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

MPFILTRI®

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) ±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

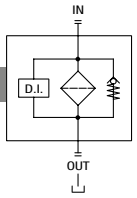
Note
MPLX filters are provided for vertical mounting

Weights [kg] and volumes [dm³]

	Weights [kg]		Volumes [dm³]	
	Length	2	Length	2
MPLX 250	8.95		2.90	
MPLX 660	20.20		11.00	

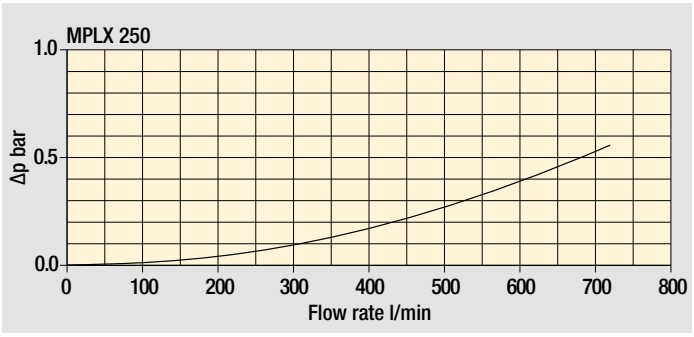
Hydraulic symbols

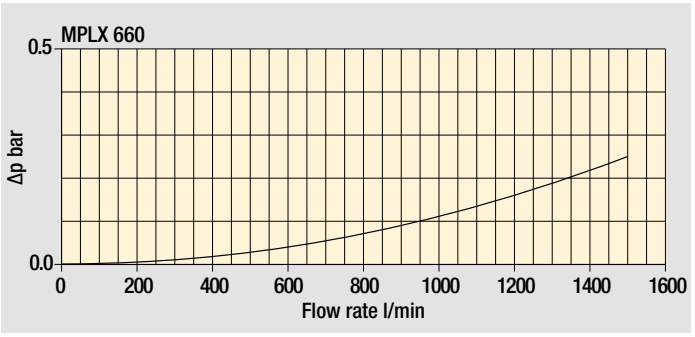
Filter series	Style 1 connection + Diff. indicator
MPLX 250	•
MPLX 660	•



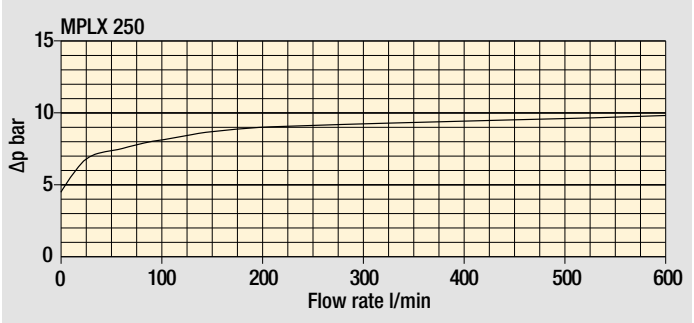
Pressure drop

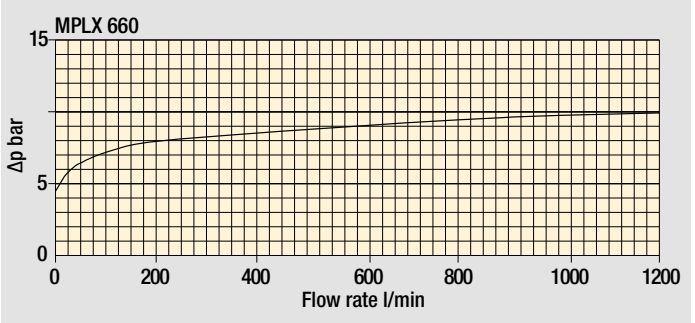
Filter housings Δp pressure drop





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.

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 Δpc 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 Δpe 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

Δpc = Filter housing pressure drop [bar]
Δpe = 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)

Δpe = Y : 1000 x Q x (V2:V1)
Δp Tot. = Δpc + Δpe

Verification formula

Δp Tot. ≤ Δp max allowed

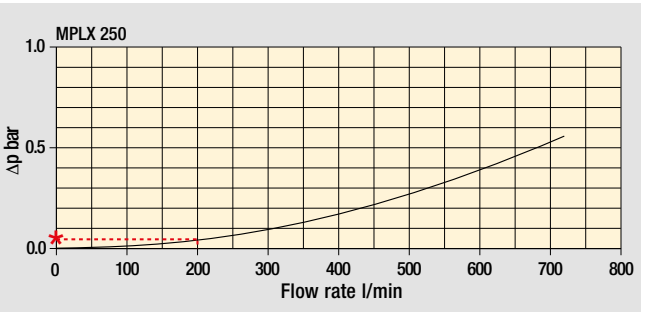
Maximum total pressure drop (Δp max) allowed by a new and clean filter

Application	Range (bar)
Suction filters	0.08 ÷ 0.10
Return filters	0.4 ÷ 0.6
Low & Medium Pressure filters	0.4 ÷ 0.6 return lines
	0.3 ÷ 0.5 lubrication lines
	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:
Δpc = 0.05 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.

Δpe = (1.25 : 1000) x 200 x (46 : 30) = 0.38 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
Type		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

Δp Tot. = 0.05 + 0.38 = 0.43 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 Δp = 0.5 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 MPLX250 - MPLX660

Designation & Ordering code

COMPLETE FILTER

Configuration example 1:	MPLX250	2	D	S	W	A	6	M25	P01
Configuration example 2:	MPLX660	2	D	D	A	B	6	A10	P01

Series and size

MPLX250 Filter element with private spigot
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

Configuration example 1:	MLX250	2	M25	W	P01
Configuration example 2:	MLX660	2	A10	A	P01

Element series and size

MLX250 Filter element with private spigot
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

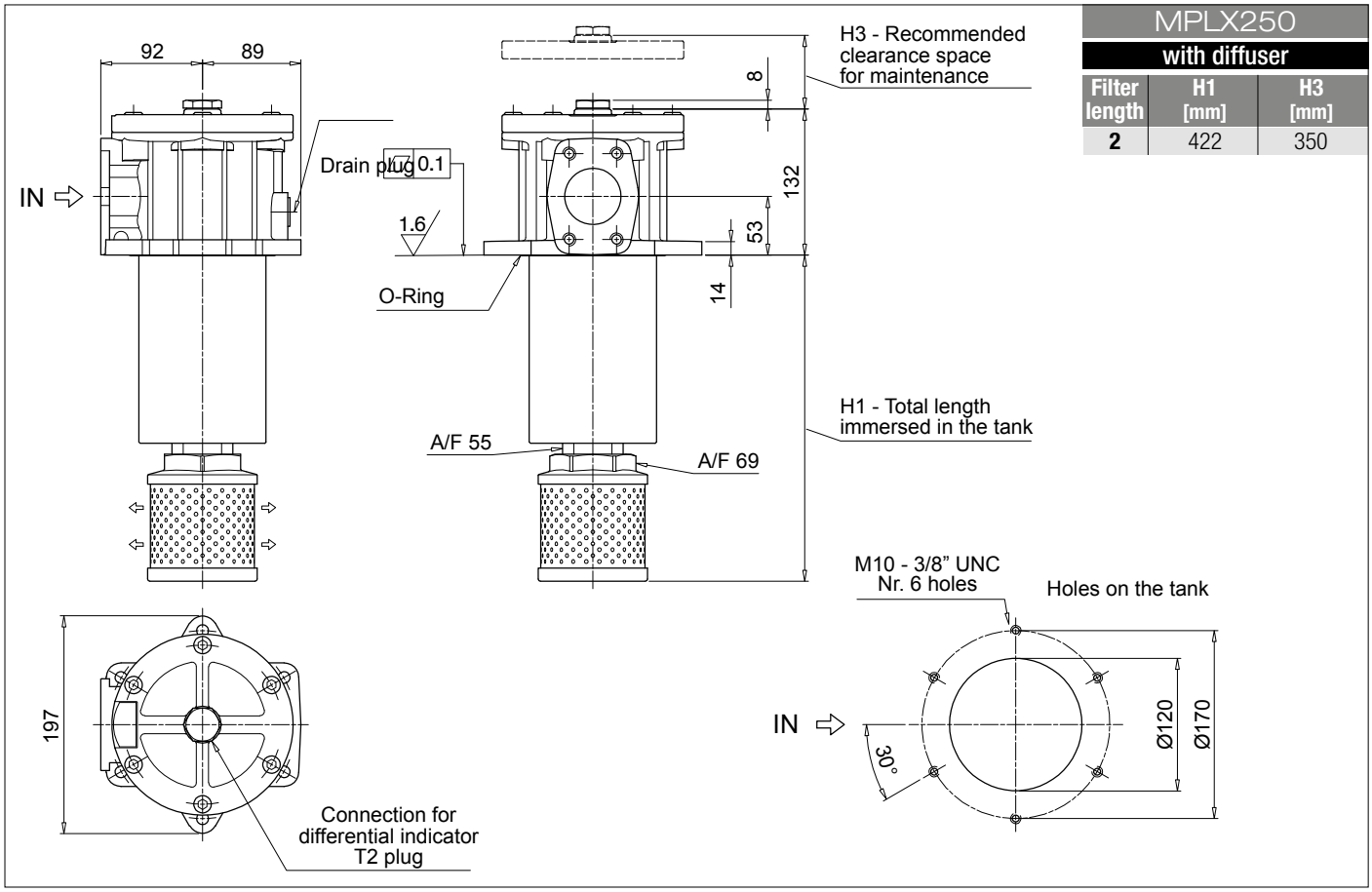
DEA Electrical differential indicator
DEM Electrical differential indicator
DLA Electrical / visual differential indicator
DLE Electrical / visual differential indicator
DTA Electronic differential indicator
DVA Visual differential indicator
DVM Visual differential indicator

Additional features

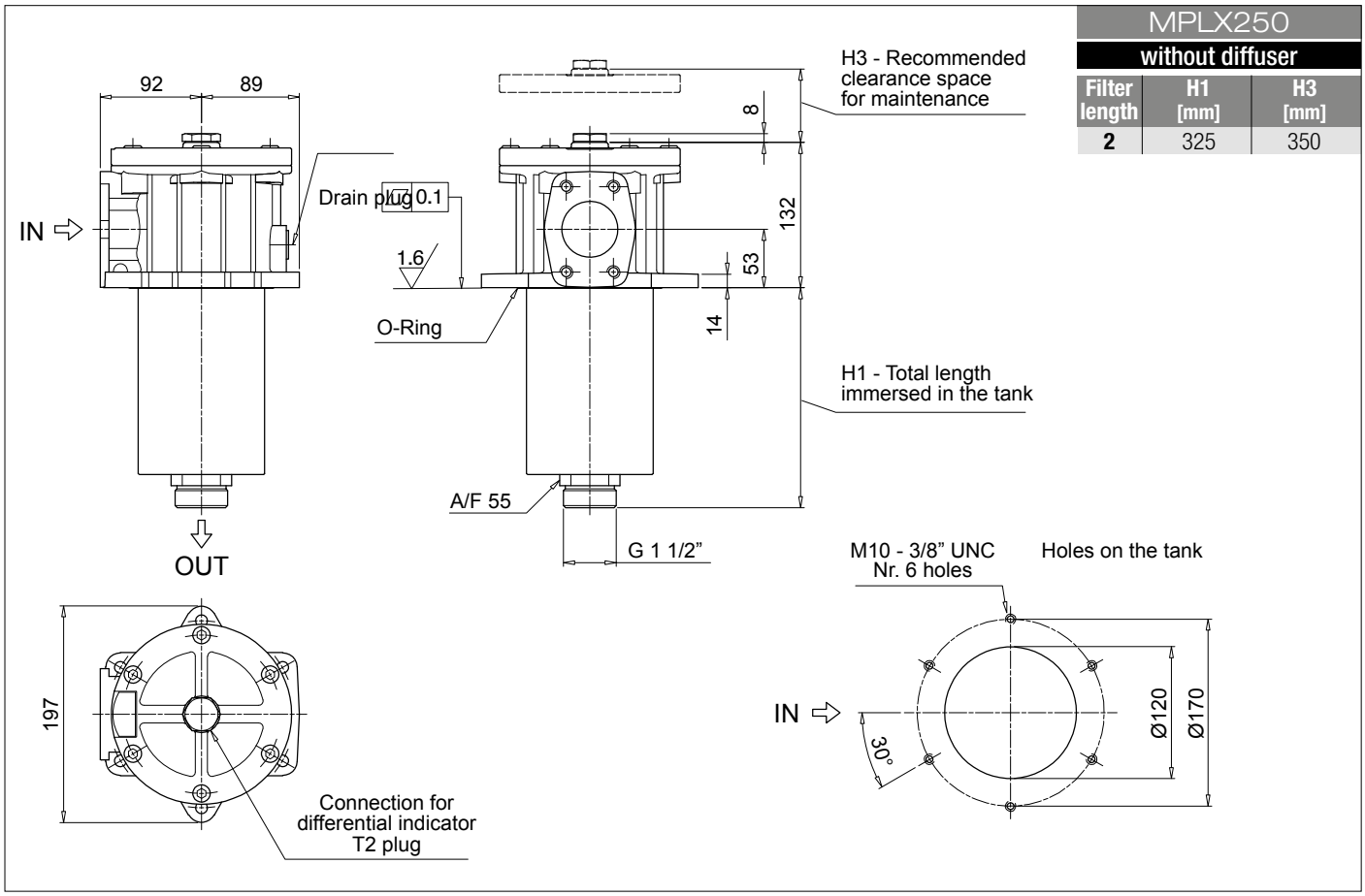
T2 Plug

MPLX MPLX250

Dimensions



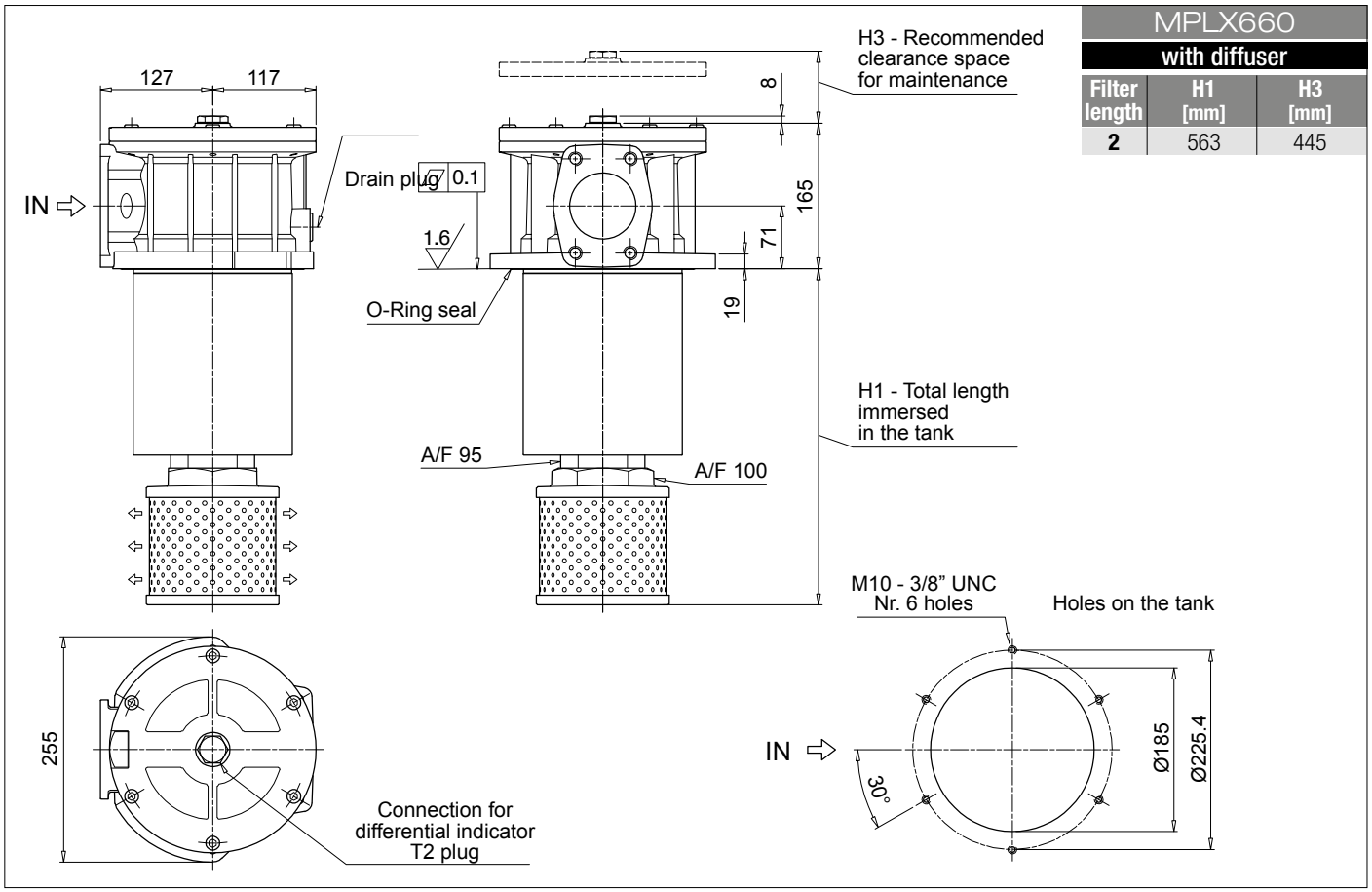
MPLX250 with diffuser		
Filter length	H1 [mm]	H3 [mm]
2	422	350



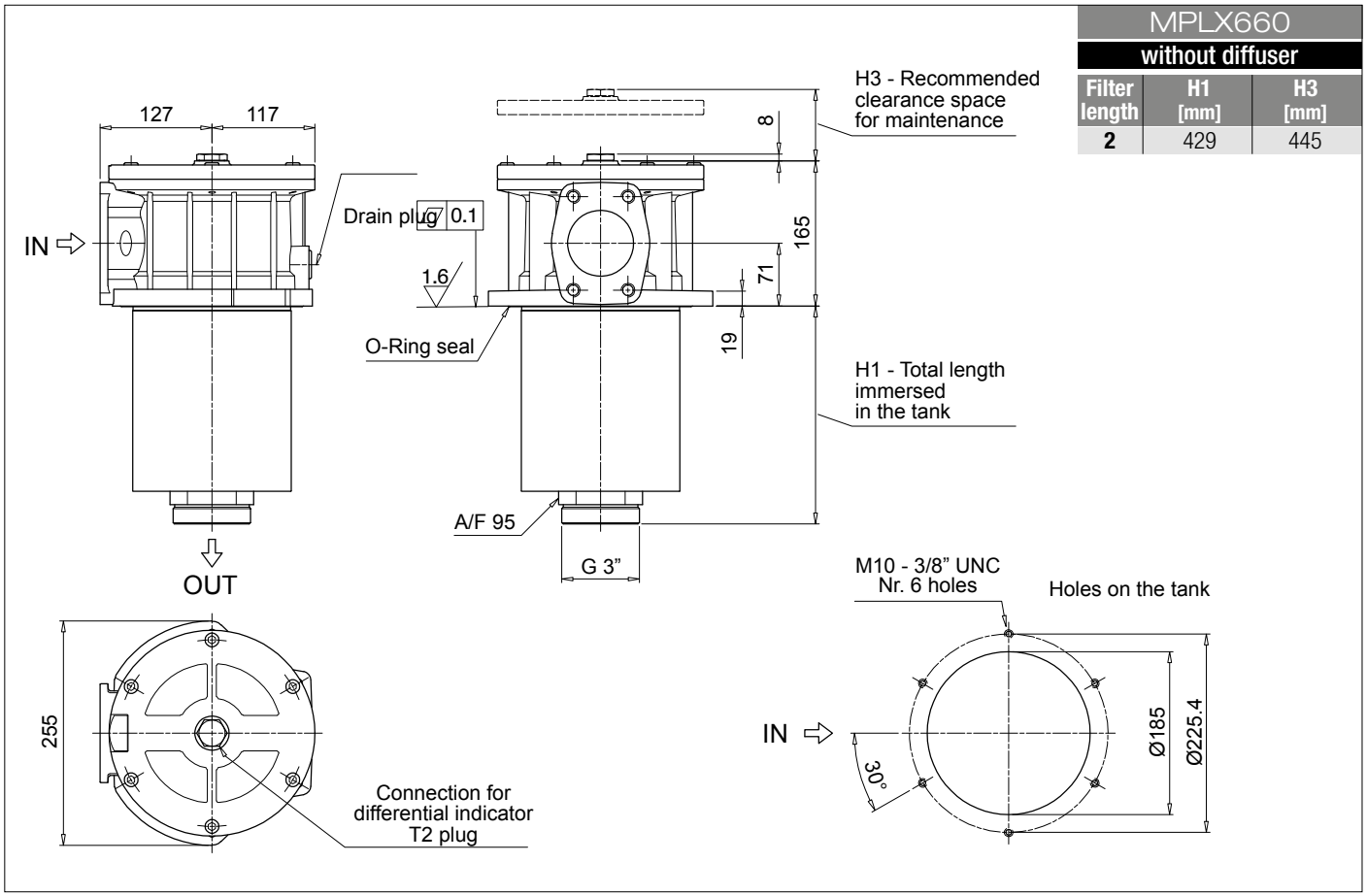
MPLX250 without diffuser		
Filter length	H1 [mm]	H3 [mm]
2	325	350

MPLX MPLX660

Dimensions



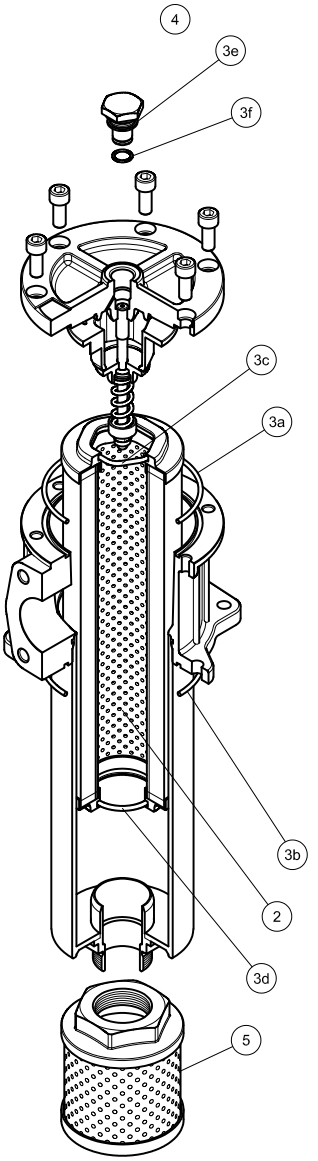
MPLX660 with diffuser		
Filter length	H1 [mm]	H3 [mm]
2	563	445



MPLX660 without diffuser		
Filter length	H1 [mm]	H3 [mm]
2	429	445

MPLX 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		Q.ty: 1 pc. 5
Filter series	**Filter element**	**Seal Kit code number NBR**	**FPM**	**Indicator connection plug NBR**	**FPM**	**Diffuser**
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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