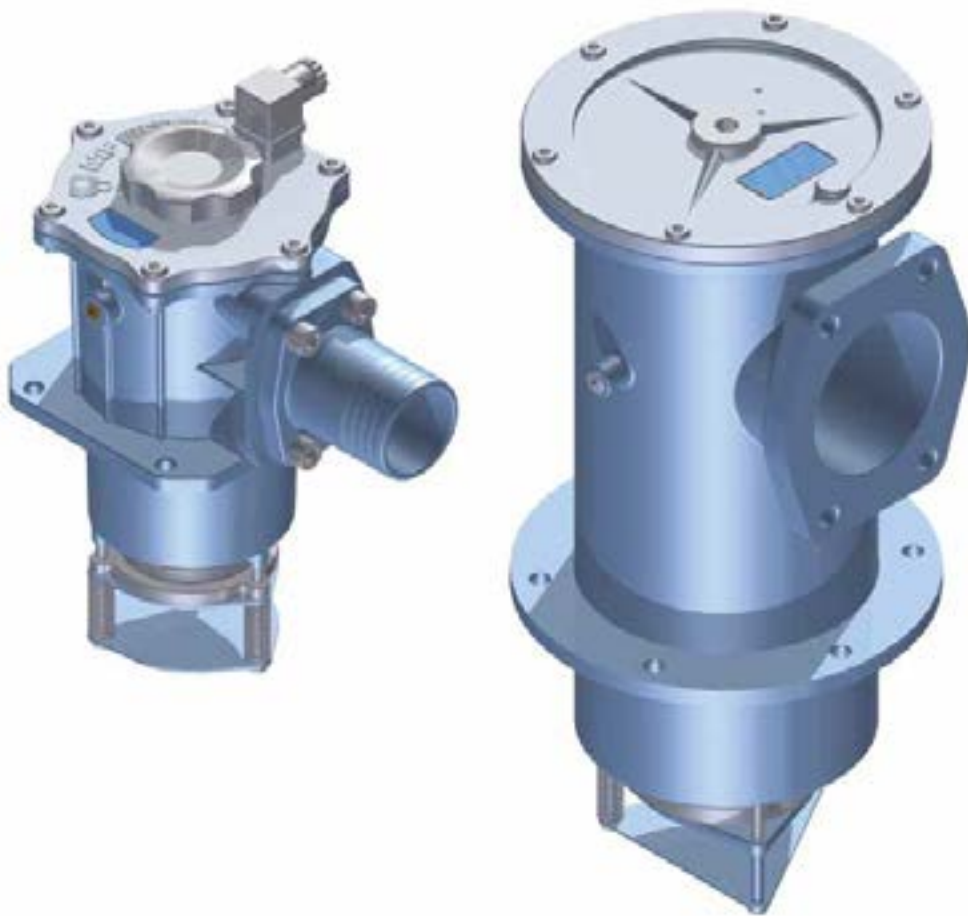


# SF2 500 series

Flow rate up to 800 l/min



The correct filter sizing have to be based on the variable pressure drop depending by the application. For example, for the return filter the pressure drop 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 in the housing is proportional to the fluid density (kg/dm<sup>3</sup>); all the graphs in the catalogue are referred to mineral oil with density of 0.86 kg/dm<sup>3</sup>.

The filter element pressure drop is proportional to its viscosity (mm<sup>2</sup>/s), the corrective factor Y is related to an oil viscosity different than 30 mm<sup>2</sup>/s.

### Sizing data for single cartridge, head at top

$\Delta p_c$  = Filter housing pressure drop [bar]

$\Delta p_e$  = Filter element pressure drop [bar]

**Y** = Multiplication factor Y (see correspondent table), depending on the filter element size, on the filter element lenght and on the filter media

**Q** = flow rate (l/min)

**V1** reference viscosity = 30 mm<sup>2</sup>/s (cSt)

**V2** = operating viscosity in mm<sup>2</sup>/s (cSt)

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

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

### Calculation examples with HLP Mineral oil Variation in viscosity

Application data:

Top tank return filter

Filter with in-line connections

Pressure Pmax = 10 bar

Flow rate Q = 120 l/min

Viscosity V2 = 46 mm<sup>2</sup>/s (cSt)

Oil viscosity = 0.86 kg/dm<sup>3</sup>

Required filtration efficiency = 25 µm with absolute filtration

With bypass valve and 1 1/4" inlet connection

From the working pressure and the flow rate we understand it should be possible using the following top tank return filter series: MPT, MPH and FRI. Let's proceed with MPT series.

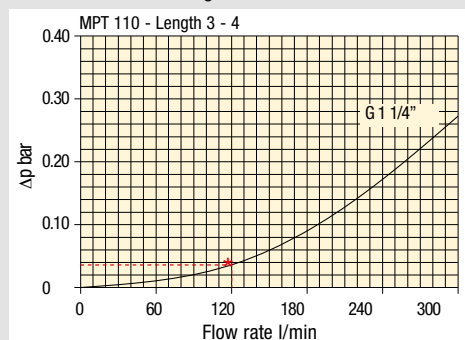
The size 20 doesn't achieve the required flow rate, therefore we have to consider the size 100. The final version of size 100 (101, 104, 110, 120 and 114) will be then defined in function of the mounting characteristics.

$\Delta p_c = 0.03 \text{ bar}$  (★ see graphic below, considering size 100 with the max available lenght to get the lowest pressure drop)

$\Delta p_e = (2.0 : 1000) \times 120 \times (46/30) = 0.37 \text{ bar}$

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

The selection is correct because the total pressure drop value is inside the admissible range for top tank return filters. It is of course possible trying to find a different solution, according to the mounting position or to other commercial need, repeating the previous steps while using a different series or lenght.



### Filter housings $\Delta p$ pressure drop.

The curves are plotted using mineral oil with density of 0.86 kg/dm<sup>3</sup> in compliance with ISO 3968.  $\Delta p$  varies proportionally with density.

**Corrective factor Y, to be used for the filter element pressure drop calculation. The values depend to the filter size and lenght and to the filter media.**

Reference viscosity 30 mm<sup>2</sup>/s

## Return filters

Filter element	Absolute filtration H Series					Nominal filtration N Series			
	Type	A03	A06	A10	A16	A25	P10	P25	M25 M60 M90
MF 020	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51	4.40
	2	29.20	24.12	8.00	7.22	5.00	3.33	2.85	2.00
	3	22.00	19.00	6.56	5.33	4.33	1.68	1.44	1.30
MF 030 MFX 030	1	74.00	50.08	20.00	16.00	9.00	6.43	5.51	3.40
MF 100 MFX 100	1	28.20	24.40	8.67	8.17	6.88	4.62	3.96	1.25
	2	17.33	12.50	6.86	5.70	4.00	3.05	2.47	1.10
	3	10.25	9.00	3.65	3.33	2.50	1.63	1.32	0.96
	4	6.10	5.40	2.30	2.20	2.00	1.19	0.96	0.82
MF 180 MFX 180	1	3.67	3.05	1.64	1.56	1.24	1.18	1.06	0.26
	2	1.69	1.37	0.68	0.54	0.51	0.43	0.39	0.12
MF 190 MFX 190	2	1.69	1.37	0.60	0.49	0.44	0.35	0.31	0.11
MF 400 MFX 400	1	3.20	2.75	1.39	1.33	1.06	0.96	0.87	0.22
	2	2.00	1.87	0.88	0.85	0.55	0.49	0.45	0.13
	3	1.90	1.60	0.63	0.51	0.49	0.39	0.35	0.11
MF 750 MFX 750	1	1.08	0.84	0.49	0.36	0.26	0.21	0.19	0.06
CU 025		78.00	48.00	28.00	24.00	9.33	9.33	8.51	1.25
CU 040		25.88	20.88	10.44	10.00	3.78	3.78	3.30	1.25
CU 100		15.20	14.53	5.14	4.95	2.00	2.00	0.17	1.10
CU 250		3.25	2.55	1.55	1.35	0.71	0.71	0.59	0.25
CU 630		1.96	1.68	0.85	0.72	0.42	0.42	0.36	0.09
CU 850		1.06	0.84	0.42	0.33	0.17	0.17	0.13	0.04
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

**Corrective factor Y, to be used for the filter element pressure drop calculation.**  
**The values depend to the filter size and lenght and to the filter media.**

Reference viscosity 30 mm<sup>2</sup>/s

## Suction filters

Filter element	Nominal filtration N Series	
	P10	P25
<b>SF 250</b>	65	21

## Return / Suction filters

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

## Low & Medium pressure filters

Filter element	Type	Absolute filtration N-W Series					Nominal filtration N Series		
		A03	A06	A10	A16	A25	P10	P25	M25
<b>CU 110</b>	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
<b>CU 210</b>	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
<b>DN</b>	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
<b>CU 400</b>	2	3.13	2.55	1.46	1.22	0.78	0.75	0.64	0.19
	3	2.15	1.70	0.94	0.78	0.50	0.40	0.34	0.10
	4	1.60	1.28	0.71	0.61	0.40	0.34	0.27	0.08
	5	1.00	0.83	0.47	0.34	0.20	0.24	0.19	0.06
	6	0.82	0.58	0.30	0.27	0.17	0.22	0.18	0.05
	<b>CU 900</b>	1	0.86	0.63	0.32	0.30	0.21	-	-
<b>CU 950</b>	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
<b>MR 630</b>	7	0.88	0.78	0.36	0.34	0.16	0.12	0.96	0.47

# FILTER SIZING Corrective factor

Corrective factor **Y**, to be used for the filter element pressure drop calculation.  
The values depend to the filter size and lenght and to the filter media.

Reference viscosity 30 mm<sup>2</sup>/s

## High pressure filters

Filter element	Absolute filtration N - R Series					Nominal filtration N Series	
	Type	A03	A06	A10	A16		A25
HP 011	1	332.71	250.07	184.32	152.36	128.36	-
	2	220.28	165.56	74.08	59.13	37.05	-
	3	123.24	92.68	41.48	33.08	20.72	-
	4	77.76	58.52	28.37	22.67	16.17	-
HP 039	1	70.66	53.20	25.77	20.57	14.67	4.90
	2	36.57	32.28	18.00	13.38	8.00	2.90
	3	26.57	23.27	12.46	8.80	5.58	2.20
HP 050	1	31.75	30.30	13.16	12.3	7.29	1.60
	2	24.25	21.26	11.70	9.09	4.90	1.40
	3	17.37	16.25	8.90	7.18	3.63	1.25
	4	12.12	10.75	6.10	5.75	3.08	1.07
	5	7.00	6.56	3.60	3.10	2.25	0.80
HP 065	1	58.50	43.46	23.16	19.66	10.71	1.28
	2	42.60	25.64	16.22	13.88	7.32	1.11
	3	20.50	15.88	8.18	6.81	3.91	0.58
HP 135	1	20.33	18.80	9.71	8.66	4.78	2.78
	2	11.14	10.16	6.60	6.38	2.22	1.11
	3	6.48	6.33	3.38	3.16	2.14	1.01
HP 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

Filter element	Absolute filtration N Series					Nominal filtration N Series	
	Type	A03	A06	A10	A16		A25
HF 320	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

## Stainless steel high pressure filters

Filter element	Absolute filtration N Series					
	Type	A03	A06	A10	A16	A25
HP 011	1	332.71	250.07	184.32	152.36	128.36
	2	220.28	165.56	74.08	59.13	37.05
	3	123.24	92.68	41.48	33.08	20.72
	4	77.76	58.52	28.37	22.67	16.17
HP 039	2	70.66	53.20	25.77	20.57	14.67
	3	36.57	32.28	18.00	13.38	8.00
	4	26.57	23.27	12.46	0.88	5.58
	1	31.75	30.30	13.16	12.3	7.29
HP 050	2	24.25	21.26	11.70	9.09	4.90
	3	17.37	16.25	8.90	7.18	3.63
	4	12.12	10.75	6.10	5.75	3.08
	5	7.00	6.56	3.60	3.10	2.25
	1	20.33	18.80	9.71	8.66	4.78
HP 135	2	11.14	10.16	6.60	6.38	2.22
	3	6.48	6.33	3.38	3.16	2.14

Filter element	Absolute filtration H - U Series					
	Type	A03	A06	A10	A16	A25
HP 011	1	424.58	319.74	235.17	194.44	163.78
	2	281.06	211.25	94.53	75.45	47.26
	3	130.14	97.50	43.63	34.82	21.81
	4	109.39	82.25	36.79	29.37	18.40
HP 039	2	70.66	53.20	25.77	20.57	14.67
	3	36.57	32.28	18.00	13.38	8.00
	4	26.57	23.27	12.46	8.80	5.58
	1	47.33	34.25	21.50	20.50	14.71
HP 050	2	29.10	25.95	14.04	10.90	5.88
	3	20.85	19.50	10.68	8.61	4.36
	4	14.55	12.90	7.32	6.90	3.69
	5	9.86	9.34	6.40	4.80	2.50
	1	29.16	25.33	13.00	12.47	5.92
HP 135	2	14.28	11.04	7.86	7.60	4.44
	3	8.96	7.46	4.89	4.16	3.07

**Step 1** Select "FILTERS"



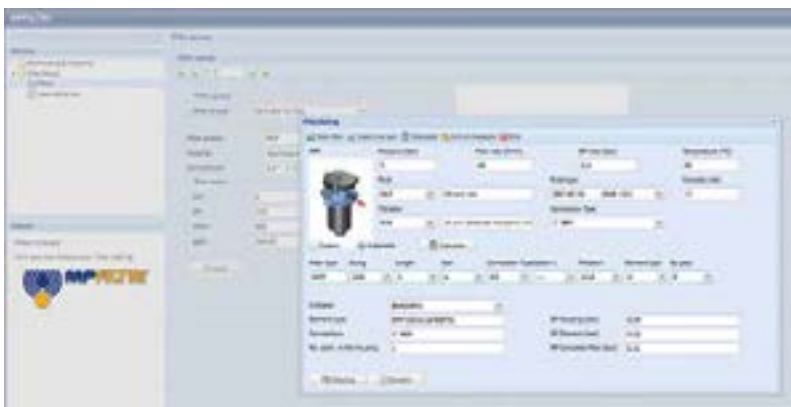
**Step 2** Choose filter group (Return Filter, Pressure Filter, etc.)



**Step 3** Choose filter type (MPF, MPT, etc.) in function of the max working pressure and the max flow rate



**Step 4** Push "PROCEED"



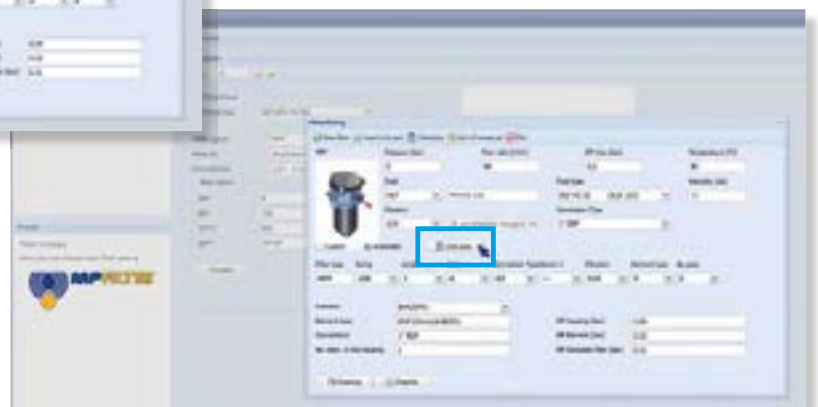
**Step 5**

Insert all application data to calculate the filter size following the sequence:

- working pressure
- working flow rate
- working pressure drop
- working temperature
- fluid material and fluid type
- filtration media
- connection type

**Step 6**

Push "CALCULATE" to have result; in case of any mistake, the system will advice which parameter is out of range to allow to modify/adjust the selection



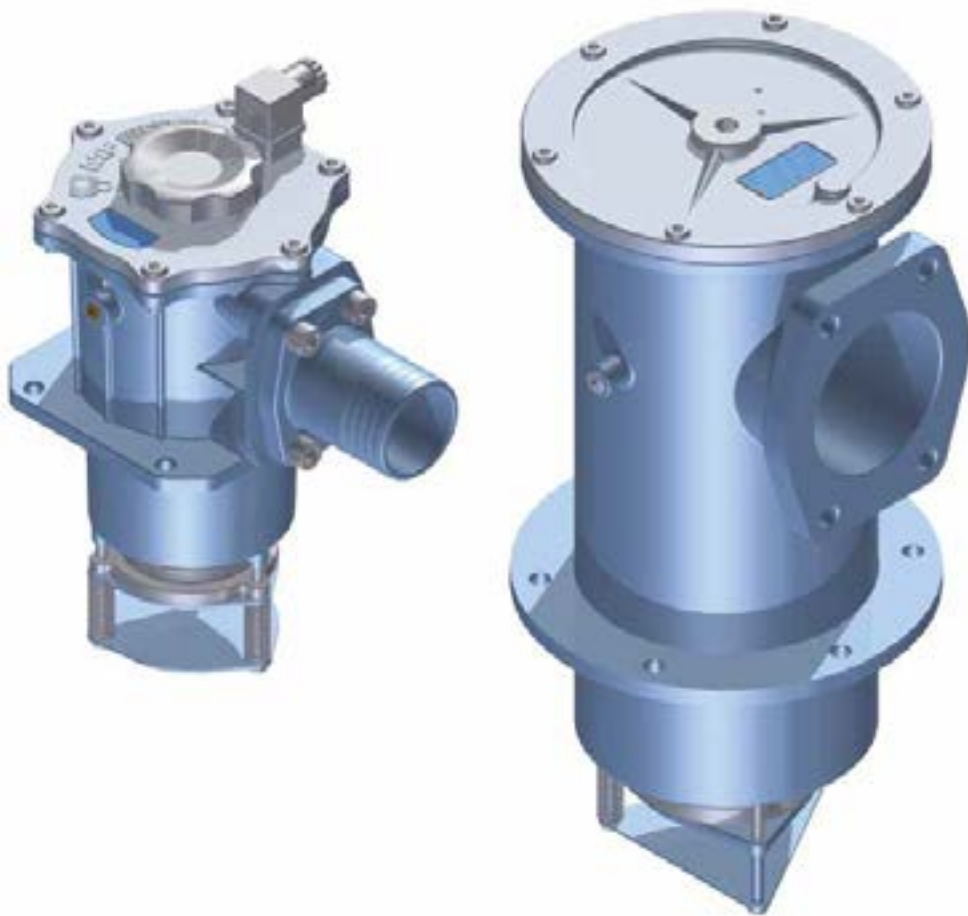
**Step 7**

Download PDF Datasheet "Report.aspx" pushing the button "Drawing"



# SF2 500 series

Flow rate up to 800 l/min



# SF2 500 GENERAL INFORMATION

## Technical data

**Suction filters** Flow rate up to 800 l/min

### Filter housing materials

- Housing:  
Anodized Aluminium  
Steel (chemical heat treatment): only for SF2 535 - 540

- Cover:  
Anodized Aluminium  
Steel (chemical heat treatment): only for SF2 535 - 540

- Optional flange:  
Anodized Aluminium

### Seals

- Standard NBR series A  
- Optional FPM series V

### Temperature

From -25 °C to +110 °C

### Elements

Fluid flow through the filter element from IN to OUT.

### Note

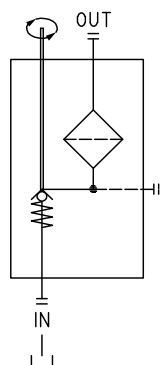
SF2 500 filters mounting, see the drawings on page 47 and following.

## Weights [kg]

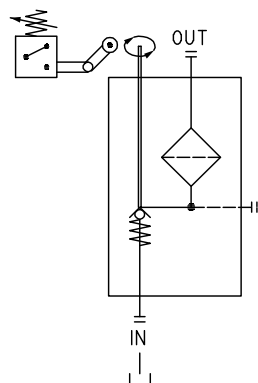
<b>SF2 500-501</b>	4.0
<b>SF2 503</b>	4.8
<b>SF2 504</b>	5.8
<b>SF2 505</b>	6.0
<b>SF2 510</b>	7.2
<b>SF2 535</b>	17
<b>SF2 540</b>	19

## Hydraulic symbols

SF2 500 S-M



SF2 500 D-K



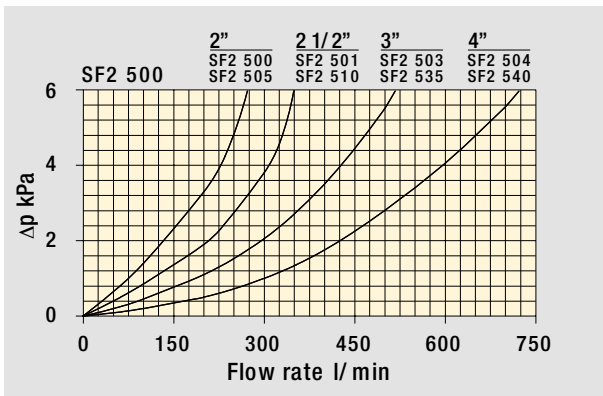


# GENERAL INFORMATION SF2 500

The curves are plotted using mineral oil with density of 0.86 kg/dm<sup>3</sup> in compliance with ISO 3968.

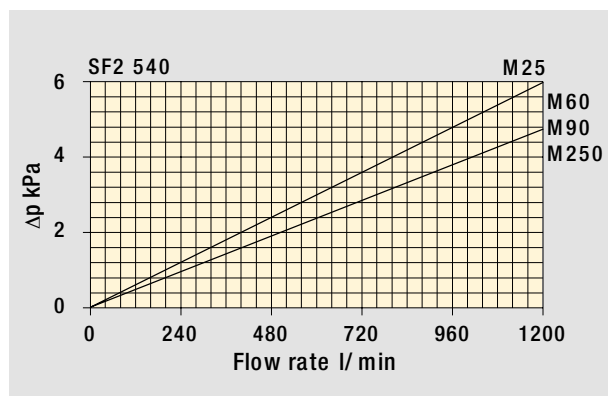
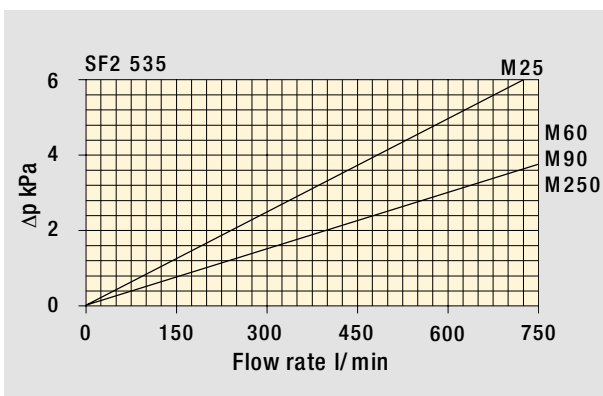
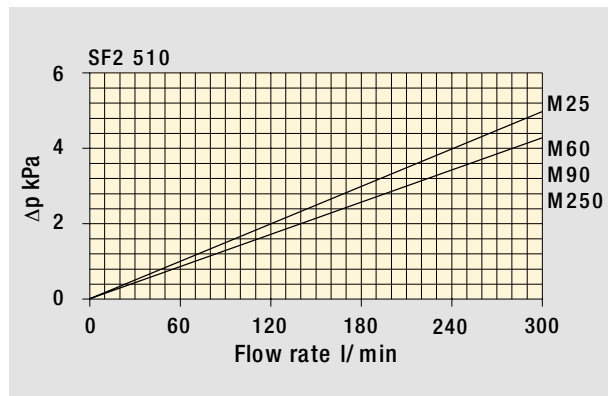
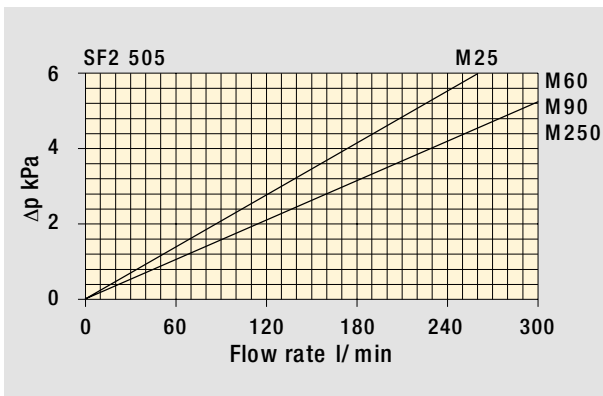
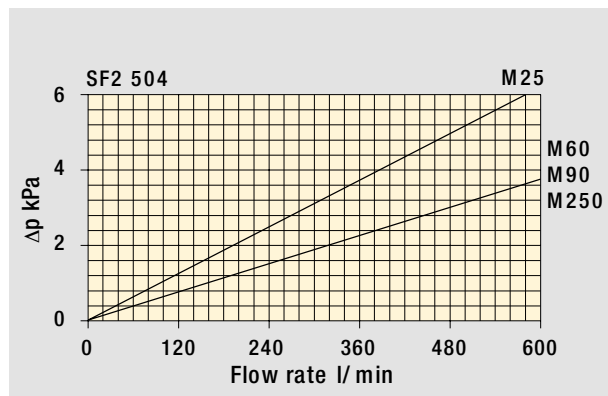
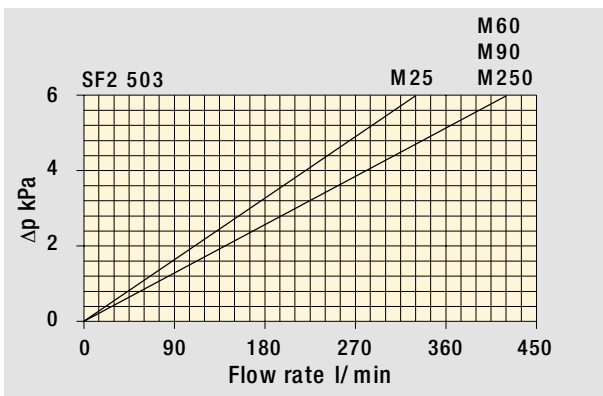
$\Delta p$  varies proportionally with density.

Filter housings  $\Delta p$  pressure drop



The curves are plotted using mineral oil with density of 0.86 kg/dm<sup>3</sup> in compliance with ISO 3968.

Filter element  $\Delta p$  pressure drop



## Designation & Ordering code

### COMPLETE FILTER

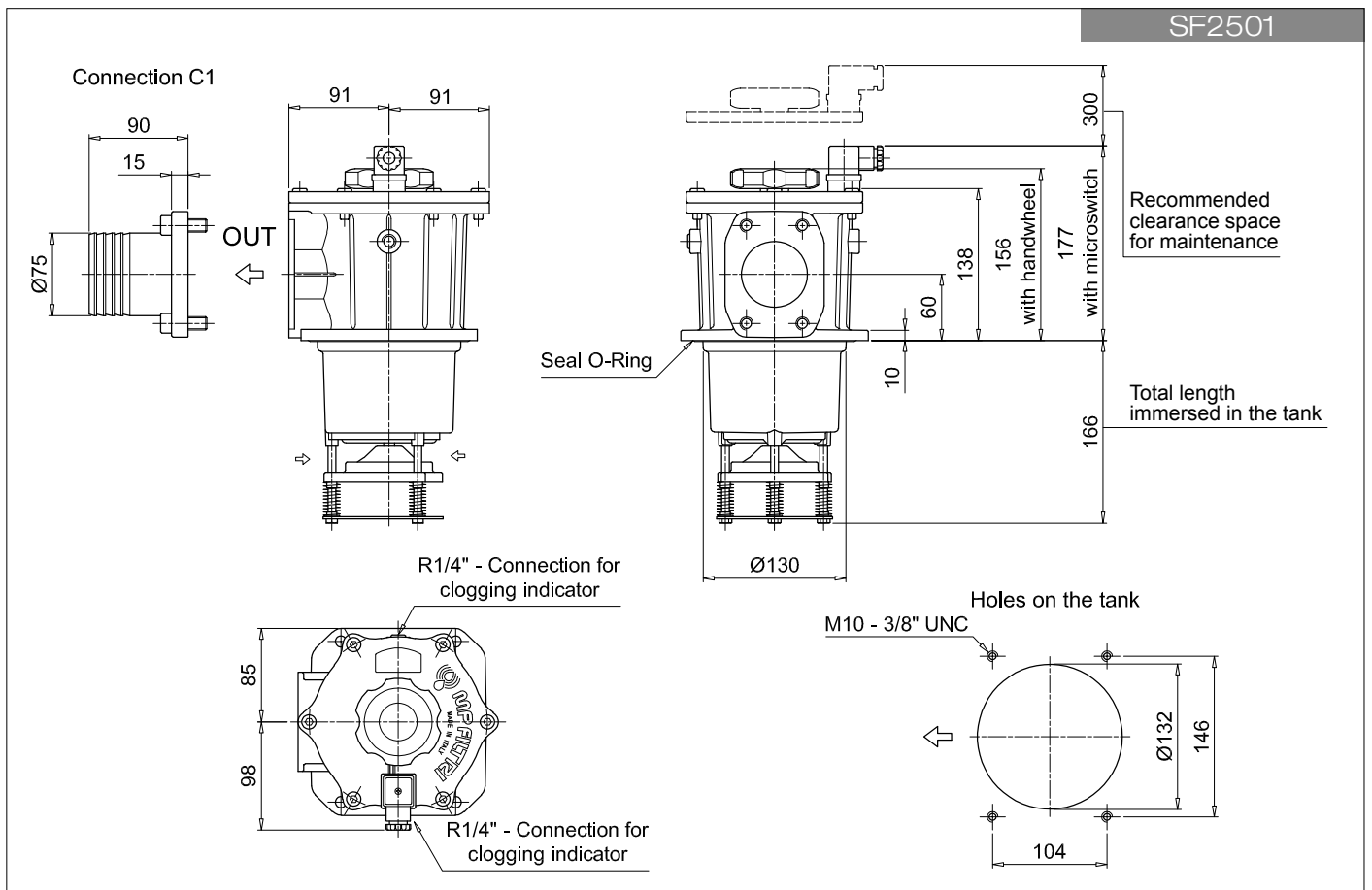
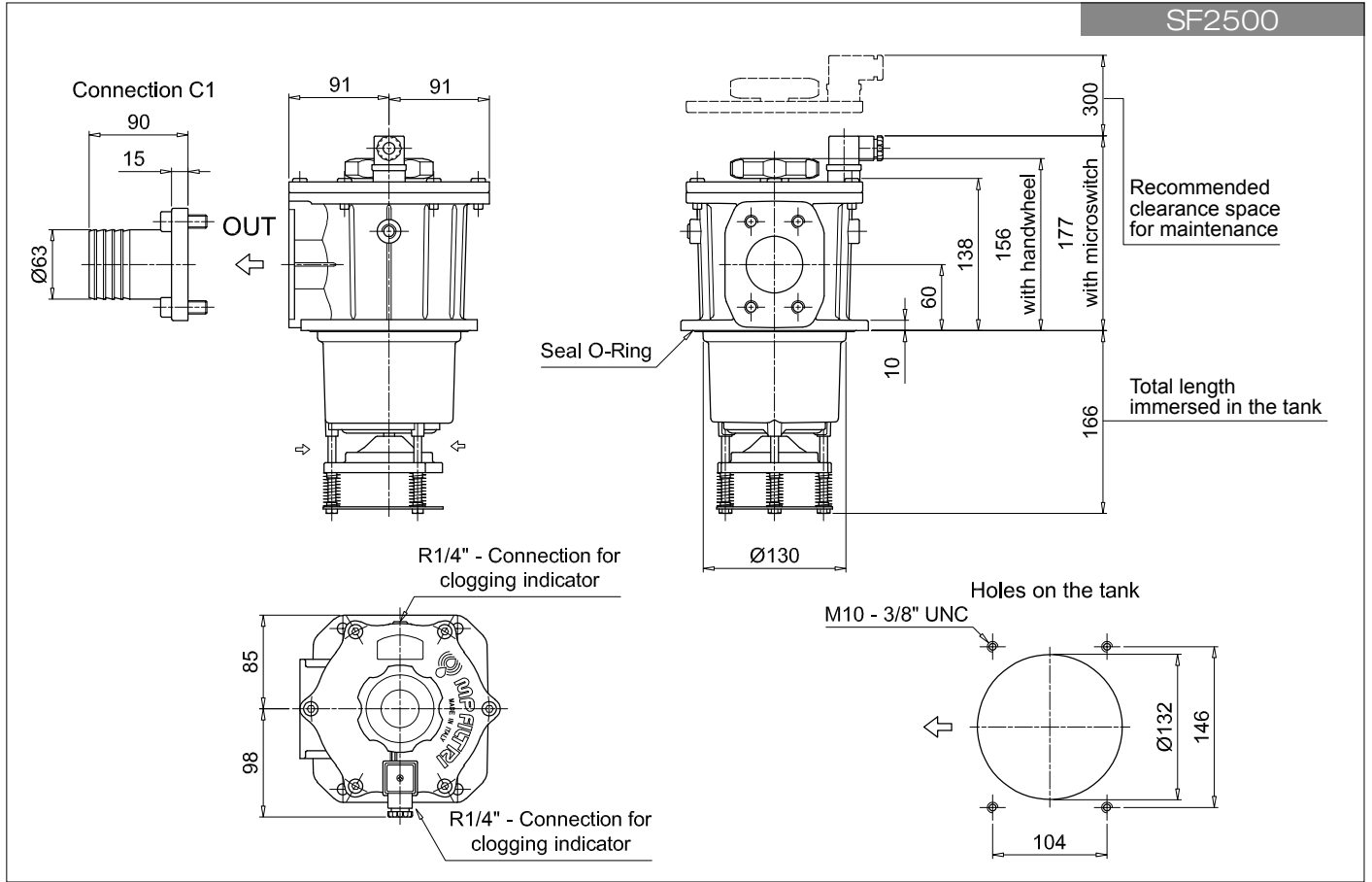
<b>Series and size</b>		Configuration example 1: <b>SF2500</b> <b>W</b> <b>F1</b> <b>D</b> <b>M25</b> <b>P01</b>					
<b>SF2500</b>		Configuration example 2: <b>SF2535</b> <b>A</b> <b>F2</b> <b>C</b> <b>M60</b> <b>P01</b>					
<b>SF2501</b>							
<b>SF2503</b>							
<b>SF2504</b>							
<b>SF2505</b>							
<b>SF2510</b>							
<b>SF2535</b>							
<b>SF2540</b>							
<b>Seals and treatments</b>		Filtration rating					
		Mxx	Pxx				
<b>A</b>	NBR	•	•				
<b>V</b>	FPM	•	•				
<b>W</b>	NBR compatible with fluids HFA-HFB-HFC	•					
<b>Z</b>	FPM compatible with fluids HFA-HFB-HFC	•					
<b>Connections</b>							
SF2500 - SF2505		SF2501 - SF2510		SF2503 - SF2535		SF2504 - SF2540	
<b>F1</b>	2" SAE 3000 psi/M	2 1/2" SAE 3000 psi/M	3" SAE 3000 psi/M	4" SAE 3000 psi/M			
<b>F2</b>	2" SAE 3000 psi/UNC	2 1/2" SAE 3000 psi/UNC	3" SAE 3000 psi/UNC	4" SAE 3000 psi/UNC			
<b>C1</b>	Hose barb 2"/M	Hose barb 2 1/2"/M	Hose barb 3"/M	Hose barb 4"/M			
<b>Microswitch and Handwheel</b>							
		SF2500 - SF2501	SF2503 - SF2504	SF2505 - SF2510	SF2535 - SF2540		
<b>S</b>	Without microswitch, without handwheel	•	•	•	•		
<b>C</b>	With microswitch, without handwheel			•	•		
<b>D</b>	With microswitch, with Nylon handwheel	•	•				
<b>K</b>	With microswitch, with steel handwheel	•	•				
<b>M</b>	Without microswitch, with Nylon handwheel	•	•				
<b>Filtration rating (filter media)</b>							
<b>M25</b>	Wire mesh 25 µm	<b>M90</b>	Wire mesh 90 µm				
<b>M60</b>	Wire mesh 60 µm	<b>M250</b>	Wire mesh 250 µm				
<b>Execution</b>							
<b>P01</b> MP Filtri standard							
<b>Pxx</b> Customized							

### FILTER ELEMENT

<b>Element series and size</b>								Configuration example 1: <b>SF510</b> <b>M25</b> <b>W</b> <b>P01</b>			
								Configuration example 2: <b>SF535</b> <b>M60</b> <b>P01</b>			
	SF2500	SF2501	SF2503	SF2504	SF2505	SF2510	SF2535	SF2540			
<b>SF503</b>			•								
<b>SF504</b>				•							
<b>SF505</b>					•						
<b>SF510</b>	•	•				•					
<b>SF535</b>							•				
<b>SF540</b>								•			
<b>Filtration rating (filter media)</b>											
<b>M25</b>	Wire mesh 25 µm	<b>M90</b>	Wire mesh 90 µm								
<b>M60</b>	Wire mesh 60 µm	<b>M250</b>	Wire mesh 250 µm								
<b>Seals and treatments</b>											
Filtration rating											
Mxx Pxx											
Standard version											
<b>W</b>	Compatible with fluids HFA-HFB-HFC	•									
<b>Execution</b>											
<b>P01</b> MP Filtri standard											
<b>Pxx</b> Customized											

### ACCESSORIES

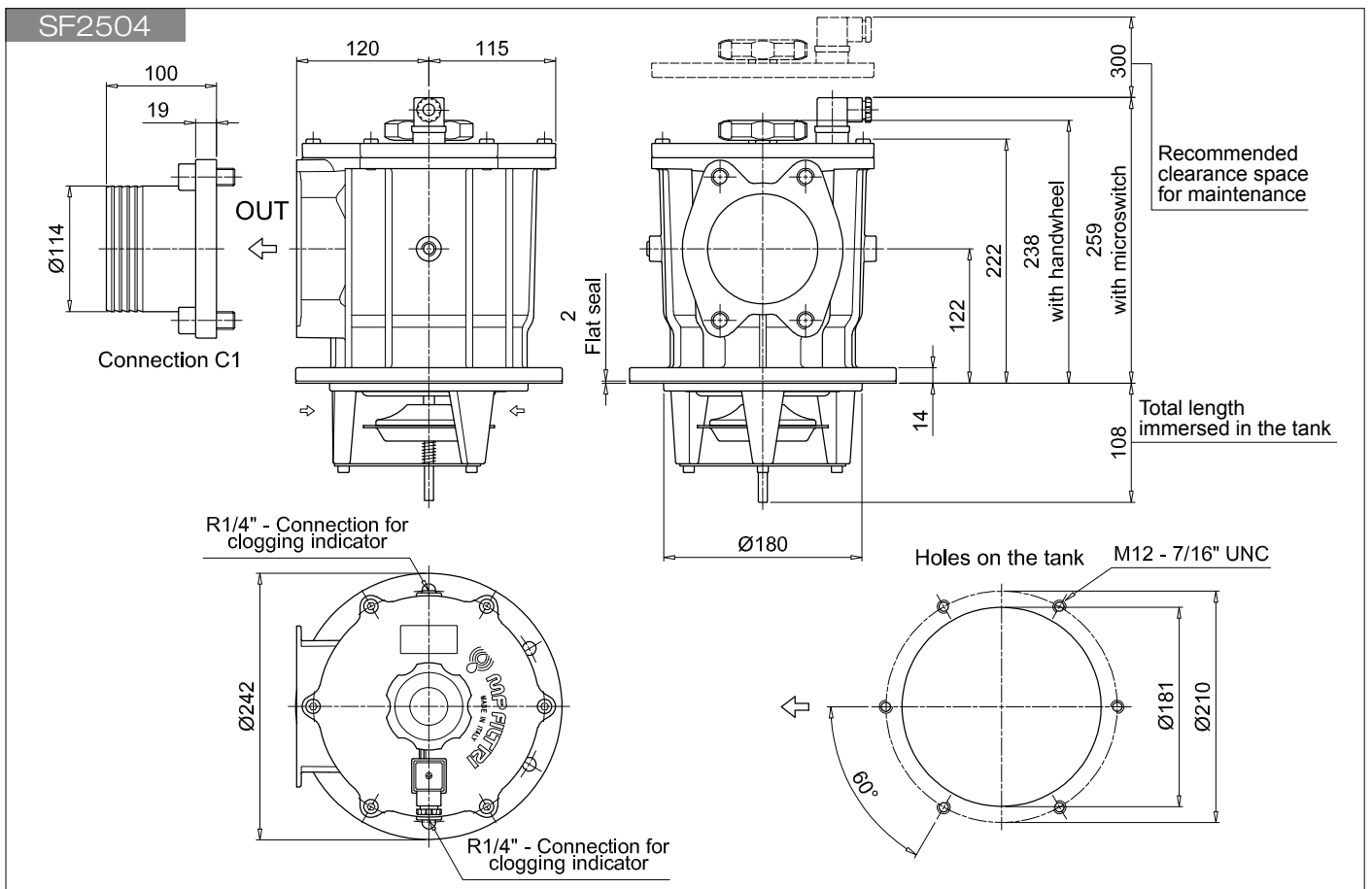
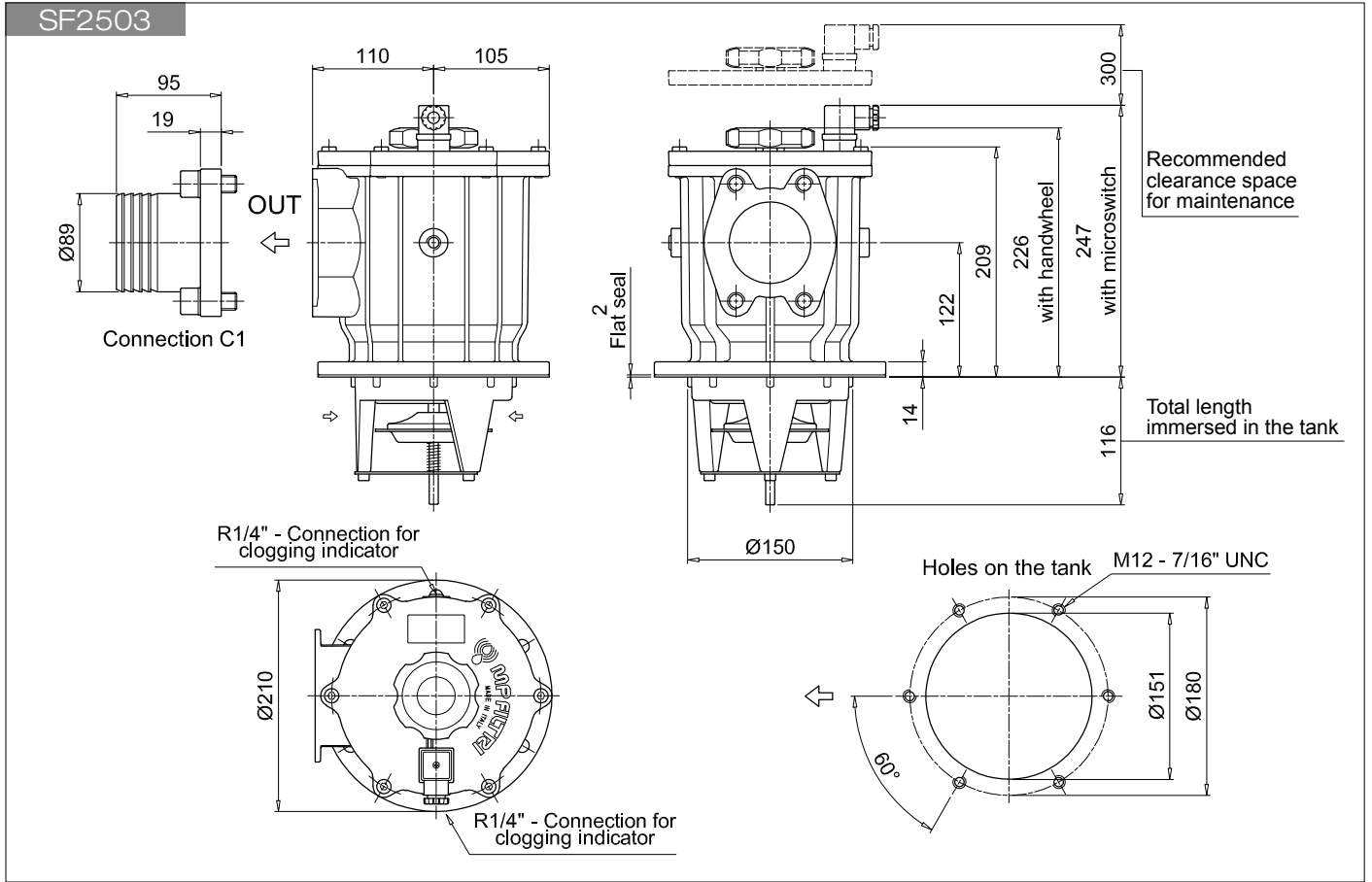
Clogging indicators	page
<b>VVA</b> Axial vacuum gauge	55
<b>VVR</b> Radial vacuum gauge	55
<b>VEA</b> Electrical vacuum indicator	54
<b>VLA</b> Electrical / visual vacuum indicator	54



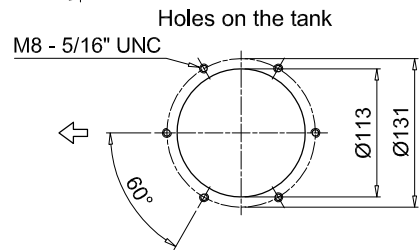
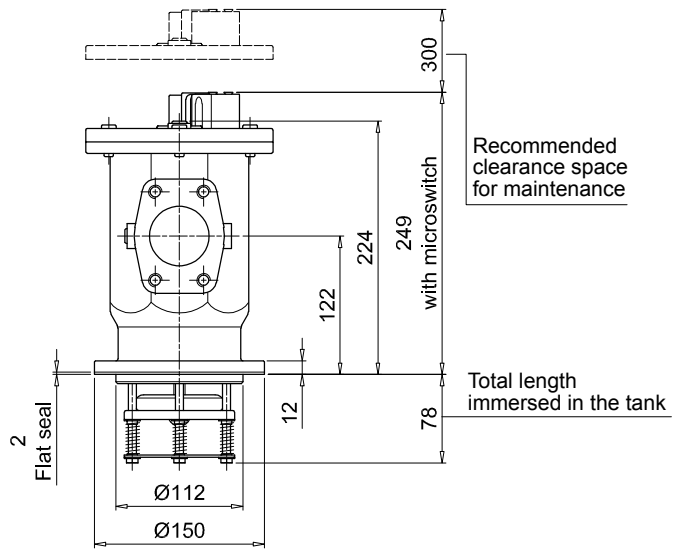
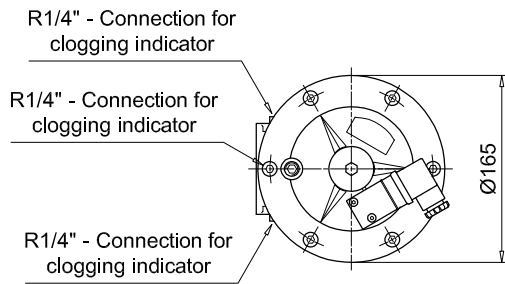
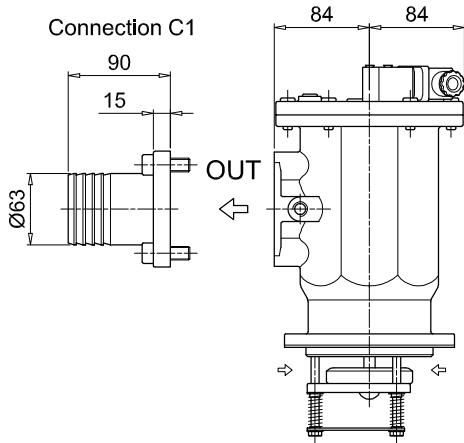
# SF2 500

SF2500 - SF2501 - SF2503 - SF2504 - SF2505 - SF25010 - SF2535 - SF2540

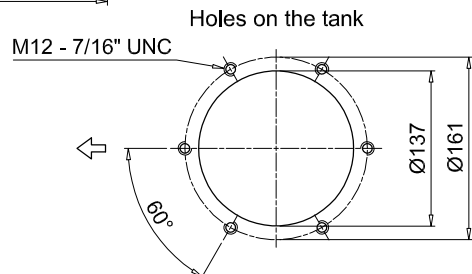
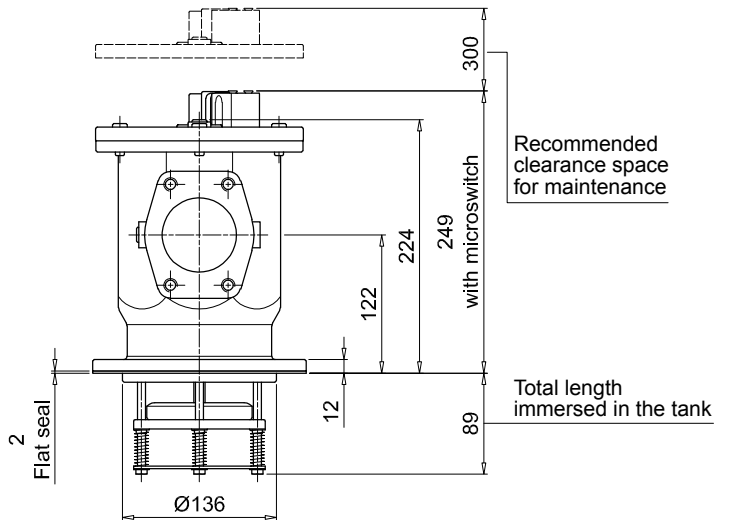
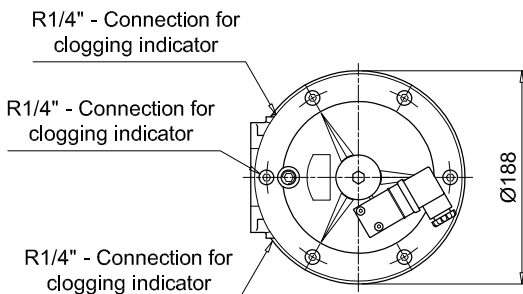
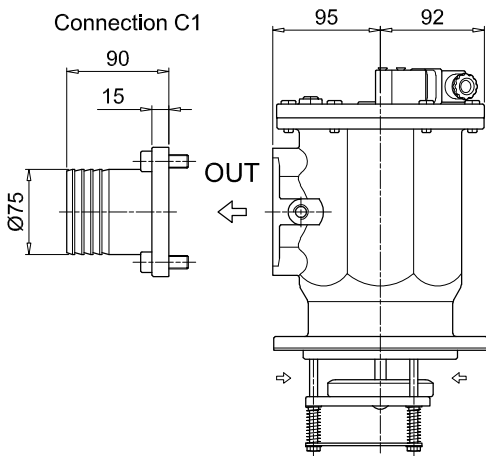
## Dimensions



SF2505



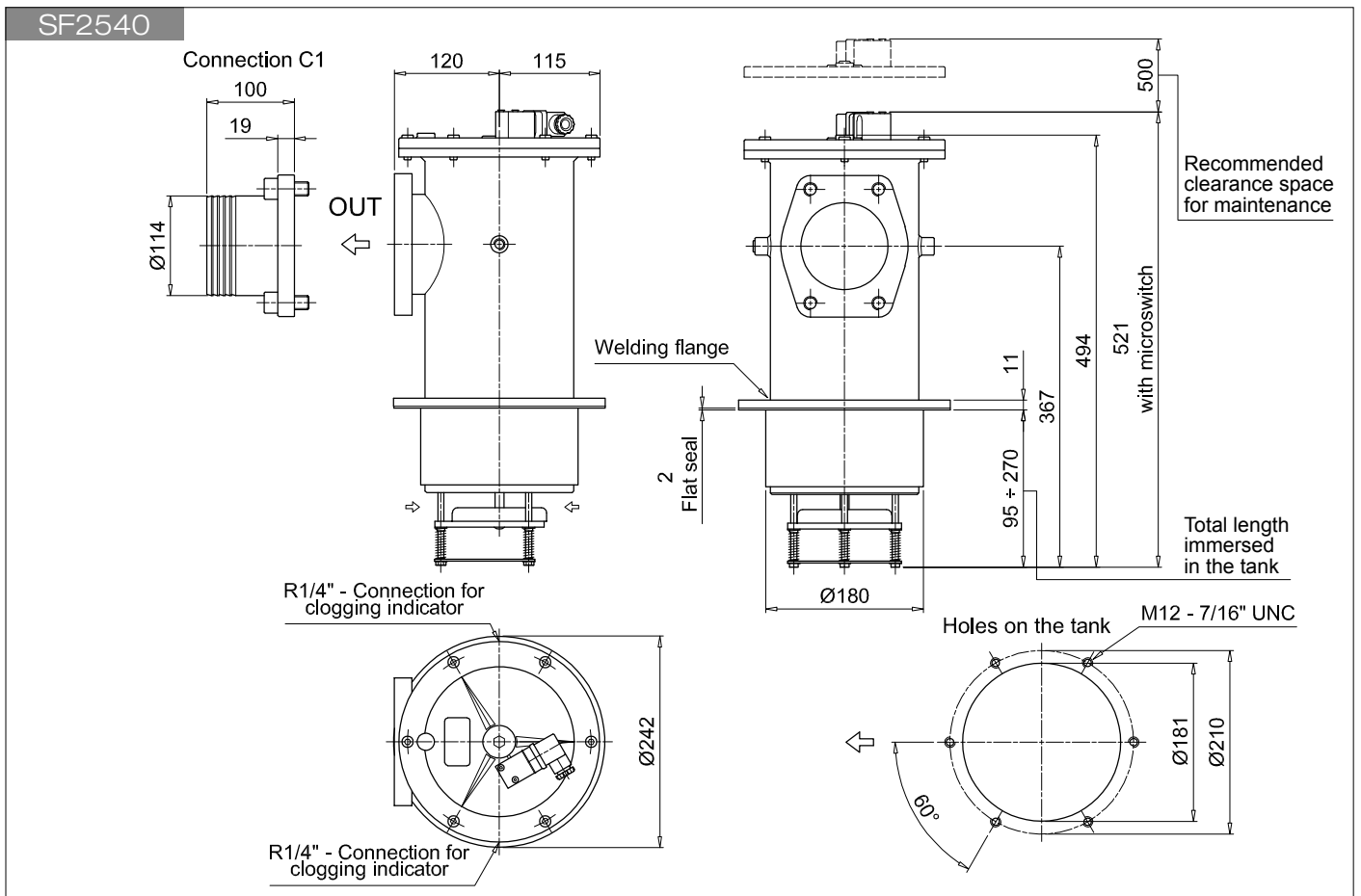
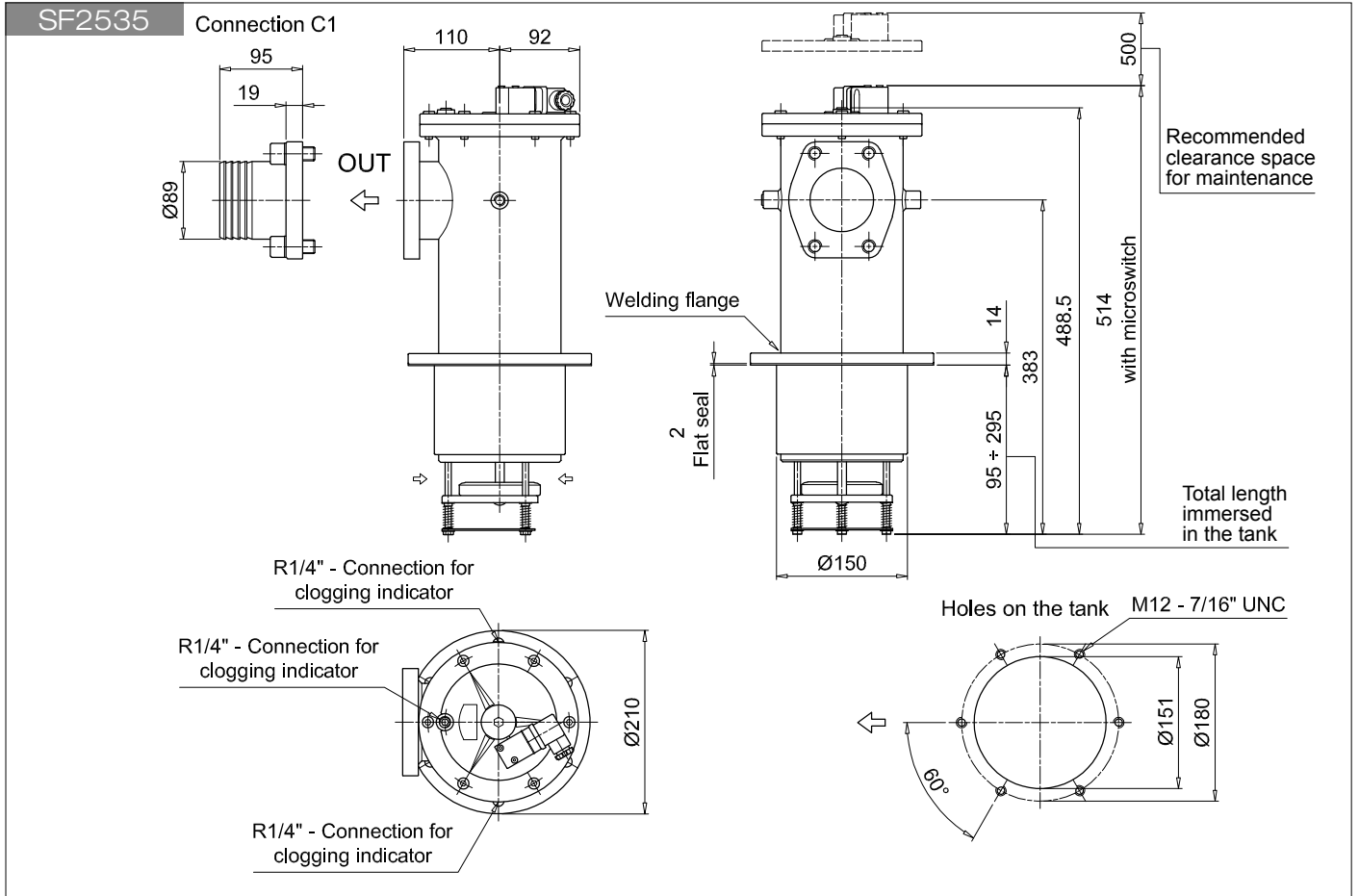
SF2510



# SF2 500

SF2500 - SF2501 - SF2503 - SF2504 - SF2505 - SF25010 - SF2535 - SF2540

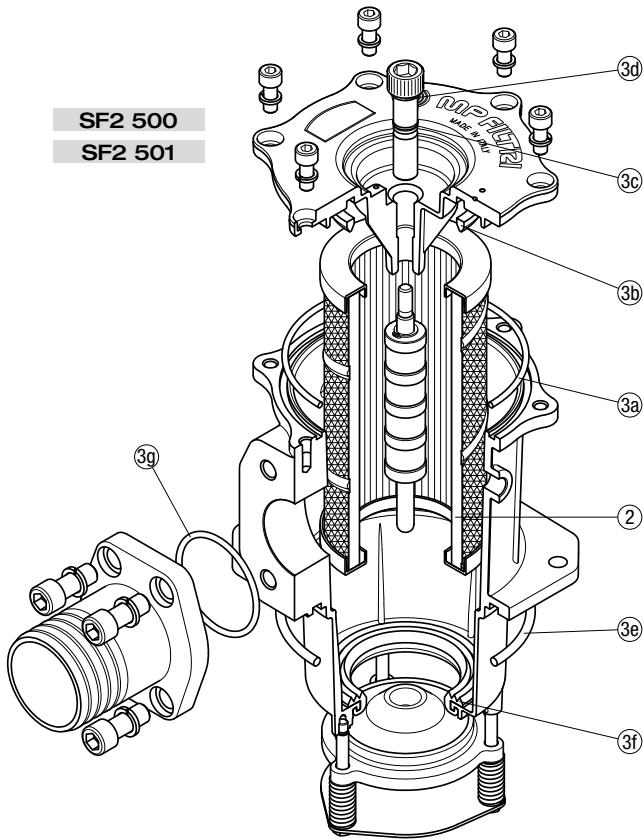
## Dimensions



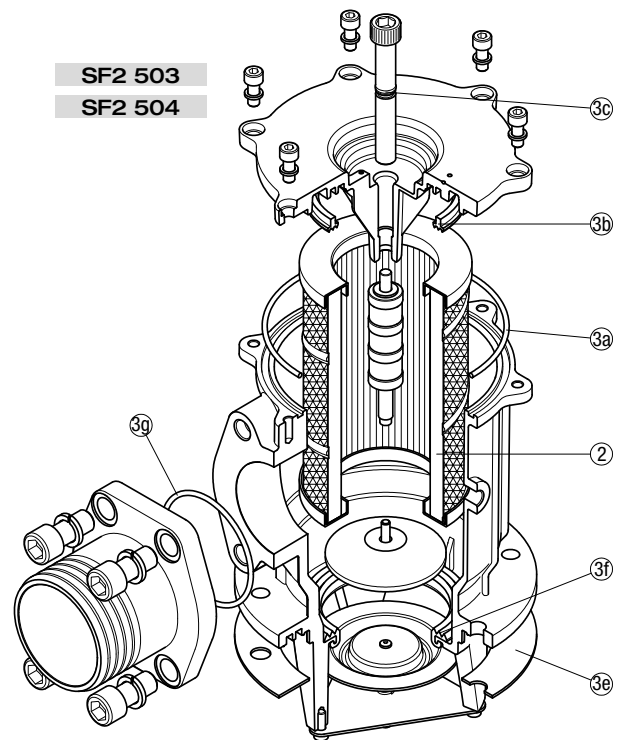
# SPARE PARTS SF2 500

Order number for spare parts

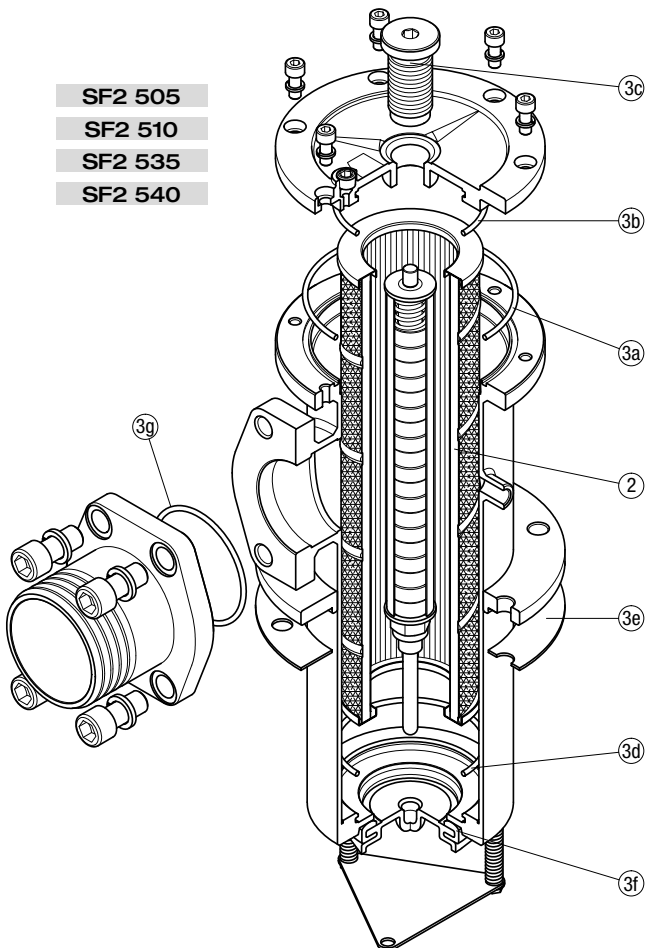
SF2 500  
SF2 501



SF2 503  
SF2 504



SF2 505  
SF2 510  
SF2 535  
SF2 540



Item:	Q.ty: 1 pc.		
	2	3 (3a ÷ 3g)	
Filter series	Filter element	Seal Kit code number	
		NBR	FPM
SF2 500	See order table	02050141	02050142
SF2 501		02050143	02050144
SF2 503		02050070	02050071
SF2 504		02050072	02050073
SF2 505		02050043	02050044
SF2 510		02050045	02050046
SF2 535		02050051	02050052
SF2 540		02050053	02050054