

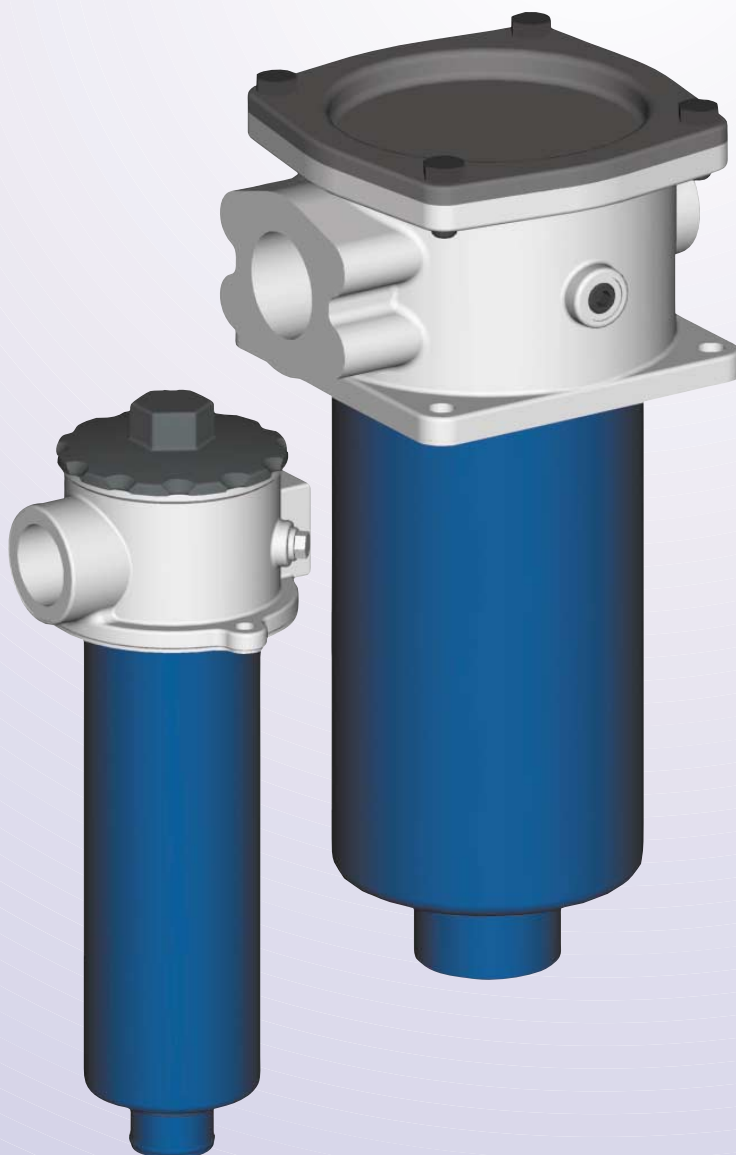


Industrial Filters · Accumulators

Return Line Filters

10 FRE 0003 - 0270, 10 FREN 0040 - 1000

16 FRE 0190 - 1350, 16 FREN 1260 - 2000



Filters for return line installation

FREN Type according to DIN 24550

Filters for tank mounting

Optimised flow characteristics

Low pressure drop

Special high efficient filter media

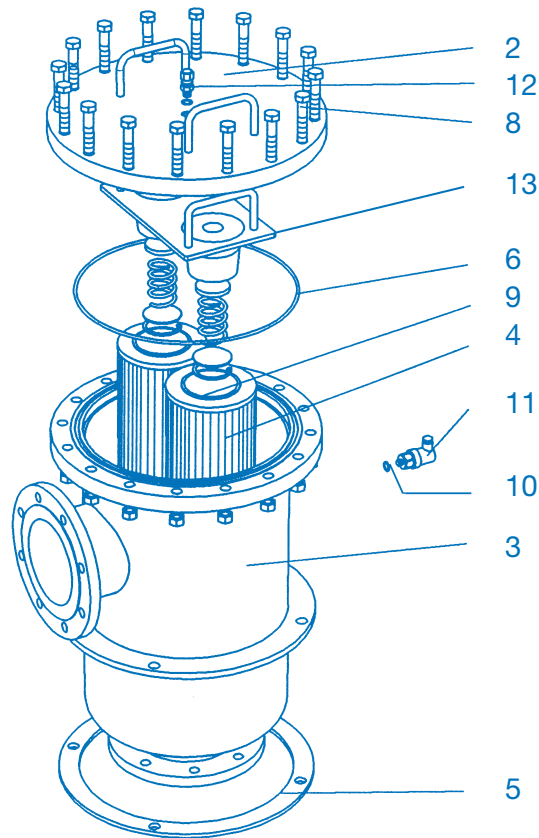
*Operation pressure 10/16 bar
Connection up to DN 300*



Quality assured!

Spare Parts List

16 FRE 0190, 0300, 0400, 0540, 0600, 0810, 1080, 1350
 16 FREN 1260, 2000

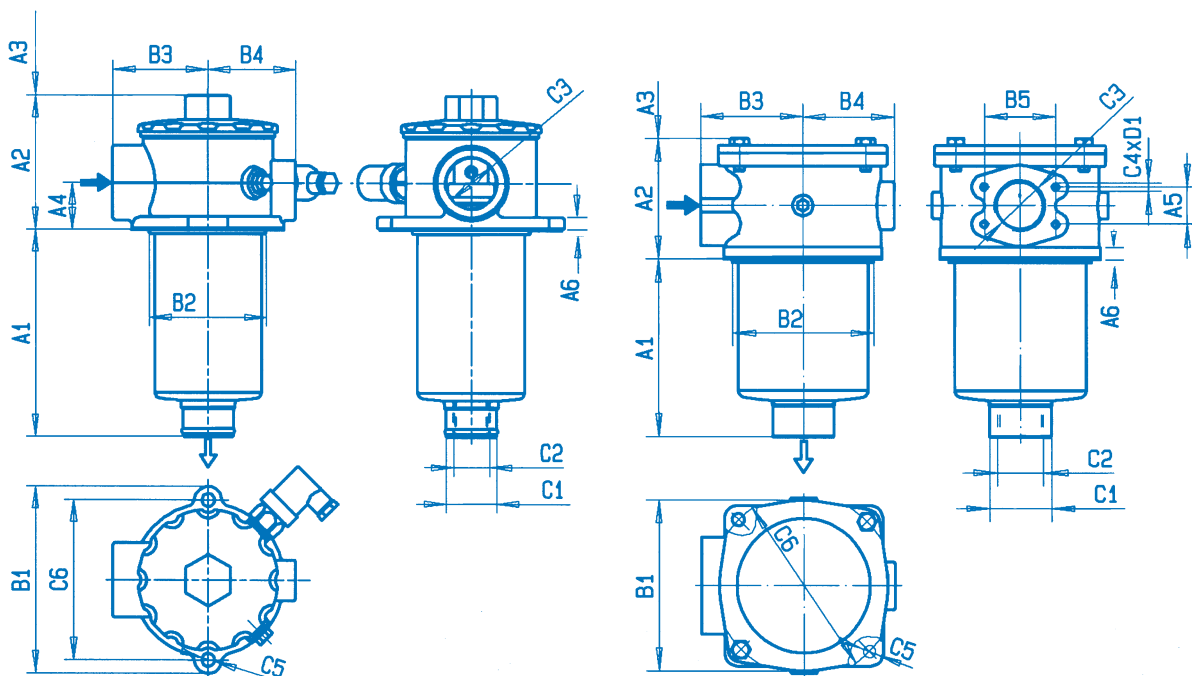


		Size 16 FRE Size 16 FREN		2000	0190 1260	0300	0400	0540	0600	0810	1080	1350	
Part	Quant.	Description	Material	please indicate ordering information "Filter"									
2	1	Filter cover	Steel	please indicate ordering information "Filter"									
3	1	Filter housing	Steel	please indicate ordering information "Filter"									
4	1	Filter element set (= 2 single elements)	various	please indicate ordering infor- mation "Filter Element"	—							—	
	1	Filter element set (= 3 single elements)	various	—	please indicate ordering information "Filter Element"				—				
	1	Filter element set (= 4 single elements)	various	—					please indicate ordering information "Filter Element"	—			
	1	Filter element set (= 5 single elements)	various	—						please indicate ordering infor- mation "Filter Element"	—		
	1	Filter element set (= 6 single elements)	various	—							please indicate ordering infor- mation "Filter Element"	please indicate ordering infor- mation "Filter Element"	
5	1	Seal	Buna N/Viton	please indicate ordering information "Seal Kit"									
6	1	O-ring	Buna N/Viton	please indicate ordering information "Seal Kit"									
8	16	Hexagon screw	-	Part No. 607				Part No. 620		Part No. 626			
9	4	O-ring	Buna N/Viton	please indicate ordering information "Filter Element"					—				
	6			—				please indicate ordering information "Filter Element"	—				
	8			—						please indicate ordering infor- mation "Filter Element"	—		
	10			—							please indicate ordering infor- mation "Filter Element"	please indicate ordering infor- mation "Filter Element"	
10	1	Seal	Copper	please indicate ordering information "Seal Kit"									
11	1	Maintenance indicator	various	please indicate ordering information "Maintenance Indicator"									
12	1	Ventilation valve	various	please indicate ordering information "Filter"									
13	1	Plate/Press-on plate	various	please indicate ordering information "Filter"									

Dimensions

10 FRE 0003, 0005, 0008, 0013, 0015, 0018
10 FREN 0040, 0063, 0100

10 FRE 0020, 0030, 0045, 0060, 0095, 0145, 0200, 0270
10 FREN 0160, 0250, 0400, 0630, 1000



Filter Housing for Filter Elements in accordance with EPE Standard

Type	Capacity in l	Weight in kg ¹⁾	A1	A2	A3 ²⁾	A4	A6	B1	B2 Tank- Bore	B3	B4	C1	Connection				C5	C6		
													Outlet C2	Inlet 00 C3	Inlet S0					
													A5	B5	C4	D1				
10 FRE 0003	0,2	0,5	67	65	85	22	7	108	ø54	46	53	ø27	G ³ / ₈	G ³ / ₈	-	-	-	-	ø9,5	86
10 FRE 0005	0,6	1,2	116	94	100	30	10	137	ø87	70	65	ø34	G ³ / ₄	G1	-	-	-	-	ø11	115
10 FRE 0008	0,8	1,3	176		160															
10 FRE 0013	1,2	1,6	266		250															
10 FRE 0015	1,7	2,5	185	117	165	40	12	166	ø107	85	78	ø60	G1 ¹ / ₄	G1 ¹ / ₂	-	-	-	-	ø11,5	142
10 FRE 0018	2,2	3,0	275		255															
10 FRE 0020	3,3	4,5	173		160															
10 FRE 0030	4,3	6,5	263		250															
10 FRE 0045	6,1	7,0	413		400															
10 FRE 0060	6,6	5,6	235	138	250	60	14	198	ø178	110	108,5	ø68	G2	SAE 2" 3000psi	42,9	77,8	M12	20	ø11,5	ø220
10 FRE 0095	9,5	7,9	385		400															
10 FRE 0145	15	15,0	381		400															
10 FRE 0200	25,2	20	739	183	760	80	14	230	ø205	135	122,5	ø125	G3	SAE 3" 3000psi	61,9	106,4	M16	26	ø11,5	ø250
10 FRE 0270	31,6	26,5	973		995															

Filter Housing for Filter Elements in accordance with DIN 24550

Type	Capacity in l	Weight in kg ¹⁾	A1	A2	A3 ²⁾	A4	A6	B1	B2 Tank- Bore	B3	B4	C1	Connection				C5	C6		
													Outlet C2	Inlet 00 C3	Inlet S0					
													A5	B5	C4	D1				
10 FREN 0040	0,6	1,2	116	94	100	30	10	137	ø87	70	65	ø34	G ¹ / ₂	-	-	-	-	ø11	115	
10 FREN 0063	0,8	1,3	176		160															
10 FREN 0100	1,2	1,6	266		250															
10 FREN 0160	3,3	4,5	173	117	160	50	12	165	ø140	100	89,5	ø60	G1 ¹ / ₂	G1 ¹ / ₂	-	-	-	-	ø185	
10 FREN 0250	4,3	6,5	263		250															
10 FREN 0400	6,6	5,6	235	138	250	60	14	198	ø178	110	108,5	ø68	G2	SAE 2" 3000psi	42,9	77,8	M12	20	ø11,5	ø220
10 FREN 0630	9,5	7,9	385		400															
10 FREN 1000	15	15,0	381		400															
10 FREN 1000	15	15,0	381	183	400	80	14	230	ø205	135	122,5	ø125	G3	SAE 3" 3000psi	61,9	106,4	M16	26	ø11,5	ø250
10 FREN 1000	15	15,0	381		400															

¹⁾ = Weight including standard filter element and maintenance indicator

²⁾ = Construction dimension size for filter element change

Return Line Filters

10 FRE 0003-0270
 10 FREN 0040-1000
 16 FRE 0190-1350
 16 FREN 1260-2000

Operating pressure 10/16 bar
 Operating temperature -10°C to $+100^{\circ}\text{C}$

Application

Filtering hydraulic fluids, lubrication oils and liquids generally. Direct tank mounting, direct installation in return pipes. Effective protection for tank and operating pumps as a result of filtering out dirt from the installation runback.

Design

Size 10 FRE 0003-0270 (10 FREN 0040-1000): Filter head of cast aluminium with screw on cap, inlet port, mounting point for bypass valve and spigot for the filter element (size 10 FRE 0003 is fitted with a filter element with integrated bypass valve). Filter housing with spigot for filter element and filter outlet. Size 16 FRE 0190-1350 (16 FREN 1260-2000): Filter housing of welded steel construction with filter element and flange-mounted filter cover. Additional material and accessories: See spare parts list in this brochure.

Filter Element

Pleated design with optimal pleat density and in various filter materials. Further detailed information can be found in our "Filter Elements" brochure. Our computer programme "EPE-FILTERSELECT" enables an optimal filter selectrar

Accessories

Maintenance Indicators

Monitors the degree of clogging of the filter elements and is available as visual or visual/electrical displays with one or two shifting points.

Bypass Valve

For the protection of the filter elements during cold start and when the differential pressure is exceeded due to clogging.

Vent Valve

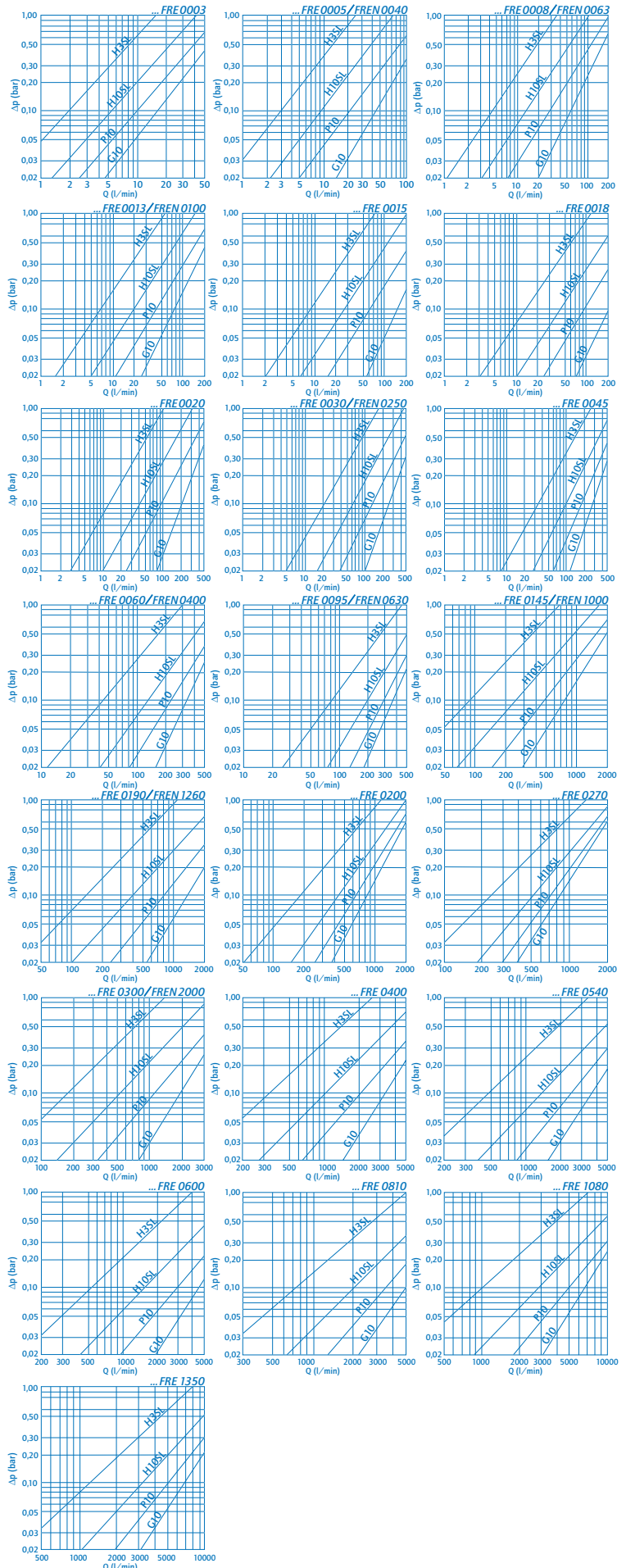
For venting air from the filter during start up and for safe depressurisation.

Pressure Drop Curves

Δp -Q-characteristic lines for complete filters recommended start- Δp for layout = 0.8 bar

Oil Viscosity: $30 \text{ mm}^2/\text{s}$

Specific gravity $< 0.9 \text{ kg}/\text{dm}^3$



Ordering Information

Identification of filter size:
Using the computer programme
"EPE-FILTERSELECT" or
pressure characteristic lines
in this catalog.

Special models are available on
request

Type	Magnet	Maintenance Indicator	Connection	Material
<p>FRE = Return line filter with filter element acc. to EPE standard</p> <p>FREN = Return line filter with filter element acc. to DIN 24550</p>	<p>O = without</p>	<p>O = without</p> <p>A = Manometer 0-6 bar</p> <p>B = Manometer 0-25 bar (glycerine)</p> <p>C = opt. mech. Display</p> <p>D 2,5 = pressure switch closer</p> <p>F 2,5 = pressure switch opener</p> <p>G 2,5 = pressure switch with appliance inlet</p> <p>K 2,5 = Pressure switch 2 LED closer</p> <p>See illustration of servicing display for detailed ordering designation and technical data.</p>	<p>00 = Standard</p> <p>50 = SAE flange</p>	<p>O = Standard</p>

Filter → 10 FRE 0013 H10SL - A 00 - 0 7 C2.5 - 00 P 0 0

Seal Kit → D 10 FRE 0013 - C - 00 P 0

Pressure	Size	Filtration Grade	Diff. Pressure	Element Model	Bypass Valve	Seal	Addit. Info																																												
<p>10 bar</p> <p>16 bar</p>	<p>10 FRE...</p> <table border="1"> <tr><td>0003</td><td>0005</td><td>0008</td></tr> <tr><td>0013</td><td>0015</td><td>0018</td></tr> <tr><td>0020</td><td>0030</td><td>0045</td></tr> <tr><td>0060</td><td>0095</td><td>0145</td></tr> <tr><td>0200</td><td></td><td>0270</td></tr> </table> <p>10 FREN...</p> <table border="1"> <tr><td>0040</td><td>0063</td><td>0100</td></tr> <tr><td>0160</td><td>0250</td><td>0400</td></tr> </table> <p>16 FRE...</p> <table border="1"> <tr><td>0630</td><td>1000</td><td></td></tr> </table> <p>Filter elements Type</p> <table border="1"> <tr><td>3 x 1.0095</td><td>0190</td></tr> <tr><td>3 x 1.0120</td><td>0300</td></tr> <tr><td>3 x 1.0200</td><td>0400</td></tr> <tr><td>4 x 1.0200</td><td>0600</td></tr> <tr><td>3 x 1.0270</td><td>0540</td></tr> <tr><td>4 x 1.0270</td><td>0810</td></tr> <tr><td>5 x 1.0270</td><td>1080</td></tr> <tr><td>6 x 1.0270</td><td>1350</td></tr> </table> <p>16 FREN...</p> <table border="1"> <tr><td>3 x 1.0630</td><td>1260</td></tr> <tr><td>2 x 1.1000</td><td>2000</td></tr> </table>	0003	0005	0008	0013	0015	0018	0020	0030	0045	0060	0095	0145	0200		0270	0040	0063	0100	0160	0250	0400	0630	1000		3 x 1.0095	0190	3 x 1.0120	0300	3 x 1.0200	0400	4 x 1.0200	0600	3 x 1.0270	0540	4 x 1.0270	0810	5 x 1.0270	1080	6 x 1.0270	1350	3 x 1.0630	1260	2 x 1.1000	2000	<p>Nominal filter fineness in µm</p> <p>G = Stainless steel, cleanable</p> <p>G10 G25 G40 G60 G80 G100</p> <p>VS = bonded fabric, not cleanable</p> <p>VS25 VS40 VS60</p> <p>P = Paper, not cleanable</p> <p>P5 P10 P25</p> <p>Absolute filter fineness (ISO 4572) in µm</p> <p>H...SL = Microglass, not cleanable</p> <p>H1SL H3SL H6SL H10SL H20SL</p> <p>AS = Microglass, water-adsorbent not cleanable</p> <p>AS1 AS3 AS6 AS10 AS20</p>	<p>Max. allowed differential pressure of the filter element</p> <p>O = 15 bar only for size 0145-0270 and 0300-1350</p> <p>A = 30 bar</p>	<p>O... = Standard-adhesive T = 160°C</p> <p>E... = Adhesive T = 160°C</p> <p>...O = Standard-material</p> <p>...Z = Zinc-free</p>	<p>O = without</p> <p>7 = 3.5 bar</p> <p>Filter element: Bypass valve only possible with size 0003</p>	<p>P = Buna-N</p> <p>V = Viton</p> <p>E = Ethylene-Propylene</p> <p>N = Neoprene</p>	<p>O = without</p> <p>5 = Silicone free</p> <p>F = Ventilation filter for 10 FRE 008-0018 and 10 FREN 0040-0100 only</p> <p>S = Ventilation disc for 10 FRE 0003-0018 and 10 FREN 0040-0100 only</p> <p>Z = Inspection certificate</p> <p>5 = Silicone free</p> <p>Z = inspection certificate</p>
0003	0005	0008																																																	
0013	0015	0018																																																	
0020	0030	0045																																																	
0060	0095	0145																																																	
0200		0270																																																	
0040	0063	0100																																																	
0160	0250	0400																																																	
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3 x 1.0095	0190																																																		
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5 x 1.0270	1080																																																		
6 x 1.0270	1350																																																		
3 x 1.0630	1260																																																		
2 x 1.1000	2000																																																		

Filter Element → 1. 0013 H10SL - A 00 - 0 - P 0

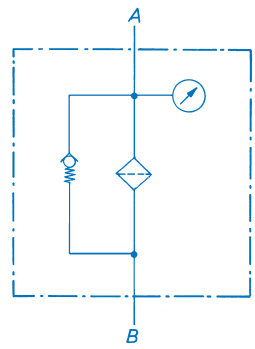
Maintenance Indicator

The maintenance indicator monitors the degree of dirt of the filter elements.
They are available as optical or optical/electrical displays.
See "Maintenance Indicator" brochure for technical data.

<p>A...Optical</p> <p>Ordering information</p> <p>A = M 010</p>	<p>B...Optical</p> <p>Ordering information</p> <p>B = M 040</p>	<p>C...Optical/mechanical</p> <p>Ordering information</p> <p>C = P 2,5</p>
<p>D... electrical closer</p> <p>F... electrical opener</p> <p>Ordering information</p> <p>D2,5 = H2,5 HS 32 00P*</p> <p>F2,5 = H2,5 HA 32 00P*</p>	<p>G... electrical</p> <p>Ordering information</p> <p>G2,5 = H2,5 GW 33 00P*</p>	<p>K... optical/electrical with 2 diodes</p> <p>Ordering information</p> <p>K2,5 = H2,5 GS 34 00P*</p>
<p>Switch Symbol</p>	<p>Switch Symbol</p>	<p>Switch Symbol</p>

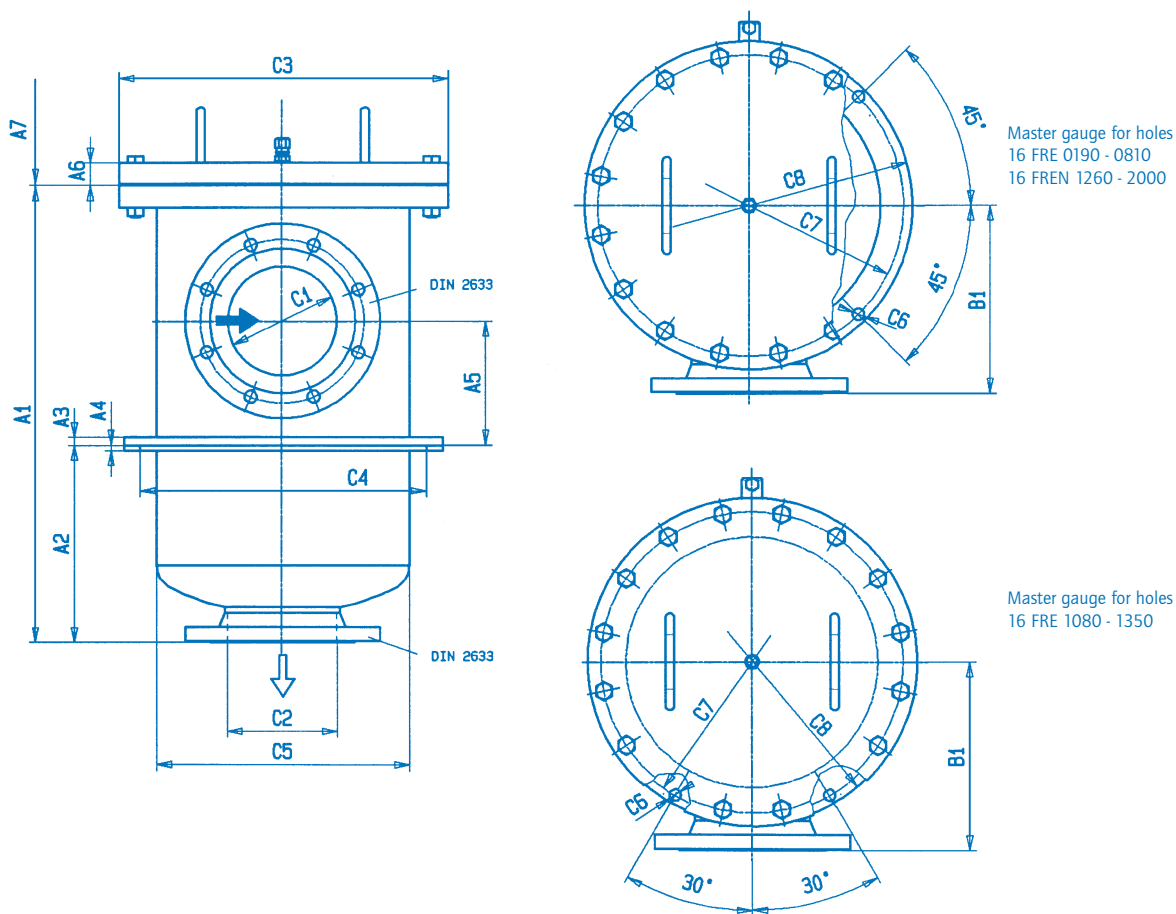
*P = Buna-N, V = Viton, E = Ethylene propylene, N = Neoprene possible

Filter Switching Symbol



Dimensions

16 FRE 0190, 0300, 0400, 0540, 0600, 0810, 1080, 1350
16 FREN 1260, 2000



Filter Housing for Filter Elements in accordance with EPE Standard

Type	Capacity in l	Weight in kg ¹⁾	A1	A2	A3	A4	A5	A6	A7 ²⁾	B1	Connection		C3	C4 Tank bore	C5	C6	C7	C8	
											Inlet C1	Outlet C2							
16 FRE 0190	55	130	670	288	12	8	182	29	450	275	DN 125	DN 125	ø480	ø390	ø368	4xø20	ø430	ø465	
16 FRE 0300		132									DN 150	DN 150							
16 FRE 0400	102	198	1023	511			262	34	800	1000	285	DN 200	DN 200	ø565	ø475	ø450	ø515	ø590	
16 FRE 0540	125	244	1257	745								800	1000						330
16 FRE 0600	157	224	1068	456			352	34	800	1000	330	DN 250	DN 250	ø735	ø630	ø600	6xø23	ø675	ø720
16 FRE 0810	194	273	1302	690								DN 300	DN 300						
16 FRE 1080	355	298	1346	681	15	10	365	41	1000	415	DN 300	DN 300	ø735	ø630	ø600	6xø23	ø675	ø720	
16 FRE 1350		318									DN 300	DN 300							

Filter Housing for Filter Elements in accordance with DIN 24550

Type	Capacity in l	Weight in kg ¹⁾	A1	A2	A3	A4	A5	A6	A7 ²⁾	B1	Connection		C3	C4 Tank bore	C5	C6	C7	C8
											Inlet C1	Outlet C2						
16 FREN 1260	55	130	670	288	12	8	182	29	450	275	DN 125	DN 125	ø480	ø390	ø368	4xø20	ø430	ø465
16 FREN 2000		132									DN 150	DN 150						

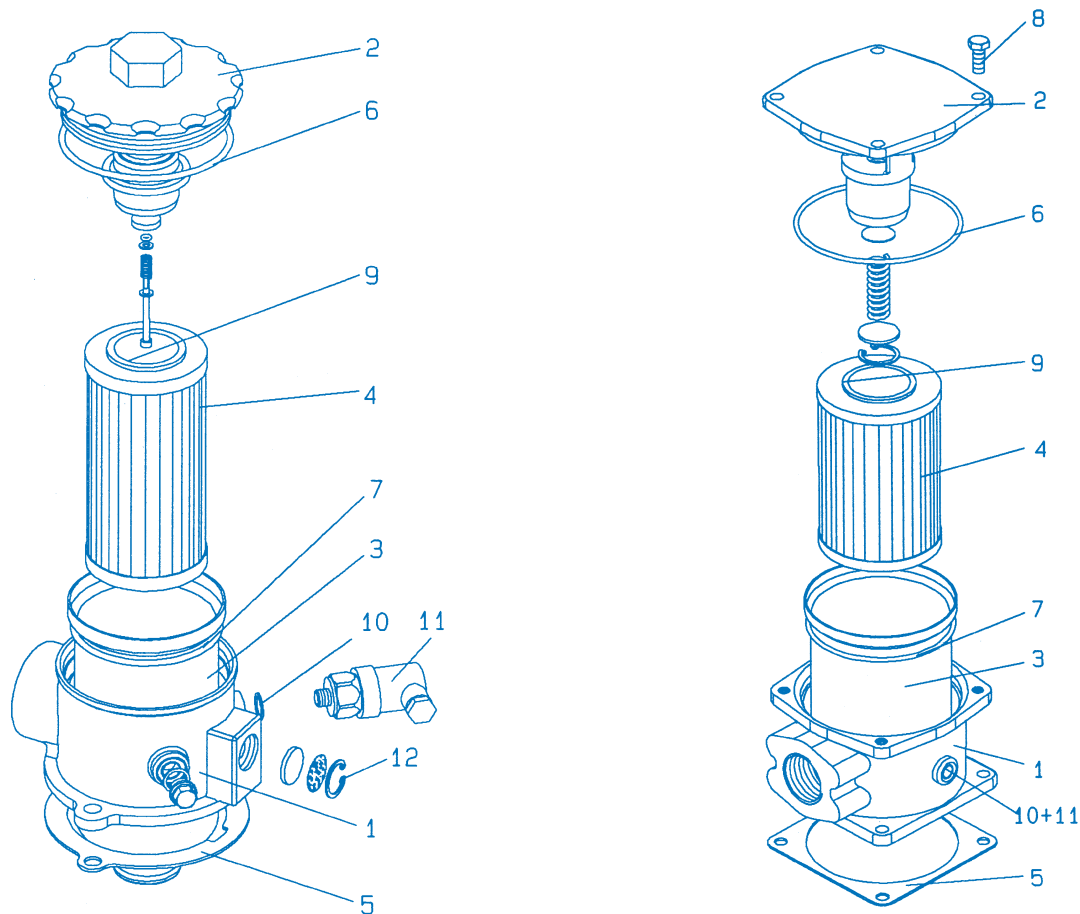
¹⁾ = Weight including standard filter element and servicing display

²⁾ = Construction dimension for filter element change

Spare Parts List

10 FRE 0003, 0005, 0008, 0013, 0015, 0018
10 FREN 0040, 0063, 0100

10 FRE 0020, 0030, 0045, 0060, 0095, 0145, 0200, 0270
10 FREN 0160, 0250, 0400, 0630, 1000



		Size 10 FRE Size 10 FREN		0003	0005 0040	0008 0063	0013 0100	0015	0018	0020 0160	0030 0250	0045 0400	0060 0630	0095 0630	0145 1000	0200	0270
Part	Quant.	Description	Material	please indicate ordering information "Filter"													
1	1	Filter head	Aluminium	please indicate ordering information "Filter"													
2	1	Filter cover	Plastic	please indicate ordering information "Filter"										—			
			Aluminium	—										please indicate ordering information "Filter"			
3	1	Filter housing	Aluminium	please indicate ordering information "Filter"	—												
	1	Filter bowl		-	please indicate ordering information "Filter"												
4	1	Filter element	various	please indicate ordering information "Filter Element"													
5	1	Seal	Buna-N/Viton	please indicate ordering information "Seal Kit"													
6	1	O-ring	Buna-N/Viton														
7	1	O-ring	Buna-N/Viton														
8	4	Hexagon screw	-	—								Part No. 594		Part No. 595			
9	2	O-ring	Buna-N/Viton	please indicate ordering information "Filter Element"													
10	1	Seal	Copper	please indicate ordering information "Seal Kit"													
11	1	Maintenance indicator	various	please indicate ordering information "Maintenance Indicator"													
12	1	Ventilation	various	please indicate ordering information "Filter"										—			

Quality and Standardisation

The development, manufacture and assembly of EPE-industrial filters and filter elements is carried out within the framework of a certified quality management system in accordance with DIN EN ISO 9001.

Certification of the filters by accredited institutions (for example TÜV, GL, LRS, LRIS, ABS, BV, DNV, DRIRE, UDT, etc.) is available on request. The stability calculation and testing of the filters proceeds according to actual standards, as well as in accordance with national and international norms. The CE-identification mark according to the Pressure Equipment Directive 97/23/EG depends upon the individual application and operating conditions. On request we will classify the filters.



Industrial Filters · Accumulators

Installation, Starting and Maintenance

Installation

Check that the pressure rating of the filter is suitable for the system in which it is being installed. Remove the inlet & outlet plugs and locate the filter in the opening in the tank. Ensure that the gasket is correctly located and screw the filter in place, taking care to avoid any stress on the components.

Connection of electrical maintenance

Connect as opener, closer or changeover using double or triple core cable. Note the capacity and voltage on the indicator plate.

Starting Operation

Switch on Pump.

In the case of models 16 FRE 0190-1350 (16 FREN 1260 and 2000), it may be necessary to open the vent valve (Part 12) and ventilate the filter. For models 10 FRE 0020-0270 (10 FREN 0160-1000), no separate ventilation is required.

Monitor the static-up pressure on the servicing display (Part 11) of the return filter and return pipe, respectively.

If the static-up pressure before the return filter is more than 1 bar, check the volume flow of the pump and the dimensional layout of the return filter.

Maintenance

The filter element (Part 4) is clogged and must be renewed or cleaned when the visual pointer extends from the maintenance indicator at operating temperature, the manometer reading has reached the marked value and/or the switching process on the electrical indicator is triggered.

Filter Element Service

Switch off the pump and depressurise system.

Series 10 FRE 0003-0018 (10 FREN 0040-0100):

Unscrew the cover (Part 2) of the return filter with the integrated bypass valve. The bypass valve of model 10 FRE 0003 is in the filter element. Pull out the filter housing (Part 3) with filter element (Part 4) and detach filter element from the spigot. With 10 FRE 0003 remove the filter element (Part 4) from the filter casing (Part 3)

Series 10 FRE 0020-0270 (10 FREN 0160-1000):

Remove the screws (Part 8) of the filter and then remove the filter cover (Part 2).

Remove the filter element (Part 4) from the spigot of the filter housing (Part 3) by slightly rotating it.

Series 16 FRE 0190-1350 (16 FREN 1260-2000):

Remove the screws (Part 8), filter cover (Part 2) and pressure plate (Part 13) with integrated bypass valve. Remove the filter element from the spigot of the filter casing (Part 3) by slightly rotating it. Check and, if necessary clean the filter housing (Part 3).

Renew filter elements H ... -SL, P ... and VS ... The filter element with material G ... is cleanable. The effectiveness of cleaning depends on the type of dirt and the differential pressure prior to changing the filter element. Replace element G ... when the differential pressure after changing the filter element is more than 50 % of the value before changing the filter element.

Re-insert new or cleaned filter elements in filter casing (Part 3) and filter housing (Part 3), respectively.

Re-install pressure plate and filter pot respectively. Screw down the filter housing cover and tighten the screws.

Put back into operation as described above.

Technical specifications are subject to change.

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