

# MRSX series

Maximum working pressure up to 1 MPa (10 bar) - Flow rate up to 250 l/min





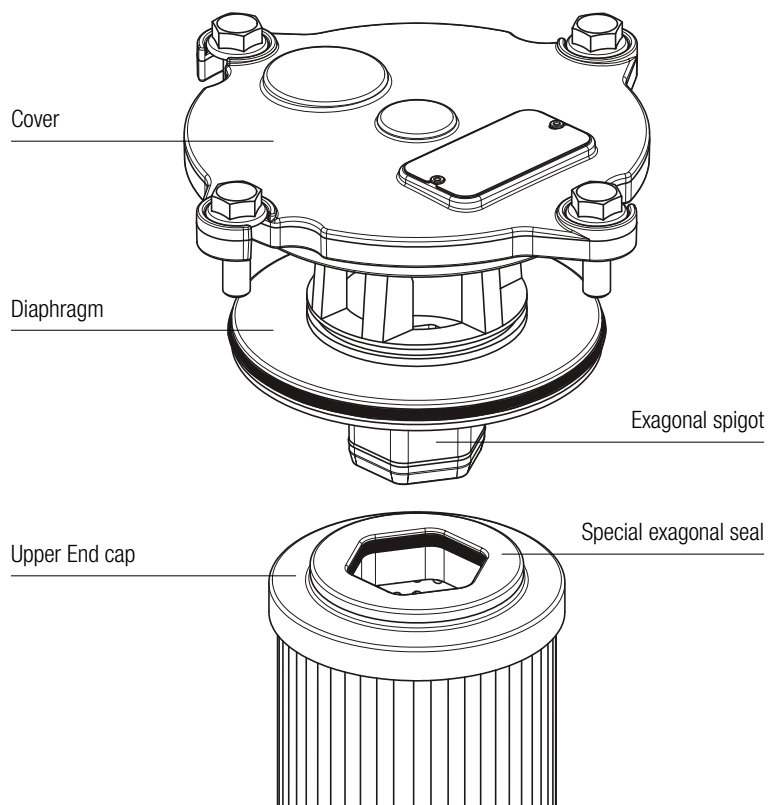
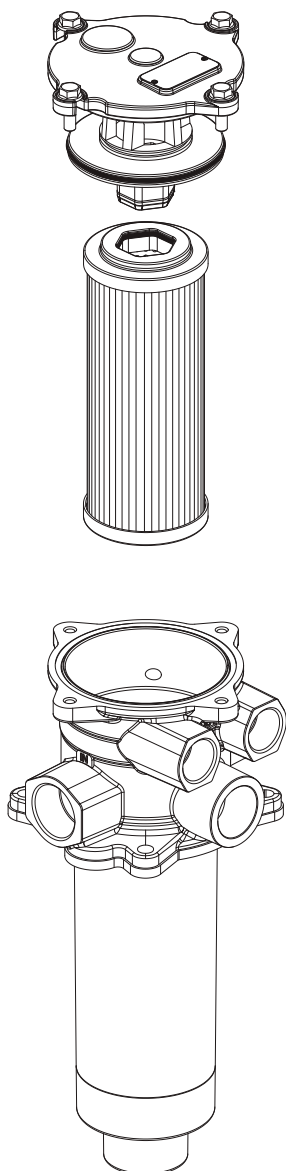
THE NEW FILTER CONCEPT

MRSX  
RSX  
series

## NEW FILTER ELEMENT WITH EXCLUSIVE INTERFACE CONNECTION

- 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 and RSX are protected by:

Italian Patent n° 102014902261205

Canadian Patent n° 2,937,258

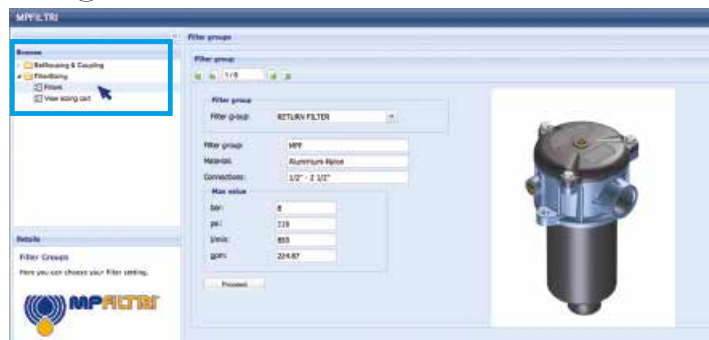
and by the following patent applications:

European Patent n° 16181725.9

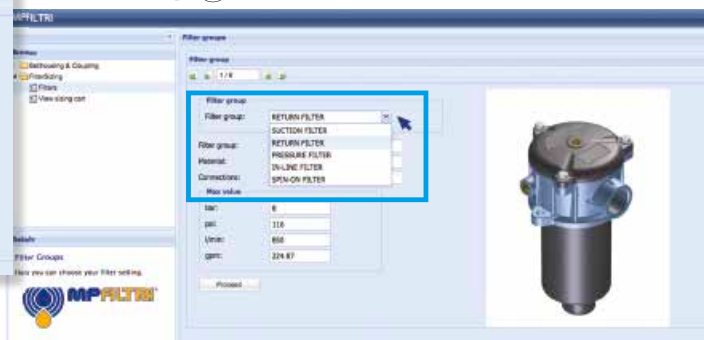
US Patent Pending n° 15/224,337

# TYPICAL FILTER SIZING Selection Software

**Step 1** Select "FILTERS"



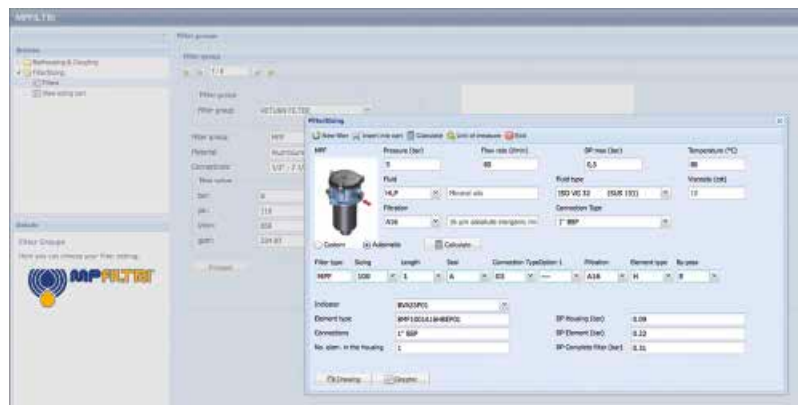
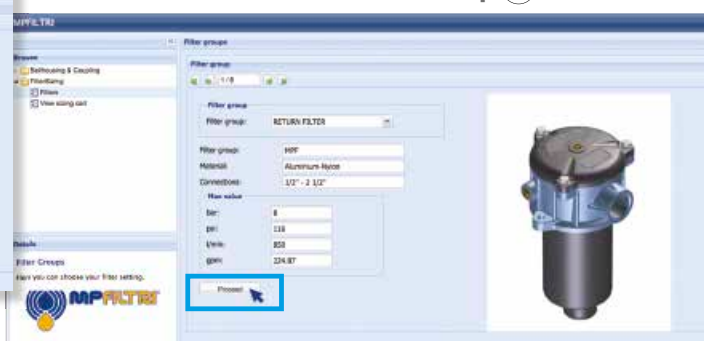
**Step 2** Choose filter group (Return Filter, Pressure Filter, etc.)



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



**Step 4** Push "PROCEED"



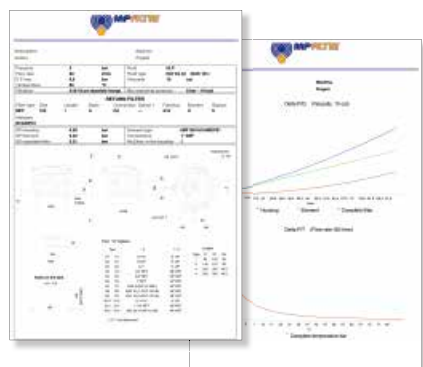
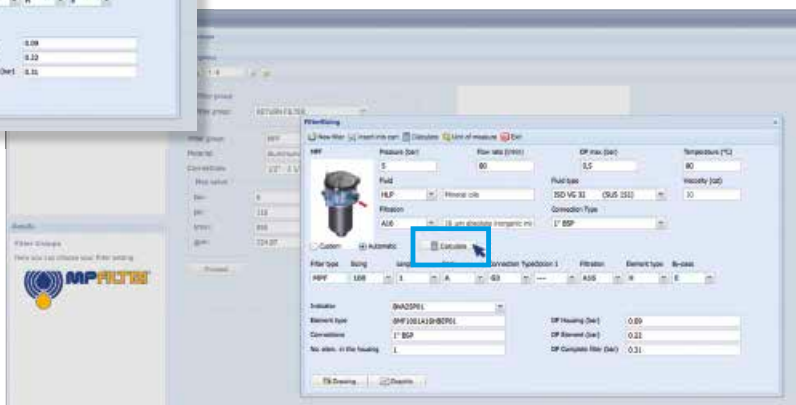
**Step 5**

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"



## 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 300 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  
 Nylon: MRSX 116  
 Aluminium: MRSX 165-166
- Bowl: Nylon

### Δp element type

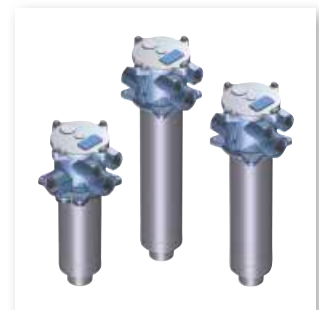
- RSX: 10 bar
- Oil flow from exterior to interior.

### Seals

- Standard NBR series A
- Optional FPM series V

### Temperature

From -25 °C to +110 °C



## FILTER ASSEMBLY SIZING

Flow rates [l/min]

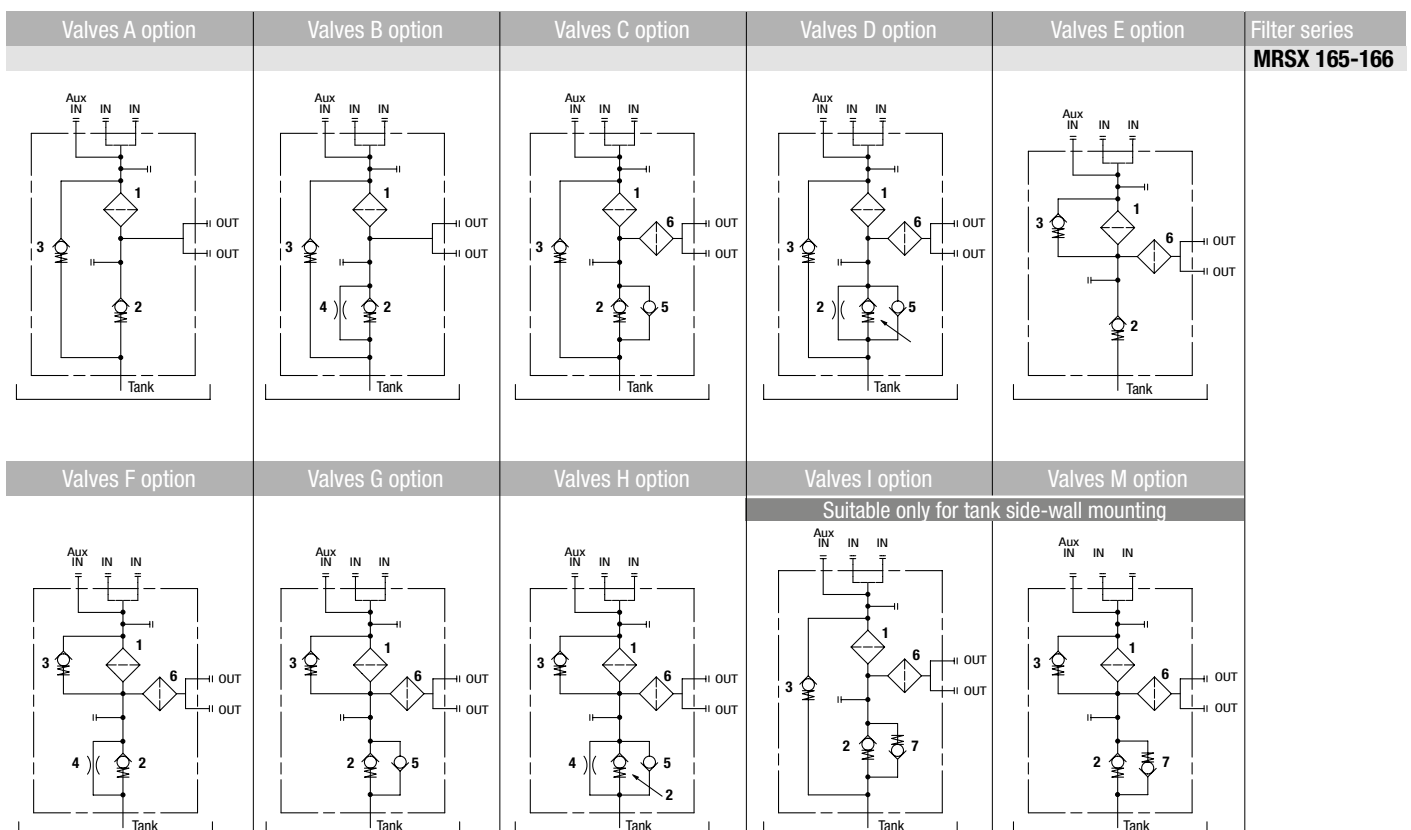
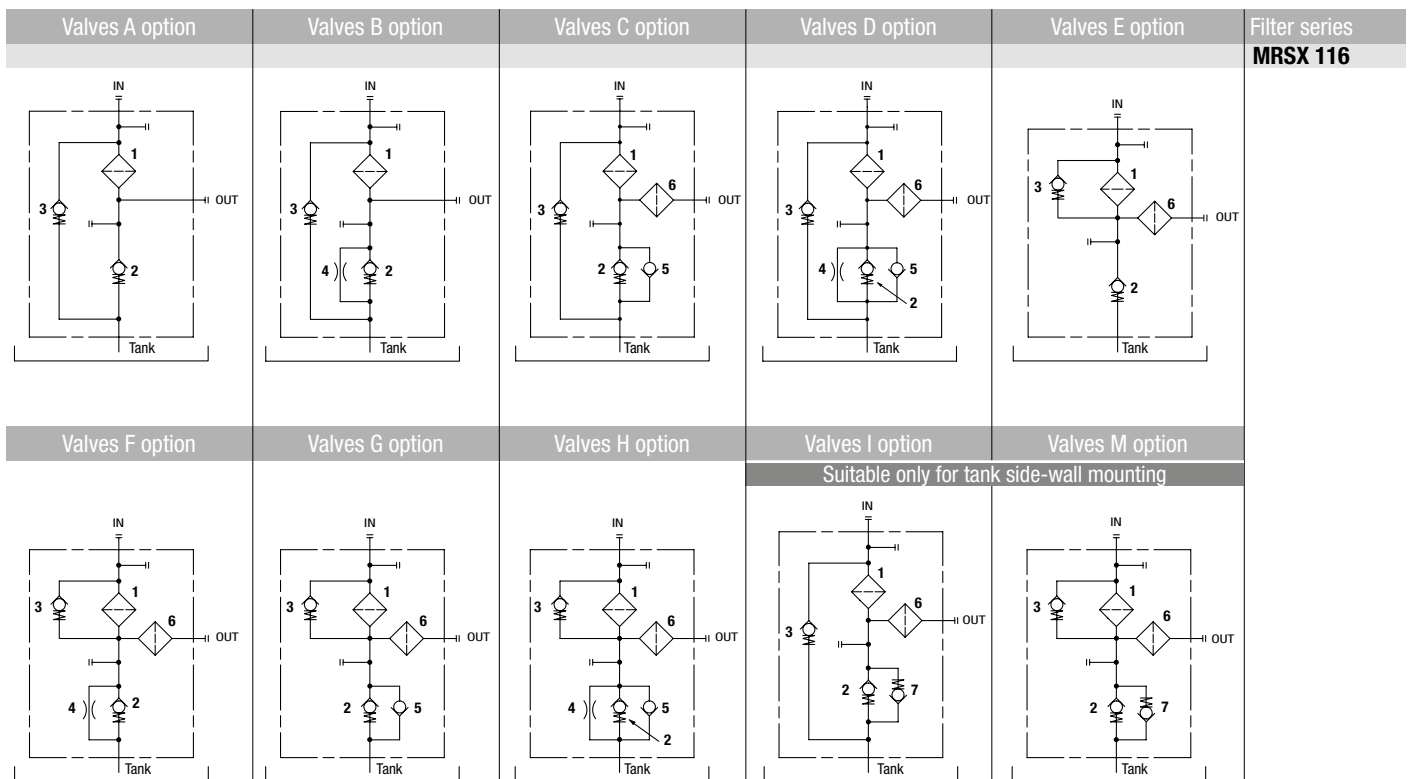
Filter series	Length	A10	A16	A25
MRSX 116	1	74	82	87
	2	108	113	124
MRSX 165 - 166	1	155	166	178
	2	187	196	200
	3	201	205	217

### 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 mm<sup>2</sup>/s (cSt) and a density of 0.86 kg/dm<sup>3</sup>.

For different pressure drop or fluid viscosity we recommend to use our selection software available on [www.mpfiltr.com](http://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

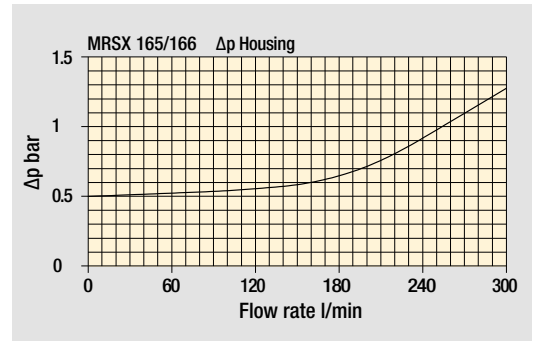
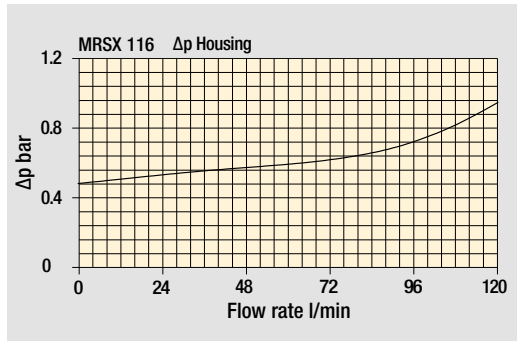
- 1 - Filter element
- 2 - Back-Pressure valve: opening pressure 0.5 bar  $\pm$ 10%
- 3 - Bypass valve: opening pressure 2.5 bar  $\pm$ 10%
- 4 - Depressurization valve

- 5 - Anti-Cavitation valve
- 6 - Safety filter element (wire mesh 60  $\mu$ m)
- 7 - Anti-Cavitation valve / Anti-Emptying valve

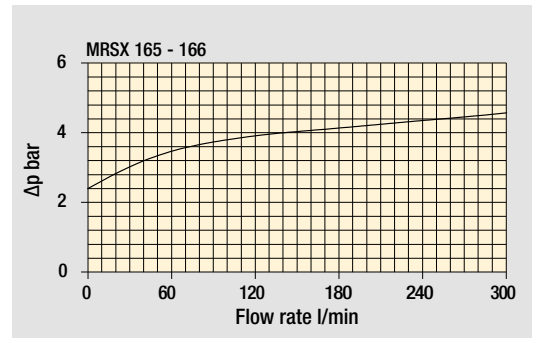
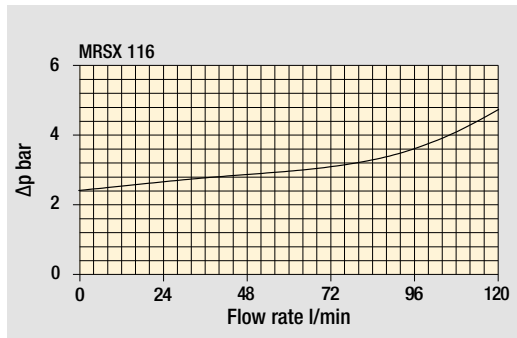
# MRSX GENERAL INFORMATION

## Pressure drop

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



### Bypass valve 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.

### Weights [kg] and volumes [dm<sup>3</sup>]

Filter series	Weights [kg]				Volumes [dm <sup>3</sup> ]			
	Length	1	2	3	Length	1	2	3
<b>MRSX 116</b>		1.30	1.40	-		0.80	1.00	-
<b>MRSX 165</b>		3.40	3.80	4.10		2.00	2.60	3.00
<b>MRSX 166</b>		3.40	3.80	4.10		2.00	2.60	3.00



## Designation & Ordering code

### COMPLETE FILTER

Configuration example: **MRSX116** | **1** | **B** | **A** | **G1** | **0** | **A16** | **B** | **P01**

**Series and size**  
**MRSX116** Filter element with private spigot

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

**Hydraulic diagram configuration - see page 257**

Bypass valve to tank				Bypass valve to OUT			
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>				
<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>				
<b>I</b>							
<b>M</b>							

**Seals and treatments**

<b>A</b> NBR, O-Ring on head	<b>B</b> NBR, flat seal on head
<b>V</b> FPM, O-Ring on head	<b>D</b> FPM, flat seal on head

**Connections IN**

<b>G1</b> G 3/4"
<b>G2</b> G 1"
<b>G3</b> 3/4" NPT
<b>G4</b> 1" NPT
<b>G5</b> SAE 12 - 1 1/16" - 12 UN
<b>G6</b> SAE 16 - 1 5/16" - 12 UN
<b>D1</b> G 1"
<b>D2</b> 1" NPT
<b>D3</b> SAE 16 - 1 5/16" - 12 UN

**Connections OUT**

G 3/4"
G 1"
3/4" NPT
1" NPT
SAE 12 - 1 1/16" - 12 UN
SAE 16 - 1 5/16" - 12 UN
G 3/4"
3/4" NPT
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

**Valves configuration**

Mounting position	A	B	C	D	E	F	G	H	I	M
<b>S</b> Standard	•	•	•	•	•	•	•	•		
<b>B</b> Tank side-wall mounting	•	•			•	•			•	•

**Execution**  
**P01** MP Filtri standard  
**Pxx** Customized

### FILTER ELEMENT

Configuration example: **RSX116** | **1** | **A16** | **A** | **P01**

**Element series and size**  
**RSX116** Filter element with private spigot

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

**Filtration rating (filter media)**

**A10** Inorganic microfiber 10 µm  
**A16** Inorganic microfiber 16 µm  
**A25** Inorganic microfiber 25 µm

**Seals**

<b>A</b> NBR
<b>V</b> FPM

**Execution**  
**P01** MP Filtri standard  
**Pxx** Customized

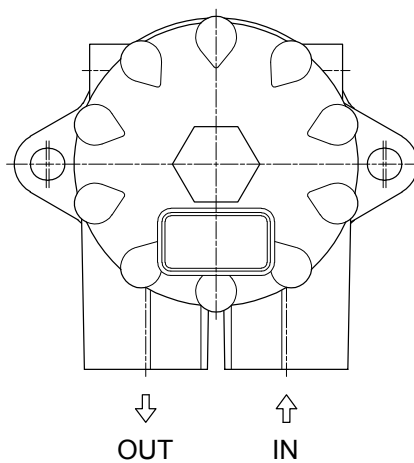
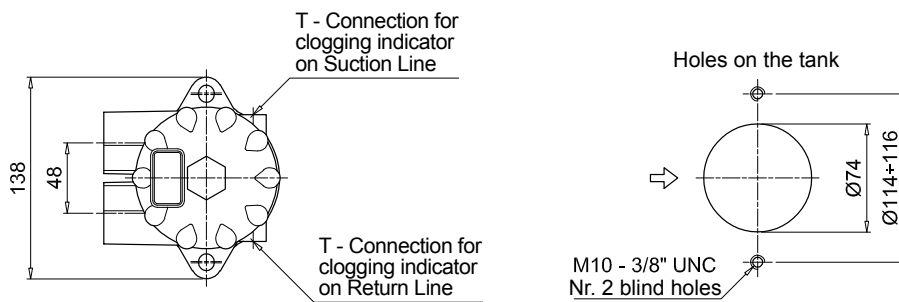
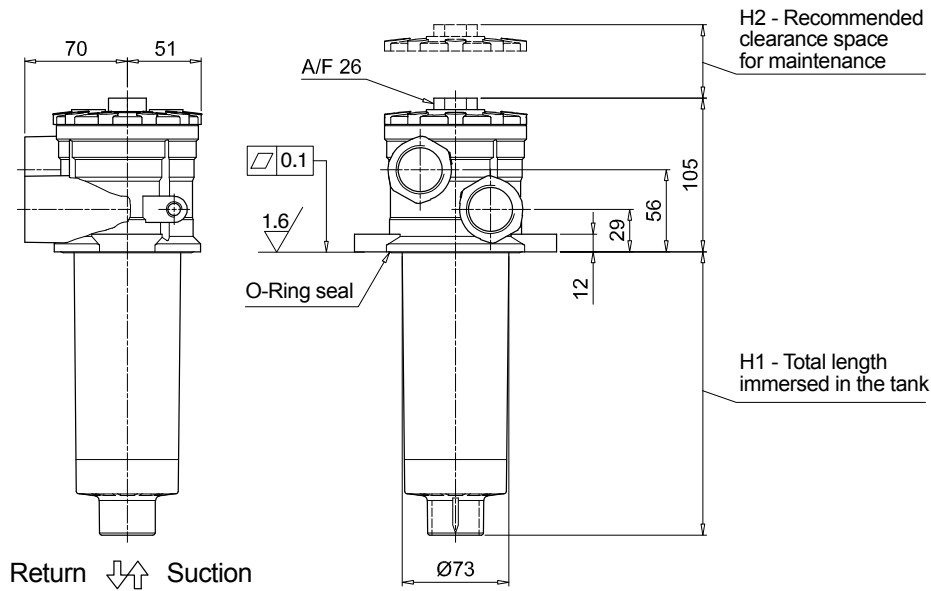
### ACCESSORIES

Indicators on Return Line		page	Indicators on Suction Line		page
<b>BVA</b> Axial pressure gauge		278	<b>BEA</b> Electrical pressure indicator		276
<b>BVR</b> Radial pressure gauge		278	<b>BEM</b> Electrical pressure indicator		276
<b>BVP</b> Visual pressure indicator with automatic reset		279	<b>BET</b> Electrical pressure indicator		276-277
<b>BVQ</b> Visual pressure indicator with manual reset		279	<b>BLA</b> Electrical / visual pressure indicator		277-278
<b>VVB</b> Axial vacuum gauge		275	<b>VEB</b> Electrical vacuum indicator		274
<b>VVS</b> Radial vacuum gauge		275	<b>VLB</b> Electrical / visual vacuum indicator		274



MRSX116		
Filter length	H1 [mm]	H2 [mm]
<b>1</b>	203	240
<b>2</b>	263	300

Connections	T
<b>G1 - G2</b>	G 1/8"
<b>G3 - G4</b>	1/8" NPT
<b>G5 - G6</b>	1/8" NPT
<b>D1</b>	G 1/8"
<b>D2 - D3</b>	1/8" NPT



# MRSX MRSX165 - MRSX166

## Designation & Ordering code

### COMPLETE FILTER

<b>Series and size</b>		Configuration example: <b>MRSX166</b>   <b>2</b>   <b>C</b>   <b>V</b>   <b>G3</b>   <b>1</b>   <b>A10</b>   <b>S</b>   <b>P01</b>									
<b>MRSX165</b>   <b>MRSX166</b> Filter element with private spigot											
<b>Length</b>		1   2   3									
<b>Hydraulic diagram configuration</b> - see page 257											
		Bypass valve to tank					Bypass valve to OUT				
<b>A</b>   <b>B</b>   <b>C</b>   <b>D</b>	•										
<b>E</b>   <b>F</b>   <b>G</b>   <b>H</b>	•										
<b>I</b>	•										
<b>M</b>	•										
<b>Seals and treatments</b>											
<b>A</b> NBR, O-Ring on head	<b>B</b> NBR, flat seal on head										
<b>V</b> FPM, O-Ring on head	<b>D</b> FPM, flat seal on head										
<b>Connections</b>											
		IN (size 165)		IN (size 166)		Aux IN		OUT			
<b>G1</b>	G 1 1/4"		G 1"		G 1 1/4"		G 1"				
<b>G2</b>	1 1/4" NPT		1" NPT		1 1/4" NPT		1" NPT				
<b>G3</b>	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				
<b>Aux IN connection</b>		MRSX 165		MRSX 166							
<b>0</b>	Without aux IN connection		•		-						
<b>1</b>	With aux IN connection - see previous table		•		•						
<b>Filtration rating (filter media)</b>											
<b>A10</b> Inorganic microfiber 10 µm											
<b>A16</b> Inorganic microfiber 16 µm											
<b>A25</b> Inorganic microfiber 25 µm											
		<b>Valves configuration</b>									
<b>Mounting position</b>		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>M</b>
<b>S</b>	Standard	•	•	•	•	•	•	•	•	•	
<b>B</b>	Tank side-wall mounting	•	•			•	•			•	•
		<b>Execution</b>									
		<b>P01</b> MP Filtri standard									
		<b>Pxx</b> Customized									

### FILTER ELEMENT

<b>Element series and size</b>		Configuration example: <b>RSX165</b>   <b>2</b>   <b>A10</b>   <b>V</b>   <b>P01</b>					
<b>RSX165</b> Filter element with private spigot							
<b>Element length</b>		1   2   3					
<b>Filtration rating (filter media)</b>							
<b>A10</b> Inorganic microfiber 10 µm							
<b>A16</b> Inorganic microfiber 16 µm							
<b>A25</b> Inorganic microfiber 25 µm							
		<b>Seals</b>		<b>Execution</b>			
		<b>A</b> NBR		<b>P01</b> MP Filtri standard			
		<b>V</b> FPM		<b>Pxx</b> Customized			

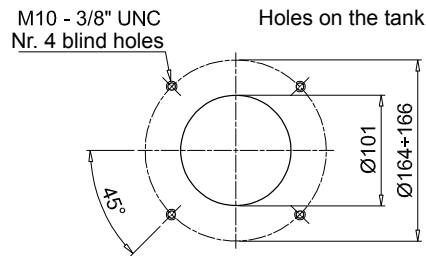
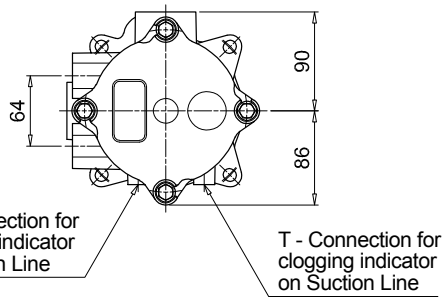
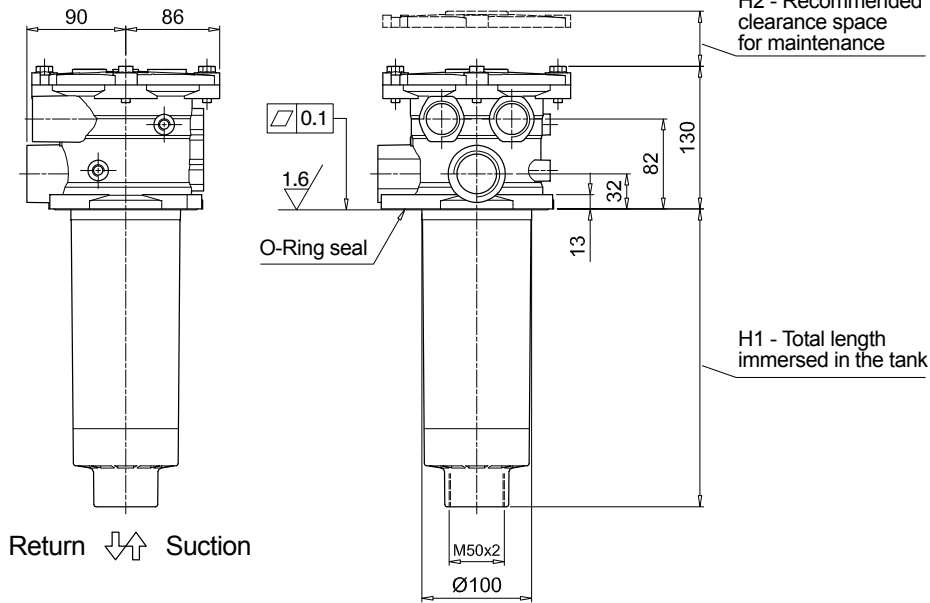
### ACCESSORIES

<b>Indicators on Return Line</b>		page			page
<b>BVA</b>	Axial pressure gauge	278	<b>BEA</b>	Electrical pressure indicator	276
<b>BVR</b>	Radial pressure gauge	278	<b>BEM</b>	Electrical pressure indicator	276
<b>BVP</b>	Visual pressure indicator with automatic reset	279	<b>BET</b>	Electrical pressure indicator	276-277
<b>BVQ</b>	Visual pressure indicator with manual reset	279	<b>BLA</b>	Electrical / visual pressure indicator	277-278
<b>Indicators on Suction Line</b>		page			page
<b>VVB</b>	Axial vacuum gauge	275	<b>VEB</b>	Electrical vacuum indicator	274
<b>VVS</b>	Radial vacuum gauge	275	<b>VLB</b>	Electrical / visual vacuum indicator	274

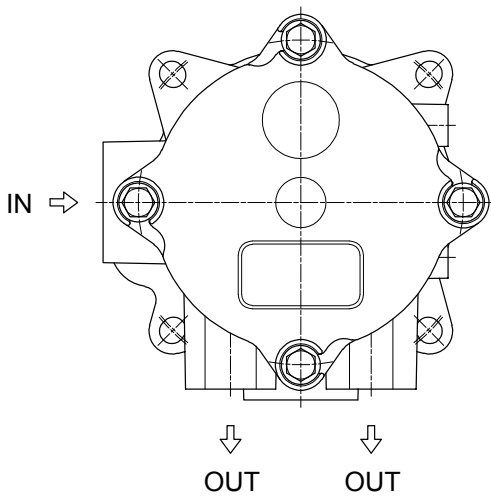
MRSX165		
Filter length	H1 [mm]	H2 [mm]
1	270	320
2	378	430
3	445	500

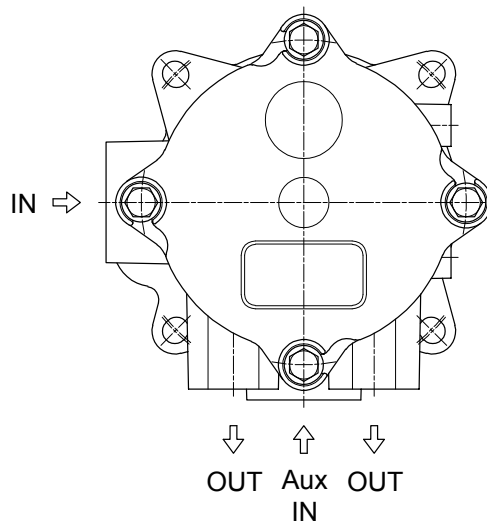
Connections	T
G1	G 1/8"
G2 - G3	1/8" NPT



Without Aux IN connection

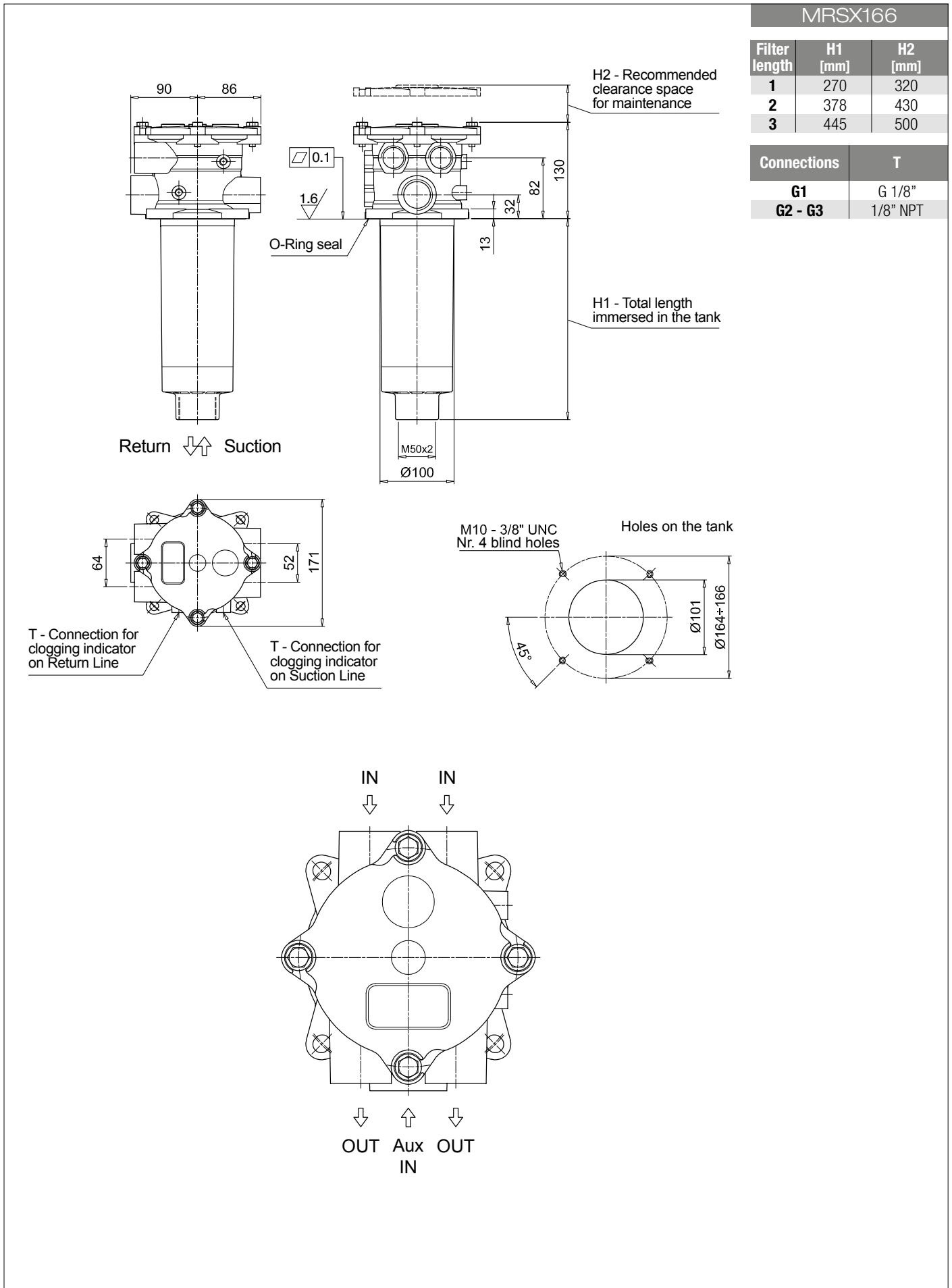


With Aux IN connection

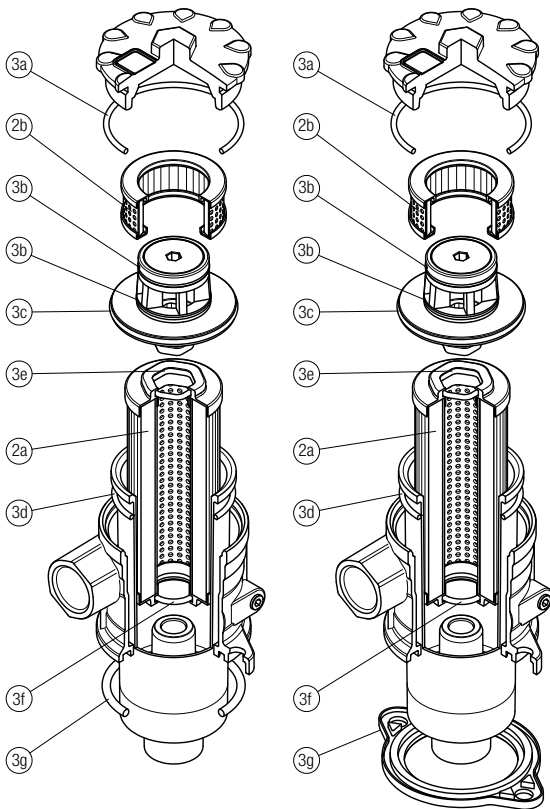


# MRSX MRSX165 - MRSX166

## Dimensions

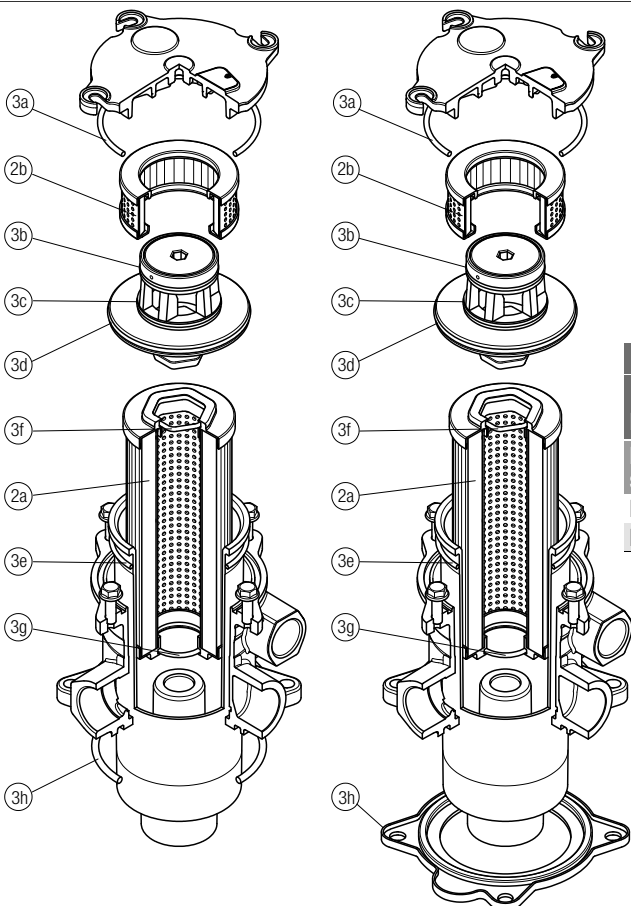


## MRSX 116



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	O-RING SEAL		FLAT SEAL	
	<b>2a</b>	<b>2b</b>	Q.ty: 1 pc. <b>3</b> (3a ÷ 3g)		Q.ty: 1 pc. <b>3</b> (3a ÷ 3g)	
Filter series	Filter element	Safety filter element	Seal Kit code number		Seal Kit code number	
MRSX 116	See order table	S116M60P01	NBR	FPM	NBR	FPM
			02050617	02050619	02050618	02050620

## MRSX 165 - 166



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	O-RING SEAL		FLAT SEAL	
	<b>2a</b>	<b>2b</b>	Q.ty: 1 pc. <b>3</b> (3a ÷ 3h)		Q.ty: 1 pc. <b>3</b> (3a ÷ 3h)	
Filter series	Filter element	Safety filter element	Seal Kit code number		Seal Kit code number	
MRSX 165	See order table	S165M60P01	NBR	FPM	NBR	FPM
MRSX 166			02050627	02050630	02050628	02050631
			02050627	02050630	02050629	02050632