Hydraulic Filtration

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

PRESSURE (ISO 10771-1:2002)
Max working: 1,2 MPa (12 bar)
Test: 1,5 MPa (15 bar)
Bursting: 2,5 MPa (25 bar)
Collapse, differential for the fi lter element (ISO 2941): 400 kPa (4 bar)

BYPASS VALVE
Setting: 170 kPa (1,7 bar) ± 10%

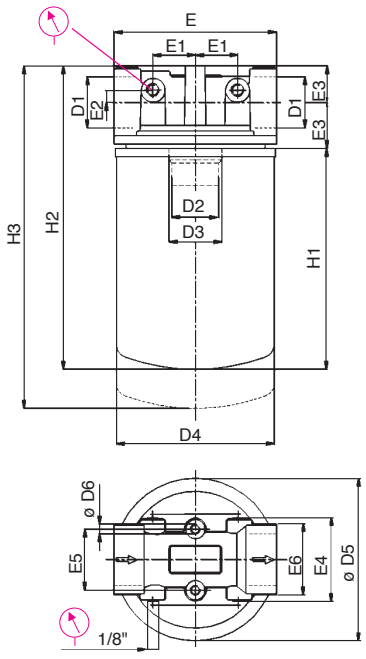
WORKING TEMPERATURE
From -25° to +110° C

COMPATIBILITY (ISO 2943:1999)
Full with fluids: HH-HL-HM-HR-HV-HG (according to ISO 6743/4)
For fluids different than the above mentioned, please contact our Sales Department.

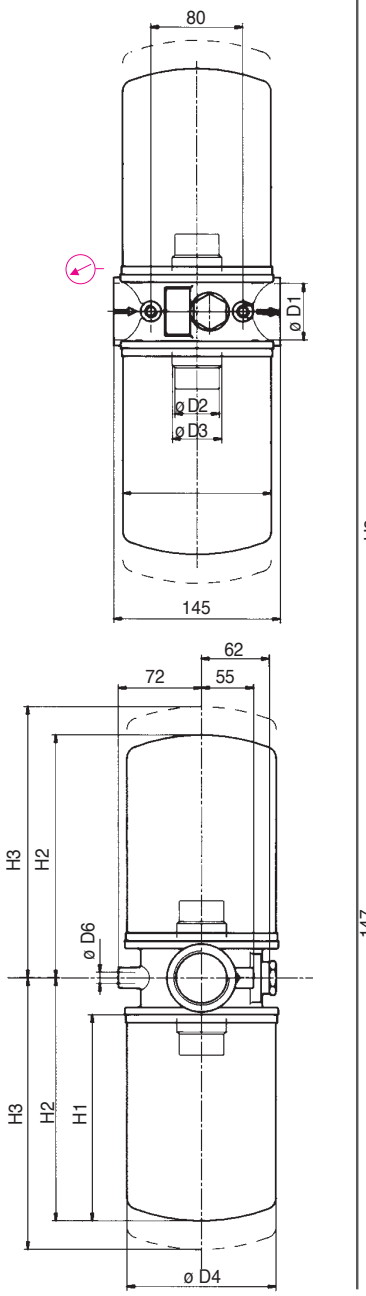
Pressure Filters

Installation Drawing

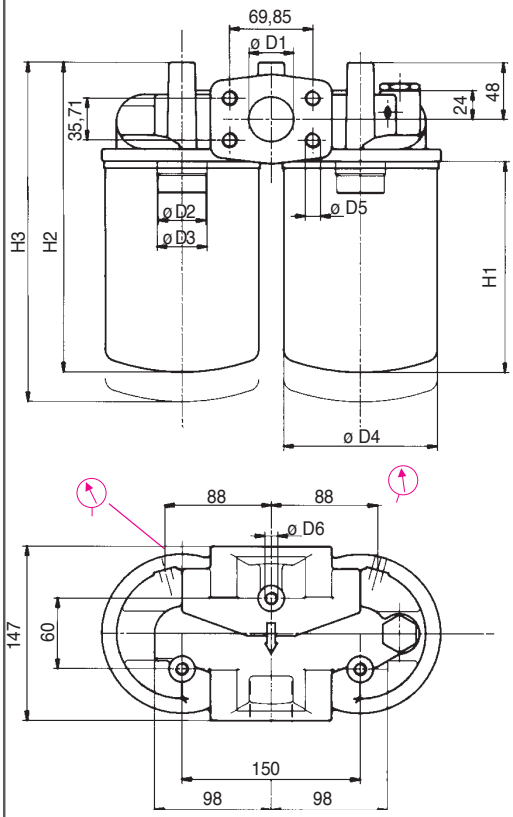
FPE 1+ & FPE 2+



FPE 3+



FPE 4+



FILTER HOUSING																	
	D1	D2	D3	D4	D5	D6	E	E1	E2	E3	E4	E5	E6	H1	H2	H3	kg
FPE11	3/4"	3/4" BSP	-	96	96	M8	95	20,5	7	20	49	38	37	145	188	208	1,2
FPE12	3/4"	3/4" BSP	-	96	96	M8	95	20,5	7	20	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	30	64	50	57	181	248	278	1,9
FPE31	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	-	M10	-	-	-	-	-	-	-	181	216	246	3,6
FPE41	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	M12	M10	-	-	-	-	-	-	-	181	269	299	4,8
FPE22	1" 1/4	1" 1/2 16-UN	1" 1/4 BSP	129	134	M8	133	35	10	30	64	50	57	226	293	323	2,0
FPE32	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	-	M10	-	-	-	-	-	-	-	226	261	291	3,8
FPE42	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	M12	M10	-	-	-	-	-	-	-	226	314	344	5,0

Pressure Filters

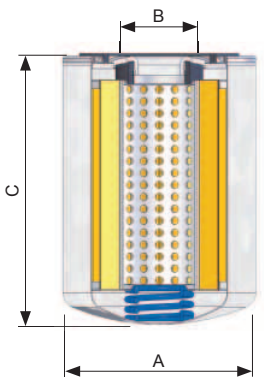
Ordering and Option Chart

	TYPE									
	F = FILTER COMPLETE	F	F	F	F	F	F	F	F	
	B = FILTER HOUSING	B	B	B	B	B	B	B	B	ELEMENT E
P E	FAMILY NOMINAL SIZE & LENGTH	11	12	21	22	31	32	41	42	FAMILY SIZE & LENGTH S E
	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	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	
	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	N = NBR
	F = FKM Fluoroelastomer	F	F	F	F	F	F	F	F	F = FKM
	FILTER MEDIA									FILTER MEDIA
	FA = fiber 5 $\mu m_{(c)}$ β>1.000	FA	FA	FA	FA	FA	FA	FA	FA	FA = fiber 5 $\mu m_{(c)}$
	FB = fiber 7 $\mu m_{(c)}$ β>1.000	FB	FB	FB	FB	FB	FB	FB	FB	FB = fiber 7 $\mu m_{(c)}$
	FC = fiber 12 $\mu m_{(c)}$ β>1.000	FC	FC	FC	FC	FC	FC	FC	FC	FC = fiber 12 $\mu m_{(c)}$
	FD = fiber 21 $\mu m_{(c)}$ β>1.000	FD	FD	FD	FD	FD	FD	FD	FD	FD = fiber 21 $\mu m_{(c)}$
	CC = cellulose 10 μm β>2	CC	CC	CC	CC	CC	CC	CC	CC	CC = cellulose 10 μm
	CD = cellulose 25 μm β>2	CD	CD	CD	CD	CD	CD	CD	CD	CD = cellulose 25 μm
	CLOGGING INDICATOR									
	06 = 1/8" ports, plugged	06	06	06	06	06	06	06	06	
	31 = pressure gauge, rear connection	31	31	31	31	31	31	31	31	
	P1 = SPDT, pressure switch	P1	P1	P1	P1	P1	P1	P1	P1	
X X	ACCESSORIES									
	XX = no accessory available	XX	XX	XX	XX	XX	XX	XX	XX	

NOTE :
ESE31+++ = nr. 2 x ESE21+++
ESE32+++ = nr. 2 x ESE22+++
ESE41+++ = nr. 2 x ESE21+++
ESE42+++ = nr. 2 x ESE22+++

FILTER ELEMENT

	A	B	C	kg	Area (cm^2) Media F+	Area (cm^2) Media C+
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

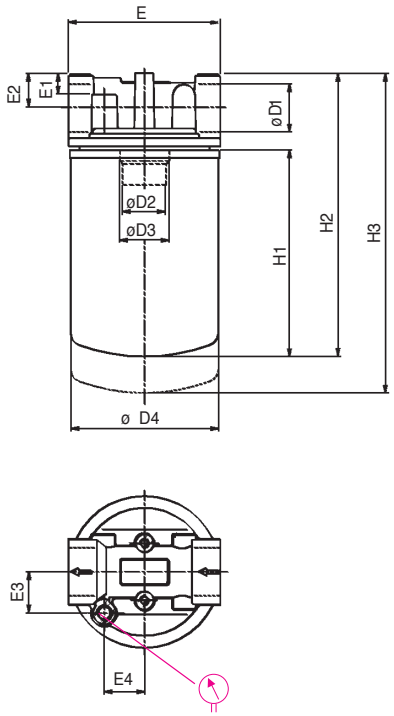


Pressure Filters

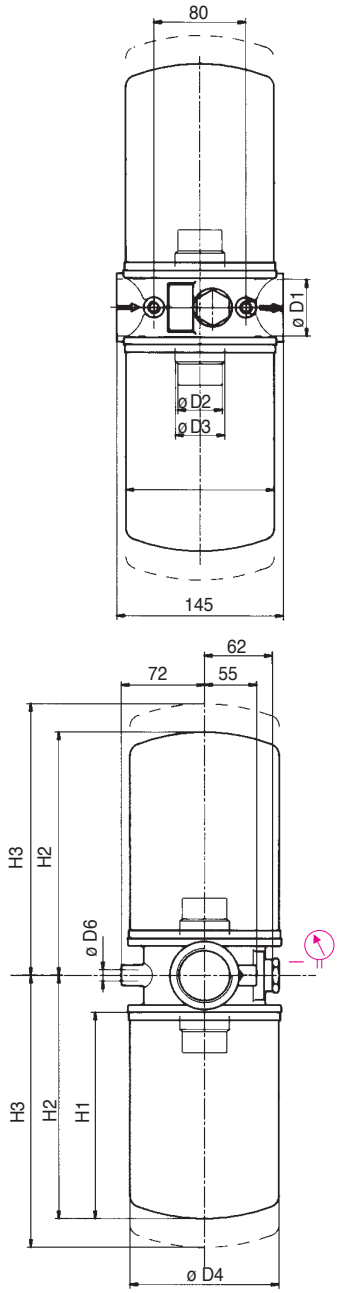
Installation Drawing

VERSION WITH DIFFERENTIAL INDICATOR

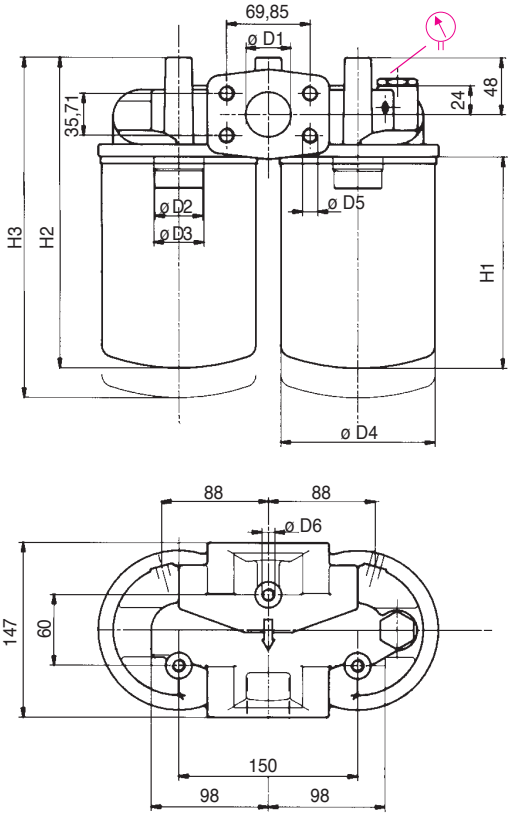
FPE A+ & FPE B+



FPE 3+



FPE 4+



FILTER HOUSING

	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
FPE31	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	-	M10	-	-	-	-	-	-	-	181	216	246	3,6
FPE41	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	M12	M10	-	-	-	-	-	-	-	181	269	299	4,8
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
FPE32	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	-	M10	-	-	-	-	-	-	-	226	261	291	3,8
FPE42	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	M12	M10	-	-	-	-	-	-	-	226	314	344	5,0

Pressure Filters

Ordering and Option Chart

	TYPE									
	F = FILTER COMPLETE	F	F	F	F	F	F	F	F	
	B = FILTER HOUSING	B	B	B	B	B	B	B	B	ELEMENT E
P E	FAMILY NOMINAL SIZE & LENGTH	A1	A2	B1	B2	31	32	41	42	FAMILY SIZE & LENGTH S E
	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	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	
	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	N = NBR
	F = FKM Fluoroelastomer	F	F	F	F	F	F	F	F	F = FKM
	FILTER MEDIA									FILTER MEDIA
	FA = fiber 5 $\mu m_{(c)}$ β>1.000	FA	FA	FA	FA	FA	FA	FA	FA	FA = fiber 5 $\mu m_{(c)}$
	FB = fiber 7 $\mu m_{(c)}$ β>1.000	FB	FB	FB	FB	FB	FB	FB	FB	FB = fiber 7 $\mu m_{(c)}$
	FC = fiber 12 $\mu m_{(c)}$ β>1.000	FC	FC	FC	FC	FC	FC	FC	FC	FC = fiber 12 $\mu m_{(c)}$
	FD = fiber 21 $\mu m_{(c)}$ β>1.000	FD	FD	FD	FD	FD	FD	FD	FD	FD = fiber 21 $\mu m_{(c)}$
	CC = cellulose 10 μm β>2	CC	CC	CC	CC	CC	CC	CC	CC	CC = cellulose 10 μm
	CD = cellulose 25 μm β>2	CD	CD	CD	CD	CD	CD	CD	CD	CD = cellulose 25 μm
	CLOGGING INDICATOR									
	03 = ports, 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 6B 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 = differential, visual, 130 kPa (1,3 bar)	U0	U0	U0	U0	-	-	-	-	
	N0 = differ. vis-electrical, 130 kPa (1,3 bar)	N0	N0	N0	N0	-	-	-	-	
X X	ACCESSORIES									
	XX = no accessory available	XX	XX	XX	XX	XX	XX	XX	XX	

NOTE:
ESEA1+++ = ESE11+++
ESEA2+++ = ESE12+++
ESEB1+++ = ESE21+++
ESEB2+++ = ESE22+++

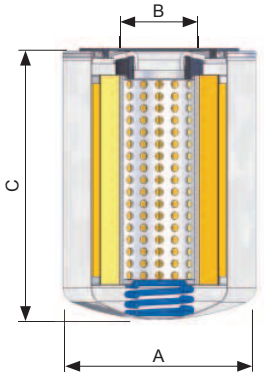
ESE31+++ = nr. 2 x ESE21+++
ESE32+++ = nr. 2 x ESE22+++
ESE41+++ = nr. 2 x ESE21+++
ESE42+++ = nr. 2 x ESE22+++

When the filter is ordered with FKM seals, the first digit of the indicator code is a letter (please see page 182 - 183).

N.B. Indicator series 70 only on request

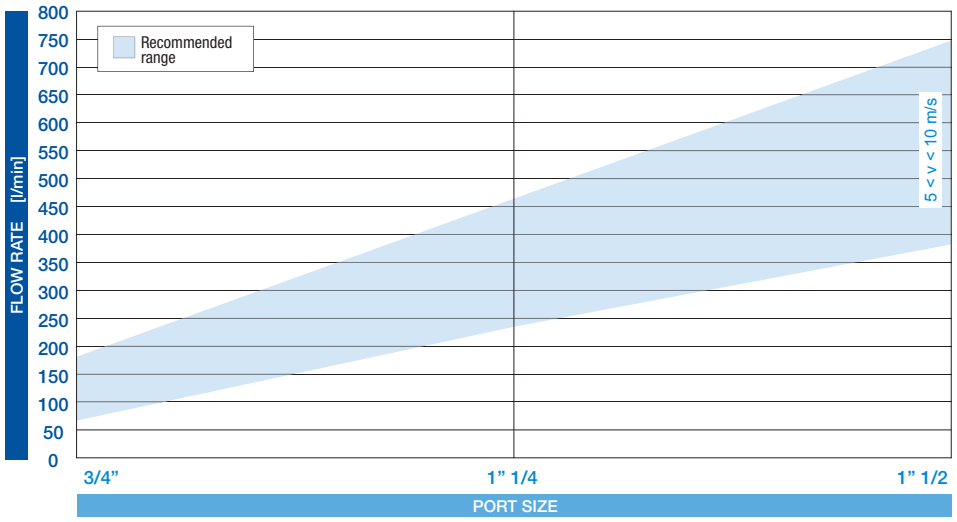
FILTER ELEMENT

	A	B	C	kg	Area (cm^2) Media F+	Area (cm^2) Media C+
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



FLUID SPEED

(when selecting the filter size, we suggest to consider also the max recommended fluid speed (in pressure lines normally 5 < v < 10 m/s).

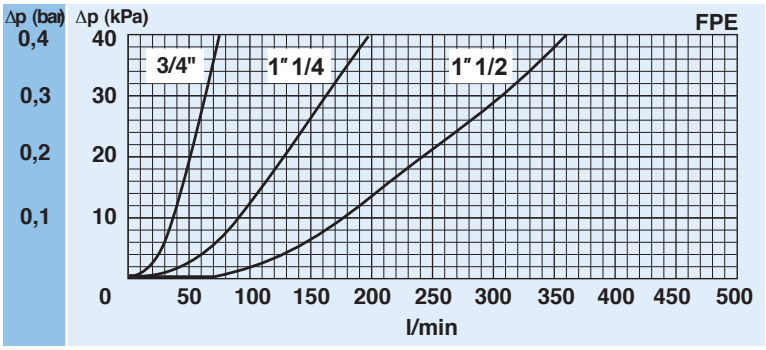


PRESSURE DROP CURVES (Δp)

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).

FILTER HOUSING PRESSURE DROP

(mainly depending on the port size)

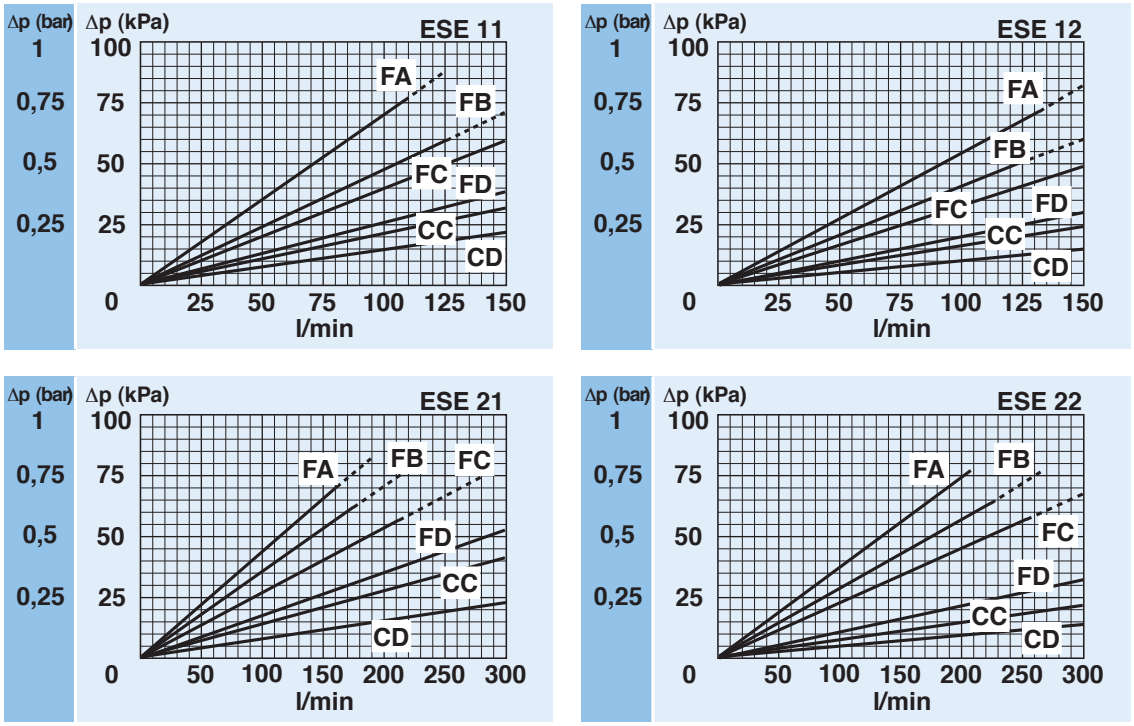


PRESSURE DROP CURVES (Δp)

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).

CLEAN FILTER ELEMENT PRESSURE DROP WITH F+ AND C+ MEDIA

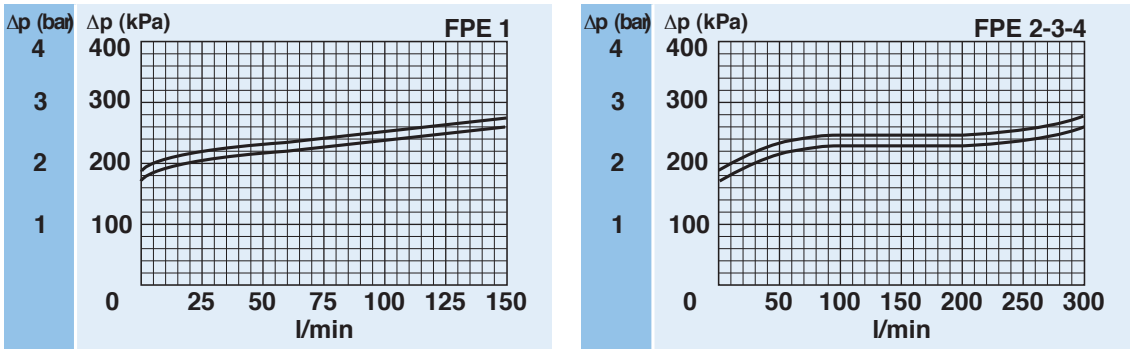
(depending both on the internal diameter of the element and on the filter media)



FPE3+ and FPE4+ filters use double element canisters. The Assembly Pres-sure 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 0,9 kg/dm^3; 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 HYDRAULIC DIVISION Laboratory, according to the specification ISO 3968:2005. In case of discrepancy, please check the contamination level, viscosity and features of the fluid in use.

Pressure Filters

CLOGGING INDICATOR
A visual or electrical indicator is available as an option and allows monitoring of the element conditions, giving an indication of the right time to replace the element.

BYPASS VALVE
In the head, a full-flow bypass valve can be mounted as an option;
the bypass flow is designed in such a way that the contaminant is retained in the filter element during bypass conditions.

"LONG LIFE" FILTER ELEMENT
The filter elements are designed with a very large filter area giving a highest dirt holding capacity.

EASY MAINTENANCE
The spin-on cartridge filter element allows a easy and quick replacement of the element itself.

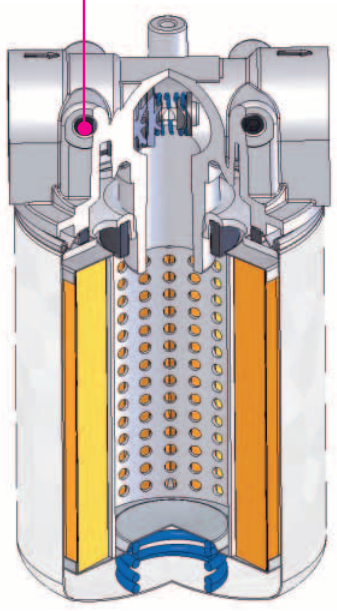
STRONG CONSTRUCTION
The materials and the design ensure a superior resistance to fatigue even at working pressures up to 1.200 kPa (12 bar).

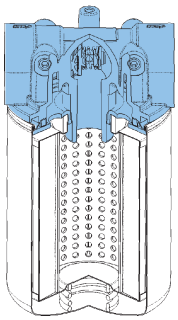
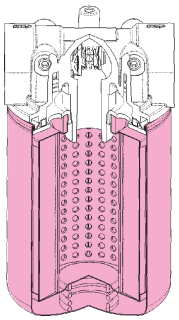
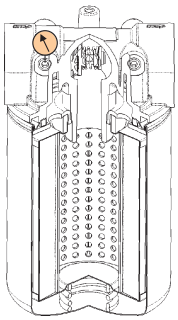
CLOGGING INDICATOR

For further technical informations and other options see page 182-183.

SERIES 31

SERIES P1



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

SPARE PARTS ELEMENTS
(For filling up see table "Ordering and option chart")

Pressure Filters

CLOGGING INDICATOR
A visual or visual-electrical differential indicator is available as an option and allows monitoring of the element conditions, giving an exact indication of the right time to replace the element.

BYPASS VALVE
In the head, a full-flow bypass valve can be mounted as an option;
the bypass flow is designed in such a way that the contaminant is retained in the filter element during bypass conditions.

"LONG LIFE" FILTER ELEMENT
The filter elements are designed with a very large filter area giving a highest dirt holding capacity.

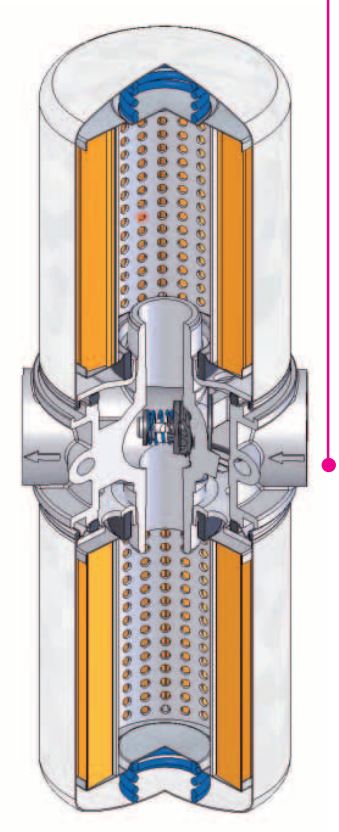
EASY MAINTENANCE
The spin-on cartridge filter element allows a easy and quick replacement of the element itself.

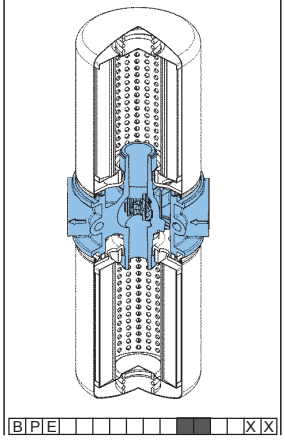
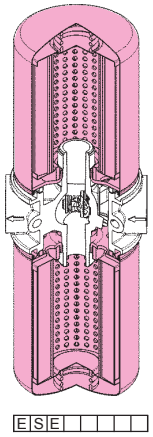
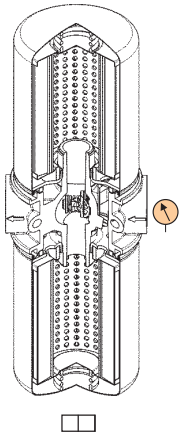
STRONG CONSTRUCTION
The materials and the design ensure a superior resistance to fatigue even at working pressures up to 1.200 kPa (12 bar).

CLOGGING INDICATOR

For further technical informations and other options see page 182-183.

Differential



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

SPARE PARTS ELEMENTS
(For filling up see table "Ordering and option chart")