

# FRI series

Maximum working pressure up to 2 MPa (20 bar) - Flow rate up to 1500 l/min



## Description

## Technical data

### Return filter

**Maximum working pressure up to 2 MPa (20 bar)**  
**Flow rate up to 1500 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 1500 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

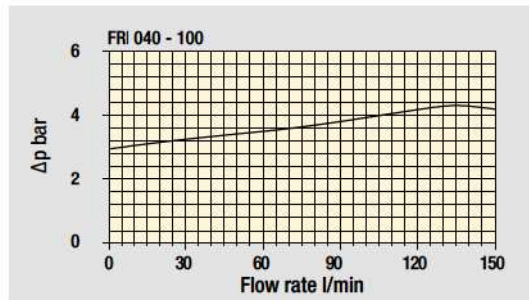
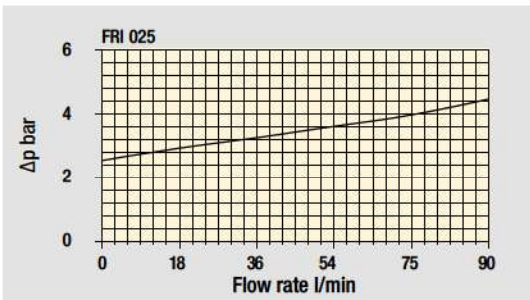
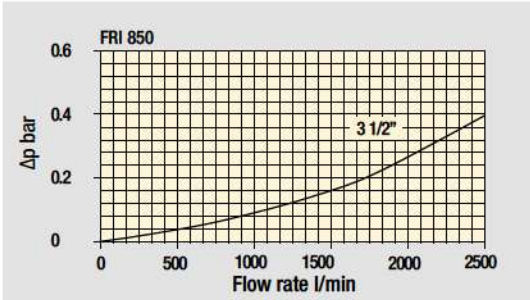
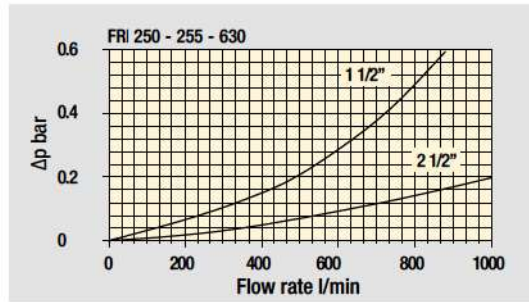
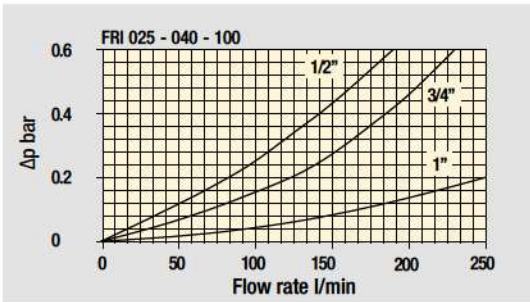
FRI filters are provided for vertical mounting



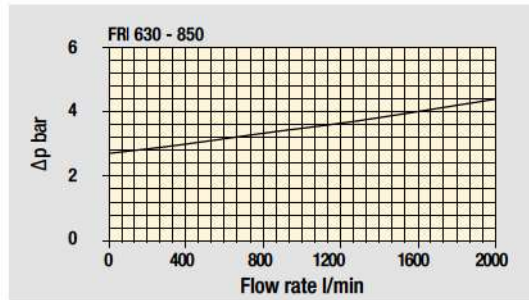
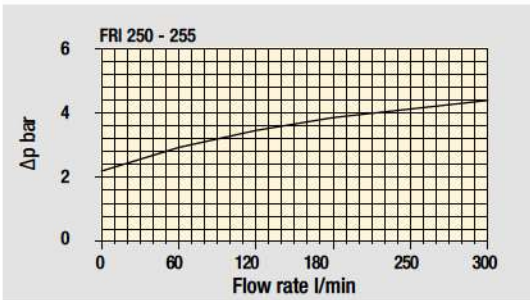
## Weights [kg] and volumes [dm<sup>3</sup>]

Filter series	Weights [kg]		Volumes [dm <sup>3</sup> ]	
	Length	1	Length	1
<b>FRI 025</b>		1.0		0.28
<b>FRI 040</b>		2.0		0.70
<b>FRI 100</b>		3.8		1.09
<b>FRI 250</b>		6.3		2.60
<b>FRI 255</b>		4.2		3.20
<b>FRI 630</b>		13.8		7.05
<b>FRI 850</b>		48.0		21.50

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.

## Flow rates [l/min]

Filter series	Length	Filter element design - N Series							
		A03	A06	A10	A16	A25	M25 M60 M90	P10	P25
<b>FRI 025</b>	<b>1</b>	6	10	17	19	43	122	43	47
<b>FRI 040</b>	<b>1</b>	19	23	43	45	94	155	94	102
<b>FRI 100</b>	<b>1</b>	32	34	89	92	187	260	187	206
<b>FRI 250</b>	<b>1</b>	144	179	271	300	448	645	448	490
<b>FRI 255</b>	<b>1</b>	144	179	271	300	448	645	448	490
<b>FRI 630</b>	<b>1</b>	242	279	508	577	834	1446	834	911
<b>FRI 850</b>	<b>1</b>	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.**

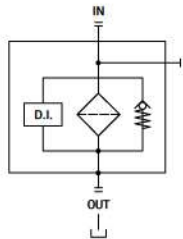
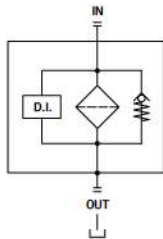
The reference fluid has a kinematic viscosity of 30 mm<sup>2</sup>/s (cSt) and a density of 0.86 kg/dm<sup>3</sup>.

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

Please, contact our Sales Department for further additional information.

## Hydraulic symbols

Filter series	Style 1 connection + Diff. indic.	Style 2 connections + Diff. indic.
<b>FRI 025</b>		•
<b>FRI 040</b>		•
<b>FRI 100</b>		•
<b>FRI 250</b>		•
<b>FRI 255</b>	•	
<b>FRI 630</b>		•
<b>FRI 850</b>	•	





## Designation & Ordering code

### COMPLETE FILTER

<b>Series and size</b>	Configuration example 1: <b>FRI255</b> <b>S</b> <b>W</b> <b>F2</b> <b>M25</b> <b>N</b> <b>P01</b>						
<b>FRI255</b>	Configuration example 2: <b>FRI850</b> <b>B</b> <b>A</b> <b>F1</b> <b>A25</b> <b>N</b> <b>P01</b>						
<b>FRI850</b>							
<b>Bypass valve</b>							
<b>B</b> With bypass							
<b>S</b> Without bypass							
<b>Seals and treatments</b>	Filtration rating						
<b>A</b> NBR	Axx	Mxx	Pxx				
<b>V</b> FPM	•	•	•				
<b>W</b> NBR head anodized	•	•		filter element compatible with fluids HFA-HFB-HFC			
<b>Z</b> FPM head anodized	•	•					
<b>Connections for FRI255</b>	<b>Connections for FRI850</b>						
<b>G1</b> G 1 1/2"	<b>F1</b> 3 1/2" SAE 3000 psi/M						
<b>G2</b> 1 1/2" NPT	<b>F2</b> 3 1/2" SAE 3000 psi/UNC						
<b>G3</b> SAE 24 - 1 7/8" - 12 UN							
<b>G4</b> G 1 1/4"							
<b>G5</b> 1 1/4" NPT							
<b>G6</b> SAE 20 - 1 5/8" - 12 UN							
<b>F1</b> 1 1/2" SAE 3000 psi/M							
<b>F2</b> 1 1/2" SAE 3000 psi/UNC							
<b>Filtration rating (filter media)</b>							
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm						
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm						
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm						
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm						
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm						
	<b>Element Δp</b>			<b>Execution</b>			
	<b>N</b> 10 bar			<b>P01</b> MP Filtri standard			
				<b>Pxx</b> Customized			

### FILTER ELEMENT

<b>Element series and size</b>	Configuration example 1: <b>CU250</b> <b>M25</b> <b>W</b> <b>P01</b>						
<b>CU250</b>	Configuration example 2: <b>CU850</b> <b>A25</b> <b>N</b> <b>P01</b>						
<b>CU850</b>							
<b>Filtration rating (filter media)</b>							
<b>A03</b> Inorganic microfiber 3 µm	<b>M25</b> Wire mesh 25 µm						
<b>A06</b> Inorganic microfiber 6 µm	<b>M60</b> Wire mesh 60 µm						
<b>A10</b> Inorganic microfiber 10 µm	<b>M90</b> Wire mesh 90 µm						
<b>A16</b> Inorganic microfiber 16 µm	<b>P10</b> Resin impregnated paper 10 µm						
<b>A25</b> Inorganic microfiber 25 µm	<b>P25</b> Resin impregnated paper 25 µm						
<b>Seals and treatments</b>	Filtration rating						
<b>N</b> NBR	Axx	Mxx	Pxx				
<b>V</b> FPM	•	•	•				
<b>W</b> NBR	•	•		filter element compatible with fluids HFA-HFB-HFC			
<b>Z</b> FPM	•	•					
	<b>Execution</b>			<b>P01</b> MP Filtri standard			
				<b>Pxx</b> Customized			

### FRI255 ACCESSORIES

<b>Indicators</b>	page				page
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<b>BVR</b> Radial pressure gauge	240	<b>BEM</b> Electrical pressure indicator			239
<b>BVP</b> Visual pressure indicator with automatic reset	241	<b>BLA</b> Electrical / visual pressure indicator			239-240
<b>BVQ</b> Visual pressure indicator with manual reset	241				

### FRI850 ACCESSORIES

<b>Indicators</b>	page				page
<b>DEA</b> Electrical differential indicator	242	<b>DTA</b> Electronic differential indicator			245
<b>DEM</b> Electrical differential indicator	242-243	<b>DVA</b> Visual differential indicator			245
<b>DLA</b> Electrical / visual differential indicator	243-244	<b>DVM</b> Visual differential indicator			245
<b>DLE</b> Electrical / visual differential indicator	244				

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<b>T2</b> Plug	246