordering code

COMPLETE FILTER

Series and size				Configuration example: FHM010 2 S V G1 A03 H P01						
FHM006 FHM007 FHM010										
Length	FHM006	FHM007	FHM010							
1	•	-	-							
2	-	•	•							
3	-	•	•							
Valves										
S Without bypass										
Seals										
A NBR										
V FPM										
Connections										
G1 Manifold side "A"										
G2 Manifold side "B"										
Filtration rating (filter media)										
A03	Inorganic microfiber	3 µm	A16	Inorganic microfiber	16 µm					
A06	Inorganic microfiber	6 µm	A25	Inorganic microfiber	25 µm					
A10	Inorganic microfiber	10 µm	M25	Wire mesh	25 µm					
				Element Δp		Execution				
				H 210 bar		P01 MP Filtri standard				
						Pxx Customized				

FILTER ELEMENT

Element series and size				Configuration example: HP065 2 A03 A H P01						
FHM006 FHM007 FHM010										
HP011	•	-	-							
HP065	-	•	•							
Element length	FHM006	FHM007	FHM010							
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								
M25	Wire mesh	25 µm								
				Seals		Element Δp		Execution		
				A NBR		H 210 bar		P01 MP Filtri standard		
				V FPM				Pxx Customized		

CLOGGING INDICATORS

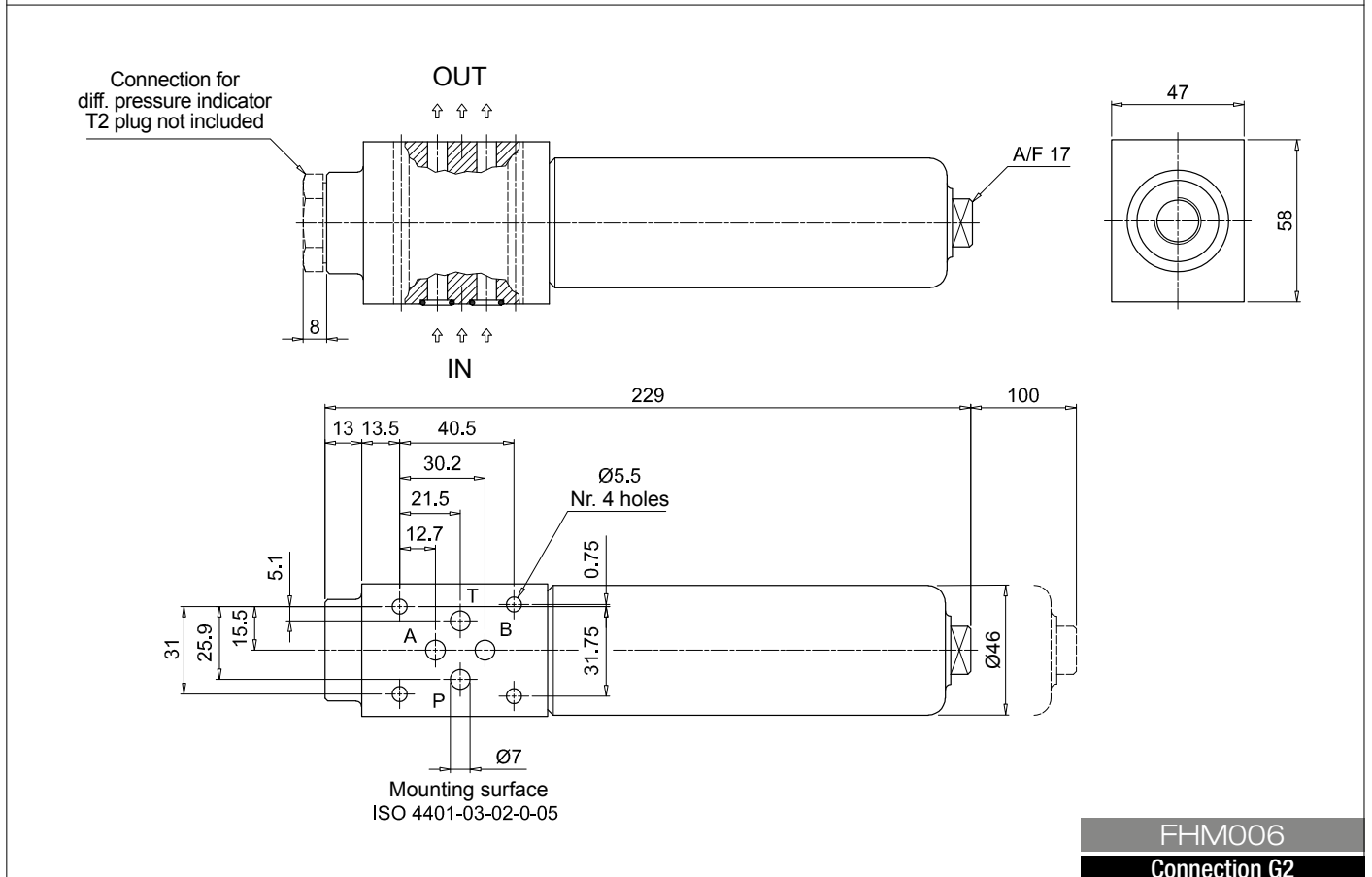
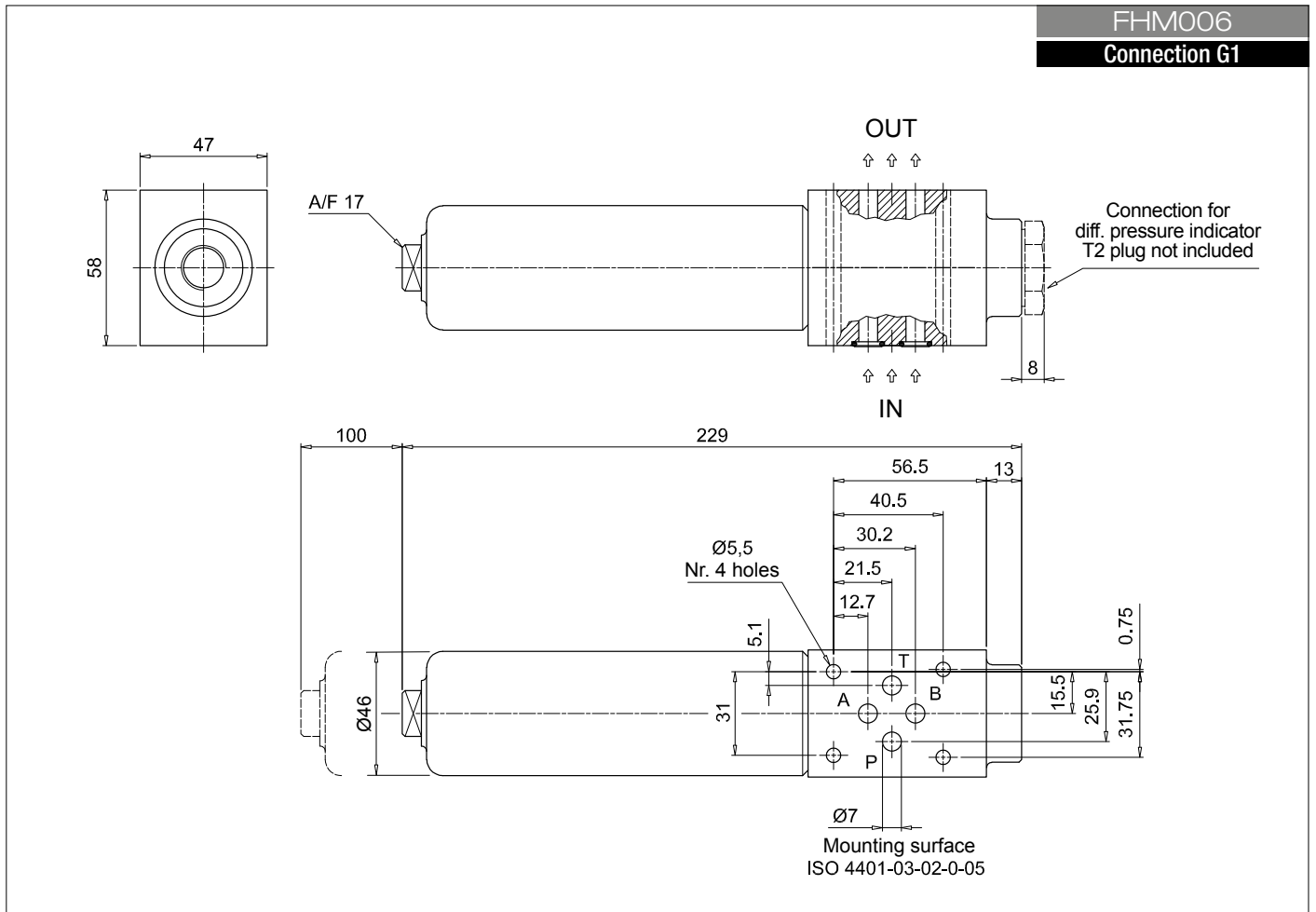
See page 723

DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

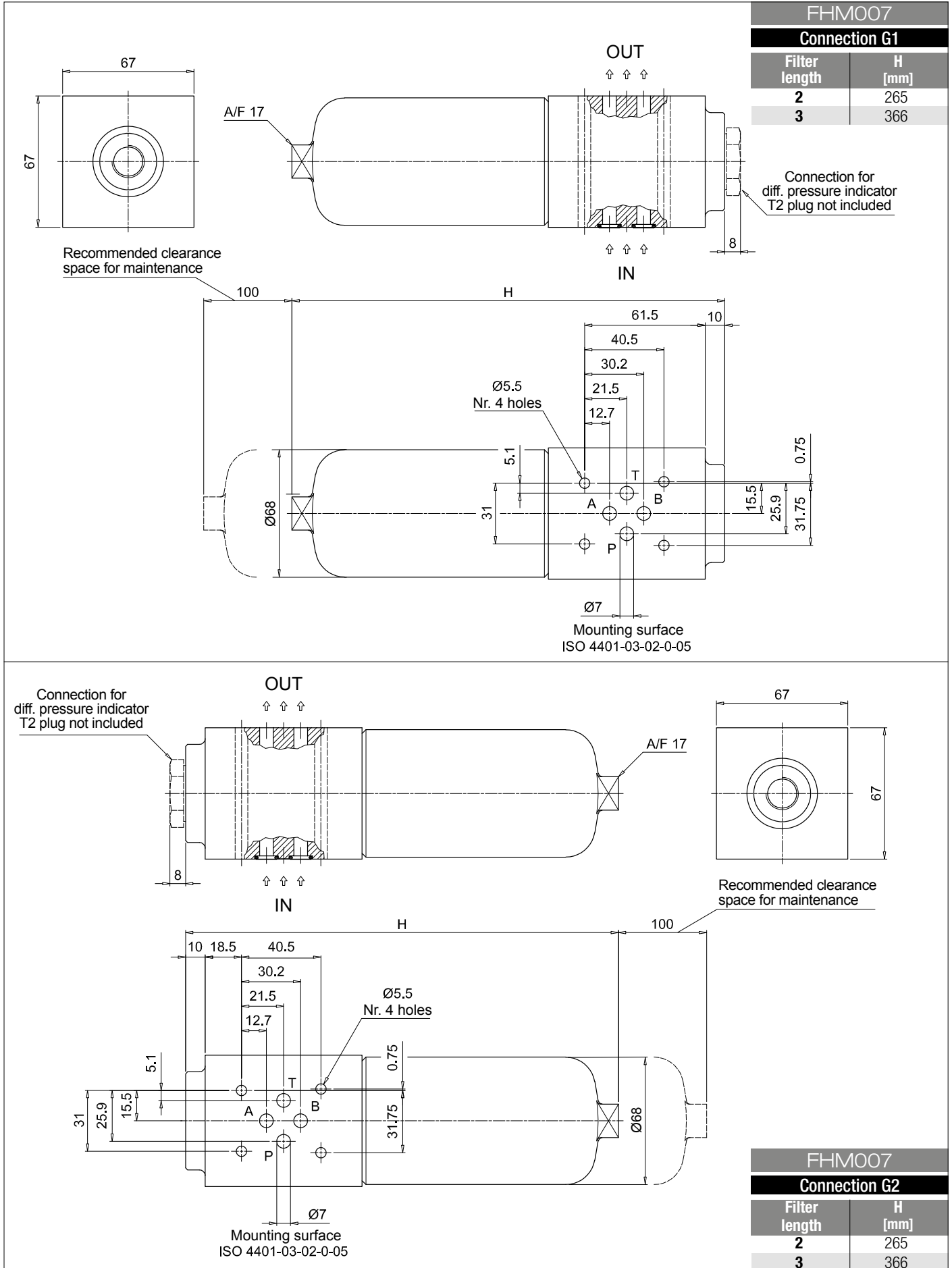
PLUGS

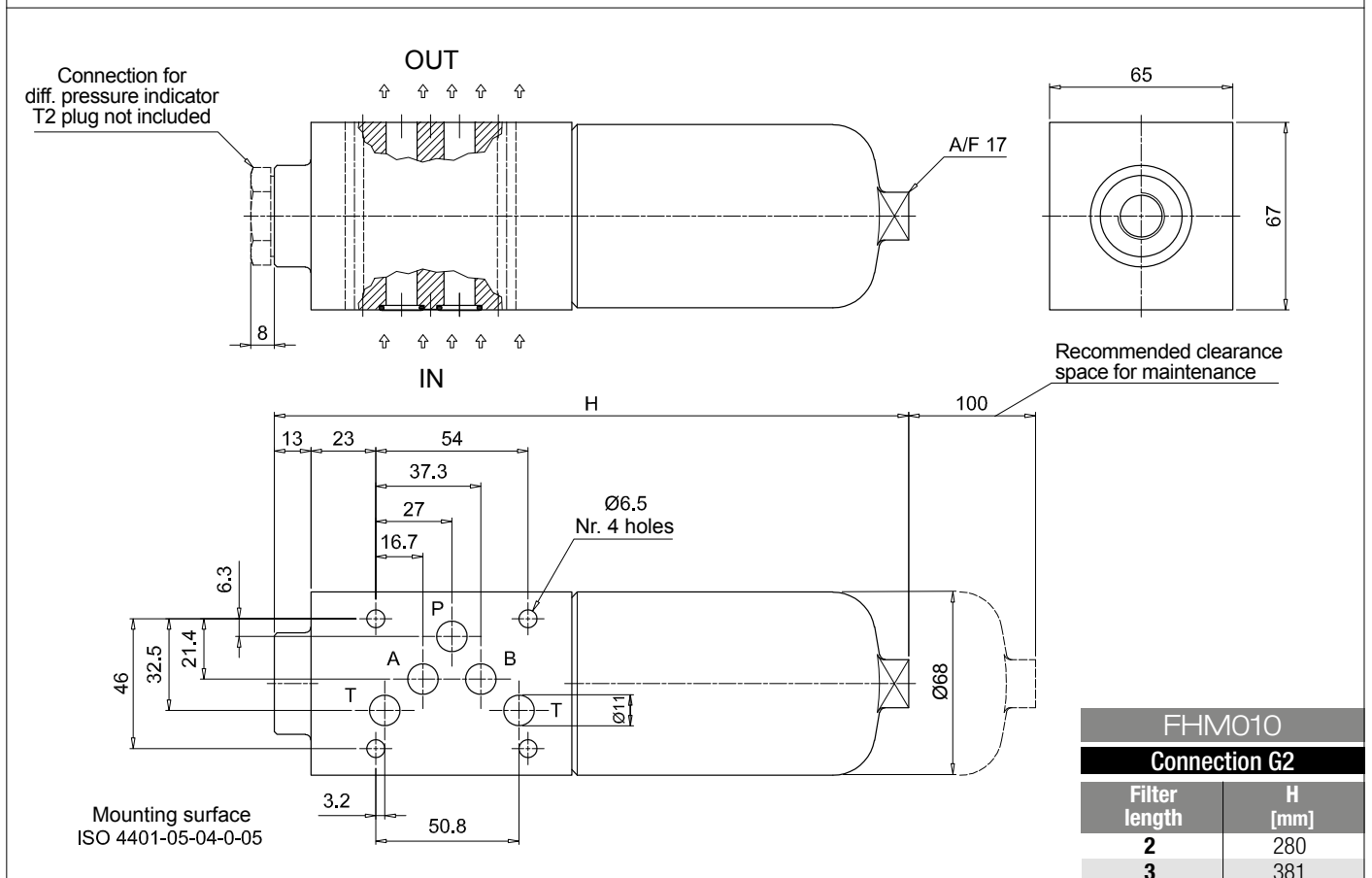
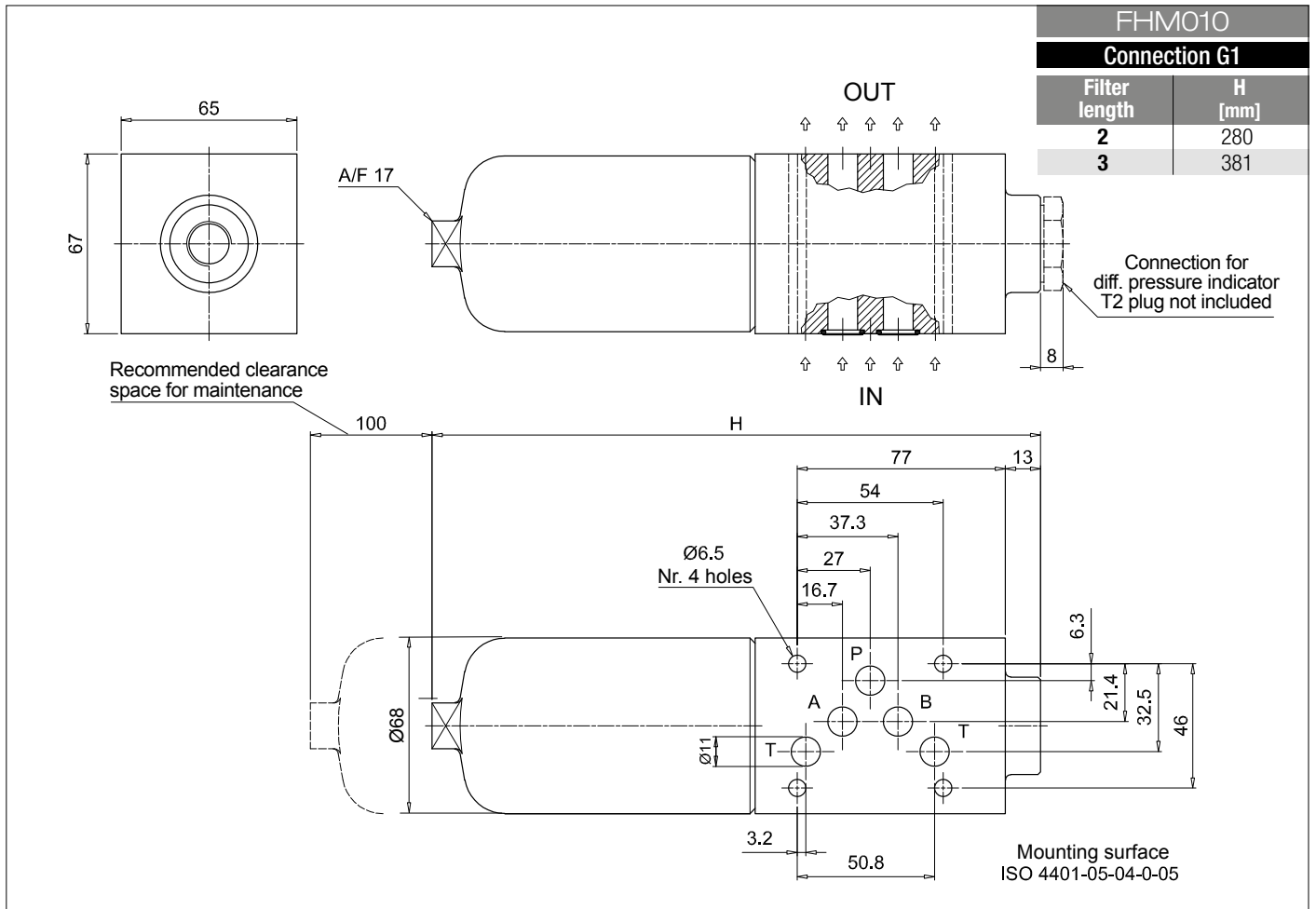
See page 743

T2 Plug (not included)



Dimensions





FHM FHM050 - FHM065 - FHM135

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **FHM135** **3** **S** **A** **F1** **A10** **H** **P01**

FHM050 | **FHM065** | **FHM135**

Length	FHM050	FHM065	FHM135
1	•	•	•
2	•	•	•
3	•	•	•
4	•	-	-
5	•	-	-

Valves

S	Without bypass
B	With bypass 6 bar
T	With check valve, without bypass
D	With check valve, with bypass 6 bar

Seals

A	NBR
V	FPM

Connections

F1	Manifold
-----------	----------

Filtration rating (filter media)

A03	Inorganic microfiber	3 µm
A06	Inorganic microfiber	6 µm
A10	Inorganic microfiber	10 µm
A16	Inorganic microfiber	16 µm
A25	Inorganic microfiber	25 µm
M25	Wire mesh	25 µm

Element Δp	Valves: FHM050				FHM065-135			
	S	B	T	D	S	B	T	D
N 20 bar	-	•	-	•	-	•	-	•
H 210 bar	-	-	-	-	•	-	•	-
S 210 bar	•	-	•	-	-	-	-	-

Execution

P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Element series and size Configuration example: **HP135** **3** **A10** **A** **H** **P01**

HP050 | **HP065** | **HP135**

Element length	HP050	HP065	HP135
1	•	•	•
2	•	•	•
3	•	•	•
4	•	-	-
5	•	-	-

Filtration rating (filter media)

A03	Inorganic microfiber	3 µm
A06	Inorganic microfiber	6 µm
A10	Inorganic microfiber	10 µm
A16	Inorganic microfiber	16 µm
A25	Inorganic microfiber	25 µm
M25	Wire mesh	25 µm

Element Δp	Seals		
	HP050	HP065	HP135
N 20 bar	•	•	•
H 210 bar	-	•	•
S 210 bar	•	-	-

Execution

P01	MP Filtri standard
Pxx	Customized

CLOGGING INDICATORS

See page 723

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

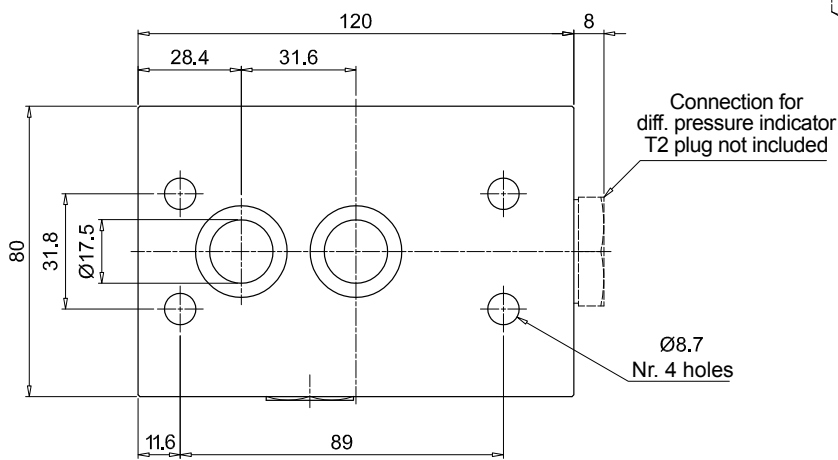
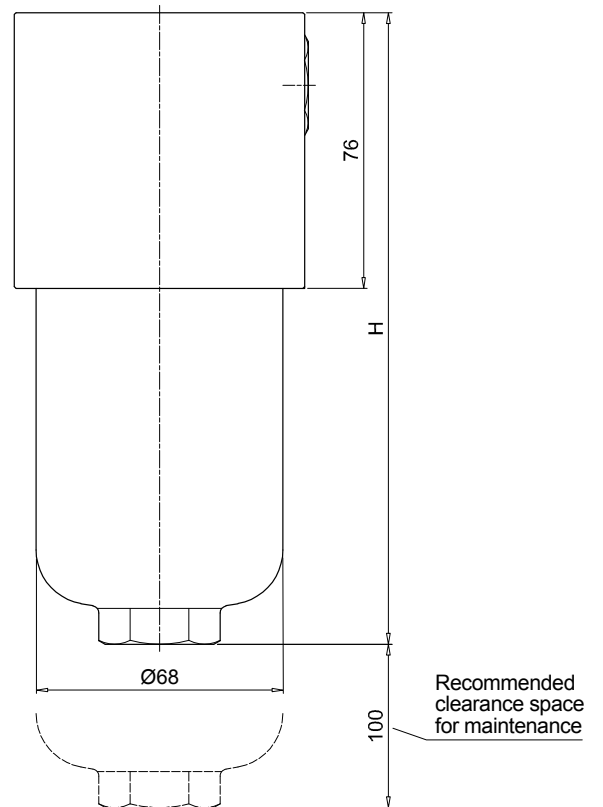
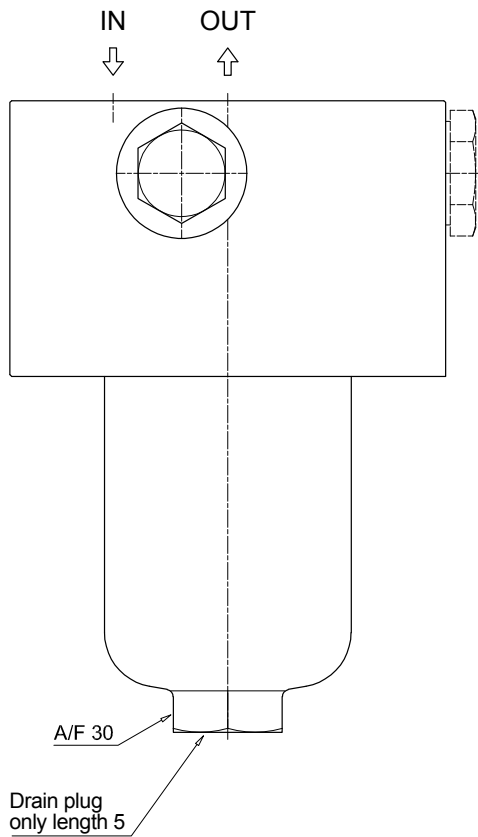
DLE	Electrical / visual differential pressure indicator
DTA	Electronic differential pressure indicator
DVA	Visual differential pressure indicator
DVM	Visual differential pressure indicator

PLUGS

See page 743

T2	Plug (not included)
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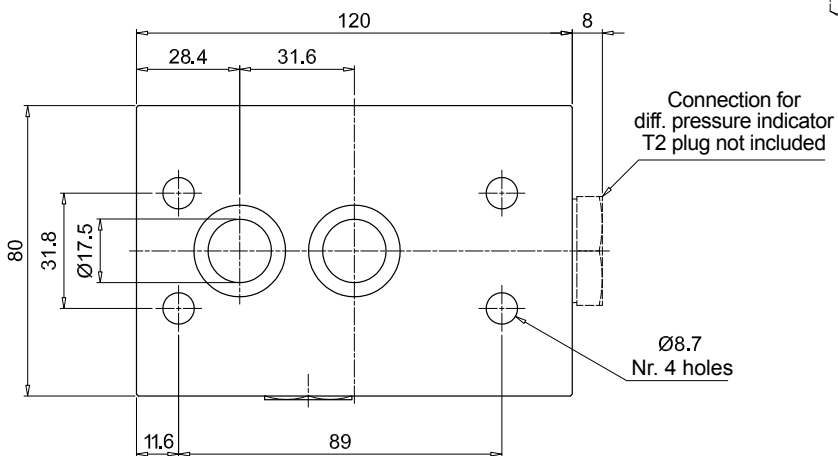
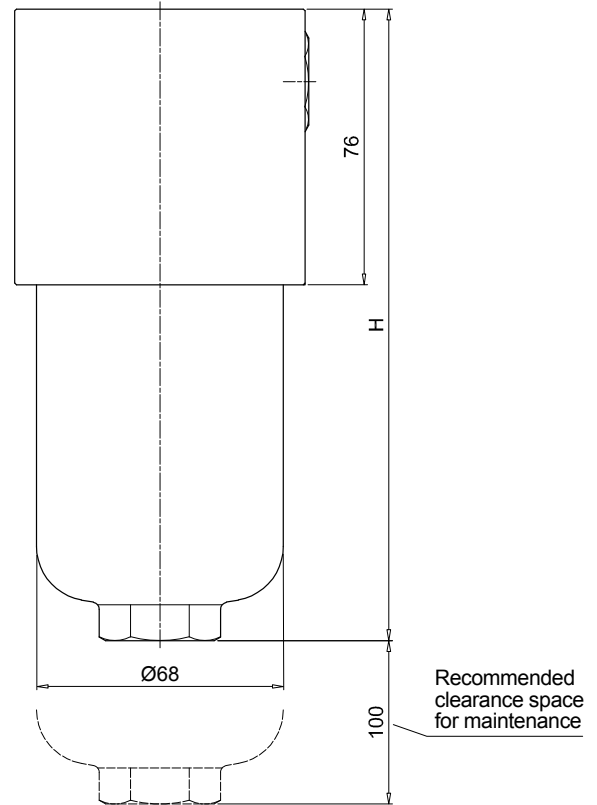
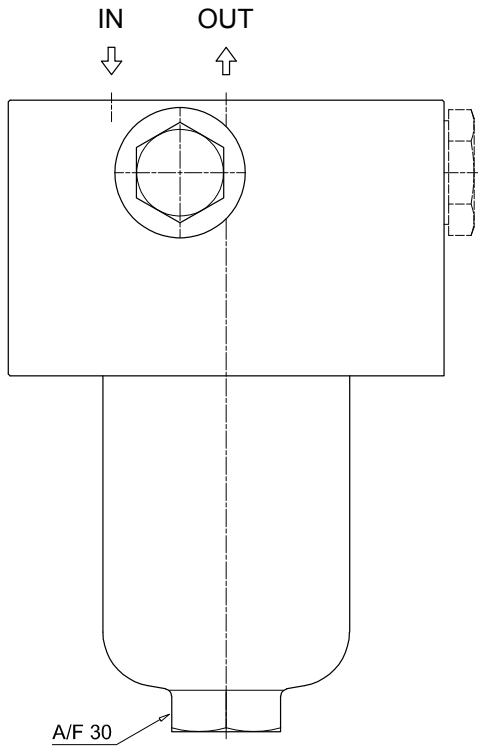
FHM050	
Filter length	H [mm]
1	154
2	191
3	233
4	281
5	403



Dimensions

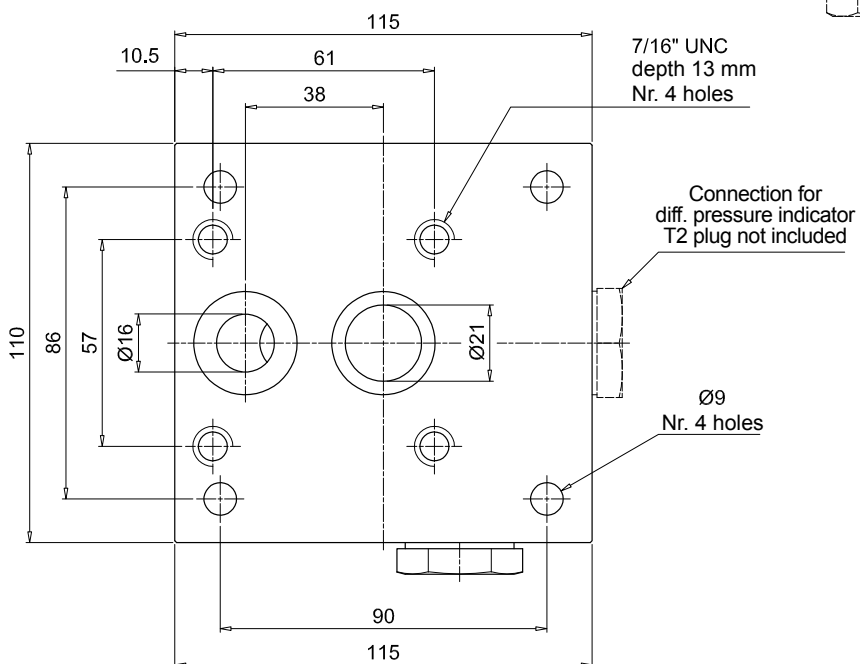
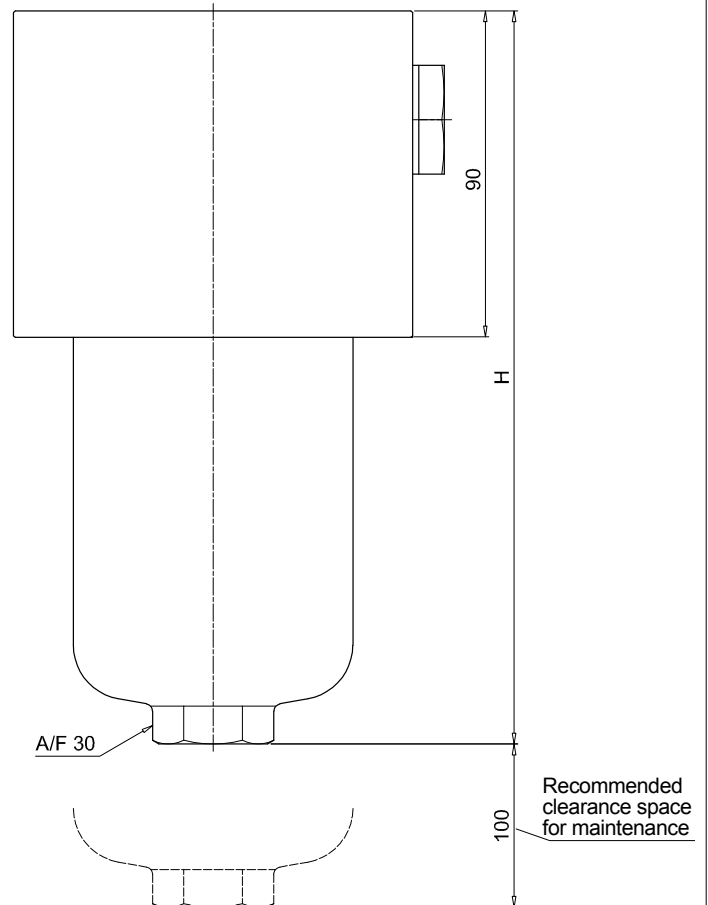
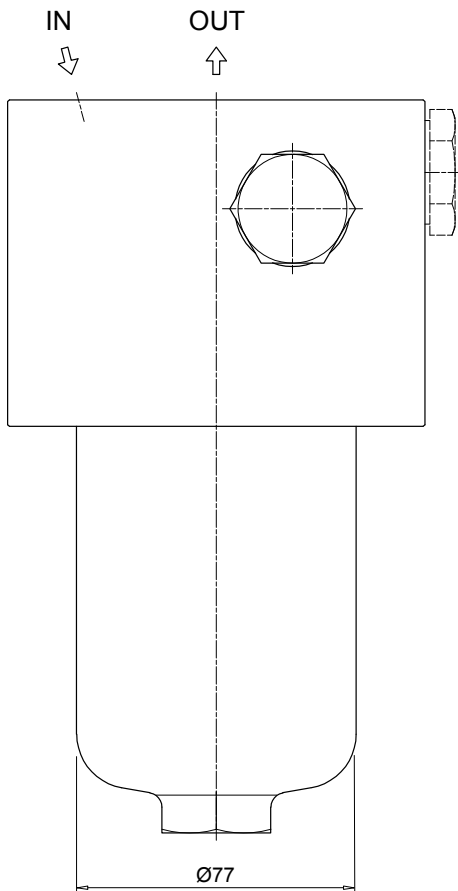
FHM065

Filter length	H [mm]
1	162
2	193
3	295



FHM135

Filter length	H [mm]
1	202
2	315
3	390



FHM FHM320 - FHM500

Designation & Ordering code

COMPLETE FILTER

Series and size FHM320 FHM500			Configuration example: FHM320 4 D A F1 A06 N P01							
Length	FHM320	FHM500								
1	•	•								
2	•	•								
3	•	•								
4	•	•								
5	-	•								
Valves										
S	Without bypass									
B	With bypass 6 bar									
T	With check valve, without bypass									
D	With check valve, with bypass 6 bar									
Seals										
A	NBR									
V	FPM									
Connections										
F1	Manifold									
Filtration rating (filter media)										
A03	Inorganic microfiber	3 µm	A16	Inorganic microfiber	16 µm					
A06	Inorganic microfiber	6 µm	A25	Inorganic microfiber	25 µm					
A10	Inorganic microfiber	10 µm	M25	Wire mesh	25 µm					

Element Δp	Valves:	FHM320				FHM500				Execution	Filter length				
		S	B	T	D	S	B	T	D		1	2	3	4	5
N 20 bar	-	•	-	•	-	•	-	•	P01 MP Filtri standard	•	•	•	•	•	
H 210 bar	•	-	•	-	-	-	-	-	P02 Maintenance from the bottom of the housing				•	•	
S 210 bar	-	-	-	-	•	-	•	-	Pxx Customized						

FILTER ELEMENT

Element series and size HP320 HP500			Configuration example: HP320 4 A06 A N P01										
Element length	HP320	HP500											
1	•	•											
2	•	•											
3	•	•											
4	•	•											
5		•											
Filtration rating (filter media)													
A03	Inorganic microfiber	3 µm											
A06	Inorganic microfiber	6 µm											
A10	Inorganic microfiber	10 µm											
A16	Inorganic microfiber	16 µm											
A25	Inorganic microfiber	25 µm											
M25	Wire mesh	25 µm											
Seals			Element Δp		HP320		HP500		Execution				
A	NBR		N	20 bar	•	•	P01	MP Filtri standard					
V	FPM		H	210 bar	•	-	Pxx	Customized					
			S	210 bar	-	•							

CLOGGING INDICATORS

See page 723

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

DLE	Electrical / visual differential pressure indicator
DTA	Electronic differential pressure indicator
DVA	Visual differential pressure indicator
DVM	Visual differential pressure indicator

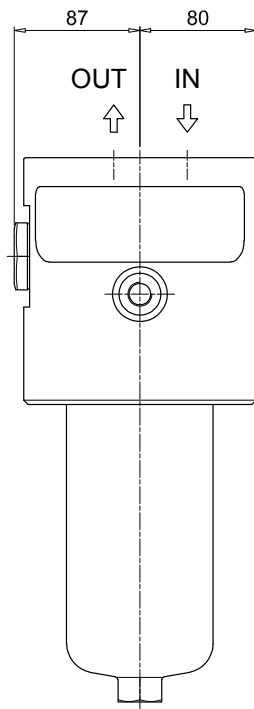
PLUGS

See page 743

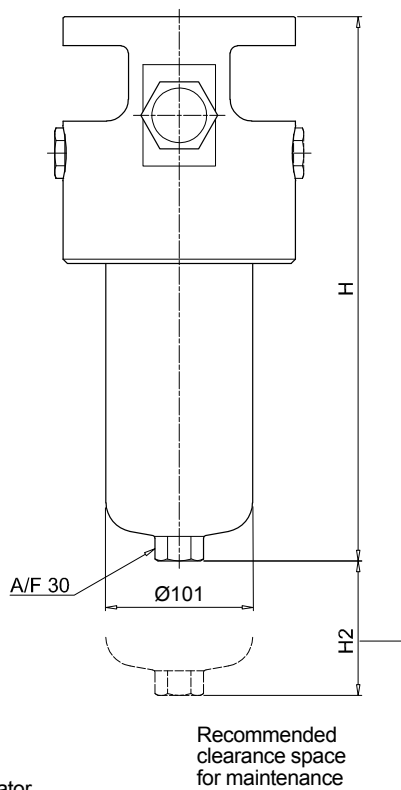
T2	Plug (not included)
-----------	---------------------

FHM320

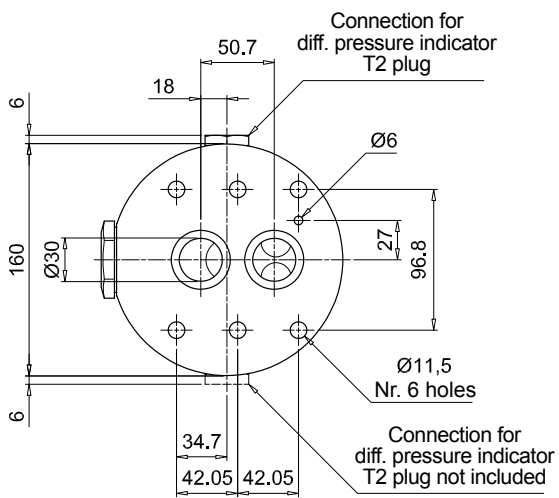
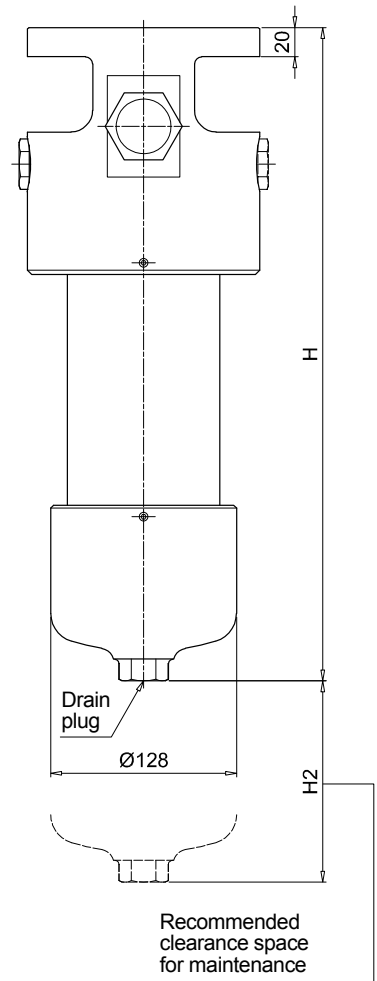
Filter length	H [mm]	H2 [mm]	
		Execution P01	Execution P02
1	293	150	-
2	416	150	-
3	548	150	-
4	702	150	550



Length 1 - 2 - 3



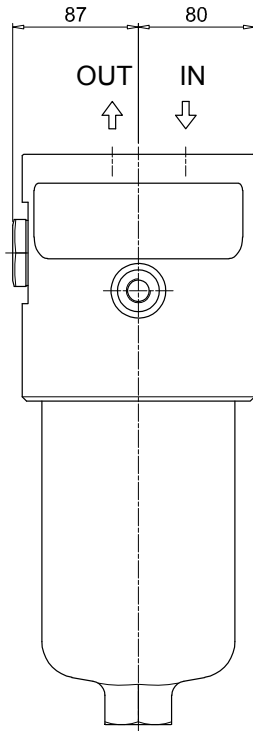
Length 4



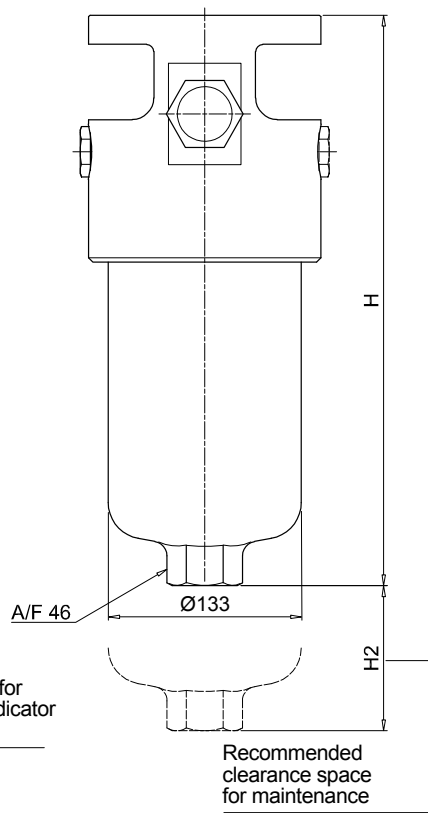
Dimensions

FHM500

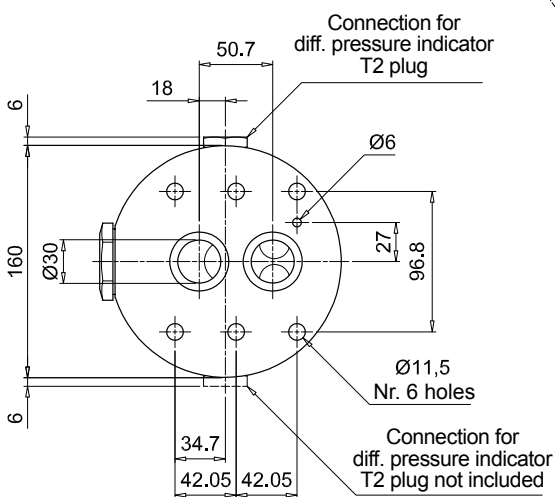
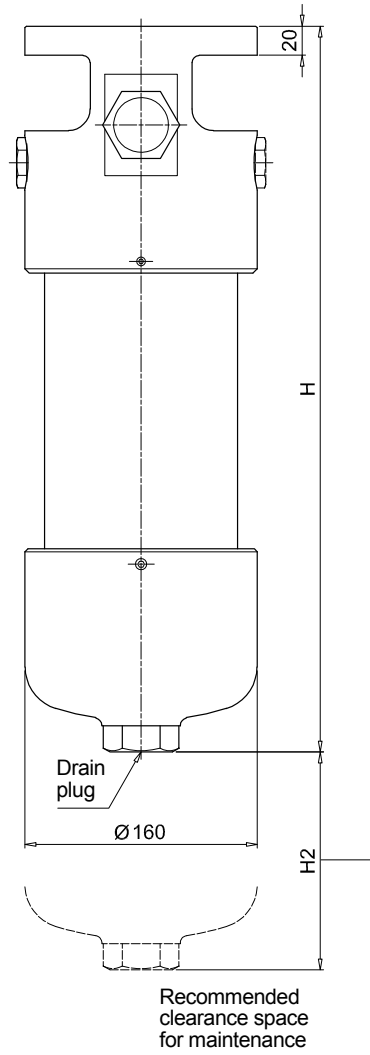
Filter length	H [mm]	H2 [mm]	
		Execution P01	Execution P02
1	355	150	-
2	445	150	-
3	521	150	-
4	679	150	480
5	845	150	650



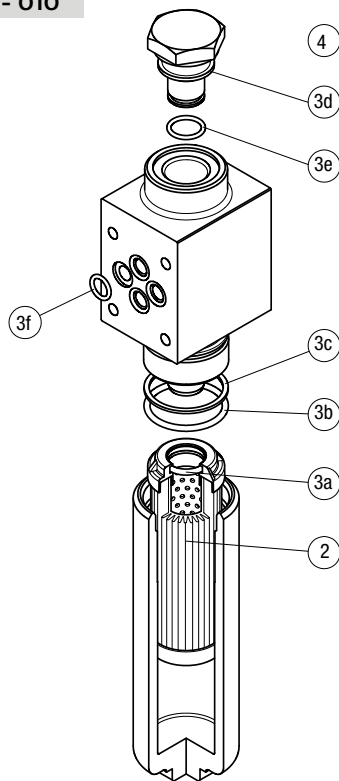
Length 1 - 2 - 3



Length 4 - 5

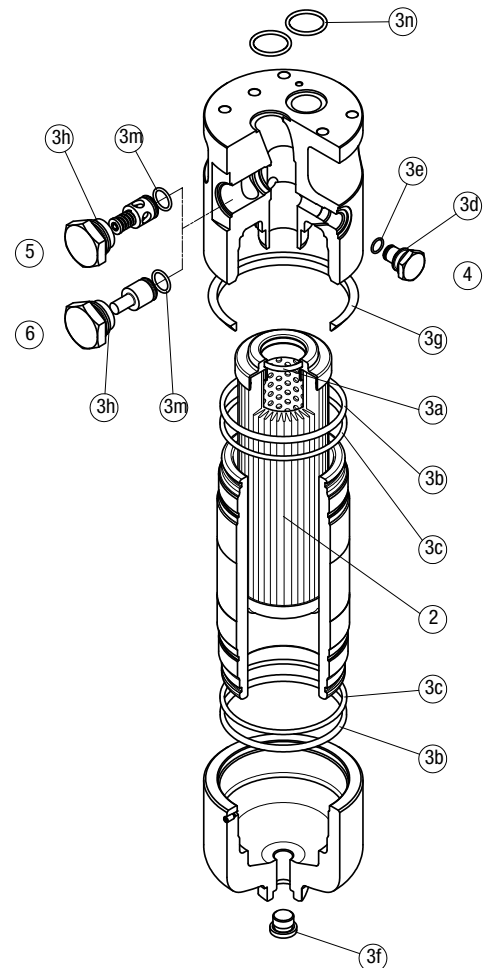


FHM 006 - 007 - 010



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FHM 006	See order table	NBR	FPM	NBR	FPM
FHM 006	See order table	02050324	02050325		
FHM 007	See order table	02050600	02050601	T2H	T2V
FHM 010	See order table	02050320	02050321		

FHM 050 - 065 - 135 - 320 - 500



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		Bypass assembly		Non-bypass assembly	
FHM 050	See order table	NBR	FPM	NBR	FPM	NBR	FPM	NBR	FPM
FHM 050	See order table	02050410	02050411			02001400	02001401	02001402	02001403
FHM 065	See order table	02050268	02050279			02001400	02001401	02001402	02001403
FHM 135	See order table	02050271	02050282	T2H	T2V	02001404	02001405	02001406	02001407
FHM 320	See order table	02050275	02050286			02001408	02001409	02001410	02001411
FHM 500	See order table	02050332	02050333			02001408	02001409	02001410	02001411

FHB series

Maximum working pressure up to 32 MPa (320 bar) - Flow rate up to 485 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



Please scan the QR codes to get updated electronic version of the related document:



FHB050



FHB065



FHB135



FHB320

Description

Technical data

High Pressure filters

Manifold

Maximum working pressure up to 32 MPa (320 bar)

Flow rate up to 485 l/min

FHB is a range of high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines. They are directly connected to the side of the manifold, through the proper flanged interface.

Available features:

- Manifold connections up to Ø30 mm, for a maximum flow rate of 485 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Bypass valve, to relieve excessive pressure drop across the filter media
- Check valve, to protect the system against reverse flow
- 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
- High collapse filter element with external support "S", for filter element protection against the back pressure caused by the check valve in filters not provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any high pressure industrial equipment or mobile machines

Filter housing materials

- Head: Phosphatized cast iron
- Housing: Phosphatized steel
- Bypass valve: Steel
- Check valve: Steel

Pressure

- Working pressure: 32 MPa (320 bar)
- Test pressure: 48 MPa (480 bar)
- Burst pressure: 96 MPa (960 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 32 MPa (320 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar
- Microfibre filter elements - series H: 210 bar (not available for FHB050)
- Microfibre filter elements - series S: 210 bar (only for FHB050)
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

Manifold mounting

Note

FHB filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FHB 050		2.61	2.98	3.39	3.86	5.04		0.21	0.30	0.40	0.52	0.81
FHB 065		3.33	3.69	4.90	-	-		0.20	0.27	0.49	-	-
FHB 135		6.61	8.21	9.21	-	-		0.40	0.73	0.94	-	-
FHB 320		12.95	15.08	17.37	26.77	-		0.91	1.63	2.40	3.59	-

Flow rates [l/min]

Filter series	Length	Filter element design - N Series						Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
FHB 050	1	43	42	79	81	101	131	30	40	58	60	74
	2	53	58	84	93	112	132	46	50	76	86	108
	3	67	70	94	101	119	133	59	62	87	95	115
	4	82	87	106	108	122	134	74	80	101	103	119
	5	102	104	119	122	127	136	90	92	105	113	126

Filter series	Length	Filter element design - N Series						Filter element design - H Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
FHB 065	1	25	33	55	62	87	133	23	25	49	58	81
	2	33	51	70	76	101	134	33	38	66	75	94
	3	60	71	97	103	118	138	60	68	95	102	116
FHB 135	1	67	72	120	129	177	212	49	55	97	100	160
	2	109	116	152	154	224	250	90	110	137	140	182
	3	153	155	201	205	226	253	126	142	175	187	207
FHB 320	1	130	143	238	286	343	442	110	117	192	201	304
	2	259	281	391	409	454	468	200	230	319	325	392
	3	332	368	441	455	463	476	269	312	381	389	432
	4	368	390	446	462	481	488	311	334	388	394	437

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

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

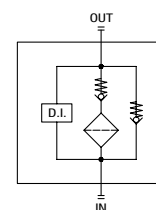
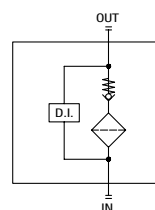
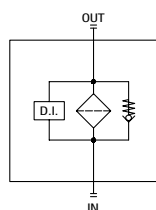
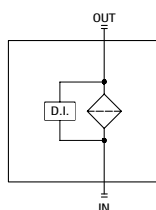
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

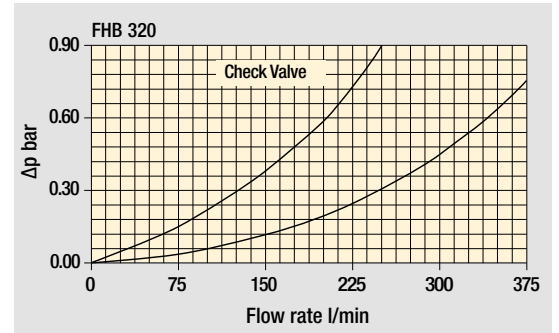
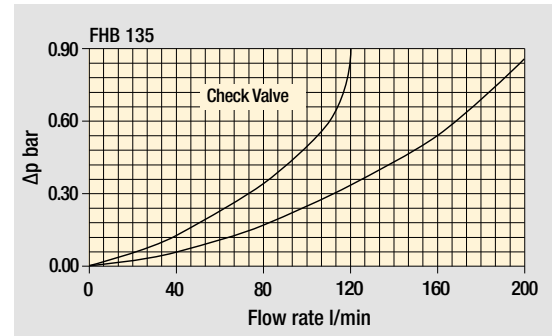
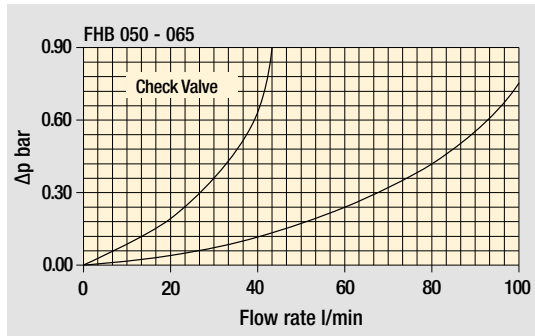
Hydraulic symbols

Filter series	Style S	Style B	Style T	Style D
FHB 050	•	•	•	•
FHB 065	•	•	•	•
FHB 135	•	•	•	•
FHB 320	•	•	•	•

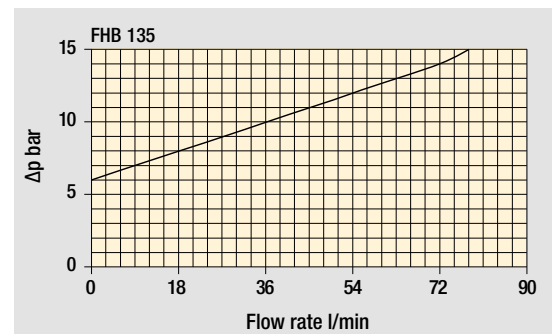
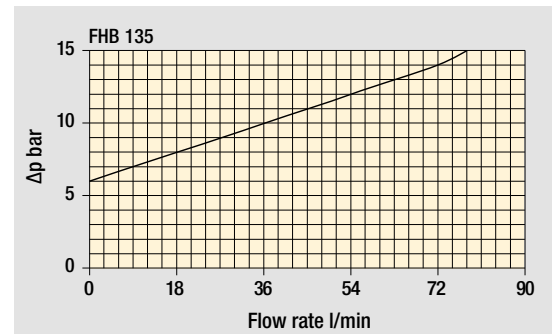
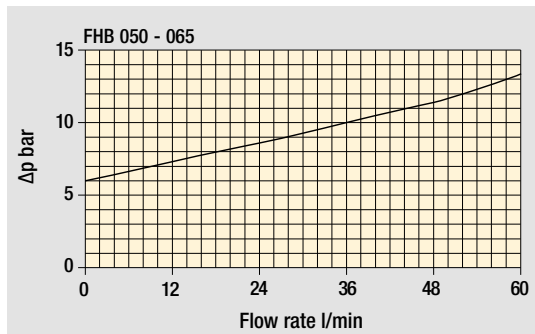


Pressure drop

Filter housings Δp pressure drop



Bypass valve 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: **FHB050** | **2** | **T** | **A** | **F1** | **A06** | **S** | **P01**

Series and size
FHB050

Length
1 | **2** | **3** | **4** | **5**

Valves
S Without bypass
B With bypass 6 bar
T With check valve, without bypass
D With check valve, with bypass 6 bar

Seals
A NBR
V FPM

Connections
F1 Manifold

Filtration rating (filter media)

A03	Inorganic microfiber	3 µm
A06	Inorganic microfiber	6 µm
A10	Inorganic microfiber	10 µm
A16	Inorganic microfiber	16 µm
A25	Inorganic microfiber	25 µm
M25	Wire mesh	25 µm

Element Δp	Valves				Execution
	S	B	T	D	
N 20 bar	-	•	-	•	P01 MP Filtri standard
S 210 bar	•	-	•	-	Pxx Customized

FILTER ELEMENT

Configuration example: **HP050** | **2** | **A06** | **A** | **S** | **P01**

Element series and size
HP050

Element length
1 | **2** | **3** | **4** | **5**

Filtration rating (filter media)

A03	Inorganic microfiber	3 µm
A06	Inorganic microfiber	6 µm
A10	Inorganic microfiber	10 µm
A16	Inorganic microfiber	16 µm
A25	Inorganic microfiber	25 µm
M25	Wire mesh	25 µm

Seals	Element Δp	Execution	
		P01	Pxx
A NBR	N 20 bar	MP Filtri standard	Customized
V FPM	S 210 bar	MP Filtri standard	Customized

CLOGGING INDICATORS

See page 723

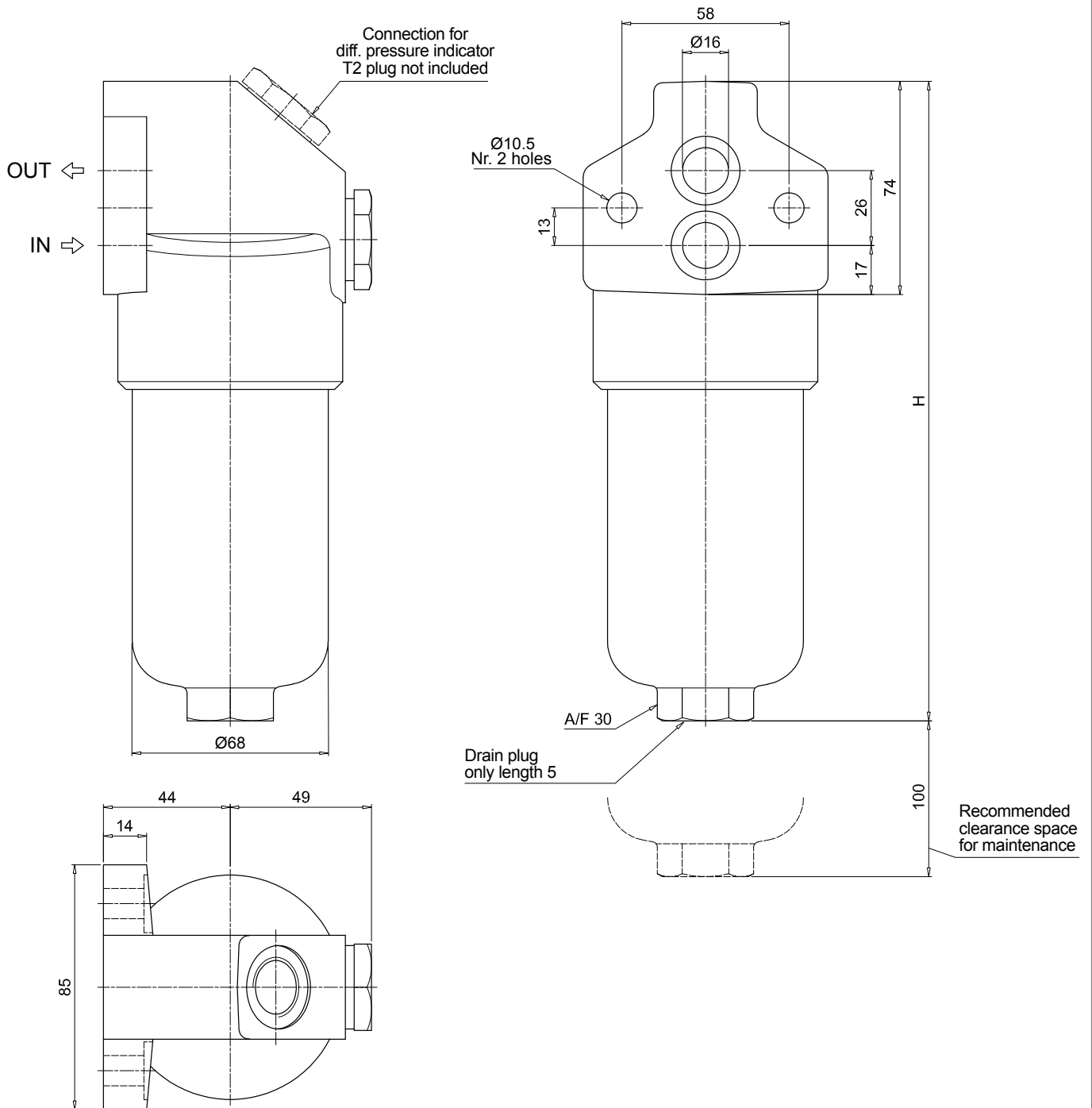
DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug (not included)

FHB050	
Filter length	H [mm]
1	185
2	222
3	264
4	312
5	434



FHB FHB065 - FHB135 - FHB320

Designation & Ordering code

COMPLETE FILTER

Configuration example: **FHB320** | **4** | **S** | **A** | **F1** | **A06** | **H** | **P01**

Series and size	FHB065 FHB135 FHB320		
Length	FHB065	FHB135	FHB320
1	•	•	•
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

Connections
F1 Manifold

Filtration rating (filter media)	Element	Rating
A03 Inorganic microfiber	3	µm
A06 Inorganic microfiber	6	µm
A10 Inorganic microfiber	10	µm
A16 Inorganic microfiber	16	µm
A25 Inorganic microfiber	25	µm
M25 Wire mesh	25	µm

Element Δp	S	B	T	D
N 20 bar	-	•	-	•
H 210 bar	•	-	•	-

Execution	1	2	3	4
P01 MP Filtri standard	•	•	•	•
P02 Maintenance from the bottom of the housing	-	-	-	•
Pxx Customized	•	•	•	•

FILTER ELEMENT

Configuration example: **HP320** | **4** | **A06** | **A** | **H** | **P01**

Element series and size	HP065 HP135 HP320		
Element length	HP065	HP135	HP320
1	•	•	•
2	•	•	•
3	•	•	•
4	-	-	•

Filtration rating (filter media)	Element	Rating
A03 Inorganic microfiber	3	µm
A06 Inorganic microfiber	6	µm
A10 Inorganic microfiber	10	µm
A16 Inorganic microfiber	16	µm
A25 Inorganic microfiber	25	µm
M25 Wire mesh	25	µm

Seals
A NBR
V FPM

Element Δp
N 20 bar
H 210 bar

Execution
P01 MP Filtri standard
Pxx Customized

CLOGGING INDICATORS

See page 723

DEA Electrical differential pressure indicator

DEM Electrical differential pressure indicator

DEU Electrical differential pressure indicator

DLA Electrical / visual differential pressure indicator

DLE Electrical / visual differential pressure indicator

DTA Electronic differential pressure indicator

DVA Visual differential pressure indicator

DVM Visual differential pressure indicator

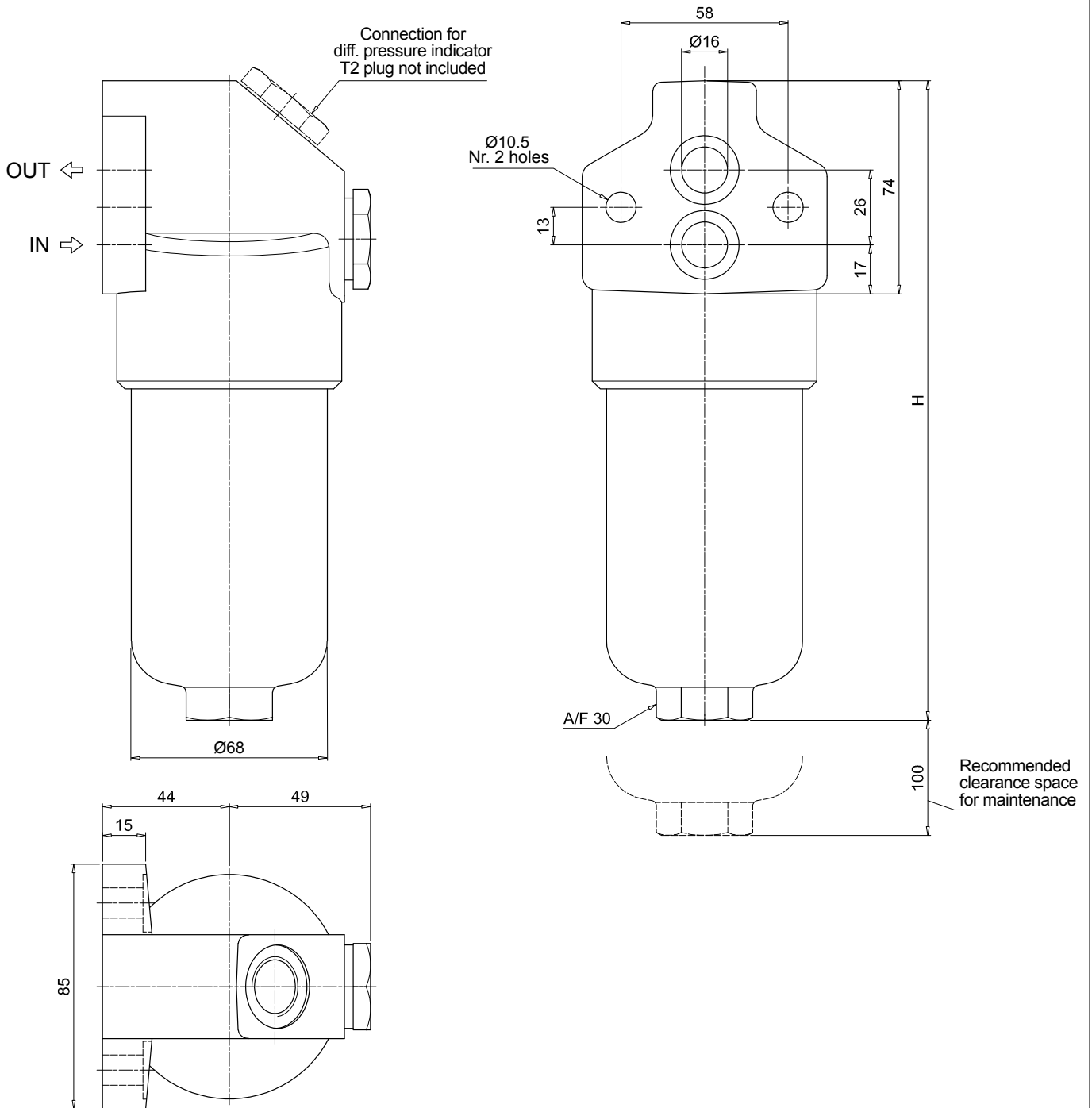
PLUGS

See page 743

T2 Plug (not included)

FHB065

Filter length	H [mm]
1	194
2	225
3	327

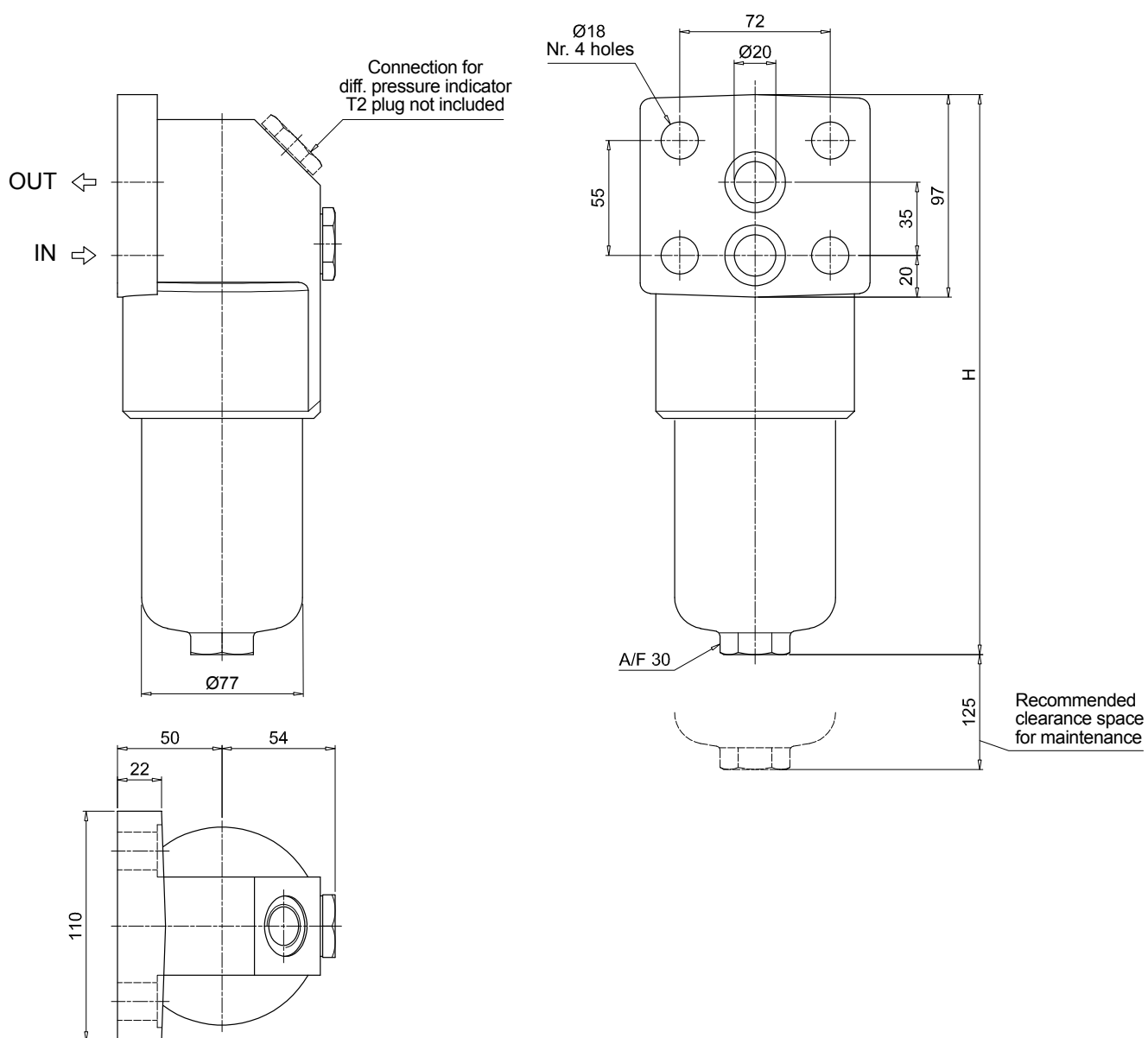


FHB FHB065 - FHB135 - FHB320

Dimensions

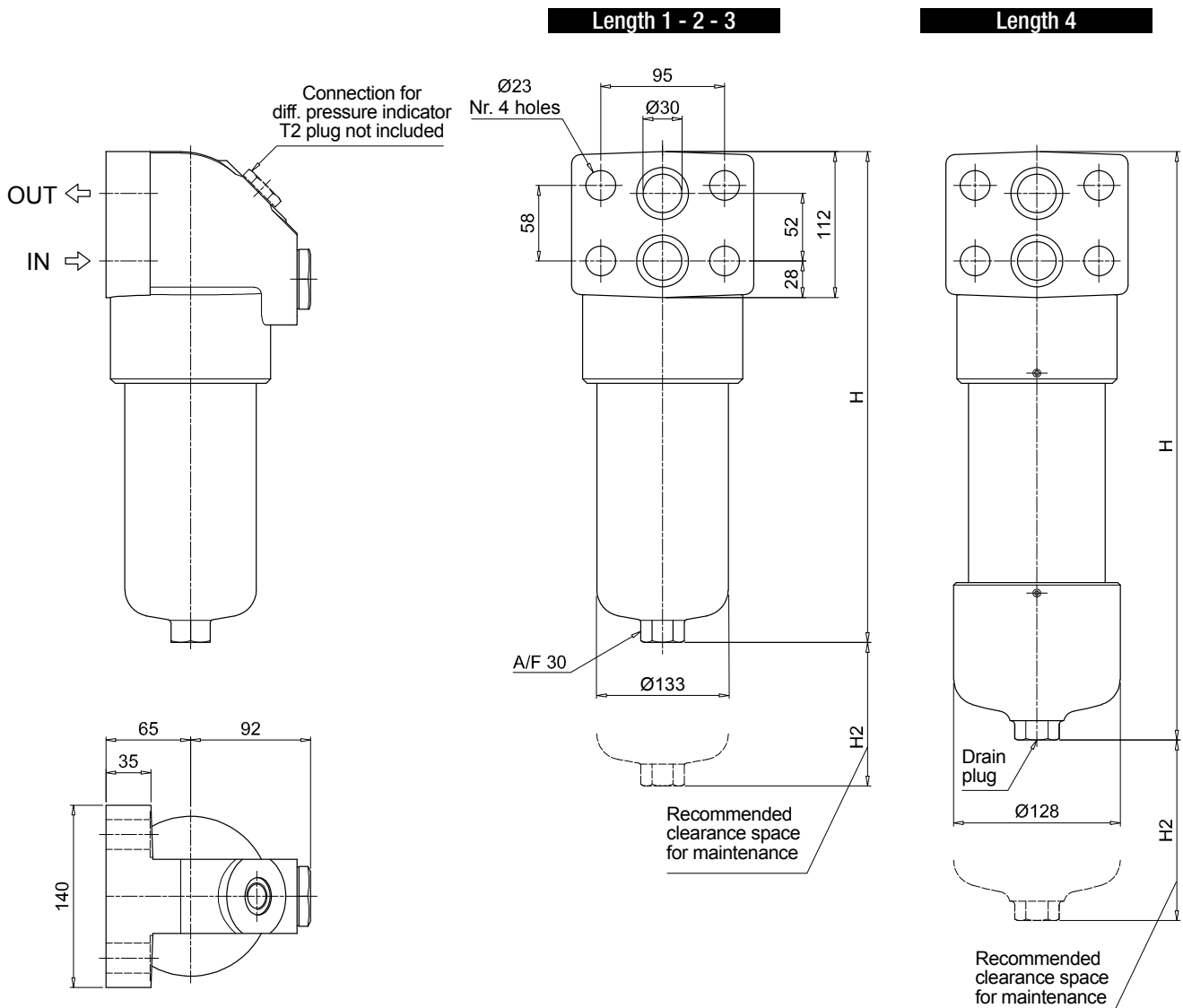
FHB135

Filter length	H [mm]
1	268
2	381
3	456



FHB320

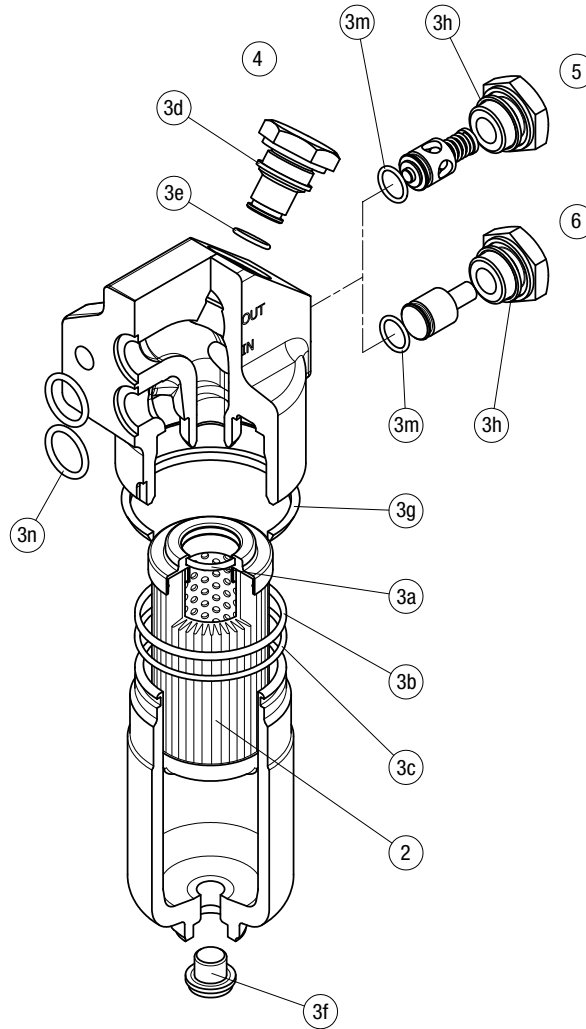
Filter length	H [mm]	H2 [mm]	
		Execution P01	Execution P02
1	301	150	-
2	424	150	-
3	556	150	-
4	709	150	550



FHB SPARE PARTS

Order number for spare parts

FHB 050 - 065 - 135 - 320



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		Bypass assembly		Non-bypass assembly	
		NBR	FPM	NBR	FPM	NBR	FPM	NBR	FPM
FHB 050	See order table	02050412	02050413	T2H	T2V	02001312	02001385	02001314	02001386
FHB 065		02050266	02050277			02001312	02001385	02001314	02001386
FHB 135		02050270	02050281			02001312	02001385	02001314	02001386
FHB 320		02050273	02050284			02001381	02001382	02001383	02001384

FHF 325 series

Maximum working pressure up to 35 MPa (350 bar) - Flow rate up to 550 l/min
Filter housing according to SAE J2066 for HF4 filter elements



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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FHF 325 GENERAL INFORMATION

Filter housing according to SAE J2066 for HF4 filter elements

Description

High Pressure filters

Manifold

Maximum working pressure up to 35 MPa (350 bar)

Flow rate up to 550 l/min

FHF is a range of high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines. They are directly connected to the lines of the system through the hydraulic fittings or the proper flanged interface.

Available features:

- 1 1/2" female threaded connections, 1 1/2" flanged connections and manifold connections up to 1 1/2", for a maximum flow rate of 550 l/min
- Base-mounting design, for ease of the replacement of the filter element
- Filter element designed in accordance with SAE J2066 HF4 regulation
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

Delivery lines, in any high pressure industrial equipment

Technical data

Filter housing materials

- Head: Phosphatized cast iron
- Housing: Phosphatized steel
- Cover: Cast iron (chemical heat treatment)
- Bypass valve: Brass - Steel

Pressure

- Working pressure: 35 MPa (350 bar)
- Test pressure: 52.5 MPa (525 bar)
- Burst pressure: 105 MPa (1050 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 35 MPa (350 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) $\pm 10\%$
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series N: 20 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

- FHF 325: In-line threaded connection
- FHF 325: In-line flanged connection
- FHF 325: Manifold mounting

Note

FHF filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]			Volumes [dm ³]				
	Length	1	2	3	Length	1	2	3
FHF 325		23.90	32.68	41.47		3.50	5.80	8.11

GENERAL INFORMATION FHF 325

Filter housing according to SAE J2066 for HF4 filter elements

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25
FHF 325	1	302	339	348	419	500	556
	2	401	424	434	457	505	557
	3	416	451	460	469	510	559

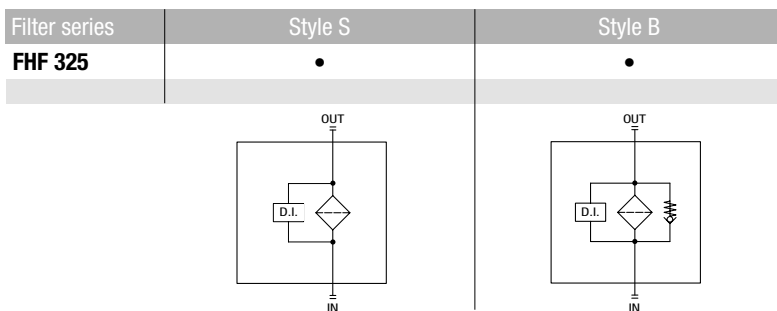
Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

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

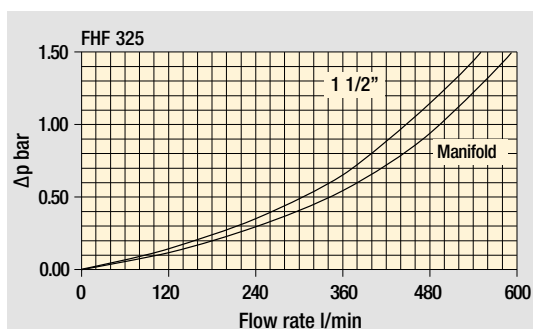
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols



Pressure drop
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.

FHF 325

Designation & Ordering code

COMPLETE FILTER

Series and size FHF325	Configuration example: FHF325	2	S	A	H	7	A10	N	P01
Length 1 2 3									
Valves S Without bypass B With bypass 6 bar									
Seals A NBR V FPM									
Connections A G 1 1/2" B 1 1/2" NPT C SAE 24 - 1 7/8" - 12 UN G 1 1/2" SAE 6000 psi/M H 1 1/2" SAE 6000 psi/UNC M Manifold ø1.38" N Manifold ø1.50"									
Connection for differential pressure indicator 7 With two connections plugged 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 M25 Wire mesh 25 µm									
						Element Δp N 20 bar		Execution P01 MP Filtri standard Pxx Customized	

FILTER ELEMENT

Element series and size HF325	Configuration example: HF325	2	A10	A	N	P01
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 M25 Wire mesh 25 µm						
						Seals A NBR V FPM
						Element Δp N 20 bar
						Execution P01 MP Filtri standard Pxx Customized

CLOGGING INDICATORS

See page 723

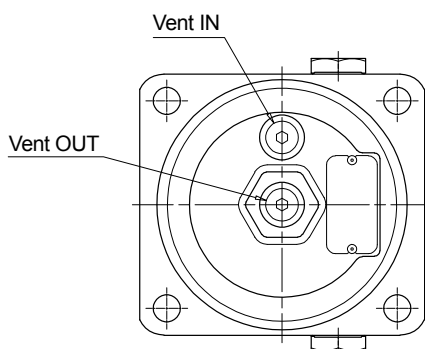
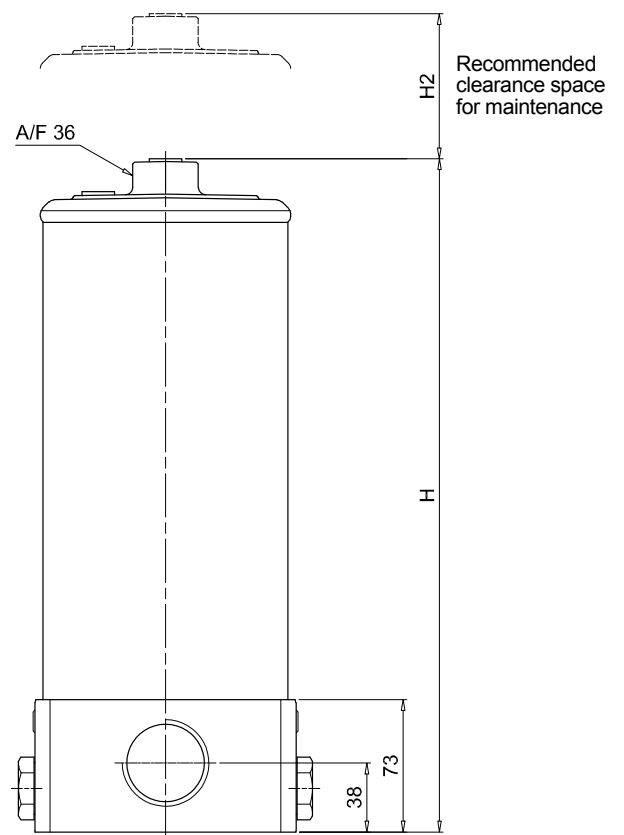
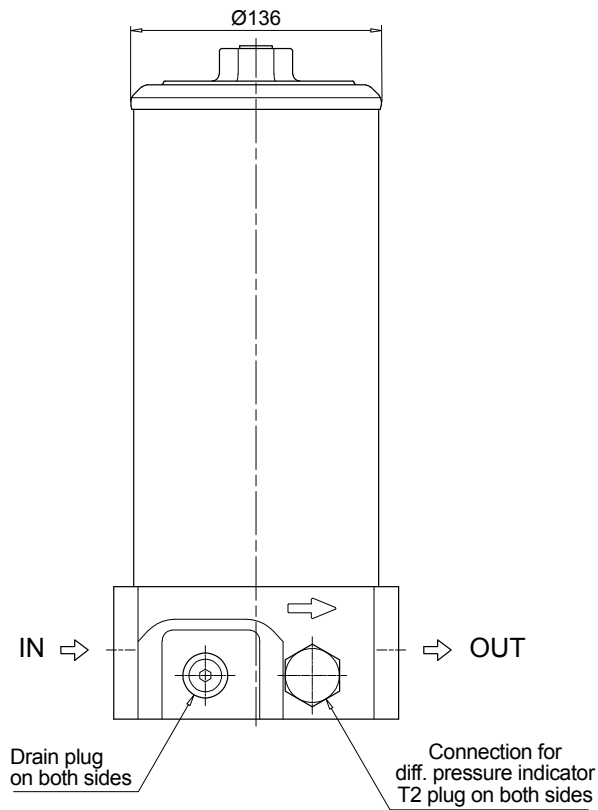
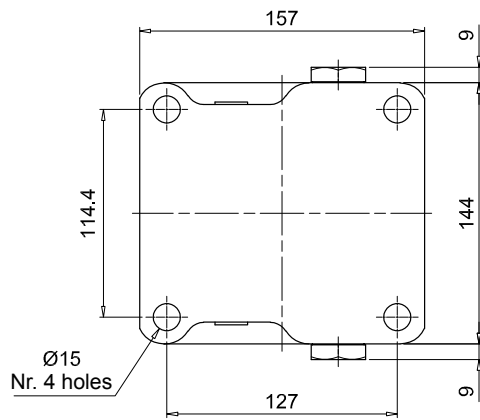
DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug (not included)

FHF325		
Connection A - B - C		
Filter length	H [mm]	H2 [mm]
1	452	250
2	690	485
3	928	725



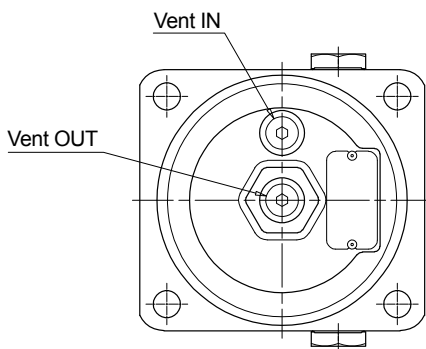
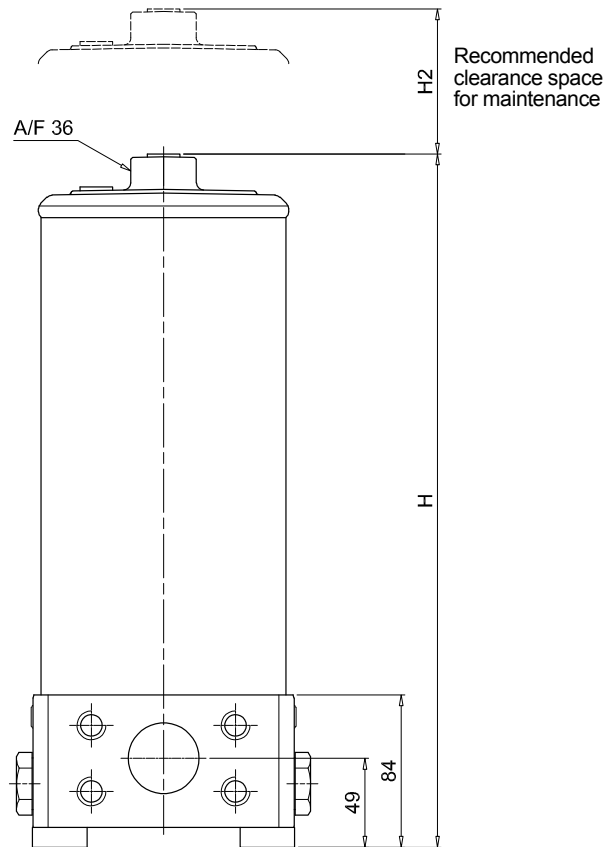
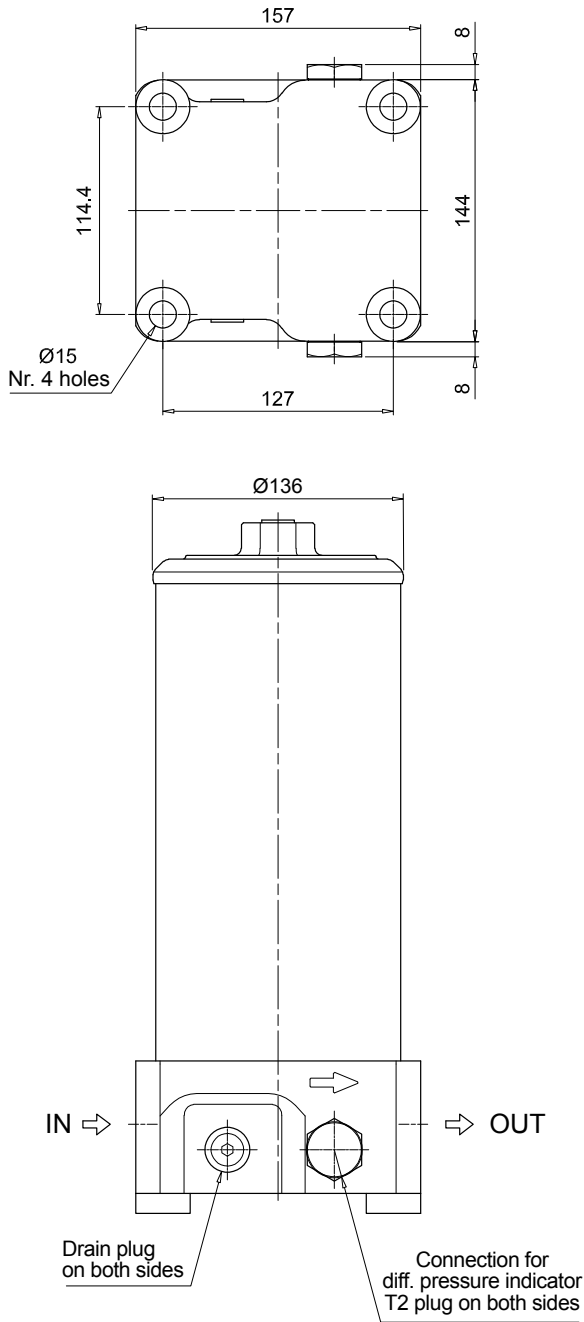
FHF 325

Dimensions

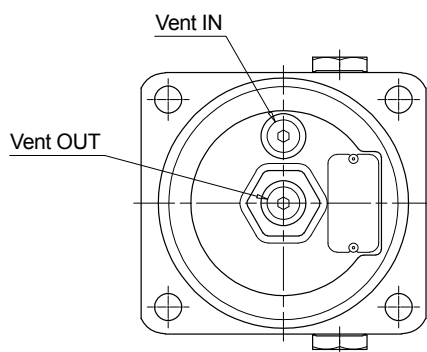
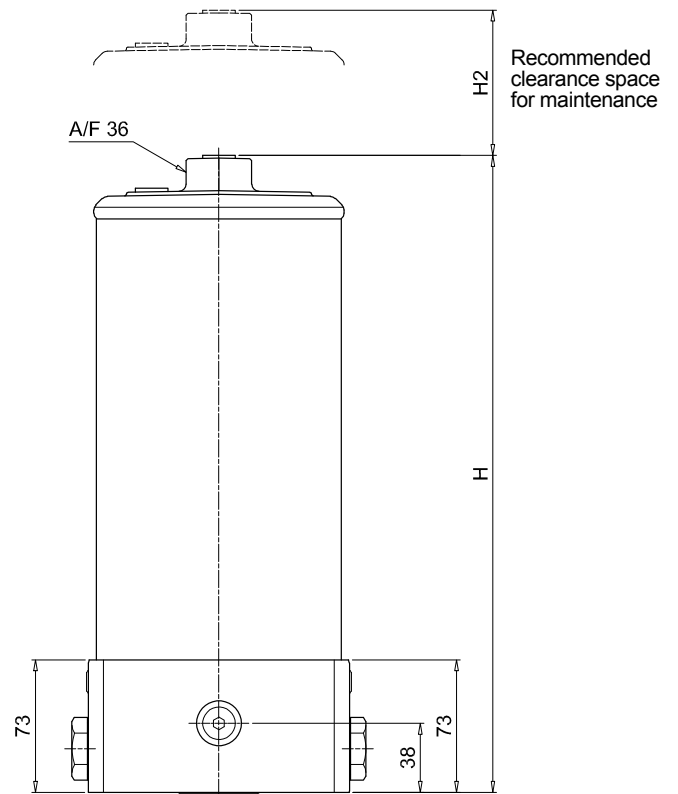
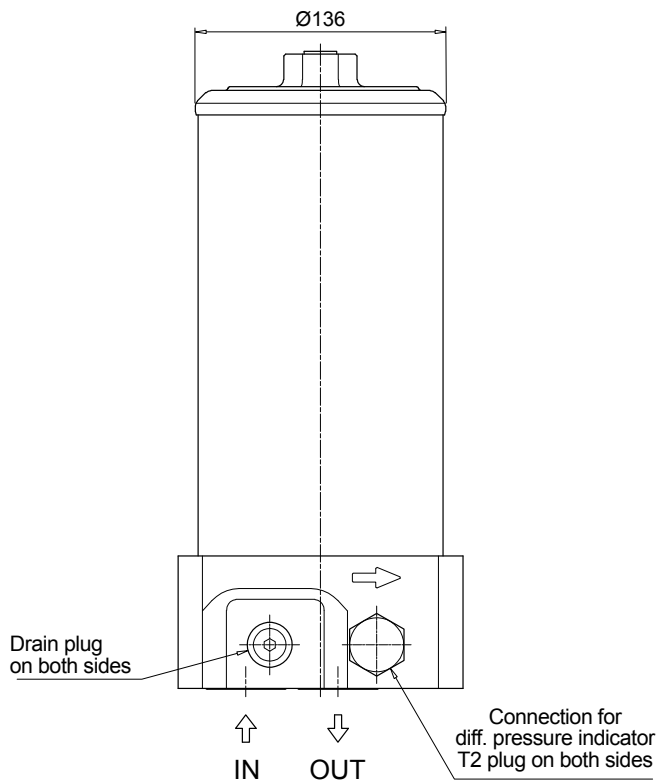
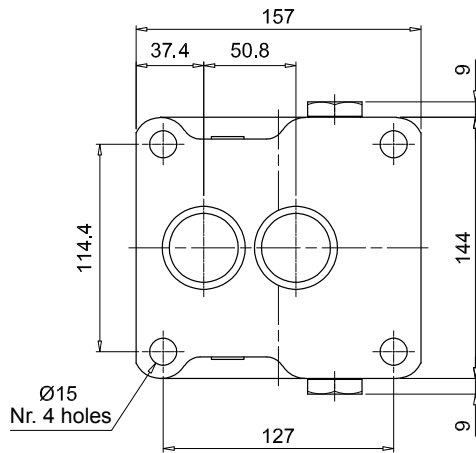
FHF325

Connection G - H

Filter length	H [mm]	H2 [mm]
1	463	250
2	701	485
3	939	725



FHF325		
Connection M - N		
Filter length	H [mm]	H2 [mm]
1	452	250
2	690	485
3	928	725

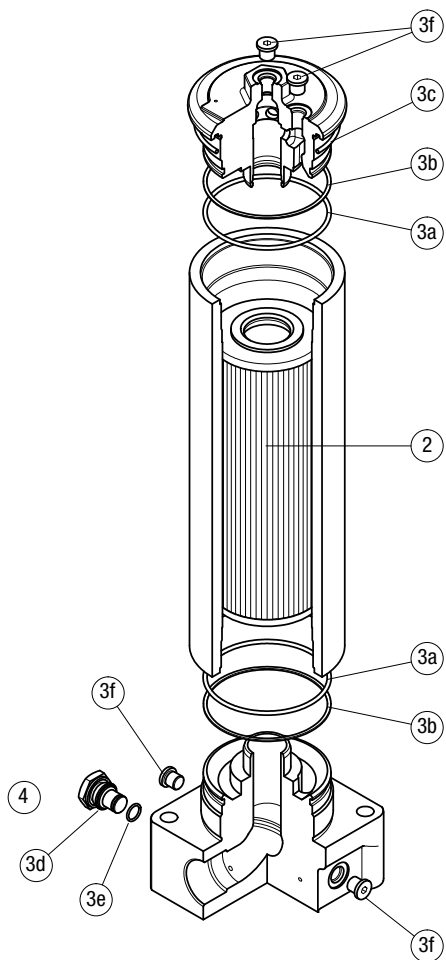


FHF 325 SPARE PARTS

Filter housing according to SAE J2066 for HF4 filter elements

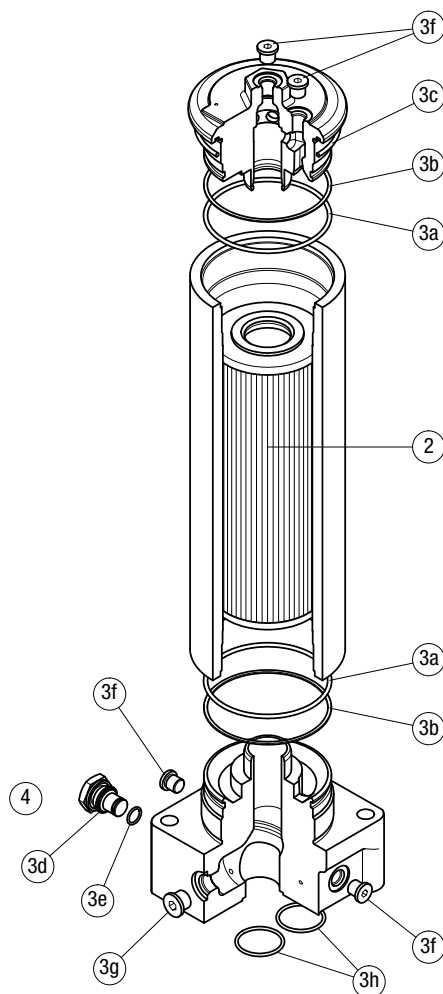
Order number for spare parts

FHF 325
Connections
A - B - C - G - H



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 2 pc.		
Filter series	Filter element	Seal Kit code number	Indicator connection plug		
		NBR	FPM	NBR	FPM
FHF 325 A-B-C-G-H	See order table	02050588	02050589	T2H	T2V

FHF 325
Connections
M - N



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 2 pc.		
Filter series	Filter element	Seal Kit code number	Indicator connection plug		
		NBR	FPM	NBR	FPM
FHF 325 M-N	See order table	02050590	02050591	T2H	T2V

FHD series

Maximum working pressure up to 35 MPa (350 bar) - Flow rate up to 250 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



Please scan the QR codes to get updated electronic version of the related document:



FHD021



FHD051



FHD326



FHD333

High Pressure filters

Duplex

Maximum working pressure up to 35 MPa (350 bar)

Flow rate up to 250 l/min

FHD is a range of 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 1 1/4" and flanged connections up to 1 1/2", for a maximum flow rate of 345 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Balancing valve, available for FHD051, FHD326 and FHD333, 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
- Low collapse filter element "N", for use with filters provided with M25 wire mesh
- 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
- Visual, electrical and electronic differential clogging indicators

Common applications:

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

Filter housing materials

- Head: Phosphatized cast iron
- Housing: Phosphatized steel
- Bypass valve: Steel

Pressure

- Test pressure: 52.5 MPa (525 bar)
- Burst pressure: 105 MPa (1050 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 35 MPa (350 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfibre filter elements - series R: 20 bar (not available for FHD 021)
- Microfibre filter elements - series H: 210 bar (only for FHD 021)
- Microfibre filter elements - series S: 210 bar (not available for FHD 021)
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Connections

In-line Inlet/Outlet 90°

Note

FHD filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FHD 021	-	-	8.0	9.0	9.9	-	-	0.06	0.12	0.22	-	-
FHD 051	-	-	16.9	17.5	18.5	19.8	-	0.31	0.41	0.53	0.83	-
FHD 326	-	43.0	50.0	54.0	-	-	0.88	1.60	2.37	-	-	-
FHD 333	-	-	74.0	79.0	98.0	-	-	1.75	2.52	3.35	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - H Series					
		A03	A06	A10	A16	A25	M25
FHD 021	2	6	8	14	16	19	26
	3	10	12	18	20	22	27
	4	13	16	21	22	24	27

Filter series	Length	Filter element design - R Series						N Series	Filter element design - S Series				
		A03	A06	A10	A16	A25	M25		A03	A06	A10	A16	A25
FHD 051	2	39	41	51	54	59	64	35	37	48	51	58	
	3	45	46	54	56	61	65	41	43	52	54	60	
	4	50	52	58	58	62	65	47	49	56	56	61	
	5	56	57	61	62	63	65	53	53	57	59	63	
FHD 326	1	93	99	131	142	154	171	83	87	117	120	146	
	2	136	141	163	166	173	176	119	128	149	151	163	
	3	152	159	171	174	175	177	139	148	161	163	170	
FHD 333	2	175	184	224	230	245	249	147	162	199	201	225	
	3	204	217	241	245	247	252	179	196	221	224	238	
	4	216	224	242	247	253	255	196	204	223	225	239	

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

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

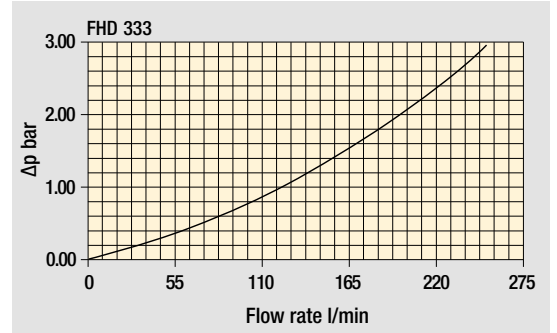
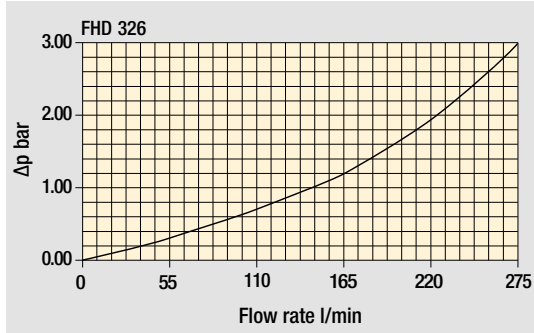
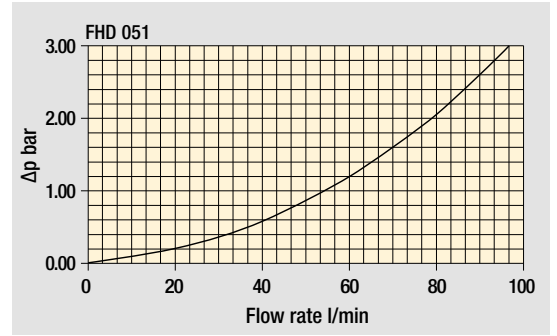
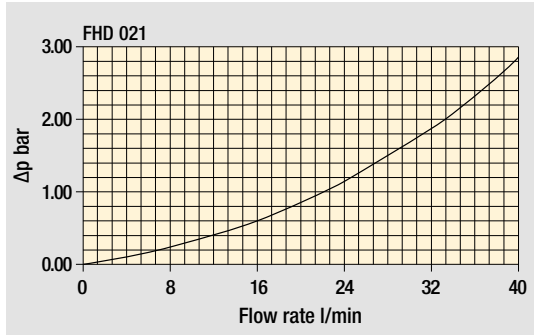
Hydraulic symbols

Filter series	Style S	Style B	Style B
FHD 021	•	-	-
FHD 051	•	-	-
FHD 326	•	-	•
FHD 333	•	-	•

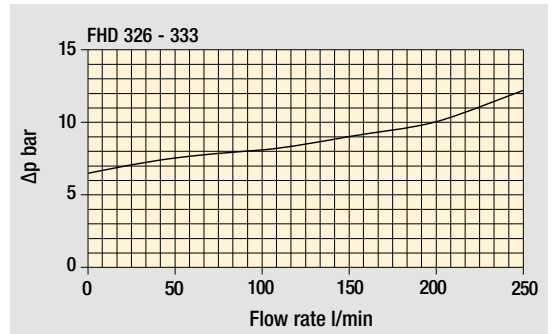
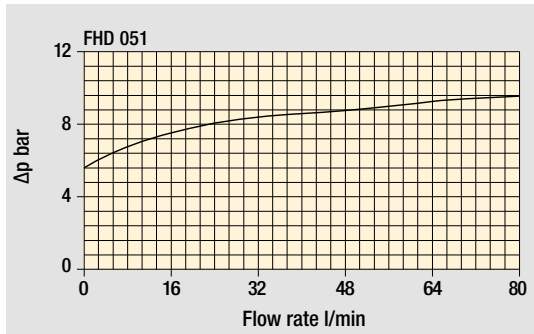
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Pressure drop

Filter housings Δp pressure drop



Bypass valve 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

Series and size	Configuration example: FHD021 4 S A G1 A06 H P01							
FHD021								
Length								
2 3 4								
Bypass valve								
S Without bypass								
Seals								
A NBR								
V FPM								
Connections								
G1 G 1/2"								
G2 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								
M25 Wire mesh 25 µm								
	Filtration rating							
	Element Δp	Axx	M25	Execution				
	N 20 bar	-	•	P01 MP Filtri standard				
	H 210 bar	•	•	Pxx Customized				

FILTER ELEMENT

Element series and size	Configuration example: HP011 4 A06 A H P01					
HP011						
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						
M25 Wire mesh 25 µm						
	Filtration rating					
	Seals	Element Δp	Axx	M25	Execution	
	A NBR	N 20 bar	-	•	P01 MP Filtri standard	
	V FPM	H 210 bar	•	•	Pxx Customized	

CLOGGING INDICATORS

See page 723

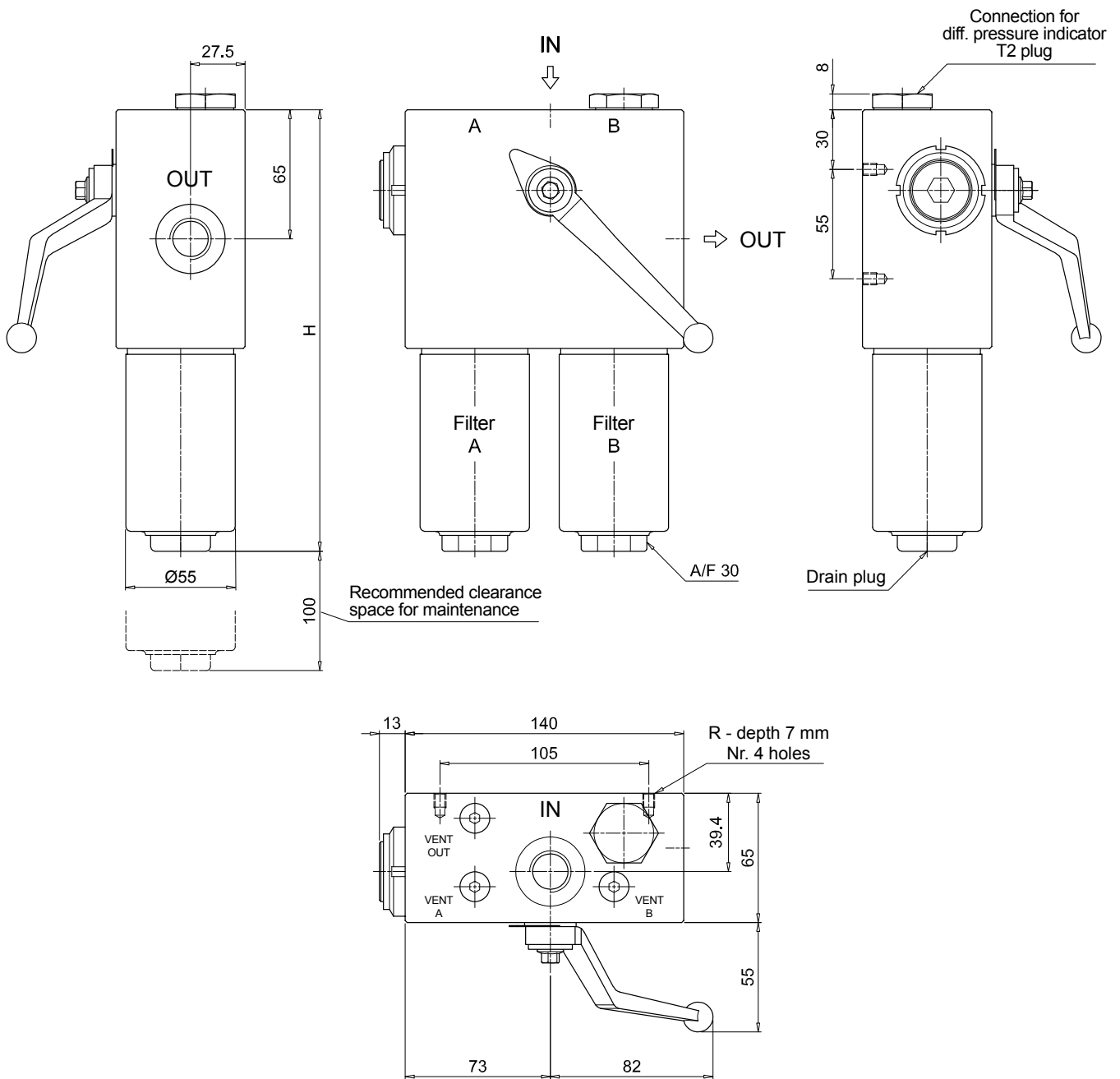
DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug (not included)

FHDO21	
Filter length	H [mm]
2	172
3	222
4	272
Connections	R
G1	M6
G2 - G3	1/4" UNC



FHD FHD051 - FHD326 - FHD333

Designation & Ordering code

COMPLETE FILTER

Series and size Configuration example: **FHD326** **3** **S** **A** **G1** **M25** **N** **P01**

FHD051 | **FHD326** | **FHD333**

Length	FHD051	FHD326	FHD333
1	-	•	-
2	•	•	•
3	•	•	•
4	•	-	•
5	•	-	-

Valves

- S** Without bypass
B With bypass 6 bar

Seals

- A** NBR
V FPM

Connections	FHD051	FHD326	FHD333
G1	G 3/4"	G 1 1/4"	-
G2	3/4" NPT	-	-
G3	G 1/2"	1 1/4" NPT	-
G4	1/2" NPT	SAE 20 - 1 5/8" - 12 UN	-
G5	SAE 8 - 3/4" - 16 UNF	-	-
G6	SAE 12 - 1 1/16" - 12 UN	-	-
F1	-	-	1 1/2" SAE 6000 psi/M
F2	-	-	1 1/2" SAE 6000 psi/UNC

Filtration rating (filter media)

A03 Inorganic microfiber	3 µm
A06 Inorganic microfiber	6 µm
A10 Inorganic microfiber	10 µm
A16 Inorganic microfiber	16 µm
A25 Inorganic microfiber	25 µm
M25 Wire mesh	25 µm

Element Δp	Filtration rating		Execution
	Axx	M25	
N 20 bar	-	•	P01 MP Filtri standard
R 20 bar	•	-	Pxx Customized
S 210 bar	•	-	

FILTER ELEMENT

Element series and size Configuration example: **HP320** **3** **M25** **A** **N** **P01**

HP050 | **HP320**

	FHD051	FHD326	FHD333
HP050	•	-	-
HP320	-	•	•

Element length	HP050	HP320
1	-	•
2	•	•
3	•	•
4	•	•
5	•	-

Filtration rating (filter media)

A03 Inorganic microfiber	3 µm
A06 Inorganic microfiber	6 µm
A10 Inorganic microfiber	10 µm
A16 Inorganic microfiber	16 µm
A25 Inorganic microfiber	25 µm
M25 Wire mesh	25 µm

Seals	Element Δp	Filtration rating		Execution
		Axx	M25	
A NBR	N 20 bar	-	•	P01 MP Filtri standard
V FPM	R 20 bar	•	-	Pxx Customized
	S 210 bar	•	-	

CLOGGING INDICATORS

See page 723

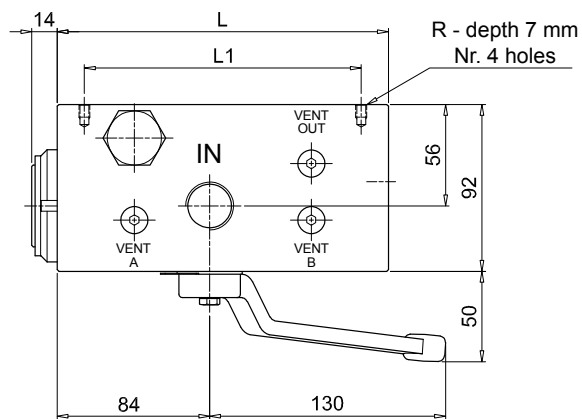
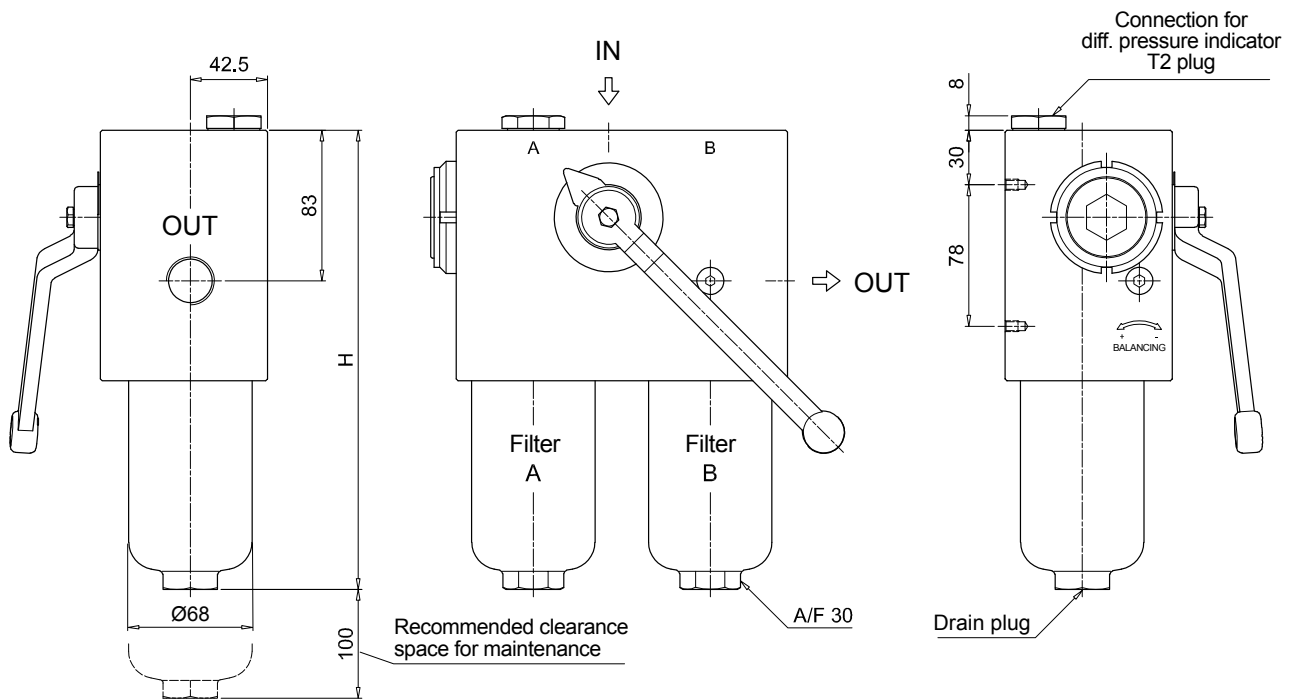
DEA Electrical differential pressure indicator	DLE Electrical / visual differential pressure indicator
DEM Electrical differential pressure indicator	DTA Electronic differential pressure indicator
DEU Electrical differential pressure indicator	DVA Visual differential pressure indicator
DLA Electrical / visual differential pressure indicator	DVM Visual differential pressure indicator

PLUGS

See page 743

T2 Plug (not included)

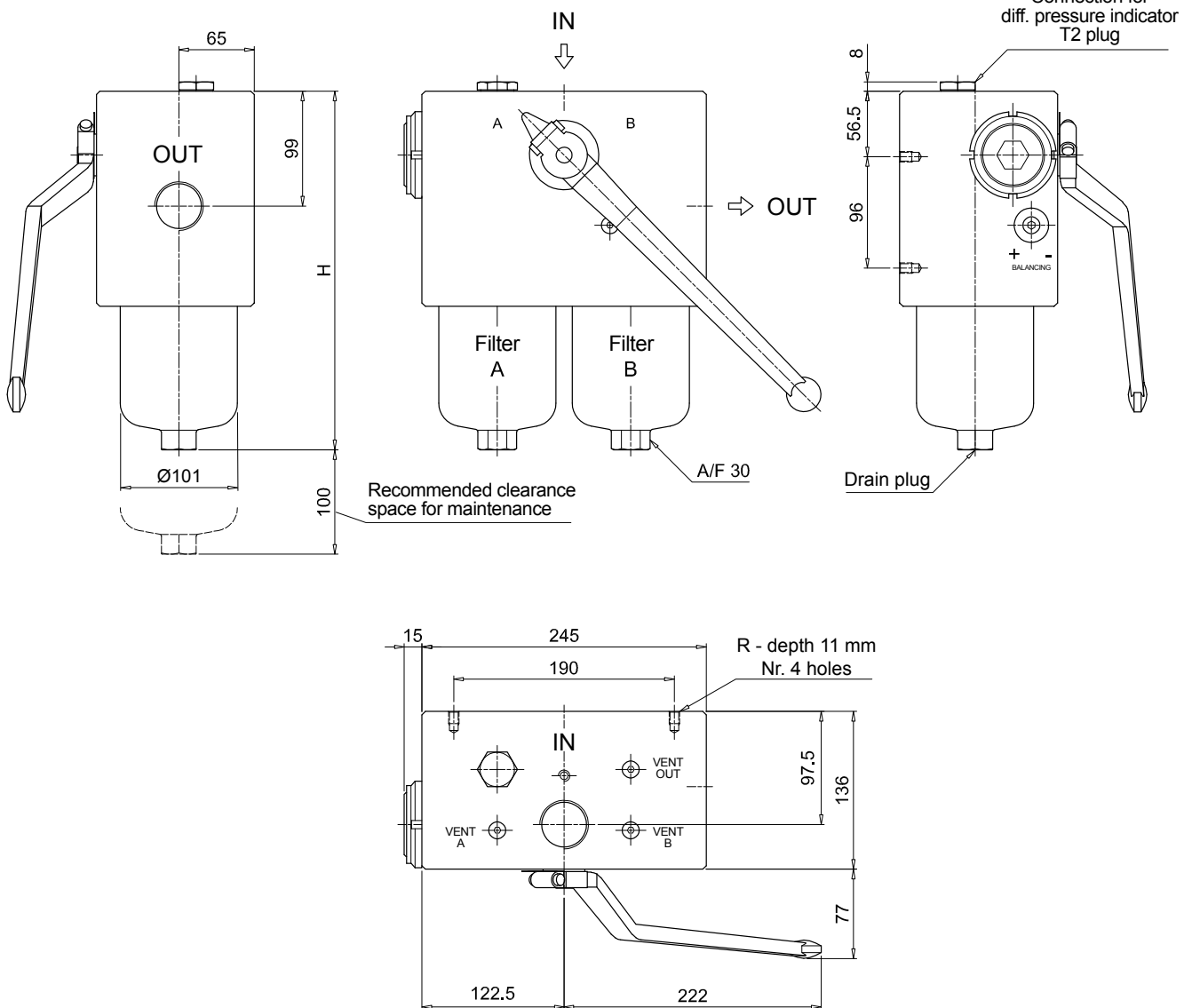
FHD051		
Filter length	H [mm]	
2	253	
3	295	
4	343	
5	465	
Connections	R	
G1	M6	
G2	1/4" UNC	
G3	M6	
G4-G5-G6	1/4" UNC	
Valves	L [mm]	L1 [mm]
S	168	138
B	182.5	152.5



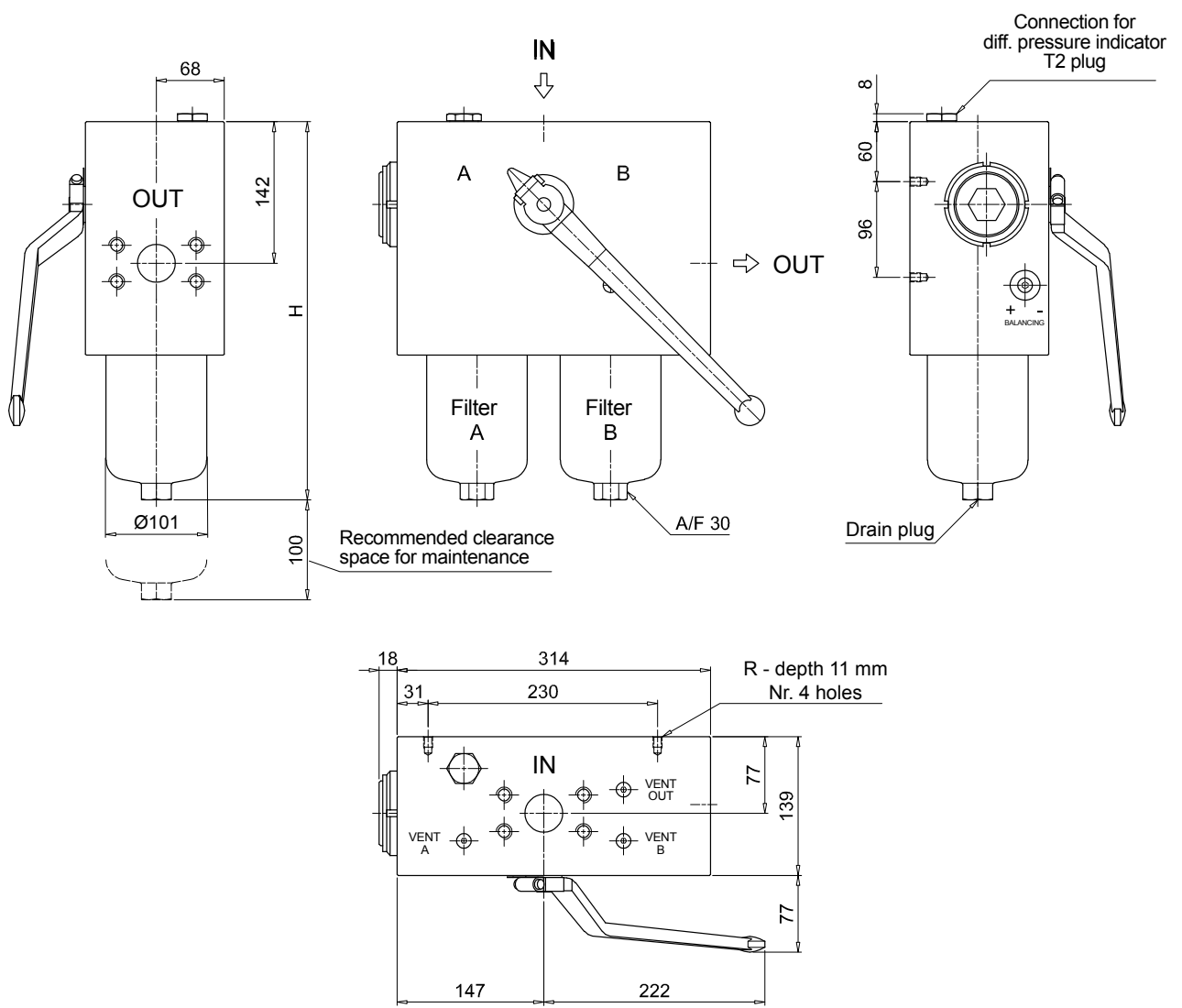
FHD FHD051 - FHD326 - FHD333

Dimensions

FHD326	
Filter length	H [mm]
1	309
2	432
3	564
Connections	R
G1	M10
G2 - G3	3/8" UNC



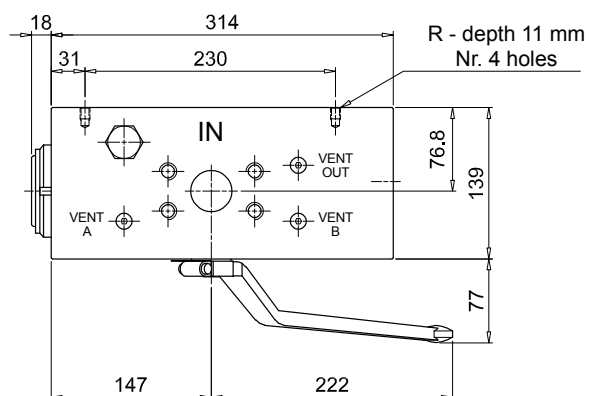
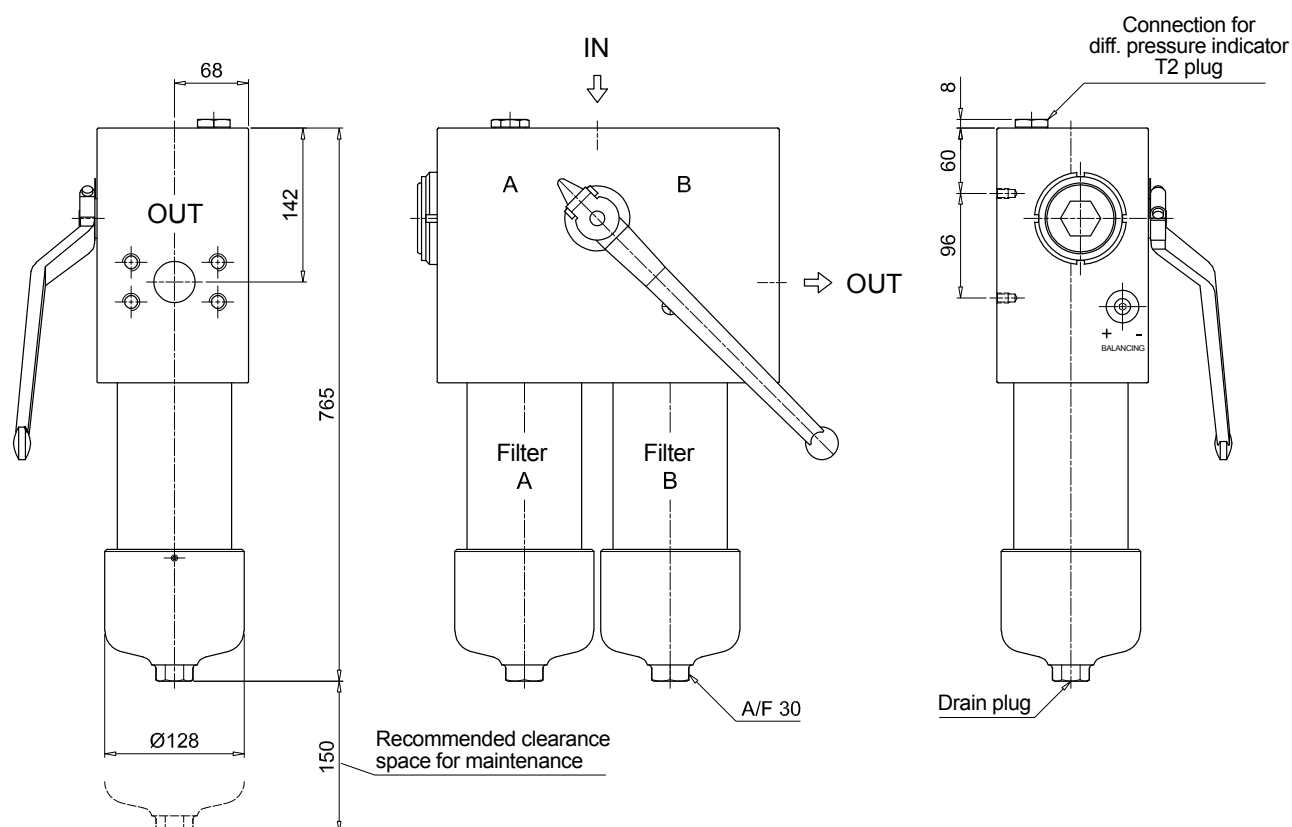
FHD333	
Length 2 - 3	
Filter length	H [mm]
2	479
3	612
Connections	R
F1	M10
F2	3/8" UNC



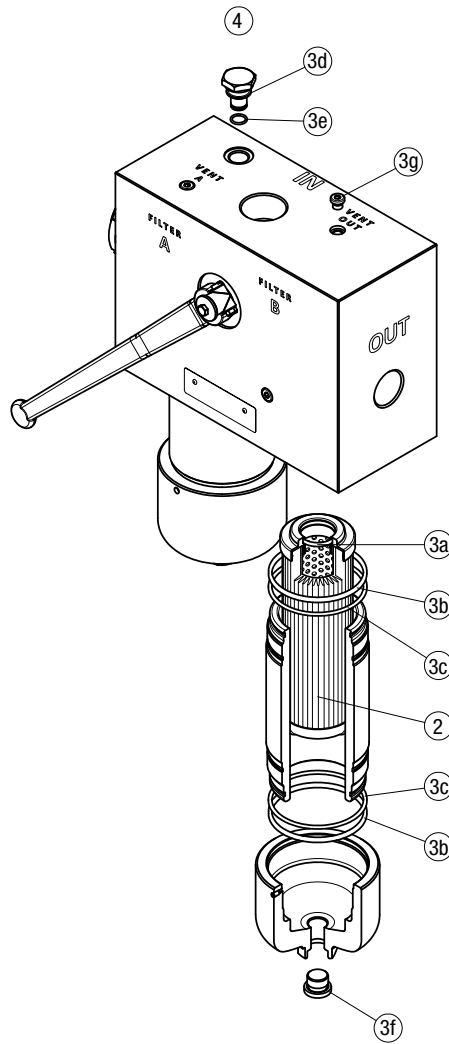
FHD FHD051 - FHD326 - FHD333

Dimensions

FHD333	
Length 4	
Connections	R
F1	M10
F2	3/8" UNC



FHD 021 - 051 - 326 - 333



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FHD 021	FHD 051	NBR	FPM	NBR	FPM
FHD 021	See order table	02050511	02050512	T2H	T2V
FHD 051		02050420	02050421		
FHD 326-333		02050377	02050378		

HPB series

BOWL KIT

Maximum working pressure up to 42 MPa (420 bar) - Flow rate up to 300 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



HPB050



HPB150

Please scan the QR codes
to get updated electronic version
of the related document.



Description

Technical data

High Pressure Bowl Kit

Maximum working pressure up to 42 MPa (420 bar)

Flow rate up to 300 l/min

HPB is a range of high pressure bowl kits for protection of sensitive components in high pressure hydraulic systems in the mobile machines. They are directly integrated in the control blocks.

Available features:

- Fine filtration rating, to get a good cleanliness level into the system
- Low collapse filter element "N", for use with blocks provided with bypass valve
- High collapse filter element with external support "S", for use with blocks not provided with the bypass valve

Filter housing materials

- Housing: Phosphatized steel

Pressure

- Test pressure: 63 MPa (630 bar)
- Burst pressure: 126 MPa (1260 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 42 MPa (420 bar)

Δp element type

- Microfibre / Wire mesh filter elements - series N: 20 bar
- Microfibre / Wire mesh filter elements - series S: 210 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Temperature

From -25 °C to +110 °C

Note

HPB filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
HPB 050		1.10	1.50	1.90	2.40	3.50		0.30	0.45	0.60	0.80	1.20
HPB 150		2.90	4.90	6.30	-	-		0.45	0.85	1.10	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - N Series						Filter element design - S Series				
		A03	A06	A10	A16	A25	M25	A03	A06	A10	A16	A25
HPB 050	1	42	43	79	82	106	147	29	39	57	59	74
	2	52	57	85	96	121	149	45	49	76	88	114
	3	66	69	97	106	130	150	58	61	89	99	125
	4	83	89	113	115	134	152	74	80	106	108	129
	5	107	110	130	134	141	154	93	95	111	121	139
HPB 150	1	81	88	156	163	179	295					
	2	142	145	227	230	236	312					
	3	170	180	242	245	263	315					

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

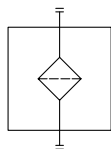
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Filter series	Style S
HPB 050	•
HPB 150	•

Hydraulic symbols



Designation & Ordering code

COMPLETE FILTER

Series and size **HPB050** Configuration example: **HPB050** **3** **A** **A10** **N** **P01**

Length **1** | **2** | **3** | **4** | **5** |

Seals **A** NBR
V FPM

Filtration rating (filter media)		
A03	Inorganic microfiber	3 µm
A06	Inorganic microfiber	6 µm
A10	Inorganic microfiber	10 µm
A16	Inorganic microfiber	16 µm
A25	Inorganic microfiber	25 µm
M25	Wire mesh	25 µm

Element Δp	
N	20 bar
S	210 bar

Execution	
P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Element series and size **HP050** Configuration example: **HP050** **3** **A10** **A** **N** **P01**

Element length **1** | **2** | **3** | **4** | **5** |

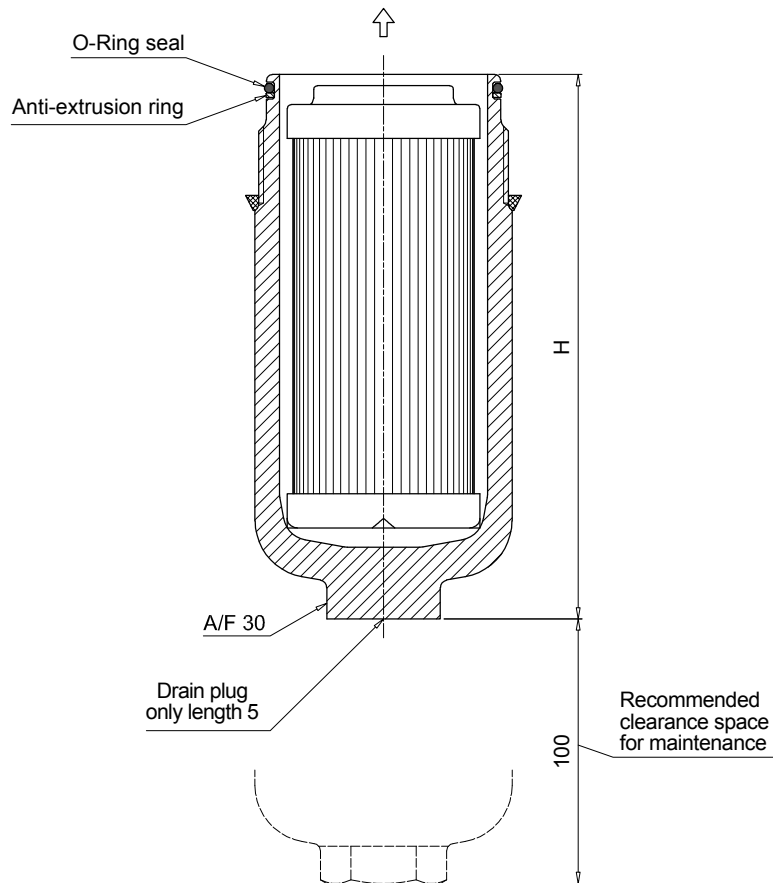
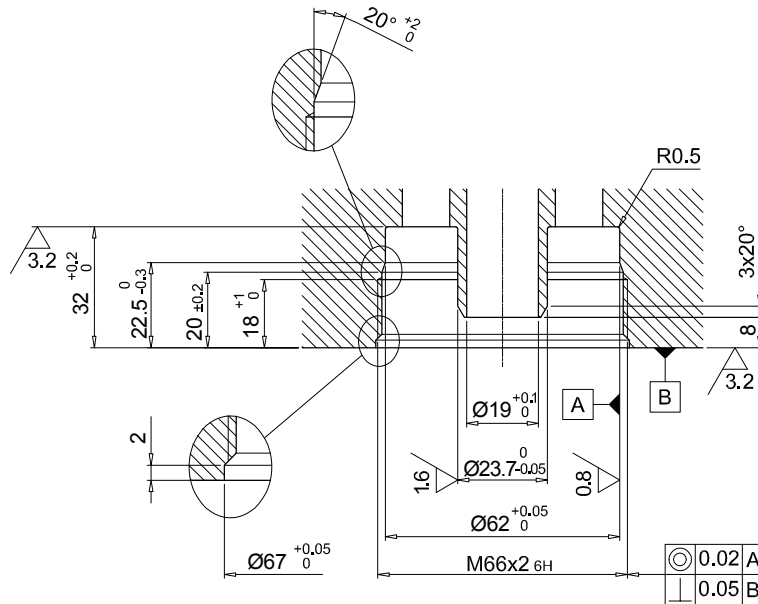
Filtration rating (filter media)		
A03	Inorganic microfiber	3 µm
A06	Inorganic microfiber	6 µm
A10	Inorganic microfiber	10 µm
A16	Inorganic microfiber	16 µm
A25	Inorganic microfiber	25 µm
M25	Wire mesh	25 µm

Seals	
A	NBR
V	FPM

Element Δp	
N	20 bar
S	210 bar

Execution	
P01	MP Filtri standard
Pxx	Customized

HPB050	
Filter length	H [mm]
1	107
2	144
3	186
4	234
5	356



Designation & Ordering code

COMPLETE FILTER

Series and size **HPB150** Configuration example: **HPB150** **3** **A** **A10** **N** **P01**

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

Seals **A** NBR
V FPM

Filtration rating (filter media)		
A03	Inorganic microfiber	3 µm
A06	Inorganic microfiber	6 µm
A10	Inorganic microfiber	10 µm
A16	Inorganic microfiber	16 µm
A25	Inorganic microfiber	25 µm
M25	Wire mesh	25 µm

Element Δp	
N	20 bar

Execution	
P01	MP Filtri standard
Pxx	Customized

FILTER ELEMENT

Element series and size **HP150** Configuration example: **HP150** **3** **A10** **A** **N** **P01**

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

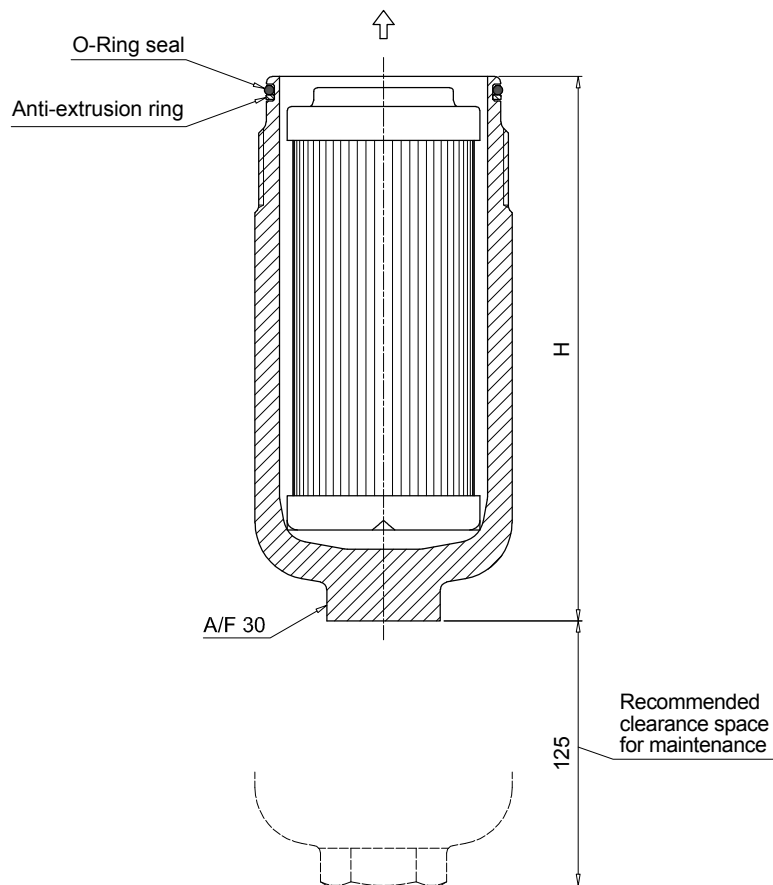
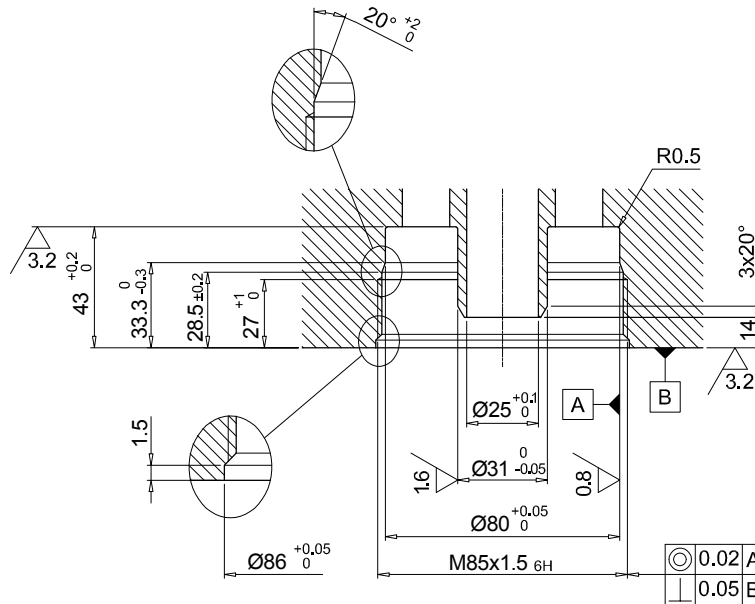
Filtration rating (filter media)		
A03	Inorganic microfiber	3 µm
A06	Inorganic microfiber	6 µm
A10	Inorganic microfiber	10 µm
A16	Inorganic microfiber	16 µm
A25	Inorganic microfiber	25 µm
M25	Wire mesh	25 µm

Seals	
A	NBR
V	FPM

Element Δp	
N	20 bar

Execution	
P01	MP Filtri standard
Pxx	Customized

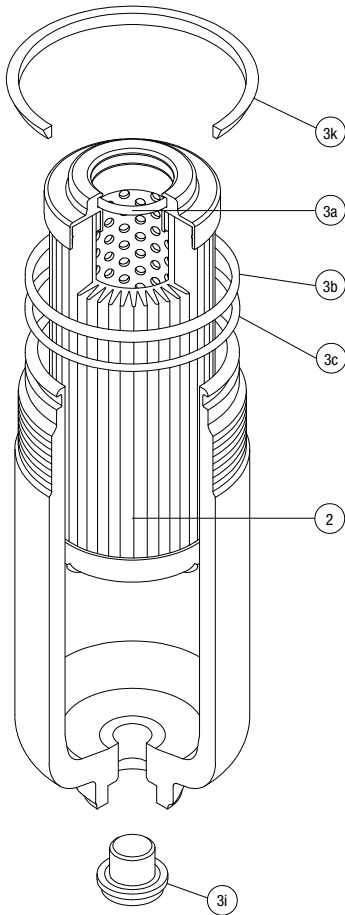
HPB150	
Filter length	H [mm]
1	161
2	271
3	346



HPB SPARE PARTS

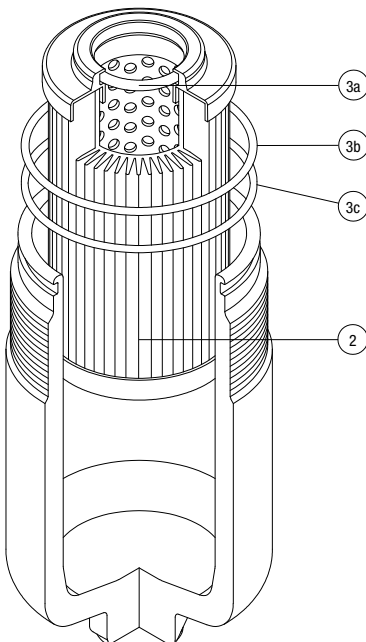
Order number for spare parts

HPB 050



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3i)
Filter series	Filter element	Seal Kit code number
		NBR FPM
HPB 050	See order table	02050813 02050823

HPB 150



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3c)
Filter series	Filter element	Seal Kit code number
		NBR FPM
HPB 150	See order table	02050816 02050826

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 calculation see pag. 22

Stainless steel high pressure filters



FZP	page 611
FZH	621
FZX	631
FZM	639
FZB	647
FZD	655
INDICATORS	724

FZP series

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



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



FZP039



FZP136

Please scan the QR codes to get updated electronic version of the related document.



Description

Technical data

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

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 [dm ³]					
	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	8.3	10.2	11.5	-	0.45	0.78	1.00	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - R Series					Filter element design - S-U Series				
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZP 039	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
FZP 136	1	63	67	102	108	136	47	53	87	89	127
	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 $\Delta p = 1.5$ bar.

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

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

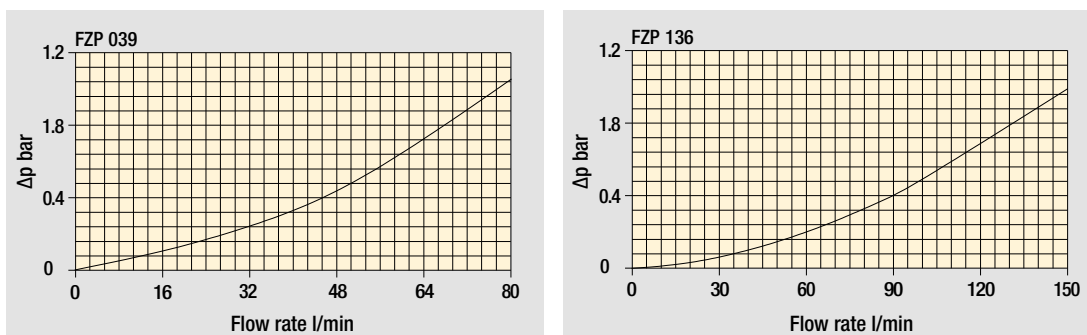
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

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

Pressure drop

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.

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 pressure 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						Execution	
	S	B	T	D	V	Z		
R 20 bar	-	•	-	•	-	•	P01	MP Filtri standard
S 210 bar	•	-	•	-	•	-	Pxx	Customized
U 210 bar, stainless steel filter element	•	•	•	•	•	•		

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	Element Δp	Valves						Execution	
		S	B	T	D	V	Z		
A NBR	R 20 bar	-	•	-	•	-	•	P01	MP Filtri standard
V FPM	S 210 bar	•	-	•	-	•	-	Pxx	Customized
F MFQ	U 210 bar, stainless steel filter element	•	•	•	•	•	•		

CLOGGING INDICATORS

See page 724

DEX Electrical differential pressure indicator
DLX Electrical/visual differential pressure indicator

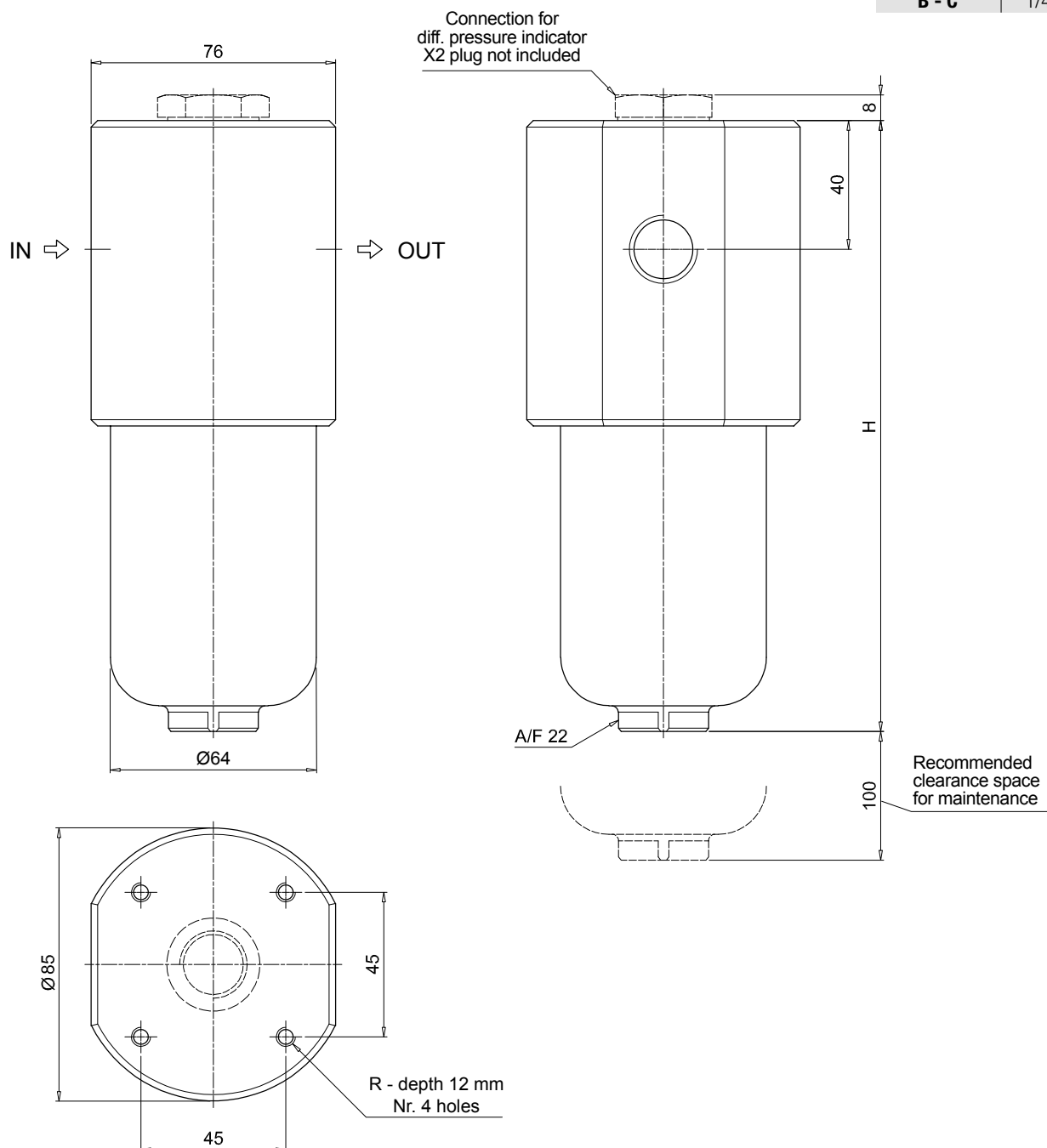
DVX Visual differential pressure indicator
DVY Visual differential pressure indicator

PLUGS

See page 743

X2 Stainless steel plug (not included)

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 pressure 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		Execution
	S	B	
R 20 bar	-	•	P01 MP Filtri standard
S 210 bar	•	-	Pxx Customized
U 210 bar, stainless steel filter element	•	•	

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

Element Δp	Valves		Execution
	S	B	
R 20 bar	-	•	P01 MP Filtri standard
S 210 bar	•	-	Pxx Customized
U 210 bar, stainless steel filter element	•	•	

CLOGGING INDICATORS

See page 724

DEX Electrical differential pressure indicator

DLX Electrical/visual differential pressure indicator

DVX Visual differential pressure indicator

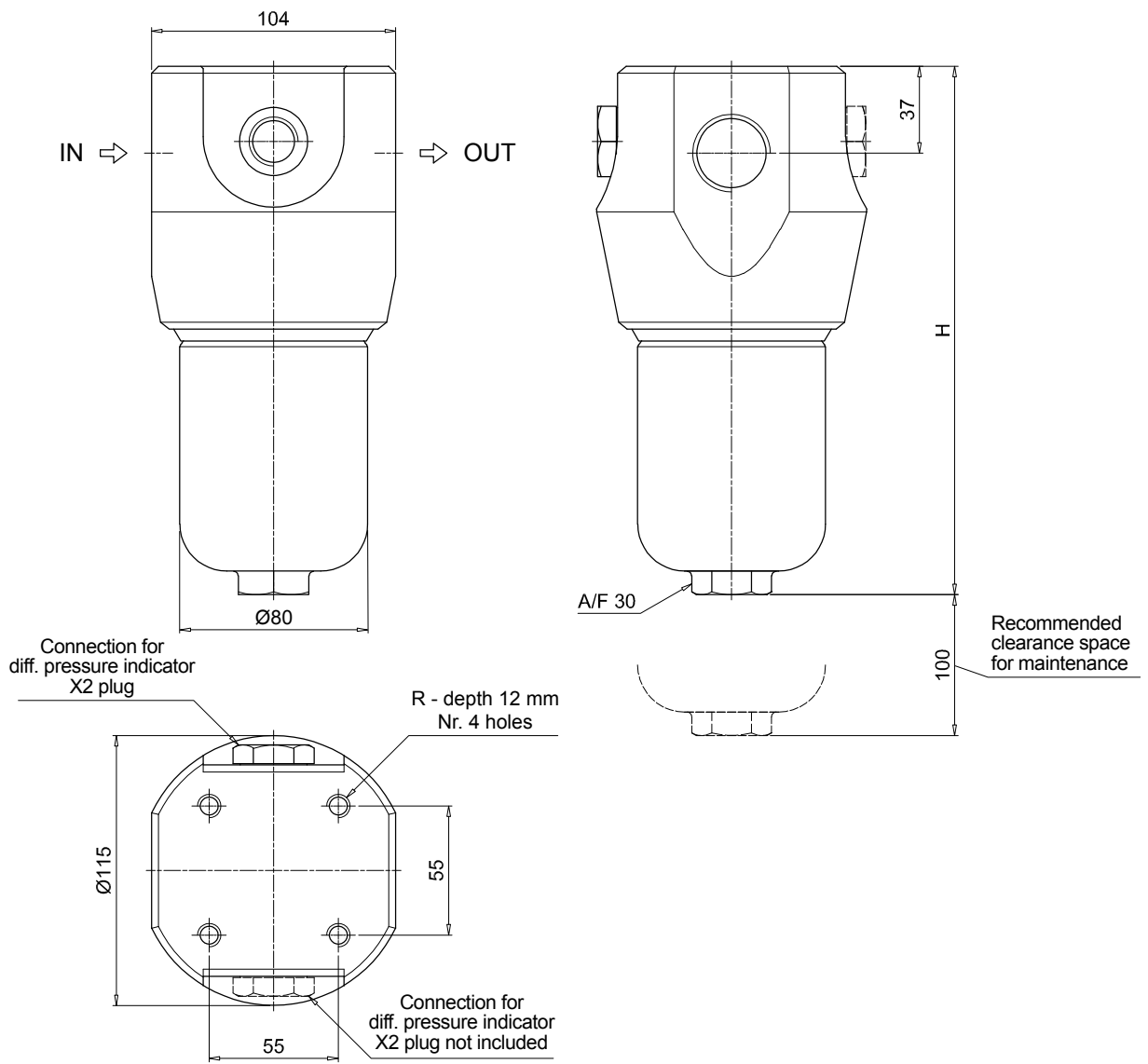
DVY Visual differential pressure indicator

PLUGS

See page 743

X2 Stainless steel plug (not included)

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



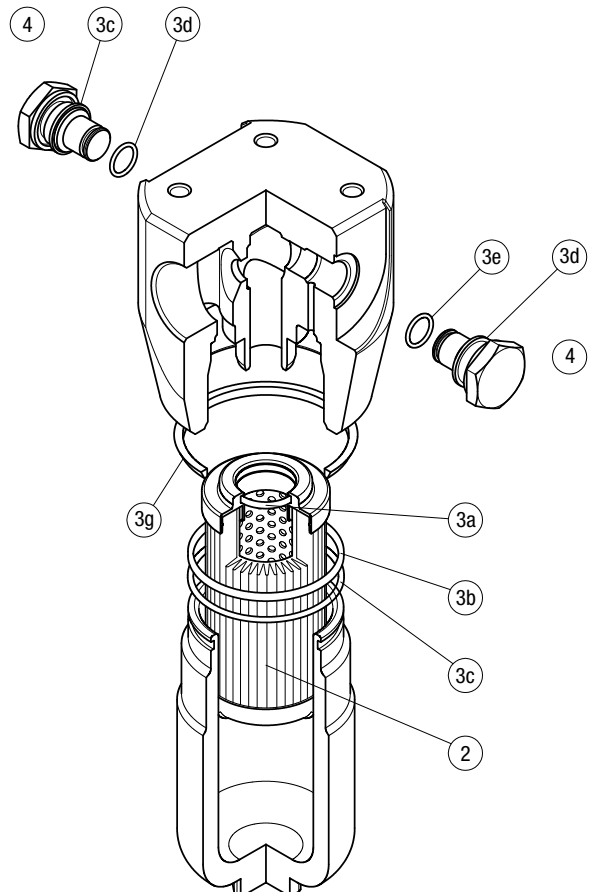
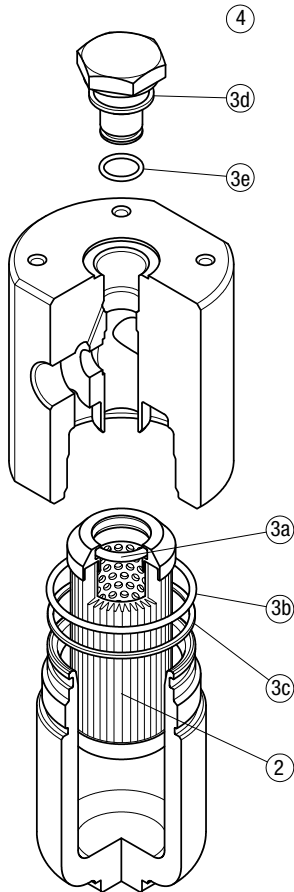
The position of the X2 plug is reversible

FZP SPARE PARTS

Order number for spare parts

FZP 039

FZP 136



Item:	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		
FZP 039	See order table	NBR	FPM	NBR	FPM	
		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



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



FZH012



FZH040

Please scan the QR codes
to get updated electronic version
of the related document.



Description

Technical data

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

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 [dm ³]					
	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

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					Filter element design - H-U Series				
		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

Filter series	Length	Filter element design - R Series					Filter element design - S-U Series				
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
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 $\Delta p = 1.5$ bar.

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

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

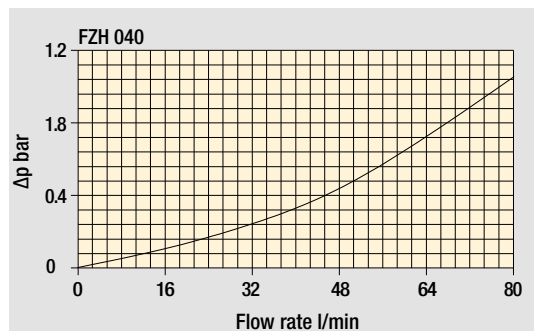
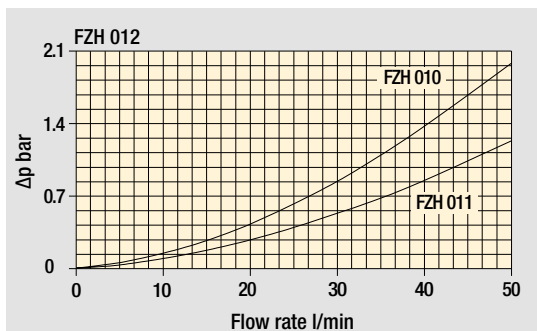
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

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

Pressure drop

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.

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 pressure indicator
1 Without connection
2 With connection

Filtration rating (filter media)	Valves			
	S	B	V	Z
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				Execution
	S	B	V	Z	
N 20 bar	-	•	-	•	P01 MP Filtri standard
H 210 bar	•	-	•	-	Pxx Customized
U 210 bar, stainless steel filter element	•	•	•	•	

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)	Valves			
	S	B	V	Z
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				Execution
	S	B	V	Z	
N 20 bar	-	•	-	•	P01 MP Filtri standard
H 210 bar	•	-	•	-	Pxx Customized
U 210 bar, stainless steel filter element	•	•	•	•	

CLOGGING INDICATORS

See page 724

DEZ Electrical differential pressure indicator

DLZ Electrical/visual differential pressure indicator

DVZ Visual differential pressure indicator

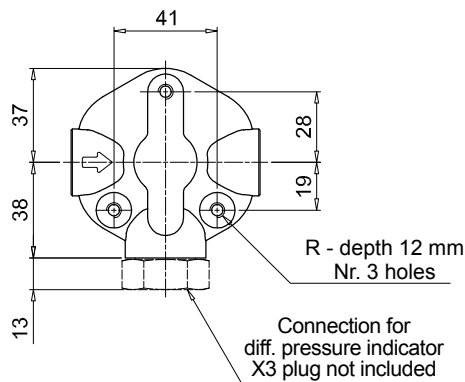
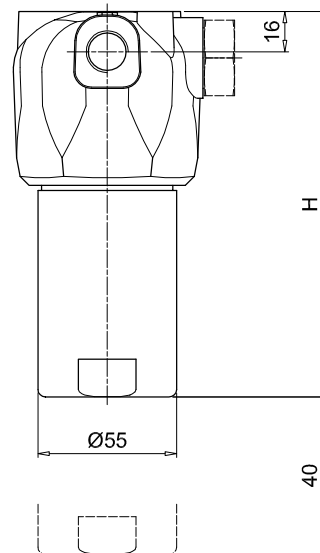
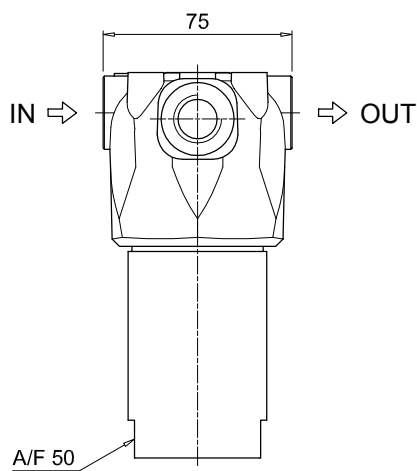
PLUGS

See page 743

X3 Stainless steel plug (not included)

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

Valves

Valves	S	B	T	D	V	Z
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 **F** MFQ
V FPM

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

Valves

Valves	S	B	T	D	V	Z
P01 MP Filtri standard	-	•	-	•	-	•
Pxx Customized	•	-	•	-	•	-

CLOGGING INDICATORS

See page 724

DEZ Electrical differential pressure indicator

DLZ Electrical/visual differential pressure indicator

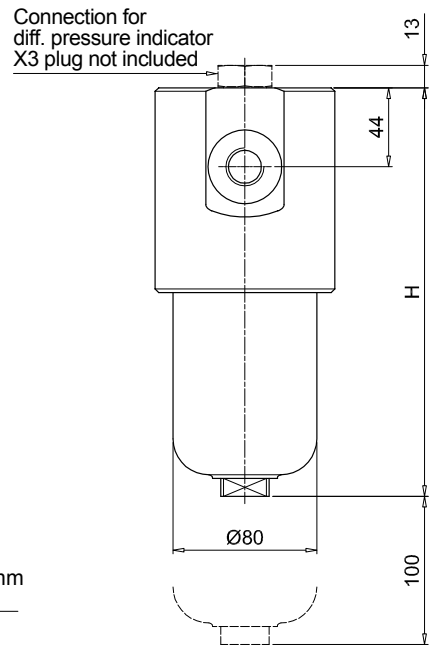
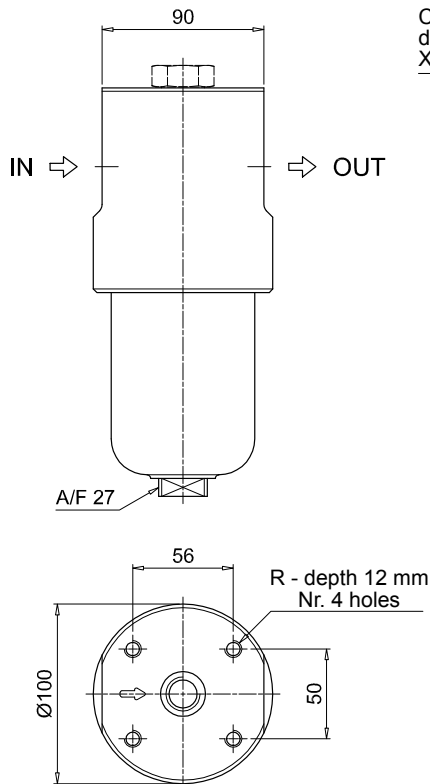
DVZ Visual differential pressure indicator

PLUGS

See page 743

X3 Stainless steel plug (not included)

Valves S - B - T - D

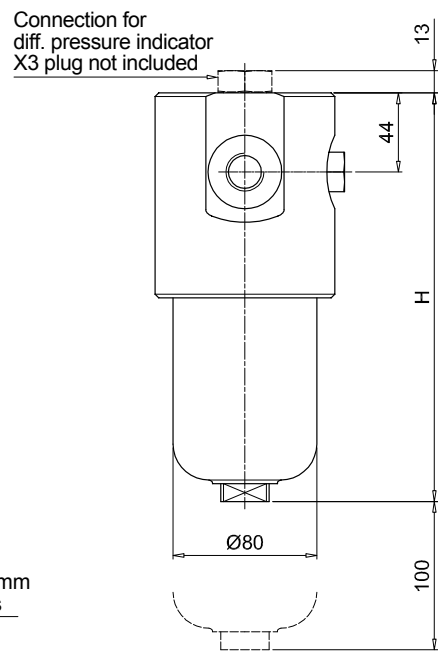
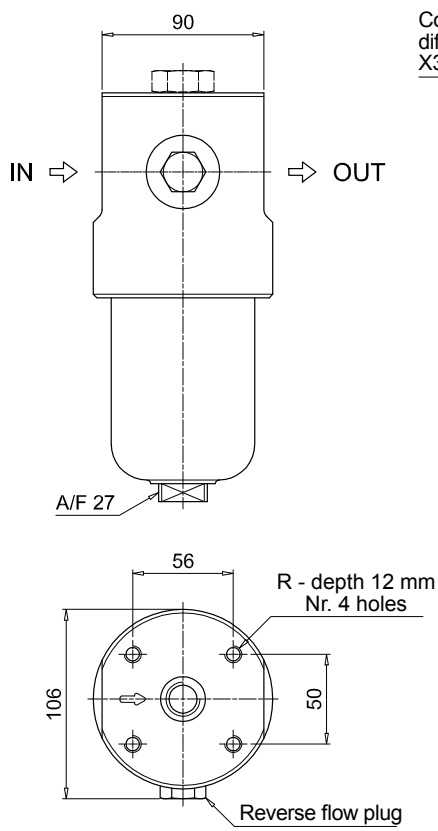


FZH040	
Filter length	H [mm]
2	204
3	247
4	291

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

Recommended clearance space for maintenance

Valves V - Z



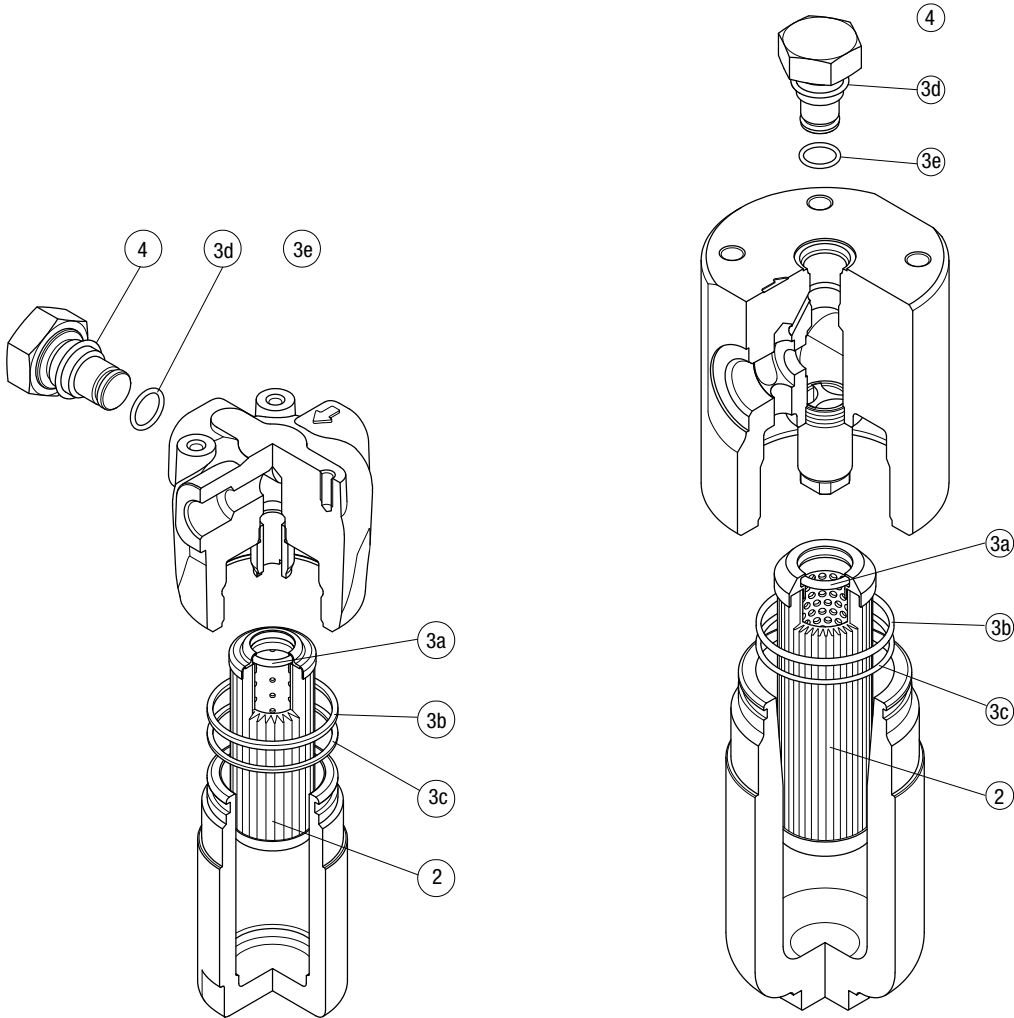
Recommended clearance space for maintenance

FZH SPARE PARTS

Order number for spare parts

FZH 012

FZH 040



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.
Filter series	Filter element	Seal Kit code number	Indicator connection plug
FZH 012	See order table	NBR	NBR
FZH 040	See order table	FPM	FPM
		02050856	02050857
		02050860	02050861
			X2H
			X2V

FZX series

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



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Description

Technical data

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:

- Female threaded connections up to 1/2", 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"
- High collapse filter element "U", for use with aggressive fluids

Common applications:

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

Filter housing materials

- Head: AISI 316L
- Housing: 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)

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: Polyamide
- Core tube: Stainless steel
- External support: Wire mesh Epoxy painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Synthetic

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/Synthetic

Weights [kg] and volumes [dm³]

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

Flow rates [l/min]

Filter series	Length	Filter element design - H-U Series				
		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 $\Delta p = 1.5$ bar.

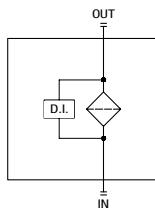
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

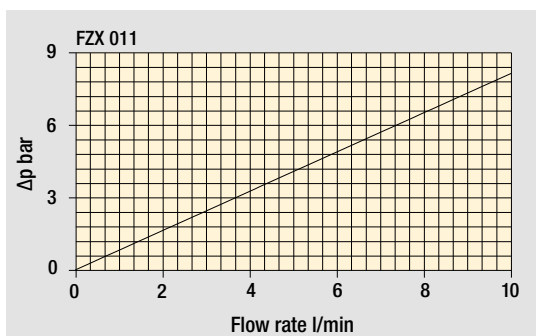
Hydraulic symbols

Filter series	Style S
FZX 011	•



Pressure drop

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.

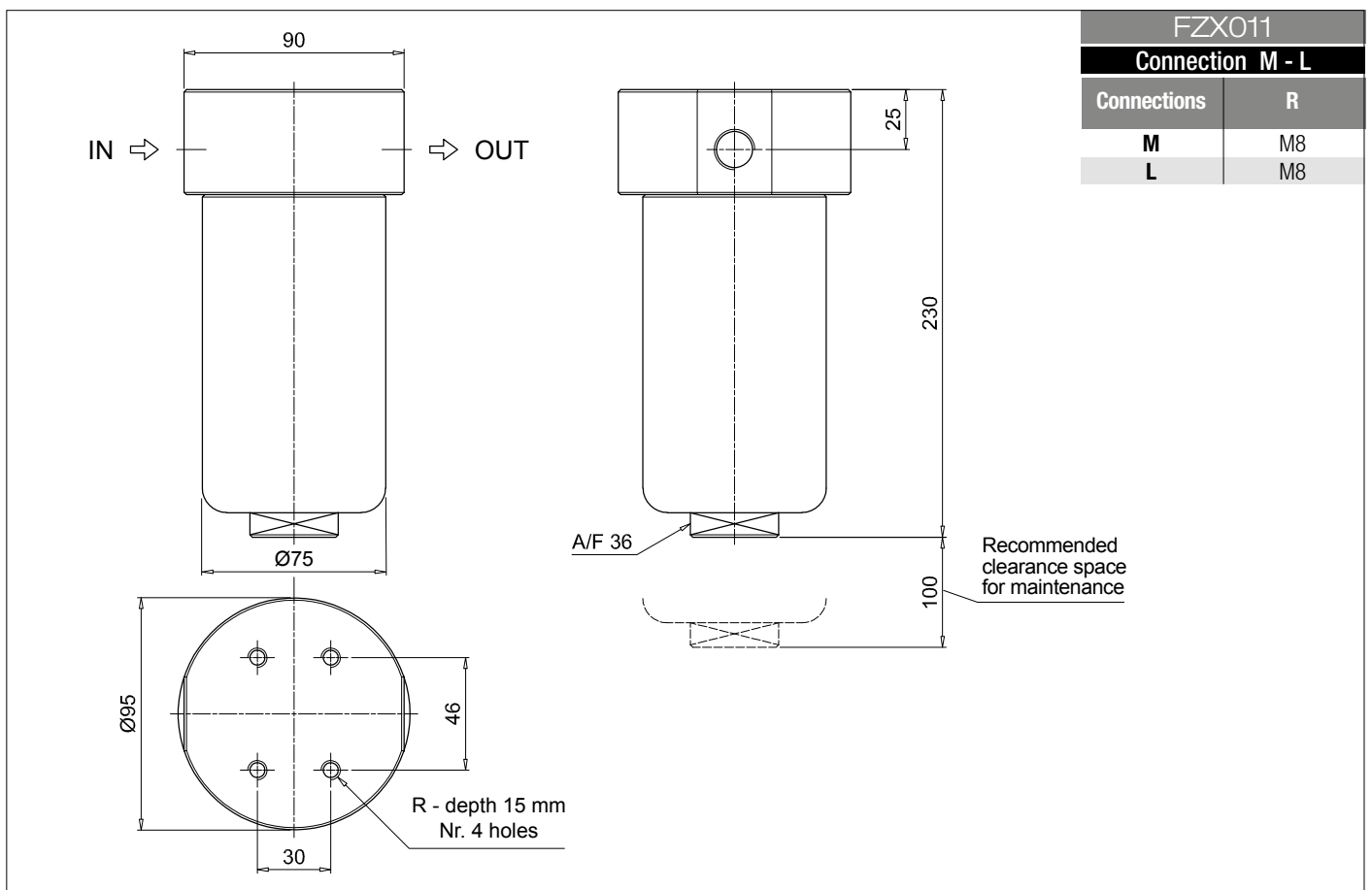
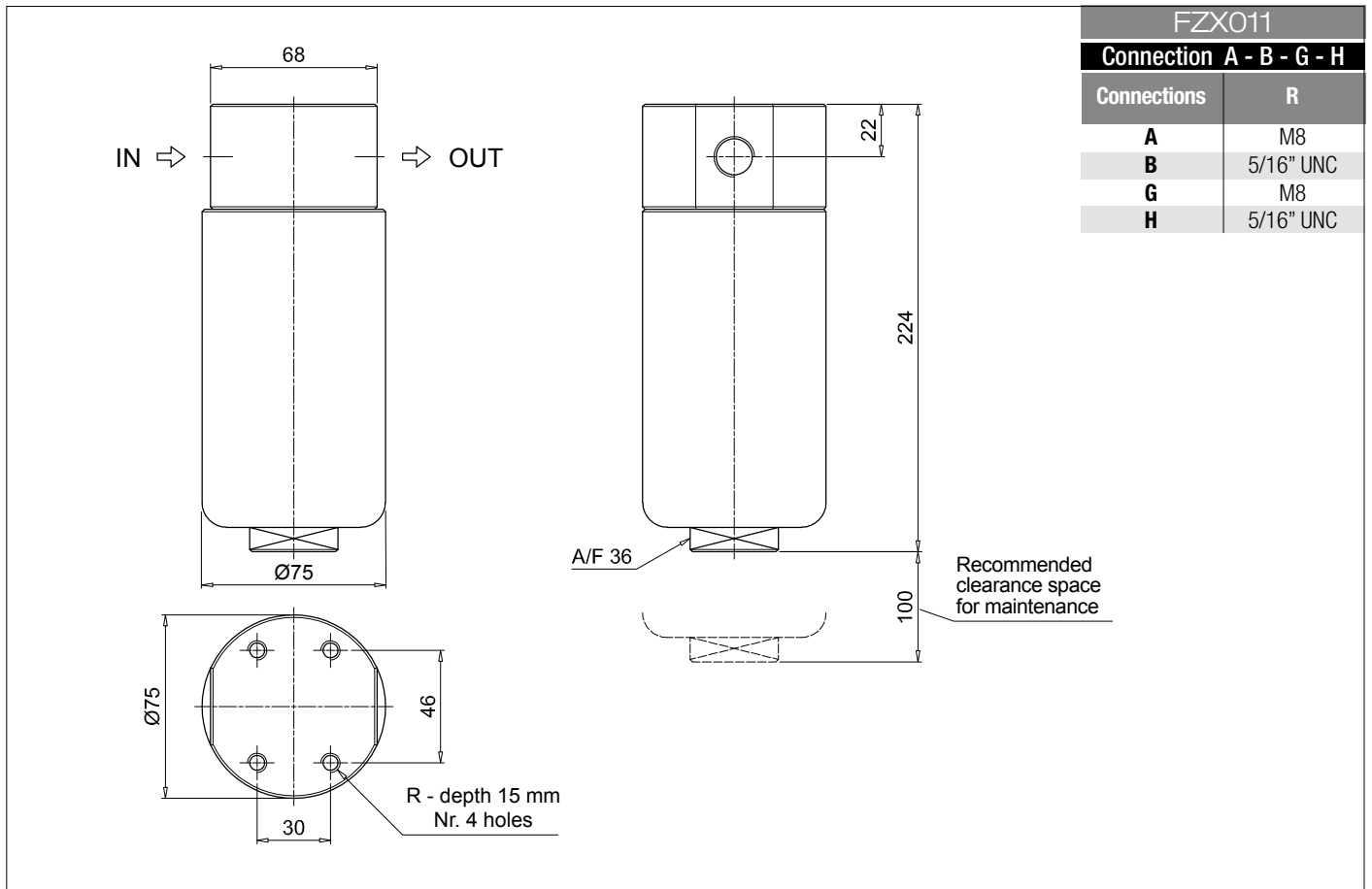
Designation & Ordering code

COMPLETE FILTER

Filter series and size	Configuration example: FZX011 3 S V B 1 A03 U P01									
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 pressure 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									

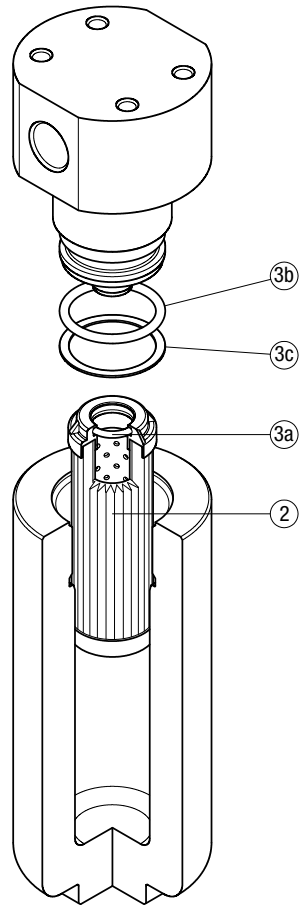
FILTER ELEMENT

Element series and size	Example: HP011 3 A03 V U P01						
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						



Order number for spare parts

FZX 011



Item:		Q.ty: 1 pc.	Q.ty: 1 pc.		
Filter series		Filter element	Seal Kit code number		
FZX 011		See order table	NBR	FPM	MFQ
		2	02050643	02050644	02050646
			3 (3a - 3c)		

FZM series

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



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Description

Technical data

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

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 [dm ³]				
	Length	1	2	3	4	Length	1	2	3	4
FZM 039	-	5.0	5.6	6.1		-	0.19	0.26	0.34	

Flow rates [l/min]

Filter series	Length	Filter element design - R Series					Filter element design - S-U Series				
		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 $\Delta p = 1.5$ bar.

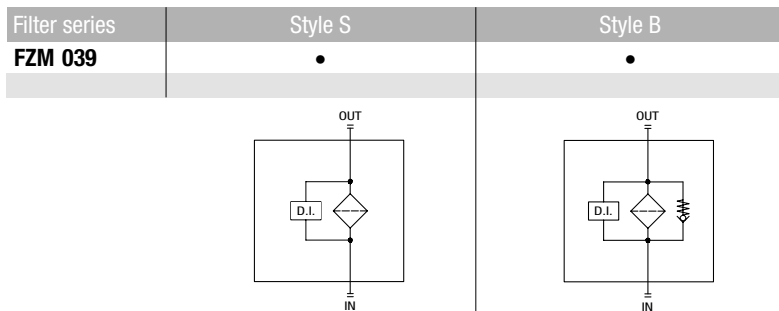
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

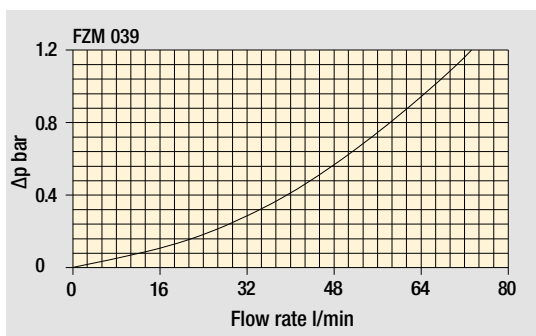
Please, contact our Sales Department for further additional information.

Hydraulic symbols



Pressure drop

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.

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 pressure 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		Execution
	S	B	
R 20 bar	-	•	P01 MP Filtri standard
S 210 bar	•	-	Pxx Customized
U 210 bar, stainless steel filter element	•	•	

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	Element Δp	Execution
A NBR	R 20 bar	P01 MP Filtri standard
V FPM	S 210 bar	Pxx Customized
F MFQ	U 210 bar, stainless steel filter element	

CLOGGING INDICATORS

See page 724

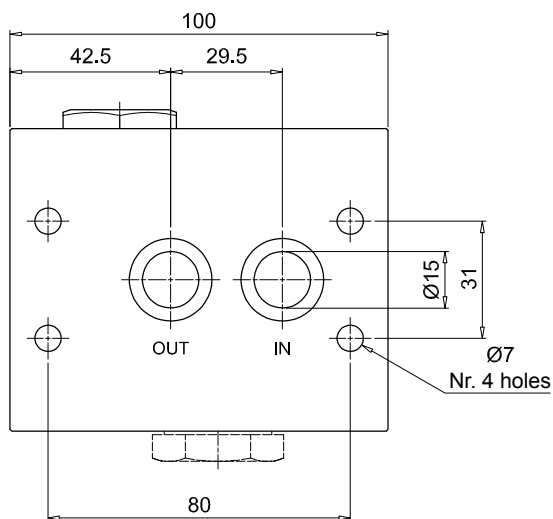
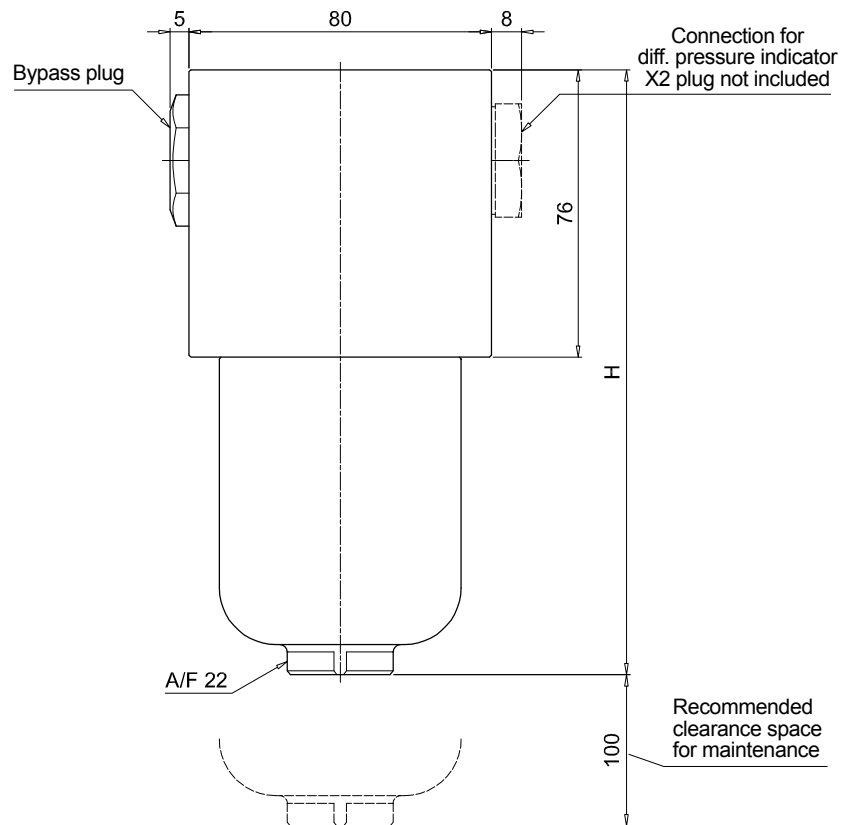
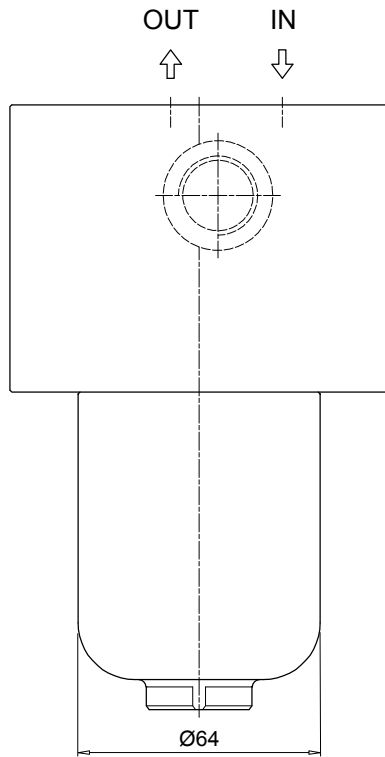
DEX Electrical differential pressure indicator	DVX Visual differential pressure indicator
DLX Electrical/visual differential pressure indicator	DVY Visual differential pressure indicator

PLUGS

See page 743

X2 Stainless steel plug (not included)
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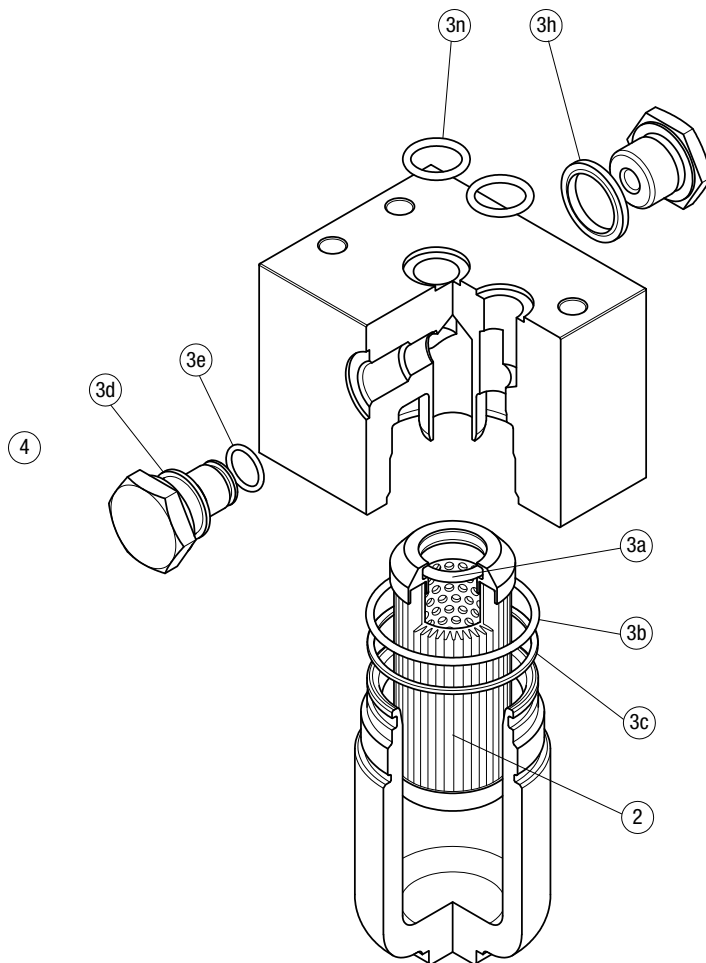
FZM039	
Filter length	H [mm]
2	160
3	203
4	247



FZM SPARE PARTS

Order number for spare parts

FZM 039



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

FZB series

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



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Description

Technical data

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

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 [dm ³]					
	Length	1	2	3	4	Length	1	2	3	4
FZB 039	-	4.6	5.2	5.7	-	0.19	0.26	0.34		

Flow rates [l/min]

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
FZB 039	2	18	23	39	44	52	18	22	37	40	48	18	22	37	40	48
	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 $\Delta p = 1.5$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

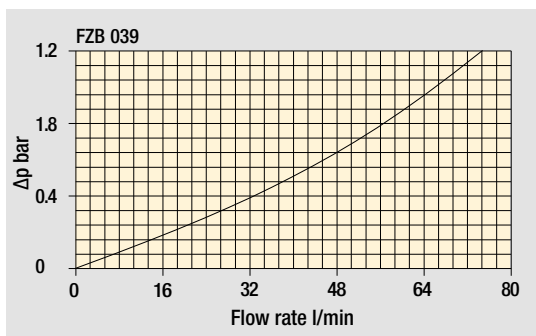
Please, contact our Sales Department for further additional information.

Hydraulic symbols

Filter series	Style S	Style B	Style T	Style D
FZB 039	•	•	•	•

Pressure drop

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.

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 pressure indicators
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				Execution
	S	B	T	D	
R 20 bar	-	•	-	•	P01 MP Filtri standard
S 210 bar	•	-	•	-	Pxx Customized
U 210 bar, stainless steel filter element	•	•	•	•	

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	Element Δp	Execution
A NBR	R 20 bar	P01 MP Filtri standard
V FPM	S 210 bar	Pxx Customized
F MFQ	U 210 bar, stainless steel filter element	

CLOGGING INDICATORS

See page 724

DEX Electrical differential pressure indicator
DLX Electrical/visual differential pressure indicator

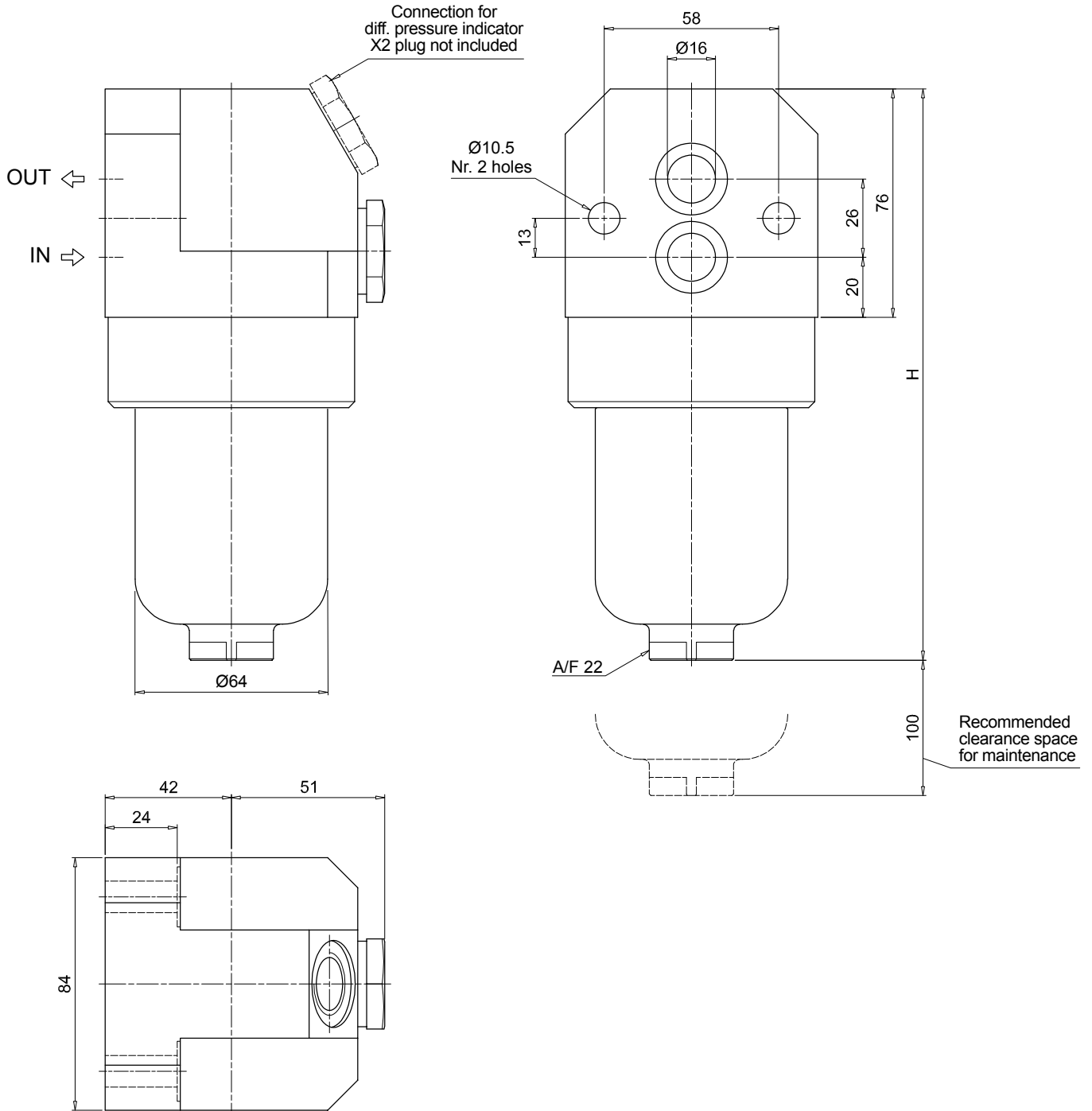
DVX Visual differential pressure indicator
DVY Visual differential pressure indicator

PLUGS

See page 743

X2 Stainless steel plug (not included)

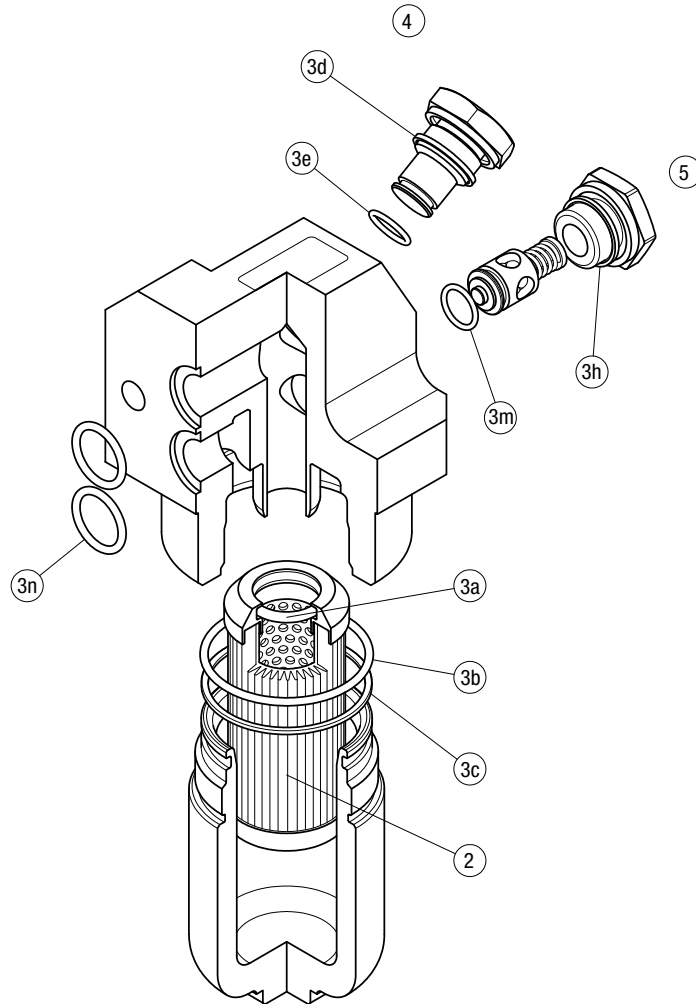
FZB039	
Filter length	H [mm]
2	190
3	233
4	277



FZB SPARE PARTS

Order number for spare parts

FZB 039



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		Bypass assembly / plug	
		NBR	FPM	NBR	FPM	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



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FZD010



FZD021



FZD051

Description

Technical data

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

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 \pm 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 Epoxy painted
- Media/Support/Pre-filter: Microfibre/Synthetic

Microfibre filter elements - series H-S: 210 bar.

Element series "H - S":

- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epoxy painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Synthetic

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/Synthetic

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	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

Flow rates [l/min]

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

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
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 $\Delta p = 1.5$ bar.

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

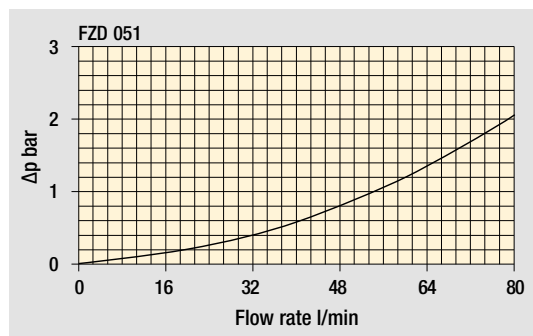
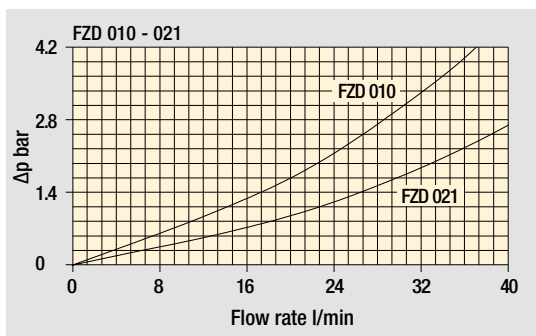
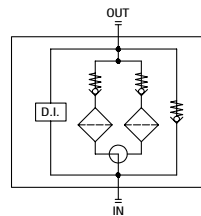
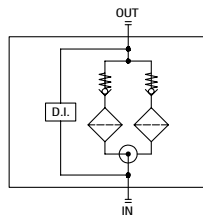
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

Please, contact our Sales Department for further additional information.

Hydraulic symbols

Filter series	Style S	Style B
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/dm³ in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example: FZD021 4 S A G1 A06 H P01									
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					Execution				
		H 210 bar					P01 MP Filtri standard				
		U 210 bar, stainless steel filter element					Pxx Customized				

FILTER ELEMENT

Element series and size		Configuration example: HP011 4 A06 A H P01											
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			Element Δp					Execution			
		A NBR			H 210 bar					P01 MP Filtri standard			
		V FPM			U 210 bar, stainless steel filter element					Pxx Customized			

CLOGGING INDICATORS

See page 724

DEX Electrical differential pressure indicator

DVX Visual differential pressure indicator

DLX Electrical/visual differential pressure indicator

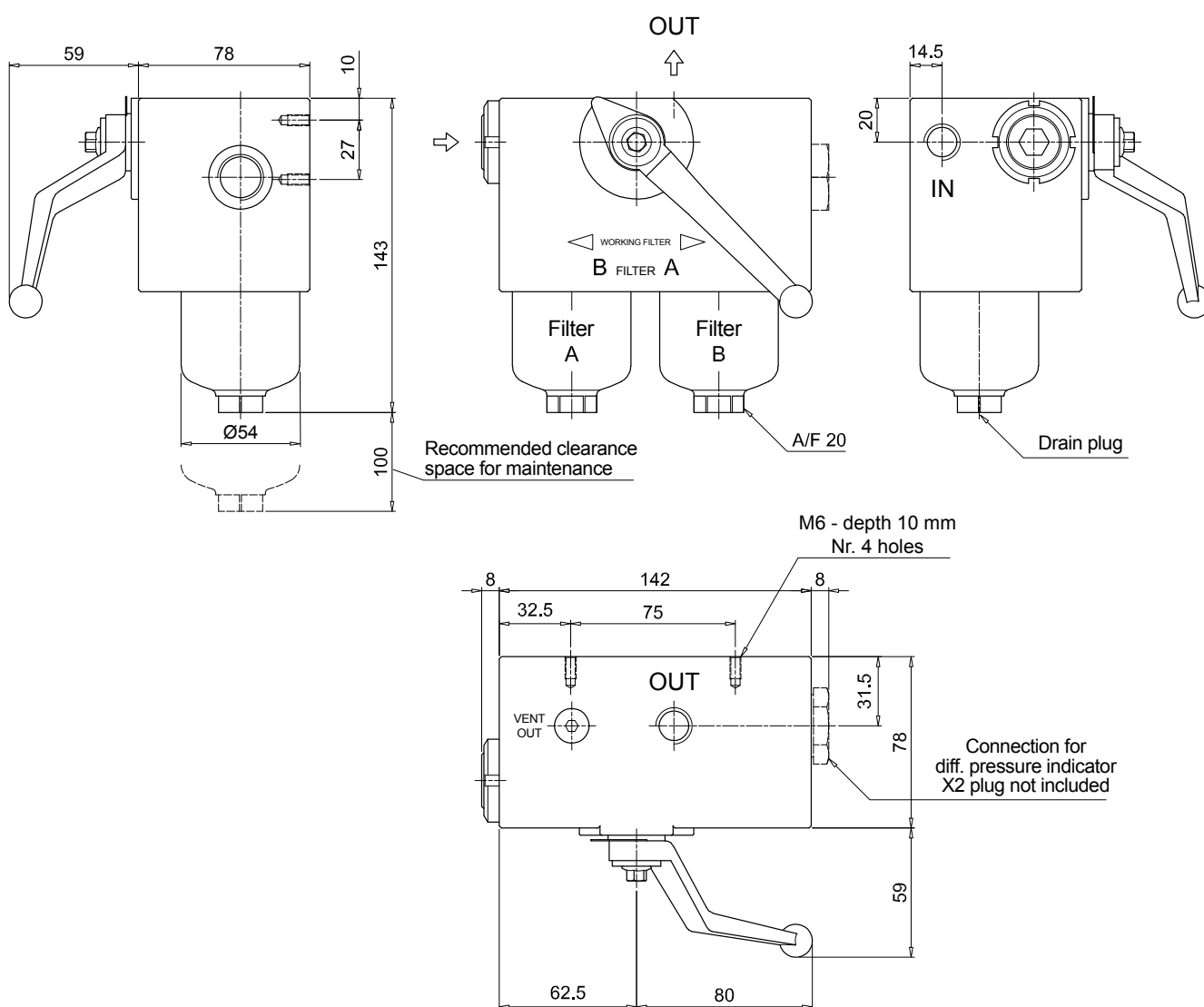
DVY Visual differential pressure indicator

PLUGS

See page 743

X2 Stainless steel plug (not included)

FZD010

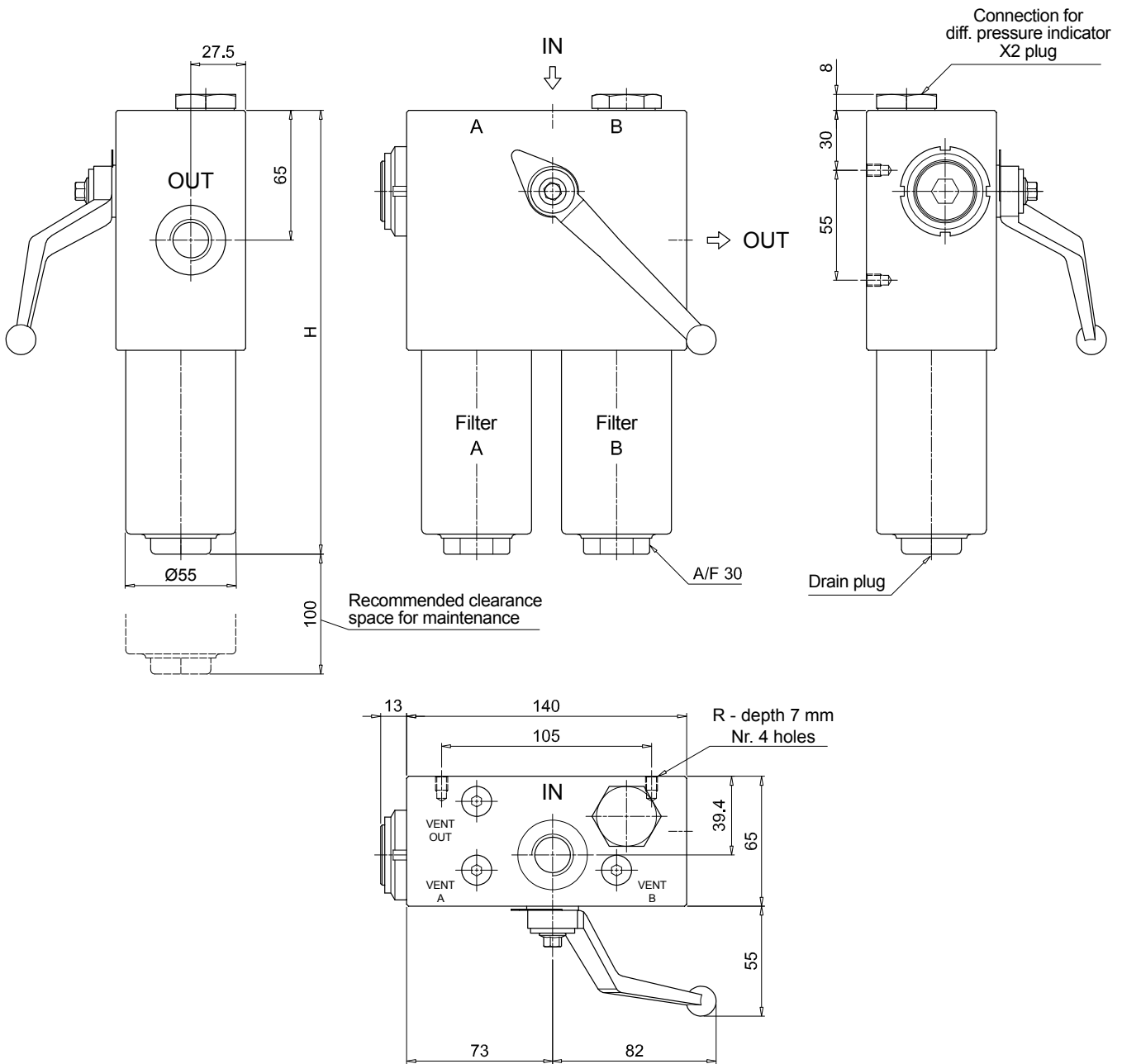


Dimensions

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

Series and size FZD051	Configuration example: FZD051 3 B A G3 A03 U P01							
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		Execution			
	R 20 bar	S 210 bar	S -	B •	P01 MP Filtri standard			
	S 210 bar		•	-	Pxx Customized			
	U 210 bar, stainless steel filter element		•	•				

FILTER ELEMENT

Element series and size HP050	Configuration example: HP050 3 A03 A U P01					
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		Element Δp		Execution	
	A NBR	R 20 bar	P01 MP Filtri standard			
	V FPM	S 210 bar	Pxx Customized			
		U 210 bar, stainless steel filter element				

CLOGGING INDICATORS

See page 724

DEX Electrical differential pressure indicator
DLX Electrical/visual differential pressure indicator

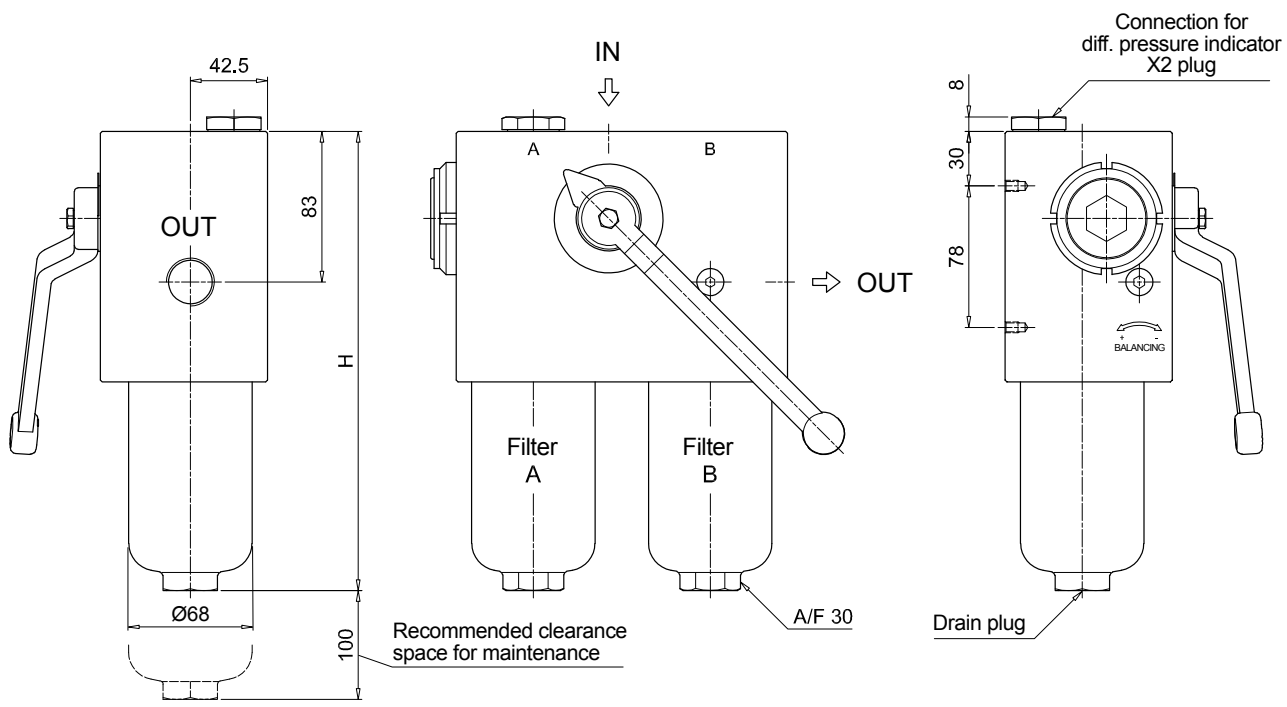
DVX Visual differential pressure indicator
DVY Visual differential pressure indicator

PLUGS

See page 743

X2 Stainless steel plug (not included)

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



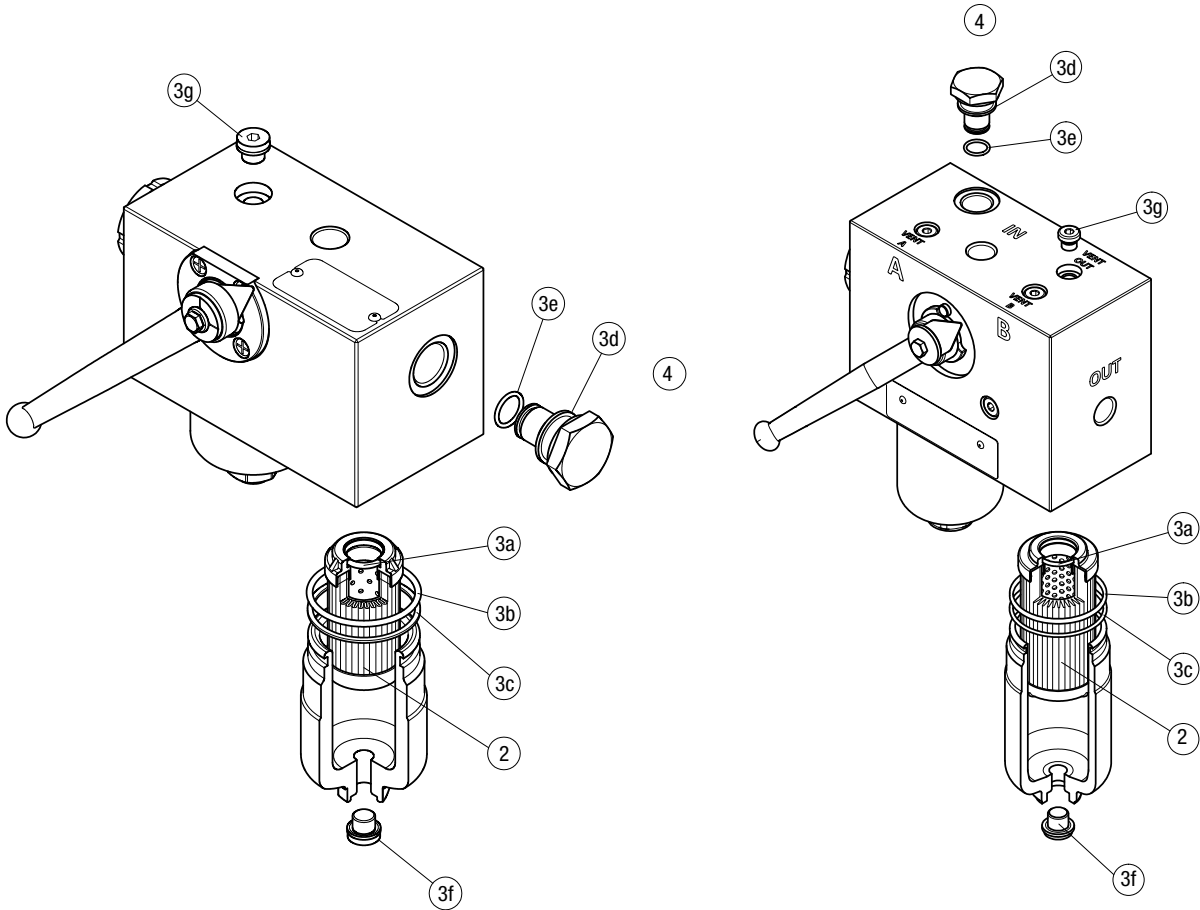
Recommended clearance space for maintenance

FZD SPARE PARTS

Order number for spare parts

FZD 010

FZD 021 - FZD 051



Item:	Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug		
FZD 010	See order table	NBR	FPM	NBR	FPM	
		02050613	02050655			
		02050796	02050797	X2H	X2V	
		02050800	02050801			

MP Filtri knows how to manage it thanks to our

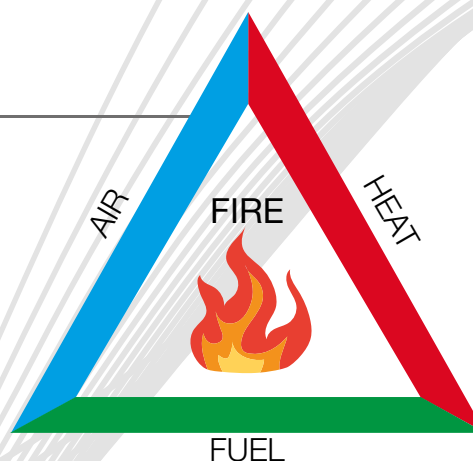


ATEX CERTIFIED PRODUCTS

Standard ATEX Directive 2014/34/EU and UK Regulation S.I. 2016 No. 1107 (as amended)

FIRE TRIANGLE

According to the legislation, each appliance used in explosive atmospheres must ensure adequate ATEX protection, that is, it must present the precautions necessary to ensure it is removed at least one of the components of the triangle of fire.



zerospark[®]
THE ANTI-STATIC FILTERS

zerospark[®] filter element
is the default concept for all MP Filtri ATEX filters

FILTER SIZING

For the proper calculation see pag. 22

Filters for potentially explosive atmosphere



FMMX	page 668
FZP	677
FZH	687
FZX	697
INDICATORS	725



THE X CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.

Quality and efficiency are fundamental for MP Filtri: this exclusive new filter element possesses polygon shape geometry and specific seal that ensures only original spare parts can be used - ensuring correct operation and higher system reliability.

+

zerospark®
THE ANTI-STATIC FILTERS

THE Z CONCEPT FOR OUR FILTERS

Zerospark® is a specialist solution designed to solve the problem of electrostatic discharge inside hydraulic filters. Caused by the electrical charge build-up due to the passage of oil through the filters, this can result in damage to filter elements, oils and circuit components. It can even cause fire hazards in environments where flammable materials are present.



FMMX 050 ATEX series 

with  + 

HPX 050 Filter Element

- **Protects the machine from improper use of non-original products.**
- **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.

The products identified as FMMX 050 are protected by:

- Italian Patent n° 102014902261205
- Canadian Patent n° 2,937,258
- European Patent n° 3 124 092 B1
- US Patent n° 20170030384 A1

FMMX 050 series

Maximum working pressure up to 42 MPa (420 bar) - Flow rate up to 154 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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FMMX 050 GENERAL INFORMATION

Description

Technical data

Filters for potentially explosive atmosphere

In-line

Maximum working pressure up to 42 MPa (420 bar)
Flow rate up to 154 l/min

FMMX is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 250 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 "N", for filter element protection against the back pressure caused by the check valve in filters provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators
- MYclean interface connection for the filter element, to protect the product against non-original spare parts

Common applications:

- Agricultural machines
- Mobile machines

Filter with:

NBR seal in configuration **zerospark+**



II 3G Ex h IIC T6 Gc X
II 3D Ex h IIIC T85°C Dc X

FPM seal in configuration

zerospark+



II 3G Ex h IIC T6... T4 Gc X
II 3D Ex h IIIC T85°C...T115°C Dc X

Filter housing materials

- Head: Painted cast iron, black RAL 9005
- Housing: Phosphatized steel
- Bypass valve: Steel

Pressure

- Test pressure: 63 MPa (630 bar)
- Burst pressure: 126 MPa (1260 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 42 MPa (420 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfiber filter elements - series N: 20 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Connections

In-line Inlet/Outlet

Note

FMMX filters are provided for vertical mounting

Temperature

Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm ³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FMMX 050		3.11	3.48	3.90	4.36	5.54		0.34	0.48	0.63	0.81	1.23

GENERAL INFORMATION FMMX 050

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25
FMMX 050	1	42	43	79	82	106	147
	2	52	57	85	96	121	149
	3	66	69	97	106	130	150
	4	83	89	113	115	134	152
	5	107	110	130	134	141	154

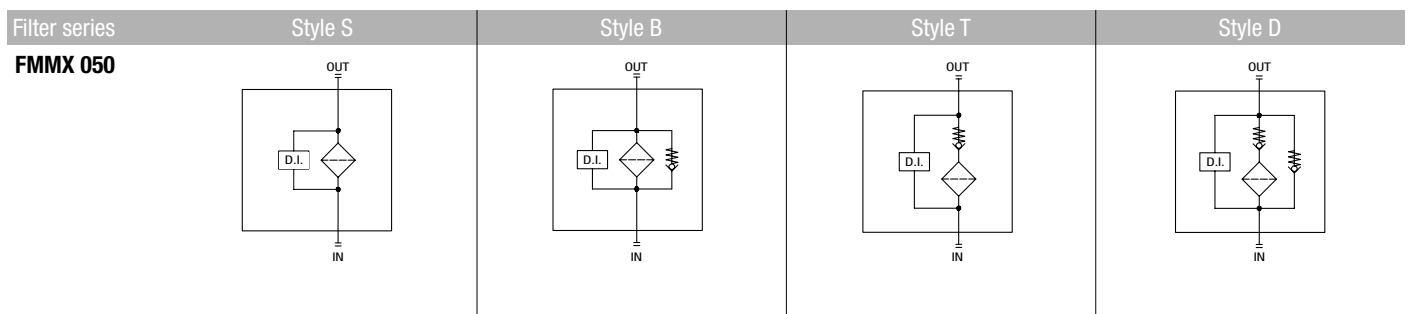
Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

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

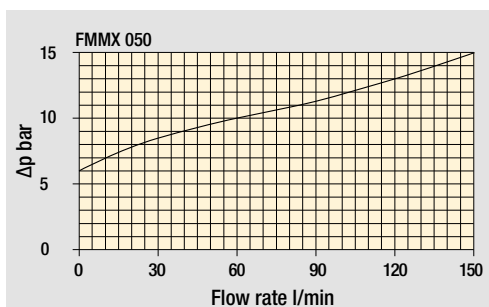
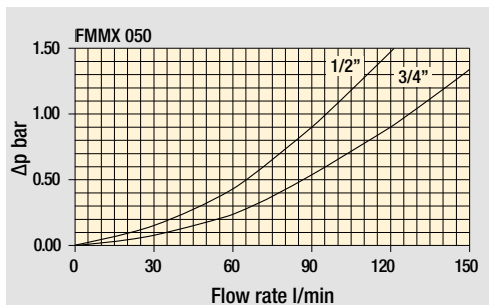
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

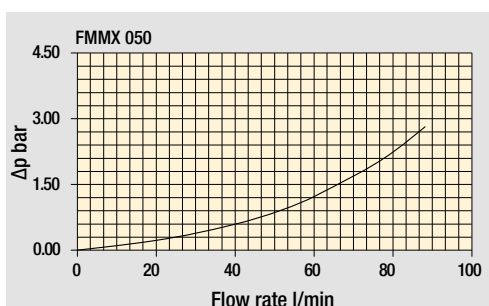
Hydraulic symbols



Pressure drop
Filter housings
 Δp pressure drop



Bypass valve
pressure drop



Filter housing
with check valve

Valves

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

FMMX 050

Designation & Ordering code

COMPLETE FILTER

Configuration example: **FMMX050** | **3** | **B** | **A** | **G** | **A10** | **N** | **Z01** | **EX**

Series and size
FMMX050 Filter featuring **MYCLEAN** Filter Element

Length
1 | **2** | **3** | **4** | **5**

Valves
B With bypass 6 bar
D With check valve, with bypass 6 bar

Seals
A NBR
V FPM

Connections
A M18x1.5 - ISO 6149 **E** 1/2" NPT
B M22x1.5 - ISO 6149 **F** 3/4" NPT
C G 1/2" **G** SAE 8 - 3/4" - 16 UNF
D G 3/4" **H** SAE 12 - 1 1/16" - 12 UN

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
N 20 bar

Executions
zerospark
Z01 Upper connection for clogging indicator
Z02 Without connection for clogging indicator
Z03 Frontal connection for clogging indicator
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Configuration example: **HPX050** | **3** | **A10** | **A** | **N** | **Z01**

Element series and size
HPX050 Filter Element with **MYCLEAN** feature

Element length
1 | **2** | **3** | **4** | **5**

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm
A06 Inorganic microfiber 6 µm
A10 Inorganic microfiber 10 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm

Seals
A NBR
V FPM

Element Δp
N 20 bar

Execution
zerospark
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

See page 725

DEH Electrical differential pressure indicator 420 bar
DVA Visual differential pressure indicator

DVM Visual differential pressure indicator

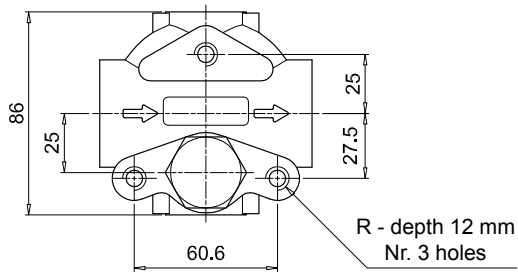
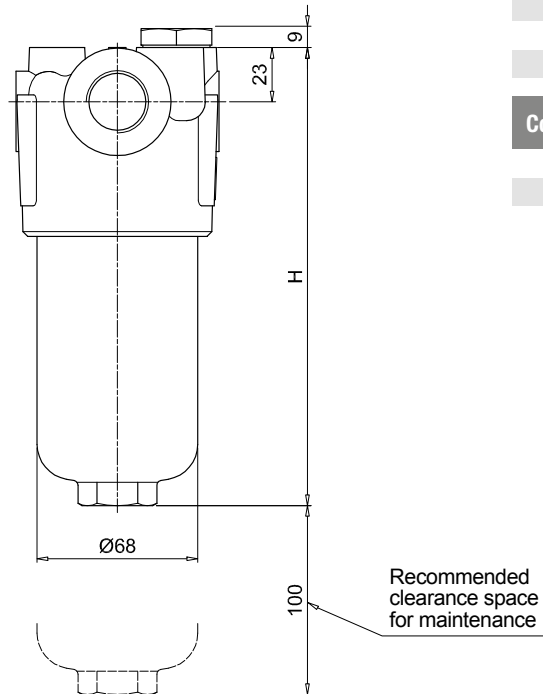
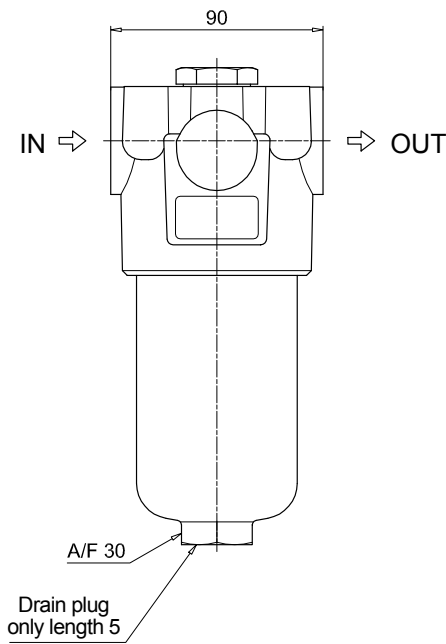
PLUGS

See page 743

T2 Plug

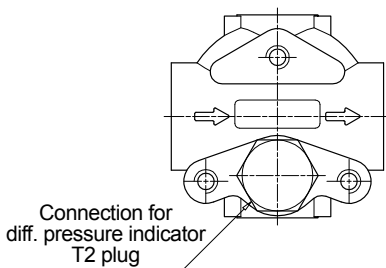
FMMX 050

Dimensions

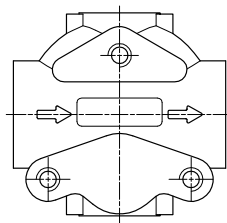


FMMX050	
Filter length	H [mm]
1	158
2	195
3	237
4	285
5	407
Connections	R
A-B-C-D	M10
E-F-G-H	3/8" UNC

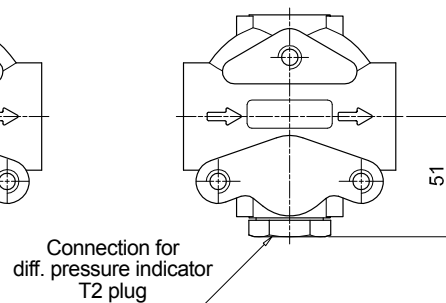
Execution P01



Execution P02



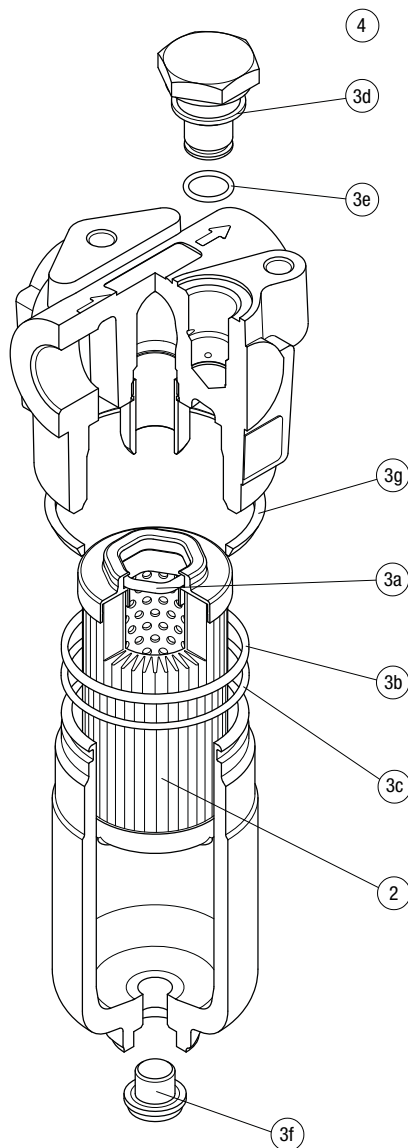
Execution P03



FMMX 050 SPARE PARTS

Order number for spare parts

FMMX 050



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FMMX 050	See order table	NBR	FPM	NBR	FPM
	2	3 (3a ÷ 3g)		4	
		02050864	02050865	T2H	T2V

FZP series

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



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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Description

Technical data

Filters for potentially explosive atmosphere

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

Filter housing materials

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

Seals

- Standard NBR series A
- Optional FPM series V
- Optional MFQ series F

Bypass valve

Opening pressure 6 bar \pm 10%

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

Temperature




Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM / MFQ	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Filter with:

NBR seal in configuration **zerospark⁺**

   II 3G Ex h IIC T6 Gc X
 II 3D Ex h IIIC T85°C Dc X

FPM / MFQ seal in configuration **zerospark⁺**

   II 3G Ex h IIC T6... T4 Gc X
 II 3D Ex h IIIC T85°C...T115°C Dc X

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	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	-	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - R Series					Filter element design - S-U Series				
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
FZP 039	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
FZP 136	1	63	67	102	108	136	47	53	87	89	127
	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 $\Delta p = 1.5$ bar.

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

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

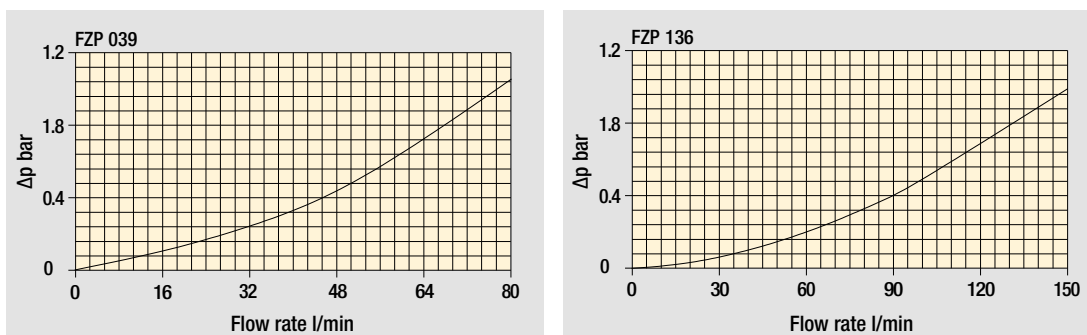
You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

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

Pressure drop

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.

Designation & Ordering code

COMPLETE FILTER

Filter series and size **FZP039** Configuration example: **FZP039** **2** **B** **F** **B** **2** **A03** **U** **Z01** **EX**

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

Valves

S Without bypass	D With reverse flow, with bypass 6 bar
B With bypass 6 bar	V With reverse flow, without bypass
T 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 pressure 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	S	B	T	D	V	Z
R 20 bar	-	•	-	•	-	•
S 210 bar	•	-	•	-	•	-
U 210 bar, stainless steel filter element	•	•	•	•	•	•

Valves

Execution **zerospark***

Z01 MP Filtri standard

Zxx Customized

Certifications **EX** ATEX certifications

FILTER ELEMENT

Element series and size **HP039** Configuration example: **HP039** **2** **A03** **F** **U** **Z01**

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 **zerospark***

Z01 MP Filtri standard

Zxx Customized

CLOGGING INDICATORS

See page 725

DEH Electrical differential pressure indicator

DVX Visual differential pressure indicator

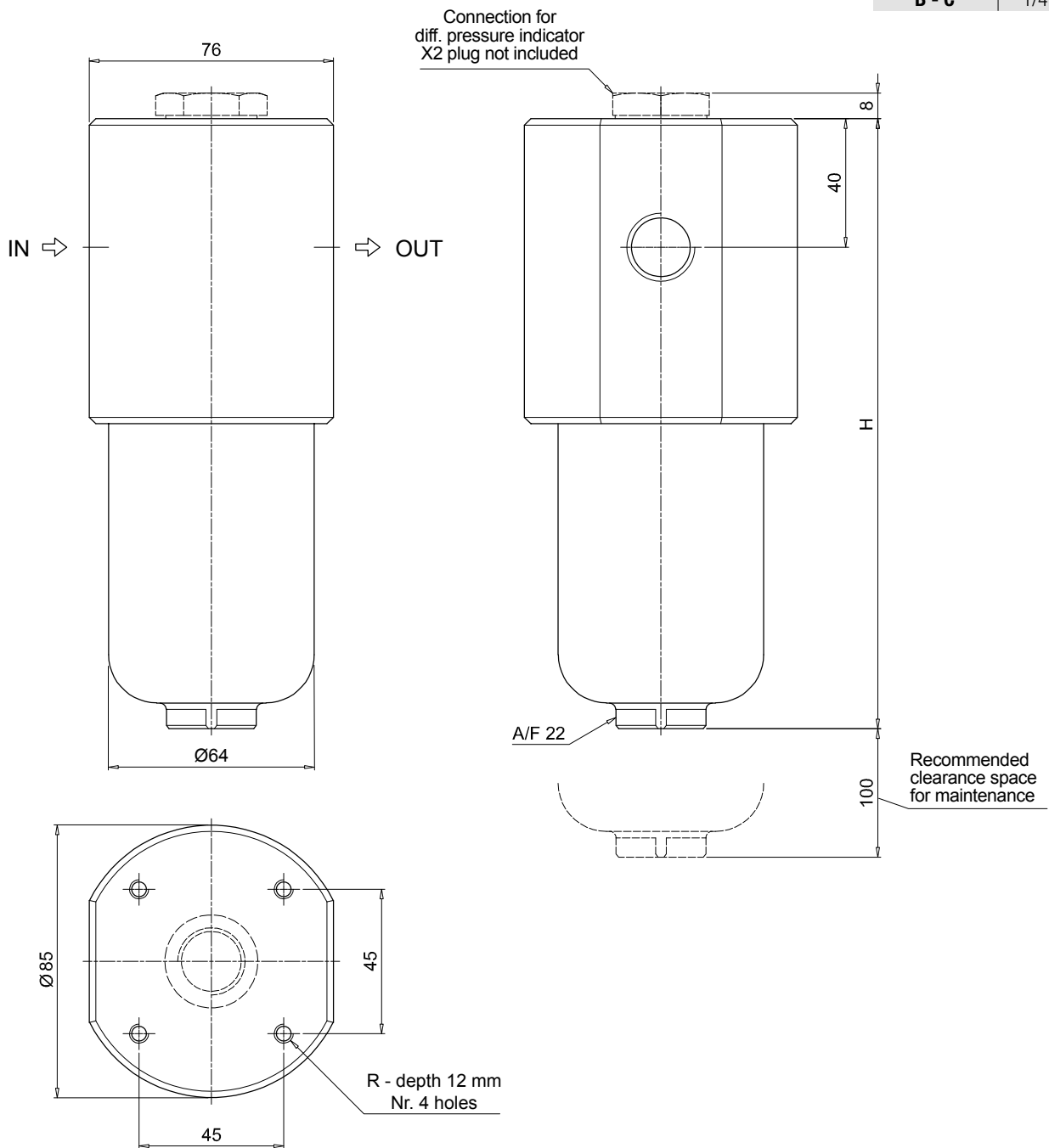
DVY Visual differential pressure indicator

PLUGS

See page 743

X2 Stainless steel plug (not included)

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

Filter series and size	Configuration example: FZP136 1 B A B 6 A03 R Z01 EX										
FZP136											
Filter length	1 2 3										
Valves											
S Without bypass											
B With bypass 6 bar											
Seals											
A NBR											
V FPM											
F MFQ											
Connections											
A G 3/4"						G G 1 1/4"					
B 3/4" NPT						H 1 1/4" NPT					
C SAE 12 - 1 1/16" - 12 UN						I SAE 20 - 1 5/8" - 12 UN					
D G 1"											
E 1" NPT											
F SAE 16 - 1 5/16" - 12 UN											
Connections for differential pressure indicator											
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		Execution			Certifications			
R 20 bar			S	B	zerospark+			EX ATEX certifications			
S 210 bar			•	-	Z01 MP Filtri standard						
U 210 bar, stainless steel filter element			•	•	Zxx Customized						

FILTER ELEMENT

Element series and size	Configuration example: HP135 1 A03 A R Z01						
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						Execution	
R 20 bar						zerospark+	
S 210 bar						Z01 MP Filtri standard	
U 210 bar, stainless steel filter element						Zxx Customized	

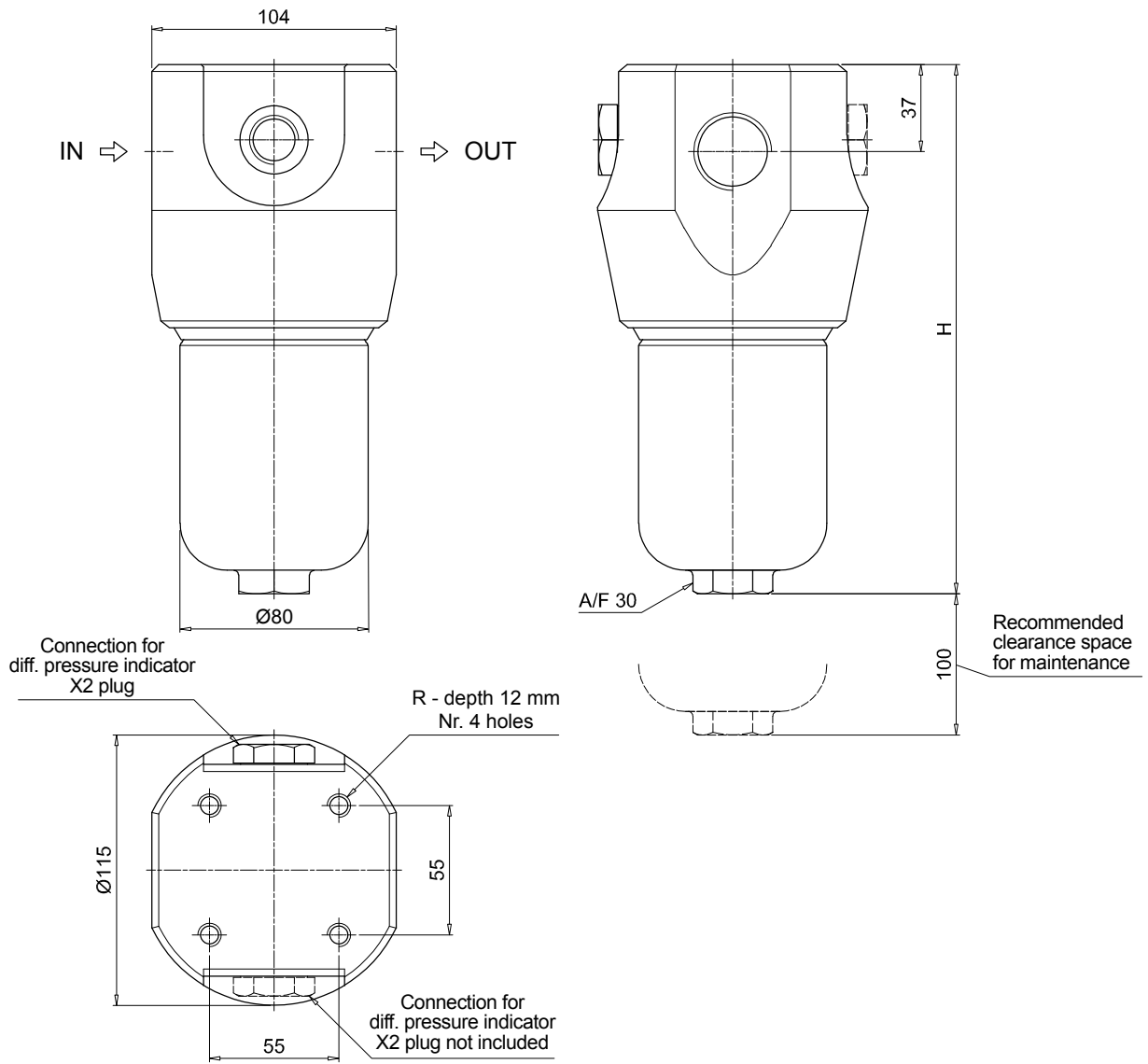
CLOGGING INDICATORS

DEH Electrical differential pressure indicator	DVY Visual differential pressure indicator	See page 725
DVX Visual differential pressure indicator		

PLUGS

X2 Stainless steel plug (not included)	See page 743
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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



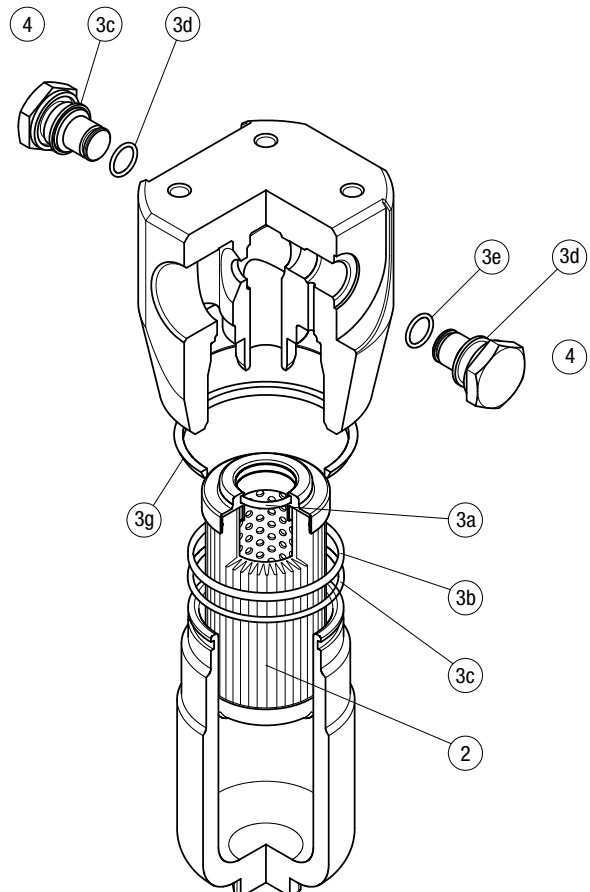
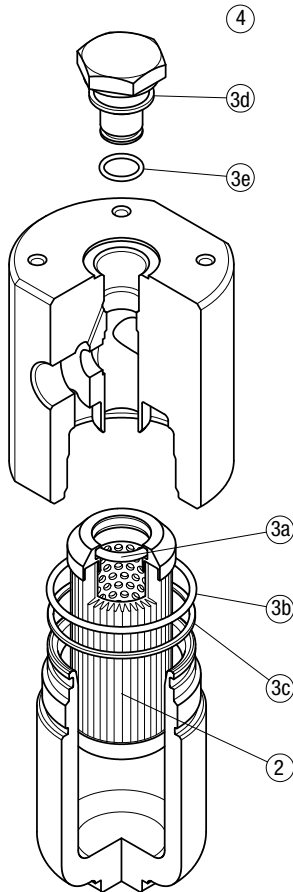
The position of the X2 plug is reversible

FZP SPARE PARTS

Order number for spare parts

FZP 039

FZP 136



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FZP 039	See order table	NBR	FPM	NBR	FPM
		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



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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Description

Technical data

Filters for potentially explosive atmosphere

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

Filter housing materials

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

Seals

- Standard NBR series A
- Optional FPM series V
- Optional MFQ series F

Bypass valve

Opening pressure 6 bar \pm 10%

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 Epoxy painted
- Media/Support/Pre-filter: Microfibre/Synthetic

Microfibre filter elements - series H-S: 210 bar.

Element series "H - S":

- End cap: Tinned steel
- Core tube: Tinned steel
- External support: Wire mesh Epoxy painted
- Internal support: Wire mesh Stainless steel
- Media/Support/Pre-filter: Microfibre/Synthetic

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/Synthetic

Temperature

Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM / MFQ	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Filter with:

NBR seal in configuration **zerospark⁺**



II 3G Ex h IIC T6 Gc X
II 3D Ex h IIIC T85°C Dc X

FPM / MFQ seal in configuration **zerospark⁺**



II 3G Ex h IIC T6... T4 Gc X
II 3D Ex h IIIC T85°C...T115°C Dc X

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]				Volumes [dm ³]					
	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

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					Filter element design - H-U Series				
		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

Filter series	Length	Filter element design - R Series					Filter element design - S-U Series				
		A03	A06	A10	A16	A25	A03	A06	A10	A16	A25
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 $\Delta p = 1.5$ bar.

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

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure.

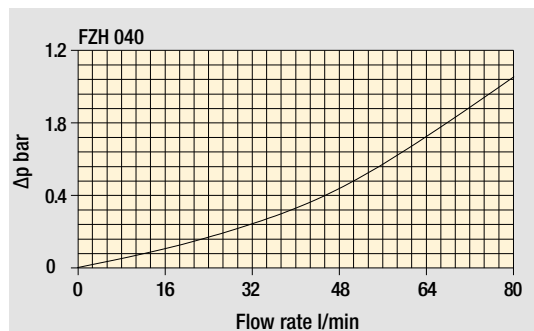
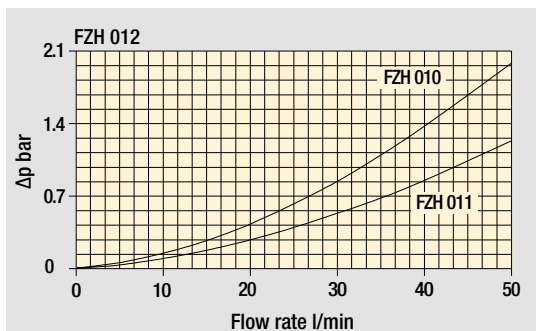
Please, contact our Sales Department for further additional information.

Hydraulic symbols

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

Pressure drop

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.

Designation & Ordering code

COMPLETE FILTER

Configuration example: **FZH012** | **2** | **B** | **F** | **B** | **2** | **A03** | **U** | **Z01** | **EX**

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 pressure indicator
1 Without connection
2 With connection

Filtration rating (filter media)	Element Δp	Valves			
		S	B	V	Z
A03 Inorganic microfiber 3 μm	N 20 bar	-	•	-	•
A06 Inorganic microfiber 6 μm	H 210 bar	•	-	•	-
A10 Inorganic microfiber 10 μm	U 210 bar, stainless steel filter element	•	•	•	•
A16 Inorganic microfiber 16 μm					
A25 Inorganic microfiber 25 μm					

Execution
zerospark+
Z01 MP Filtri standard
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Configuration example: **HP011** | **2** | **A03** | **F** | **U** | **Z01**

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	
N	20 bar
H	210 bar
U	210 bar, stainless steel filter element

Execution
zerospark+
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

DEZ Electrical differential pressure indicator

DVZ Visual differential pressure indicator

See page 725

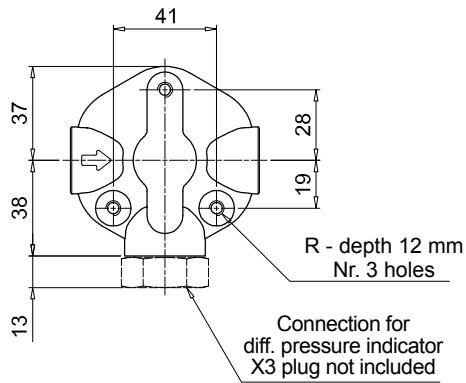
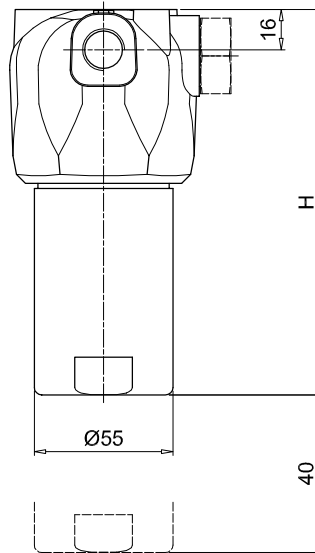
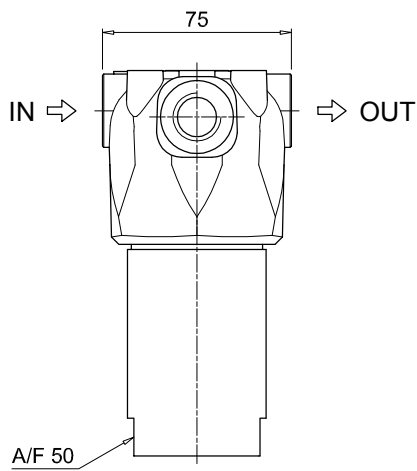
PLUGS

X3 Stainless steel plug (not included)

See page 743

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



Recommended clearance space for maintenance

Designation & Ordering code

COMPLETE FILTER

Configuration example: **FZH040** | **2** | **T** | **A** | **A** | **2** | **A03** | **S** | **Z01** | **EX**

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 pressure 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
zerospark®
Z01 MP Filtri standard
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Configuration example: **HP039** | **2** | **A03** | **A** | **S** | **Z01**

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
zerospark®
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

See page 725

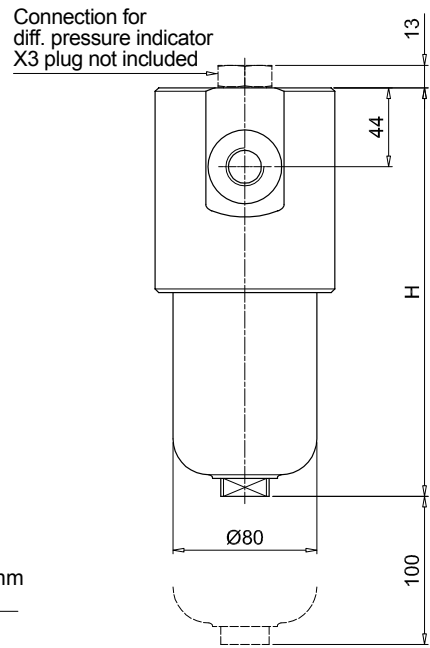
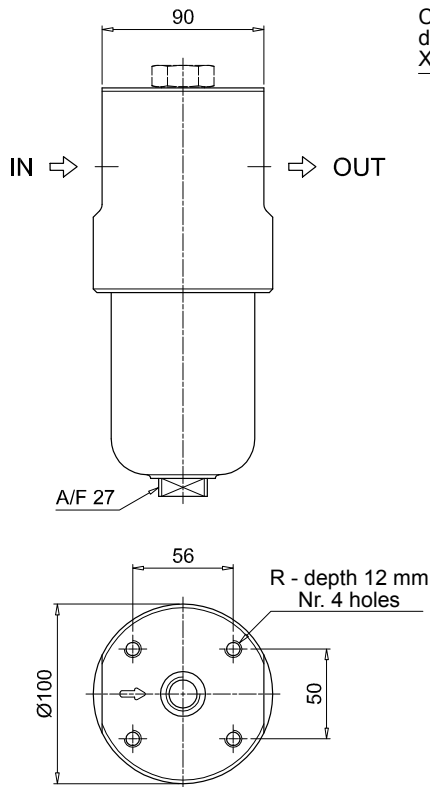
DVZ Visual differential pressure indicator

PLUGS

See page 743

X3 Stainless steel plug (not included)

Valves S - B - T - D



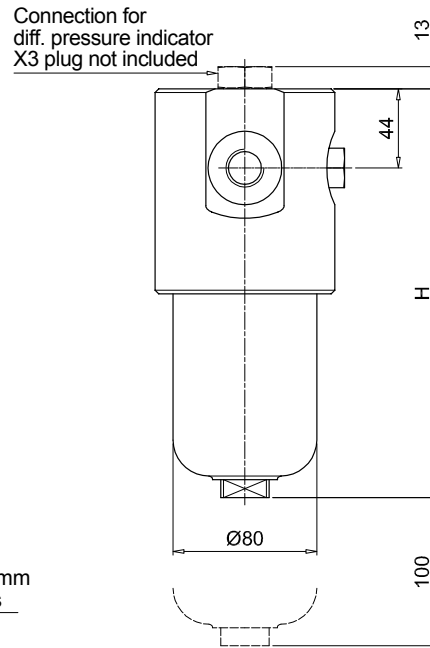
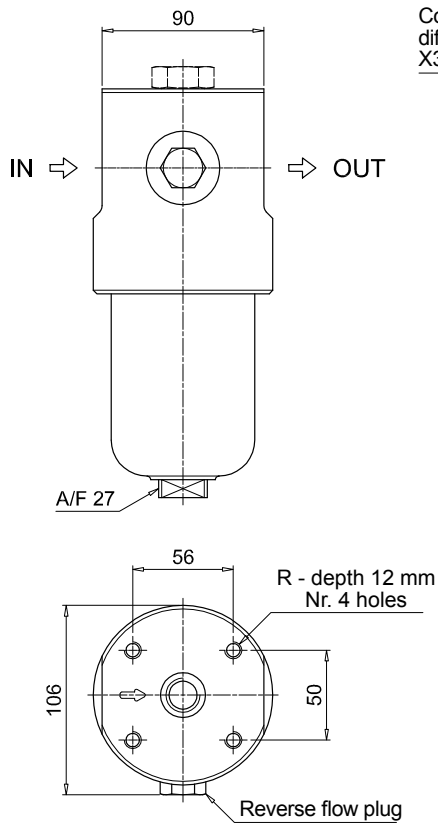
Recommended clearance space for maintenance

FZH040

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

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

Valves V - Z



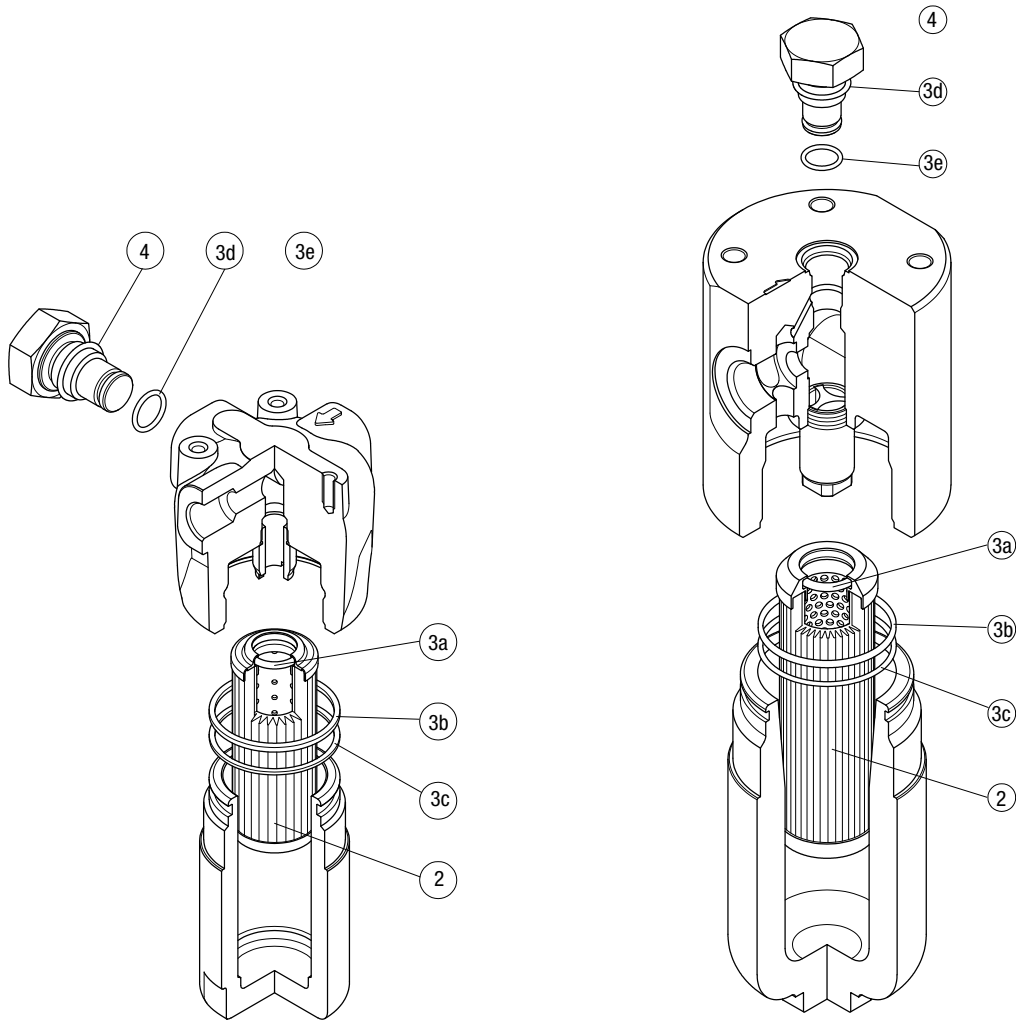
Recommended clearance space for maintenance

FZH SPARE PARTS

Order number for spare parts

FZH 012

FZH 040



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.		Q.ty: 1 pc.	
Filter series	Filter element	Seal Kit code number		Indicator connection plug	
FZH 012	See order table	NBR	FPM	NBR	FPM
FZH 040	See order table	02050856	02050857	X2H	X2V
		02050860	02050861		

FZX series

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



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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Description

Technical data

Filters for potentially explosive atmosphere

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

Common applications:

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

Filter housing materials

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

Seals

- Standard NBR series A
- Optional FPM series V
- Optional MFQ series F

Bypass valve

Opening pressure 6 bar \pm 10%

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

Temperature




Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM / MFQ	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Filter with:

NBR seal in configuration **zerospark[®]**

   II 3G Ex h IIC T6 Gc X
 II 3D Ex h IIIC T85°C Dc X

FPM / MFQ seal in configuration **zerospark[®]**

   II 3G Ex h IIC T6... T4 Gc X
 II 3D Ex h IIIC T85°C...T115°C Dc X

Weights [kg] and volumes [dm³]

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

Flow rates [l/min]

Filter series	Length	Filter element design - H-U Series				
		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 $\Delta p = 1.5$ bar.

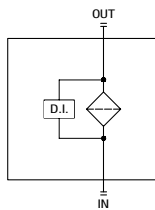
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

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

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

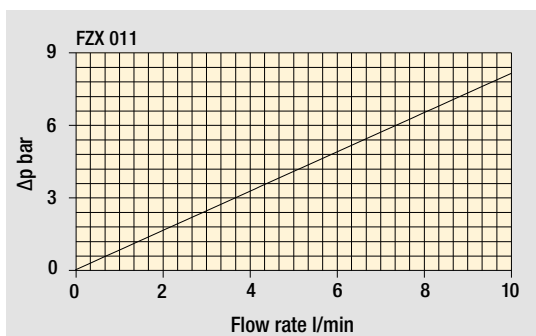
Hydraulic symbols

Filter series	Style S
FZX 011	•



Pressure drop

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.

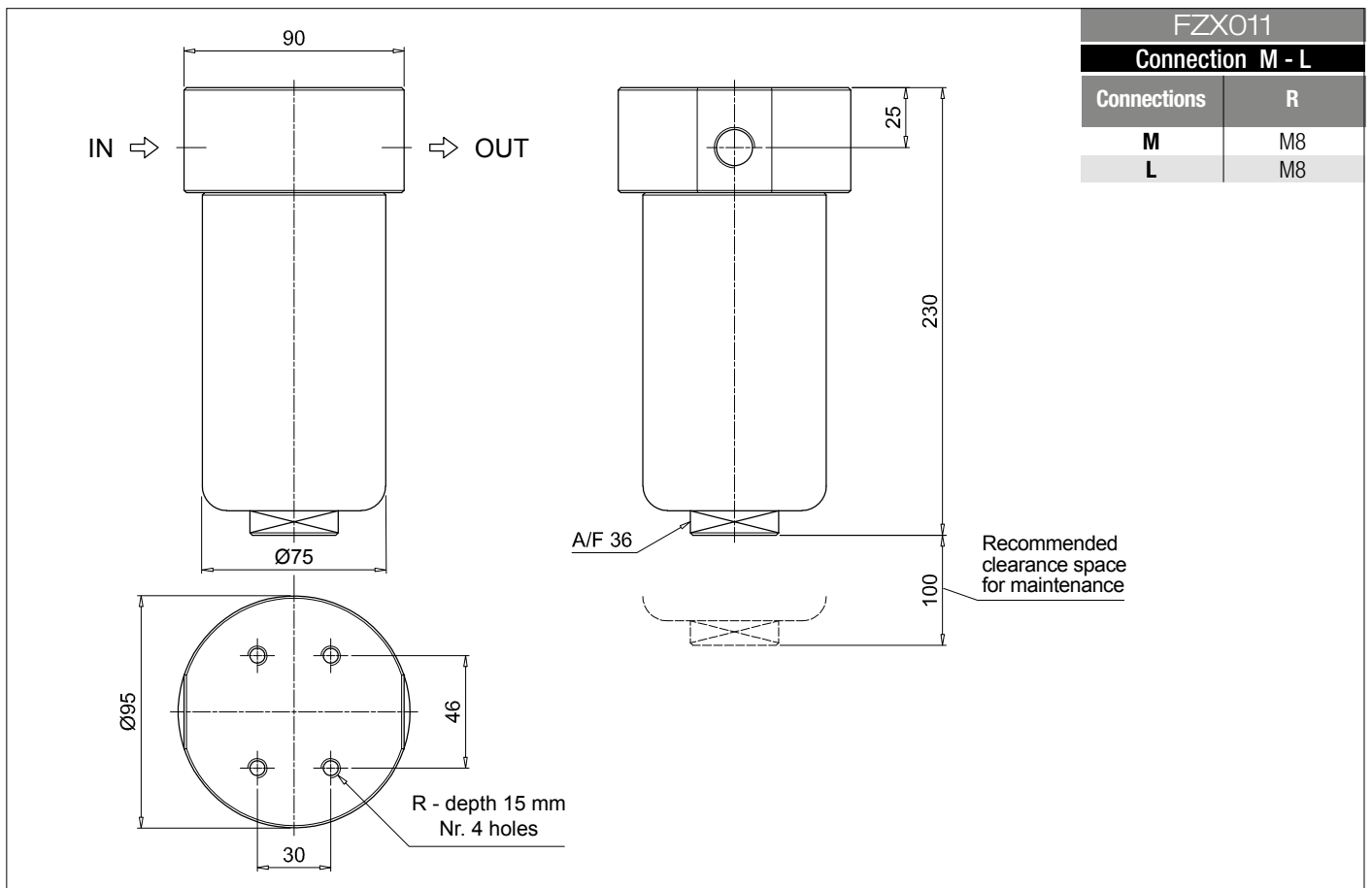
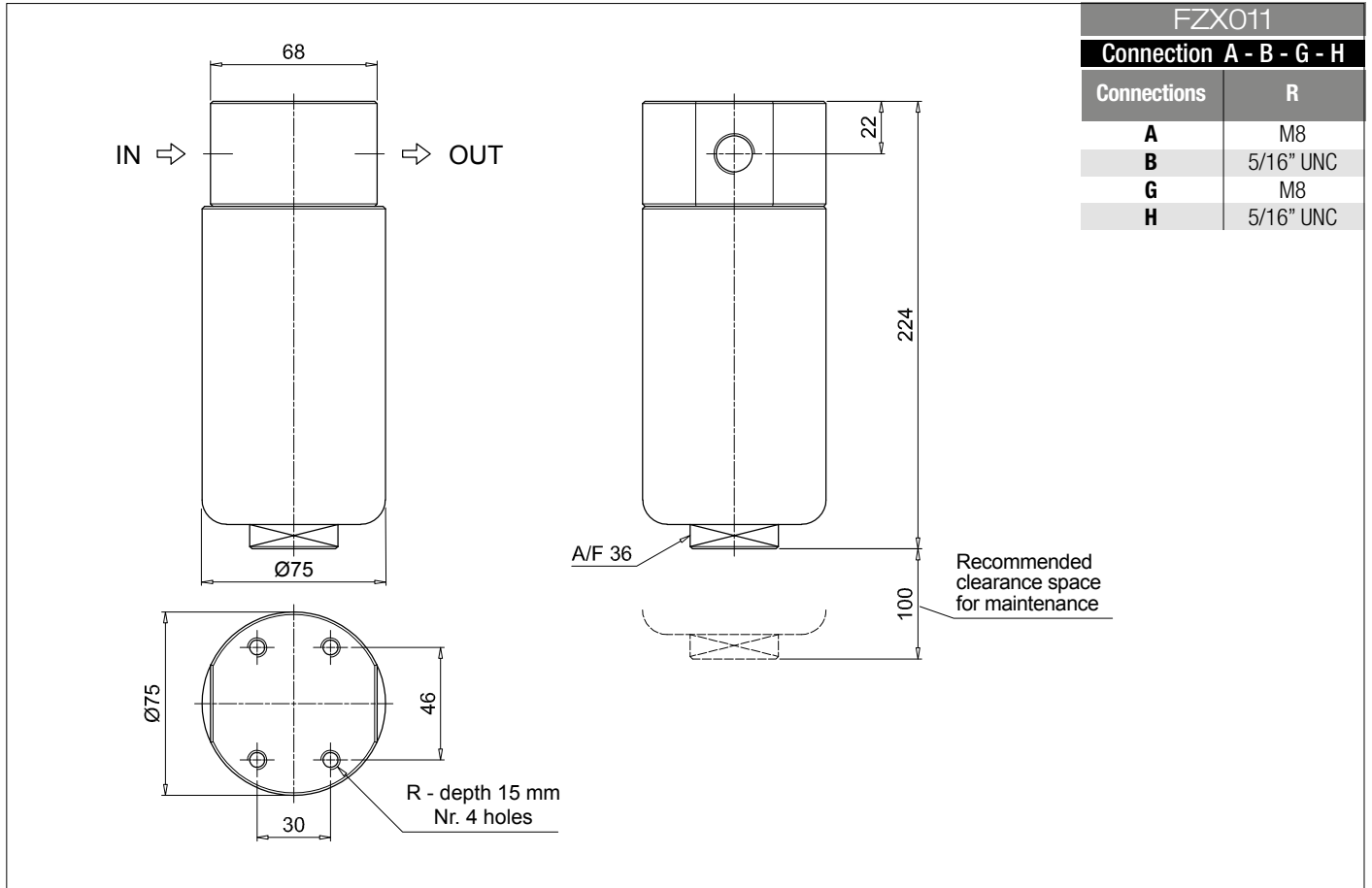
Designation & Ordering code

COMPLETE FILTER

Filter series and size	Configuration example: FZX011	3	S	V	B	1	A03	U	Z01	EX
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 pressure indicator										
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										
zerospark®										
Z01 MP Filtri standard										
Zxx Customized										
Certifications										
EX ATEX certifications										

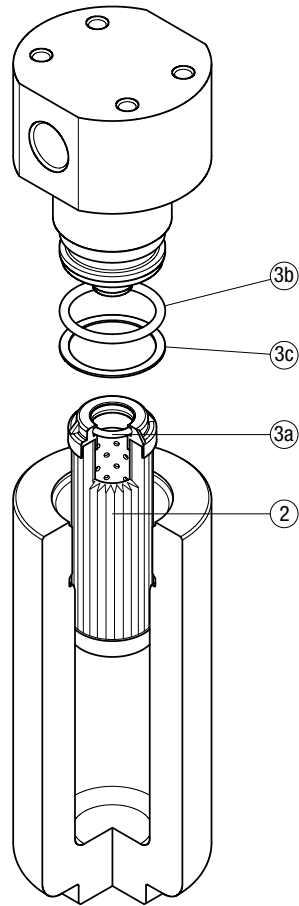
FILTER ELEMENT

Element series and size	Example: HP011	3	A03	V	U	Z01
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						
zerospark®						
Z01 MP Filtri standard						
Zxx Customized						

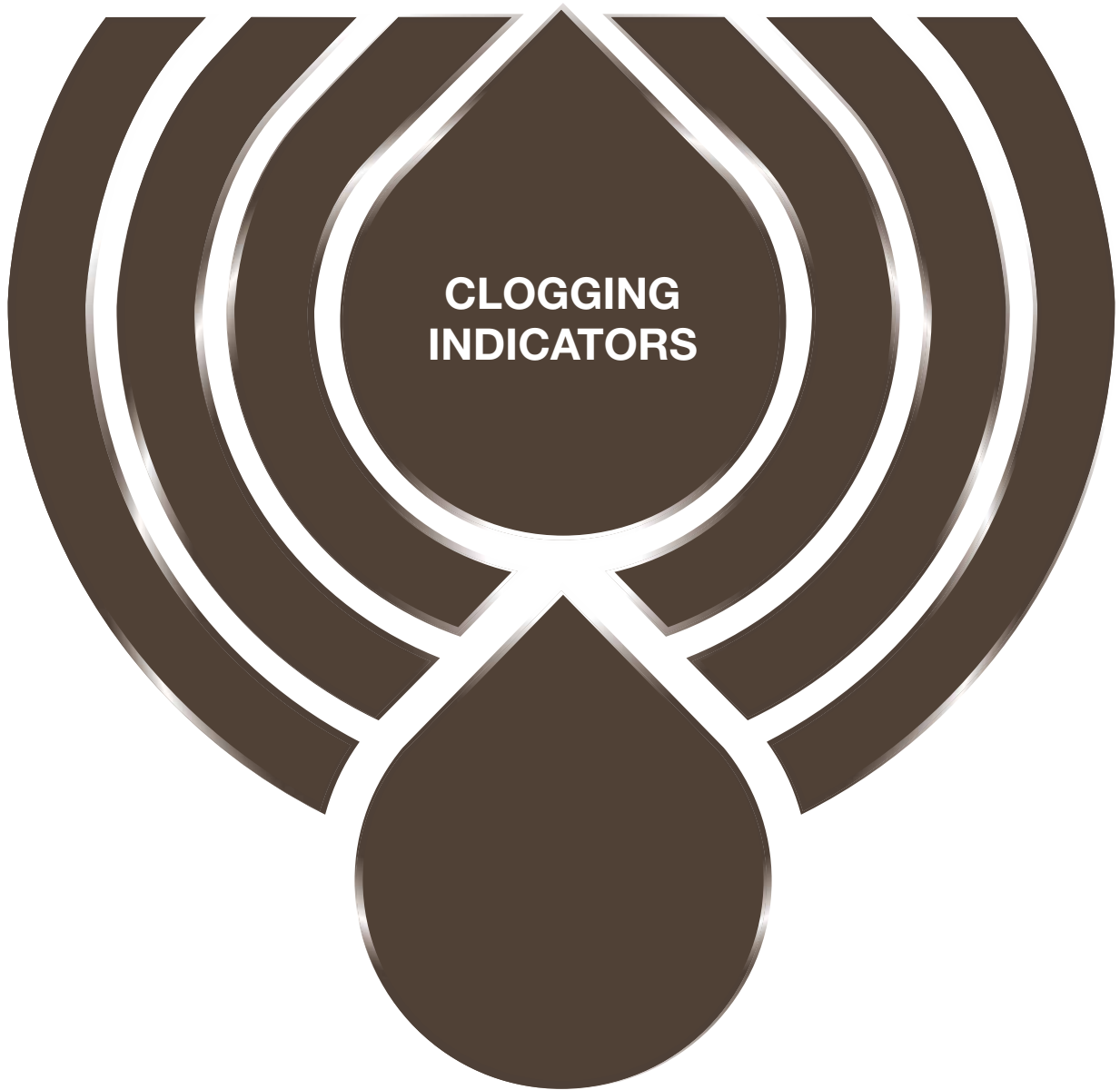


Order number for spare parts

FZX 011



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



Clogging indicators are devices that check the life time of the filter elements. They measure the pressure drop through the filter element directly connected to the filter housing.

These devices trip when the clogging of the filter element causes a pressure drop increasing across the filter element.

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

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

MP Filtri can supply indicators of the following designs:

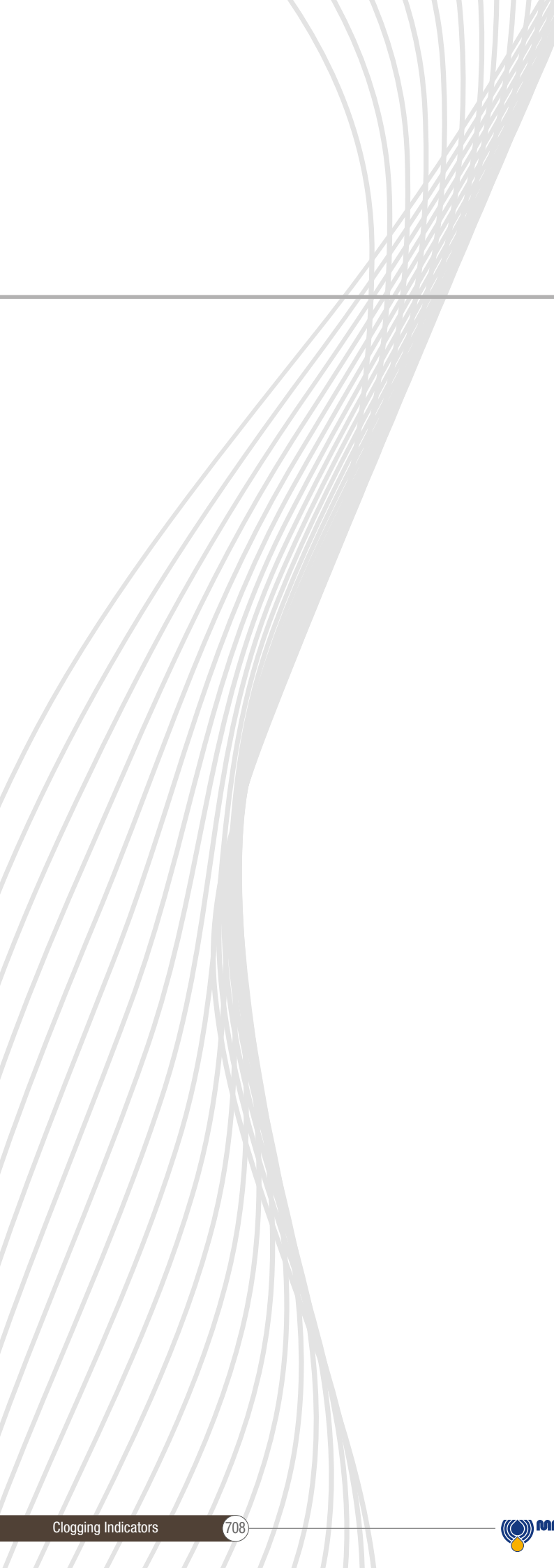
- Vacuum switches and gauges
- Pressure switches and gauges
- Differential pressure indicators

These type of devices can be provided with a visual, electrical or both signals. The electronic differential pressure clogging indicator is also available. It provides both analogical 4-20 mA output and digital warning (75% of clogging) and alarm (clogging) outputs.

In the following pages you can find a reference guide about the types of clogging indicators available in the different families of MP Filtri's Hydraulic Filtration range of products.

Clogging Indicators





DESIGNATION, ORDERING CODES & TECHNICAL DATA

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QUICK REFERENCE GUIDE

Ordering codes

Filter family	Filter series	Visual indicators	Electrical indicators	Electronic / Electrical-Visual indicators	
SUCTION FILTERS	ELIXIR® SFEX060-110	VVB20P01	VEB21AA50P01	VLB21AA51P01	
		VVS20P01		VLB21AA52P01	
	Suction Line	SFMC250	VVA20P01	VEA21xA50P01 VEA21xA50P01UL	VLA21xA51P01
			WR20P01		VLA21xA52P01
	Without bypass	SFSC 500 - 503 - 504 - 505 SFSC 510 - 535 - 540	VVA20P01	VEA21xA50P01 VEA21xA50P01UL	VLA21xA51P01
			WR20P01		VLA21xA52P01
RETURN FILTERS	ELIXIR® RFEX060-080-110-160	BVA14P01	BEA15HA50P01 BEA15HA50P01UL	BLA15HA51P01	
		BVR14P01		BLA15HA52P01	
	With bypass 1.75 bar	RFEX060-080-110-160	BVP15HP01	BEM15HA41P01	BLA15HA53P01
			BVQ15HP01		BLA15HA71P01
	Without bypass	RFEX060-080-110-160	BVA25P01	BEA20HA50P01 BEA20HA50P01UL	BLA20HA51P01
			BVR25P01		BLA20HA52P01
	With bypass 1.75 bar	MDH 250	BVP20HP01	BEM20HA41P01	BLA20HA53P01
			BVQ20HP01		BLA20HA71P01
	With bypass 3 bar	MDH 250	BVA14P01	BEA15HA50P01 BEA15HA50P01UL	BLA15HA51P01
			BVR14P01		BLA15HA52P01
	With bypass 3 bar	MDH 250	BVP15HP01	BEM15HA41P01	BLA15HA53P01
			BVQ15HP01		BLA15HA71P01
With bypass 2.5 bar	MPH	DVS12HP01	DES12HA10P01 DES12HA30P01 DES12HA80P01	BLA15HA51P01	
				BLA15HA52P01	
With bypass 1.75 bar	MPFX MPTX MPF MPT MPH	BVA25P01	BEA20HA50P01 BEA20HA50P01UL	BLA20HA51P01	
		BVR25P01		BLA20HA52P01	
With bypass 3 bar	MPFX MPTX MPF MPT	BVP20HP01	BEM20HA41P01	BLA20HA53P01	
		BVQ20HP01		BLA20HA71P01	
With bypass 2.5 bar	MPH	DVS25HP01	DES25HA10P01 DES25HA30P01 DES25HA80P01	BLA20HA51P01	
				BLA20HA52P01	
With bypass 4.5 bar	MPLX	BVA14P01	BEA15HA50P01 BEA15HA50P01UL	BLA15HA51P01	
		BVR14P01		BLA15HA52P01	
With bypass 2.4 bar	FRI	BVP15HP01	BEM15HA41P01	BLA15HA53P01	
		BVQ15HP01		BLA15HA71P01	
With bypass 4.5 bar	MPLX	BVA25P01	BEA20HA50P01 BEA20HA50P01UL	BLA20HA51P01	
		BVR25P01		BLA20HA52P01	
With bypass 2.4 bar	FRI	BVP20HP01	BEM20HA41P01	BLA20HA53P01	
		BVQ20HP01		BLA20HA71P01	
With bypass 2.4 bar	FRI	DVA20xP01	DEA20xA50P01 DEA20xA50P01UL	DLA20xA51P01	
		DVM20xP01		DLA20xA52P01	
With bypass 2.4 bar	FRI		DEM20xx10P01 DEM20xx20P01 DEM20xx30P01 DEM20xx35P01 DEU20VA50P01UL	DLA20xA71P01	
				DLE20xA50P01	
With bypass 2.4 bar	FRI		DEM20xx35P01 DEU20VA50P01UL	DLE20xF50P01	
				DTA20xF70P01	

Filter family	Filter series	Visual indicators	Electrical indicators	Electronic / Electrical-Visual indicators	
RETURN / SUCTION FILTERS	MRSX 116 - 165 - 166 Suction line	VVB20P01	VEB21AA50P01	VLB21AA51P01	
		VVS20P01		VLB21AA52P01	
	With bypass valve 2.5 bar	MRSX 116 - 165 - 166 Return line	BVA25P01	BEA20HA50P01	VLB21AA53P01
			BVR25P01	BEA20HA50P01UL	VLB21AA71P01
	With bypass valve 2.5 bar	LMP 124 MULTIPORT	BVP20HP01	BEM20HA41P01	BLA20HA51P01
			BVQ20HP01	BET25HF10P01	BLA20HA52P01
			DVA20xP01	BET25HF30P01	BLA20HA53P01
			DVM20xP01	BET25HF50P01	BLA20HA71P01
				BEA20HA50P01	BLA20HA51P01
				BEA20HA50P01UL	BLA20HA52P01
			BEM20HA41P01	BLA20HA53P01	
	BET25HF10P01	BLA20HA71P01			
	BET25HF30P01	DLA20xA51P01			
	BET25HF50P01	DLA20xA52P01			
	DEA20xA50P01	DLA20xA71P01			
	DEM20xx10P01	DLE20xA50P01			
	DEM20xx20P01	DLE20xF50P01			
	DEM20xx30P01	DTA20xF70P01			
	DEM20xx35P01				
	DEU20VA50P01UL				
SPIN-ON FILTERS	Suction line	MPS 050 - 070 - 100 - 150	WB20P01	VLB21AA51P01	
		MPS 200 - 250 - 300 - 350	VVS20P01	VLB21AA52P01	
	Return line	MPS 050 - 070 - 100 - 150	BVA14P01	BEA15HA50P01	VLB21AA53P01
		MPS 200 - 250 - 300 - 350	BVR14P01	BEA15HA50P01UL	VLB21AA71P01
		MST 050 - 070 - 100 - 150	BVP15HP01	BEM15HA41P01	BLA15HA51P01
	In-line	MPS 051 - 071 - 101 - 151 MPS 301 - 351 MSH 050 - 070 - 100 - 150	BVQ15HP01		BLA15HA52P01
			DVA12xP01	DEA12xA50P01	BLA15HA53P01
			DVM12xP01	DEM12xAxxP01	BLA15HA71P01
			DVA20xP01	DEA20xA50P01	DLA12xA51P01
			DVM20xP01	DEM20xAxxP01	DLA12xA52P01
			DEU20VA50P01UL	DLA12xA71P01	
				DLA20xA51P01	
		DLA20xA52P01			
		DLA20xA71P01			
		DLE12xA50P01			
		DLE12xF50P01			
		DLE20xF50P01			
		DLE20xF50P01			
		DTA12xF70P01			
		DTA20xF70P01			

QUICK REFERENCE GUIDE

Ordering codes

Filter family	Filter series	Visual indicators	Electrical indicators	Electronic / Electrical-Visual indicators		
LOW & MEDIUM PRESSURE FILTERS	ELIXIR® LFEX060-080-110-160	DVS25HP01	DES25HA10P01 DES25HA30P01 DES25HA80P01			
	With bypass valve 3.5 bar	LMP 110 LMP 112 - 116 - 118 - 119 MULTIPORT LMP 120 - 122 - 123 MULTIPORT LMP 210 - 211 - LDP LMP 400 - 401 & 430 - 431 LMP 900 - 901 LMP 902 - 903	DVA20xP01 DVM20xP01	DEA20xA50P01 DEM20xx10P01 DEM20xx20P01 DEM20xx30P01 DEM20xx35P01 DEU20VA50P01UL	DLA20xA51P01 DLA20xA52P01 DLA20xA71P01 DLE20xA50P01 DLE20xF50P01 DTA20xF70P01	
	With bypass valve 2.5 bar	LPH 630	DVA20xP01 DVM20xP01	DEA20xA50P01 DEM20xx10P01 DEM20xx20P01 DEM20xx30P01 DEM20xx35P01 DEU20VA50P01UL	DLA20xA51P01 DLA20xA52P01 DLA20xA71P01 DLE20xA50P01 DLE20xF50P01 DTA20xF70P01	
	With bypass valve 1.75 bar	LPH 630	DVA12xP01 DVM12xP01 DVS12HP01	DEA12xA50P01 DEM12xx10P01 DEM12xx20P01 DEM12xx30P01 DEM12xx35P01	DLA12xA51P01 DLA12xA52P01 DLA12xA71P01 DLE12xA50P01 DLE12xF50P01 DTA12xF70P01	
	HIGH PRESSURE FILTERS	ELIXIR® LFEX060-080-110-160	DVS40HP01	DES40HA10P01 DES40HA30P01 DES40HA80P01		
		Without bypass valve	LMP 110 LMP 112 - 116 - 118 - 119 MULTIPORT LMP 120 - 122 - 123 MULTIPORT LMP 210 - 211 - LDP LMP 400 - 401 & 430 - 431 LMP 900 - 901 LMP 902 - 903 LMP 950 - 951 LMP 952 - 953 - 954 LMD 211 - 400 - 401 - 431 - 951 - LDD LPH 630	DVA50xP01 DVM50xP01	DEA50xA50P01 DEM50xx10P01 DEM50xx20P01 DEM50xx30P01 DEM50xx35P01 DEU50VA50P01UL	DLA50xA51P01 DLA50xA52P01 DLA50xA71P01 DLE50xA50P01 DLE50xF50P01 DTA50xF70P01
		With bypass valve 6 bar	FMP 039 - 065 - 135 - 320 FHP 010 - 011 - 065 - 135 - 350 - 351 - 500 FMMX 050 FMM 050 - 150 FHA 051 FHM 006 - 007 - 010 - 050 - 065 - 135 - 320 - 500 FHB 050 - 135 - 320 FHF 325 FHD 021 - 051 - 326 - 333	DVA50xP01 DVM50xP01	DEA50xA50P01 DEM50xx10P01 DEM50xx20P01 DEM50xx30P01 DEM50xx35P01 DEU50VA50P01UL	DLA50xA51P01 DLA50xA52P01 DLA50xA71P01 DLE50xA50P01 DLE50xF50P01
		Without bypass valve	FMP 039 - 065 - 135 - 320 FHP 010 - 011 - 065 - 135 - 350 - 351 - 500 FMMX 050 FMM 050 - 150 FHA 051 FHM 006 - 007 - 010 - 050 - 065 - 135 - 320 - 500 FHB 050 - 135 - 320 FHF 325 FHD 021 - 051 - 326 - 333	DVA70xP01 DVA95xP01 DVM70xP01 DVM95xP01	DEA70xA50P01 DEA95xA50P01 DEM70xx10P01 DEM70xx20P01 DEM70xx30P01 DEM70xx35P01 DEU70VA50P01UL DEM95xx10P01 DEM95xx20P01 DEM95xx30P01 DEM95xx35P01	DLA70xA51P01 DLA70xA52P01 DLA70xA71P01 DLA95xA51P01 DLA95xA52P01 DLA95xA71P01 DLE70xA50P01 DLE70xF50P01 DLE95xA50P01 DLE95xF50P01 DTA70xF70P01 DTA95xF70P01

Filter family	Filter series	Visual indicators	Electrical indicators	Electronic / Electrical-Visual indicators
STAINLESS STEEL HIGH PRESSURE FILTERS	With bypass valve 6 bar	FZH 012 - 040	DVZ50xP01	DEZ50xA50P01 DLZ50xA51P01 DLZ50xA52P01
	Without bypass valve	FZH 012 - 040	DVZ70xP01 DVZ95xP01	DEZ70xA50P01 DEZ95xA50P01 DLZ70xA51P01 DLZ70xA52P01 DLZ95xA51P01 DLZ95xA52P01
	With bypass valve 6 bar	FZP 039 - 136 FZB 039 FZM 039 FZD 051	DVX50xP01 DYY50xP01	DEX50xA50P01 DLX50xA51P01 DLX50xA52P01
	Without bypass valve	FZP 039 - 136 FZB 039 FZM 039 FZD 010 - 021 - 051	DVX70xP01 DVX95xP01 DYY70xP01 DYY95xP01	DEX70xA50P01 DEX95xA50P01 DLX70xA51P01 DLX70xA52P01 DLX95xA51P01 DLX95xA52P01
FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE	With bypass valve 6 bar	FMMX 050	DVA50xP01 DVM50xP01	DEH50xA48P01 DEH50xA49P01 DEH50xA70P01
	Without bypass valve	FMMX 050	DVA70xP01 DVA95xP01 DVM70xP01 DVM95xP01	DEH70xA48P01 DEH70xA49P01 DEH70xA70P01
	With bypass valve 6 bar	FZP 039 - 136	DVX50xP01 DYY50xP01	DEH50xA48P01 DEH50xA49P01 DEH50xA70P01
	Without bypass valve	FZP 039 - 136	DVX70xP01 DVX95xP01 DYY70xP01 DYY95xP01	DEH70xA48P01 DEH70xA49P01 DEH70xA70P01
	With bypass valve 6 bar	FZH 012 - 040	DVZ50xP01	
	Without bypass valve	FZH 012 - 040	DVZ70xP01 DVZ95xP01	

Suitable indicator types

V ACUUM INDICATORS

Vacuum indicators are used on the Suction line to check the efficiency of the filter element.

They measure the pressure downstream of the filter element.

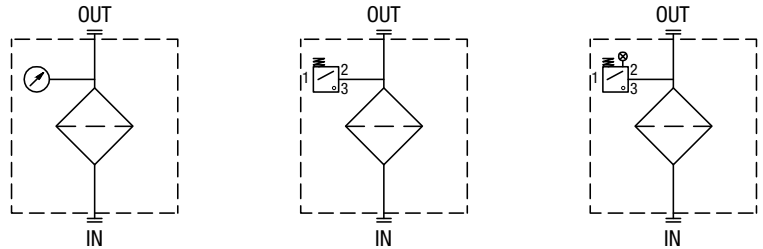
Standard items are produced with R 1/4" EN 10226 connection.

Available products with R 1/8" EN 10226 to be fitted on MPS series.

Vacuum indicators are identified in the Hydraulic Filtration catalogue and in the Quick Reference Guide table by the letter "V".

Example:

V VVB20P01



B BAROMETRIC (PRESSURE) INDICATORS

Pressure indicators are used on the Return line to check the efficiency of the filter element.

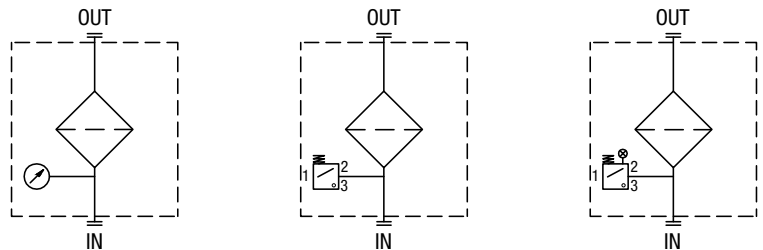
They measure the pressure upstream of the filter element.

Standard items are produced with R 1/8" EN 10226 connection.

Barometric (pressure) indicators are identified in the Hydraulic Filtration catalogue and in the Quick Reference Guide table by the letter "B".

Example:

B BVA14P01



D DIFFERENTIAL PRESSURE INDICATORS

Differential pressure indicators are used on the Pressure line to check the efficiency of the filter element.

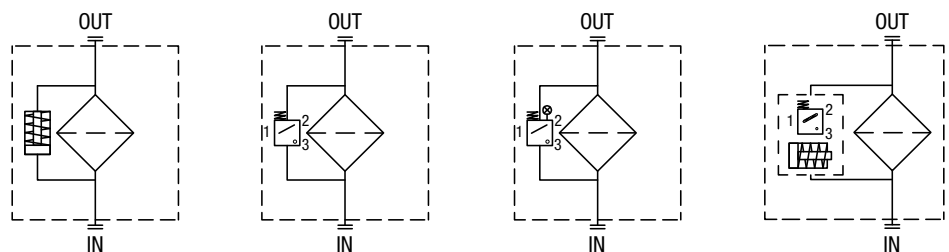
They measure the pressure upstream and downstream of the filter element (differential pressure).

Standard items are produced with special connection G 1/2" size.

Also available in Stainless Steel models. Differential pressure indicators are identified in the Hydraulic Filtration catalogue and in the Quick Reference Guide table by the letter "D".

Example:

D DVA20xP01



Designation & Ordering code

VACUUM INDICATORS										
Series		Configuration example 1:								EX
VE Electrical vacuum indicator		VE	A	21	V	A	50	P01		
VL Electrical/Visual vacuum indicator		VL	B	21	A	A	71	P01		
VV Vacuum gauge		VV	R	20				P01		
Type VE - VL		Type VV		SF2	SFEX					
A Connection EN 10226 - R1/4"	A Axial connection EN 10226 - R1/4"	•	-							
B Connection EN 10226 - R1/8"	B Axial connection EN 10226 - R1/8"	-	•							
	R Radial connection EN 10226 - R1/4"	•	-							
	S Radial connection EN 10226 - R1/8"	-	•							
Vacuum setting		VE	VL	VV						
20 -0.16 bar		-	-	•						
21 -0.21 bar		•	•	-						
Seals		VEA - VLA		VEB - VLB						
A NBR		•		•						
V FPM		•		-						
Thermostat		VE	VL							
A Without		•	•							
Electrical connections		VE	VL							
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		-	•							
53 Connection EN 175301-803, transparent base with lamps 230 Vac		-	•							
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc		-	•							
		Option								
		P01 MP Filtri standard								
		Pxx Customized								
Certifications		VEA21A	VEA21V	VEB	VL	VV				
Without		•	•	•	•	•				
EX ATEX certification		•	•	•	-	-				
UL UL certification		•	-	-	-	-				

Designation & Ordering code

BAROMETRIC (PRESSURE) INDICATORS

Series	Configuration example 1: BE A 15 H A 41 P01 EX									
BE Electrical pressure indicator	Configuration example 2: BL A 20 H A 71 P01									
BL Electrical/Visual pressure indicator	Configuration example 3: BV R 14 P01									
BV Visual pressure indicator	Configuration example 4: BV P 20 H P01									
Type	BE	BL	BV							
A Standard type	•	•	A Axial connection pressure gauge							
M With wired electrical connection	•	-	R Radial connection pressure gauge							
T With thermal switch	•	-	P Visual indicator with automatic reset							
			Q Visual indicator with manual reset							
Pressure setting	BEA-BEM	BET	BLA	BVA-BVR	BVP-BVQ					
14 1.4 bar	-	-	-	•	-					
15 1.5 bar	•	-	•	-	•					
20 2.0 bar	•	•	•	-	•					
25 2.5 bar	-	•	-	•	-					
Seals	BE	BLA	BVA-BVR	BVP-BVQ						
H HNBR	•	•	-	•						
Thermostat	BEA-BEM	BET	BLA							
A Without thermostat	•	-	•							
F With thermostat	-	•	-							
Electrical connections	BEA	BEM	BET	BL						
10 Connection AMP Superseal series 1,5	-	-	•	-						
30 Connection Deutsch DT-04-2-P	-	-	•	-						
41 Connection via four-core cable	-	•	-	-						
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	-	-	-	•						
53 Connection EN 175301-803, transparent base with lamps 230 Vac	-	-	-	•						
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	•						
Option										
P01 MP Filtri standard										
Pxx Customized										
Certifications	BEA	BEM-BET	BL	BV						
Without	•	•	•	•						
EX ATEX certification	•	-	-	-						
UL UL certification	•	-	-	-						

DIFFERENTIAL PRESSURE INDICATORS

Series
DE Electrical differential pressure indicator
DL Electrical/Visual differential pressure indicator
DT Electrical differential pressure indicator
DV Visual differential pressure indicator

Configuration example 1:	DE	M	20	H	F	50	P01	
Configuration example 2:	DE	U	50	V	A	50	P01	UL
Configuration example 3:	DL	E	20	V	A	71	P01	
Configuration example 4:	DT	A	20	H	F	70	P01	
Configuration example 5:	DV	M	20	V			P01	

Type	DE	DL	DT
A Standard type	•	•	•
M With wired electrical connection	•	-	-
U Standard type 210 bar, UL certified	•	-	-
E For high power supply	-	•	-
S Compact version	•	-	-

DV
A With automatic reset
M With manual reset
S With automatic reset

Pressure setting	DEA	DEM	DEU	DES	DL	DT	DVA	DVM	DVS
12 1.2 bar	-	-	-	•	-	-	-	-	•
20 2.0 bar	•	•	•	-	•	•	•	•	-
25 2.5 bar	-	-	-	•	-	-	-	-	•

Seals	DEA	DEM	DEU	DES	DL	DT	DVA	DVM	DVS
H HNBR	•	•	-	•	•	•	•	•	•
V FPM	•	•	•	-	•	•	•	•	-

Thermostat	DEA	DEM	DEU	DES	DLA	DLE	DT
A Without thermostat	•	•	•	•	•	•	-
F With thermostat	-	•	-	-	-	•	•

Electrical connections	DEA	DEM	DEU	DES	DLA	DLE	DT
10 Connection AMP Superseal series 1.5	-	•	-	•	-	-	-
20 Connection AMP Timer Junior	-	•	-	-	-	-	-
30 Connection Deutsch DT-04-2-P	-	•	-	•	-	-	-
35 Connection Deutsch DT-04-3-P	-	•	-	-	-	-	-
50 Connection EN 175301-803	•	-	•	-	-	•	-
51 Connection EN 175301-803, transparent base with lamps 24 Vdc	-	-	-	-	•	-	-
52 Connection EN 175301-803, transparent base with lamps 110 Vdc	-	-	-	-	•	-	-
70 Connection IEC 61076-2-101 D (M12)	-	-	-	-	-	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	-	•	-	-
80 Connection Stud #10-32 UNF	-	-	-	•	-	-	-

Option
P01 MP Filtri standard
Pxx Customized

Certifications	DEU	OTHERS
Without	-	•
UL UL certification	•	-

PLUGS

Series
T2 Plug
T4 Plug

Configuration example	T2	H
-----------------------	----	---

Seals	T2	T4
A NBR	-	•
H HNBR	•	-
V FPM	•	-

Designation & Ordering code

VACUUM INDICATORS

Series	Configuration example 1:							
VE Electrical vacuum indicator	VE	A	21	V	A	50	P01	EX
VL Electrical/Visual vacuum indicator	Configuration example 2:							
	VL	B	21	A	A	71	P01	
VV Vacuum gauge	Configuration example 3:							
	VV	R	20				P01	

Type VE - VL	Type VV
A Connection EN 10226 - R1/4"	A Axial connection EN 10226 - R1/4"
B Connection EN 10226 - R1/8"	B Axial connection EN 10226 - R1/8"
	R Radial connection EN 10226 - R1/4"
	S Radial connection EN 10226 - R1/8"

Vacuum setting	VE	VL	VV
20 -0.16 bar	-	-	•
21 -0.21 bar	•	•	-

Seals	VEA - VLA	VEB - VLB
A NBR	•	•
V FPM	•	-

Thermostat	VE	VL
A Without thermostat	•	•

Electrical connections	VE	VL
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	-	•
53 Connection EN 175301-803, transparent base with lamps 230 Vac	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	•

Option
P01 MP Filtri standard
Pxx Customized

Certifications	VEA21A	VEA21V	VEB	VL	VV
Without	•	•	•	•	•
EX ATEX certification	•	•	•	-	-
UL UL certification	•	-	-	-	-

BAROMETRIC (PRESSURE) INDICATORS

Series	Configuration example 1:							
BE Electrical pressure indicator	BE	M	15	H	A	41	P01	EX
BL Electrical/Visual pressure indicator	Configuration example 2:							
	BL	A	20	H	A	71	P01	
BV Visual pressure indicator	Configuration example 3:							
	BV	R	14				P01	
	Configuration example 4:							
	BV	P	20	H			P01	

Type	BE	BL	BV
A Standard type	•	•	A Axial connection pressure gauge
M With wired electrical connection	•	-	R Radial connection pressure gauge
T With thermal switch	•	-	P Visual indicator with automatic reset
			Q Visual indicator with manual reset

Pressure setting	BEA-BEM	BET	BLA	BVA-BVR	BVP-BVQ
14 1.4 bar	-	-	-	•	-
15 1.5 bar	•	-	•	-	-
20 2.0 bar	•	•	•	-	•
25 2.5 bar	-	•	-	•	-

Seals	BE	BLA	BVP-BVQ
H HNBR	•	•	•

Thermostat	BEA-BEM	BET	BLA
A Without thermostat	•	-	•
F With thermostat	-	•	-

Electrical connections	BEA	BEM	BET	BL
10 Connection AMP Superseal series 1.5	-	-	•	-
30 Connection Deutsch DT-04-2-P	-	-	•	-
41 Connection via four-core cable	-	•	-	-
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	-	-	-	•
53 Connection EN 175301-803, transparent base with lamps 230 Vac	-	-	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	•

Option
P01 MP Filtri standard
Pxx Customized

Certifications	BEA	BEM-BET	BL	BV
Without	•	•	•	•
EX ATEX certification	•	-	-	-
UL UL certification	•	-	-	-

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:								Configuration example 2:		Configuration example 3:		Configuration example 4:		Configuration example 5:																							
DE Electrical differential pressure indicator	DE	M	12	H	F	50	P01	DE	U	50	V	A	50	P01	UL	DL	E	20	V	A	71	P01	DT	A	50	H	F	70	P01	DV	M	70	V			P01		
DL Electrical/Visual differential pressure indicator																																						
DT Electronic differential pressure indicator																																						
DV Visual differential pressure indicator																																						

Type	DE	DL	DT	DV				
A Standard type	•	•	•	A With automatic reset				
M With wired electrical connection	•	-	-	M With manual reset				
U Standard type 210 bar, UL certified	•	-	-					
E For high power supply	-	•	-					

Pressure setting	DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM
20 2.0 bar	•	•	•	•	•	•	•	•

Seals	DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM
H HNBR	•	•	-	•	•	•	•	•
V FPM	•	•	•	•	•	•	•	•

Thermostat	DEA	DEM	DEU	DLA	DLE	DT
A Without thermostat	•	•	•	•	•	-
F With thermostat	-	•	-	-	•	•

Electrical connections	DEA	DEM	DEU	DLA	DLE	DT
10 Connection AMP Superseal series 1.5	-	•	-	-	-	-
20 Connection AMP Timer Junior	-	•	-	-	-	-
30 Connection Deutsch DT-04-2-P	-	•	-	-	-	-
35 Connection Deutsch DT-04-3-P	-	•	-	-	-	-
50 Connection EN 175301-803	•	-	•	-	•	-
51 Connection EN 175301-803, transparent base with lamps 24 Vdc	-	-	-	•	-	-
52 Connection EN 175301-803, transparent base with lamps 110 Vdc	-	-	-	•	-	-
70 Connection IEC 61076-2-101 D (M12)	-	-	-	-	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	•	-	-

Option	DEU	OTHERS
P01 MP Filtri standard	-	•
Pxx Customized	-	-

Certifications	DEU	OTHERS
Without	-	•
UL UL certification	•	-

PLUGS

Series	Configuration example	
T2 Plug	T2	H

Seals
H HNBR
V FPM

Designation & Ordering code

VACUUM INDICATORS

Series	Configuration example 1:	VE	B	21	A	A	50	P01	EX
VE Electrical vacuum indicator	Configuration example 2:	VL	B	21	A	A	71	P01	
VL Electrical/Visual vacuum indicator	Configuration example 3:	VV	S	20				P01	
VV Vacuum gauge									

Type VE - VL	Type VV
B Connection EN 10226 - R1/8"	B Axial connection EN 10226 - R1/8"
	S Radial connection EN 10226 - R1/8"

Vacuum setting	VE	VL	VV
20 -0.16 bar	-	-	•
21 -0.21 bar	•	•	-

Seals	VE	VL
A NBR	•	•

Thermostat	VE	VL
A Without thermostat	•	•

Electrical connections	VE	VL
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	-	•
53 Connection EN 175301-803, transparent base with lamps 230 Vac	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	•

Option
P01 MP Filtri standard
Pxx Customized

Certifications	VEA21A	VEA21V	VEB	VL	VV
Without	•	•	•	•	•
EX ATEX certification	•	•	•	-	-
UL UL certification	•	-	-	-	-

BAROMETRIC (PRESSURE) INDICATORS

Series	Configuration example 1:	BE	M	15	H	A	41	P01
BE Electrical pressure indicator	Configuration example 2:	BL	A	20	H	A	71	P01
BL Electrical/Visual pressure indicator	Configuration example 3:	BV	R	14				P01
BV Visual pressure indicator	Configuration example 4:	BV	P	20	H			P01

Type	BE	BL	BV
A Standard type	•	•	A Axial connection pressure gauge
M With wired electrical connection	•	-	R Radial connection pressure gauge
			P Visual indicator with automatic reset
			Q Visual indicator with manual reset

Pressure setting	BEA-BEM	BLA	BVA-BVR	BVP-BVQ
14 1.4 bar	-	-	•	-
15 1.5 bar	•	•	-	-
20 2 bar	•	•	-	•
25 2.5 bar	-	-	•	-

Seals	BE	BLA	BVA-BVR	BVP-BVQ
H HNBR	•	•	-	•

Thermostat	BEA-BEM	BLA	BV
A Without thermostat	•	•	-

Electrical connections	BEA	BEM	BL
10 Connection AMP Superseal series 1.5	-	-	-
30 Connection Deutsch DT-04-2-P	-	-	-
41 Connection via four-core cable	-	•	-
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	-	-	•
53 Connection EN 175301-803, transparent base with lamps 230 Vac	-	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	•

Option
P01 MP Filtri standard
Pxx Customized

Certifications	BEA	BEM-BET	BL	BV
Without	•	•	•	•
EX ATEX certification	•	-	-	-
UL UL certification	•	-	-	-

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:								Configuration example 2:		Configuration example 3:		Configuration example 4:		Configuration example 5:																							
DE Electrical differential pressure indicator	DE	M	12	H	F	50	P01	DE	U	50	V	A	50	P01	UL	DL	E	20	V	A	71	P01	DT	A	50	H	F	70	P01	DV	M	70	V			P01		
DL Electrical/Visual differential pressure indicator																																						
DT Electronic differential pressure indicator																																						
DV Visual differential pressure indicator																																						

Type	DE	DL	DT	DV			
A Standard type	•	•	•	A With automatic reset			
M With wired electrical connection	•	-	-	M With manual reset			
U Standard type 210 bar, UL certified	•	-	-				
E For high power supply	-	•	-				

Pressure setting	DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM
12 1.2 bar	•	•	-	•	•	•	•	•
20 2.0 bar	•	•	•	•	•	•	•	•

Seals	DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM
H HNBR	•	•	-	•	•	•	•	•
V FPM	•	•	•	•	•	•	•	•

Thermostat	DEA	DEM	DEU	DLA	DLE	DT
A Without thermostat	•	•	•	•	•	-
F With thermostat	-	•	-	-	•	•

Electrical connections	DEA	DEM	DEU	DLA	DLE	DT
10 Connection AMP Superseal series 1.5	-	•	-	-	-	-
20 Connection AMP Timer Junior	-	•	-	-	-	-
30 Connection Deutsch DT-04-2-P	-	•	-	-	-	-
35 Connection Deutsch DT-04-3-P	-	•	-	-	-	-
50 Connection EN 175301-803	•	-	•	-	•	-
51 Connection EN 175301-803, transparent base with lamps 24 Vdc	-	-	-	•	-	-
52 Connection EN 175301-803, transparent base with lamps 110 Vdc	-	-	-	•	-	-
70 Connection IEC 61076-2-101 D (M12)	-	-	-	-	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	•	-	-

Option	DEU	OTHERS
P01 MP Filtri standard	-	•
Pxx Customized	-	-

Certifications	DEU	OTHERS
Without	-	•
UL UL certification	•	-

PLUGS

Series	Configuration example	
T2 Plug	T2	H

Seals
H HNBR
V FPM

CLOGGING INDICATORS LOW & MEDIUM PRESS. FILTERS

Designation & Ordering code

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:	DE	M	20	H	F	50	P01	
DE Electrical differential pressure indicator	Configuration example 2:	DE	U	50	V	A	50	P01	UL
DL Electrical/Visual differential pressure indicator	Configuration example 3:	DL	E	50	V	A	71	P01	
DT Electronic differential pressure indicator	Configuration example 4:	DT	A	20	H	F	70	P01	
DV Visual differential pressure indicator	Configuration example 5:	DV	M	50	V			P01	

Type	DE	DL	DT	DV
A Standard type	•	•	•	A With automatic reset
M With wired electrical connection	•	-	-	M With manual reset
U Standard type 210 bar, UL certified	•	-	-	S With automatic reset
E For high power supply	-	•	-	
S Compact version	•	-	-	

Pressure setting	DEA	DEM	DEU	DES	DLA	DLE	DTA	DVA	DVM	DVS
12 1.2 bar	•	•	-	•	•	•	•	•	•	•
20 2.0 bar	•	•	•	-	•	•	•	•	•	-
25 2.5 bar	-	-	-	-	-	-	-	-	-	•
40 4.0 bar	-	-	-	•	-	-	-	-	-	•
50 5.0 bar	•	•	•	-	•	•	•	•	•	-

Seals	DEA	DEM	DEU	DES	DL	DT	DVA	DVM	DVS
H HNBR	•	•	-	•	•	•	•	•	•
V FPM	•	•	•	-	•	•	•	•	-

Thermostat	DEA	DEM	DEU	DES	DLA	DLE	DT
A Without thermostat	•	•	•	•	•	•	-
F With thermostat	-	•	-	-	-	•	•

Electrical connections	DEA	DEM	DEU	DES	DLA	DLE	DT
10 Connection AMP Superseal series 1.5	-	•	-	•	-	-	-
20 Connection AMP Timer Junior	-	•	-	-	-	-	-
30 Connection Deutsch DT-04-2-P	-	•	-	•	-	-	-
35 Connection Deutsch DT-04-3-P	-	•	-	-	-	-	-
50 Connection EN 175301-803	•	-	•	-	-	•	-
51 Connection EN 175301-803, transparent base with lamps 24 Vdc	-	-	-	-	•	-	-
52 Connection EN 175301-803, transparent base with lamps 110 Vdc	-	-	-	-	•	-	-
70 Connection IEC 61076-2-101 D (M12)	-	-	-	-	-	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	-	•	-	-
80 Connection Stud #10-32 UNF	-	-	-	•	-	-	-

Option
P01 MP Filtri standard
Pxx Customized

Certifications	DEU	OTHERS
Without	-	•
UL UL certification	•	-

PLUGS

Series	Configuration example	T2	H
T2 Plug			
T4 Plug			

Seals	T2	T4
A NBR	-	•
H HNBR	•	-
V FPM	•	-

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:							Configuration example 2:		Configuration example 3:		Configuration example 4:		Configuration example 5:	
DE Electrical differential pressure indicator	DE	M	12	H	F	50	P01	DE	U	50	V	A	50	P01	UL
DL Electrical/Visual differential pressure indicator	DL	E	20	V	A	71	P01	DL	E	20	V	A	71	P01	
DT Electronic differential pressure indicator	DT	A	50	H	F	70	P01	DT	A	50	H	F	70	P01	
DV Visual differential pressure indicator	DV	M	70	V			P01	DV	M	70	V			P01	

Type	DE	DL	DT	DV
A Standard type	•	•	•	A With automatic reset
M With wired electrical connection	•	-	-	M With manual reset
U Standard type 210 bar, UL certified	•	-	-	
E For high power supply	-	•	-	

Pressure setting	DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM
50 5.0 bar	•	•	•	•	•	•	•	•
70 7.0 bar	•	•	•	•	•	•	•	•
95 9.5 bar	•	•	-	•	•	•	•	•

Seals	DEA	DEM	DEU	DLA	DLE	DTA	DVA	DVM
H HNBR	•	•	-	•	•	•	•	•
V FPM	•	•	•	•	•	•	•	•

Thermostat	DEA	DEM	DEU	DLA	DLE	DT
A Without thermostat	•	•	•	•	•	-
F With thermostat	-	•	-	-	•	•

Electrical connections	DEA	DEM	DEU	DLA	DLE	DT
10 Connection AMP Superseal series 1.5	-	•	-	-	-	-
20 Connection AMP Timer Junior	-	•	-	-	-	-
30 Connection Deutsch DT-04-2-P	-	•	-	-	-	-
35 Connection Deutsch DT-04-3-P	-	•	-	-	-	-
50 Connection EN 175301-803	•	-	•	-	•	-
51 Connection EN 175301-803, transparent base with lamps 24 Vdc	-	-	-	•	-	-
52 Connection EN 175301-803, transparent base with lamps 110 Vdc	-	-	-	•	-	-
70 Connection IEC 61076-2-101 D (M12)	-	-	-	-	-	•
71 Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	-	-	-	•	-	-

Option
P01 MP Filtri standard
Pxx Customized

Certifications	DEU	OTHERS
Without	-	•
UL UL certification	•	-

PLUGS

Series	Configuration example	
T2 Plug	T2	H

Seals
H HNBR
V FPM

CLOGGING INDICATORS

STAINLESS STEEL HIGH PRESSURE FILTERS

Designation & Ordering code

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:						
DE Electrical differential pressure indicator	DE	Z	50	H	A	50	P01
DL Electrical / Visual differential pressure indicator	Configuration example 2:						
DV Visual differential pressure indicator	DL	X	70	V	A	52	P01
Type	DE	DL	DV				
X Stainless steel standard type 420 bar	•	•	•				
Y Stainless steel optional type 420 bar	-	-	•				
Z Stainless steel 700 bar (only for FZH)	•	•	•				
Pressure setting	DEX	DEZ	DL	DV			
50 5.0 bar	•	•	•	•			
70 7.0 bar	•	•	•	•			
95 9.5 bar	•	•	•	•			
Seals	DEX	DEZ	DL	DV			
H HNBR	•	•	•	•			
V FPM	-	-	•	•			
F MFQ	•	•	-	-			
Thermostat	DEX	DEZ	DL	DV			
A Without thermostat	•	•	•	-			
Electrical connections	DEX	DEZ	DL				
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	-	-	•				

Option
P01 MP Filtri standard
Pxx Customized

PLUGS

Series	Configuration example	
X2 Stainless Steel plug 420 bar	X2	H
X3 Stainless Steel plug 700 bar (only for FZH)		
Seals		
H HNBR		
V FPM		
F MFQ		

FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE

Designation & Ordering code

DIFFERENTIAL PRESSURE INDICATORS

Series	Configuration example 1:						
DE Electrical differential pressure indicator	DE	H	50	F	A	48	P01
DV Visual differential pressure indicator	Configuration example 2:						
	DV	X	70	V			P01

Type	DE	DV
A With automatic reset	-	•
M With manual reset	-	•
H Stainless steel hazardous area 420 bar	•	-
X Stainless steel standard type 420 bar	-	•
Y Stainless steel optional type 420 bar	-	•

Pressure setting	DEH	DVA	DVM	DVX	DVY
50 5.0 bar	•	•	•	•	•
70 7.0 bar	•	•	•	•	•
95 9.5 bar	-	•	•	•	•

Seals	DEH	DVA	DVM	DVX	DVY
H HNBR	-	•	•	•	•
V FPM	•	•	•	•	•
F MFQ	•	-	-	-	-

Thermostat	DEH
A Without thermostat	•
T With thermostat	-

Electrical connections	DEH
48 Connection via three-core cable - fitting M20x1.5	•
49 Connection via four-core cable - fitting 1/2" NPT	•
70 Connection IEC 61076-2-101 D (M12)	•

Option
P01 MP Filtri standard
Pxx Customized

PLUGS

Series	Configuration example	
T2 Plug	X2	H
X2 Stainless Steel plug 420 bar		
X3 Stainless Steel plug 700 bar (only for FZH)		

Seals
H HNBR
V FPM
F MFQ

VACUUM INDICATORS

Technical data

VE*50 (EX)	
Electrical Vacuum Indicator Connection: EN 175301-803	
R	Ordering code
EN 10226 - R1/4"	VE A 21 x A 50 P01 VE A 21 x A 50 P01 EX
EN 10226 - R1/8"	VE B 21 A A 50 P01 VE B 21 A A 50 P01 EX

Hydraulic symbol

Electrical symbol

- Certification: ATEX, IECEx
- Certification included in EX version

Materials

- Body: Brass
- Base: Black polyamide
- Contacts: Silver
- Seal: VEA: NBR/FPM
VEB: NBR

Technical data

- Vacuum setting: 0.21 bar ±10%
- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: EN 175301-803
- Resistive load: 5 A / 14 Vdc
4 A / 30 Vdc
5 A / 125 Vac
4 A / 250 Vac
- CE certification
- Available Atex product: II 1GD Ex ia IIC Tx Ex ia IIIC Tx °C X

VEA50 UL	
Electrical Vacuum Indicator Connection: EN 175301-803	
R	Ordering code
EN 10226 - R1/4"	VE A 21 A A 50 P01 UL

Hydraulic symbol

Electrical symbol

- Certification: UL
- Certification included in EX version

Materials

- Body: Brass
- Base: Black polyamide
- Contacts: Silver
- Seal: VEA: NBR/FPM
VEB: NBR

Technical data

- Vacuum setting: 0.21 bar ±10%
- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: EN 175301-803
- Resistive load: 5 A / 14 Vdc
4 A / 30 Vdc
5 A / 125 Vac
4 A / 250 Vac
- CE certification
- Available Atex product: II 1GD Ex ia IIC Tx Ex ia IIIC Tx °C X

VL*51 - VL*52 - VL*53	
Electrical/Visual Vacuum Indicator Connection: EN 175301-803	
51: Transparent base with lamps 24 Vdc 52: Transparent base with lamps 110 Vdc 53: Transparent base with lamps 230 Vac	
R	Ordering code
EN 10226 - R1/4"	VL A 21 x A xx P01
EN 10226 - R1/8"	VL B 21 A A xx P01

Hydraulic symbol

Electrical symbol

Materials

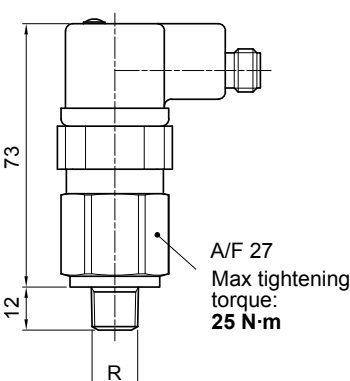
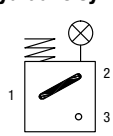
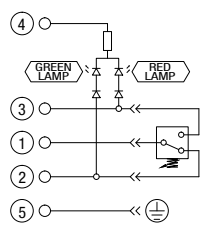
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- Base: Transparent polyamide
- Contacts: Brass - Polyamide
- Seal: VLA: NBR/FPM
VLB: NBR

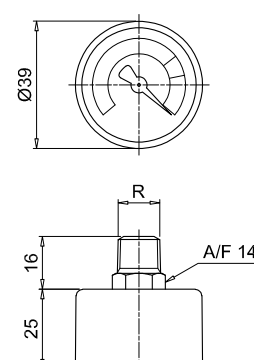

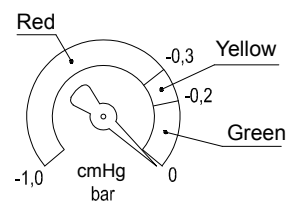
Technical data

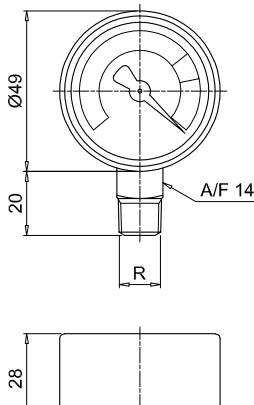

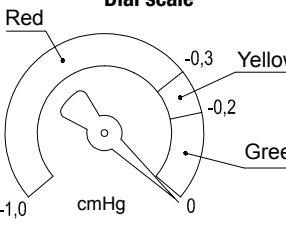
- Vacuum setting: 0.21 bar ±10%
- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: EN 175301-803
- Type: 51 52 53
- Lamps: 24 Vdc 110 Vdc 230 Vac
- Resistive load: 1 A / 24 Vdc 1 A / 110 Vdc 1 A / 230 Vac

VL*71	
Electrical/Visual Vacuum Indicator Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	
Connections	Indicator code
EN 10226 - R1/4"	VL A 21 x A 71 P01
EN 10226 - R1/8"	VL B 21 A A 71 P01
	
<p>Hydraulic symbol</p> 	
<p>Electrical symbol</p> 	
<p>Materials</p> <ul style="list-style-type: none"> - Body: Brass - Base: Black polyamide - Contacts: Silver - Seal: VLA: NBR/FPM VLB: NBR 	
<p>Technical data</p> <ul style="list-style-type: none"> - Vacuum setting: 0.21 bar ±10% - Max working pressure: 10 bar - Proof pressure: 15 bar - Working temperature: From -25 °C to +80 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Degree of protection: IP65 according to EN 60529 	
<p>Electrical data</p> <ul style="list-style-type: none"> - Electrical connection: IEC 61076-2-101 D (M12) - Lamps: 24 Vdc (black base) - Resistive load: 0.4 A / 24 Vdc 	

VVA - VVB									
Axial Vacuum Gauge									
R	Ordering code								
EN 10226 - R1/4"	VVA 20 P01								
EN 10226 - R1/8"	VVB 20 P01								
									
<p>Hydraulic symbol</p> 									
<p>Dial scale</p> 									
<p>Conversion to SI units</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr style="background-color: #cccccc;"> <th>[cmHg]</th> <th>[bar]</th> </tr> </thead> <tbody> <tr> <td>-12</td> <td>-0.16</td> </tr> <tr> <td>-18</td> <td>-0.24</td> </tr> <tr> <td>-76</td> <td>-1.01</td> </tr> </tbody> </table>		[cmHg]	[bar]	-12	-0.16	-18	-0.24	-76	-1.01
[cmHg]	[bar]								
-12	-0.16								
-18	-0.24								
-76	-1.01								
<p>Materials</p> <ul style="list-style-type: none"> - Case: Black plastic - Window: Clear plastic - Dial: White plastic - Pointer: Black plastic - Pressure connection: Cu-alloy - Pressure element: Bourdon tube Cu-alloy soft soldered, C type - Movement: Cu-alloy 									
<p>Technical data</p> <ul style="list-style-type: none"> - Max working pressure: Steady: -0.7 bar Fluctuating: -0.6 bar Short time: -1.0 bar - Working temperature: Ambienti from -40 °C to +60 °C Fluid max + 60 °C Storage from -40 °C to +60 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529 									

VVR - VVS										
Radial Vacuum Gauge										
R	A/F	Ordering code								
EN 10226 - R1/4"	14	VVR 20 P01								
EN 10226 - R1/8"	11	VVS 20 P01								
										
<p>Hydraulic symbol</p> 										
<p>Dial scale</p> 										
<p>Conversion to SI units</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr style="background-color: #cccccc;"> <th>[cmHg]</th> <th>[bar]</th> </tr> </thead> <tbody> <tr> <td>-12</td> <td>-0.16</td> </tr> <tr> <td>-18</td> <td>-0.24</td> </tr> <tr> <td>-76</td> <td>-1.01</td> </tr> </tbody> </table>			[cmHg]	[bar]	-12	-0.16	-18	-0.24	-76	-1.01
[cmHg]	[bar]									
-12	-0.16									
-18	-0.24									
-76	-1.01									
<p>Materials</p> <ul style="list-style-type: none"> - Case: Black plastic - Window: Clear plastic - Dial: White plastic - Pointer: Black plastic - Pressure connection: Cu-alloy - Pressure element: Bourdon tube Cu-alloy soft soldered, C type - Movement: Cu-alloy 										
<p>Technical data</p> <ul style="list-style-type: none"> - Max working pressure: Steady: -0.7 bar Fluctuating: -0.6 bar Short time: -1.0 bar - Working temperature: Ambienti from -40 °C to +60 °C Fluid max + 60 °C Storage from -40 °C to +60 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529 										

BAROMETRIC (PRESSURE) INDICATORS

Dimensions

BEA*50 (EX)	
Electrical Pressure Indicator Connection EN 175301-803	
Settings	Ordering code
1.5 bar ±10%	BE A 15 HA 50 P01 BE A 15 HA 50 P01 EX
2.0 bar ±10%	BE A 20 HA 50 P01 BE A 20 HA 50 P01 EX

A/F 27
Max tightening torque: 25 N·m

EN 10226 - R1/8"

Hydraulic symbol

Electrical symbol

- Certification: ATEX, IECEx
- Certification included in EX version

Materials

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

Technical data

- Max working pressure: 40 bar
- Proof pressure: 60 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: EN 175301-803
- Resistive load: 5 A / 14 Vdc
4 A / 30 Vdc
5 A / 125 Vac
4 A / 250 Vac

- CE certification
- Available Atex product: I M1 Ex ia I Ma
II 1GD Ex ia IIC Tx Ex ia IIIC Tx °C X

BEA*50 UL	
Electrical Pressure Indicator Connection EN 175301-803	
Settings	Ordering code
1.5 bar ±10%	BE A 15 HA 50 P01 UL
2.0 bar ±10%	BE A 20 HA 50 P01 UL

A/F 27
Max tightening torque: 25 N·m

EN 10226 - R1/8"

Hydraulic symbol

Electrical symbol

- Certification: UL
- Certification included in EX version

Materials

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

Technical data

- Max working pressure: 40 bar
- Proof pressure: 60 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: EN 175301-803
- Resistive load: 5 A / 14 Vdc
4 A / 30 Vdc
5 A / 125 Vac
4 A / 250 Vac

- CE certification
- Available Atex product: I M1 Ex ia I Ma
II 1GD Ex ia IIC Tx Ex ia IIIC Tx °C X

BEM*41	
Electrical Pressure Indicator Connection via four-core cable	
Settings	Ordering code
1.5 bar ±10%	BE M 15 HA 41 P01
2.0 bar ±10%	BE M 20 HA 41 P01

A/F 27
Max tightening torque: 25 N·m

EN 10226 - R1/8"

Hydraulic symbol

Electrical symbol

On request this indicator can be provided with main connectors in use for wirings.

Materials

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

Technical data

- Max working pressure: 40 bar
- Proof pressure: 60 bar
- Working temperature: From -25 °C to +80 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Degree of protection: IP67 according to EN 60529

Electrical data

- Electrical connection: Four-core cable
- Resistive load: 5 A / 14 Vdc
4 A / 30 Vdc
5 A / 125 Vac
4 A / 250 Vac

- CE certification

BET*F10	
Electrical Pressure Indicator Connection AMP Superseal series 1.5	
Settings	Ordering code
2.0 bar $\pm 10\%$	BET 20 H F 10 P01
2.5 bar $\pm 10\%$	BET 25 H F 10 P01

Hydraulic symbol

Electrical symbol

Materials

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

Technical data

- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +100 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: AMP Superseal series 1.5
- Resistive load: 0.5 A / 48 Vdc
- Thermostat condition: Open up to 30 °C
- CE certification

BET*F30	
Electrical Pressure Indicator Deutsch DT-04-2-P	
Settings	Ordering code
2.0 bar $\pm 10\%$	BET 20 H F 30 P01
2.5 bar $\pm 10\%$	BET 25 H F 30 P01

Hydraulic symbol

Electrical symbol

Materials

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

Technical data

- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +100 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: Deutsch DT-04-2-P
- Resistive load: 0.5 A / 48 Vdc
- Thermostat condition: Open up to 30 °C
- CE certification

BET*F50	
Electrical Pressure Indicator Connection EN 175301-803	
Settings	Ordering code
2.0 bar $\pm 10\%$	BET 20 H F 50 P01
2.5 bar $\pm 10\%$	BET 25 H F 50 P01

Hydraulic symbol

Electrical symbol

Materials

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

Technical data

- Max working pressure: 10 bar
- Proof pressure: 15 bar
- Working temperature: From -25 °C to +100 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943
- Degree of protection: IP65 according to EN 60529

Electrical data

- Electrical connection: EN 175301-803
- Resistive load: 0.5 A / 48 Vdc
- Thermostat condition: Open up to 30 °C
- CE certification

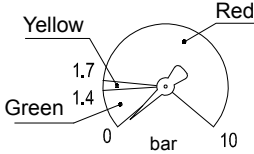
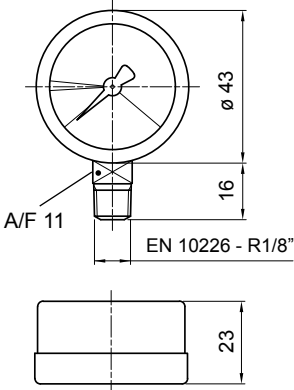
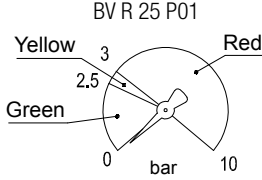
BAROMETRIC (PRESSURE) INDICATORS

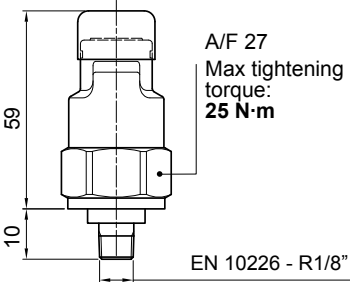
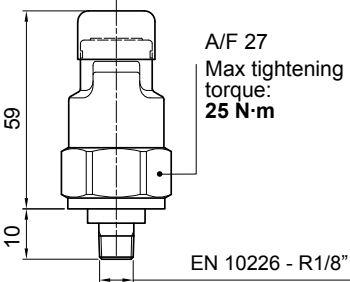
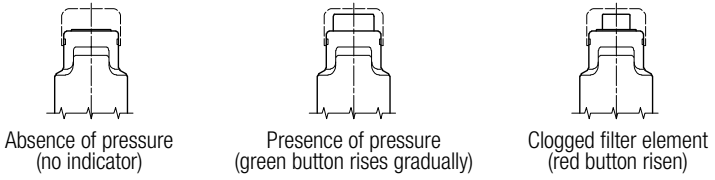
Dimensions

BL*51 - BL*52 - BL*53	
Electrical/Visual Pressure Indicator Connection: EN 175301-803	
51: Transparent base with lamps 24 Vdc 52: Transparent base with lamps 110 Vdc 53: Transparent base with lamps 230 Vac	
Settings	Ordering code
1.5 bar \pm 10%	BL A 15 H A xx P01
2.0 bar \pm 10%	BL A 20 H A xx P01
Hydraulic symbol 	
Electrical symbol 	
Materials - Body: Brass - Base: Transparent polyamide - Contacts: Silver - Seal: HNBR	
Technical data - Max working pressure: 40 bar - Proof pressure: 60 bar - Working temperature: From -25 °C to +80 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Degree of protection: IP65 according to EN 60529	
Electrical data - Electrical connection: EN 175301-803 - Type: 51 52 53 - Lamps: 24 Vdc 110 Vdc 230 Vac - Resistive load: 1 A / 24 Vdc 1 A / 110 Vdc 1 A / 230 Vac	

BL*71	
Electrical/Visual Pressure Indicator Connection IEC 61076-2-101 D (M12), black base with lamps 24 Vdc	
Settings	Ordering code
1.5 bar \pm 10%	BL A 15 H A 71 P01
2.0 bar \pm 10%	BL A 20 H A 71 P01
Hydraulic symbol 	
Electrical symbol 	
Materials - Body: Brass - Base: Black polyamide - Contacts: Silver - Seal: HNBR	
Technical data - Max working pressure: 40 bar - Proof pressure: 60 bar - Working temperature: From -25 °C to +80 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Degree of protection: IP65 according to EN 60529	
Electrical data - Electrical connection: IEC 61076-2-101 D (M12) - Lamps: 24 Vdc (black base) - Resistive load: 0.4 A / 24 Vdc	

BVA	
Axial Pressure Gauge	
Settings	Ordering code
1.4 bar \pm 10%	BV A 14 P01
2.5 bar \pm 10%	BV A 25 P01
Hydraulic symbol 	
Dial scale BV A 14 P01 	
Materials - Case: Painted Steel - Window: Clear plastic - Dial: Painted Steel - Pointer: Black plastic - Pressure connection: Brass - Pressure element: Bourdon tube Cu-alloy soft soldered, C type	
Technical data - Max working pressure: Static: 7 bar Fluctuating: 6 bar Short time: 10 bar - Working temperature: Ambient from -40 °C to +60 °C Fluid max +60 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529	
BV A 25 P01 	

BVR		Hydraulic symbol	Materials
Radial Pressure Gauge			
Settings	Ordering code		
1.4 bar ±10%	BV R 14 P01	Dial scale BV R 14 P01 	
2.5 bar ±10%	BV R 25 P01		
			Technical data <ul style="list-style-type: none"> - Max working pressure: Static: 7 bar Fluctuating: 6 bar Short time: 10 bar - Working temperature: Ambient from -40 °C to +60 °C Fluid max +60 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529

BVP - BVQ		Hydraulic symbol	Materials
Visual Pressure Indicator			
Setting	Ordering code		
1.5 bar ±10%	BV P 15 H P01	Technical data <ul style="list-style-type: none"> - Reset: BVP - Automatic reset BVQ - Manual reset - Max working pressure: 10 bar - Proof pressure: 15 bar - Working temperature: From -25 °C to +80 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Degree of protection: IP45 according to EN 60529 	
	BV Q 15 H P01		
2.0 bar ±10%	BV P 20 H P01		
	BV Q 20 H P01		
		Signals 	

DIFFERENTIAL PRESSURE INDICATORS

Dimensions

DEA*50	
Electrical Differential Pressure Indicator Connection: EN 175301-803	
Settings	Ordering code
1.2 bar ±10%	DE A 12 x A 50 P01
2.0 bar ±10%	DE A 20 x A 50 P01
5.0 bar ±10%	DE A 50 x A 50 P01
7.0 bar ±10%	DE A 70 x A 50 P01
9.5 bar ±10%	DE A 95 x A 50 P01

A/F 30
Max tightening torque: 65 N·m

Hydraulic symbol

Electrical symbol

Materials

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

Technical data

- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and 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

DEH*48	
Hazardous Area Electrical Differential Pressure Indicator Connection via three-core cable - fitting M20x1.5	
Settings	Ordering code
2.0 bar ±10%	DE H 20 x A 48 P01
5.0 bar ±10%	DE H 50 x A 48 P01
7.0 bar ±10%	DE H 70 x A 48 P01

A/F 25
Max tightening torque: 100 N·m

M20 x 1.5

min. 110

88

flexible cable ≈ 5000 to A

Hydraulic symbol

Electrical symbol

Materials

- Body: AISI 316L
- Contacts: Rhodium
- Seal: FPM - MFQ

Technical data

- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -60 °C to +125 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Temperature class: T4 (135 °C) and T6 (85 °C)
- Degree of protection: IP 66/67/68 according to EN 60529
- Connection type: Three-core cable, fitting M20x1.5
- Contact type: SPCO/SPDT (Hermetically sealed - Volt-free contacts)

Electrical data

- Connection via three-core cable - fitting M20x1.5
- Resistive Load: 830 mA / 24 Vdc - 180 mA / 110 Vac
- Electrical Ratings: $U_i = 30 \text{ Vdc} / I_i = 250 \text{ mA} / P_i = 1.3 \text{ W}$
- Available ATEX product: II 1 GD Ex ia IIC T6 Ga -60°C ≤ Ta ≤ 80°C
Ex ia IIC T4 Ga -60°C ≤ Ta ≤ 125°C
II 2 GD Ex db IIC T6* Gb Ex tb IIIC T85°C* Db
(Tamb : = -60°C to +70°C)* IP66/67
* alternative T/Class and ambients T4, T135°C
(Tamb = -60°C to +120°C)

Certification / Approvals:
ATEX, IECEx, EAC TR CU, INMETRO
- Certification included as standard

DEH*49	
Hazardous Area Electrical Differential Pressure Indicator Connection via four-core cable - fitting 1/2" NPT	
Settings	Ordering code
2.0 bar ±10%	DE H 20 x A 49 P01
5.0 bar ±10%	DE H 50 x A 49 P01
7.0 bar ±10%	DE H 70 x A 49 P01

A/F 25
Max tightening torque: 100 N·m

1/2" NPT

min. 110

88

flexible cable ≈ 5000 to A

Hydraulic symbol

Electrical symbol

Materials

- Body: AISI 316L
- Contacts: Rhodium
- Seal: FPM - MFQ

Technical data

- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Working temperature: From -60 °C to +120 °C : ATEX, IECEx, EAC TR CU, INMETRO
From -60 °C to +105 °C : UL/CSA
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Temperature class: T4 (135 °C) and T6 (85 °C)
- Degree of protection: IP 66/67/68 according to EN 60529
- Connection type: Four-core cable, fitting 1/2" NPT
- Contact type: SPCO/SPDT (Hermetically sealed - Volt-free contacts)

Electrical data

- Connection via four-core cable - fitting 1/2" NPT
- Resistive Load: 830 mA / 24 Vdc - 180 mA / 110 Vac
- Max voltage: 150 Vac/dc
- Power: 20 W
- Available ATEX product: II 1 GD Ex ia IIC T6 Ga -60°C ≤ Ta ≤ 80°C
Ex ia IIC T4 Ga -60°C ≤ Ta ≤ 125°C
II 2 GD Ex db IIC T6* Gb Ex tb IIIC T85°C* Db
(Tamb : = -60°C to +70°C)* IP66/67
* alternative T/Class and ambients T4, T135°C
(Tamb = -60°C to +120°C)

Certification / Approvals:
ATEX, IECEx, EAC TR CU, INMETRO, UL/CSA Class I Division 1 Groups A-D, UL/CSA Class II Division 1 Groups E-G
- Certification included as standard

DEH*70		Hydraulic symbol	Materials
Hazardous Area Electrical Differential Pressure Indicator Connection IEC 61076-2-101 D (M12)			
Settings	Ordering code		
2.0 bar ±10%	DE H 20 x A 70 P01	Electrical symbol 	Technical data - Max working pressure: 420 bar - Proof pressure: 630 bar - Burst pressure: 1260 bar - Working temperature: From -60 °C to +80 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFB and HFC according to ISO 2943 - Temperature class: T6 (85 °C) - Degree of protection: IP 66/67 according to EN 60529 - Connection type: IEC 61076-2-101 D (M12) - Contact type: SPCO/SPDT (Hermetically sealed - Volt-free contacts)
5.0 bar ±10%	DE H 50 x A 70 P01		
7.0 bar ±10%	DE H 70 x A 70 P01		
		Electrical data - Connection IEC 61076-2-101 D (M12) - Resistive Load: 830 mA / 24 Vdc - 180 mA / 110 Vdc - Electrical Ratings: <i>U_i</i> = 30 Vdc <i>I_i</i> = 250 mA <i>P_i</i> = 1.3 W - Available ATEX product: II 1 GD Ex ia IIC T6 Ga -60°C ≤ Ta ≤ 80°C Ex ia IIC T4 Ga -60°C ≤ Ta ≤ 125°C II 2 GD Ex db IIC T6* Gb Ex tb IIIC T85°C* Db (Tamb = -60°C to +70°C)* IP66/67 * alternative T/Class and ambients T4, T135°C (Tamb = -60°C to +120°C)	

DEM*F10		Hydraulic symbol	Materials
Electrical Differential Pressure Indicator Connection: AMP Superseal series 1.5			
Settings	Ordering code		
1.2 bar ±10%	DE M 12 x F 10 P01	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 HFB and HFC according to ISO 2943 - Degree protection: IP66 according to EN 60529
2.0 bar ±10%	DE M 20 x F 10 P01		
5.0 bar ±10%	DE M 50 x F 10 P01		
7.0 bar ±10%	DE M 70 x F 10 P01		
9.5 bar ±10%	DE M 95 x F 10 P01		
		Electrical data - Electrical connection: AMP Superseal series 1.5 - Resistive load: 0.2 A / 115 Vdc - Switching type: Normally open contacts (NC on request) - Thermal lockout: Normally open up to 30 °C (option "F")	

DEM*F20		Hydraulic symbol	Materials
Electrical Differential Pressure Indicator AMP Time junior			
Settings	Ordering code		
1.2 bar ±10%	DE M 12 x F 20 P01	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 HFB and HFC according to ISO 2943 - Degree protection: IP66 according to EN 60529
2.0 bar ±10%	DE M 20 x F 20 P01		
5.0 bar ±10%	DE M 50 x F 20 P01		
7.0 bar ±10%	DE M 70 x F 20 P01		
9.5 bar ±10%	DE M 95 x F 20 P01		
		Electrical data - Electrical connection: AMP Time junior - Resistive load: 0.2 A / 115 Vdc - Switching type: Normally open contacts (NC on request) - Thermal lockout: Normally open up to 30 °C (option "F")	

DIFFERENTIAL PRESSURE INDICATORS

Dimensions

DEM*F30	
Electrical Differential Pressure Indicator Deutsch DT-04-2-P	
Settings	Ordering code
1.2 bar ±10%	DE M 12 x F 30 P01
2.0 bar ±10%	DE M 20 x F 30 P01
5.0 bar ±10%	DE M 50 x F 30 P01
7.0 bar ±10%	DE M 70 x F 30 P01
9.5 bar ±10%	DE M 95 x F 30 P01

A/F 28
Max tightening torque: 65 N·m

flexible cable: 240 to "A"

Hydraulic symbol

Electrical symbol

Thermal lockout

Materials

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

Technical data

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

Electrical data

- Electrical connection: Deutsch DT-04-2-P
- Resistive load: 0.2 A / 115 Vdc
- Switching type: Normally open contacts (NC on request)
- Thermal lockout: Normally open up to 30 °C (option "F")

DEM*F35	
Electrical Differential Pressure Indicator Deutsch DT-04-3-P	
Settings	Ordering code
1.2 bar ±10%	DE M 12 x F 35 P01
2.0 bar ±10%	DE M 20 x F 35 P01
5.0 bar ±10%	DE M 50 x F 35 P01
7.0 bar ±10%	DE M 70 x F 35 P01
9.5 bar ±10%	DE M 95 x F 35 P01

A/F 28
Max tightening torque: 65 N·m

flexible cable: 240 to "A"

Hydraulic symbol

Electrical symbol

Thermal lockout

Materials

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

Technical data

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

Electrical data

- Electrical connection: Deutsch DT-04-3-P
- Resistive load: 0.2 A / 115 Vdc
- Switching type: SPDT contact
- Thermal lockout: Normally open up to 30 °C (option "F")

DEM*A10	
Electrical Differential Pressure Indicator Connection: AMP Superseal series 1.5	
Settings	Ordering code
1.2 bar ±10%	DE M 12 x A 10 P01
2.0 bar ±10%	DE M 20 x A 10 P01
5.0 bar ±10%	DE M 50 x A 10 P01
7.0 bar ±10%	DE M 70 x A 10 P01
9.5 bar ±10%	DE M 95 x A 10 P01

A/F 28
Max tightening torque: 65 N·m

flexible cable: 290 to "A"

Hydraulic symbol

Electrical symbol

Materials

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

Technical data

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

Electrical data

- Electrical connection: AMP Superseal series 1.5
- Resistive load: 0.2 A / 115 Vdc
- Switching type: Normally open contacts (NC on request)

DEM*A20
Electrical Differential Pressure Indicator
AMP Time junior

Settings	Ordering code
1.2 bar ±10%	DE M 12 x A 20 P01
2.0 bar ±10%	DE M 20 x A 20 P01
5.0 bar ±10%	DE M 50 x A 20 P01
7.0 bar ±10%	DE M 70 x A 20 P01
9.5 bar ±10%	DE M 95 x A 20 P01

A/F 28
Max tightening torque: **65 N·m**

Hydraulic symbol

Electrical symbol

Materials

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

Technical data

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

Electrical data

- Electrical connection: AMP Time junior
- Resistive load: 0.2 A / 115 Vdc
- Switching type: Normally open contacts (NC on request)

DEM*A30
Electrical Differential Pressure Indicator
Deutsch DT-04-2-P

Settings	Ordering code
1.2 bar ±10%	DE M 12 x A 30 P01
2.0 bar ±10%	DE M 20 x A 30 P01
5.0 bar ±10%	DE M 50 x A 30 P01
7.0 bar ±10%	DE M 70 x A 30 P01
9.5 bar ±10%	DE M 95 x A 30 P01

A/F 28
Max tightening torque: **65 N·m**

Hydraulic symbol

Electrical symbol

Materials

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

Technical data

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

Electrical data

- Electrical connection: Deutsch DT-04-2-P
- Resistive load: 0.2 A / 115 Vdc
- Switching type: Normally open contacts (NC on request)

DEM*A35
Electrical Differential Pressure Indicator
Deutsch DT-04-3-P

Settings	Ordering code
1.2 bar ±10%	DE M 12 x A 35 P01
2.0 bar ±10%	DE M 20 x A 35 P01
5.0 bar ±10%	DE M 50 x A 35 P01
7.0 bar ±10%	DE M 70 x A 35 P01
9.5 bar ±10%	DE M 95 x A 35 P01

A/F 28
Max tightening torque: **65 N·m**

Hydraulic symbol

Electrical symbol

Materials

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

Technical data

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

Electrical data

- Electrical connection: Deutsch DT-04-3-P
- Resistive load: 0.2 A / 115 Vdc
- Switching type: SPDT contact

DIFFERENTIAL PRESSURE INDICATORS

Dimensions

DES*10	
Electrical Differential Pressure Indicator AMP Superseal series 1.5	
Settings	Ordering code
1.2 bar $\pm 10\%$	DE S 12 H A 10 P01
2.5 bar $\pm 10\%$	DE S 25 H A 10 P01
4.0 bar $\pm 10\%$	DE S 40 H A 10 P01

Hydraulic symbol

Electrical symbol

Materials

- Body: Brass
- Internal parts: Brass - Polyamide
- Contacts: Silver
- Seal: HNBR

Technical data

- Max working pressure: 16 bar
- Proof pressure: 24 bar
- Burst pressure: 48 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids

- Degree protection: IP67 according to EN 60529

Electrical data

- Electrical connection: AMP Superseal series 1.5
- Resistive load: 0.2 A / 24 Vdc
- Switching type: Normally open contacts (NC on request)

DES*30	
Electrical Differential Pressure Indicator Deutsch DT-04-2-P	
Settings	Ordering code
1.2 bar $\pm 10\%$	DE S 12 H A 30 P01
2.5 bar $\pm 10\%$	DE S 25 H A 30 P01
4.0 bar $\pm 10\%$	DE S 40 H A 30 P01

Hydraulic symbol

Electrical symbol

Materials

- Body: Brass
- Internal parts: Brass - Polyamide
- Contacts: Silver
- Seal: HNBR

Technical data

- Max working pressure: 16 bar
- Proof pressure: 24 bar
- Burst pressure: 48 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids

- Degree protection: IP67 according to EN 60529

Electrical data

- Electrical connection: Deutsch DT-04-2-P
- Resistive load: 0.2 A / 24 Vdc
- Switching type: Normally open contacts (NC on request)

DES*80	
Electrical Differential Pressure Indicator Stud #10-32 UNF	
Settings	Ordering code
1.2 bar $\pm 10\%$	DE S 12 H A 80 P01
2.5 bar $\pm 10\%$	DE S 25 H A 80 P01
4.0 bar $\pm 10\%$	DE S 40 H A 80 P01

Hydraulic symbol

Electrical symbol

Materials

- Body: Brass
- Internal parts: Brass - Polyamide
- Contacts: Silver
- Seal: HNBR

Technical data

- Max working pressure: 16 bar
- Proof pressure: 24 bar
- Burst pressure: 48 bar
- Working temperature: From -25 °C to +110 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids

- Degree protection: IP67 according to EN 60529

Electrical data

- Electrical connection: Stud #10-32 UNF
- Resistive load: 0.2 A / 24 Vdc
- Switching type: Normally open contacts (NC on request)

DEU*50 UL
Electrical Differential Pressure Indicator
 Connection EN 175301-803

Settings	Ordering code
2.0 bar ±10%	DE U 20 V A 50 P01 UL
5.0 bar ±10%	DE U 50 V A 50 P01 UL
7.0 bar ±10%	DE U 70 V A 50 P01 UL

A/F 30
Max tightening torque: 50 N·m

Hydraulic symbol

Electrical symbol

UL
 - Certification: UL
 - Certification included as standard

Materials

- Body: Brass
- Base: Black Polyamide
- Contacts: Silver
- Seal: FPM

Technical data

- Max working pressure: 210 bar
- Proof pressure: 220 bar
- Burst pressure: 880 bar
- Working temperature: From -25 °C to +85 °C
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Degree protection: IP65 according to EN 60529

Electrical data

- Electrical connection: EN 175301-803
- Resistive load: 3 A / 30 Vdc
3 A / 125 Vac
3 (3) A / 250 Vac

DEX*50
Electrical Differential Pressure Indicator
 Connection: EN 175301-803

Settings	Ordering code
1.2 bar ±10%	DE X 12 x A 50 P01
2.0 bar ±10%	DE X 20 x A 50 P01
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

A/F 30
Max tightening torque: 65 N·m

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
HFB and 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 Pressure Indicator
 Connection: EN 175301-803

Settings	Ordering code
1.2 bar ±10%	DE Z 12 x A 50 P01
2.0 bar ±10%	DE Z 20 x A 50 P01
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

A/F 30
Max tightening torque: 110 N·m

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

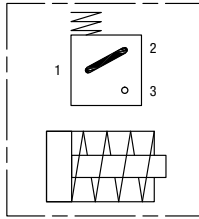
DLE*F50

Electrical/Visual Differential Pressure Indicator
With term. Connections: EN 175301-803

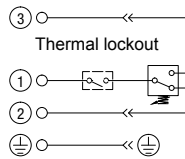
Settings	Ordering code
1.2 bar ±10%	DL E 12 x F 50 P01
2.0 bar ±10%	DL E 20 x F 50 P01
5.0 bar ±10%	DL E 50 x F 50 P01
7.0 bar ±10%	DL E 70 x F 50 P01
9.5 bar ±10%	DL E 95 x F 50 P01

A/F 32
Max tightening torque: 95 N·m

Hydraulic symbol



Electrical symbol



Materials

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

Technical data

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

Electrical data

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

DLX*51 - DLX*52

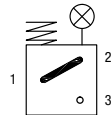
Electrical/Visual Differential Pressure Indicator
Connection: EN 175301-803

51: Transparent base with lamps 24 Vdc
52: Transparent base with lamps 110 Vdc

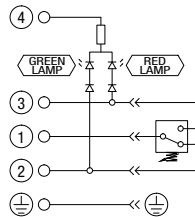
Settings	Ordering code
1.2 bar ±10%	DL X 12 x A 5x P01
2.0 bar ±10%	DL X 20 x A 5x P01
5.0 bar ±10%	DL X 50 x A 5x P01
7.0 bar ±10%	DL X 70 x A 5x P01
9.5 bar ±10%	DL X 95 x A 5x P01

A/F 30
Max tightening torque: 65 N·m

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
HFB and 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

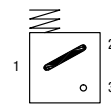
Electrical/Visual Differential Pressure Indicator
Connection: EN 175301-803

51: Transparent base with lamps 24 Vdc
52: Transparent base with lamps 110 Vdc

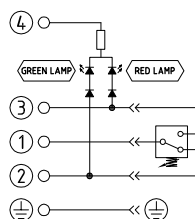
Settings	Ordering code
1.2 bar ±10%	DL Z 12 x A 5x P01
2.0 bar ±10%	DL Z 20 x A 5x P01
5.0 bar ±10%	DL Z 50 x A 5x P01
7.0 bar ±10%	DL Z 70 x A 5x P01
9.5 bar ±10%	DL Z 95 x A 5x P01

A/F 30
Max tightening torque: 110 N·m

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
HFB and 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

DIFFERENTIAL PRESSURE INDICATORS

Dimensions

DTA*F70	
Electronic Differential Pressure Indicator Connection: IEC 61076-2-101 D (M12)	
Settings	Ordering code
1.2 bar ±10%	DT A 12 x F 70 P01
2.0 bar ±10%	DT A 20 x F 70 P01
5.0 bar ±10%	DT A 50 x F 70 P01
7.0 bar ±10%	DT A 70 x F 70 P01
9.5 bar ±10%	DT A 95 x F 70 P01

A/F 30
Max tightening torque: 50 N·m

Hydraulic symbol

Materials

- Body: Brass
- Internal parts: Brass - Polyamide
- Contacts: Silver
- Seal: HNBR - FPM

Technical data

- Max working pressure: 420 bar
- Proof pressure: 630 bar
- Burst pressure: 1260 bar
- Compatibility with fluids: Mineral oils, Synthetic fluids
HFB and HFC according to ISO 2943
- Degree protection: IP67 according to EN 60529

Electrical data

- Electrical connection: IEC 61076-2-101 D (M12)
- Power supply: 24 Vdc
- Analogue output: From 4 to 20 mA
- Thermal lockout: 30 °C (all output signals stalled up to 30 °C)

Electrical symbol

①	○	○	+24 Vdc
②	○	○	4 ÷ 20 mA
③	○	○	75% - N.O. Digital output
④	○	○	100% - N.O. Digital output
⑤	○	○	0 Vdc

DVA	
Visual Differential Pressure Indicator	
Settings	Ordering code
1.2 bar ±10%	DV A 12 x P01
2.0 bar ±10%	DV A 20 x P01
5.0 bar ±10%	DV A 50 x P01
7.0 bar ±10%	DV A 70 x P01
9.5 bar ±10%	DV A 95 x P01

Green / Red
clogging indicator

A/F 28
Max tightening torque: 65 N·m

Hydraulic symbol

Materials

- Body: Brass
- Internal parts: Brass - Polyamide
- Seal: HNBR - FPM

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
HFB and HFC according to ISO 2943
- Degree protection: IP65 according to EN 60529

DVM	
Visual Differential Pressure Indicator	
Settings	Ordering code
1.2 bar ±10%	DV M 12 x P01
2.0 bar ±10%	DV M 20 x P01
5.0 bar ±10%	DV M 50 x P01
7.0 bar ±10%	DV M 70 x P01
9.5 bar ±10%	DV M 95 x P01

Red
clogging indicator

A/F 30
Max tightening torque: 65 N·m

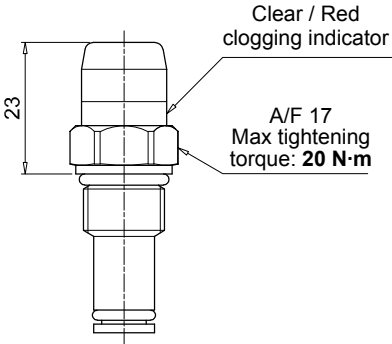
Hydraulic symbol

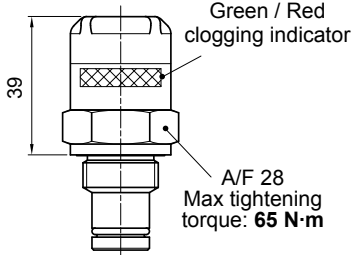
Materials

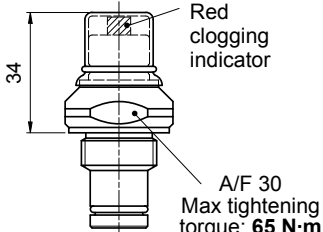
- Body: Brass
- Internal parts: Brass - Polyamide
- Seal: HNBR - FPM

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
HFB and HFC according to ISO 2943
- Degree protection: IP65 according to EN 60529

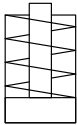
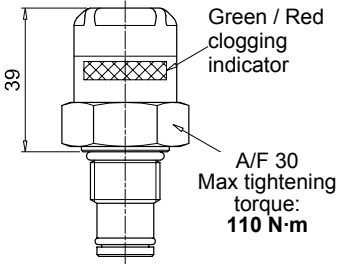
DVS		Hydraulic symbol	Materials - Body: Brass - Internal parts: Brass - Polyamide - Seal: HNBR
Visual Differential Pressure Indicator			
Settings	Ordering code		
1.2 bar ±10%	DV S 12 H P01		
2.5 bar ±10%	DV S 25 H P01		
4.0 bar ±10%	DV S 40 H P01		
			

DVX		Hydraulic symbol	Materials - Body: AISI 316L - Internal parts: AISI 316L - Polyamide - Seal: HNBR - MFQ
Visual Differential Pressure Indicator			
Settings	Ordering code		
1.2 bar ±10%	DV X 12 x P01		
2.0 bar ±10%	DV X 20 x P01		
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		
			

DVY		Hydraulic symbol	Materials - Body: AISI 316L - Internal parts: AISI 316L - Polyamide - Seal: HNBR - MFQ
Visual Differential Pressure Indicator			
Settings	Ordering code		
1.2 bar ±10%	DV Y 12 x P01		
2.0 bar ±10%	DV Y 20 x P01		
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		
			

DIFFERENTIAL PRESSURE INDICATORS

Dimensions

DVZ		Hydraulic symbol	Materials
Visual Differential Pressure Indicator			
Settings	Ordering code		Materials - Body: AISI 316L - Internal parts: AISI 316L - Polyamide - Seal: HNBR - MFQ
1.2 bar ±10%	DV Z 12 x P01		
2.0 bar ±10%	DV Z 20 x P01		
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	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 HFB and HFC according to ISO 2943 - Degree protection: IP65 according to EN 60529	
			

T2	
Plug	
Seal	Ordering code
HNBR	T2 H
FPM	T2 V

Materials

- Body: Phosphatized steel
- Seal: HNBR / FPM

A/F 30
Max tightening torque: 50 N·m

T4	
Plug	
Seal	Ordering code
NBR	T4 A

Materials

- Body: Anodized aluminium
- Seal: NBR

A/F 19
Max tightening torque: 20 N·m

X2	
Stainless Steel plug 420 bar	
Seal	Ordering code
HNBR	X2 H
FPM	X2 V
MFQ	X2 F

Materials

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

A/F 30
Max tightening torque: 50 N·m

X3	
Stainless Steel plug 700 bar (only for FZH)	
Seal	Ordering code
HNBR	X3 H
FPM	X3 V
MFQ	X3 F

Materials

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

A/F 30
Max tightening torque: 110 N·m

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