



FPE

PRESSURE FILTERS



DESCRIPTION

Inline spin-on filter

MATERIALS

Head: Aluminum alloy
Spin-on cartridge: Steel
Bypass valve: Polyamide
Seals: NBR Nitrile (FKM Fluoroelastomer on request)
Indicator housing: Brass

PRESSURE

Max working: 1,2 MPa (12 bar)
Collapse, differential for the filter element:
400 kPa (4 bar)

BYPASS VALVE

Setting: 170 kPa (1,7 bar) \pm 10%

FLOW RATE

Qmax 300 l/min

WORKING TEMPERATURE

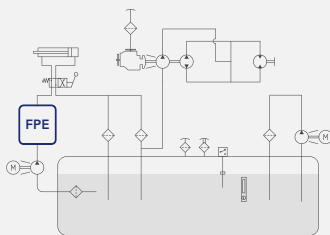
From -25° to +110° C

COMPATIBILITY (ISO 2943)

Full with fluids: HH-HL-HM-HR-HV-HTG
(according to ISO 6743/4)
For fluids different than the above mentioned,
please contact our Customer Service



HYDRAULIC DIAGRAM



Is this datasheet the latest release? Please check on our website

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ORDERING AND OPTION CHART

F	P	E	COMPLETE FILTER FAMILY									FILTER ELEMENT FAMILY	E	S	E
			SIZE & LENGTH	11	12	21	22	31*	32*	41*	42*	SIZE & LENGTH			
			PORT TYPE												
			B = BSP thread	B	B	B	B	B	B	B	B	B			
			F = SAE flange 3000 psi	-	-	-	-	-	-	F	F				
			PORT SIZE												
			06 = 3/4"	06	06	-	-	-	-	-	-				
			10 = 1" 1/4	-	-	10	10	-	-	-	-				
			12 = 1" 1/2	-	-	-	-	12	12	12	12				
			BYPASS VALVE												
			W = without	W	W	W	W	W	W	W	W	W			
			B = 170 kPa (1,7 bar)	B	B	B	B	B	B	B	B	B			
			SEALS												
			N = NBR Nitrile	N	N	N	N	N	N	N	N	N			
			F = FKM Fluoroelastomer	F	F	F	F	F	F	F	F	F			
			FormulaUFI MEDIA												
			FA = FormulaUFI.MICRON 5 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FA	FA	FA	FA	FA	FA	FA	FA	FA			
			FB = FormulaUFI.MICRON 7 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FB	FB	FB	FB	FB	FB	FB	FB	FB			
			FC = FormulaUFI.MICRON 12 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FC	FC	FC	FC	FC	FC	FC	FC	FC			
			FD = FormulaUFI.MICRON 21 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FD	FD	FD	FD	FD	FD	FD	FD	FD			
			CC = FormulaUFI.CELL 10 μm $\beta > 2$	CC	CC	CC	CC	CC	CC	CC	CC	CC			
			CD = FormulaUFI.CELL 25 μm $\beta > 2$	CD	CD	CD	CD	CD	CD	CD	CD	CD			
			CLOGGING INDICATOR												
			06 = port, plugged	06	06	06	06	06	06	06	06	06			
			31 = pressure gauge, rear connection	31	31	31	31	31	31	31	31	31			
			P1 = SPDT, pressure switch	P1	P1	P1	P1	P1	P1	P1	P1	P1			
X	X		ACCESSORI / ACCESSORIES												
			XX = no accessory available	XX	XX	XX	XX	XX	XX	XX	XX	XX			

* When ordering the filter elements, please consider the following information:
 ESE31 = 2 x ESE21
 ESE32 = 2 x ESE22
 ESE41 = 2 x ESE21
 ESE42 = 2 x ESE22

SPARE PARTS

FILTER HOUSING				FILTER ELEMENT				CLOGGING INDICATOR			
											
B	P	E		E	S	E					



ORDERING AND OPTION CHART - VERSION WITH DIFFERENTIAL INDICATOR

F	P	E	COMPLETE FILTER FAMILY	A1*	A2*	B1*	B2*	31*	32*	41*	42*	FILTER ELEMENT FAMILY	E	S	E
			SIZE & LENGTH									SIZE & LENGTH			
			PORT TYPE												
			B = BSP thread	B	B	B	B	B	B	B	B				
			F = SAE flange 3000 psi	-	-	-	-	-	-	F	F				
			PORT SIZE												
			06 = 3/4" (F06 not available)	06	06	-	-	-	-	-	-				
			10 = 1" 1/4 (N10 not available)	-	-	10	10	-	-	-	-				
			12 = 1" 1/2 (G12 option not available)	-	-	-	-	12	12	12	12				
			BYPASS VALVE												
			W = without	W	W	W	W	W	W	W	W				
			B = 170 kPa (1,7 bar)	B	B	B	B	B	B	B	B				
			SEALS									SEALS			
			N = NBR Nitrile	N	N	N	N	N	N	N	N				
			F = FKM Fluoroelastomer	F	F	F	F	F	F	F	F				
			FormulaUFI MEDIA									FormulaUFI MEDIA			
			FA = FormulaUFI.MICRON 5 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FA	FA	FA	FA	FA	FA	FA	FA				
			FB = FormulaUFI.MICRON 7 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FB	FB	FB	FB	FB	FB	FB	FB				
			FC = FormulaUFI.MICRON 12 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FC	FC	FC	FC	FC	FC	FC	FC				
			FD = FormulaUFI.MICRON 21 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FD	FD	FD	FD	FD	FD	FD	FD				
			CC = FormulaUFI.CELL 10 μm $\beta > 2$	CC	CC	CC	CC	CC	CC	CC	CC				
			CD = FormulaUFI.CELL 25 μm $\beta > 2$	CD	CD	CD	CD	CD	CD	CD	CD				
			CLOGGING INDICATOR**												
			03 = port, plugged	-	-	-	-	03	03	03	03				
			5B = visual differential 130 kPa (1,3 bar)	-	-	-	-	5B	5B	5B	5B				
			6B = electrical differential 130 kPa (1,3 bar)	-	-	-	-	6B	6B	6B	6B				
			7B = indicator 6E with LED	-	-	-	-	7B	7B	7B	7B				
			T0 = elect. diff. 130 kPa (1,3 bar) with thermostat 30°C	-	-	-	-	T0	T0	T0	T0				
			0U = ports, plugged	0U	0U	0U	0U	-	-	-	-				
			U0 = visual differential 130 kPa (1,3 bar)	U0	U0	U0	U0	-	-	-	-				
			N0 = visual-electrical differential 130 kPa (1,3 bar)	N0	N0	N0	N0	-	-	-	-				
X	X		ACCESSORI / ACCESSORIES												
			XX = no accessory available	XX	XX	XX	XX	XX	XX	XX	XX				

* When ordering the filter elements, please consider the following information:
 ESEA1 = ESE21
 ESEA2 = ESE22
 ESEB1 = ESE21
 ESEB2 = ESE22
 ESE31 = 2 x ESE21
 ESE32 = 2 x ESE22
 ESE41 = 2 x ESE21
 ESE42 = 2 x ESE22

**When the filter is ordered with FKM seals, the first digit of the indicator code is a letter (please see Clogging Indicator Chapter for further details)

SPARE PARTS

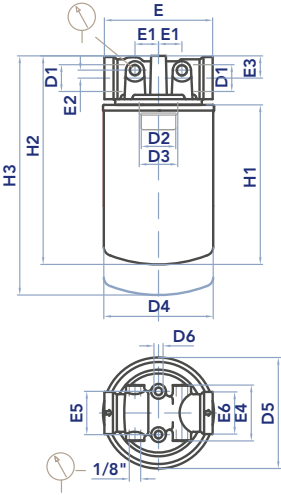
FILTER HOUSING				FILTER ELEMENT				CLOGGING INDICATOR							
															
B	P	E		E	S	E									

FPE

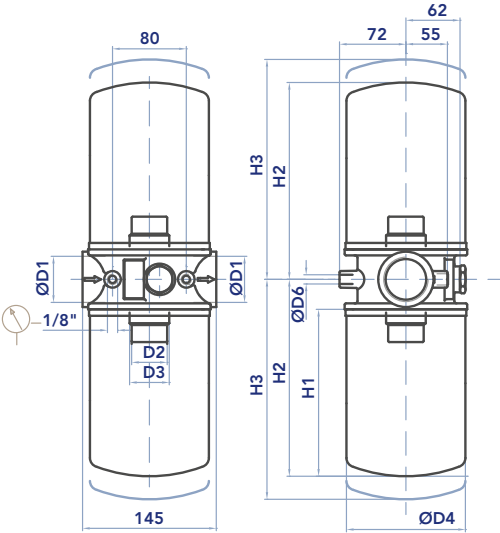
PRESSURE FILTERS

INSTALLATION DRAWING

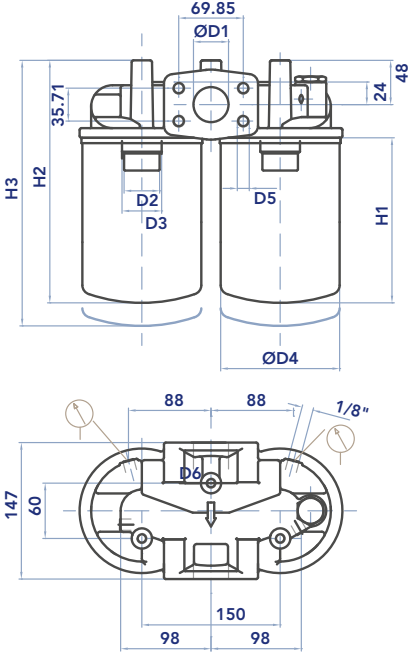
FPE 1+ & FPE 2+



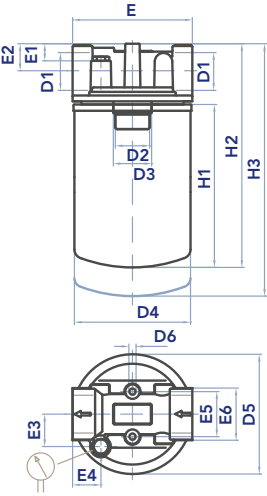
FPE 3+



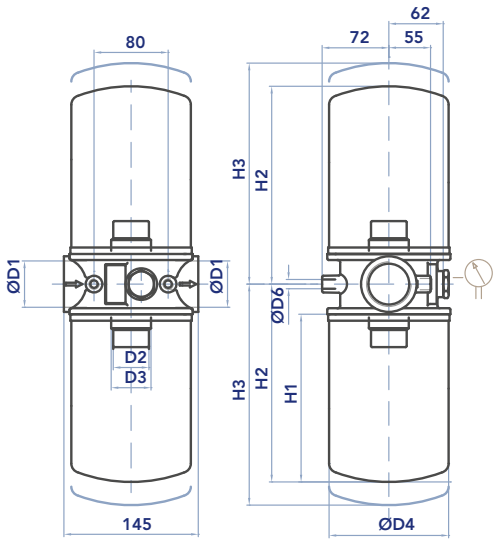
FPE 4+



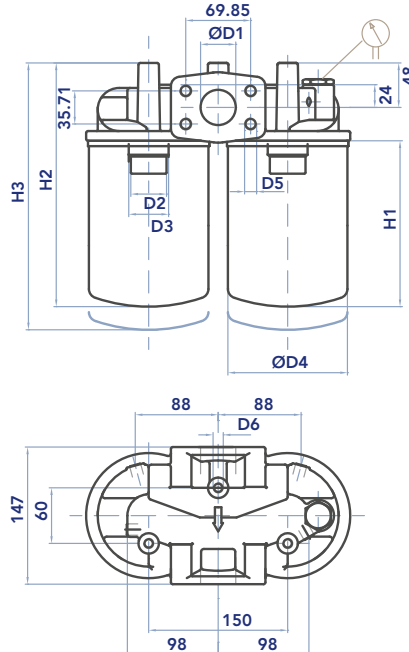
FPE A+ & FPE B+



FPE 3+



FPE 4+





FILTER HOUSING

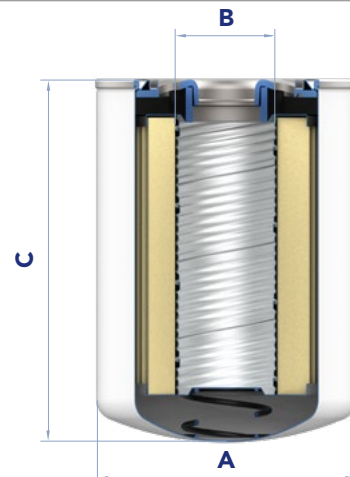
	D1	D2	D3	D4	D5	D6	E	E1	E2	E4	E5	E6	H1	H2	H3	Kg
FPE11	3/4"	3/4" BSP	-	96	97	M8	95	20,5	7	49	38	37	145	188	208	1,2
FPE12	3/4"	3/4" BSP	-	96	97	M8	95	20,5	7	49	38	37	191	234	254	1,5
FPE21	1"1/4	1"1/2 16-UN	1"1/4 BSP	129	134	M8	133	35	10	64	50	57	181	248	278	1,9
FPE22	1"1/4	1"1/2 16-UN	1"1/4 BSP	129	134	M8	133	35	10	64	50	57	226	293	323	2,0
FPE31	1"1/2	1"1/2 16-UN	1"1/4 BSP	129	-	M10	-	-	-	-	-	-	181	216	246	3,6
FPE32	1"1/2	1"1/2 16-UN	1"1/4 BSP	129	-	M10	-	-	-	-	-	-	226	261	291	3,8
FPE41	1"1/2	1"1/2 16-UN	1"1/4 BSP	129	M12	M10	-	-	-	-	-	-	181	269	299	4,8
FPE42	1"1/2	1"1/2 16-UN	1"1/4 BSP	129	M12	M10	-	-	-	-	-	-	226	314	344	5,0

FILTER HOUSING - VERSION WITH DIFFERENTIAL INDICATOR

	D1	D2	D3	D4	D5	D6	E	E1	E2	E3	E4	E5	E6	H1	H2	H3	Kg
FPEA1	3/4"	3/4" BSP	-	96	96	M8	95	-	23	24,5	21,5	38	32	145	188	208	1,2
FPEA2	3/4"	3/4" BSP	-	96	96	M8	95	-	23	24,5	21,5	38	32	191	234	254	1,5
FPEB1	1"1/4	1"1/2 16-UN	1"1/4 BSP	129	134	M8	133	19	30	36	35	50	54	181	248	278	1,9
FPEB2	1"1/4	1"1/2 16-UN	1"1/4 BSP	129	134	M8	133	19	30	36	35	50	54	226	293	323	2,0
FPE31	1"1/2	1"1/2 16-UN	1"1/4 BSP	129	-	M10	-	-	-	-	-	-	-	181	216	246	3,6
FPE32	1"1/2	1"1/2 16-UN	1"1/4 BSP	129	-	M10	-	-	-	-	-	-	-	226	261	291	3,8
FPE41	1"1/2	1"1/2 16-UN	1"1/4 BSP	129	M12	M10	-	-	-	-	-	-	-	181	269	299	4,8
FPE42	1"1/2	1"1/2 16-UN	1"1/4 BSP	129	M12	M10	-	-	-	-	-	-	-	226	314	344	5,0

FILTER ELEMENT

	A	B	C	Kg	AREA (cm ²)	
					Media F+	MediaC+
ESE11	96,5	3/4" BSP	146	0,70	2.140	3.305
ESE12	96,5	3/4" BSP	191	0,80	3.630	4.745
ESE21	129	1"1/4 BSP	181	1,20	4.450	5.560
ESE22	129	1"1/4 BSP	226	1,40	5.890	7.360



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MAINTENANCE

- 1) Stop the system and verify there is no pressure in the filter.
- 2) Collect the oil inside the filter with a suitable container.
- 3) Unscrew the dirty filter element (1).
N.B. The exhausted filter elements and the oil dirty filter parts are classified "Dangerous waste material" and must be disposed of according to the local laws, by authorized Companies.
- 4) Check the filter element part number on the silk-screen printing or in the ordering and option chart.
Use only original spare parts.
- 5) Lubricate the element o-ring gasket with oil.
- 6) Screw the clean filter element until the first contact of the gasket with the flange.
- 7) Tighten strongly for $\frac{3}{4}$ of a turn (indicative tightening torque of 18 Nm).

Accessories:

Clogging indicator (6).

If damaged, unscrew and replace it (check the part number in the ordering and option chart).

Lubricate the o-ring gasket with oil and tighten until it stops, with a tightening torque of 40 Nm +5/0.

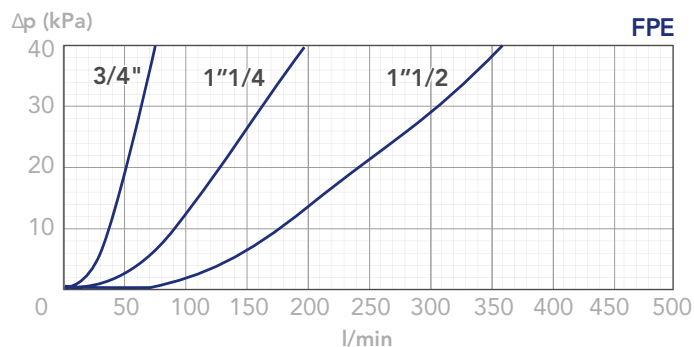


PRESSURE DROP CURVES (Δp)

The "Assembly Pressure Drop (Δp)" is obtained by adding the pressure drop values of the Filter Housing and of the Clean Filter Element corresponding to the considered Flow Rate and it must

be lower than 50 kPa (0,5 bar). In any case this value should never exceed 1/3 of the bypass valve setting.

FILTER HOUSING PRESSURE DROP
(mainly depending on the port size)

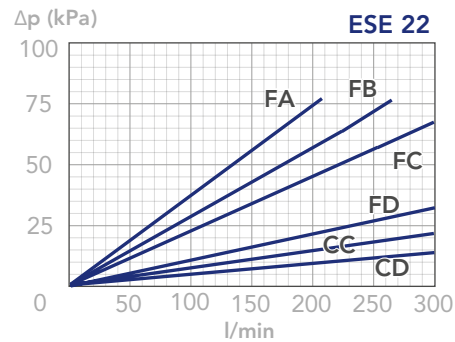
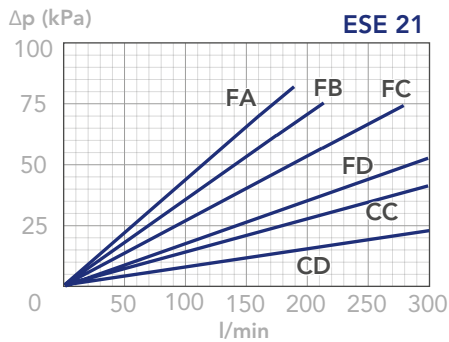
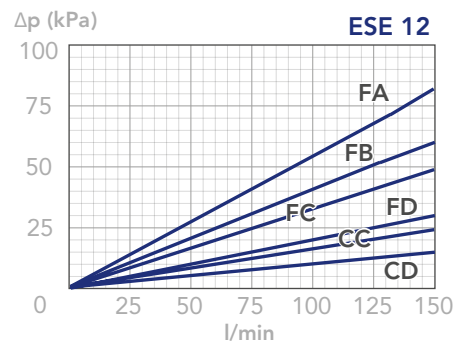
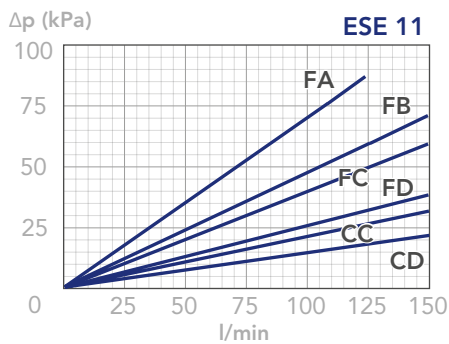




CLEAN FILTER ELEMENT PRESSURE DROP WITH F+ AND C+ MEDIA
 (depending both on the internal diameter of the element and on the filter media)

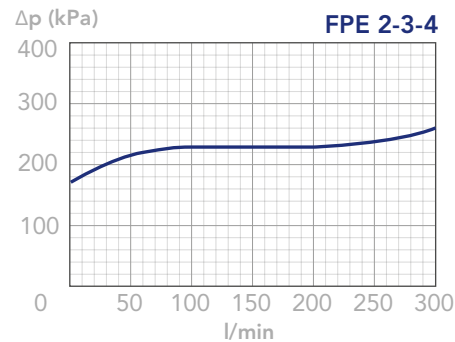
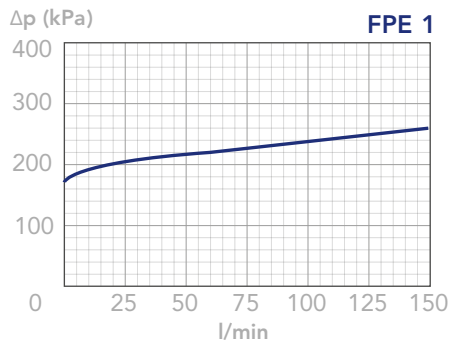
FPE3+ and FPE4+ filters use double element canisters. The Assembly Pressure Drop is therefore determined by adding the Housing Pressure Drop at the real flow rate and half the pressure drop of the ESE2+ element.

E.g. The pressure drop of a complete FPE31-----FC---- filter at a 60 l/min flow rate is obtained by adding the Housing Pressure Drop and half the ESE21NFC element pressure drop at 60 l/min.



BYPASS VALVE PRESSURE DROP

When selecting the filter size, these curves must be taken into account if it is foreseen that any flow peak is to be absorbed by the bypass valve, it also must be of proper configuration to avoid pressure peaks. The valve pressure drop is directly proportional to fluid specific gravity.



N.B.

All the curves have been obtained with mineral oil having a kinematic viscosity 30 cSt and specific gravity 0,86 kg/dm³; for fluids with different features, please consider the factors described in the first part of this catalogue. All the curves

are obtained from test done at the UFI FILTERS HYDRAULICS Laboratory, according to the specification ISO 3968. In case of discrepancy, please check the contamination level, viscosity and features of the fluid in use.