



**ГІДРАВЛІЧНІ ФІЛЬТРА ТА АКСЕСУАРИ**

# Interchangeable Elements

F.B.N. srl is pleased to offer you its range of filter elements, interchangeable with all main manufacturers of equipments (OEM) and hydraulic filters. Our interchangeable elements are produced with components of the highest quality level and are constantly monitored to ensure maximum performance, equivalent to the original. It is an ever-expanding range, We kindly invite you to see our online cross-reference to check the equivalences: [www.fbn.it/reference](http://www.fbn.it/reference). In case the equivalences are not found, we can evaluate the building also for modest quantities. Contact us!



JCEIVI driven by innovation





**f b n**

NOVELLARA

SPA

CAMBIO

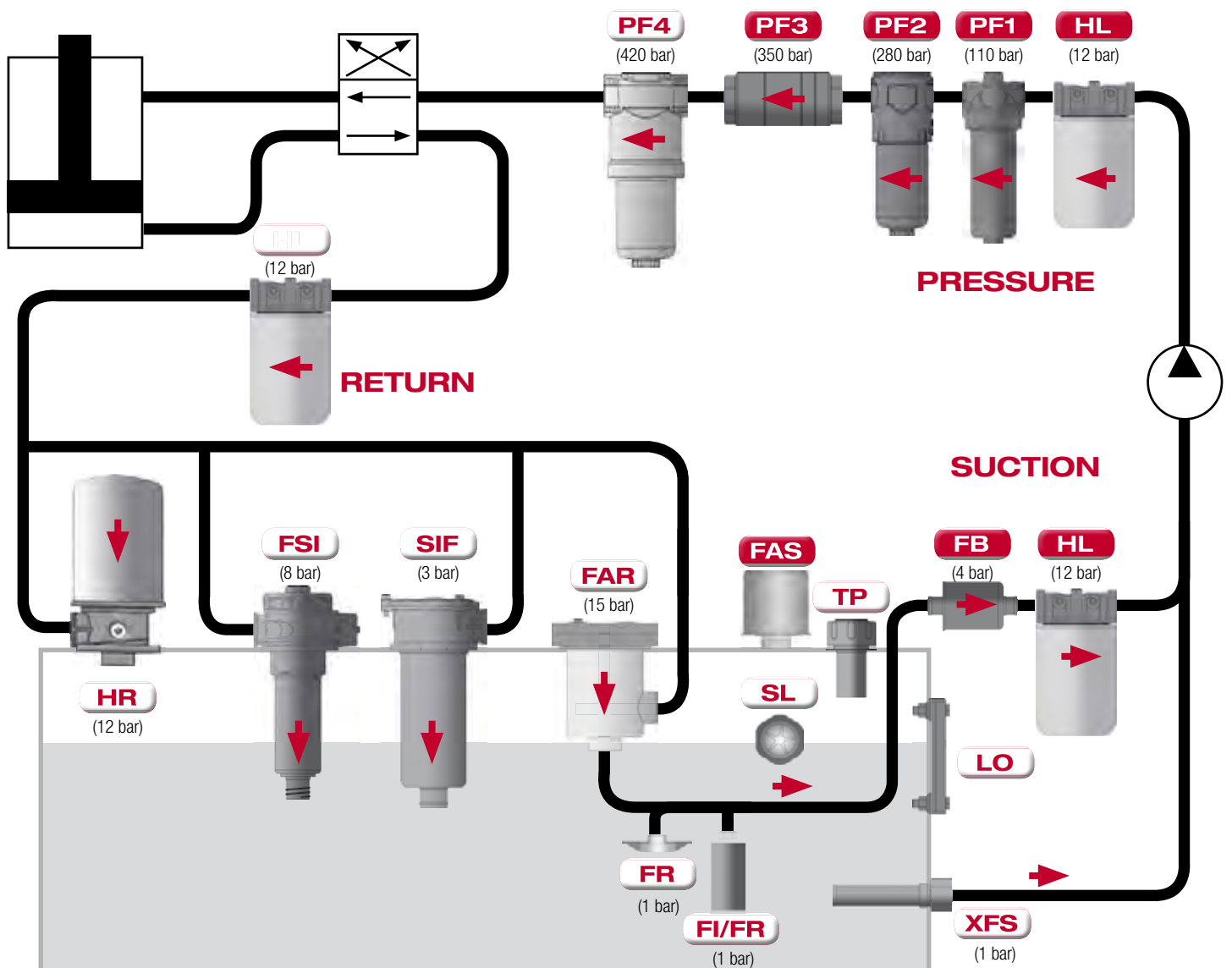
# Catalogo filtri idraulici

## THE IMPORTANCE OF A FILTER IN AN HYDRAULIC SYSTEM:


In modern hydraulic systems, manufacturers tend to use components for production and control of hydraulic power, increasingly complex, expensive and with very high performances. **THE MAIN CAUSE OF BREAKDOWNS IN THESE SYSTEMS IS A DIRECT CONSEQUENCE OF HYDRAULIC FLUID'S CONTAMINATION AND THE DERIVING COSTS ARE REALLY HIGH** (components' replacements, production stops, increased maintenance costs, etc.etc.). It is impossible to eliminate completely contamination from fluids but it can be kept under control by proper choice of a filter and the constant replacement of its filter element. That's why, choosing a suitable filter for your hydraulic system and application, means **A REDUCTION OF THE OPERATING COSTS AND KEEPING HIGH ITS POTENTIAL**. You must analyze several factors, to select a proper filter:

**1)** Location on the circuit (suction, delivery, return); **2)** The Max. working pressure considering also the filter element  $\Delta p$ ; **3)** Max. flow rate needed, filter dimensions and connections; **4)** Filtration degree and filtering material necessary to protect components. You must take into account several parameters in order to determine it, such as: a) The required level of contamination class according to standards ISO4406 or NAS1638 and therefore the most suitable filtering efficiency, b) The sensitivity of components to be protected, c) The expected life (cycles) and the dirt holding capacity, d) The working environment, e) The general costs, also for evtl. production stops; **5)** The working temperatures; **6)** The eventual usage of clogging indicators or by-pass. F.B.N. Srl is able to offer you a range to suit all your needs. Our technical department is at your complete disposal for any request for additional information and technical explanations.

## EXAMPLES OF APPLICATION



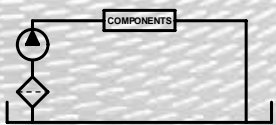
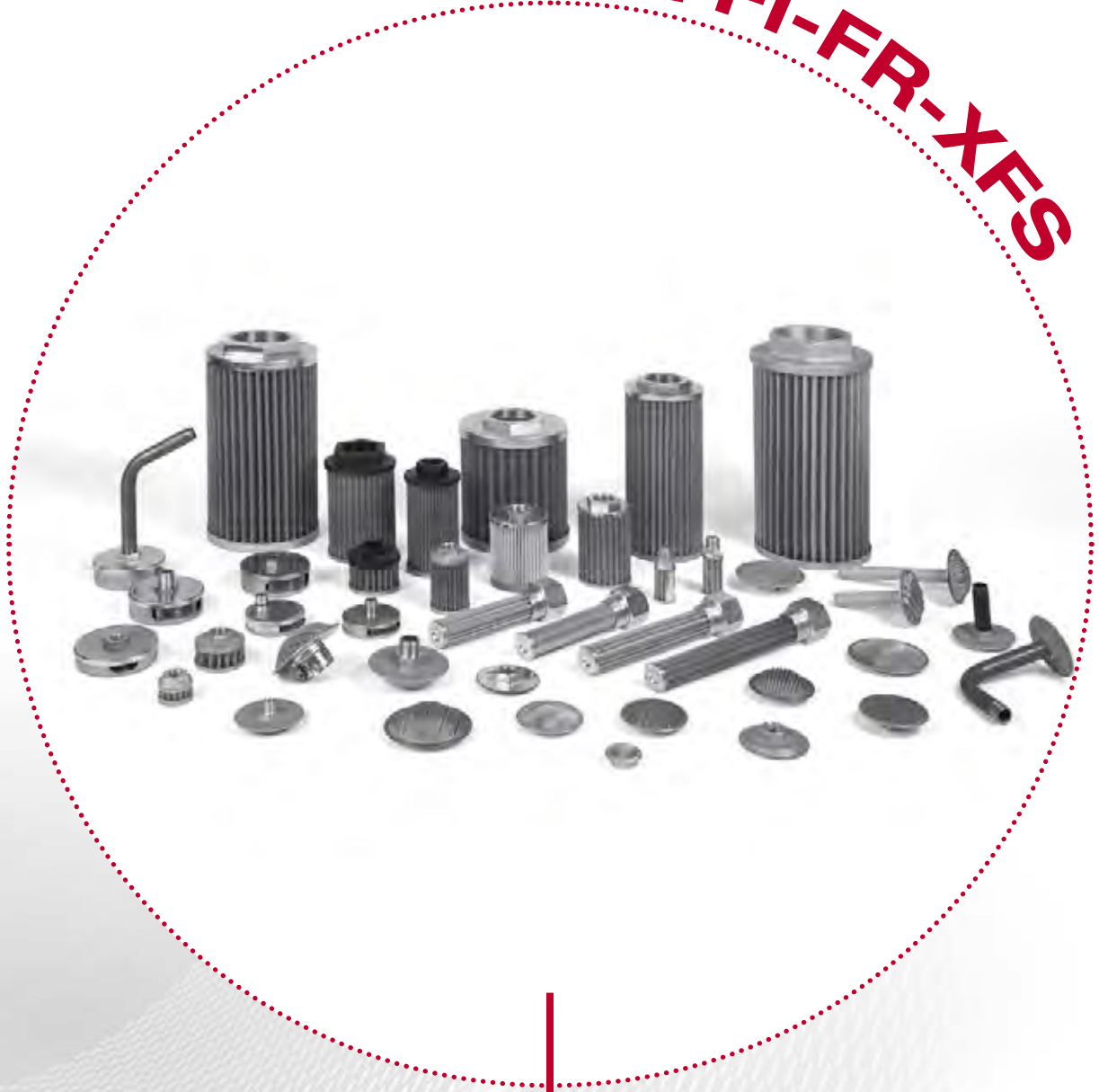
 = Hydraulic pump

 = Valve

 = Hydraulic cylinder

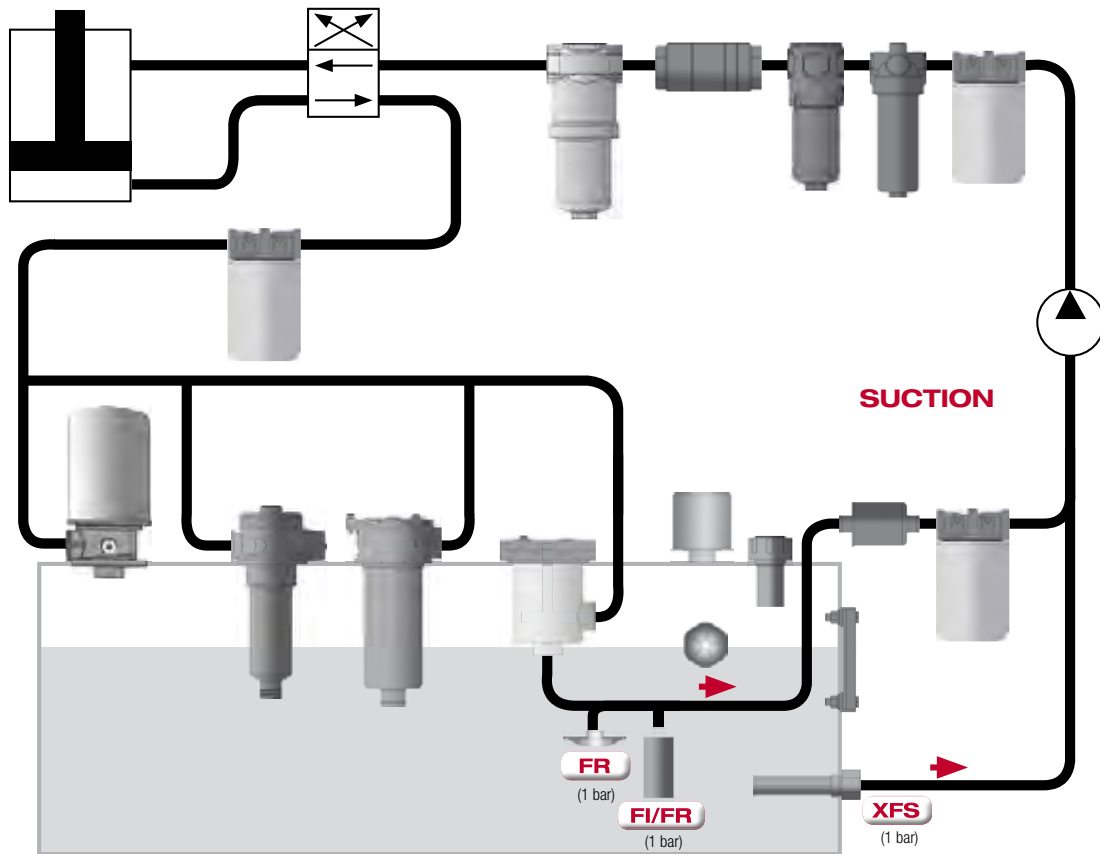
*Immersed suction filters (strainers)*

**SERIE FI-FR-XES**



**Suction filters**





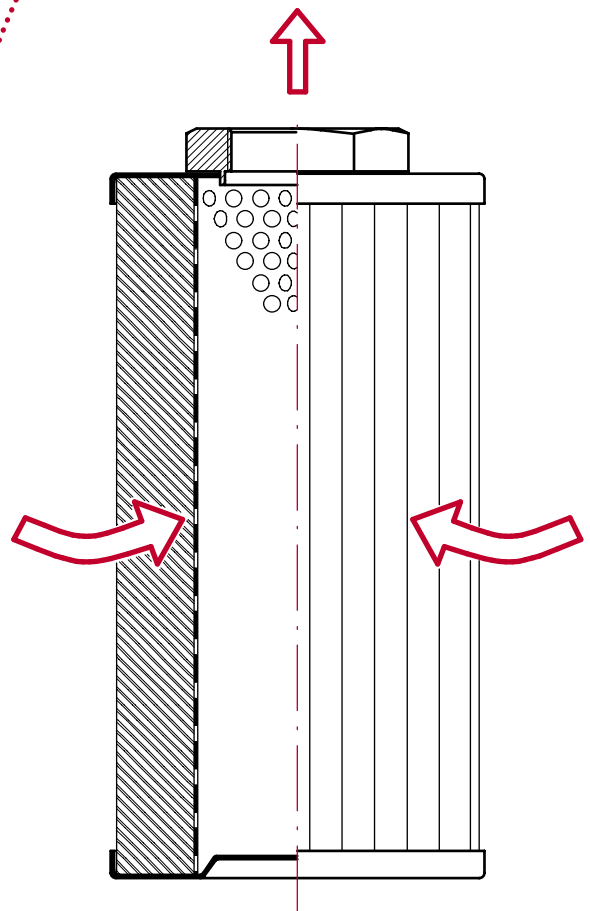
**FI-FR-XFS filter series are used for suction, immersed into hydraulic oil tank, to protect the pump and system components from coarse contamination.** There are several filter families and models available, in order to satisfy all needs: many filtration degrees and connections, small flow rates for mini power-packs, bigger flow rates, narrow spaces, special connections or with suction pipes. We can also produce special filters upon customer request.

# FI SERIES

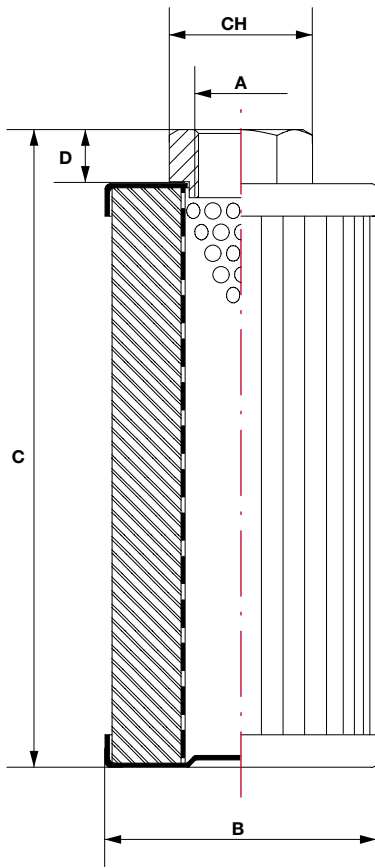
## Threaded tank-immersed suction oil filters

### TECHNICAL FEATURES:

- Connections + caps: galvanized steel.
- Inner pipe: galvanized perforated plate.
- Standard available threads: from 3/8" to 3" ("bspp"). "Npt" or other threads available upon request.
- Standard available filter elements: 30 Micron nom. paper / 60-90-250 Micron nom. wire mesh. Other filtrations upon request.
- By-pass: available upon request (0,3 bar opening).
- Working temperature: from -30°C to +110°C.
- Collapse pressure: 1 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.







DIMENSIONS (mm)					
Mod.	A*	B	C	D	CH
<b>FI1.10</b>	3/8"	50	89	8	22
<b>FI2.10</b>	1/2"				30
<b>FI2.15</b>		3/4"	69	93	8
<b>FI3.15</b>	1"				
<b>FI3.20</b>		143	10	60	
<b>FI4.20</b>	180				10
<b>FI4.25</b>		230	10	60	
<b>FI4.30</b>	140				93
<b>FI5.30</b>		100	230	10	
<b>FI5.35</b>	105				10
<b>FI5.40</b>		165	10	60	
<b>FI5.45</b>	213				10
<b>FI6.40</b>		260	10	75	
<b>FI6.50</b>	320				10
<b>FI6.55</b>		268	16	95	
<b>FI7.55</b>	326				16
<b>FI7.60</b>		2	140	260	
<b>FI7.65</b>	320				10
<b>FI7.70</b>		268	16	95	
<b>FI7.75</b>	326				16
<b>FI8.65</b>		2" 1/2	140	260	
<b>FI8.70</b>	320				10
<b>FI8.75</b>		268	16	95	
<b>FI8.80</b>	326				16
<b>FI9.70</b>		3"	150	290	

FLOW RATES (l/min)				
Mod.	M30	M60	M90	MD5
<b>FI1.10</b>	6	12	16	16
<b>FI2.10</b>	16	21	24	24
<b>FI2.15</b>	16	21	24	24
<b>FI3.15</b>	18	24	28	28
<b>FI3.20</b>	20	28	32	32
<b>FI4.20</b>	28	35	40	40
<b>FI4.25</b>	28	35	40	40
<b>FI4.30</b>	30	46	50	50
<b>FI5.30</b>	40	55	70	70
<b>FI5.35</b>	50	75	90	90
<b>FI5.40</b>	60	90	110	110
<b>FI5.45</b>	45	65	80	80
<b>FI6.40</b>	70	100	120	120
<b>FI6.50</b>	60	100	110	110
<b>FI6.55</b>	60	100	120	120
<b>FI7.55</b>	100	130	160	160
<b>FI7.60</b>	120	180	200	200
<b>FI7.65</b>	140	220	250	250
<b>FI7.70</b>	150	230	260	260
<b>FI8.65</b>	160	250	270	270
<b>FI8.70</b>	170	260	290	290
<b>FI9.70</b>	200	280	350	350

\* Standard threads "bspp". "Npt" or special threads upon request.

\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and Δp=0,03 bar.

• Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

• Graphic curves Δp VS flow rate available upon request

## HOW TO ORDER A COMPLETE FILTER:

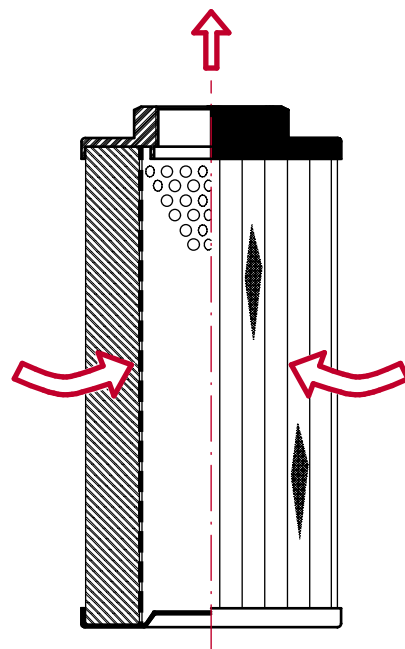
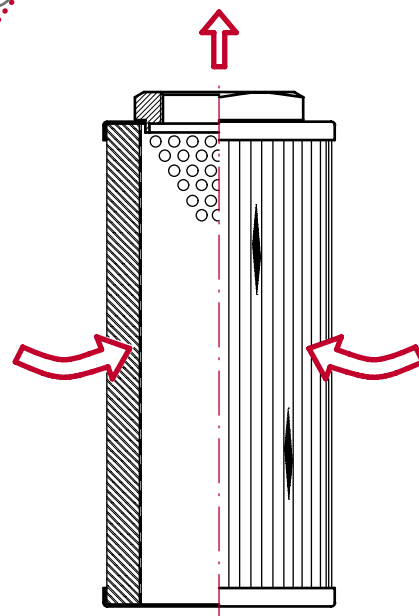
FI	1	.	10	M30																														
Series	Connection	Dimensions	Filter element	By-Pass*																														
FI	<table border="1"> <tr><td>1</td><td>3/8" bspp</td></tr> <tr><td>2</td><td>1/2" bspp</td></tr> <tr><td>3</td><td>3/4" bspp</td></tr> <tr><td>4</td><td>1" bspp</td></tr> <tr><td>5</td><td>1" 1/4 bspp</td></tr> <tr><td>6</td><td>1" 1/2 bspp</td></tr> <tr><td>7</td><td>2" bspp</td></tr> <tr><td>8</td><td>2" 1/2 bspp</td></tr> <tr><td>9</td><td>3" bspp</td></tr> </table>	1	3/8" bspp	2	1/2" bspp	3	3/4" bspp	4	1" bspp	5	1" 1/4 bspp	6	1" 1/2 bspp	7	2" bspp	8	2" 1/2 bspp	9	3" bspp	see table	<table border="1"> <tr><td>M30</td><td>30μ Paper</td></tr> <tr><td>M60</td><td>60μ metal mesh</td></tr> <tr><td>M90</td><td>90μ metal mesh</td></tr> <tr><td>MD5</td><td>250μ metal mesh</td></tr> </table>	M30	30μ Paper	M60	60μ metal mesh	M90	90μ metal mesh	MD5	250μ metal mesh	<table border="1"> <tr><td></td><td>Without By-pass</td></tr> <tr><td>B</td><td>With By-pass opening 0,3 bar</td></tr> </table>		Without By-pass	B	With By-pass opening 0,3 bar
1	3/8" bspp																																	
2	1/2" bspp																																	
3	3/4" bspp																																	
4	1" bspp																																	
5	1" 1/4 bspp																																	
6	1" 1/2 bspp																																	
7	2" bspp																																	
8	2" 1/2 bspp																																	
9	3" bspp																																	
M30	30μ Paper																																	
M60	60μ metal mesh																																	
M90	90μ metal mesh																																	
MD5	250μ metal mesh																																	
	Without By-pass																																	
B	With By-pass opening 0,3 bar																																	
				* Version upon request																														

# FR/FRP SERIES

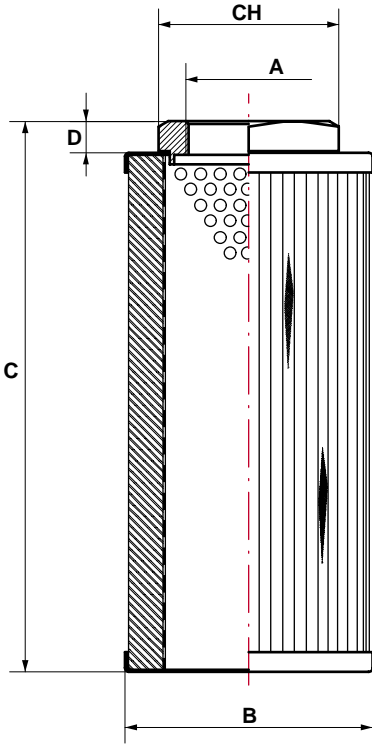
## **EN** Threaded tank-immersed suction oil filters (metal or plastic version)

### TECHNICAL FEATURES:

- Threaded cap: FR Series galvanized steel /FRP Series glass-filled nylon.
- End cap: galvanized steel.
- Inner pipe: galvanized perforated plate.
- Standard available threads: from 3/8" to 3" ("bspp"). "Npt" or other threads available upon request.
- Standard available filter elements: FR Series 160 Micron nom. wire mesh. FRP Series 125 Micron nom. metal mesh. Other filtrations upon request.
- By-pass: available upon request (0,3 bar opening).
- Working temperature: from -30°C to +110°C.
- Collapse pressure: 1 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.



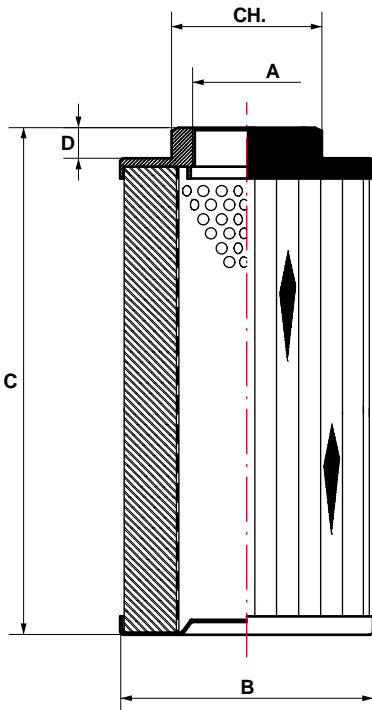
# FR



## METALLIC CONNECTION VERSION

Mod.	A*	B	C	D	CH	$\mu$	Flow l/min.**
FR1.04482	3/8"	45	40	8	22	160 $\mu$	10
FR1.06600	3/8"	45	55	8	22	160 $\mu$	12
FR1.04483	3/8"	45	75	8	22	160 $\mu$	15
FR3.04484	1/2"	45	105	8	30	160 $\mu$	18
FR2.04485	3/4"	63	110	8	36	160 $\mu$	30
FR8.04486	1"	63	140	9	46	160 $\mu$	60
FR8.06625	1"	89	144	9	46	160 $\mu$	80
FR8.04487	1" 1/4	89	125	10	60	160 $\mu$	100
FR8.04488	1" 1/2	89	145	10	60	160 $\mu$	150
FR8.04489	1" 1/2	89	200	10	60	160 $\mu$	180
FR8.04490	2"	89	260	10	75	160 $\mu$	330
FR8.04491	2"	140	150	10	75	160 $\mu$	330
FR8.04492	2" 1/2	140	215	16	95	160 $\mu$	520
FR8.04493	3"	150	270	26	100	160 $\mu$	600

# FRP



## PLASTIC CONNECTION VERSION

Mod.	A*	B	C	D	CH	$\mu$	Flow l/min.*
FRP1.07400	3/8"	42	36,5	12,5	30	125 $\mu$	10
FRP1.07401	3/8"	42	52	12,5	30	125 $\mu$	12
FRP1.07402	3/8"	42	71	12,5	30	125 $\mu$	15
FRP2.07403	1/2"	42	100,5	13,5	30	125 $\mu$	18
FRP3.07404	3/4"	60	110	14	36	125 $\mu$	30
FRP4.07405	1"	60	140	15	46	125 $\mu$	60
FRP4.07406	1"	85	140	18	60	125 $\mu$	80
FRP5.07407	1" 1/4	85	140	18	60	125 $\mu$	100
FRP6.07408	1" 1/2	85	140	18	60	125 $\mu$	150
FRP6.07409	1" 1/2	85	195	18	60	125 $\mu$	180
FRP7.07410	2"	85	255	18	70	125 $\mu$	330
FRP7.07411	2"	144	142	18	70	125 $\mu$	330
FRP8.07412	2" 1/2	144	203	22	90	125 $\mu$	520
FRP9.07413	3"	144	260	17	100	125 $\mu$	600

- Add "B" to code's end for By-pass version.

\* Standard threads "bspp". "Npt" or special threads upon request.

\*\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and  $\Delta p=0,03$  bar.

- Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

- Graphic curves  $\Delta p$  VS flow rate available upon request

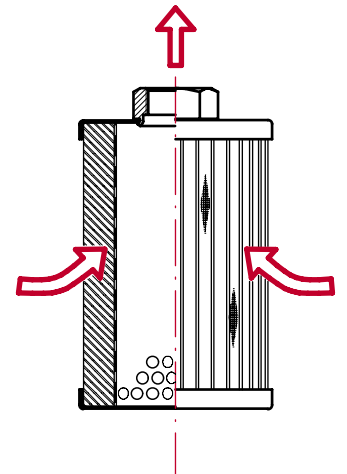
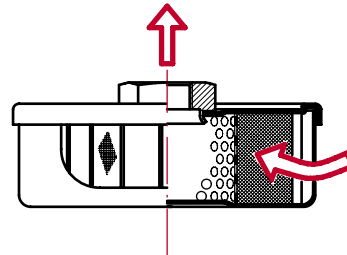
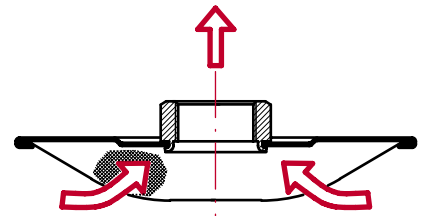
# FR SERIES

FOR MINI POWERPACKS AND SMALL FLOW RATES

**Threaded tank-immersed suction oil filters, specific for mini power-packs and small flow rates (ideal for narrow spaces).**

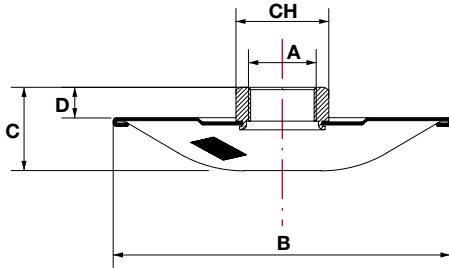
**TECHNICAL FEATURES:**

- Connections + caps: galvanized steel.
- Inner pipe (where present): galvanized perforated plate.
- Standard available threads: from 1/4" to 1" ("bspp"), "Npt" or other threads available upon request.
- Standard available filter elements: 60-90-120-250-500 Micron nom. wire mesh. Other filtrations upon request.
- Suction pipes available upon request.
- Working temperature: from -30°C to +110°C.
- Collapse pressure: 1 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.

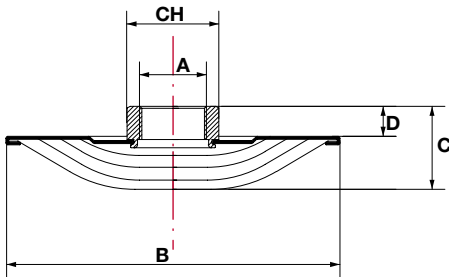


## SUCTION FILTERS FOR MINI POWERPACKS

**TYPE 1  
(PLAIN)**

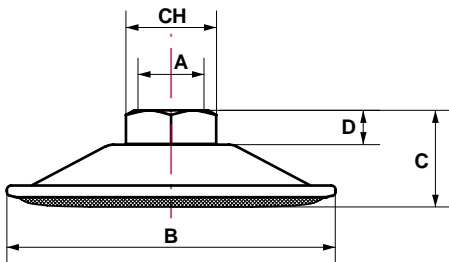


**TYPE 2  
(PLEATED)**



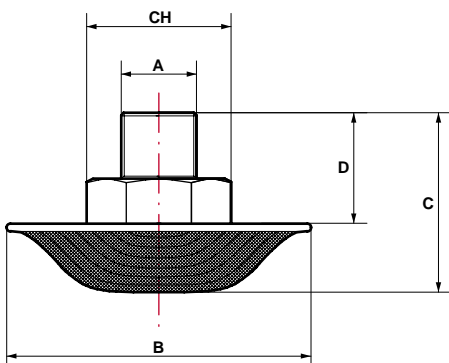
Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup> (Type)	Filter element	Flow l/min.**
	A	B	C	D	CH			
FR5.06694	1/4" bspp	32	13	6	22	9 (1)	90μ Repts FeZn	4
FR1.06692	3/8" bspp	32	15	8	22	9 (1)	90μ Repts FeZn	5
FR1.07537	3/8" bspp	32	15	8	55	9 (1)	250μ Repts FeZn	5
FR5.04265	1/4" bspp	63	17	7	22	45 (2)	60μ Repts FeZn	7
FR5.01752	1/4" bspp	63	15	6,5	22	30 (1)	90μ Repts FeZn	7
FR5.03503	1/4" bspp	63	17	7	22	45 (2)	90μ Repts FeZn	9
FR5.03546	1/4" bspp	63	14	5	22	30 (1)	250μ Repts FeZn	9
FR5.04465	1/4" npt	63	14	5	22	30 (1)	250μ Repts FeZn	9
FR1.02319	3/8" bspp	63	16	7	22	30 (1)	90μ Repts FeZn	10
FR1.04467	3/8" bspp	63	18	8	22	45 (2)	90μ Repts FeZn	12
FR1.02396	3/8" bspp	63	17	7	22	45 (2)	90μ Repts FeZn	12
FR1.04386	3/8" bspp	63	16	7	22	30 (1)	200μ Repts FeZn	11
FR1.03570	3/8" bspp	63	16	7	22	30 (1)	250μ Lam Inox	12
FR1.01775	3/8" bspp	63	20	8	22	120 (2)	250μ Repts FeZn	13
FR1.04462	3/8" npt	63	17	7	22	45 (2)	90μ Repts FeZn	12
FR3.04387	1/2" bspp	63	16	7	30	30 (1)	250μ Lam Inox	18
FR4.03500	M 12x1	63	16	7	22	30 (1)	90μ Repts FeZn	7
FR5.03506	1/4" bspp	80	17	5	22	53 (1)	90μ Repts FeZn	7
FR5.02395	1/4" bspp	80	23	5	22	200 (2)	90μ Repts FeZn	12
FR1.04216	3/8" bspp	80	17	7	22	200 (2)	60μ Repts Inox	6
FR1.03531	3/8" bspp	80	21	7	22	90 (2)	90μ Repts FeZn	12
FR1.04398	3/8" bspp	80	17	7	22	53 (1)	90μ Repts FeZn	12
FR1.02392	3/8" bspp	80	25	7	22	200 (2)	90μ Repts FeZn	25
FR1.03581	3/8" bspp	80	17	7	22	53 (1)	200μ Repts FeZn	15
FR1.02394	3/8" bspp	80	17	7	22	53 (1)	250μ Repts FeZn	15
FR1.03571	3/8" bspp	80	21	7	22	100 (2)	250μ Lam Inox	14
FR3.07502	1/2" bspp	80	26	8	30	90 (2)	90μ Repts FeZn	22
FR4.03502	M 12x1	80	17	7	22	53 (1)	90μ Repts FeZn	10
FR4.02393	M 12x1	80	25	7	22	200 (2)	90μ Repts FeZn	12
FR4.02386	M 12x1	80	17	7	22	53 (1)	200μ Repts FeZn	13

## SUCTION FILTERS FOR MINI POWERPACKS BELL SHAPED

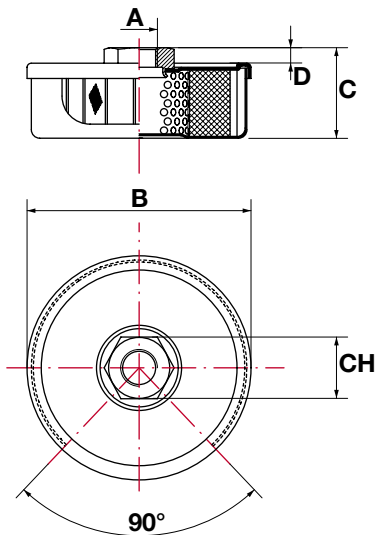


Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
FR1.04391	3/8" bspp	80	23,5	8	22	65	90μ Repts FeZn	12

## SUCTION FILTERS FOR MINI POWERPACKS

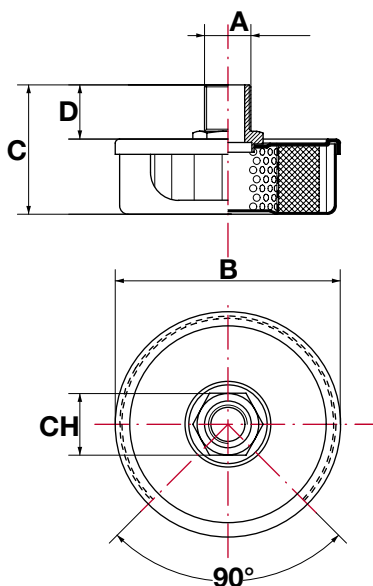


Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
FR5.04434	1/4" bspp	63	27,5	17,5	19	45	90μ Repts FeZn	12
FR1.02374	3/8" bspp	80	33	20,5	22	53	250μ Repts FeZn	15
FR1.03572	3/8" bspp	80	35	20,5	22	200	250μ Lam Inox	20
FR3.04355	1/2" bspp	80	43	26,5	25	200	90μ Repts FeZn	22
FR2.04356	3/4" bspp	80	43	26	36	200	90μ Repts FeZn	28
FR8.04357	1" bspp	80	52	35,5	46	200	90μ Repts FeZn	32
FR6.04332	∅ i 30	80	42	25	-	200	90μ Repts FeZn	38



### FEMALE THREADED SCREENED SUCTION FILTER

Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
<b>FR5.01766</b>	1/4" bspp	80	26	6	22	70	200μ Repts FeZn	12
<b>FR5.02345</b>	1/4" bspp	80	32	6	22	100	90μ Repts FeZn	13
<b>FR1.01329</b>	3/8" bspp	80	32	8	22	100	90μ Repts FeZn	14
<b>FR1.01328</b>	3/8" bspp	80	32	8	22	200	90μ Repts FeZn	16
<b>FR1.07518</b>	3/8" bspp	80	34,5	8	22	100	250μ Repts FeZn	16

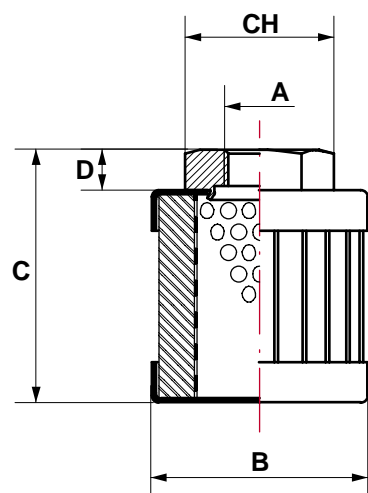


### SCREENED SUCTION FILTER MALE THREADED

Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
<b>FR1.01330</b>	3/8" bspt	80	47	21	22	100	90μ Repts FeZn	14
<b>**FR1.03588</b>	3/8" bspt	80	47	21	22	100	90μ Repts FeZn	14
<b>*FR1.03522</b>	3/8" bspt	80	47	21	22	200	90μ Repts FeZn	16
<b>*FR5.04231</b>	1/4" bspp	32	39	18	19	34	90μ Repts FeZn	5
<b>FR7.02348</b>	3/8" bspt	80	47	21	22	100	60μ Repts Inox	10
<b>*FR7.02380</b>	3/8" bspt	80	47	21	22	100	60μ Repts Inox	10

\* not screened

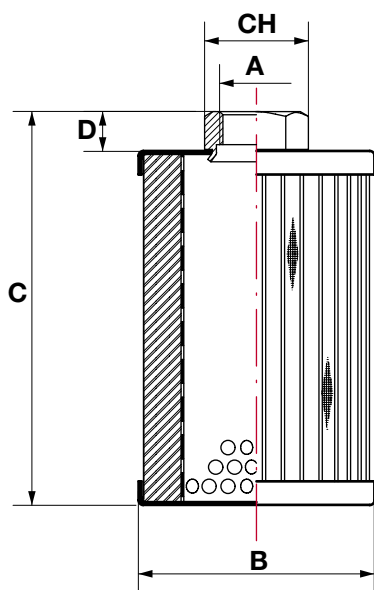
\*\* cam connection



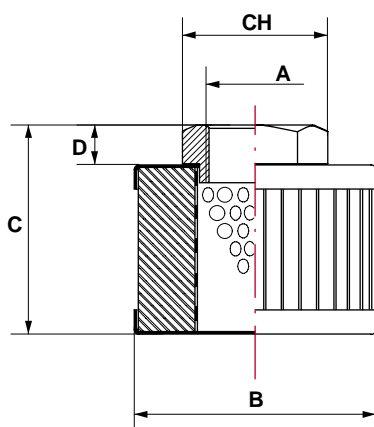
### SUCTION FILTER 1/4" BSPP

Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
<b>FR5.01759</b>	1/4"	32	27	6	22	34	90μ Repts FeZn	5
<b>FR5.02361</b>	1/4"	32	37	6	22	52	90μ Repts FeZn	6
<b>FR5.04289</b>	1/4"	32	50	6	22	44	90μ Repts FeZn	6
<b>FR5.01373</b>	1/4"	32	56	6	22	78	90μ Repts FeZn	7
<b>FR5.04430</b>	1/4"	45	56	6	22	127	90μ Repts FeZn	11
<b>FR5.02334</b>	1/4"	50	32	6	22	100	90μ Repts FeZn	10
<b>FR5.04238</b>	1/4"	50	87	6	22	216	90μ Repts FeZn	13
<b>FR5.04243</b>	1/4"	50	87	6	22	216	60μ Repts Inox	7

### SUCTION FILTER 3/8" BSPP



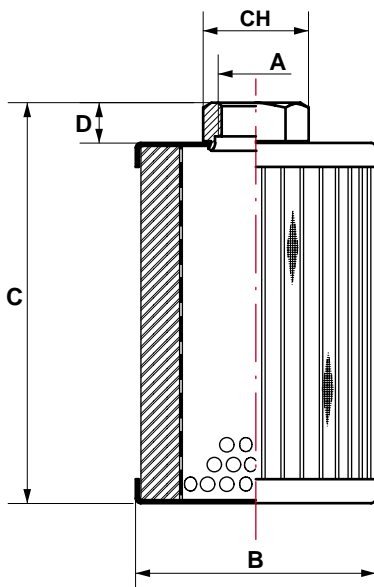
Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
FR1.02355	3/8"	32	29	8	22	34	90μ Repts FeZn	10
FR1.03583	3/8"	32	29	8	22	34	200μ Repts FeZn	8
FR1.02360	3/8"	32	39	8	22	50	90μ Repts FeZn	12
FR1.04283	3/8"	32	59	8	22	88	60μ Repts Inox	8
FR1.01303	3/8"	32	59	8	22	78	90μ Repts FeZn	14
FR7.04455	3/8"	32	59	8	22	78	250μ Repts Inox	15
FR1.02353	3/8"	32	75	8	22	120	90μ Repts FeZn	14
FR1.03590	3/8"	45	78	8	22	190	90μ Repts FeZn	18
FR1.03566	3/8"	45	78	8	22	190	120μ St. Steel Mesh	20
FR1.02306	3/8"	45	103	8	22	260	120μ St. Steel Mesh	22
FR1.01318	3/8"	50	35	8	22	96	90μ Repts FeZn	14
FR1.01308	3/8"	50	75	8	22	200	90μ Repts FeZn	16
FR1.04384	3/8"	50	84	8	22	200	60μ Repts Inox	13
FR1.03564	3/8"	50	105	8	22	430	60μ Repts Inox	15
FR1.01340	3/8"	80	34	8	22	100	90μ Repts FeZn	14
FR1.01343	3/8"	80	34	8	22	200	90μ Repts FeZn	16



### SUCTION FILTER 1/2" BSPP

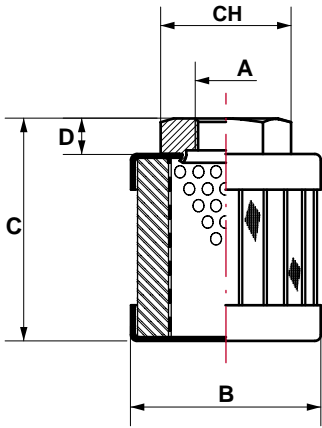
Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
FR3.04416	1/2"	42	105	8	30	390	90μ Repts FeZn	22
FR3.01347	1/2"	50	75	8	30	200	90μ Repts FeZn	23
FR3.04361	1/2"	50	80	8	30	237	250μ Repts FeZn	25
FR3.04307	1/2"	50	89	8	30	237	250μ Lam Inox	26
*FR3.02367	1/2"	50	130	8	30	320	90μ Repts FeZn	28
FR3.03518	1/2"	63	103	8	30	350	120μ St. Steel Mesh	26
FR3.02333	1/2"	100	58	8	30	300	250μ Repts FeZn	25

\* in scarico / drain filter



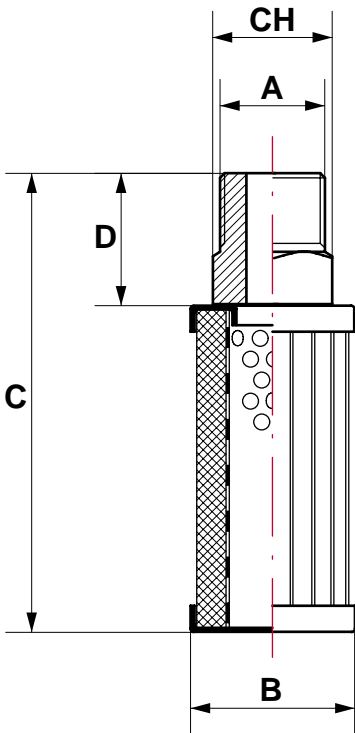
### SUCTION FILTER 3/4" BSPP

Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
FR2.02305	3/4"	63	103	8	36	350	150μ Lam Inox	35
FR2.04230	3/4"	63	103	8	36	350	500μ Lam Inox	50
FR2.02354	3/4"	63	128	8	36	410	150μ Lam Inox	40
FR2.04203	3/4"	63	160	8	36	675	60μ Repts Inox	30



### SUCTION FILTER M 12X1

Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
FR4.01342	12x1	32	29	8	22	34	90μ Repts FeZn	5
FR4.01336	12x1	32	58	8	22	78	90μ Repts FeZn	7
FR4.01335	12x1	80	34	8	22	100	90μ Repts FeZn	10
FR4.01333	12x1	80	34	8	22	200	90μ Repts FeZn	12



### HYDRAULIC OIL SUCTION FILTER MALE CONN. 3/8" BSPT

Mod.	DIMENSIONS mm					Filtering surface cm <sup>2</sup>	Filter element	Flow l/min.**
	A	B	C	D	CH			
*FR1.01779	3/8"	26	64	20	17	56	90μ Repts FeZn	20
FR1.02352	3/8"	26	70	20	17	65	90μ Repts FeZn	21
FR1.01304	3/8"	32	142,5	20	22	200	90μ Repts FeZn	30

\* schermato 180° / screened 180°

\*\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and  $\Delta p=0,03$  bar.

• Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

• Graphic curves  $\Delta p$  VS flow rate available upon request

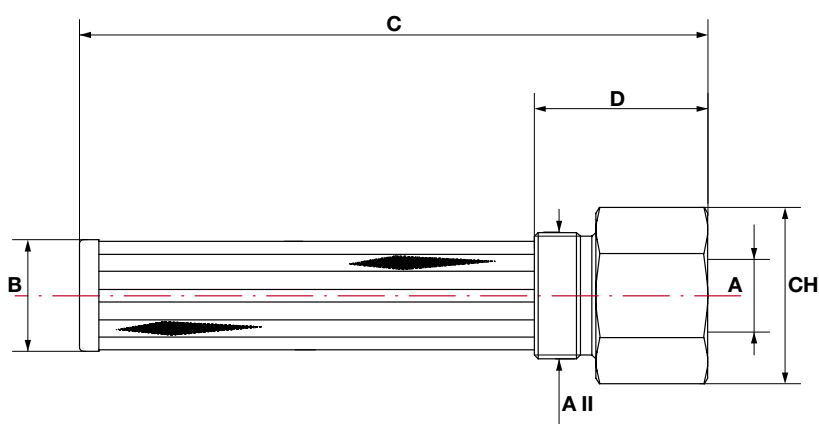


# XFS SERIES

**EN** Double thread suction oil filters, to screw directly to oil tank (ideal for narrow spaces f.e. vertical tanks for log-splitters).

## TECHNICAL FEATURES:

- End cap + threaded nut: galvanized steel.
- Standard available threads (male/female): from 1/2" to 1" ("bspp"). "Npt" or other threads available upon request.
- Standard available filter elements: 90-250-400 Micron nom. wire mesh. Other filtrations upon request.
- Working temperature: from -30°C to +110°C.
- Collapse pressure: 1 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.



## DOUBLE THREAD HYDRAULIC OIL SUCTION FILTER 3/8" BSPP

Mod.	DIMENSIONS mm						Filtering degree	Flow l/min.**
	A	A II	B	D	C	CH		
XFS.03918	1/2"	3/4"	21	37	148	30	230/250μ	11
XFS.03901	1/2"	1"	29	45	145	40	250/270μ	14
XFS.02490	1/2"	1"	29	45	165	40	250/270μ	14
XFS.05719	1/2"	1"	29	45	197	40	90/110μ	12
XFS.02492	1/2"	1"	29	45	205	40	250/270μ	14
XFS.05742	1/2"	1"	29	45	205	40	400μ	14
XFS.05736	1/2"	1"	29	45	235	40	400μ	14
XFS.03912	3/4"	1"	29	45	161	40	90/110μ	19
XFS.02496*	3/4"	1"	29	45	165	40	250/270μ	25
XFS.07306	3/4"	1"	29	45	165	40	600μ	29
XFS.07357	3/4" bspt	1"	29	45	165	40	300μ	25
XFS.05769	3/4" bspt	1"	29	45	165	40	600μ	29
XFS.07361	3/4" bspt	1"	29	45	205	40	300μ	26
XFS.07358	1"	1"	29	45	205	40	300μ	35
XFS.07360	1" bspt	1"	29	45	205	40	300μ	35

\*\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and Δp=0,03 bar.

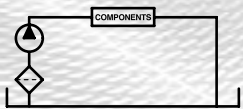
\* Available also with By-pass Δp=0,03 bar.

• Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

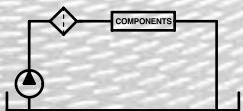
• Graphic curves Δp VS flow rate available upon request

# In-line filters

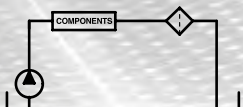
## SERIE FB - HL



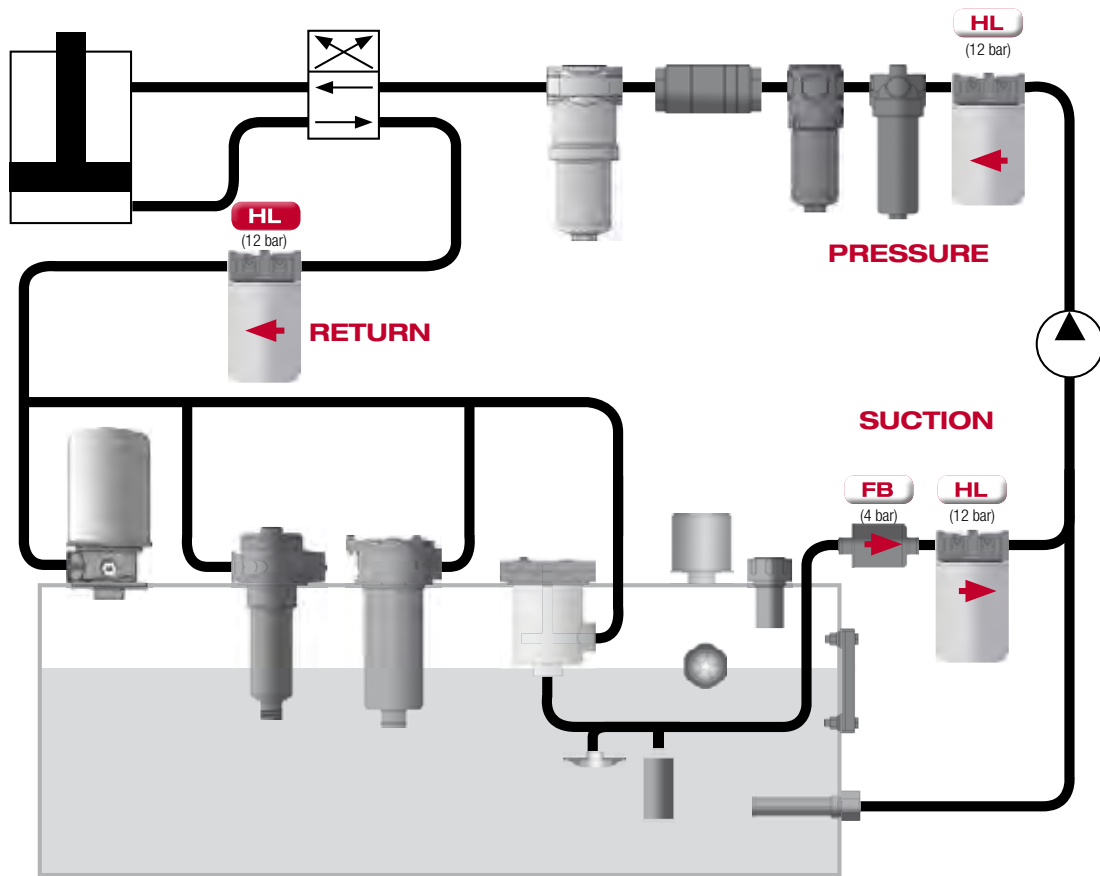
**Suction filters**



**Delivery filters**



**Return-line filters**



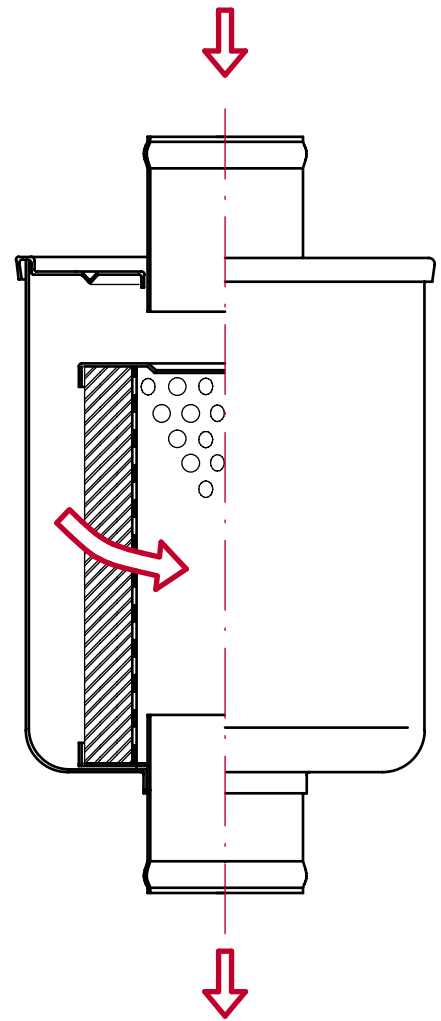
**FB-HL series filters are used in-line mounting on low pressure hydraulic circuit, to protect the pump and system components from contamination.** FB series filters are used in suction line, while the spin-on filters (disposable) HL series are used on both suction and return line. It is a very versatile series of filters, designed for various applications: tools, agricultural and earthmoving machines, industrial vehicles and mobile applications in general. There are several models to meet all needs, from small to large flows, with different filter elements in order to ensure maximum protection to the circuit. We can also produce special filters upon customer request.

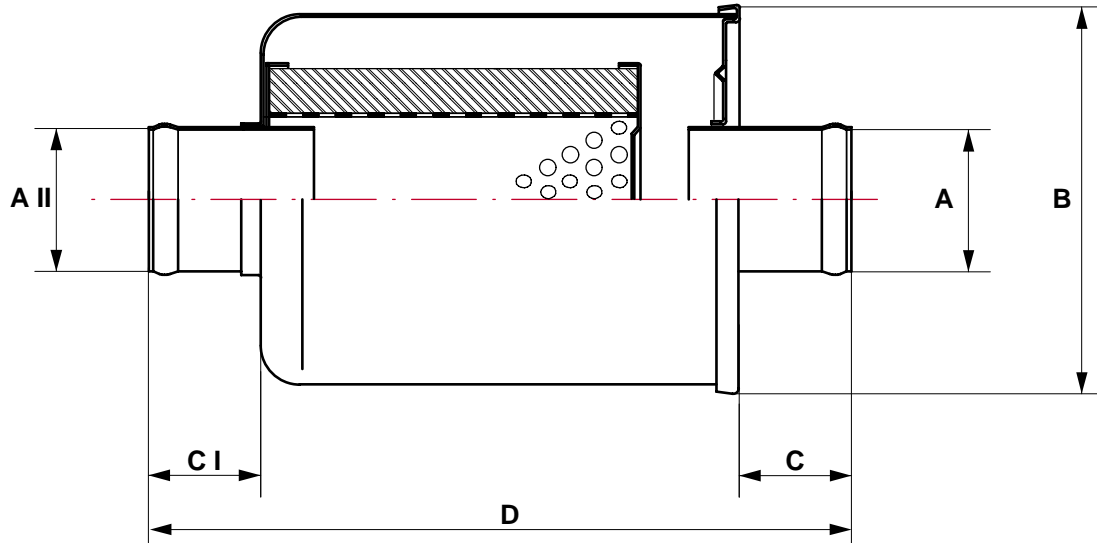
# FB SERIES

**EN** In-line suction filters for low pressure hydraulic circuits.

**TECHNICAL FEATURES:**

- End caps + connections + external body: galvanized steel.
- Inner cartridge: galvanized steel structure. Paper or stainless Steel filtering element.
- Standard available connections: pipes e.d. from 25 to 50mm. Other diameters or threads available upon request.
- Standard available filter elements: 30 Micron nom. paper / 160 Micron nom. wire mesh. Other filtrations upon request.
- Operating temperature: -20°C +100°C.
- Operating pressure: 4 bar.
- Testing pressure: 6 bar.
- Element collapse pressure: 5 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.





### IN-LINE SUCTION FILTERS

Mod.	DIMENSIONS mm						Filter element	Flow l/min.**
	A	A II	B	C	C I	D		
<b>FB3.05172</b>	19	19	80	25	25	148	20μ Fiberglass	25
<b>FB3.05174</b>	19	19	80	25	25	148	22μ Paper	28
<b>FB3.05171</b>	19	19	80	25	25	148	60μ Reeps Inox	30
<b>FB3.05173</b>	19	19	80	25	25	148	160μ Stainless steel mesh	35
<b>FB3.01597</b>	25	25	80	27	27	151	25μ Paper	30
<b>FB3.05134</b>	25	25	80	27	27	151	160μ Stainless steel mesh	55
<b>FB3.01592</b>	30	30	80	23	23	144	160μ Stainless steel mesh	45
<b>FB3.05102</b>	35	35	80	23	23	144	60μ Reeps Inox	52
<b>FB3.01594</b>	35	35	80	23	23	144	160μ Stainless steel mesh	55
<b>FB3.05189</b>	38	38	80	22	23	172	60μ Reeps Inox	65
<b>FB3.01593</b>	38	38	80	23	23	144	160μ Stainless steel mesh	65
<b>FB3.05170</b>	38	38	80	23	23	206	160μ Stainless steel mesh	65
<b>FB3.05141</b>	40	40	80	23	23	206	160μ Stainless steel mesh	68
<b>FB3.05097</b>	50	50	80	29	24	178	60μ Reeps Inox	70
<b>FB3.01599</b>	50	50	80	29	24	178	160μ Stainless steel mesh	100
<b>FB3.01596</b>	45	45	100	42	31	212	160μ Stainless steel mesh	90

\* Standard pipes. Other diameters or special threads upon request.

- Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

\*\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and Δp=0,3 bar.

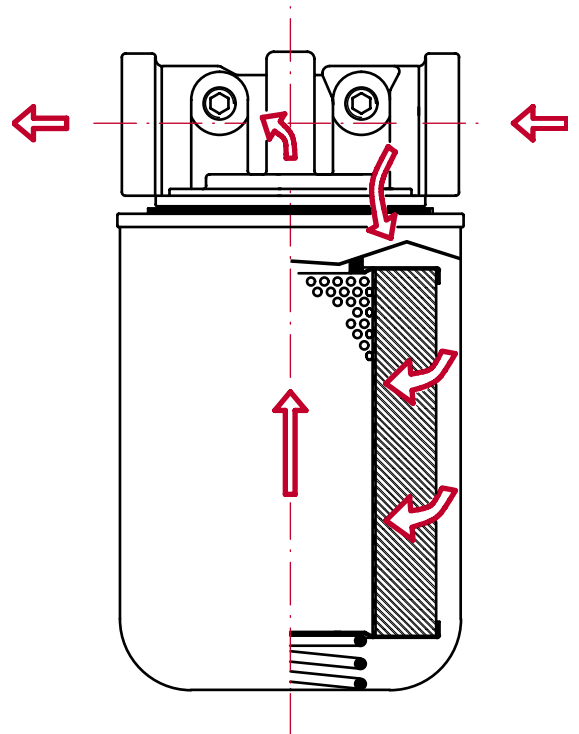
- **Graphic curves Δp VS flow rate available upon request**

# HL SERIES

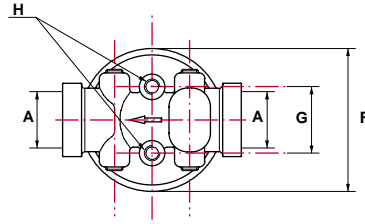
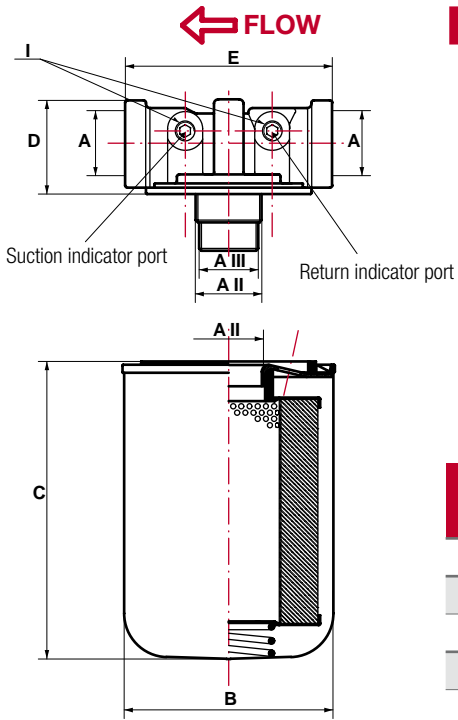
## Spin-on filters for in-line low pressure hydraulic circuit mounting (suction, delivery or return).

### TECHNICAL FEATURES:

- Supporting head: aluminium die-casting.
- By-pass valve (head): Opening 0,25 bar in suction / 1,7 bar on return.
- Spin-on element: galvanized steel structure. Filter element in microfiber, paper or wire mesh.
- Standard available threads: 3/4" bspp (mod. 1-2) or 1"1/4 bspp (mod. 3-4). Other threads upon request.
- Standard available filter elements: 3-5-10-25 Micron abs. microfiber / 10-25 Micron nom. paper / 60-90 Micron nom. wire mesh / 30 Micron nom. water absorbing. Other filter elements upon request.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -30°C +110°C.
- Operating pressure: 12 bar. Burst pressure: 25 bar. Element collapse pressure: 5 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.



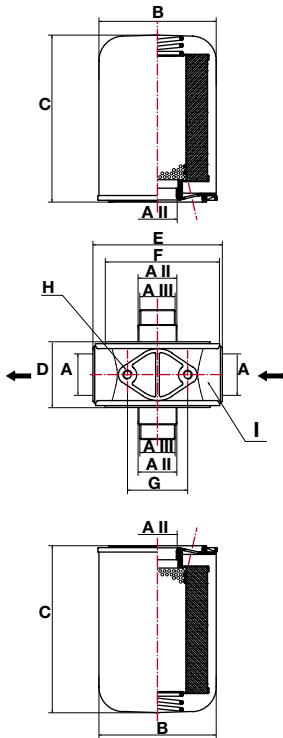
# HL10-20



## SINGLE CARTRIDGE

Mod.	A	A II	A III	B	C	D	E	F	G	H	I
HL101	3/4" bspp	3/4" bspp	-	95	147	43	95	75,5	38	M8	1/8" bspp
HL102	3/4" bspp	3/4" bspp	-	95	192	43	95	75,5	38	M8	1/8" bspp
HL203	1"1/4 bspp	1"1/4 bspp	1"1/2-16 UNF	128	182	65	133	134	55	M8	1/8" bspp
HL204	1"1/4 bspp	1"1/4 bspp	1"1/2-16 UNF	128	228	65	133	134	55	M8	1/8" bspp

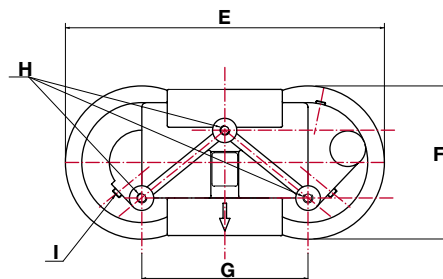
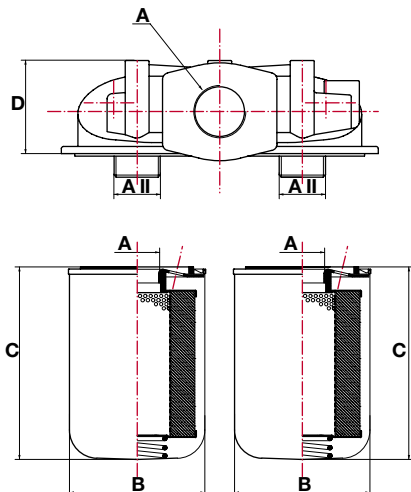
# HL30



## OPPOSED DOUBLE CARTRIDGE

Mod.	A	A II	A III	B	C	D	E	F	G	H	I
HL303	1"1/2 bspp	1"1/4 bspp	1"1/2-16 UNF	128	182	71	140	113	65	M10	1/8" bspp
HL304	1"1/2 bspp	1"1/4 bspp	1"1/2-16 UNF	128	228	71	140	113	65	M10	1/8" bspp

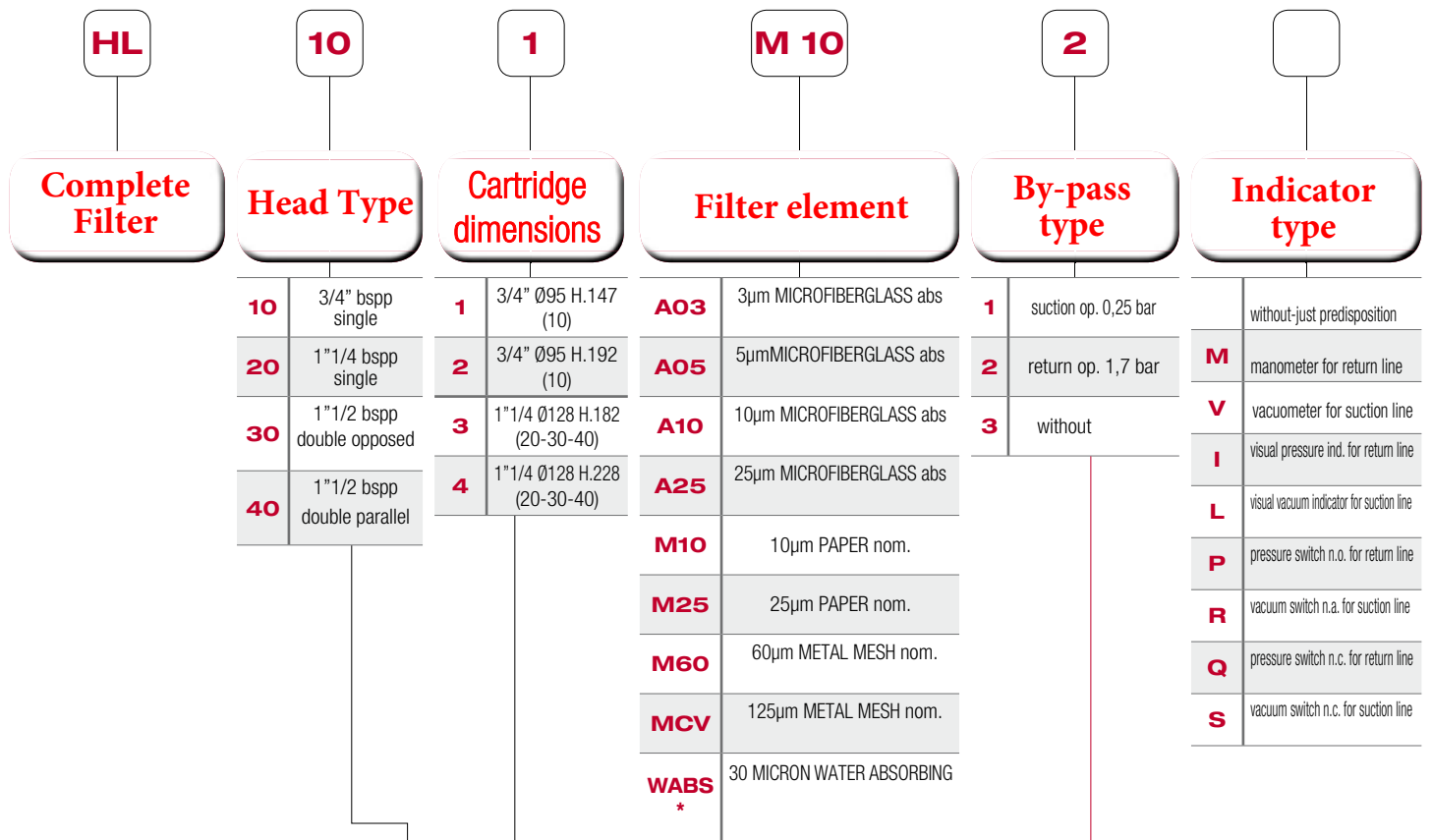
# HL40



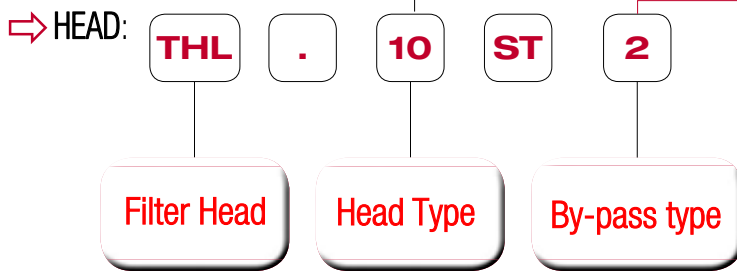
## PARALLEL DOUBLE CARTRIDGE

Mod.	A	A II	B	C	D	E	F	G	H	I
HL403	1"1/2 bspp	1"1/4 bspp	128	182	82	287	138	150	M10	1/8" bspp
HL404	1"1/2 bspp	1"1/4 bspp	128	228	82	287	138	150	M10	1/8" bspp

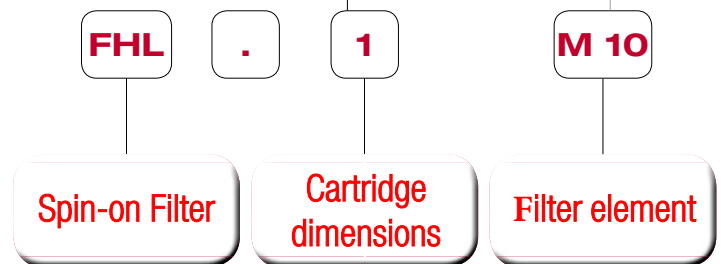
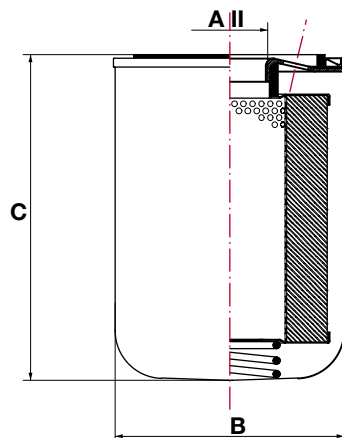
# HOW TO ORDER A COMPLETE FILTER:



## HOW TO ORDER A COMPONENT:



## ⇒ CARTRIDGE:



Mod.	Dimensions mm		
	A II	B	C
<b>FHL.1</b>	3/4" bspp	95	147
<b>FHL.2</b>	3/4" bspp	95	192
<b>FHL.3</b>	1"1/4 bspp	128	182
<b>FHL.4</b>	1"1/4 bspp	128	228



## HL suction flow rates\*\*

Flow rate in l/min. measured with  
Dp=0.05 - 0.10 bar

FILTERING ELEMENTS	FIBERGLASS				PAPER		WIRE MESH	
	Mod.	A03 3 MICRON ABS	A05 5 MICRON ABS	A10 10 MICRON ABS	A25 25 MICRON ABS	M10 10 MICRON NOM	M25 25 MICRON NOM	M60 60 MICRON NOM
HL101	7	9	13	15	16	20	30	30
HL102	8	11	15	20	22	30	35	35
HL203	18	32	40	50	53	60	95	95
HL204	27	40	54	65	70	78	100	100
HL303	48	70	95	110	115	130	150	150
HL304	55	79	102	128	130	145	150	150
HL403	48	70	95	110	115	130	150	150
HL404	55	79	102	128	130	145	150	150

\*\* Flow rates measured with oil of 30 cSt kinematic viscosity and 0.86 kg/dm<sup>3</sup>

## HL Flow rates on return line\*\*

Flow rate in l/min. measured with  
Dp=0.4 - 0.5 bar

FILTERING ELEMENTS	FIBERGLASS				PAPER		WIRE MESH	
	Mod.	A03 3 MICRON ABS	A05 5 MICRON ABS	A10 10 MICRON ABS	A25 25 MICRON ABS	M10 10 MICRON NOM	M25 25 MICRON NOM	M60 60 MICRON NOM
HL101	30	35	48	65	68	73	80	80
HL102	34	41	55	69	74	80	90	90
HL203	87	102	118	125	130	170	190	190
HL204	92	110	125	135	150	188	205	205
HL303	190	242	270	280	290	325	360	360
HL304	205	255	283	292	305	340	375	375
HL403	190	242	270	280	290	325	360	360
HL404	205	255	283	292	305	340	375	375

\*\* Flow rates measured with oil of 30 cSt kinematic viscosity and 0.86 kg/dm<sup>3</sup>

- Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).
- Graphic curves  $\Delta p$  VS flow rate available upon request

# CLOGGING INDICATORS (SUCTION)

**V**

**DIMENSIONS mm** SCALA 0/-76 cm.Hg

**L**

**DIMENSIONS mm**

**Re S**

**DIMENSIONI mm - DIMENSIONI mm**

**CAP. IP54**

**CAP. IP65**

SERIES	SETTING	TIPO - TYPE
V	0 ÷ -1 bar	Vacuum gauge
L	-0,15 bar	Visual vacuum indicator
R	-0,2 bar	Vacuum switch N.O. (Max 240V/0,4A) / (48V/0,5A)
S	-0,2 bar	Vacuum switch N.C. (Max 240V/0,4A) / (48V/0,5A)

# CLOGGING INDICATORS (RETURN)

**M**

**DIMENSIONS mm** SCALA 0-12 Bar/psi

**I**

**DIMENSIONS mm**

**Pe Q**

**DIMENSIONI mm - DIMENSIONI mm**

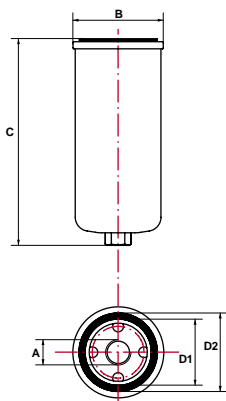
**CAP. IP54**

**CAP. IP65**

SERIES	SETTING	TYPE
M	0 ÷ 12 bar	Pressure gauge
I	1,5 bar	Visual pressure indicator
P	1,5 bar	Pressure switch N.O. (Max 240V/0,4A) / (48V/0,5A)
Q	1,5 bar	Pressure switch N.C. (Max 240V/0,4A) / (48V/0,5A)

# Spin-on filters for small flow rates

Spin-on filters for small flow rates, ideal for direct mounting on components (hydraulic blocks or power packs)

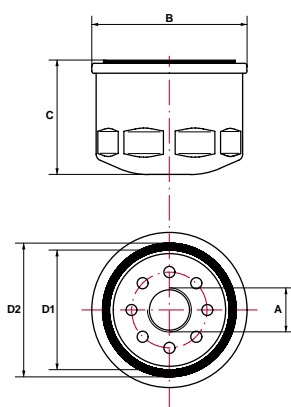


## F02.01385

- Filter element: paper 10-15 Micron nom.
- By-pass valve: op. 1 bar
- Working pressure: 10 bar

Mod.	DIMENSIONS mm					FLOW l/m**
	A	B	C	D1	D2	
<b>F02.01385</b>	M14x1,5	50	118	37	44	16

\*\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and  $\Delta p=0,03$  bar.

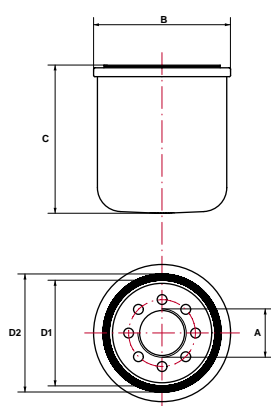


## F05.01437

- Filter element: paper 10-15 Micron nom.
- By-pass valve: op. 0,8 bar
- Working pressure: 10 bar

Mod.	DIMENSIONS mm					FLOW l/m**
	A	B	C	D1	D2	
<b>F05.01437</b>	M20x1,5	79	59	62	72	20

\*\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and  $\Delta p=0,03$  bar.



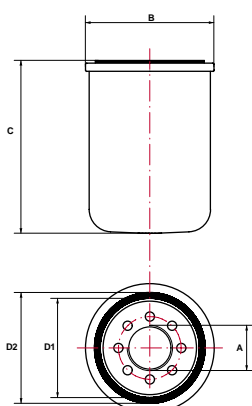
## F09.05143

- Filter element: paper 10-15 Micron nom.
- By-pass valve: op. 1,6 bar
- Working pressure: 10 bar

• Ideal for mounting with aluminium head THL.10

Mod.	DIMENSIONS mm					FLOW l/m**
	A	B	C	D1	D2	
<b>F09.05143</b>	3/4" bspp	79	81	62	72	28

\*\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and  $\Delta p=0,03$  bar.



## HAO.07027

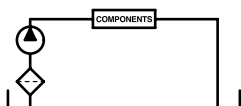
- Filter element: paper 10-15 Micron nom.
- By-pass valve: no
- Working pressure: 25 bar

Mod.	DIMENSIONS mm					FLOW l/m**
	A	B	C	D1	D2	
<b>HAO.07027</b>	3/4"-16 UNF	79	100	62	72	32

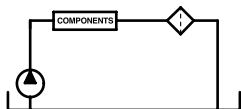
\*\* Flow rates measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm<sup>3</sup> density and  $\Delta p=0,03$  bar.

## Tank-top filters

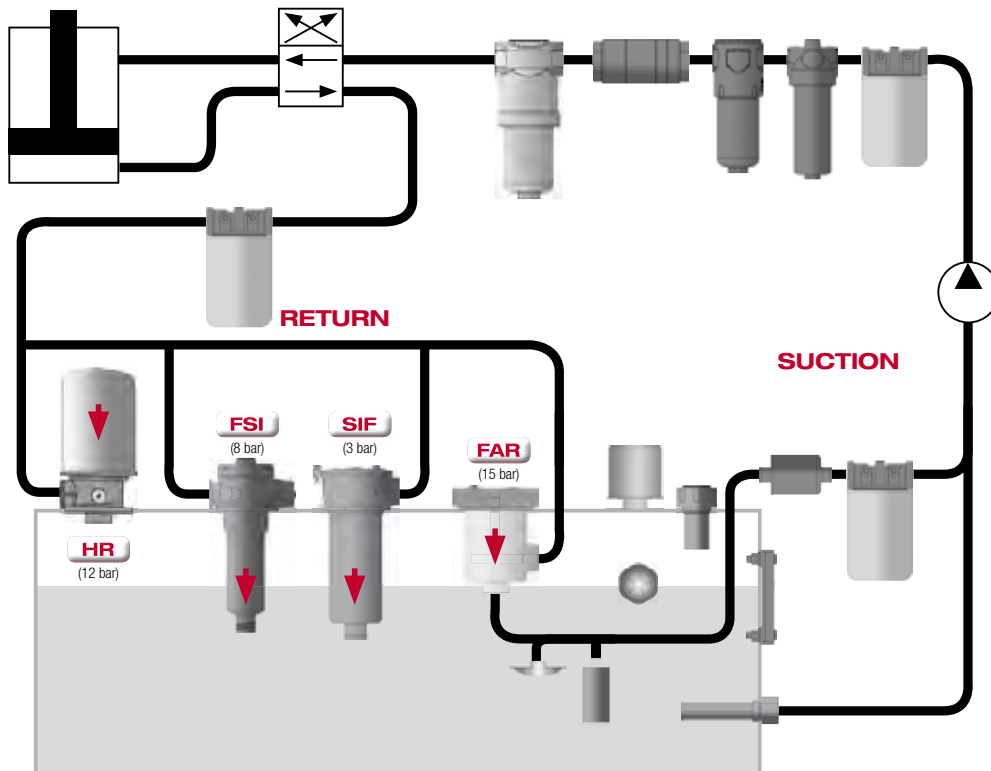
# SERIE SIF - FSI - HR - FAR



**Suction filters**



**Return-line filters**



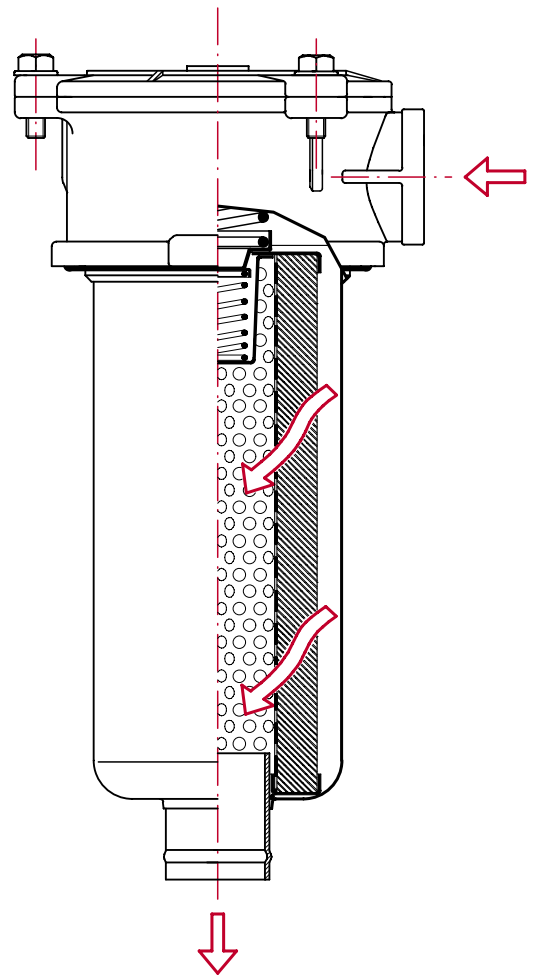
**SIF-FSI-HR-FAR series filters are mainly used on return line (discharge). They are directly assembled on hydraulic tank cover (tank-top), to clean fluid by contamination deriving from previous work of system components.** SIF-FSI series filters are mounted semi-immersed in tank on return line, spin-on filters (disposable) series HR are mounted on tank cover, while filters FAR series are mounted semi-immersed in tank, mainly for stationary applications, on both suction and return line. It is a very versatile series of filters, designed for various applications: tools, agricultural and earthmoving machines, industrial vehicles, mobile and stationary applications in general. There are several models to meet all needs, from small to large flows, with different filter elements in order to ensure maximum protection to the circuit. We can also produce special filters upon customer request.

# SERIE SIF

## EN Return-line filters (discharge) for mounting semi-immersed in tank (tank-top filters).

### TECHNICAL FEATURES:

- Head + cover: aluminium die-casting.
- Filter bowl: nylon (plastic) for series 10A+B/15B+C/20C. Galvanized steel for series 15L/20L+D/25D+E/30E+F+G/35H.
- By-pass valve: Standard opening 1,7 bar.
- Standard available threads: 1/2"-3/4"-1"-1 1/4"-1 1/2"-2" bsp. Other threads upon request.
- Standard available filter elements: 10-25 Micron abs. Microfiber / 10-25 Micron nom. paper (norm. or rinf.) / 60-90 Micron nom. wire mesh. Other filter elements upon request.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -25°C +110°C.
- Operating pressure: 3 bar. Burst pressure: 10 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.





# COME ORDINARE UN FILTRO COMPLETO:

HOW TO ORDER A COMPLETE FILTER:

**SIF** . **20** **C** **30**

**Complete filter** **Thread** **Dimensions** **Filter Element** **Indicator type**

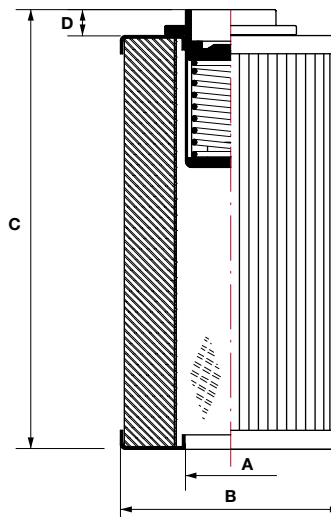
<b>10</b>	1/2" bspp	See table page 35	<b>10A</b>	10µm MICROFIBERGLASS abs		without-just predisposition
<b>15</b>	3/4" bspp		<b>25A</b>	25µm MICROFIBERGLASS abs	<b>N</b>	manometer with radial conn.
<b>20</b>	1" bspp		<b>10C</b>	10µm just PAPER nom	<b>I</b>	visual pressure indicator
<b>25</b>	1" 1/4 bspp		<b>30C</b>	25µm just PAPER nom	<b>P</b>	pressure switch n.o. for return line
<b>30</b>	1" 1/2 bspp		<b>10</b>	10µm REINFORCED PAPER nom	<b>Q</b>	pressure switch n.c. for return line
<b>35</b>	2" bspp		<b>30</b>	25µm REINFORCED PAPER nom		

<b>60</b>	60µm METAL MESH nom		
<b>90</b>	90µm METAL MESH nom		

# HOW TO ORDER THE REPLACEMENT ELEMENT:

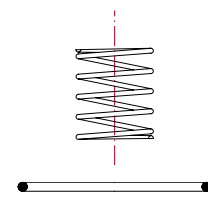
**FXR** . **A6** **M30**

**Cartridge** **Replacement for** **Filter Element** **Kit spring + O-Ring**



Dimensioni mm - Dimensions mm					SIF.10A	FXR.A3M
Mod.	A	B	C	D	SIF.10B	FXR.A5M
<b>FXR.A3</b>	26	50	70	5,5	<b>SIF.15B</b>	FXR.A6M
<b>FXR.A5</b>	29	70	81	8	<b>SIF.15C</b>	FXR.S6M
<b>FXR.A6</b>	29	70	130	8	<b>SIF.20C</b>	FXR.A6M
<b>FXR.S6</b>	42	70	210	8	<b>SIF.20L</b>	FXR.S6M
<b>FXR.A7</b>	41	95	170	8	<b>SIF.20D</b>	FXR.A8M
<b>FXR.A8</b>	41	95	202	8	<b>SIF.25D</b>	FXR.A8M
<b>FXR.S1</b>	41	95	250	8	<b>SIF.25E</b>	FXR.A0M
<b>FXR.S3</b>	41	95	280	8	<b>SIF.30E</b>	FXR.B1M
<b>FXR.A9</b>	65	130	136	8	<b>SIF.30F</b>	FXR.B2M
<b>FXR.A0</b>	52	130	136	8	<b>SIF.30G</b>	FXR.B3M
<b>FXR.B1</b>	52	130	202	8	<b>SIF.35H</b>	
<b>FXR.B2</b>	65	130	202	8		
<b>FXR.B3</b>	65	130	202	8		
<b>FXR.B4</b>	65	130	250	8		
<b>FXR.S2</b>	65	130	267	8		
<b>FXR.B5</b>	65	130	403	8		

	Just element
<b>K</b>	Cartridge + kit spring and o-ring





## SIF Flow rates on return line\*\*

Flow rate in l/min. measured with  
Dp=0.4 - 0.5 bar

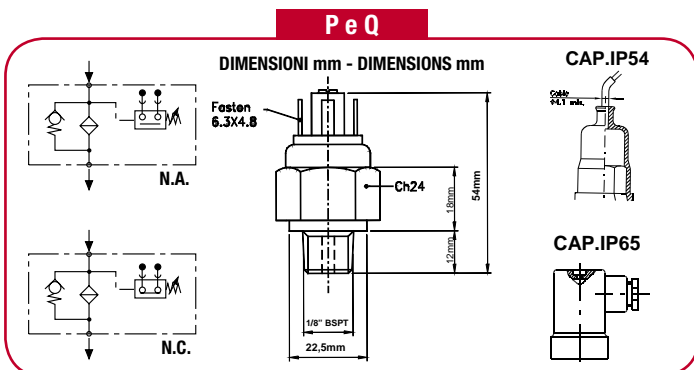
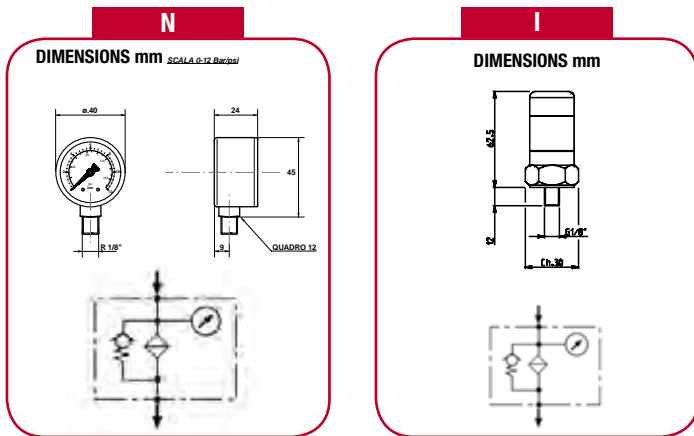
FILTERING ELEMENTS	FIBERGLASS		PAPER				WIRE MESH	
	10A 10 MICRON ABS	25A 25 MICRON ABS	10C 10 MICRON NOM	30C 30 MICRON NOM	10 10 MICRON NOM	30 30 MICRON NOM	60 60 MICRON NOM	90 90 MICRON NOM
SIF.10A	25	32	40	45	40	45	55	60
SIF.10B	45	65	65	70	65	70	80	85
SIF.15B	50	60	73	78	73	78	90	95
SIF.15C	65	75	90	95	90	95	105	110
SIF.15L	90	100	115	120	115	120	125	135
SIF.20C	70	80	95	100	95	100	110	115
SIF.20L	95	105	120	125	120	125	130	140
SIF.20D	170	180	195	200	195	200	220	230
SIF.25D	205	215	230	240	230	240	260	270
SIF.25E	230	240	255	265	255	265	285	295
SIF.30E	245	255	270	280	270	280	310	320
SIF.30F	295	305	320	330	320	330	360	370
SIF.30G	315	325	340	350	340	350	380	390
SIF.35H	430	450	480	500	480	500	550	570

\*\* Flow rates measured with oil of 30 cst kinematic viscosity and 0,86 kg/dm<sup>3</sup> density.

• Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).©

• Graphic curves  $\Delta p$  VS flow rate available upon request

## CLOGGING INDICATORS



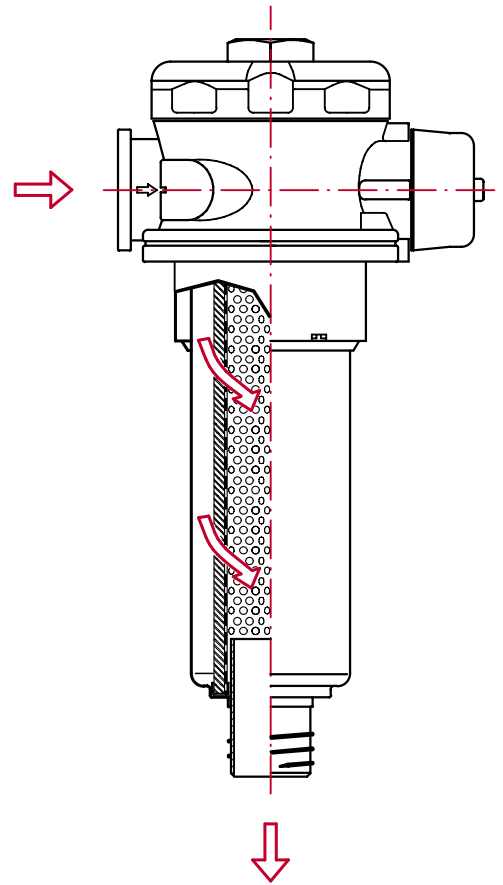
SERIES	SETTING	TYPE
N	0 ÷ 12 bar	Pressure gauge (Radial connection)
I	1,5 bar	Visual pressure indicator
P	1,5 bar	Pressure switch N.O. (Max 240V/0,4A) / (48V/0,5A)
Q	1,5 bar	Pressure switch N.C. (Max 240V/0,4A) / (48V/0,5A)

# FSI SERIES

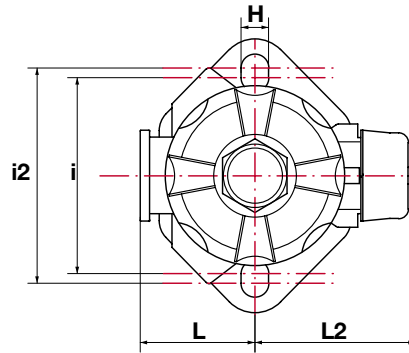
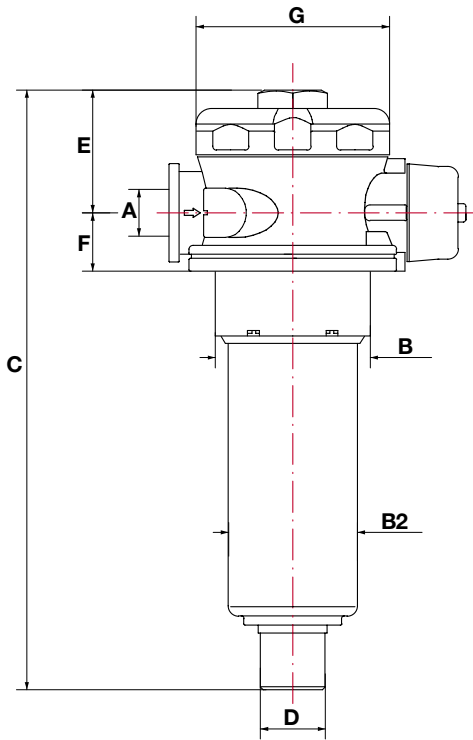
## EN Return line tank-top filters (discharge) with breathing element and service cover.

### TECHNICAL FEATURES:

- Head: anodized aluminium die-casting.
- Filter bowl + cover: nylon (plastic).
- By-pass valve: Standard opening 1,7 bar.
- Standard available threads: 1/2"-3/4"-1"1/4 bspp. Other threads upon request.
- Standard available filter elements: 10-25 Micron abs. microfiber / 10-25 Micron nom. reinforced paper / 60-90 Micron nom. wire mesh. Other filter elements upon request.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -25°C +110°C.
- Operating pressure: 8 bar. Burst pressure: 16 bar.
- Element collapse pressure: 10 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.

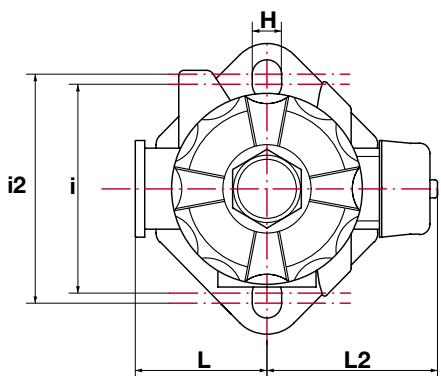
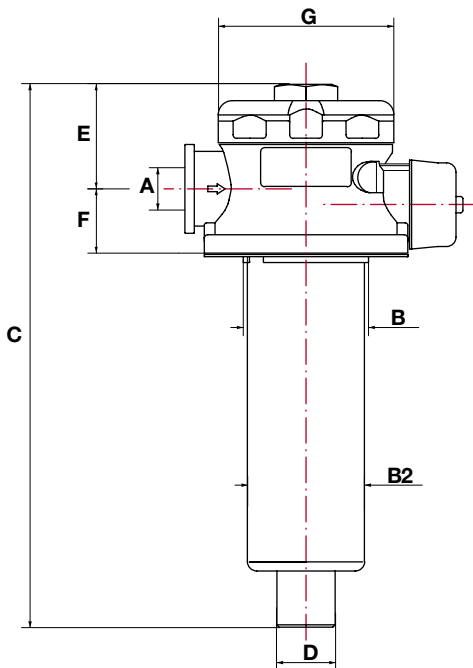


# FSI1



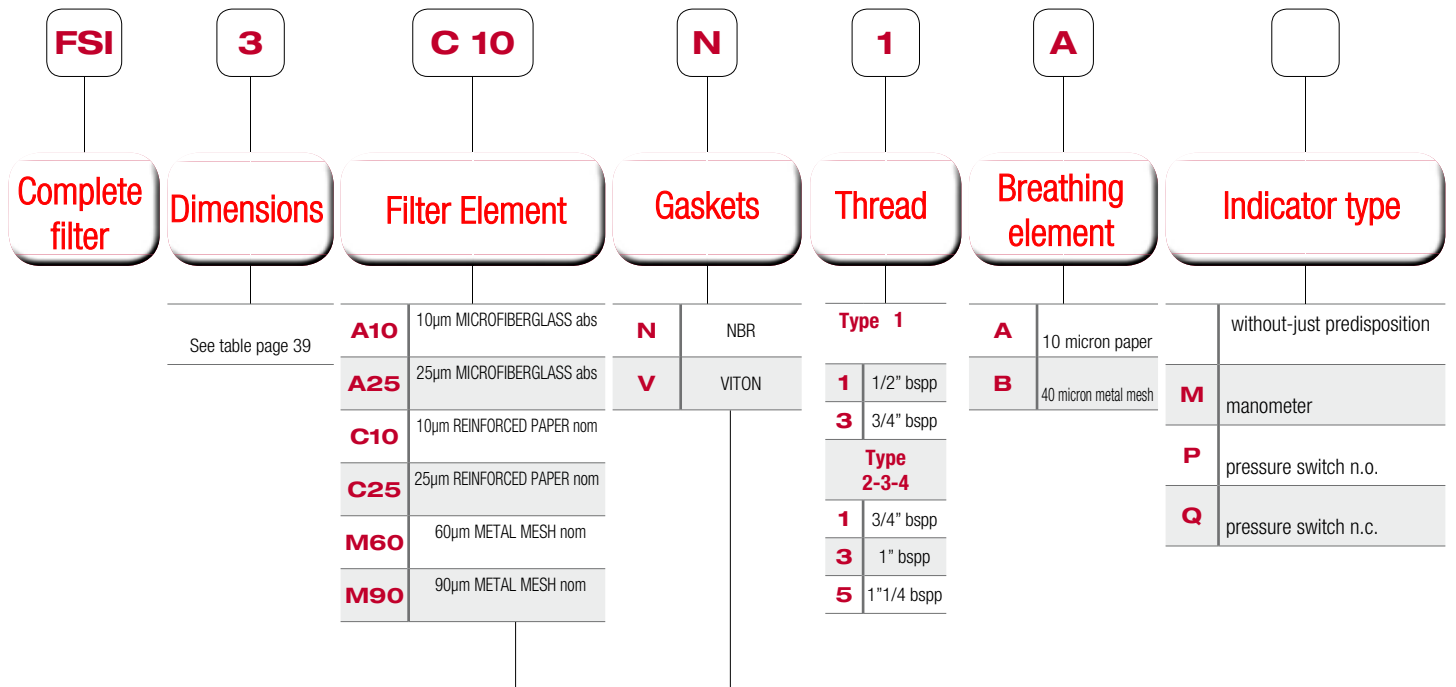
DIMENSIONS mm													
Mod.	A	B	B II	C	D	E	F	G	H	I	II	L	L II
<b>FSI1</b>	1/2" bspp 3/4" bspp	60	50	232	25	48	22	75	10,5	82	90	48	69

# FSI2-3-4

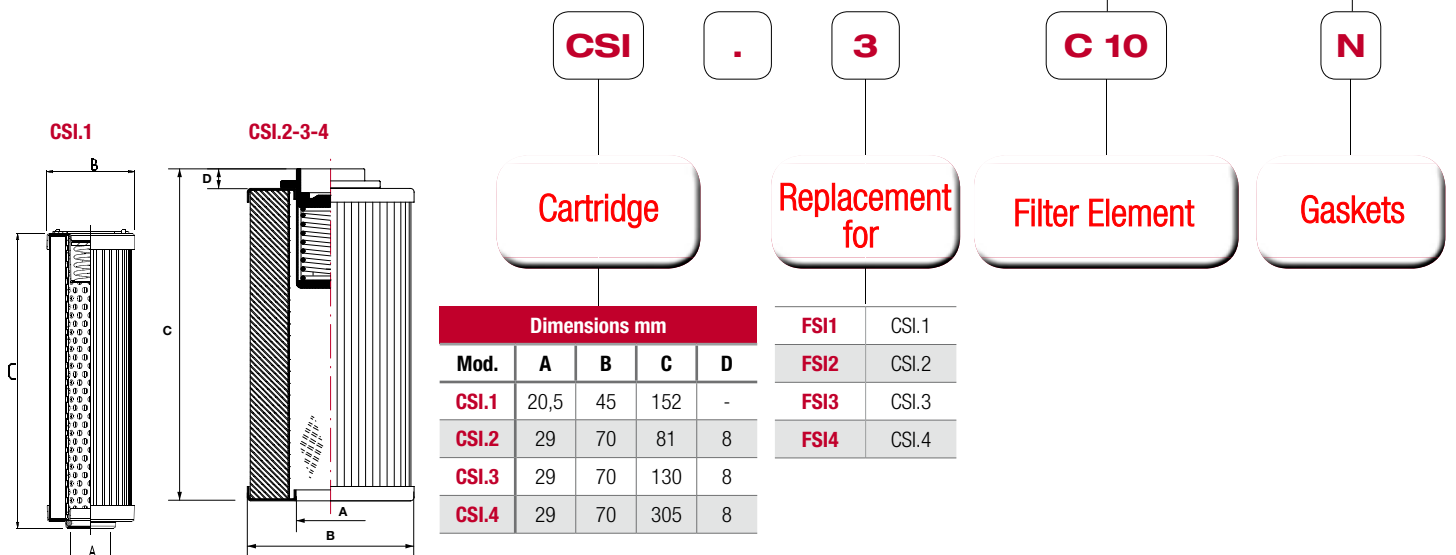


DIMENSIONS mm													
Mod.	A	B	B II	C	D	E	F	G	H	I	II	L	L II
<b>FSI2</b>	3/4" bspp	86	80	210	27,5	67	40	110	8,5	110	115	68,5	93,5
<b>FSI3</b>	1" bspp	86	80	255	27,5	67	40	110	8,5	110	115	68,5	93,5
<b>FSI4</b>	1"1/4 bspp	86	80	420	27,5	67	40	110	8,5	110	115	68,5	93,5

# HOW TO ORDER A COMPLETE FILTER:



# HOW TO ORDER THE REPLACEMENT ELEMENT:



## FSI Flow rates on return line\*\*

Flow rate in l/min. measured with  
Dp=0.4 - 0.5 bar

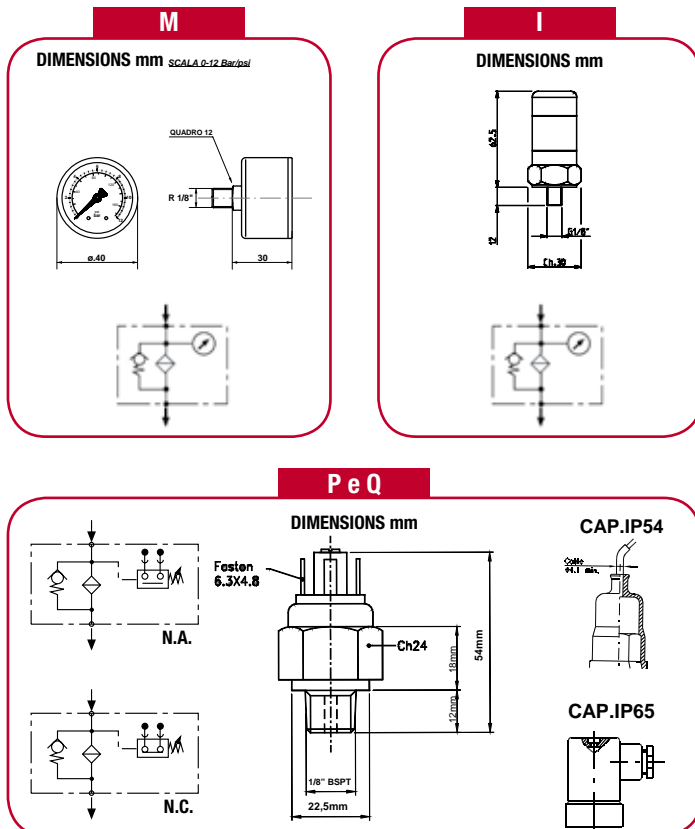
Mod.	THREAD BSPP	FIBERGLASS			PAPER		WIRE MESH		
		A05 5 MICRON ABS	A10 10 MICRON ABS	A25 25 MICRON ABS	C10 10 MICRON NOM	C25 25 MICRON NOM	M25 25 MICRON NOM	M60 60 MICRON NOM	M90 90 MICRON NOM
FSI1	1/2"	30	30	35	30	35	35	35	35
	3/4"	35	40	50	45	55	55	60	60
FSI2	3/4"	35	45	55	55	75	65	85	90
	1"	35	45	55	55	85	65	85	95
	1 1/4"	35	45	55	55	85	65	90	100
FSI3	3/4"	55	65	75	75	95	75	90	95
	1"	55	65	75	75	100	85	100	105
	1 1/4"	55	65	80	75	105	85	105	110
FSI4	3/4"	95	100	115	115	130	115	125	130
	1"	105	120	135	135	155	135	155	160
	1 1/4"	110	125	145	145	175	145	170	180

\*\* Flow rates measured with oil of 30 cst kinematic viscosity and 0,86 kg/dm3 density.

• Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

• Graphic curves  $\Delta p$  VS flow rate available upon request

## CLOGGING INDICATORS



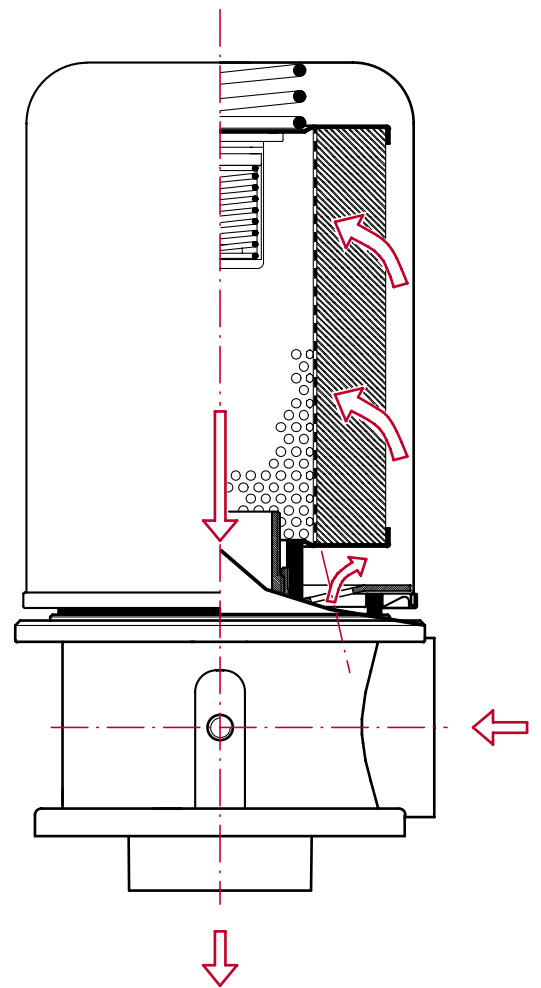
SERIES	SETTING	TYPE
M	0 ÷ 12 bar	Pressure gauge
I	1,5 bar	Visual pressure indicator
P	1,5 bar	Pressure switch N.O. (Max 240V/0,4A) / (48V/0,5A)
Q	1,5 bar	Pressure switch N.C. (Max 240V/0,4A) / (48V/0,5A)

# HR SERIES

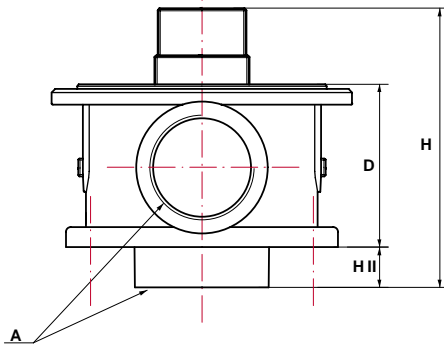
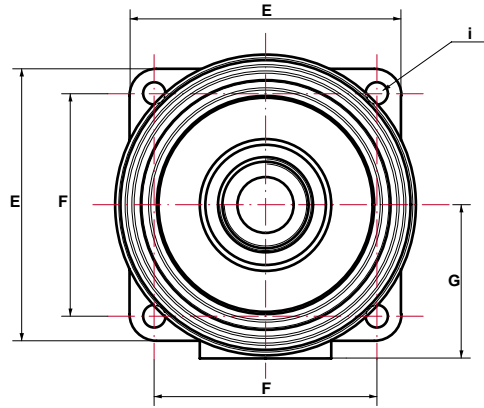
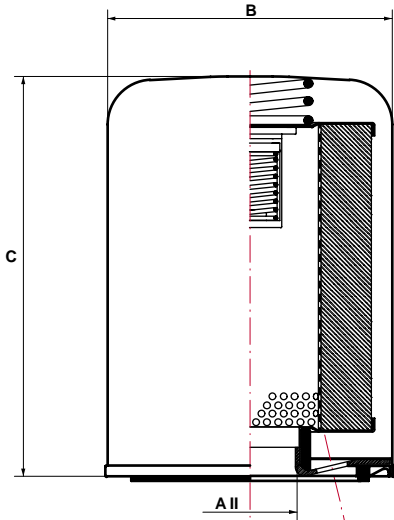
## EN Tank-top return line Spin-on filters

### TECHNICAL FEATURES:

- Supporting head: aluminium die-casting.
- Opening 1,7 bar.
- Spin-on element: galvanized steel structure. Filter element in paper.
- Standard available threads: 3/4" bspp (mod. 1-2) or 1"1/2 bspp (mod. 3-4).
- Standard available filter elements: 10-25 Micron nom. paper. Other filter elements upon request.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -30°C +110°C.
- Operating pressure: 12 bar.
- Burst pressure: 25 bar.
- Element collapse pressure: 5 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.

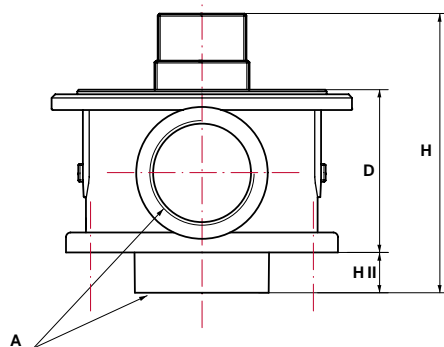
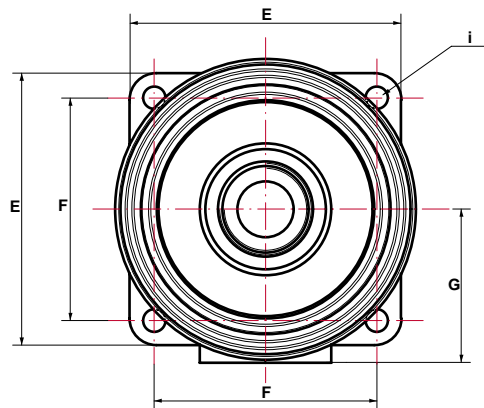
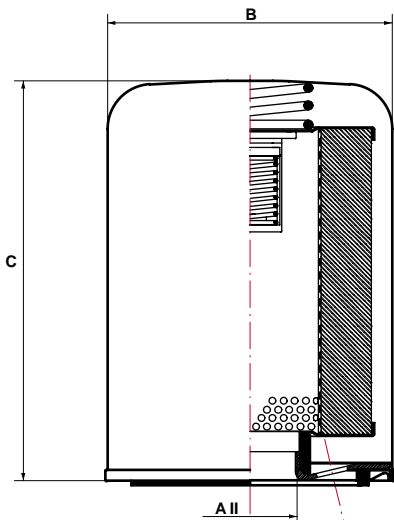


# HR101-102



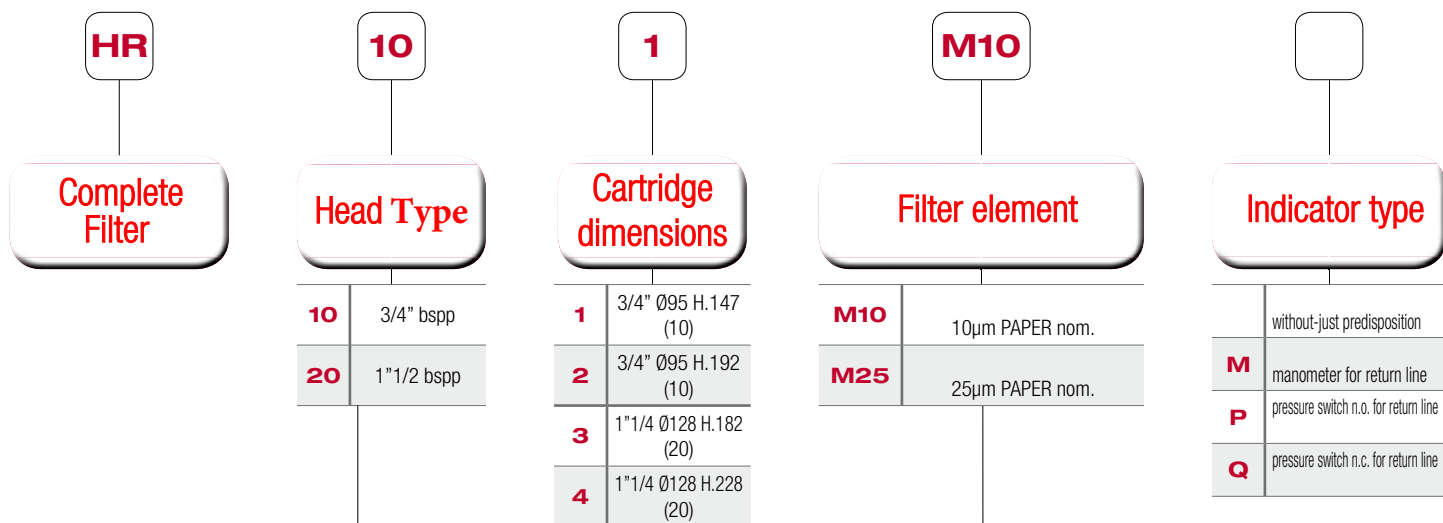
DIMENSIONS mm											
Mod.	A	A II	B	C	D	E	F	G	H	H II	i
HR101	3/4" bspp	3/4" bspp	95	145	50	90	70	50	80	16	Ø 7
HR102	3/4" bspp	3/4" bspp	95	190	50	90	70	50	80	16	Ø 7

# HR203-204

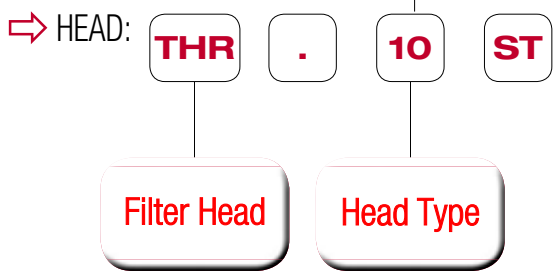


DIMENSIONS mm											
Mod.	A	A II	B	C	D	E	F	G	H	H II	i
HR203	1"1/2 bspp	1"1/4 bspp	128	180	73	123	100	70	125	18	Ø 9
HR204	1"1/2 bspp	1"1/4 bspp	128	226	73	123	100	70	125	18	Ø 9

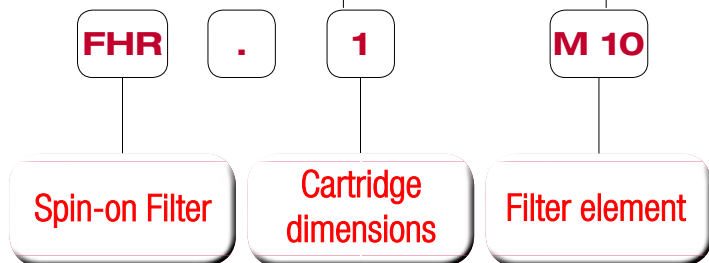
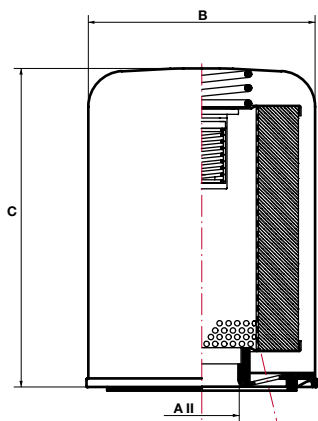
# HOW TO ORDER A COMPLETE FILTER:



# HOW TO ORDER A COMPONENT:



⇒ CARTRIDGE:



Dimensions mm			
Mod.	A II	B	C
FHR.1	3/4" bspp	95	147
FHR.2	3/4" bspp	95	192
FHR.3	1"1/4 bspp	128	182
FHR.4	1"1/4 bspp	128	228



## HR Flow rates on return line\*\*

Flow rate in l/min. measured with  
Dp=0.4 - 0.5 bar

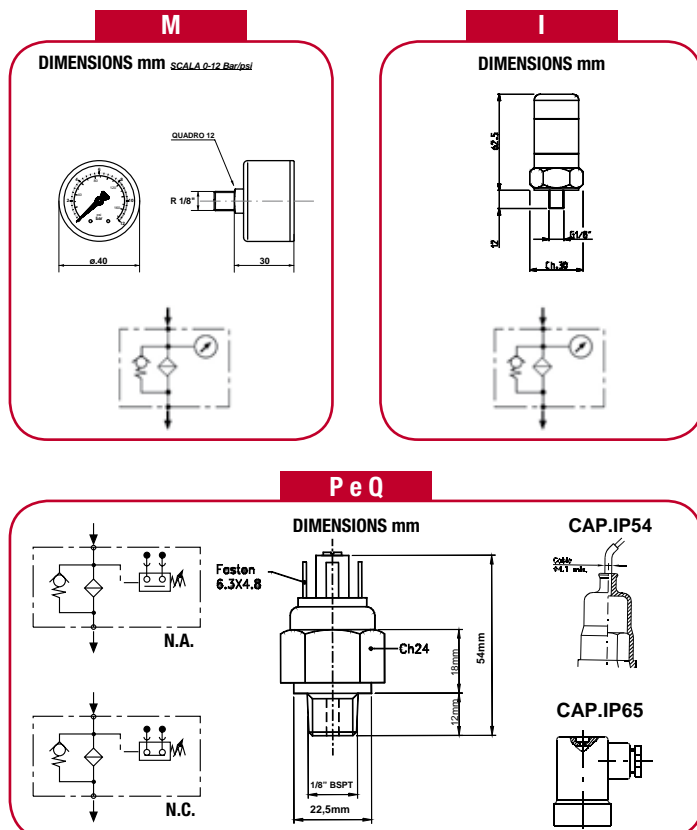
FILTERING ELEMENT	PAPER		
	Mod.	M10 10 MICRON NOM	M25 25 MICRON NOM
HR101		68	73
HR102		74	80
HR203		130	170
HR204		150	188

\*\* Flow rates measured with oil of 30 cSt kinematic viscosity and 0.86 kg/dm<sup>3</sup>

- Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

- Graphic curves  $\Delta p$  VS flow rate available upon request

## CLOGGING INDICATORS



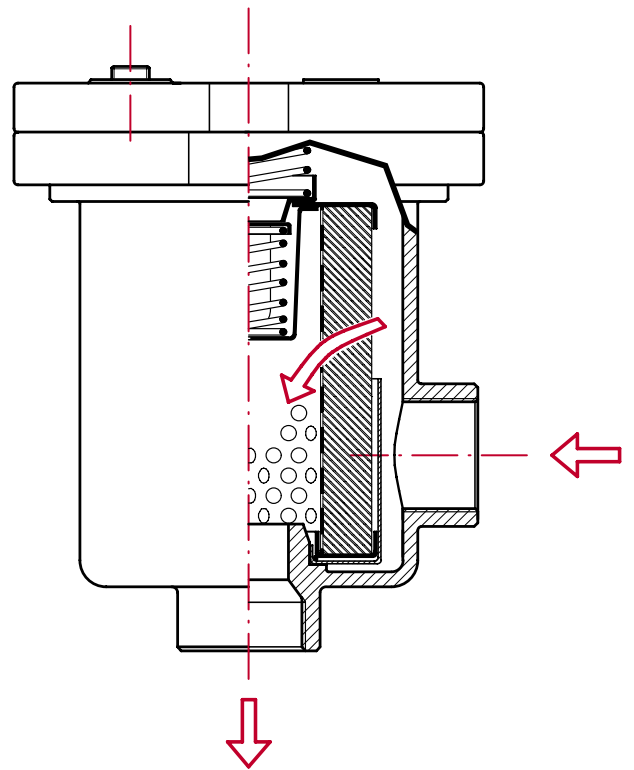
SERIES	SETTING	TIPO - TYPE
M	0÷ 12 bar	Pressure gauge
I	1,5 bar	Visual pressure indicator
P	1,5 bar	Pressure switch N.O. (Max 240V/0,4A) / (48V/0,5A)
Q	1,5 bar	Pressure switch N.C. (Max 240V/0,4A) / (48V/0,5A)

# SERIE FAR

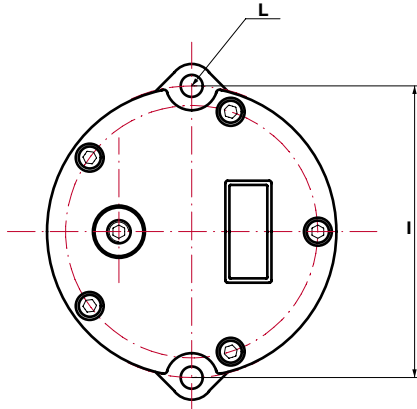
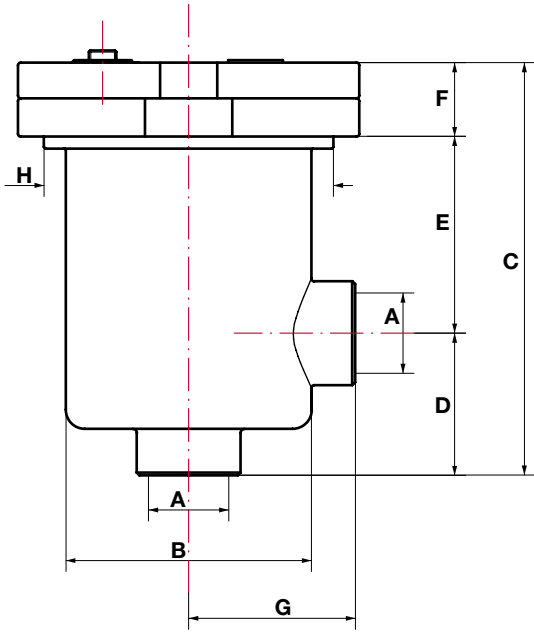
## EN Suction & return line tank-top filters.

### TECHNICAL FEATURES:

- Cover: aluminium die-casting.
- Filter body: aluminium die-casting.
- By-pass valve: Standard opening 0,25 bar (suction) / 1,7 bar (return).
- Standard available threads: 1/2"-3/4"-1"-1 1/4" bsp.
- Standard available filter elements: 10-25 Micron nom. paper / 60-125 Micron nom. wire mesh. Other filter elements upon request.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -25°C +110°C.
- Operating pressure: 15 bar.
- Burst pressure: 45 bar.
- Element collapse pressure: 10 bar.
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.



# FAR.05-10-15

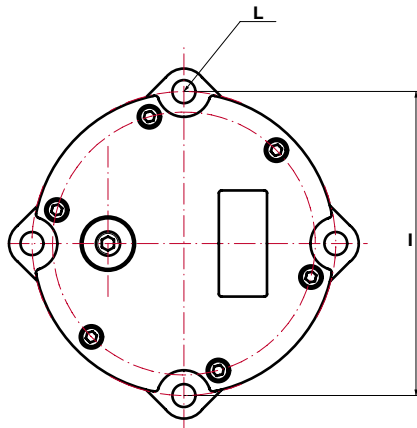
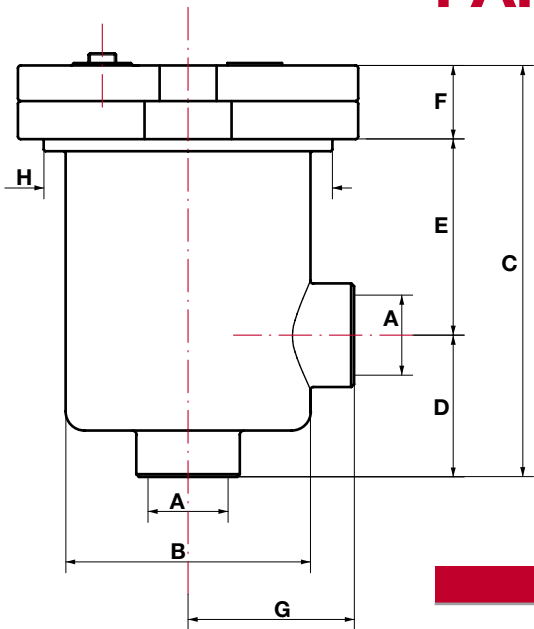


## 2 FIXING HOLES

### DIMENSIONS mm

Mod.	A	B	C	D	E	F	G	H	I	L
<b>FAR.05</b>	1/2" bspp	71	125	40	66	19	48	80	100	Ø 7,5
<b>FAR.10</b>	3/4" bspp	88	151	52	72	27	59	106	125	Ø 9,5
<b>FAR.15</b>	1" bspp	88	195	52	116	27	59	106	125	Ø 9,5

# FAR.20

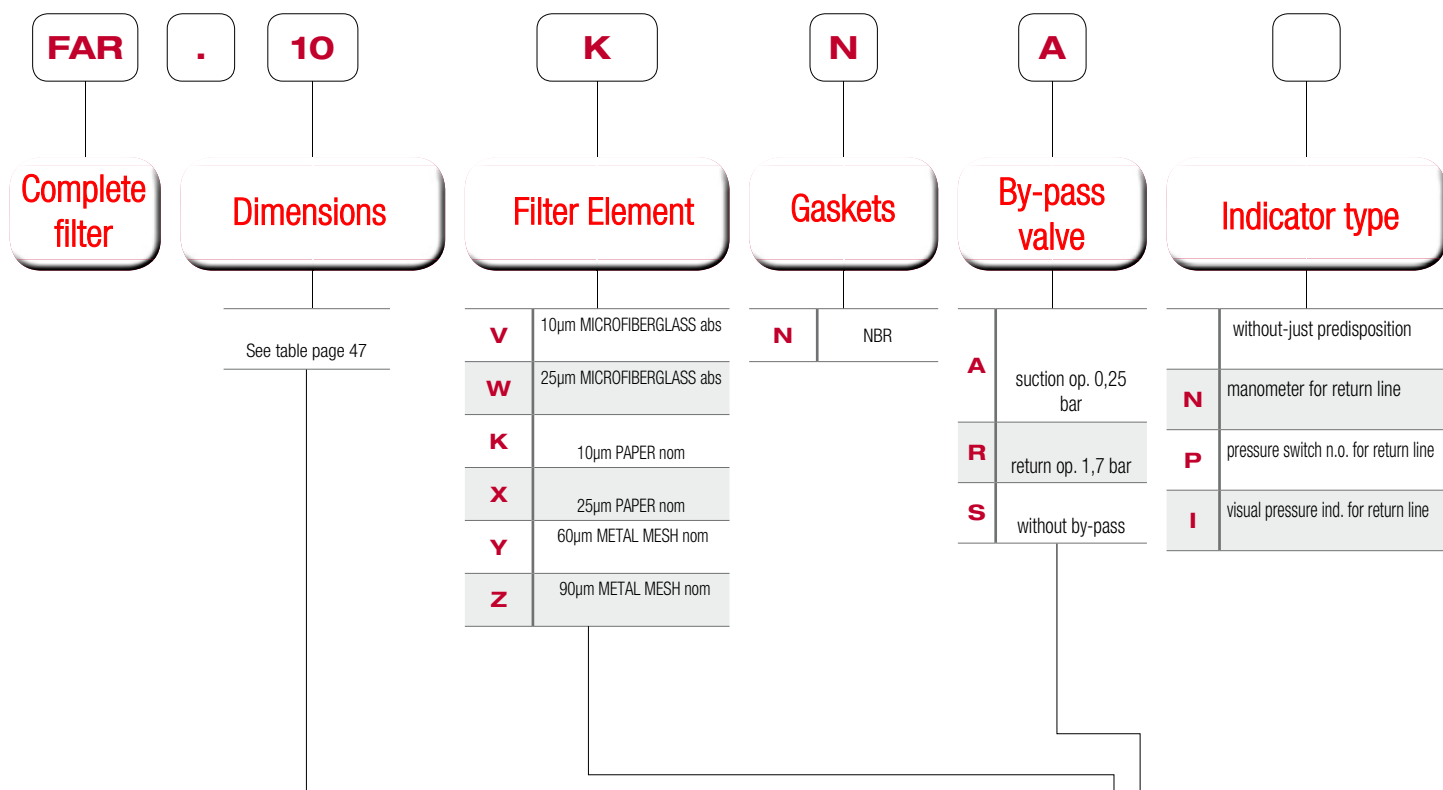


## 4 FIXING HOLES

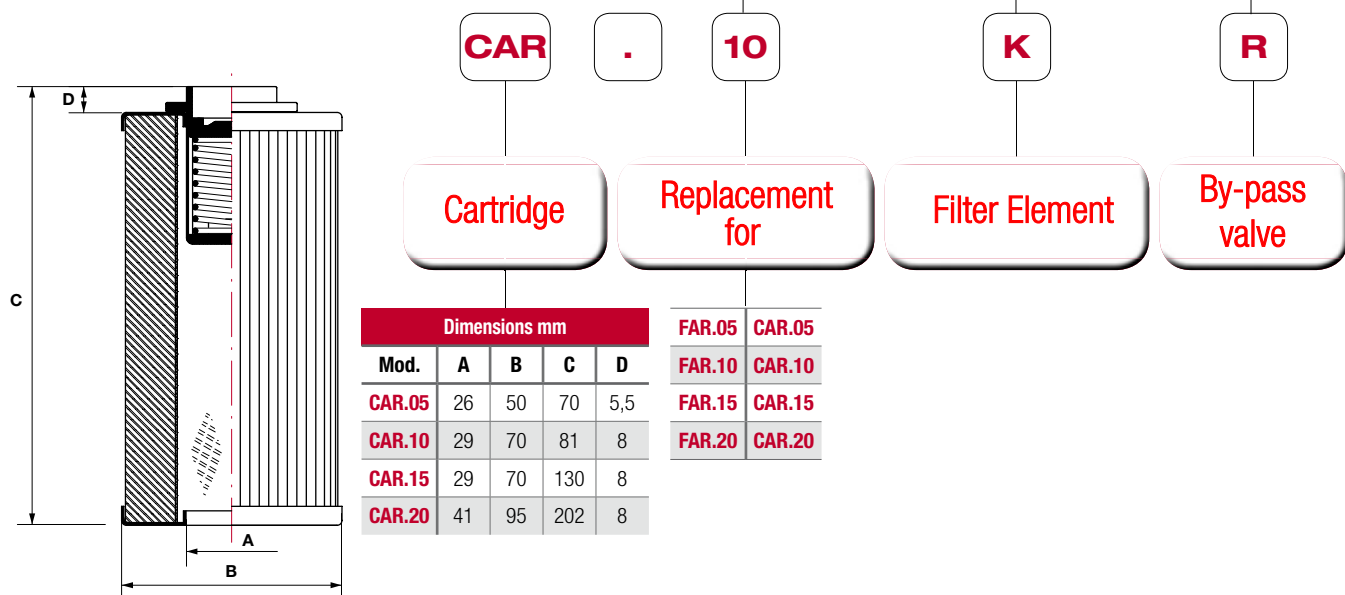
### DIMENSIONS mm

Mod.	A	B	C	D	E	F	G	H	I	L
<b>FAR.20</b>	1" 1/4 bspp	138	275	62	180	33	83,5	147	175	Ø 9,5

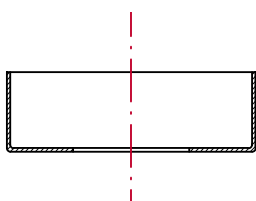
## HOW TO ORDER A COMPLETE FILTER:



## HOW TO ORDER THE REPLACEMENT ELEMENT:



## ELEMENT PLASTIC PROTECTION (from inflow):



CODE	ELEMENT
<b>PV9.05564</b>	<b>CAR.05</b>
<b>PV9.05565</b>	<b>CAR.10 - CAR.15</b>
<b>PV9.05563</b>	<b>CAR.20</b>

## FAR suction flow rates\*\*

Flow rate in l/min. measured with  
Dp=0.05 - 0.10 bar

ELEMENTO FILTRANTE	FIBERGLASS		PAPER		WIRE MESH	
	Mod.	V - 10 MICRON ABS	W - 25 MICRON ABS	K - 10 MICRON NOM	X - 25 MICRON NOM	Y - 60 MICRON NOM
<b>FAR.05</b>	7	8	9	10	13	15
<b>FAR.10</b>	13	15	18	20	28	30
<b>FAR.15</b>	27	30	33	35	48	50
<b>FAR.20</b>	50	54	58	60	87	90

## FAR Flow rates on return line\*\*

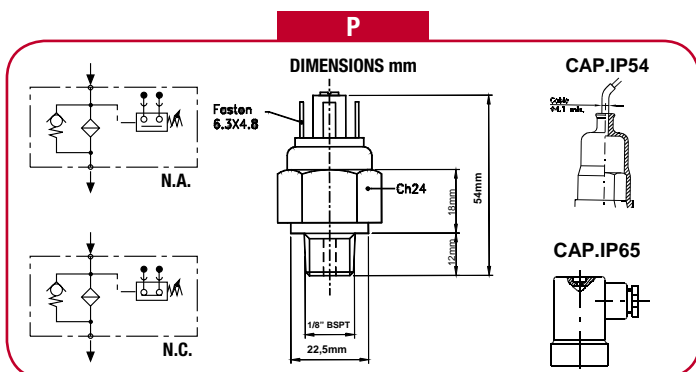
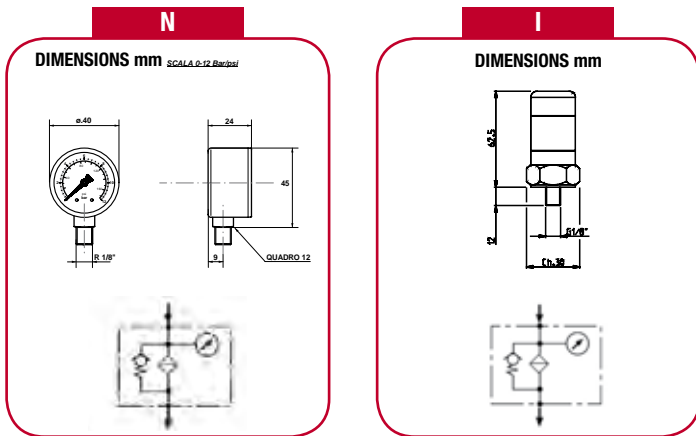
Flow rate in l/min. measured with  
Dp=0.4

FILTERING ELEMENT	FIBERGLASS		PAPER		WIRE MESH	
	Mod.	V - 10 MICRON ABS	W - 25 MICRON ABS	K - 10 MICRON NOM	X - 25 MICRON NOM	Y - 60 MICRON NOM
<b>FAR.05</b>	13	15	18	20	28	30
<b>FAR.10</b>	32	35	45	50	63	68
<b>FAR.15</b>	57	60	70	75	95	100
<b>FAR.20</b>	115	120	130	140	180	190

\*\* Flow rates measured with oil with 30 cSt kinematic viscosity and 0.86 kg/dm<sup>3</sup>

- Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

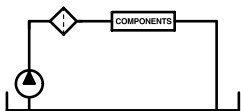
## CLOGGING INDICATORS



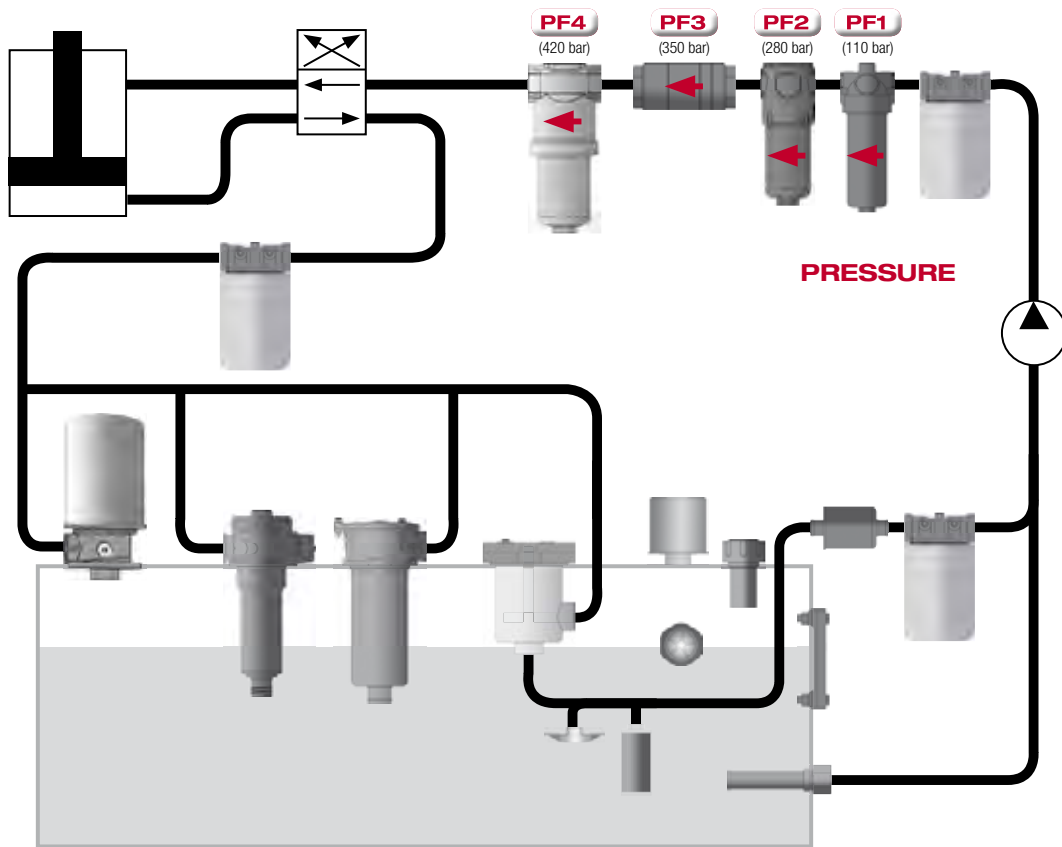
SERIES	SETTING	TYPE
<b>N</b>	0÷ 12 bar	Pressure gauge
<b>I</b>	1,5 bar	Visual pressure indicator
<b>P</b>	1,5 bar	Pressure switch N.O. (Max 240V/0,4A) / (48V/0,5A)

# Medium & high pressure in-line filters

## SERIE PF 1-2-3-4



Delivery filters



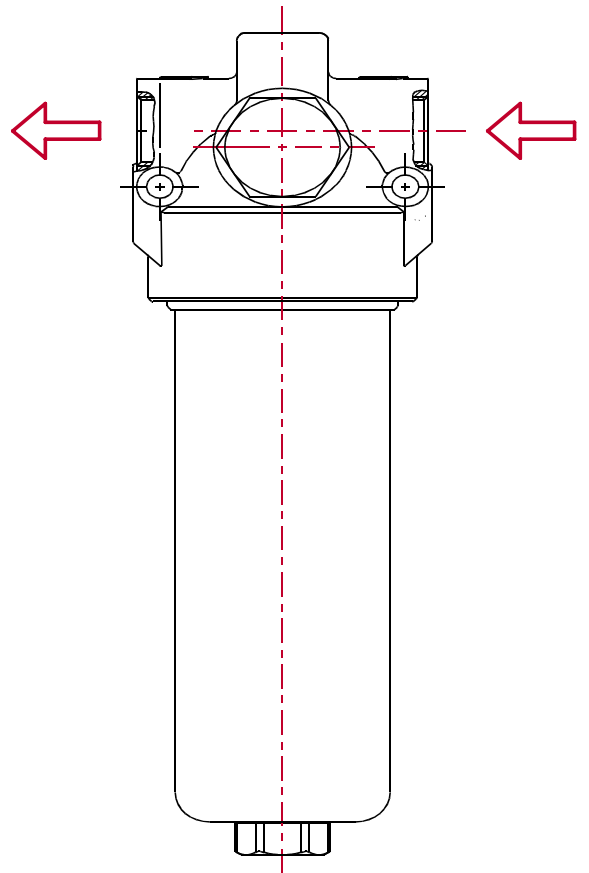
**PF1-PF2-PF3-PF4 series filters are used in-line (pressure) mounting on medium and high pressure hydraulic circuit (from 110 up to 420 bar), to protect system's components from contamination.** This kind of filters is essential on sophisticated hydraulic systems capable of high performances, for which it is necessary to guarantee maximum protection for sensitive components, downstream the filter. It is a very versatile series of filters, designed for various applications: tools, agricultural and earthmoving machines, industrial vehicles, mobile and stationary applications in general. There are several models to meet all needs, from small to large flows, with different filter elements in order to ensure maximum protection to the circuit.

# SERIE PF1 (max. 110 bar)

## GB Medium pressure in-line filters (max. 110 bar)

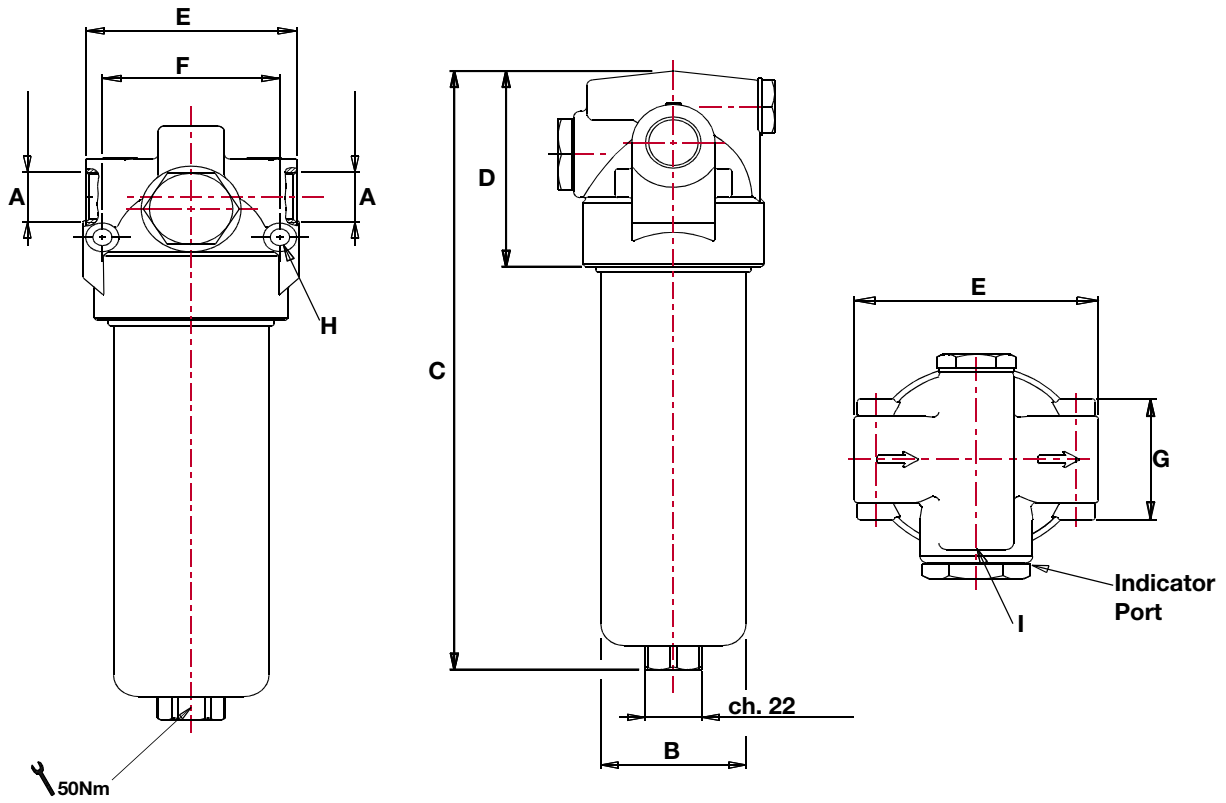
### TECHNICAL FEATURES:

- Head: anodized aluminium die-casting.
- Filter body: anodized aluminium die-casting.
- By-pass valve: Differential opening 6 bar.
- Standard available threads: 1/2" bspp. Other threads upon request.
- Standard available filter elements: 5-10-25 Micron abs. microfiber / 10-25 Micron nom. paper. Other filter elements upon request.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -30°C +90°C (+110°C Viton).
- Maximum flow rate: 90 l/min.
- Operating pressure: 110 bar. Burst pressure: 300 bar.
- Element collapse pressure: 21 bar.
- Fatigue resistance: > 800'000 cycles (0÷110 bar).
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.





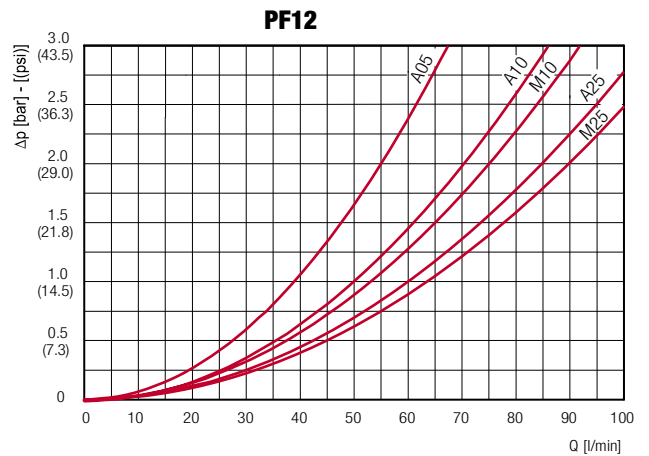
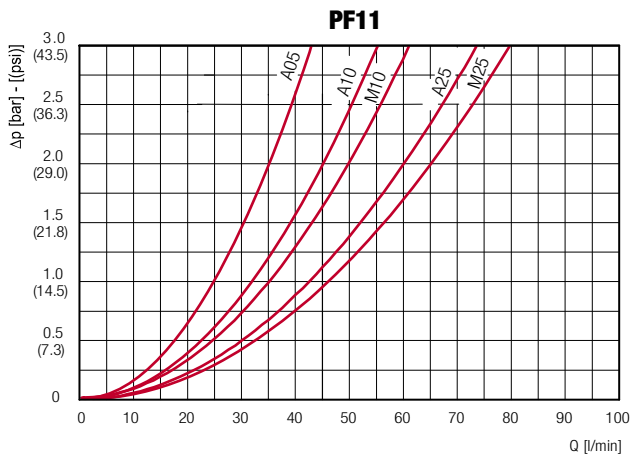
# PF11-12



## MEDIUM PRESSURE COMPLETE FILTER | 10 bar

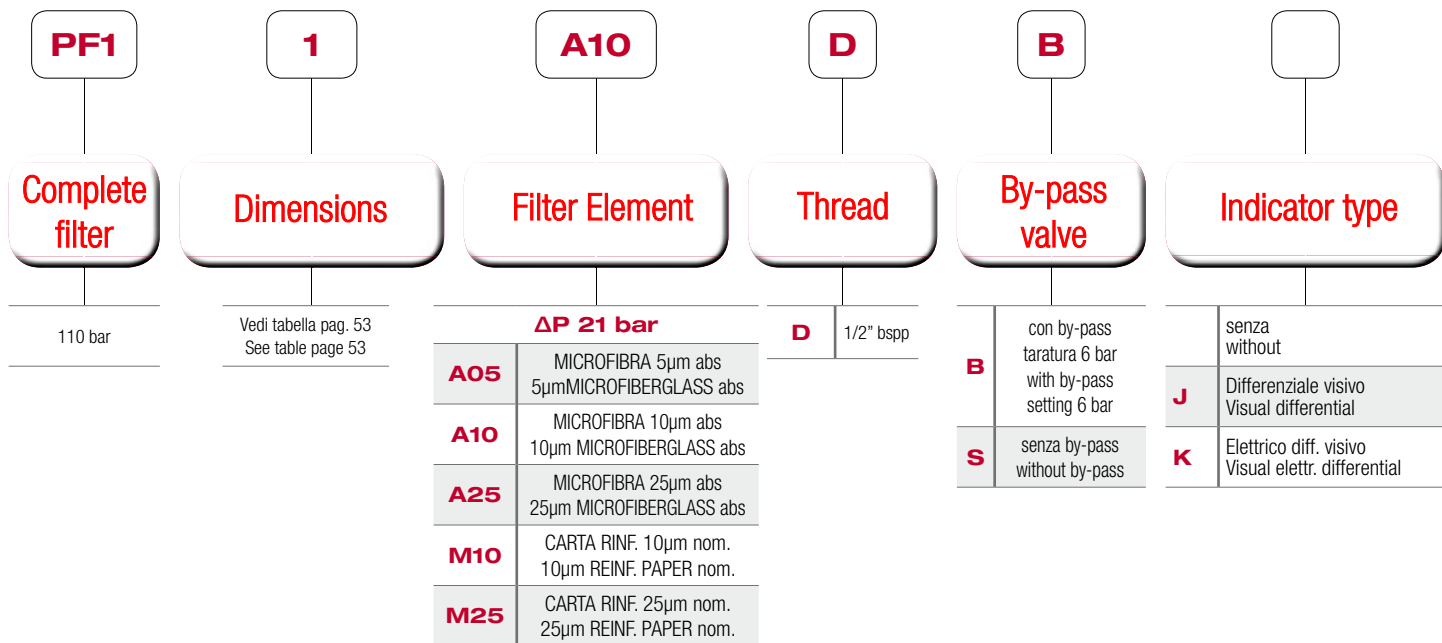
Mod.	DIMENSIONS mm									WEIGHT
	A	B	C	D	E	F	G	H	I	Kg.
PF11	1/2" bspp	56	158	80	76	64	45	Ø 7	M20x1,5	1,00
PF12	1/2" bspp	56	248	80	76	64	45	Ø 7	M20x1,5	1,30

## COMPLETE FILTER'S PRESSURE DROP

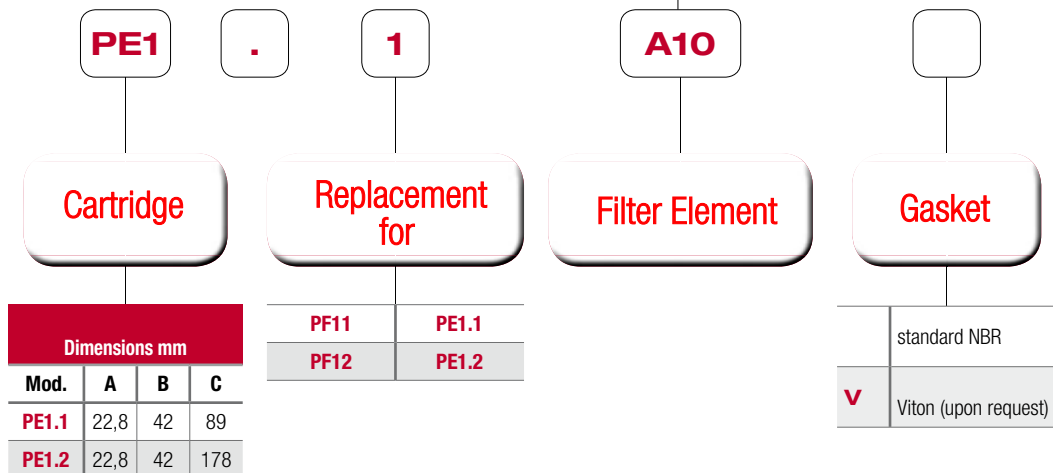
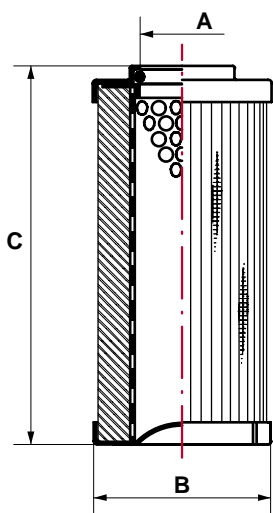


# COME ORDINARE UN FILTRO COMPLETO:

HOW TO ORDER A COMPLETE FILTER:



# HOW TO ORDER THE REPLACEMENT ELEMENT:



### PF1 flow rates\*\*

Flow rate in l/min. measured with  
Dp=2 bar

FILTERING ELEMENT		FIBERGLASS			PAPER	
Mod.	FILETTO THREAD BSPP	A05 5 MICRON ABS	A10 10 MICRON ABS	A25 25 MICRON ABS	M10 10 MICRON NOM	M25 25 MICRON NOM
PF11	1/2"	35	45	60	50	65
PF12	1/2"	55	70	85	75	90

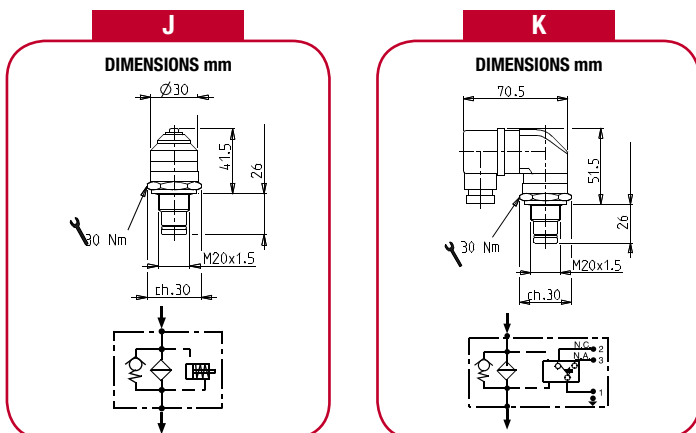
\*\* Flow rates measured with oil with 30 cSt kinematic viscosity and 0.86 kg/dm<sup>3</sup>

- Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

### PE1 element dirt holding capacity (ISO MTD) Δp=5 bar

FILTERING ELEMENT			FIBERGLASS			PAPER	
Mod.	C mm	FILTERING SURFACE cm <sup>2</sup>	A05 5 MICRON ABS gr	A10 10 MICRON ABS gr	A25 25 MICRON ABS gr	M10 10 MICRON NOM gr	M25 25 MICRON NOM gr
HP11	89	300	2,2	2,50	3,70	2,00	3,2
HP12	178	700	4,90	5,20	7,80	4,20	6,70

## CLOGGING INDICATORS



SERIES	SETTING	TYPE
J	8 bar (no by-pass) 5 bar (by-pass)	Visual differential
K	8 bar (no by-pass) 5 bar (by-pass)	Visual electrical differential IP65 - 250Vac

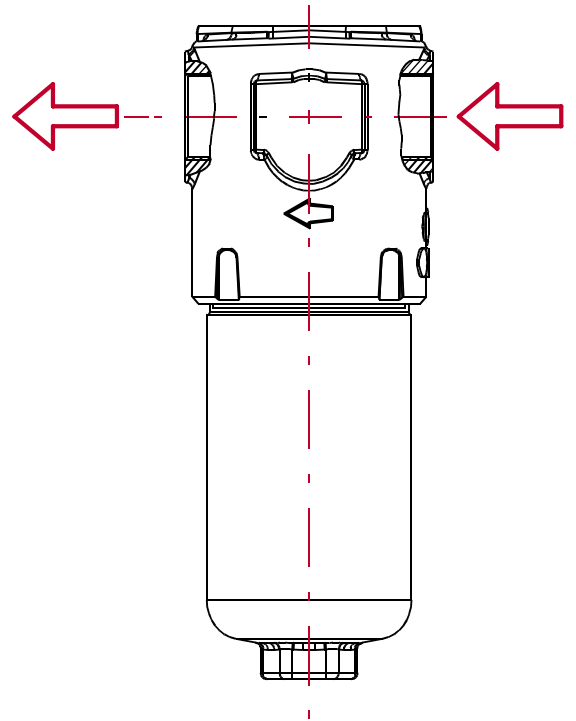
# PF2 SERIES

(max. 300 bar)

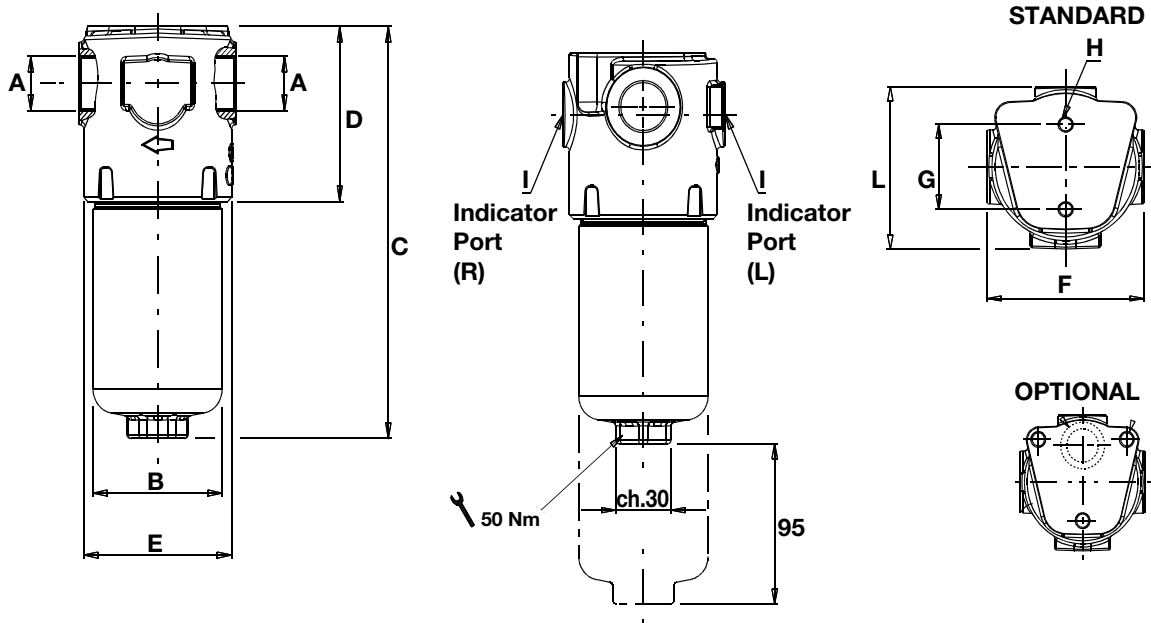
## Medium pressure in-line filters (max. 300 bar)

### TECHNICAL FEATURES:

- Head: s.g. cast iron.
- Filter body: forged steel.
- By-pass valve: Differential opening 6 bar.
- Standard available threads: 1/2"-3/4"-1" bspp. Other threads upon request.
- Standard available filter elements: 3-5-10-25 Micron abs. microfiber. Other filter elements upon request.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -30°C a +90°C (+110°C Viton).
- Maximum flow rate: 170 l/min.
- Operating pressure: 300 bar. Burst pressure: 560 bar.
- Element collapse pressure: 21 bar or 210 bar.
- Fatigue resistance: 1'000'000 cycles (0÷280 bar).
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.



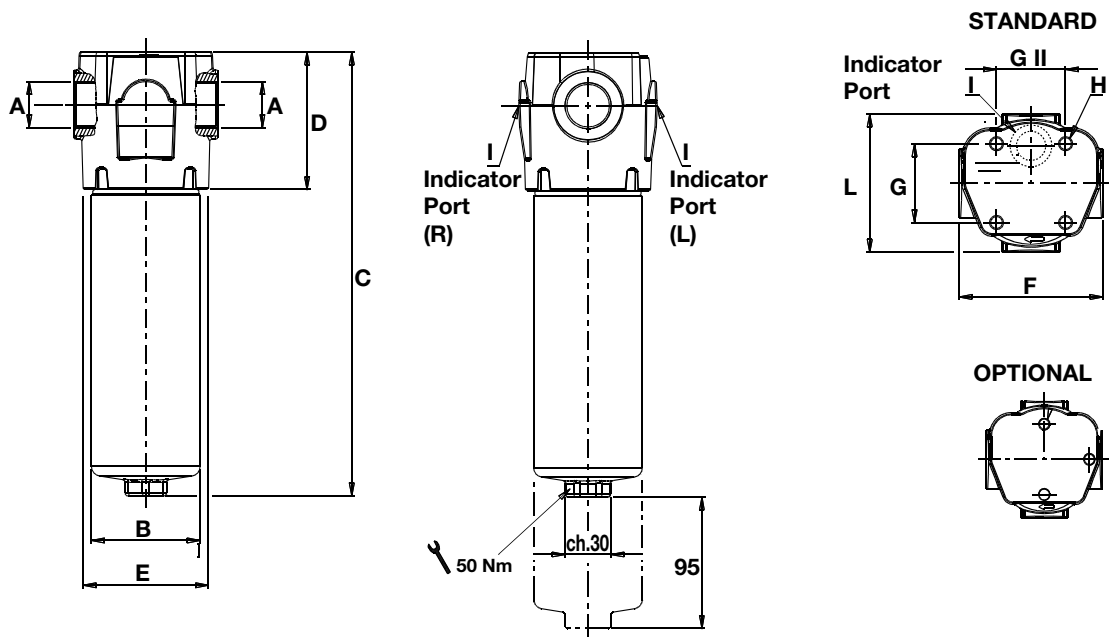
# PF21-22-23



## HIGH PRESSURE COMPLETE FILTER 300 bar

Mod.	DIMENSIONS mm										WEIGHT kg.
	A	B	C	D	E	F	G	H	I	L	
PF21	1/2" bspp 3/4" bspp	70	173	85	80	85	46	M8	1/2" bspp	88	3,8
PF22		70	200	85	80	85	46	M8	1/2" bspp	88	4,2
PF23		70	295	85	80	85	46	M8	1/2" bspp	88	5,7

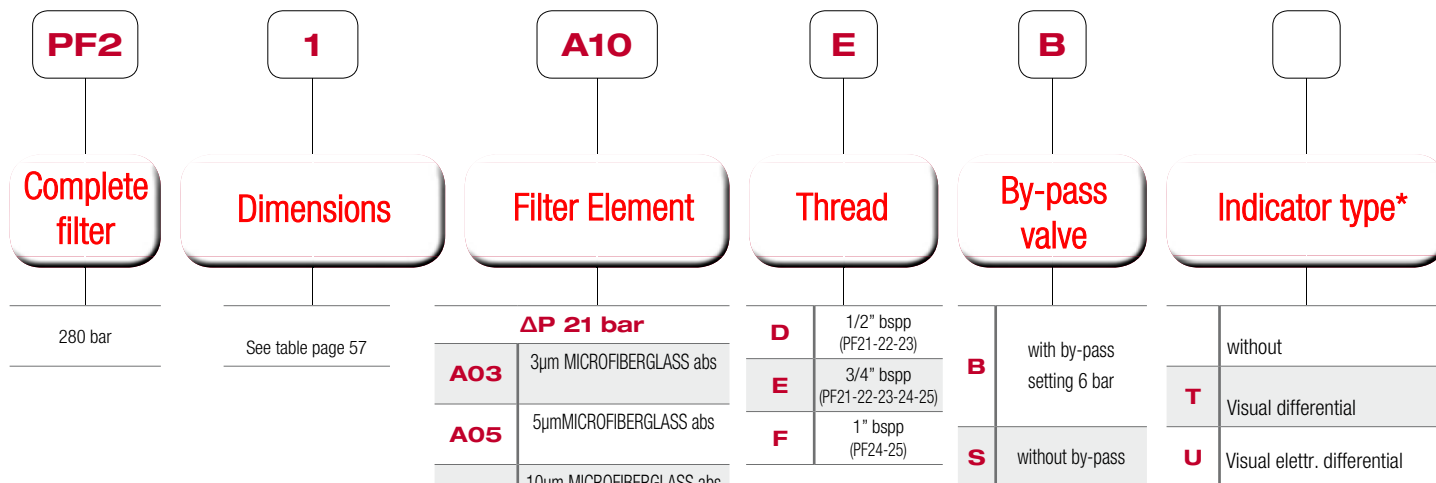
# PF24-25



## HIGH PRESSURE COMPLETE FILTER 300 bar

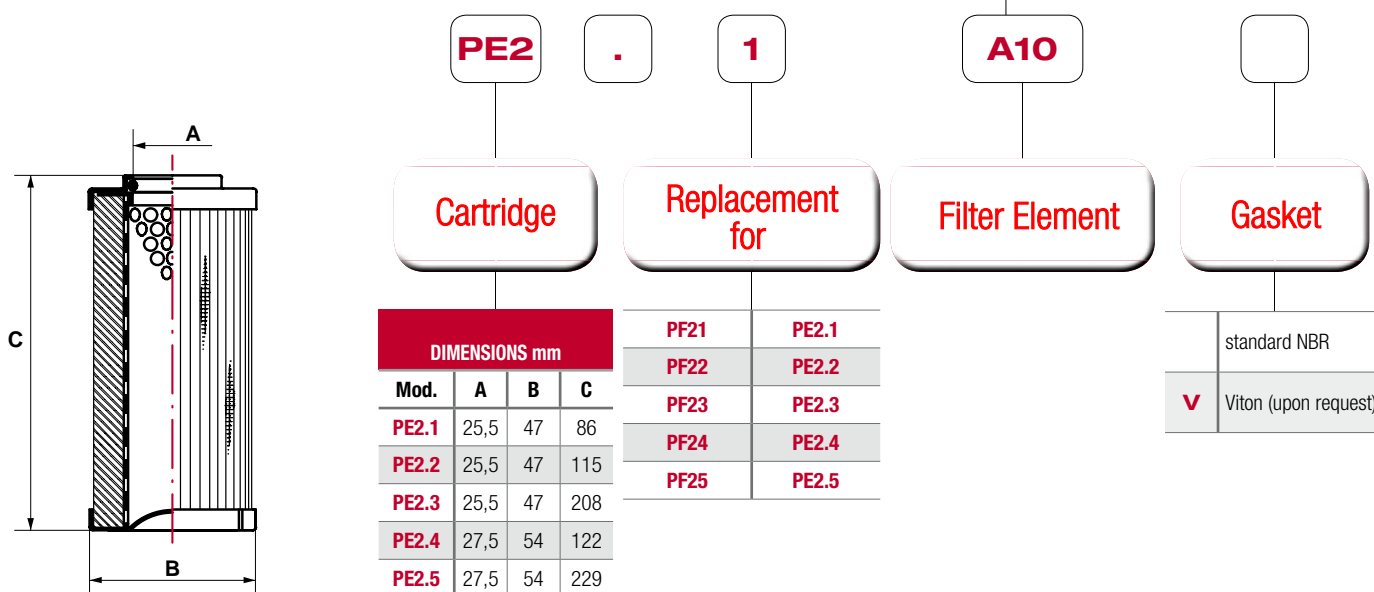
Mod.	DIMENSIONS mm											WEIGHT kg.
	A	B	C	D	E	F	G	G II	H	I	L	
PF24	3/4" bspp	79	214	100	91	105	57	50	M10	1/2" bspp	100	6,0
PF25	1" bspp	79	322	100	91	105	57	50	M10	1/2" bspp	100	7,8

## HOW TO ORDER A COMPLETE FILTER:



\* Precise position (standard right)

## HOW TO ORDER THE REPLACEMENT ELEMENT:



## PF2 flow rates\*\*

Flow rate in l/min. measured with  
Dp=0,75 bar

FILTERING ELEMENT		FIBERGLASS			
Mod.	FILETTO - THREAD BSPP	A03 3 MICRON ABS	A05 5 MICRON ABS	A10 10 MICRON ABS	A25 25 MICRON ABS
PF21	1/2"	25	30	35	45
	3/4"	25	30	35	45
PF22	1/2"	35	40	50	60
	3/4"	35	40	50	60
PF23	1/2"	60	65	75	85
	3/4"	65	70	80	95
PF24	3/4"	60	65	80	100
	1"	60	70	85	105
PF25	3/4"	105	120	135	155
	1"	110	125	145	170

\*\* Flow rates measured with oil with 30 cSt kinematic viscosity and 0.86 kg/dm<sup>3</sup>

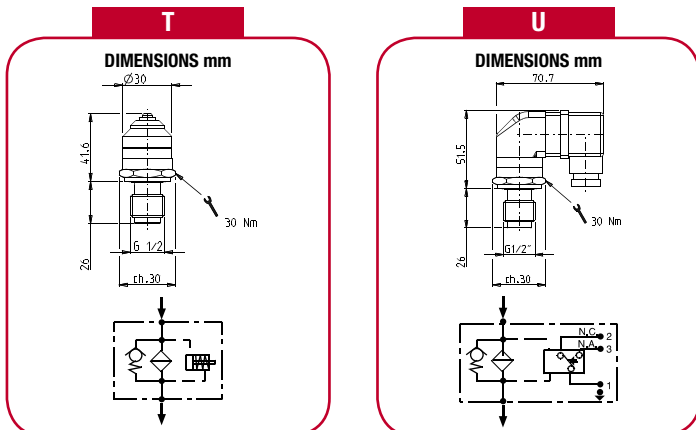
- Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

## PE2 element dirt holding capacity (ISO MTD)

Δp=5 bar

FILTERING ELEMENT			FIBERGLASS			
Mod.	C mm	FILTERING SURFACE cm <sup>2</sup>	A03 3 MICRON ABS gr	A05 5 MICRON ABS gr	A10 10 MICRON ABS gr	A25 25 MICRON ABS gr
PE2.1	85	380	2,10	2,70	3,00	4,40
PE2.2	115	500	3,00	3,90	4,40	6,40
PE2.3	208	950	5,30	6,70	7,50	11,00
PE2.4	122	900	5,10	6,50	7,30	10,50
PE2.5	229	1800	10,10	13,00	14,50	21,00

## CLOGGING INDICATORS



SERIES	SETTING	TYPE
T	8 bar (no by-pass) 5 bar (by-pass)	Visual differential
U	8 bar (no by-pass) 5 bar (by-pass)	Visual electrical differential IP65 - 250Vac

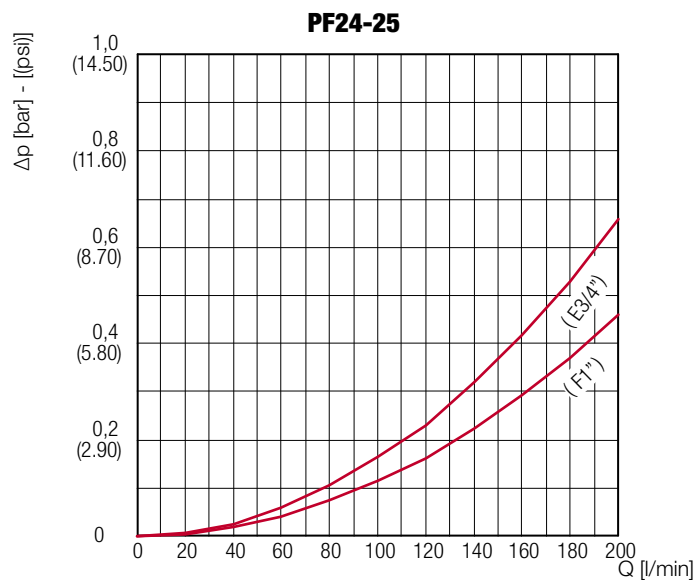
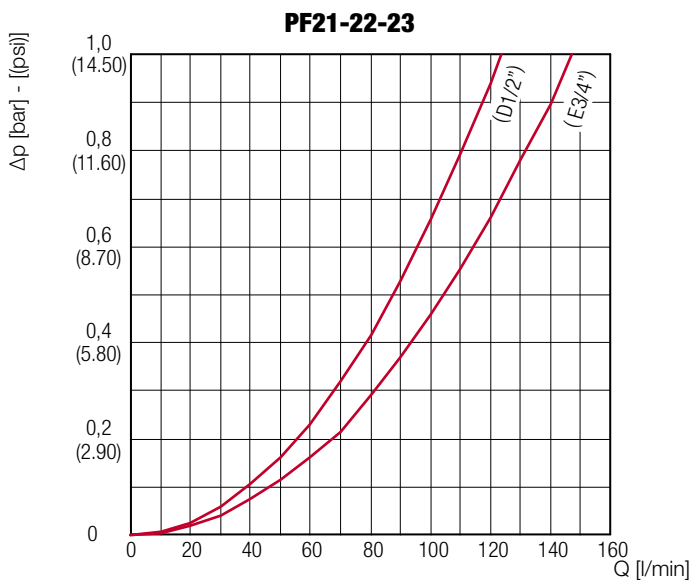
## PRESSURE DROP CURVES THROUGH THE HOUSING

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



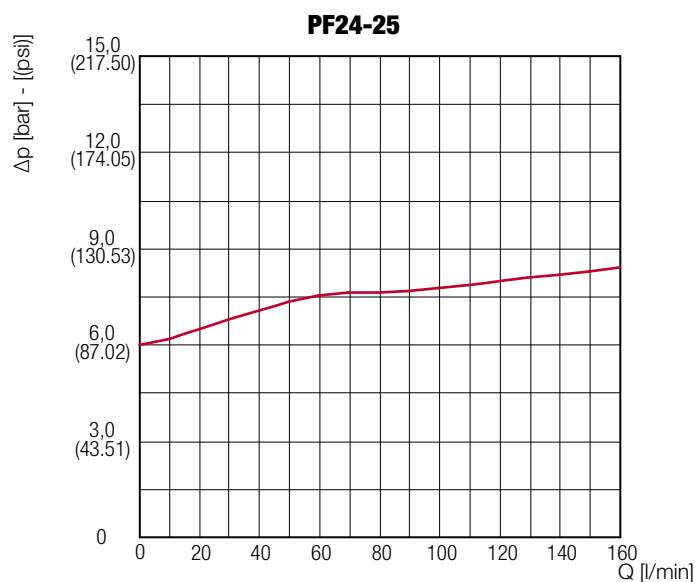
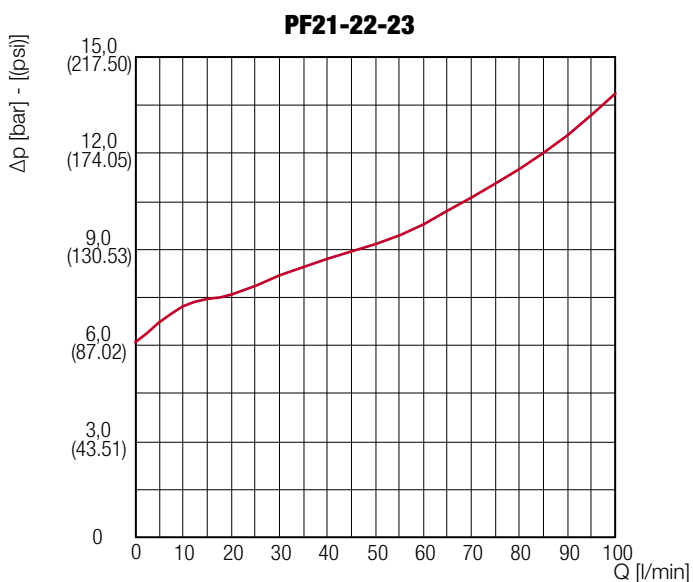
## PRESSURE DROP CURVES THROUGH THE BY-PASS VALVES

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).





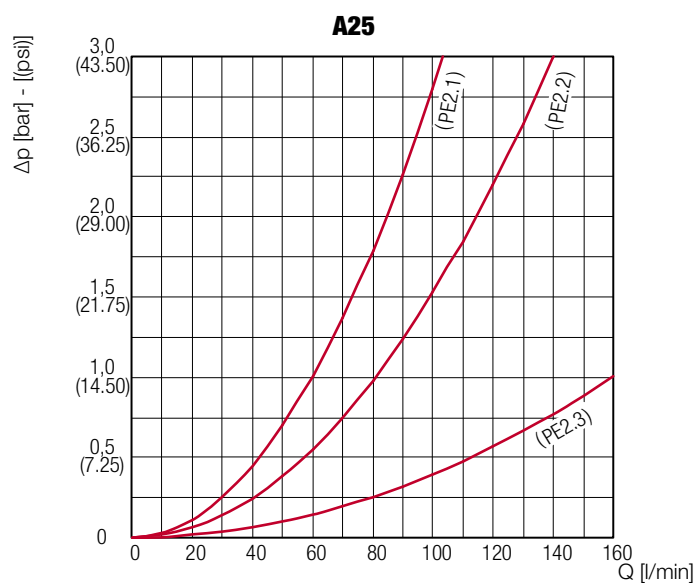
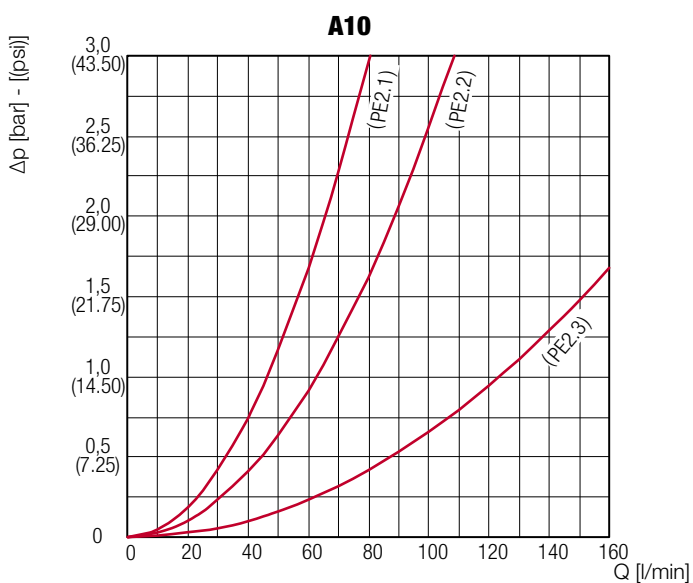
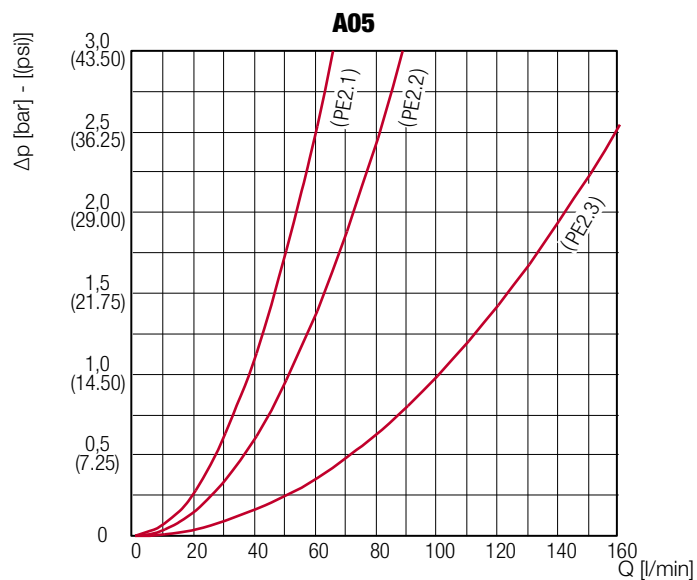
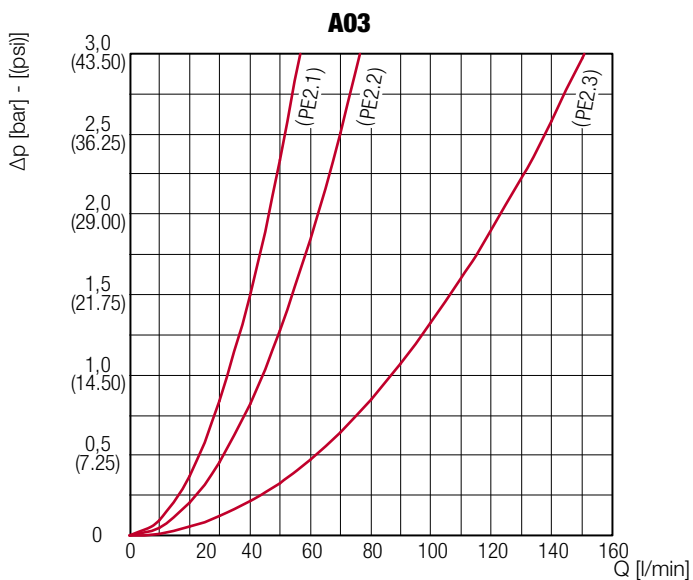
# PRESSURE DROP CURVES THROUGH THE ELEMENT PE 2.1-2.2-2.3

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



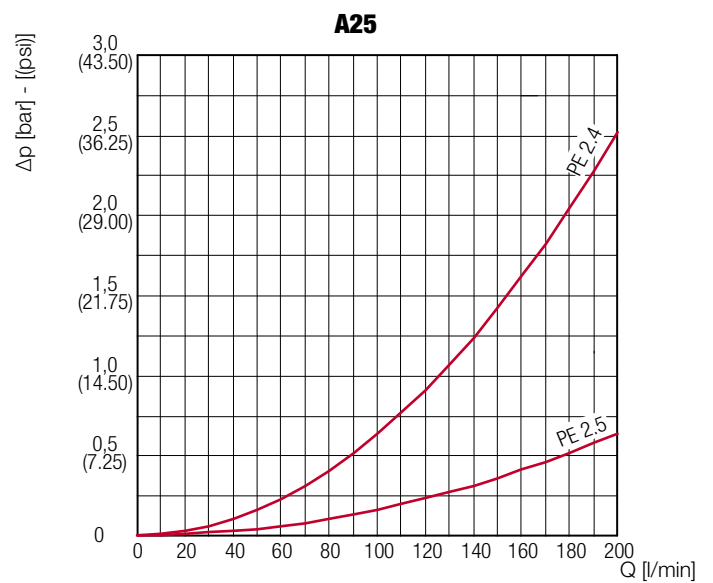
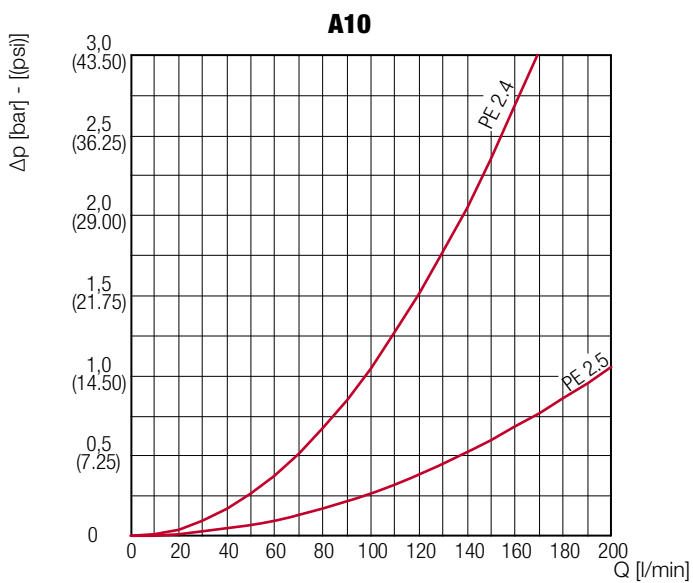
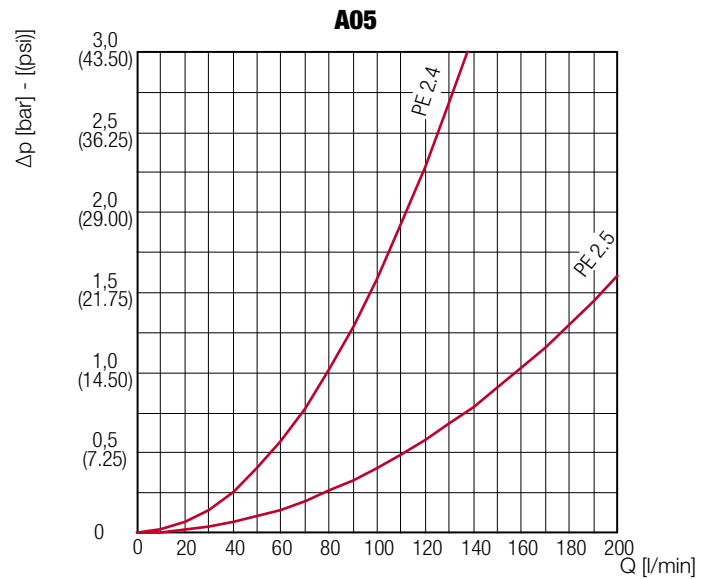
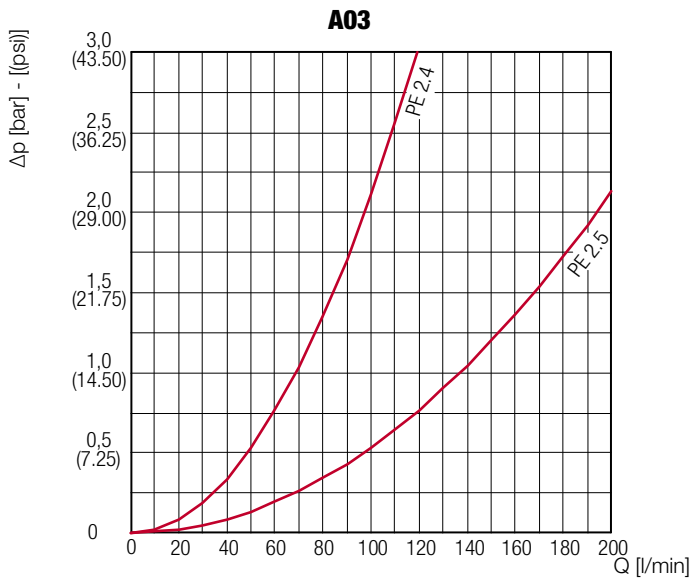
# PRESSURE DROP CURVES THROUGH THE ELEMENT PE 2.1-2.2-2.3

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



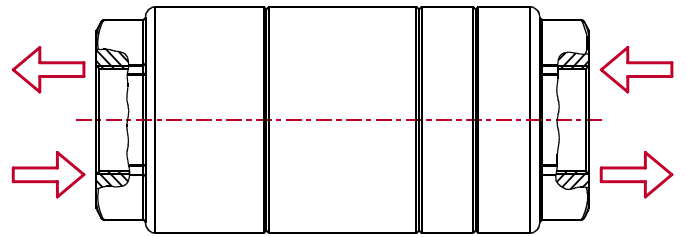
# PF3 SERIES

(max. 350 bar)

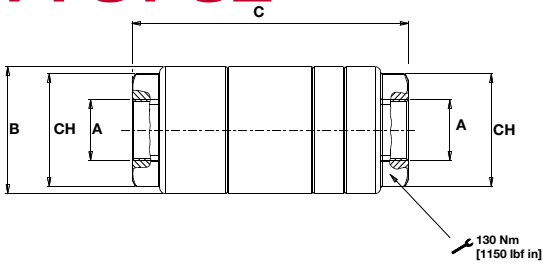
**GE** High pressure in-line filters (max. 350 bar) "last chance" type - Bidirectional flow

**TECHNICAL FEATURES:**

- Filter body: aluminium high-resistance.
- Inner element: sintered bronze.
- Standard available threads: 1/4"-3/8"-1/2"-3/4" bspp. Other threads upon request.
- Standard available filter elements: 10-25-40-60 Micron nom.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -30°C a +90°C (+110°C Viton).
- Maximum flow rate: 115 l/min.
- Operating pressure: 350 bar. Burst pressure: 520 bar.
- Element collapse pressure: 80 bar.
- Fatigue resistance: 1'000'000 cycles (0÷350 bar).
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.



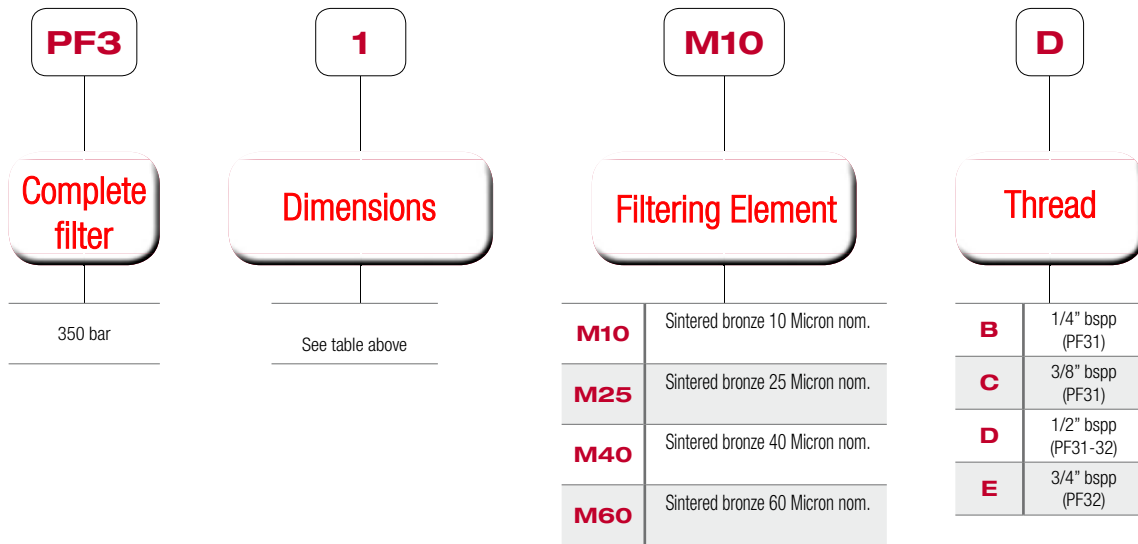
# PF31-32



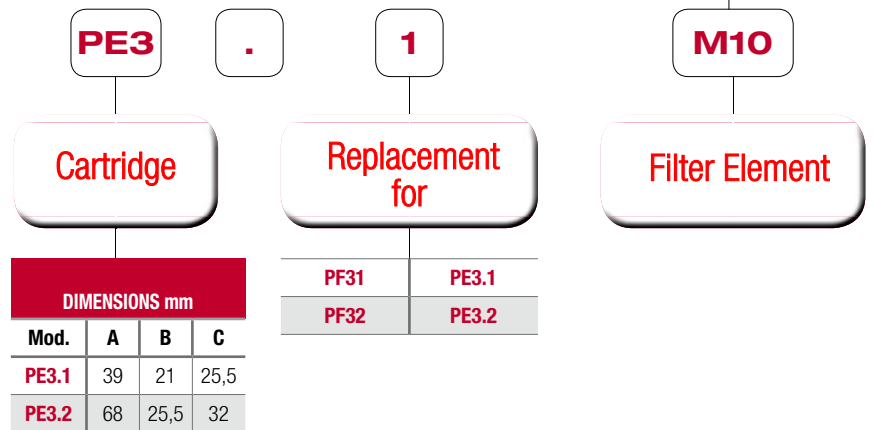
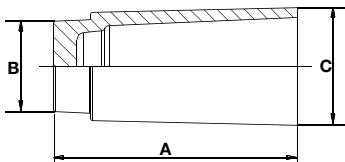
## HIGH PRESSURE COMPLETE FILTER 350 bar

Mod.	DIMENSIONS mm				WEIGHT
	A	B	C	CH	kg.
PF31	1/4" bspp 3/8" bspp 1/2" bspp	44	100	35	0,3
PF32	1/2" bspp 3/4" bspp	54	140	41	0,6

## HOW TO ORDER A COMPLETE FILTER:



## HOW TO ORDER THE REPLACEMENT ELEMENT:



### PF3 flow rates\*\*

Flow rate in l/min. measured with  
Dp=2 bar

Mod.	FILETTO - THREAD BSPP	SINTERED BRONZE			
		M10 10 MICRON NOM	M25 25 MICRON NOM	M40 40 MICRON NOM	M60 60 MICRON NOM
PF31	1/4"	5	15	25	30
	3/8"	7	25	35	45
	1/2"	10	30	40	65
PF32	1/2"	15	35	55	80
	3/4"	20	40	70	115

\*\* Flow rates measured with oil with 30 cSt kinematic viscosity and 0.86 kg/dm<sup>3</sup>

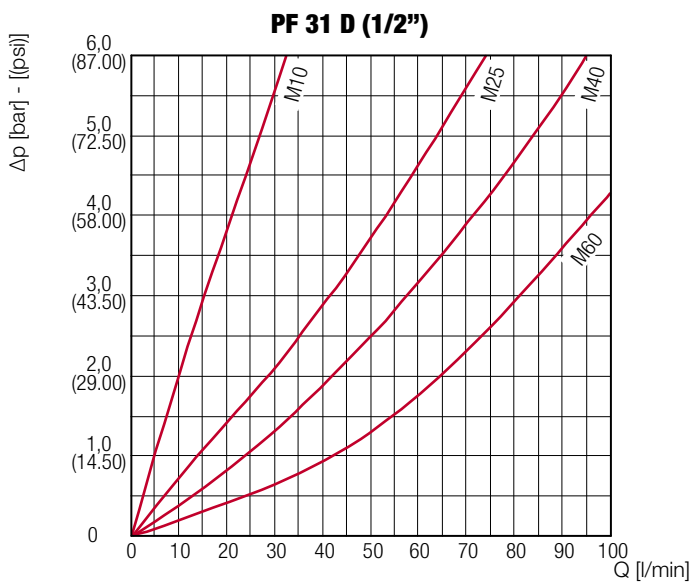
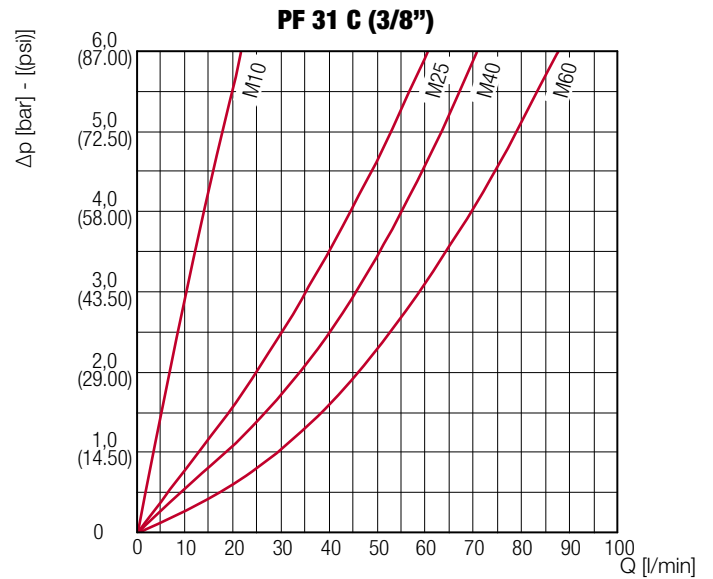
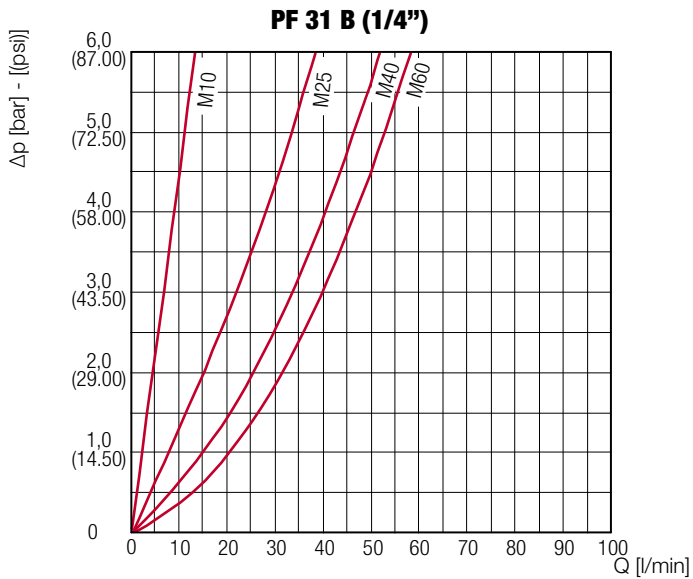
# PRESSURE DROP CURVES THROUGH THE HOUSING PF 31

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



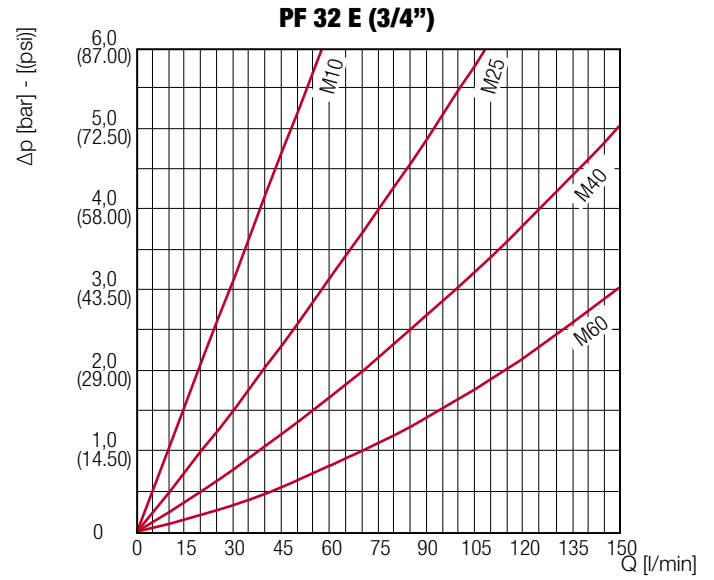
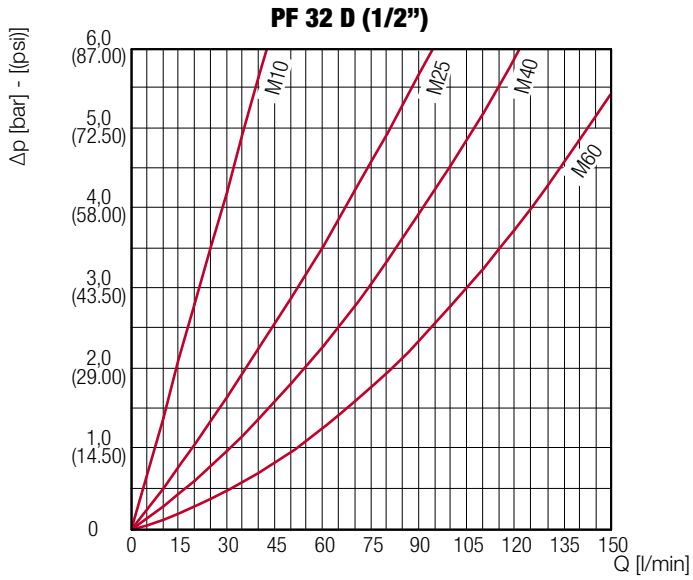
# PRESSURE DROP CURVES THROUGH THE HOUSING PF 32

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



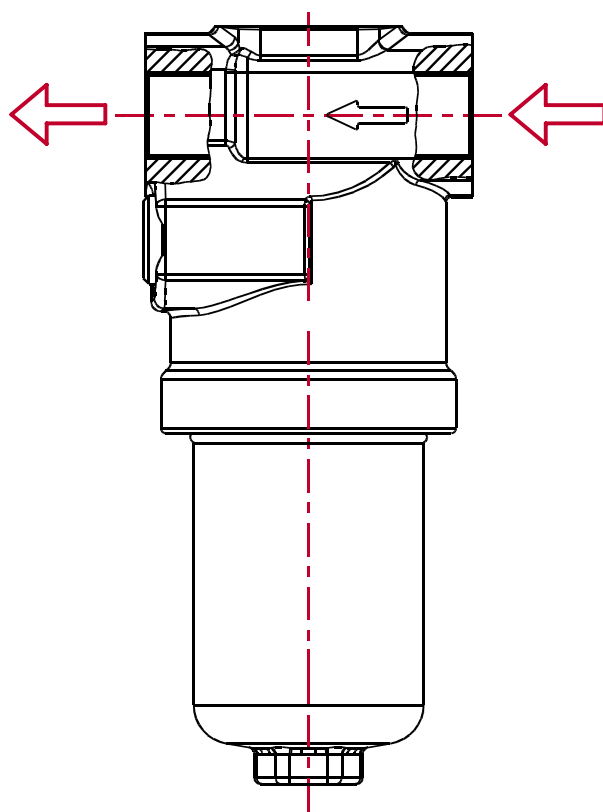
# PF4 SERIES

(max. 420 bar)

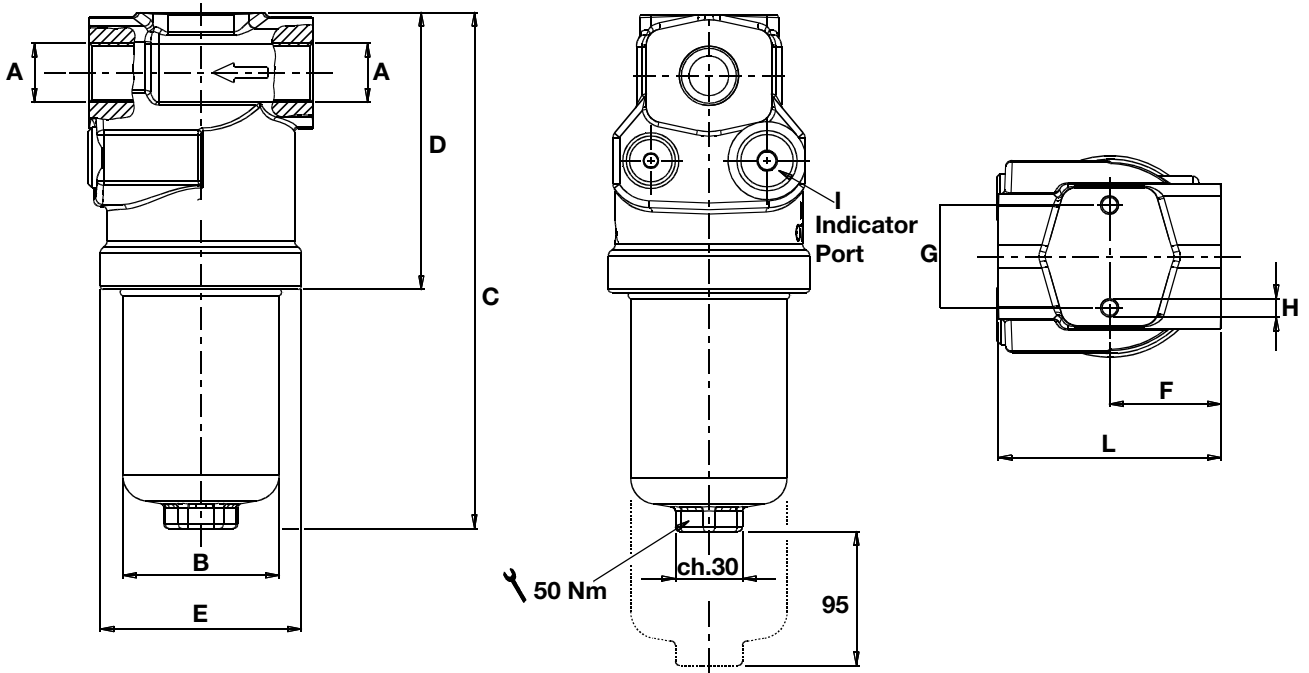
## High pressure in-line filters (max. 420 bar)

### TECHNICAL FEATURES:

- Head: s.g. cast iron. Filter body: forged steel.
- By-pass valve: Differential opening 6 bar.
- Standard available threads: 1/2"-3/4"-1"-1 1/4"-1 1/2" bspp. Other threads upon request.
- Standard available filter elements: 3-5-10-25 Micron abs. microfiber. Other filter elements upon request.
- Seals: Buna-N standard. Viton upon request.
- Operating temperature: -30°C a +90°C (+110°C Viton).
- Maximum flow rate: 450 l/min.
- Operating pressure: 420 bar. Burst pressure: 1260 bar.
- Element collapse pressure: 21 bar or 210 bar.
- Fatigue resistance: 1'000'000 cycles (0÷420 bar).
- Tested according standards: ISO 2941 / ISO 3724 / ISO 3968.



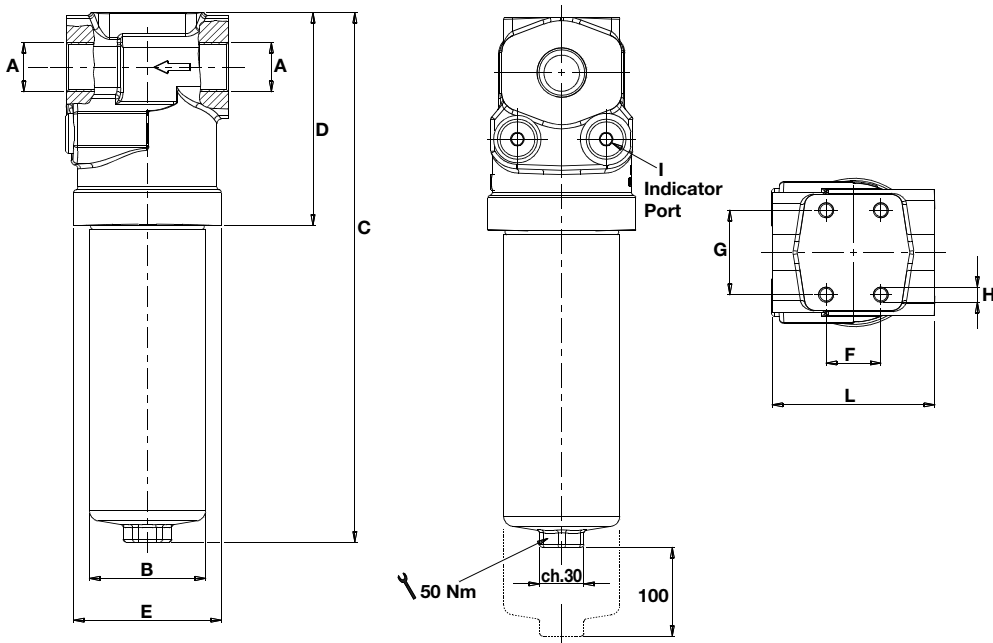
# PF41-42-43



## HIGH PRESSURE COMPLETE FILTER 420 bar

Mod.	DIMENSIONS mm										WEIGHT
	A	B	C	D	E	F	G	H	I	L	kg.
PF41	1/2" bspp 3/4" bspp	70	210	125	90	50	46	M8	1/2" bspp	100	5,3
PF42		70	235	125	90	50	46	M8	1/2" bspp	100	5,7
PF43		70	330	125	90	50	46	M8	1/2" bspp	100	7,2

# PF44-45

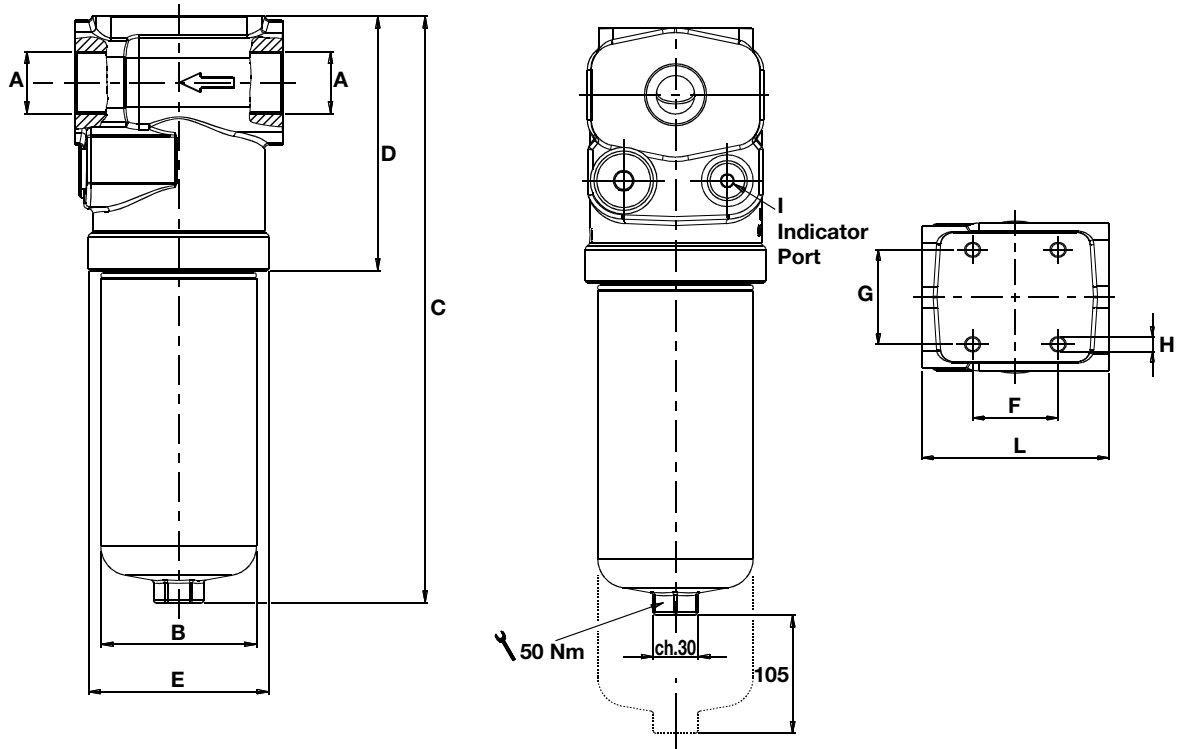


## HIGH PRESSURE COMPLETE FILTERS 420 bar

Mod.	DIMENSIONS mm										WEIGHT
	A	B	C	D	E	F	G	H	I	L	kg.
PF44	3/4" bspp	79	250	145	100	37	57	M10	1/2"bspp	110	8,2
PF45	1" bspp	79	360	145	100	37	57	M10	1/2"bspp	110	10,0



# PF46-47-48-49

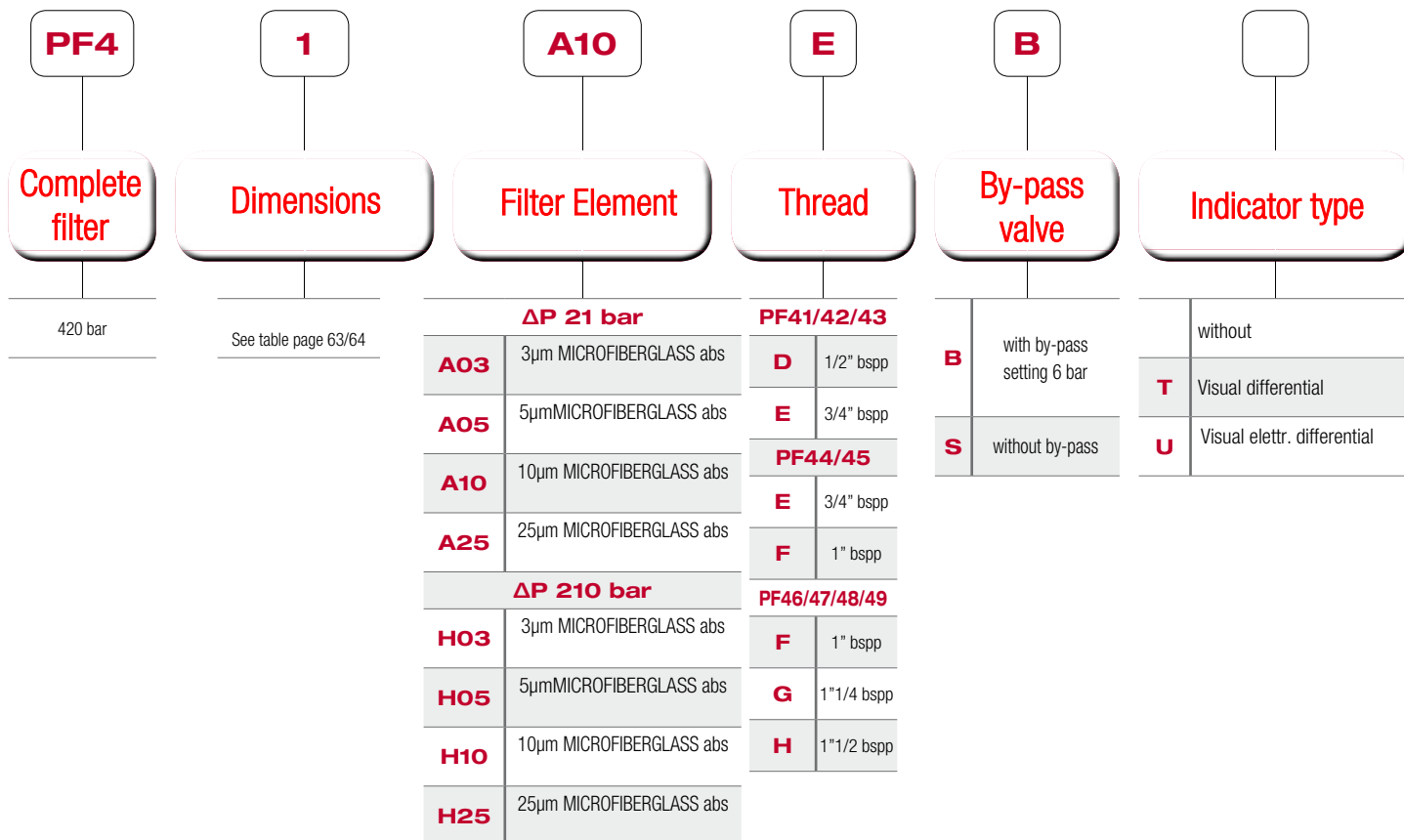


## HIGH PRESSURE COMPLETE FILTER 420 bar

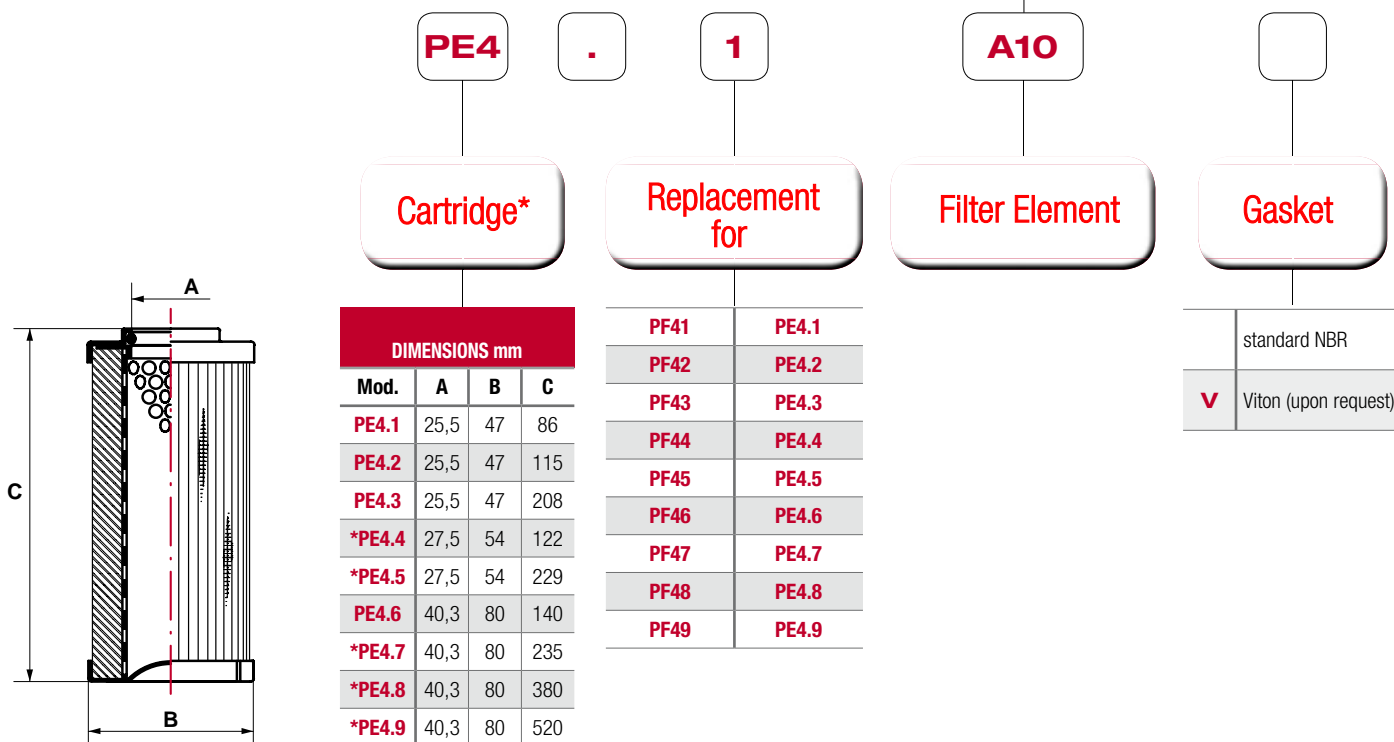
Mod.	DIMENSIONS mm										WEIGHT
	A	B	C	D	E	F	G	H	I	L	kg.
PF46		105	305	172	122	64	76	M12	1/2" bspp	140	15,2
PF47	1" bspp	105	400	172	122	64	76	M12	1/2" bspp	140	18,0
PF48	1"1/4 bspp	105	545	172	122	64	76	M12	1/2" bspp	140	22,0
PF49	1"1/2 bspp	105	690	172	122	64	76	M12	1/2" bspp	140	28,5

# COME ORDINARE UN FILTRO COMPLETO:

HOW TO ORDER A COMPLETE FILTER:



# HOW TO ORDER THE REPLACEMENT ELEMENT:



\*USA element type available upon request (see page 67)

**PF4 flow rates\*\***

Flow rate in l/min. measured with  
Dp=0,75 bar

FILTERING ELEMENT		FIBERGLASS			
Mod.	FILETTO - THREAD BSPB	A03 3 MICRON ABS	A05 5 MICRON ABS	A10 10 MICRON ABS	A25 25 MICRON ABS
PF41	1/2"	25	30	35	45
	3/4"	25	30	35	45
PF42	1/2"	35	40	50	60
	3/4"	35	40	50	60
PF43	1/2"	60	65	75	85
	3/4"	65	70	80	95
PF44	3/4"	60	65	80	100
	1"	60	70	85	105
PF45	3/4"	105	120	135	155
	1"	110	125	145	170
PF46	1"	140	160	185	215
	1"1/4	145	165	200	240
	1"1/2	150	170	205	245
PF47	1"	210	230	255	280
	1"1/4	235	255	290	330
	1"1/2	240	265	305	350
PF48	1"	270	280	295	310
	1"1/4	315	335	360	385
	1"1/2	330	355	385	420
PF49	1"	295	300	310	320
	1"1/4	360	375	390	410
	1"1/2	385	400	425	450

\*\* Flow rates measured with oil of 30 cSt kinematic viscosity and 0.86 kg/dm<sup>3</sup>

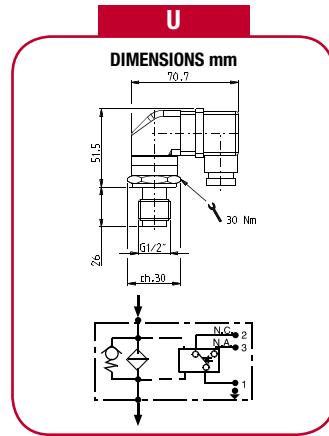
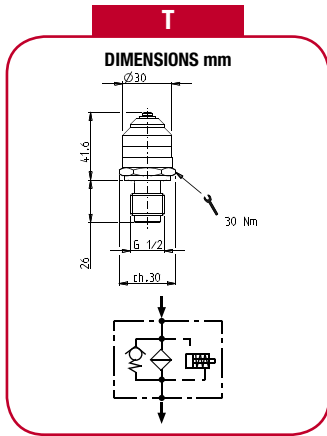
- Fluid compatibility: mineral oil (HH-HL-HM-HR-HV-HG) and synthetic fluids (HS-HFDR-HFDU-HFDS).

**PE4 element dirt  
holding capacity  
(ISO MTD)**

Δp=5 bar

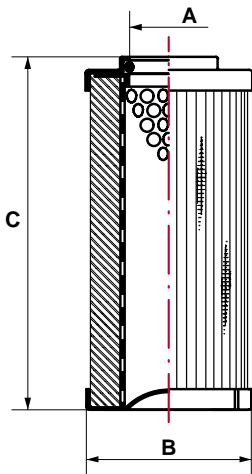
FILTERING ELEMENT			FIBERGLASS			
Mod.	C mm	FILTERING SURFACE cm <sup>2</sup>	A03 3 MICRON ABS gr	A05 5 MICRON ABS gr	A10 10 MICRON ABS gr	A25 25 MICRON ABS gr
PE4.1	86	380	2,10	2,70	3,00	4,40
PE4.2	115	500	3,00	3,90	4,40	6,40
PE4.3	208	950	5,30	6,70	7,50	11,00
PE4.4	122	900	5,10	6,50	7,30	10,50
PE4.5	229	1800	10,10	13,00	14,50	21,00
PE4.6	140	2000	11,00	14,50	16,00	23,00
PE4.7	235	3400	19,00	24,00	27,00	39,00
PE4.8	380	5500	30,00	34,00	43,00	63,00
PE4.9	520	7700	42,00	54,00	60,00	87,00

# CLOGGING INDICATORS



SERIES	SETTING	TYPE
<b>T</b>	8 bar (no by-pass) 5 bar (by-pass)	Visual differential
<b>U</b>	8 bar (no by-pass) 5 bar (by-pass)	Visual electrical differential IP65 - 250Vac

“USA ELEMENT TYPE” AVAILABLE UPON REQUEST:



DIMENSIONS mm			
Mod.	A	B	C
<b>PE4.4_U</b>	24,5	53	115
<b>PE4.5_U</b>	24,5	53	210
<b>PE4.7_U</b>	43,2	80	210
<b>PE4.8_U</b>	43,2	80	328
<b>PE4.9_U</b>	43,2	80	428

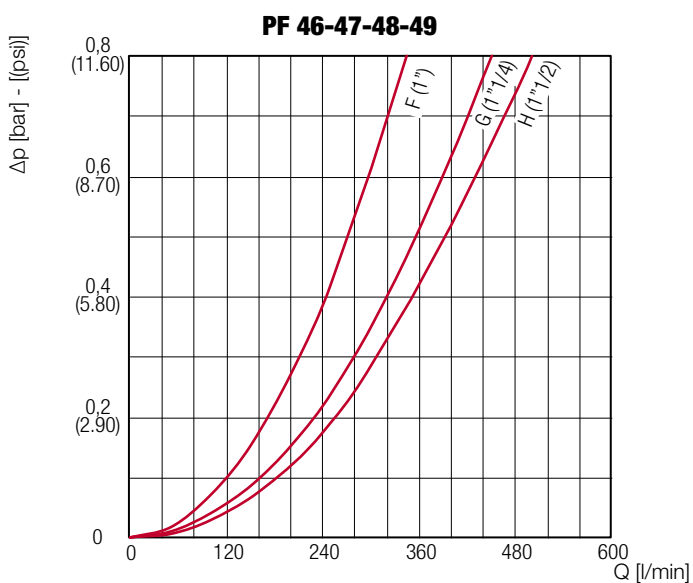
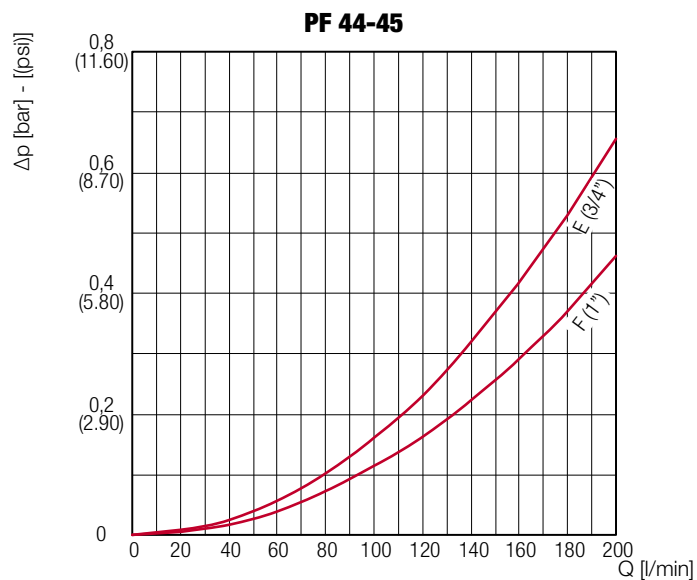
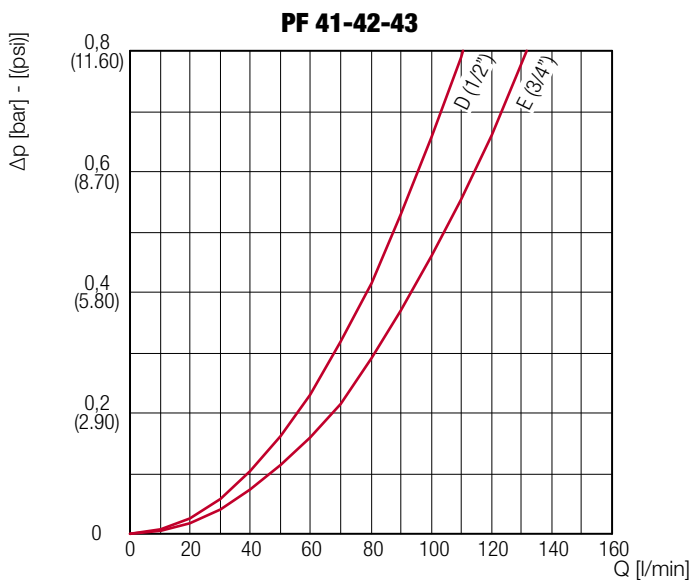
# PRESSURE DROP CURVES THROUGH THE HOUSING PF4

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



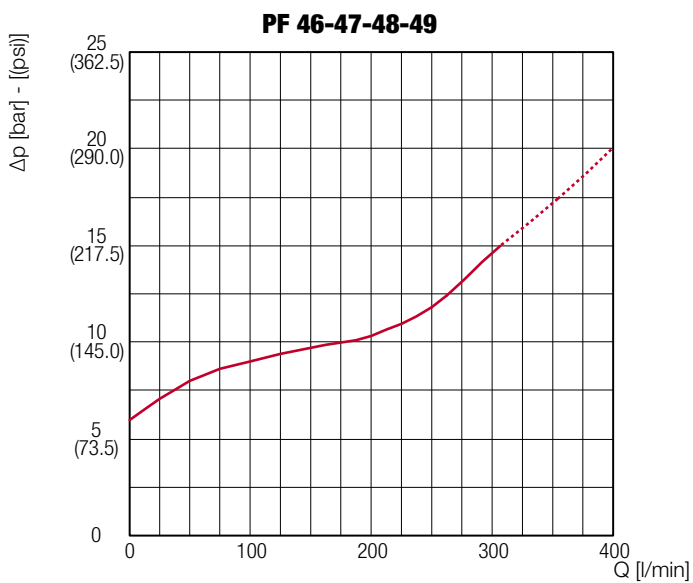
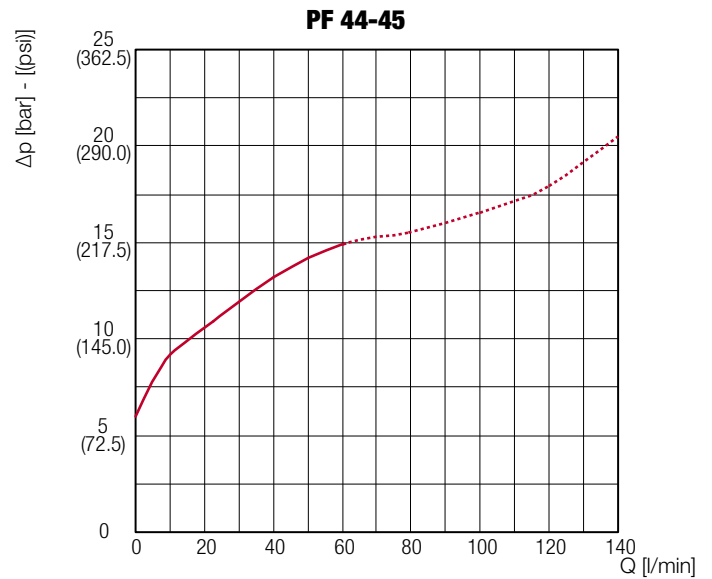
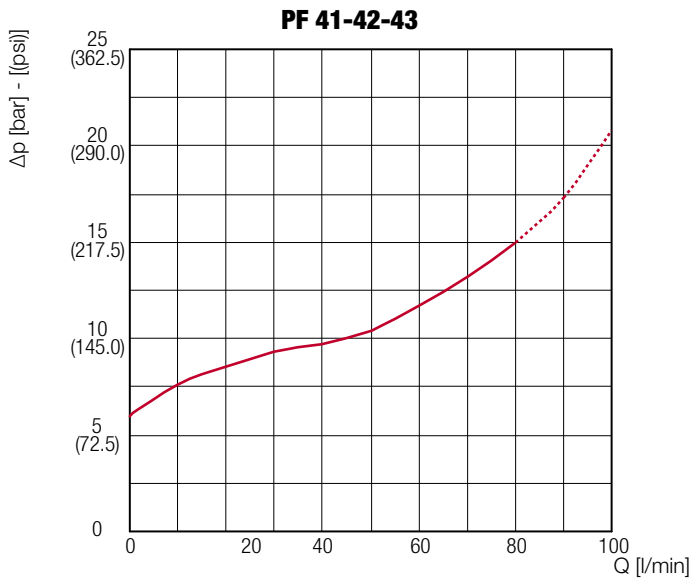
# PRESSURE DROP CURVES THROUGH THE BY-PASS VALVES PF4

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



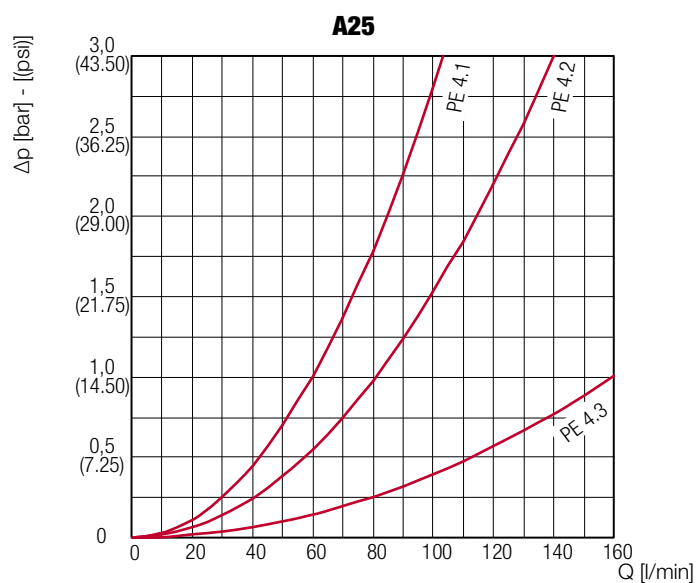
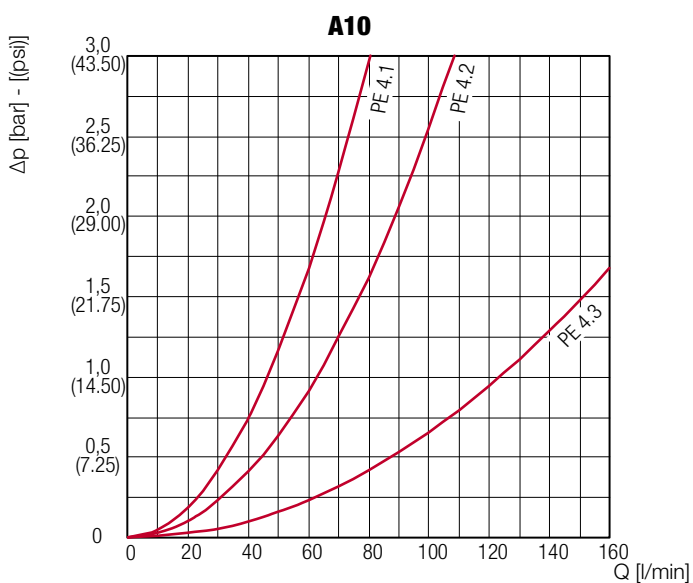
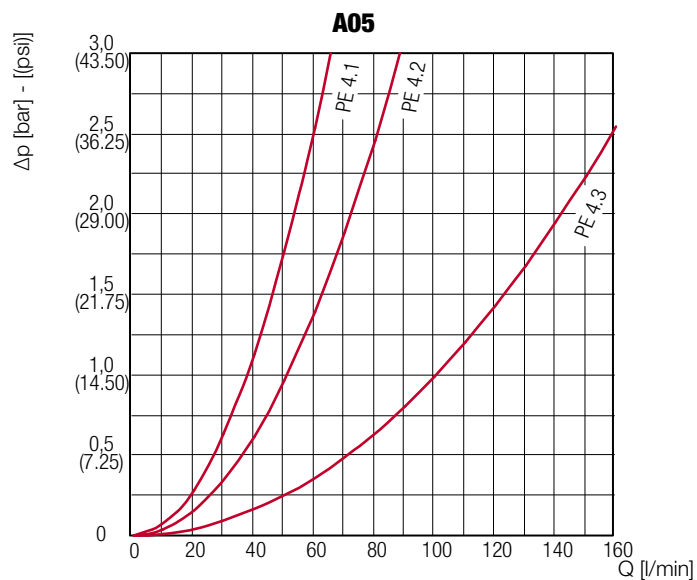
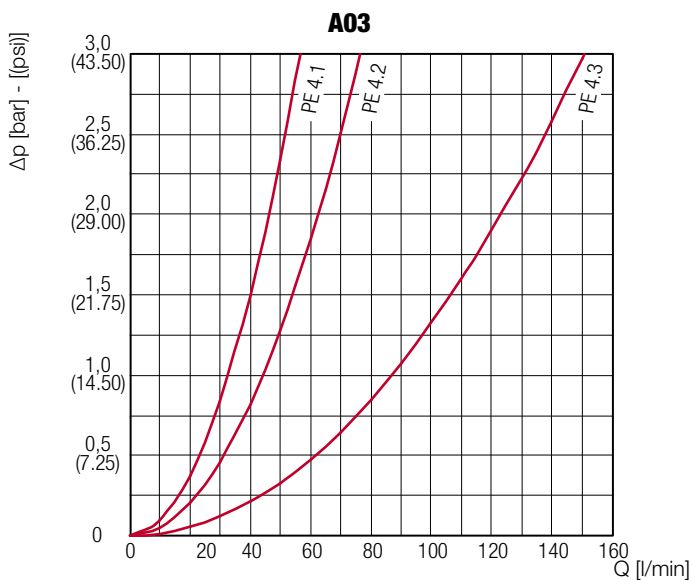
# PRESSURE DROP CURVES THROUGH THE ELEMENT PE 4.1-4.2-4.3

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



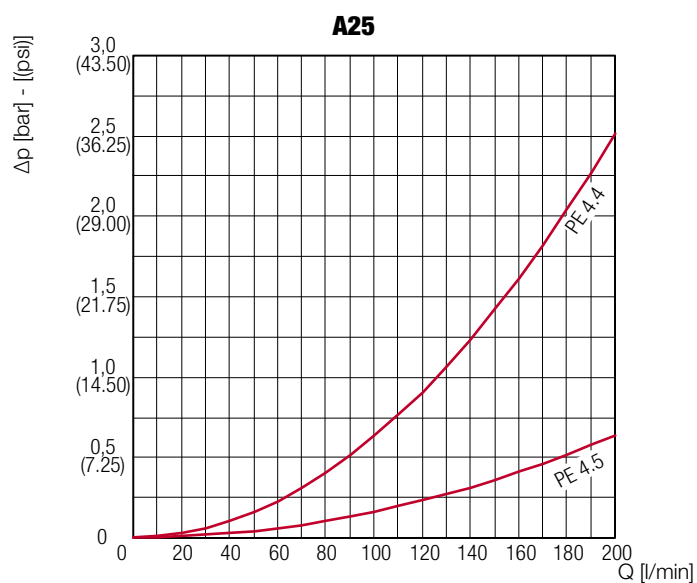
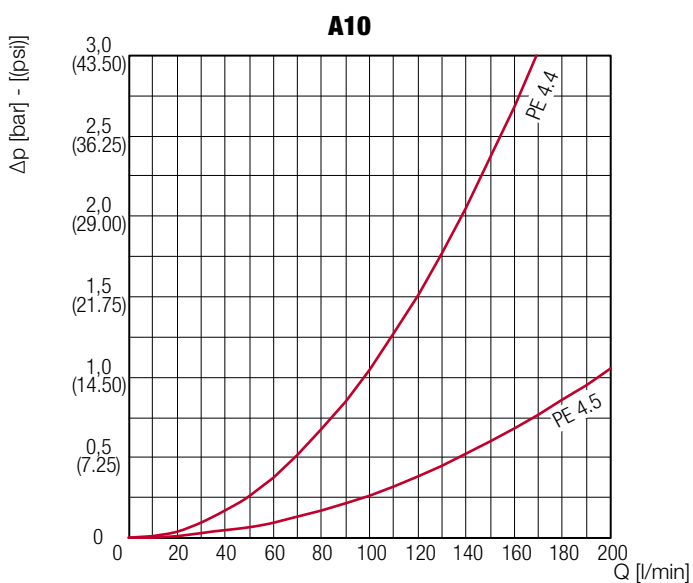
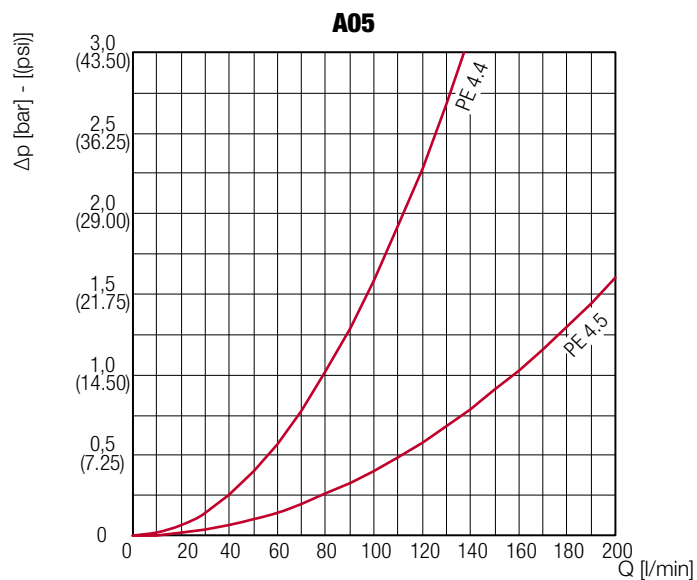
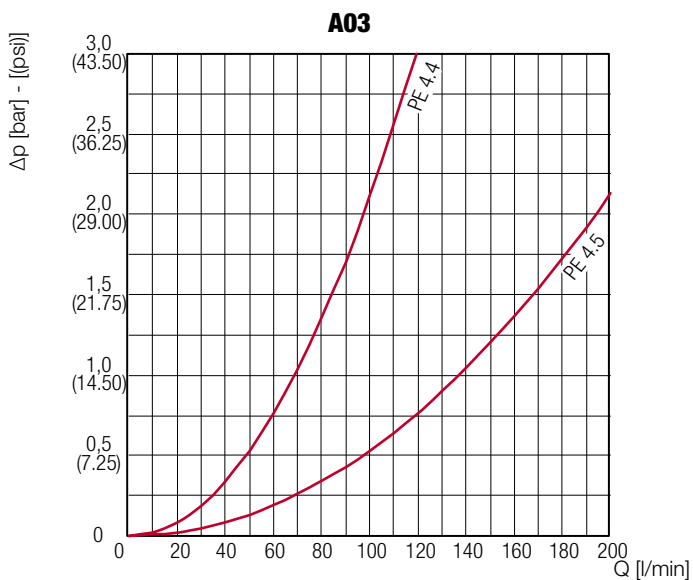
# PRESSURE DROP CURVES THROUGH THE ELEMENT PE 4.4-4.5

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).





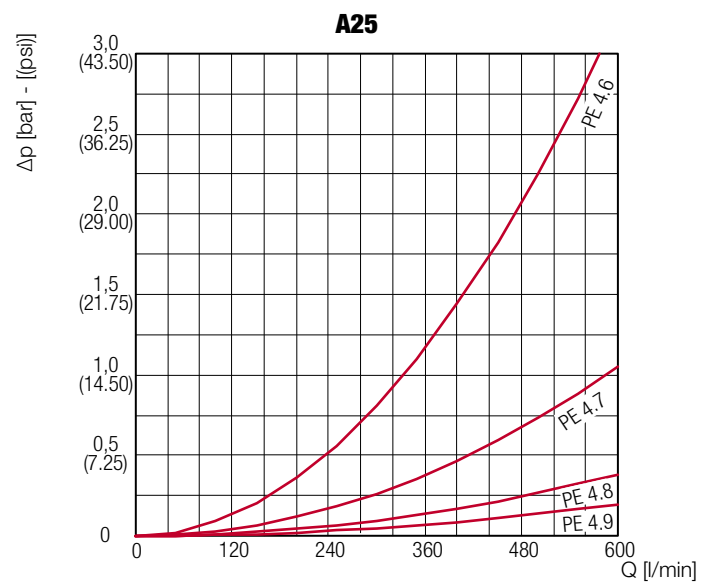
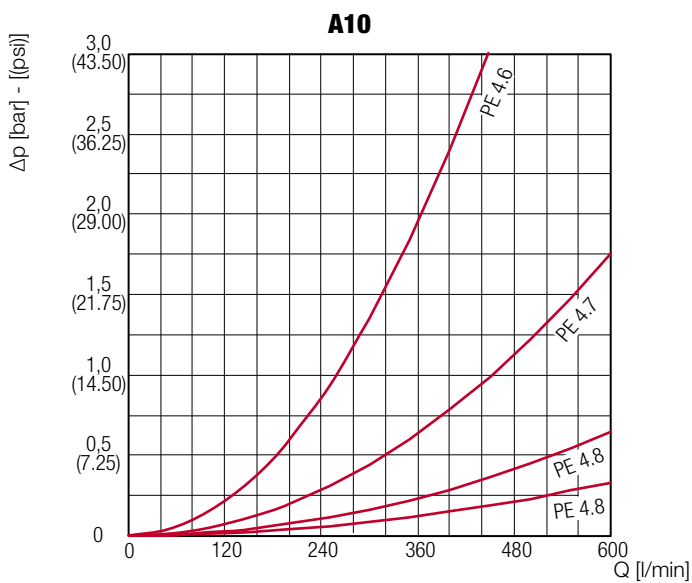
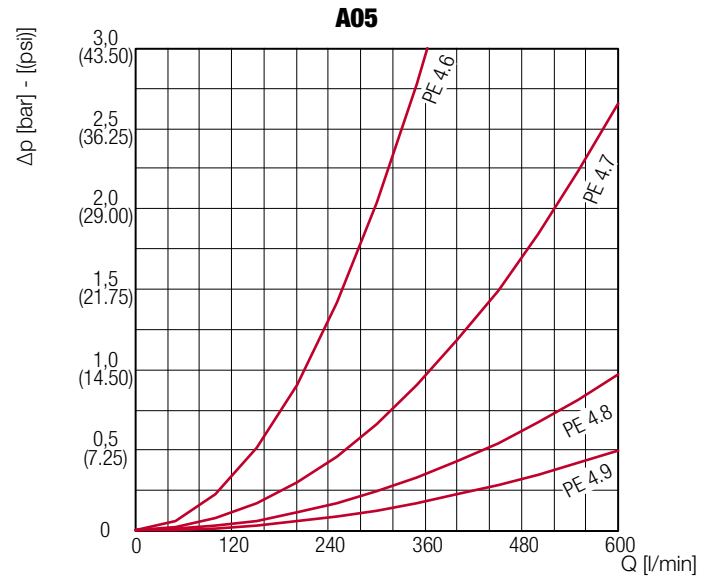
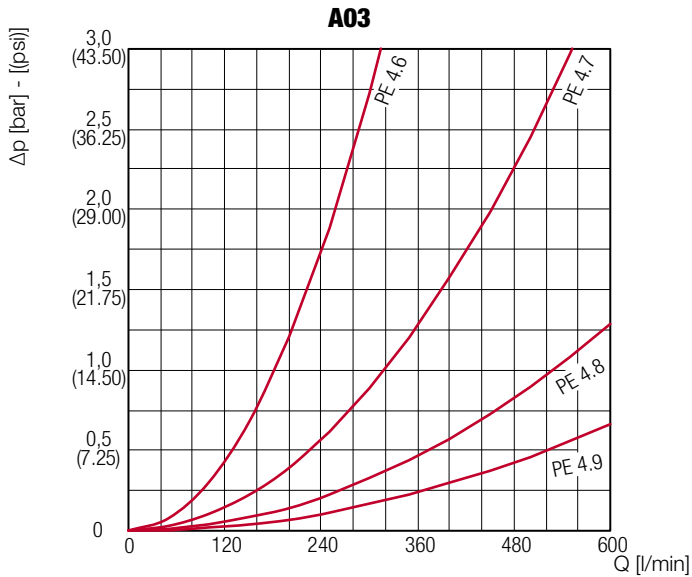
# PRESSURE DROP CURVES THROUGH THE ELEMENT PE 4.6-4.7-4.8-4.9

The curves are obtained in the following conditions:

Mineral oil type SAE 10

Kinematic viscosity 120 SSU (30 cSt)

Density 7.29 lb/gal (0,856 kg/dm<sup>3</sup>).



# Hydraulic tank accessories

**SERIE LO-SL-TP-FAS-PV**



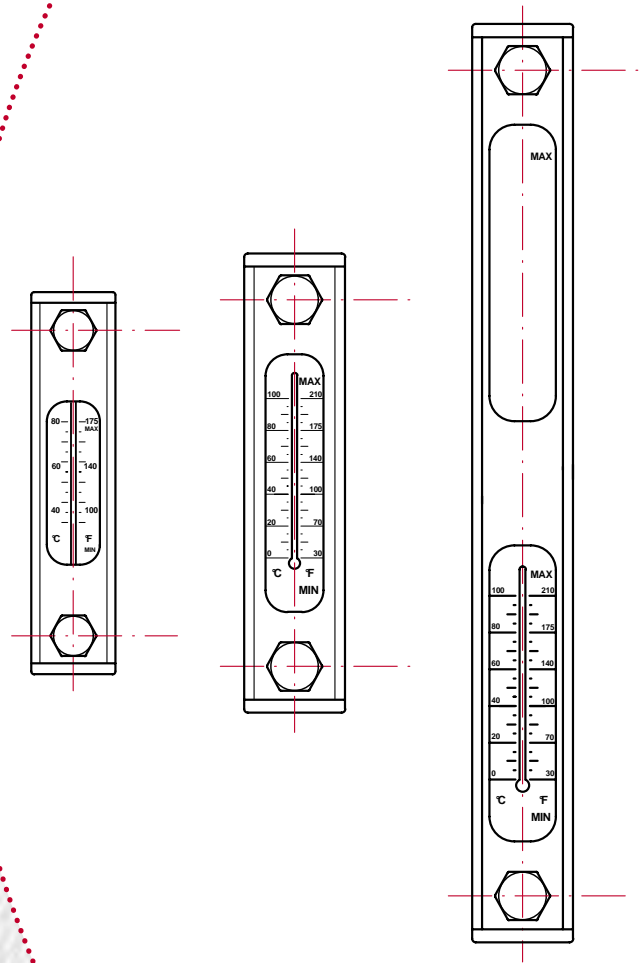


# LO SERIES

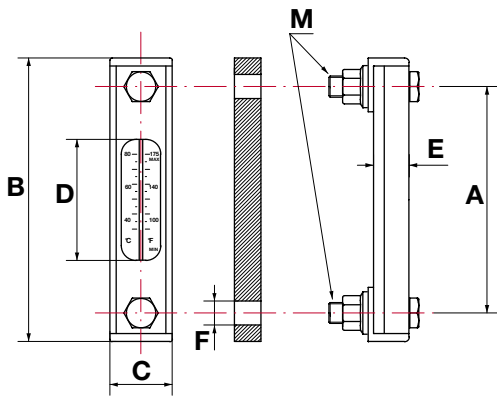
## EN Visual oil level indicators (with or without thermometer)

### TECHNICAL FEATURES:

- Body: "Trogamid" glass.
- Closing heads: nylon (plastic).
- External protection: extruded aluminium.
- Screws: galvanized steel.
- Seals: Buna-N standard. Viton upon request.
- Standard drilling distance: 76-127-254 mm. Other dimensions upon request.
- Thermometer (if required): bulb, incorporated into oil level with double scale °C (scale 0°C/+100°C) and °F (scale 30°F/210°F)
- Operating temperature: from -20°C to +80°C.
- Max. working pressure: 1 bar.
- Tightening Torque: 10 Nm.

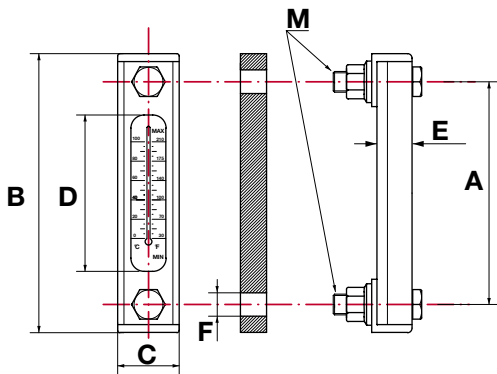


# LO5.076



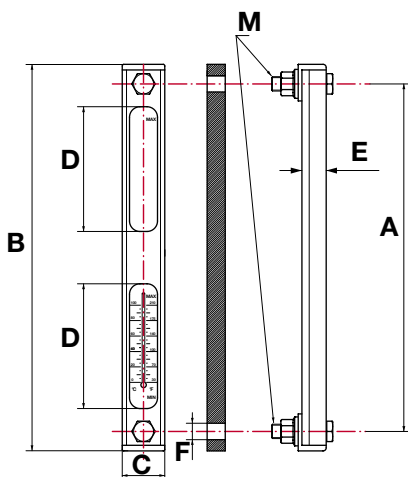
DRILLING DISTANCE 76 mm								
Mod.	DIMENSIONS mm							
	A	B	C	D	E	M	F Ø MIN.	F Ø MAX.
L05.076ST	76	106	36	41	21	Standard M10	10,5 - 11	
L05.076TE								
L05.076ST1						(1) M12	12,5 - 13	
L05.076TE1								

# LO5.127



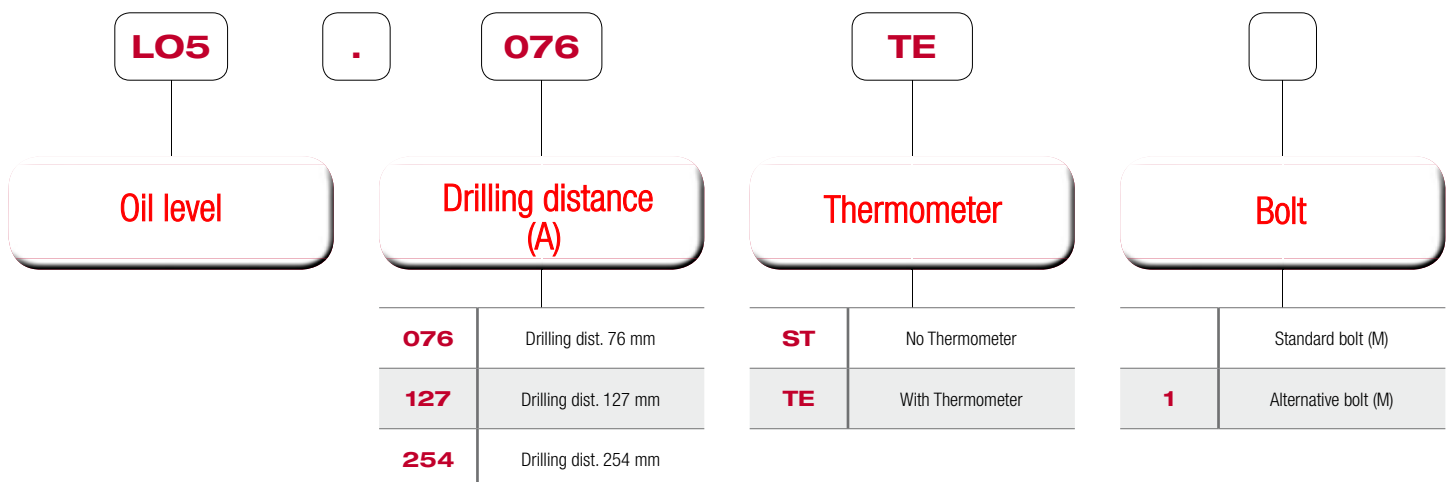
DRILLING DISTANCE 127 mm								
Mod.	DIMENSIONS mm							
	A	B	C	D	E	M	F Ø MIN.	F Ø MAX.
L05.127ST	127	159	36	86	21	Standard M12	12,5 - 13	
L05.127TE								
L05.127ST1						(1) M10	10,5 - 11	
L05.127TE1								

# LO5.254



DRILLING DISTANCE 254 mm								
Mod.	DIMENSIONS mm							
	A	B	C	D	E	M	F Ø MIN.	F Ø MAX.
L05.254ST	254	285	36	2x86	21	Standard M12	12,5 - 13	
L05.254TE								
L05.254ST1						(1) M10	10,5 - 11	
L05.254TE1								

## HOW TO ORDER AN OIL LEVEL INDICATOR:

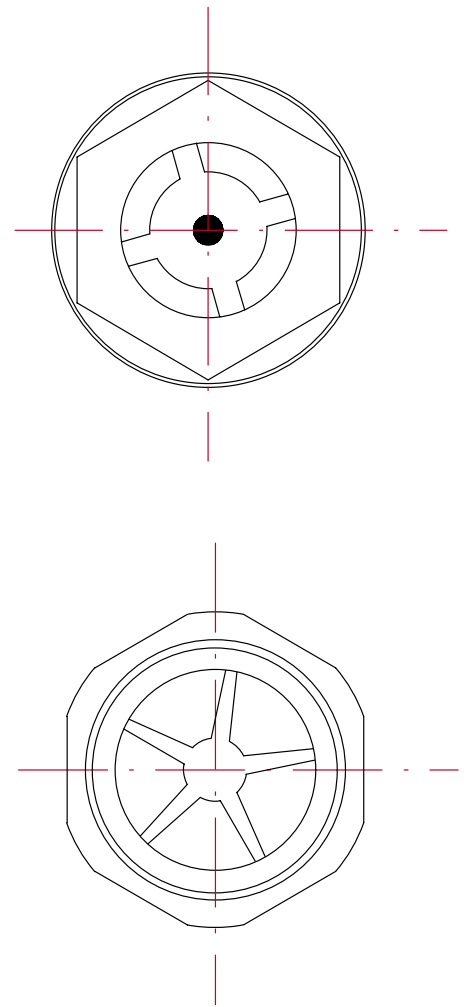


# SL SERIES

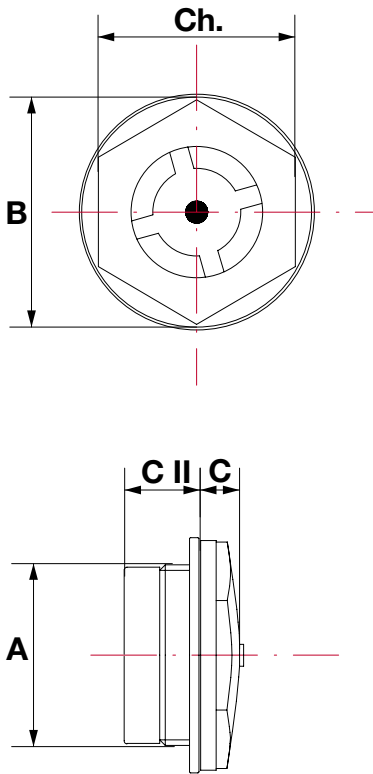
## **EN** Visual oil level windows in plastic or metal

### **TECHNICAL FEATURES:**

- Body: plastic version in polyamide resin. Metal version in aluminium alloy.
- Viewer (metal version): polyamide resin "Trogamid". HP version in natural glass.
- Gaskets: standard in fiber. HP version in viton.
- Max. Working pressure (metal version): 5 bar. HP version 20 bar.
- Working temperature: from -30°C to + 90°C. HP version +130°C .
- Avoid contact with alcohol, liquids containing alcohol, water over 80°C and coolant at high temperatures ("Trogamid" resin version).
- Metal version for high temperatures and pressure up to 20 bar is available (SLM. HP).

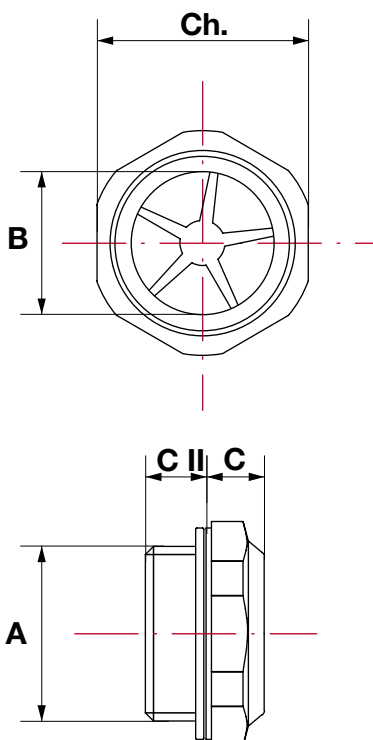


# SL



PLASTIC VERSION						
Mod.	DIMENSIONS mm					SERRAGGIO Nm TIGHTENING Nm
	A	B	C	C II	Ch	
SL.14	1/4" bspp	20,5	8	8,50	17	8
SL.38	3/8" bspp	22	6,5	12	18	12
SL.12	1/2" bspp	28	8	12	24	16
SL.34	3/4" bspp	36	8,5	13,5	30	21
SL.1	1" bspp	42	9	14	36	24
SL.114	1" 1/4 bspp	51	10	17	42	
SL.112	1" 1/2 bspp	58	10	21	50	
SL.2	2" bspp	74	12	20	64	
SL.1415	M14x1,5	20	7,5	8	17	8
SL.1615	M16x1,5	22	6,5	12,5	18	12
SL.1815	M18x1,5	25,5	6	12,5	21	12
SL.2015	M20x1,5	28	7,5	12	24	16
SL.2215	M22x1,5	28	7,5	12,5	24	16
SL.4015	M40x1,5	51	10	17	42	

# SLM



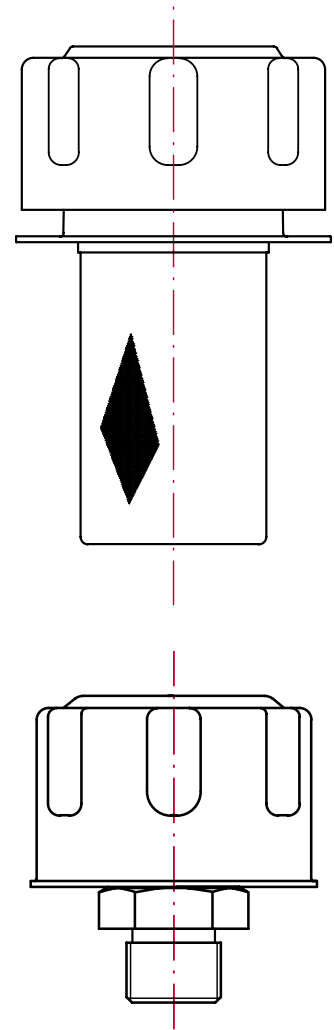
METAL VERSION						
Mod.	DIMENSIONS mm					SERRAGGIO Nm TIGHTENING Nm
	A	B	C	C II	Ch	
SLM.14	1/4" bspp	11	9,50	7,50	18	
SLM.38	3/8" bspp	13	9	9	22	
SLM.12	1/2" bspp	16	10	9	27	
SLM.34	3/4" bspp	20	11	11	32	
SLM.1	1" bspp	26	12	10	40	
SLM.114	1" 1/4 bspp	34	14	12	50	
SLM.1815	M18x1,5	13	10	9	22	
SLM.2215	M22x1,5	16	10	9	27	
SLM.12HP	1/2" bspp	12	10	9	27	
SLM.34HP	3/4" bspp	16	11	11	32	
SLM.1HP	1" bspp	23	12	12	40	

# TP SERIES

## EN Filler caps with inner air breather and filter.

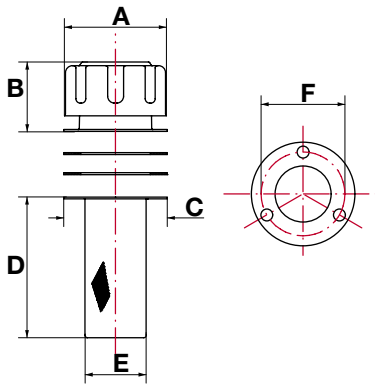
### TECHNICAL FEATURES:

- Cover: chrome plated steel.
- Flange (when provided): galvanized steel.
- Pre-filtering oil basket (when provided): galvanized microexpanded mesh.
- Inner air filter: 40 micron nom. foam or 10 micron nom. paper. Other filter elements available upon request.
- Pressurization valve (when provided): in plastic, inside the cover.
- Additional screws (when provided): TC M005x012 UNI6107 in galvanized steel.
- Seals (when provided): paper / cork for basket version. Buna-N for pressurized version.

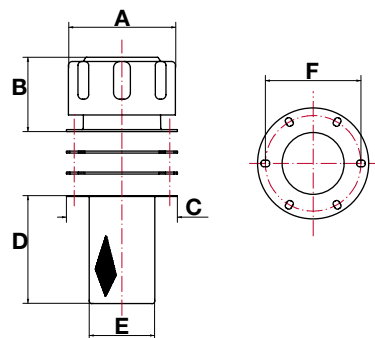




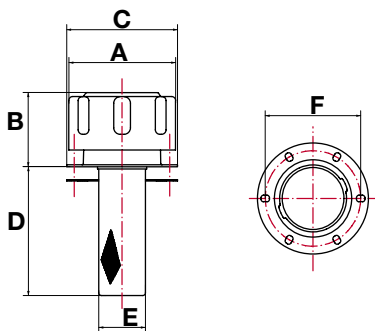
# SCREW FIXING



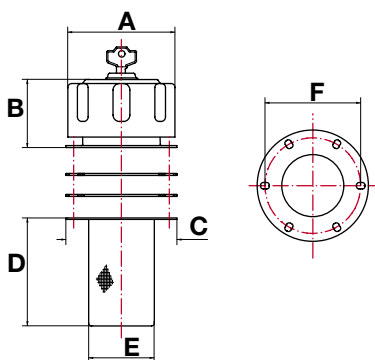
SCREW FIXING FLANGE (NR.3)									
Mod.	AIR FILTER		DIMENSIONS mm						MOUNTING HOLES
	Micron nom.	Air Flow m <sup>3</sup> /h	A	B	C	D	E	F	
TP1.02600	40 (foam)	15	48	37	52	65	28	41	3
TP1.03869	10 (paper)	15	48	37	52	65	28	41	3



SCREW FIXING FLANGE (NR.6)									
Mod.	AIR FILTER		DIMENSIONS mm						MOUNTING HOLES
	Micron nom.	Air Flow m <sup>3</sup> /h	A	B	C	D	E	F	
TP1.02601	40 (foam)	42	75	48	83	82	50	73	6
TP1.03870	10 (paper)	42	75	48	83	82	50	73	6
TP1.02602	40 (foam)	42	75	48	83	150	50	73	6
TP1.02603	40 (foam)	42	75	48	83	201	50	73	6

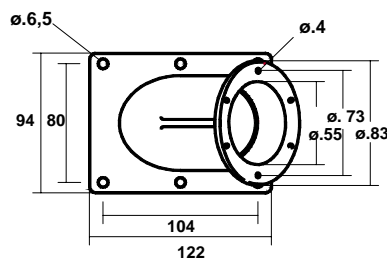
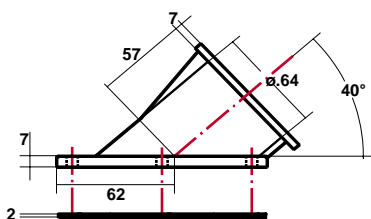


SCREW FIXING FLANGE (NR.6) + PRESSURISATION VALVE 0,35 bar									
Mod.	AIR FILTER		DIMENSIONS mm						MOUNTING HOLES
	Micron nom.	Air Flow m <sup>3</sup> /h	A	B	C	D	E	F	
TP3.02606	40 (foam)	42	70	50	83	100	36	73	6
TP3.02607	40 (foam)	42	75	48	83	150	48	73	6



KEY LOCKING AND SCREW FIXING FLANGE									
Mod.	AIR FILTER		DIMENSIONS mm						MOUNTING HOLES
	Micron nom.	Air Flow m <sup>3</sup> /h	A	B	C	D	E	F	
TP2.02604	40 (foam)	42	75	46	83	93	50	73	6
TP2.02605	40 (foam)	42	75	46	83	150	50	73	6

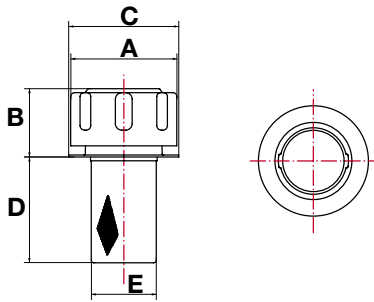
## PV9.01746



### ANGLED ADAPTOR FOR FILTER CAPS

- Suitable for all 6 holes fixing models.
- Supplied with fixing screws and gasket.

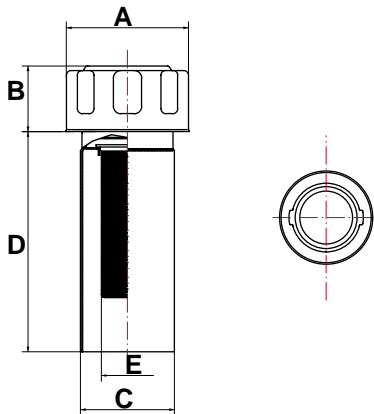
# WELDING FIXING



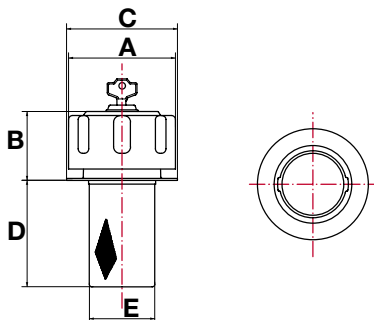
WELDING FIXING FLANGE							
Mod.	AIR FILTER		DIMENSIONS mm				
	Micron nom.	Air Flow m <sup>3</sup> /h	A	B	C	D	E
TP5.02610	40 (foam)	42	75	48	84	105	38
TP7.02612*	40 (foam)	42	70	50	84	100	36

\* Versione TP7 con valvola di pressurizzazione apertura 0,35 bar.

\* TP7 version with pressurized valve opening 0,35 bar.

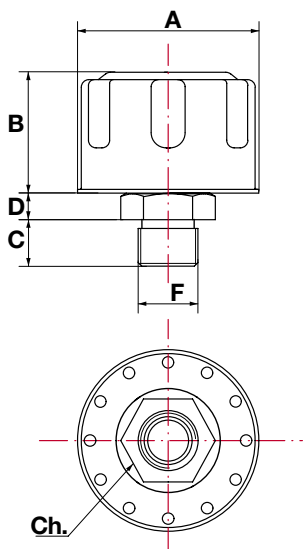


WELDING FIXING FLANGE WITH PIPE							
Mod.	AIR FILTER		DIMENSIONS mm				
	Micron nom.	Air Flow m <sup>3</sup> /h	A	B	C	D	E
TP5.05502	40 (foam)	42	70	35	64	149	36



KEY LOCKING AND WELDING FIXING FLANGE							
Mod.	AIR FILTER		DIMENSIONS mm				
	Micron nom.	Portata aria m <sup>3</sup> /h Air Flow m <sup>3</sup> /h	A	B	C	D	E
TP6.02611	40 (foam)	42	75	48	84	105	38

# THREAD CONNECTION



SCREWING CAP								
Mod.	AIR FILTER		DIMENSIONS mm					
	Micron nom.	Air Flow m <sup>3</sup> /h	BSPP	A	B	C	D	CH
TP8.02613	40 (foam)	15	1/4"	48	30	13	9	22
TP8.05506	40 (foam)	15	1/2"	48	30	13	9	22
TP8.02614	40 (foam)	42	3/4"	76	40	20	8	32
TP8.03842	10 (paper)	42	3/4"	76	40	20	8	32
TP9.02615*	40 (foam)	42	3/4"	70	35	18	15	30
TP9.06736*	10 (paper)	42	3/4"	76	40	20	8	32

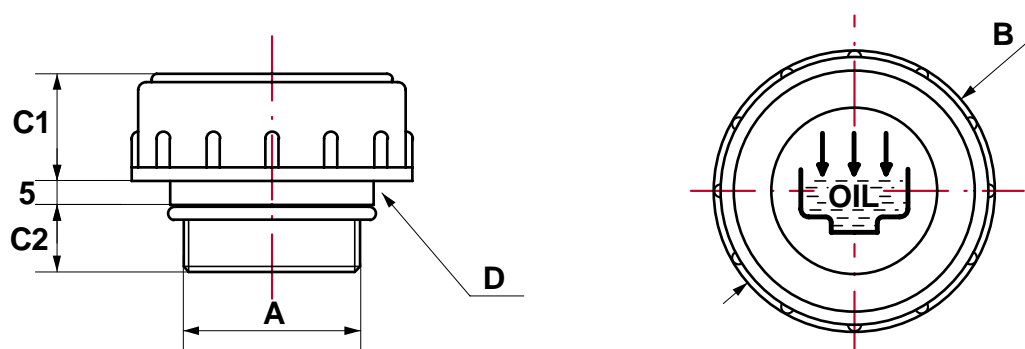
\* TP9 version with pressurized valve opening 0,35 bar.

# TPL SERIES

**Plastic filler caps with inner air breather and filter (replaceable).**

**TECHNICAL FEATURES:**

- Cover and body: in plastic (polyamide 66) / body black color – cover red color .
- Inner air filter: 40 micron nom. sponge (replaceable). Other filter elements available upon request.
- For applications subject to strong oil spray, we recommend to use a sintered bronze air filter element 30 micron nom. (add "B" to code's end).
- Seal: NBR.
- Working temperature: from -30°C / to + 100°C.



## PLASTIC SCREWING CAP

Mod.*	AIR FILTER		DIMENSIONS mm				
	Micron nom.	Air Flow m <sup>3</sup> /h**	A	B	C1	C2	D
<b>TPL.38</b>	40 (foam replac.)	12	3/8" bspp	36	17	11	23
<b>TPL.12</b>	40 (foam replac.)	13,8	1/2" bspp	41	18	12	28
<b>TPL.34</b>	40 (foam replac.)	21	3/4" bspp	47	17	12	33
<b>TPL.1</b>	40 (foam replac.)	24	1" bspp	52	20	12	38
<b>TPL.114</b>	40 (foam replac.)	36	1"1/4 bspp	63	23	13	49
<b>TPL.112</b>	40 (foam replac.)	36	1"1/2 bspp	63	23	13,5	55
<b>TPL.1615</b>	40 (foam replac.)	13,8	M 16x1,5	36	17	11	23
<b>TPL.1815</b>	40 (foam replac.)	13,8	M 18x1,5	41	17,5	12	28
<b>TPL.2015</b>	40 (foam replac.)	13,8	M 20x1,5	41	17,5	12	28
<b>TPL.2215</b>	40 (foam replac.)	13,8	M 22x1,5	41	17,5	12	28
<b>TPL.70/114</b>	40 (foam replac.)	36	1"1/4 bspp	70	36	14,5	53
<b>TPL.70/112</b>	40 (foam replac.)	36	1"1/2 bspp	70	36	14,5	43

\* Add "B" to code's end for air filter in sintered bronze.

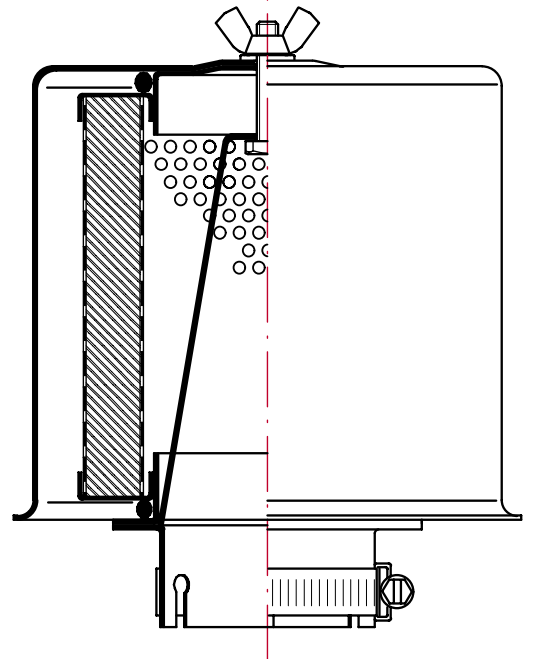
\*\* Flow rates measured with intake pressure 50 mbar

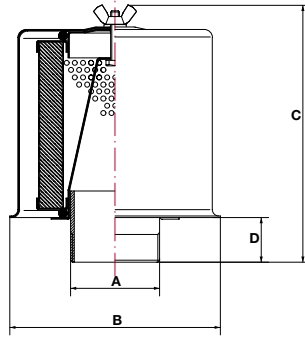
# FAS SERIES

**EN Suction dry air filters and tank breathers.**

**TECHNICAL FEATURES:**

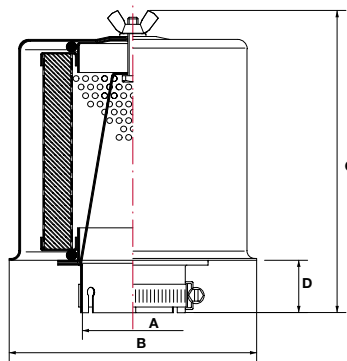
- Filter cover: black painted steel.
- Inner filter structure: black painted steel.
- Sealing cartridge gaskets: NBR.
- Closing screws and clamp (type 2): galvanized steel.
- Inner air cartridge: standard paper 5/7 micron nom. / "X" velvet mesh 40 micron nom. / "P" polyester 20 micron nom. / "I" stainless steel 60 micron nom. Other filter element upon request.





### TYPE 1: THREADED CONNECTION

Model* with paper cartridge	Cap. m <sup>3</sup> /h**		Dimensions mm				Spare cartridge			
	Paper	Vel. mesh	A	B	C	D	Paper	Velvet mesh	Polyester	Steel
FAS.04499	10	18	1/4" BSPP	53	42	18	MF9.04701	AS2.03666	MF9.04701P	AS3.05370
FAS.04500	10	18	M12X1.5	53	42	18	MF9.04701	AS2.03666	MF9.04701P	AS3.05370
FAS.04501	10	18	3/8" BSPP	53	42	30	MF9.04701	AS2.03666	MF9.04701P	AS3.05370
FAS.04502	25	40	1/2" BSPP	79	60	30	MF9.04702	AS2.03662	MF9.04702P	AS3.05371
FAS.04503	45	68	3/4" BSPP	104	90	30	MF9.04703	AS2.03681	MF9.04703P	AS3.03644
FAS.04520	45	68	M26X1.5	104	90	30	MF9.04703	AS2.03681	MF9.04703P	AS3.03644
FAS.04504	80	140	1" BSPP	130	100	40	MF9.02658	AS2.03682	MF9.02658P	AS3.03645
FAS.04519	125	170	1 1/4" BSPP	130	100	40	MF9.02658	AS2.03682	MF9.02658P	AS3.03645
FAS.04505	150	200	1 1/2" BSPP	130	130	45	MF9.04705	AS2.03683	MF9.04705P	AS3.03712
FAS.04506	200	320	2" BSPP	130	130	60	MF9.04705	AS2.03683	MF9.04705P	AS3.03712
FAS.04507	300	420	2" BSPP	172	160	50	MF9.02657	AS2.03685	MF9.02657P	AS3.03689
FAS.04508	500	650	2 1/2" BSPP	204	160	60	MF9.04706	AS2.03686	MF9.04706P	AS3.05372
FAS.04509	900	1.200	3" BSPP	290	190	60	MF9.04707	AS2.03687	MF9.04707P	MF9.04707I
FAS.04510	1.500	2.300	4" BSPP	336	240	60	MF9.04708	AS2.03688	MF9.04708P	AS3.05373



### TYPE 2: CLAMP CONNECTION

Model* with paper cartridge	Cap. m <sup>3</sup> /h**		Dimensions mm				Spare cartridge			
	Paper	Vel. mesh	A	B	C	D	Paper	Velvet mesh	Polyester	Steel
FAS.04511	45	68	20	104	90	20	MF9.04703	AS2.03681	MF9.04703P	AS3.03644
FAS.04512	120	140	40	130	100	20	MF9.02658	AS2.03682	MF9.02658P	AS3.03645
FAS.04513	200	200	52	130	134	23	MF9.04705	AS2.03683	MF9.04705P	AS3.03712
FAS.04514	280	420	60	176	150	20	MF9.02657	AS2.03685	MF9.02657P	AS3.03689
FAS.04515	500	420	80	204	155	25	MF9.04706	AS2.03686	MF9.04706P	AS3.05372
FAS.04516	520	650	90	204	155	25	MF9.04706	AS2.03686	MF9.04706P	AS3.05372
FAS.04517	900	1.200	100	290	185	25	MF9.04707	AS2.03687	MF9.04707P	MF9.04707I
FAS.04518	1.500	2.300	140	336	240	25	MF9.04708	AS2.03688	MF9.04708P	AS3.05373

\* VELVET MESH CARTRIDGE: ADD "X" TO CODE'S END - POLYESTER CARTRIDGE: ADD "P" TO CODE'S END - ST. STEEL CARTRIDGE: ADD "I" TO CODE'S END

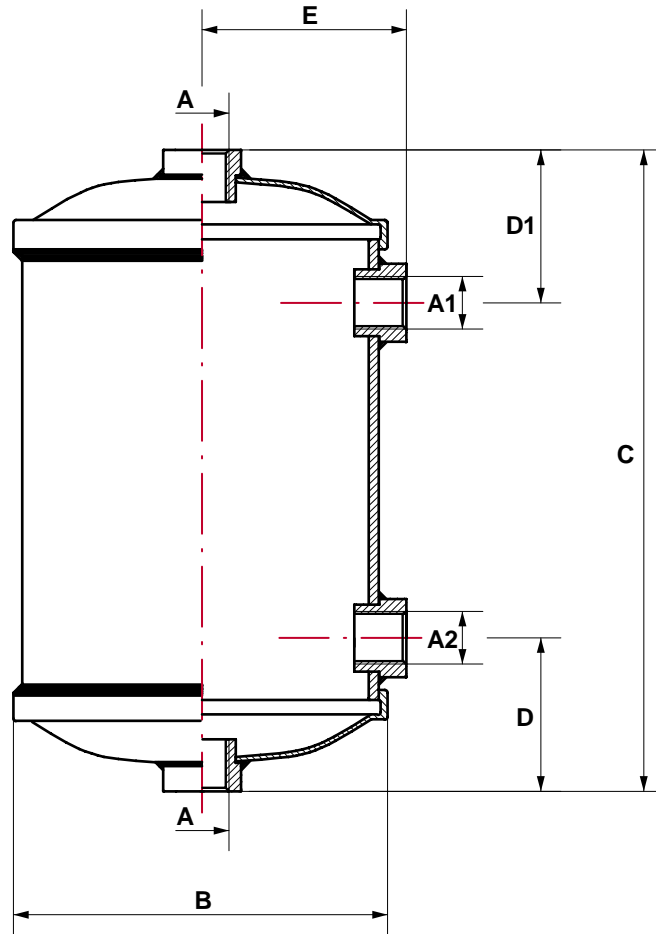
\*\* CAPACITY MEASURED WITH 200 mm H<sub>2</sub>O PRESSURE LOSS

# PV SERIES

## Compensation tanks and barrels

### TECHNICAL FEATURES:

- Construction material: black dust painted steel.
- Leakage control test: 100% on all production.
- Special productions made by drawing or customer technical specifications are available upon request.



DIMENSIONS mm									
Mod.	A	A1	A2	B	C	D	D1	E	LITERS
PV9.05511	3/8" bspp	-	-	Ø 62	90	-	-	-	0,15
PV9.03894	3/8" bspp	1/4" bspp	-	Ø 79	118	-	40	48	0,3
PV9.03887	3/8" bspp	-	-	Ø 79	118	-	-	-	0,3
PV9.03888*	1/2" bspp	-	-	Ø 105	150	-	-	-	0,9
PV9.03885	3/8" bspp	3/8" bspp	3/8" bspp	Ø 105	206	53	53	60	1,2
PV9.01731M	3/8" bspp	3/8" bspp	3/8" bspp	Ø 105	243	66	66	60	1,5
PV9.05509**	3/4" bspp	3/8" bspp	1"1/4 bspp	Ø 105	243	66	153	60	1,5
PV9.05569	3/8" bspp	3/8" bspp	3/8" bspp	Ø 105	380	55	55	60	2

\* with fixing bracket

\*\* Lateral ring nuts not on same axis



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