

NEW

Return filters

MPLX series

Completely interchangeable with PALL 8420 & 8520

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



PASSION TO PERFORM



FILTER SIZING

THE CORRECT FILTER SIZING HAVE TO BE BASED ON THE TOTAL PRESSURE DROP DEPENDING BY THE APPLICATION. THE MAXIMUM TOTAL PRESSURE DROP ALLOWED BY A NEW AND CLEAN RETURN FILTER HAVE TO BE IN THE RANGE 0.4 ÷ 0.6 bar.

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/dm³); all the graphs in the catalogue are referred to mineral oil with density of 0.86 kg/dm³.

The filter element pressure drop Δp_e is proportional to its viscosity (mm²/s), the corrective factor Y have to be used in case of an oil viscosity different than 30 mm²/s (cSt).

Sizing data for single filter element, head at top

Δp_c = Filter housing pressure drop [bar]

Δp_e = Filter element pressure drop [bar]

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)

V1 reference oil viscosity = 30 mm²/s (cSt)

V2 = operating oil viscosity in mm²/s (cSt)

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

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

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

Verification formula

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

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

Application	Range (bar)
Suction filters	0.08 ÷ 0.10
Return filters	0.4 ÷ 0.6
	0.4 ÷ 0.6 return lines
	0.3 ÷ 0.5 lubrication lines
Low & Medium Pressure filters	0.3 ÷ 0.4 off-line in power systems
	0.1 ÷ 0.3 off-line in test benches
	0.4 ÷ 0.6 over-boost
High Pressure filters	0.8 ÷ 1.5
Stainless Steel filters	0.8 ÷ 1.5

MPLX calculation example

Application data:

Tank top return filter

Pressure Pmax = 10 bar

Flow rate Q = 200 l/min

Viscosity V2 = 46 mm²/s (cSt)

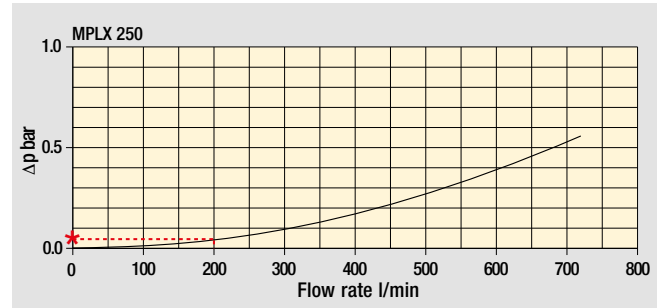
Oil density = 0.86 kg/dm³

Required filtration efficiency = 16 µm with absolute filtration

2" inlet connection

Calculation:

$\Delta p_c = 0.05 \text{ bar}$ (see graphic below)



Filter housings Δp pressure drop.

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

$$\Delta p_e = (1.25 : 1000) \times 200 \times (46 : 30) = 0.38 \text{ bar}$$

MPLX corrective factor

Corrective factor Y to be used for the filter element pressure drop calculation.

The values depend to the filter size and length and to the filter media.

Reference oil viscosity 30 mm²/s

Filter element	Absolute filtration H Series					Nominal filtration N Series
	A03	A06	A10	A16	A25	M25
MLX 250 2	3.00	3.04	1.46	1.25	1.17	0.20
MLX 660 2	1.29	1.26	0.52	0.44	0.38	0.10

$$\Delta p_{Tot.} = 0.05 + 0.38 = 0.43 \text{ bar}$$

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

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

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 $\Delta p = 0.5 \text{ bar}$.

Connections of filter under test:

2" SAE for MPLX 250

3" SAE for MPLX 660

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.



MPLX GENERAL INFORMATION

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 meet any reservoir surface flatness and roughness
- 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

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

- Microfibre 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

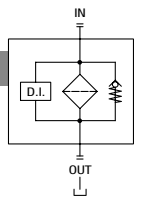


Weights [kg] and volumes [dm³]

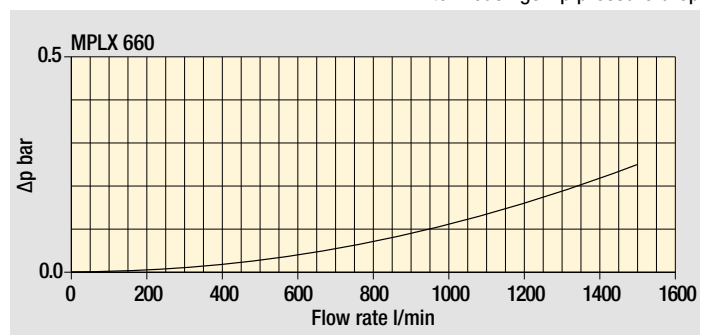
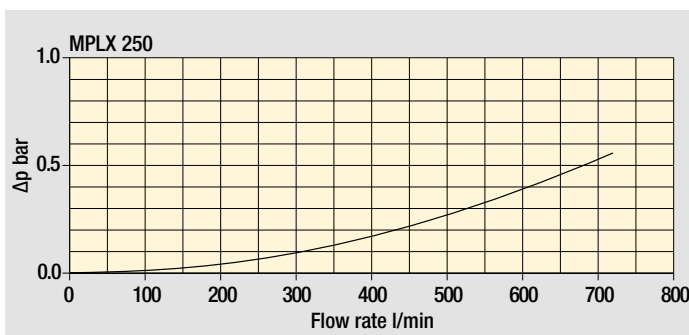
	Weights [kg]		Volumes [dm ³]	
	Length	2	Length	2
MPLX 250		8.95		2.90
MPLX 660		20.20		11.00

Hydraulic symbols

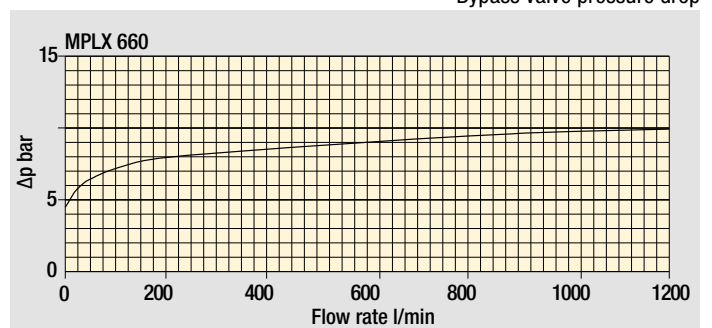
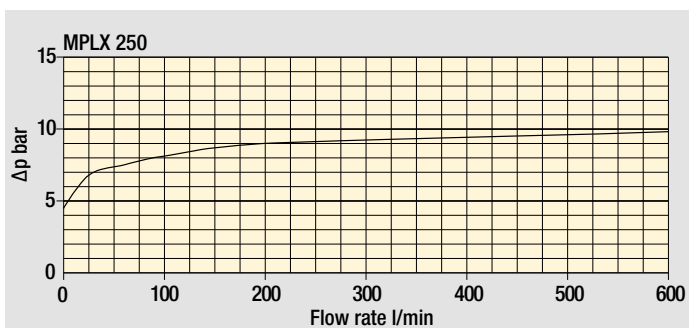
Filter series	Style 1 connection + Diff. indicator
MPLX 250	•
MPLX 660	•



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	W	A	6	M25	P01
MPLX250 Filter element with private spigot		Configuration example 2:	MPLX660	2	D	D	A	B	6	A10	P01
MPLX660 Filter element with private spigot											
Length											
2											
By-pass valve											
D 4.5 bar											
Diffuser											
S Without diffuser											
D With standard diffuser											
Seals and treatments		Filtration rating									
		Axx	Mxx	Pxx							
A NBR		•	•	•							
V FPM		•	•	•							
W NBR filter element compatible with fluids HFA-HFB-HFC		•	•								
Z 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 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									
					Execution						
					P01 MP Filtri standard						
					Pxx Customized						

FILTER ELEMENT

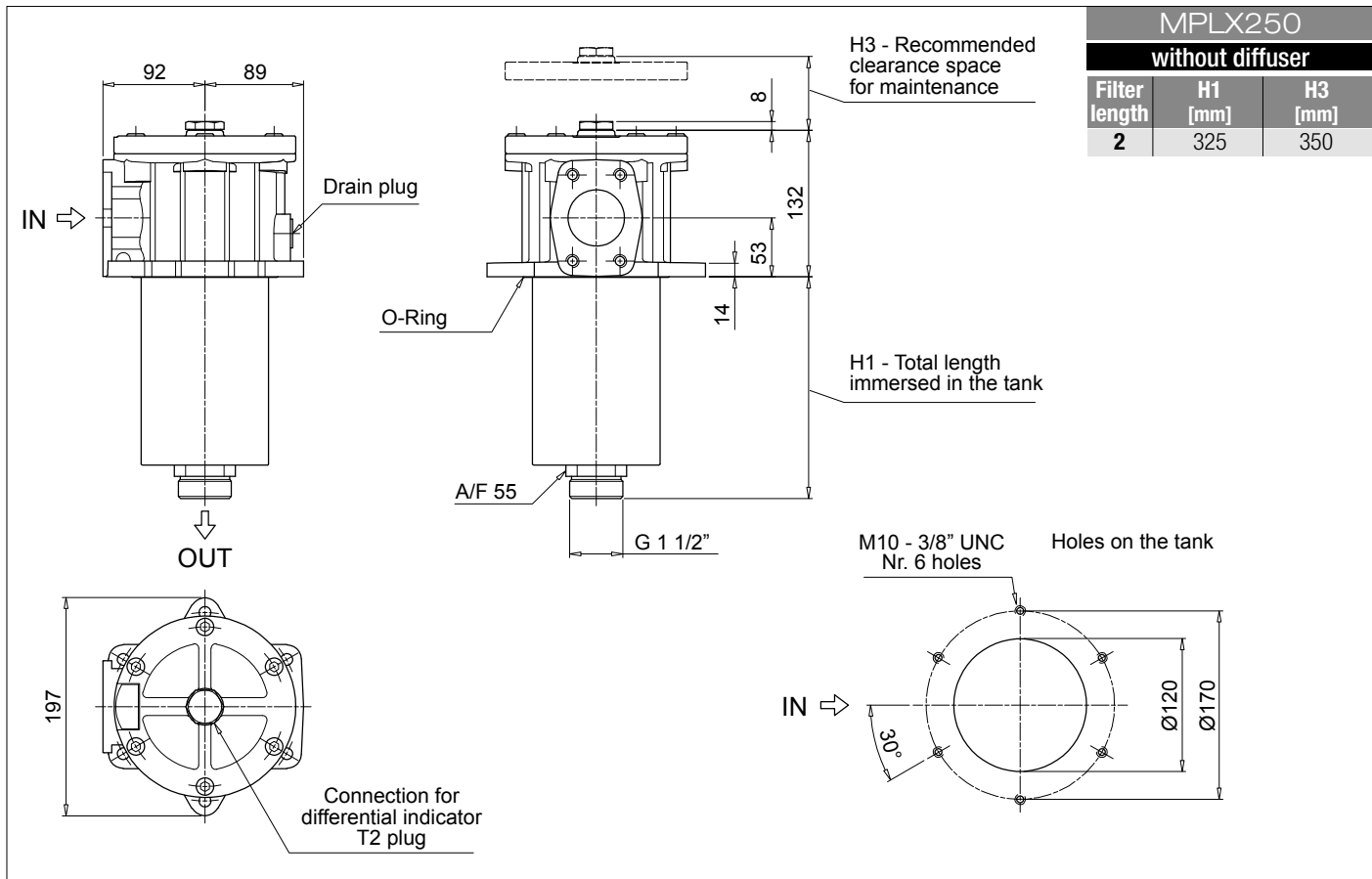
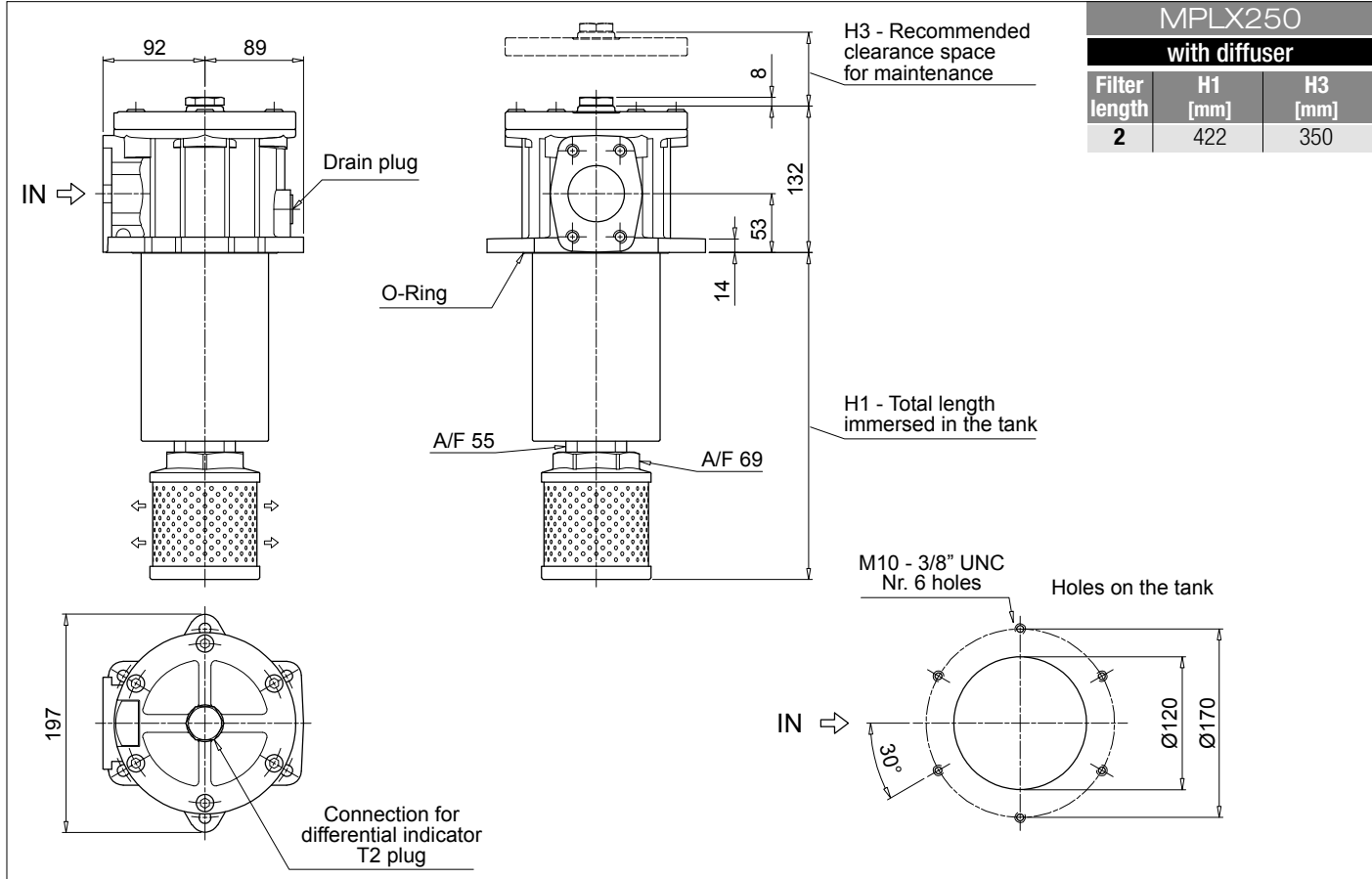
Element series and size		Configuration example 1:	MLX250	2	M25	W	P01
MLX250 Filter element with private spigot		Configuration example 2:	MLX660	2	A10	A	P01
MLX660 Filter element with private spigot							
Element length							
2							
Filtration rating (filter media)							
A03 Inorganic microfiber 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					
Seals and treatments		Filtration rating					
		Axx	Mxx	Pxx			
A NBR		•	•	•			
V FPM		•	•	•			
W NBR filter element compatible with fluids HFA-HFB-HFC		•	•				
Z FPM		•	•				
					Execution		
					P01 MP Filtri standard		
					Pxx Customized		

ACCESSORIES

Indicators			
DEA Electrical differential indicator		DTA Electronic differential indicator	
DEM Electrical differential indicator		DVA Visual differential indicator	
DLA Electrical / visual differential indicator		DVM Visual differential indicator	
DLE Electrical / visual differential indicator			
Additional features			
T2 Plug			

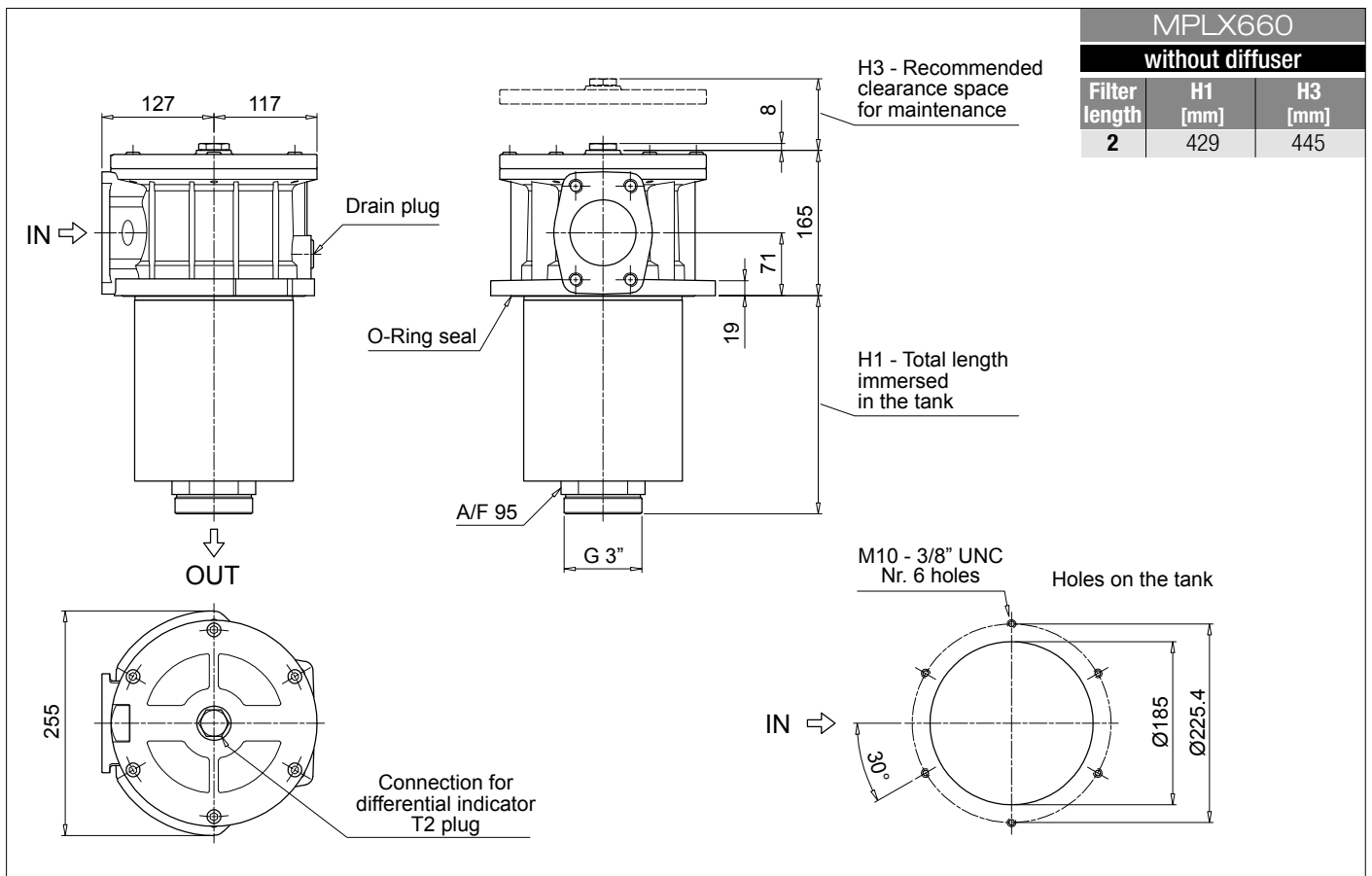
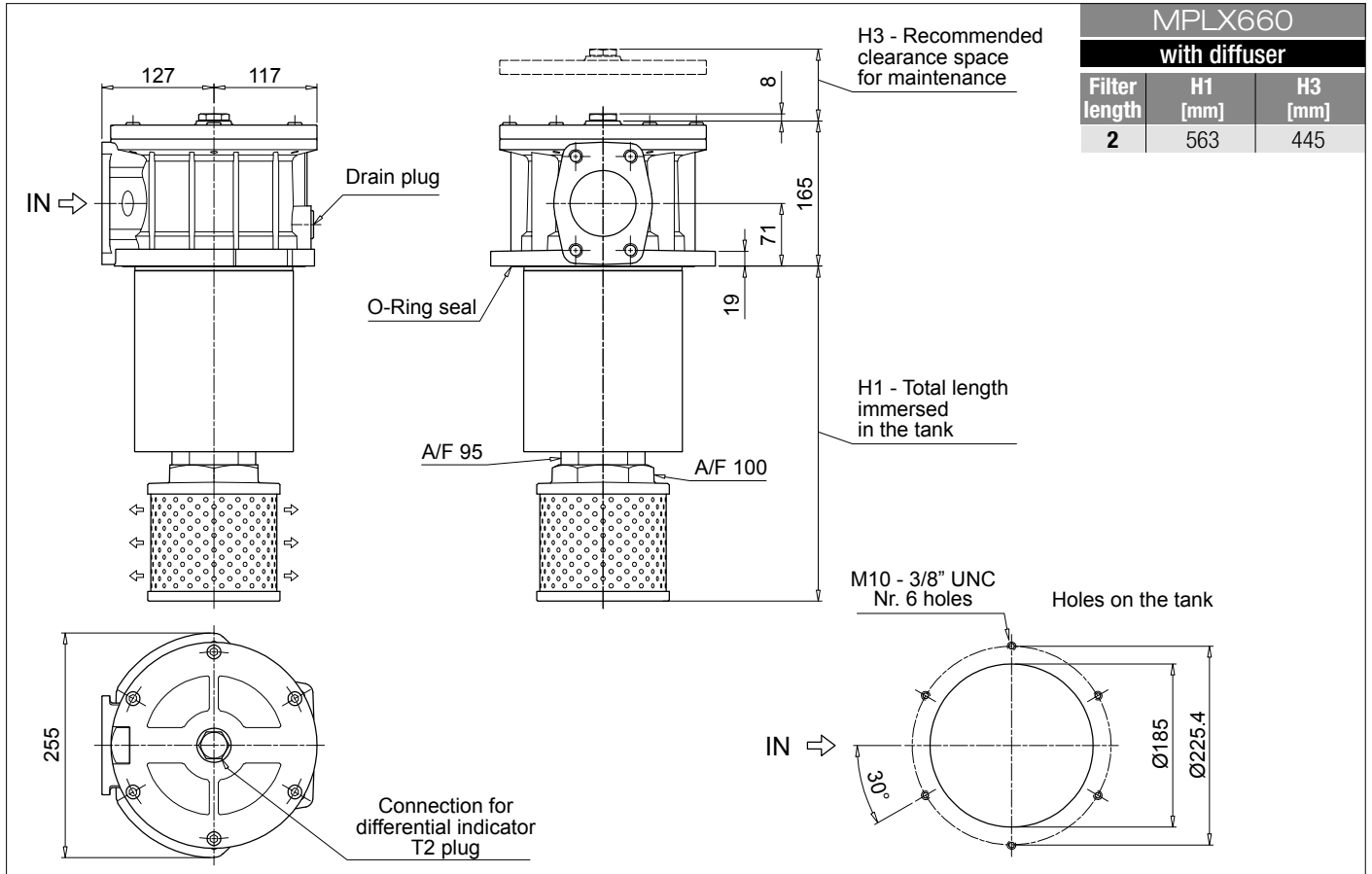
MPLX MPLX250

Dimensions



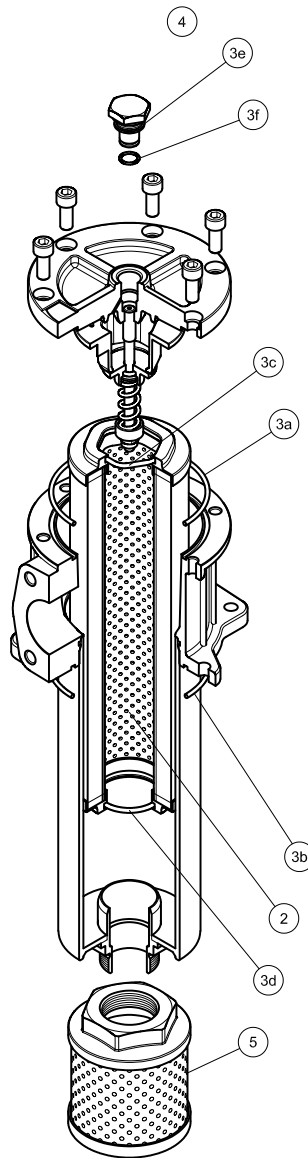
MPLX MPLX660

Dimensions



MPLX SPARE PARTS

Order number for spare parts



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		02050747	02050748			STD 150 E 155 P01

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