

# PE

## 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 filter element (ISO 2941):  
400 kPa (4 bar)

## BYPASS VALVE

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

## WORKING TEMPERATURE

From -25° to +110° C

## COMPATIBILITY (ISO 2943:1999)

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

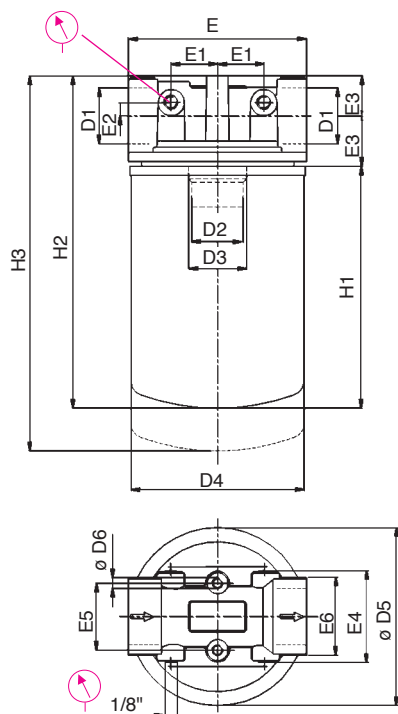


## APPLICATION EXAMPLE

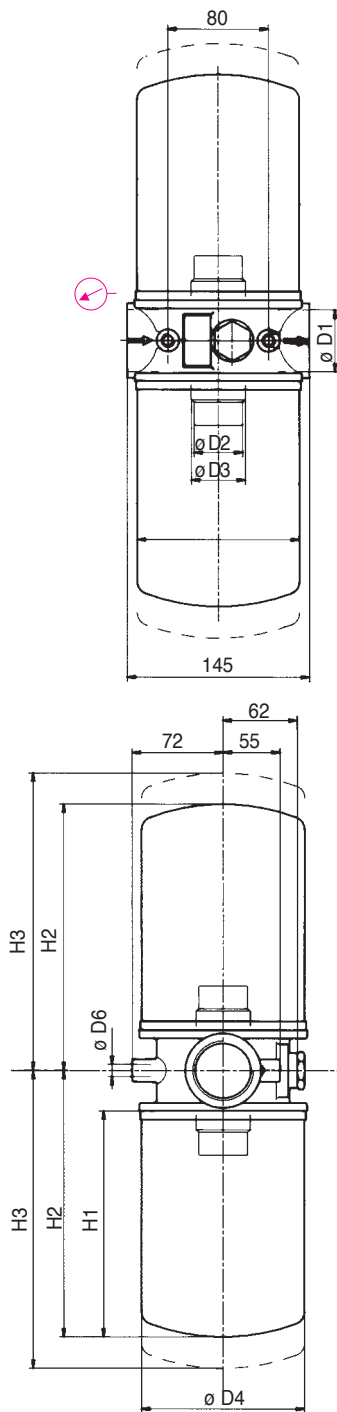


**UFI**  
**FILTERS**  
HYDRAULIC DIVISION

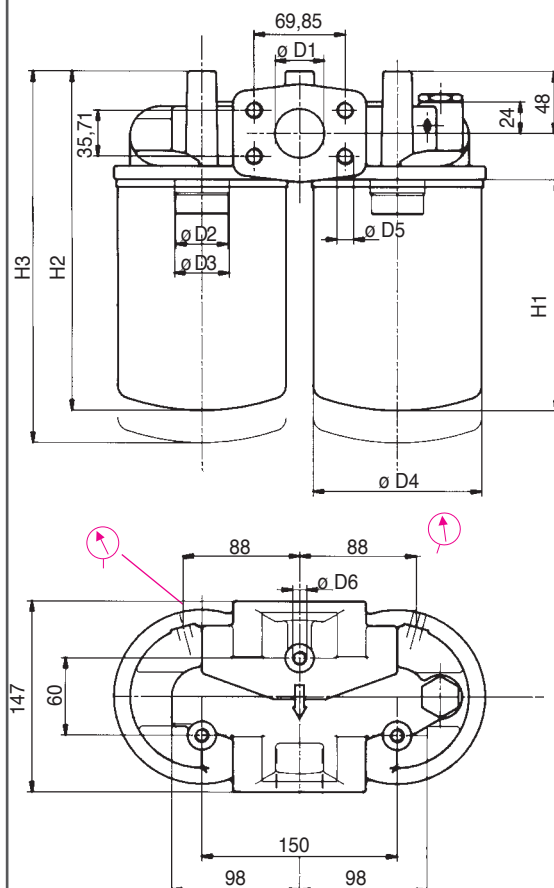
FPE 1+ & FPE 2+



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

		TYPE									
		F = FILTER COMPLETE									
		B = FILTER HOUSING								ELEMENT	
P	E	FAMILY								S	
		NOMINAL SIZE & LENGTH								E	
		11	12	21	22	31	32	41	42	FAMILY SIZE & LENGTH	
		PORT TYPE									
		B = BSP thread									
		F = SAE flange 3000 psi									
		PORT SIZE									
		06 = 3/4	06	06	-	-	-	-	-		
		10 = 1" 1/4	-	-	10	10	-	-	-		
		12 = 1" 1/2	-	-	-	-	12	12	12		
		BYPASS VALVE									
		W = without									
		B = 170 kPa (1,7 bar)									
		SEALS								SEALS	
		N = NBR Nitrile								N = NBR	
		F = FKM Fluoroelastomer								F = FKM	
		FILTER MEDIA								FILTER MEDIA	
		FA = fiber 5 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FA	FA	FA	FA	FA	FA	FA	FA = fiber 5 $\mu\text{m}_{(c)}$	
		FB = fiber 7 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FB	FB	FB	FB	FB	FB	FB	FB = fiber 7 $\mu\text{m}_{(c)}$	
		FC = fiber 12 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FC	FC	FC	FC	FC	FC	FC	FC = fiber 12 $\mu\text{m}_{(c)}$	
		FD = fiber 21 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FD	FD	FD	FD	FD	FD	FD	FD = fiber 21 $\mu\text{m}_{(c)}$	
		CC = cellulose 10 $\mu\text{m}$ $\beta > 2$	CC	CC	CC	CC	CC	CC	CC	CC = cellulose 10 $\mu\text{m}$	
		CD = cellulose 25 $\mu\text{m}$ $\beta > 2$	CD	CD	CD	CD	CD	CD	CD	CD = cellulose 25 $\mu\text{m}$	
		CLOGGING INDICATOR									
		06 = 1/8" ports, plugged									
		31 = pressure gauge, rear connection									
		P1 = SPDT, pressure switch									
X	X	ACCESSORIES									
		XX = no accessory available									

NOTE:

ESE31+++ = nr. 2 x ESE21+++

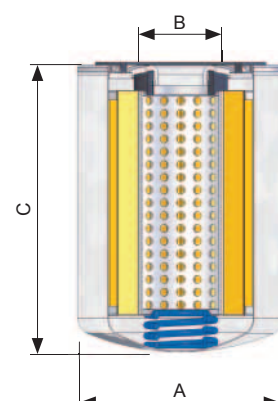
ESE32+++ = nr. 2 x ESE22+++

ESE41+++ = nr. 2 x ESE21+++

ESE42+++ = nr. 2 x ESE22+++

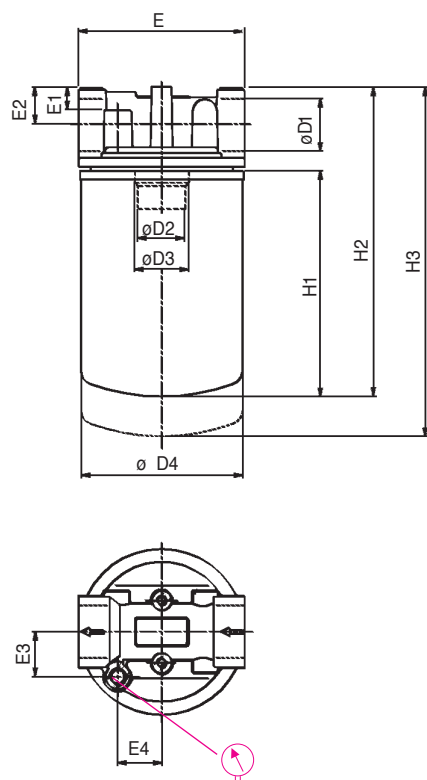
## FILTER ELEMENT

	A	B	C	kg	Area (cm <sup>2</sup> )	
					Media F+	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

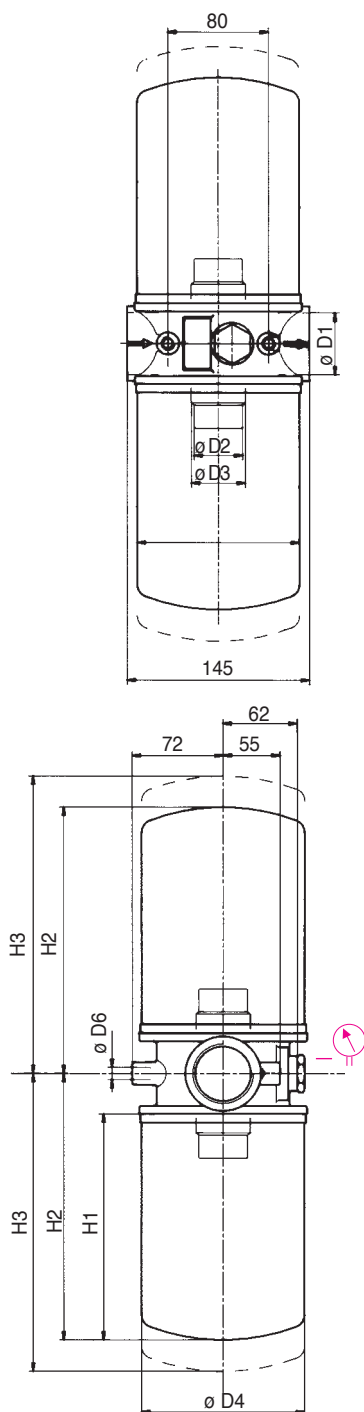


VERSION WITH DIFFERENTIAL INDICATOR

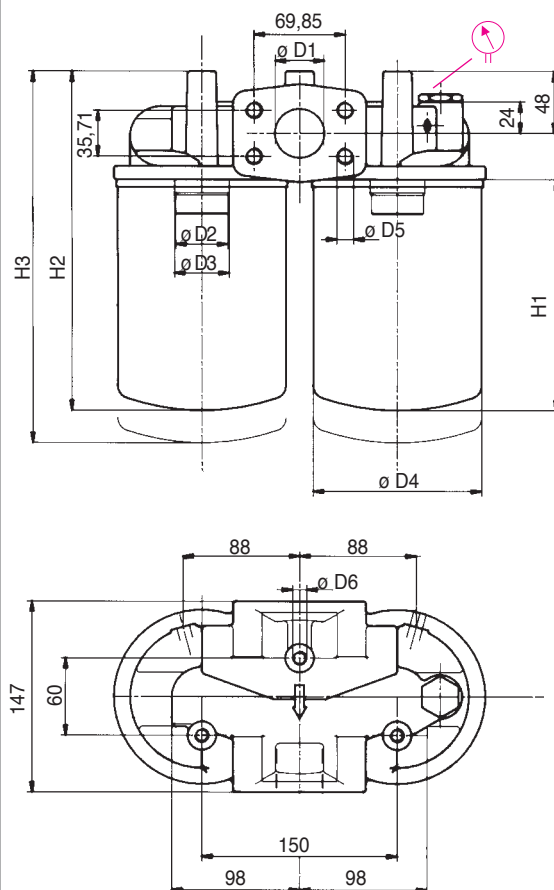
FPE A+ & FPE B+



FPE 3+



FPE 4+



FILTER HOUSING

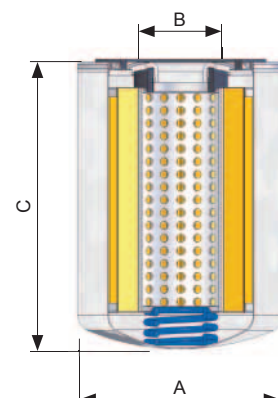
	D1	D2	D3	D4	D5	D6	E	E1	E2	E3	E4	E5	E6	H1	H2	H3	kg
FPEA1	3/4"	3/4" BSP	-	96	96	M8	95	-	23	24,5	21,5	38	32	145	188	208	1,2
FPEA2	3/4"	3/4" BSP	-	96	96	M8	95	-	23	24,5	21,5	38	32	191	234	254	1,5
FPEB1	1" 1/4	1" 1/2 16-UN	1" 1/4 BSP	129	134	M8	133	19	30	36	35	50	54	181	248	278	1,9
FPE31	1" 1/2	1" 1/2 16-UN	1" 1/4 BSP	129	-	M10	-	-	-	-	-	-	-	181	216	246	3,6
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VERSION WITH DIFFERENTIAL INDICATOR

		TYPE									
		F = FILTER COMPLETE									
		B = FILTER HOUSING								ELEMENT	
P	E	FAMILY								S	
		NOMINAL SIZE & LENGTH								E	
		A1	A2	B1	B2	31	32	41	42	FAMILY SIZE & LENGTH	
		PORT TYPE									
		B = BSP thread									
		F = SAE flange 3000 psi									
		PORT SIZE									
		06 = 3/4	06	06	-	-	-	-	-		
		10 = 1" 1/4	-	-	10	10	-	-	-		
		12 = 1" 1/2	-	-	-	-	12	12	12		
		BYPASS VALVE									
		W = without									
		B = 170 kPa (1,7 bar)									
		SEALS								SEALS	
		N = NBR Nitrile								N = NBR	
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		FA = fiber 5 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FA	FA	FA	FA	FA	FA	FA	FA = fiber 5 $\mu\text{m}_{(c)}$	
		FB = fiber 7 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FB	FB	FB	FB	FB	FB	FB	FB = fiber 7 $\mu\text{m}_{(c)}$	
		FC = fiber 12 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FC	FC	FC	FC	FC	FC	FC	FC = fiber 12 $\mu\text{m}_{(c)}$	
		FD = fiber 21 $\mu\text{m}_{(c)}$ $\beta > 1.000$	FD	FD	FD	FD	FD	FD	FD	FD = fiber 21 $\mu\text{m}_{(c)}$	
		CC = cellulose 10 $\mu\text{m}$ $\beta > 2$	CC	CC	CC	CC	CC	CC	CC	CC = cellulose 10 $\mu\text{m}$	
		CD = cellulose 25 $\mu\text{m}$ $\beta > 2$	CD	CD	CD	CD	CD	CD	CD	CD = cellulose 25 $\mu\text{m}$	
		CLOGGING INDICATOR									
		03 = ports, plugged	-	-	-	03	03	03	03	When the filter is ordered with FKM seals, the first digit of the indicator code is a letter (please see page 182 - 183).	
		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	-	-	-	N.B. Indicator series 70 only on request	
		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		

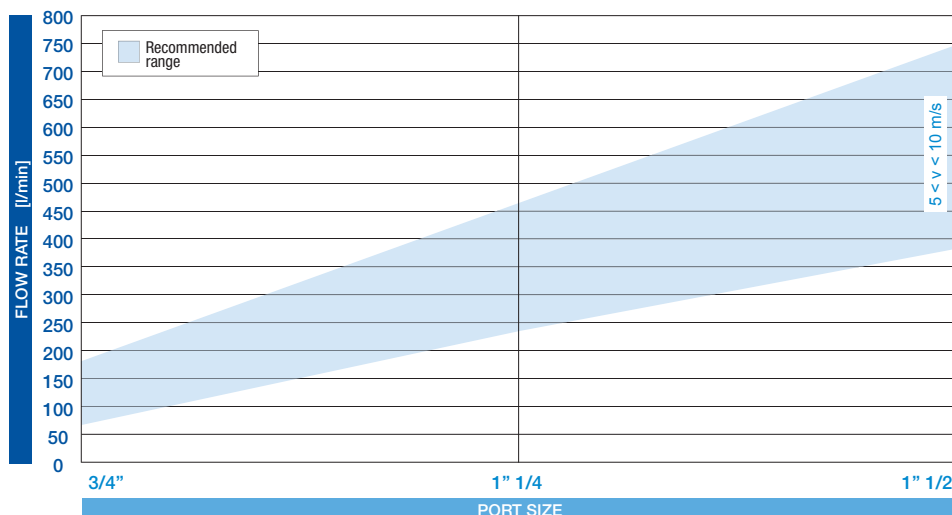
FILTER ELEMENT

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### 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).

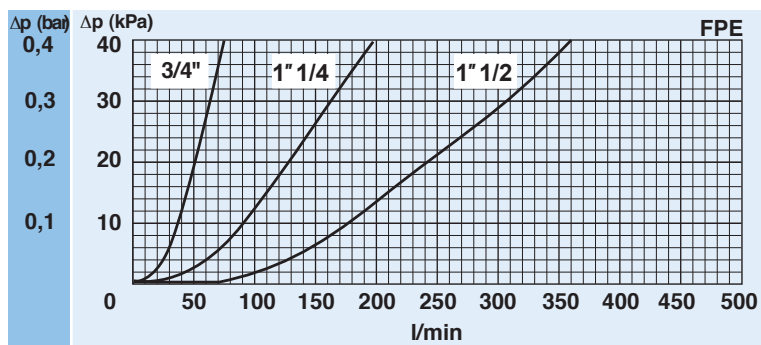


### PRESSURE DROP CURVES ( $\Delta p$ )

The "Assembly Pressure Drop ( $\Delta p$ )" 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)

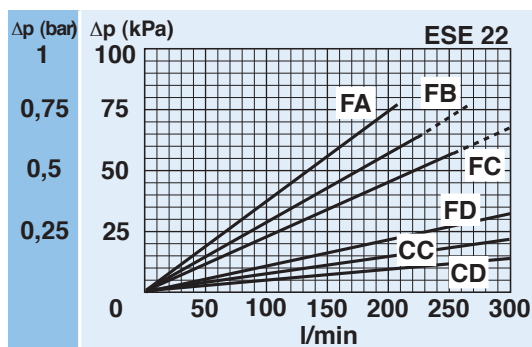
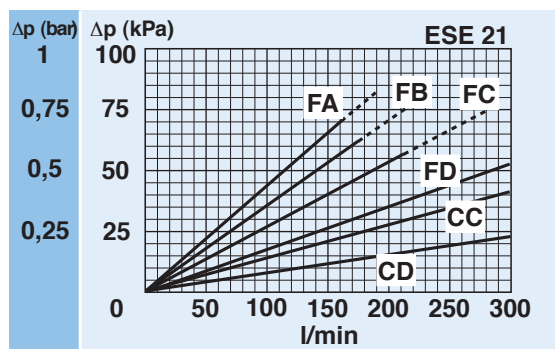
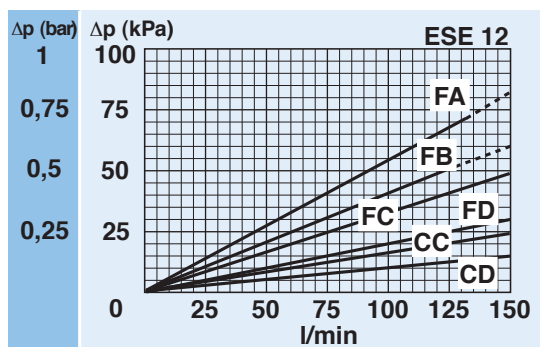
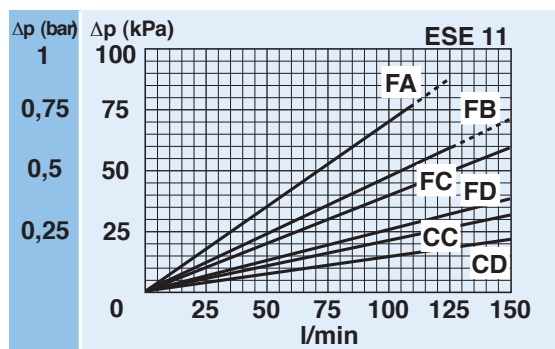


### PRESSURE DROP CURVES ( $\Delta p$ )

The "Assembly Pressure Drop ( $\Delta p$ )" 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

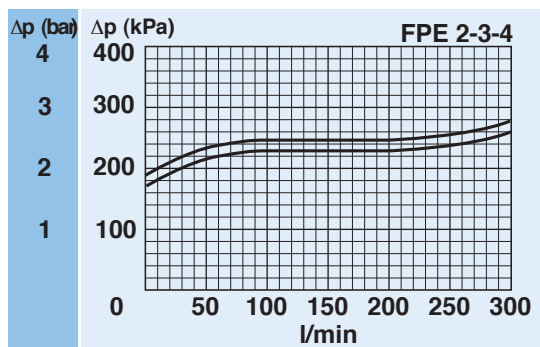
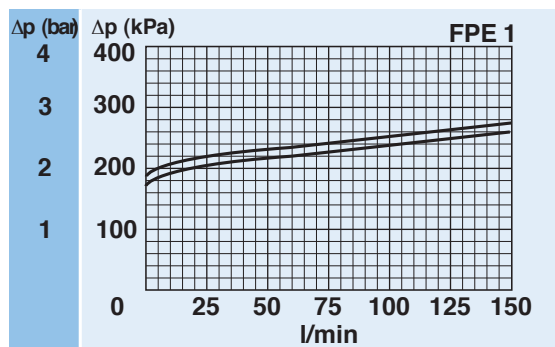
(depending both on the internal diameter of the element and on the filter media)



FPE3+ and FPE4+ filters use double element canisters. The Assembly 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.





## 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

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

## EASY MAINTENANCE

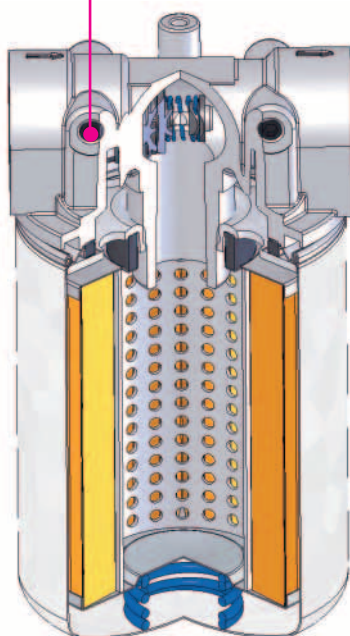
The spin-on cartridge filter element allows a easy and quick replacement of the element itself.

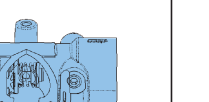
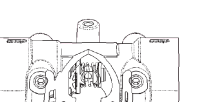
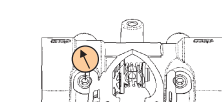
**STRONG CONSTRUCTION**

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.



FILTER HOUSING	FILTER ELEMENT	CLOGGING INDICATOR	SPARE PARTS ELEMENTS (For filling up see table "Ordering and option chart")
			



### CLOGGING INDICATOR

BYPASS VALVE

## “LONG LIFE” FILTER ELEMENT

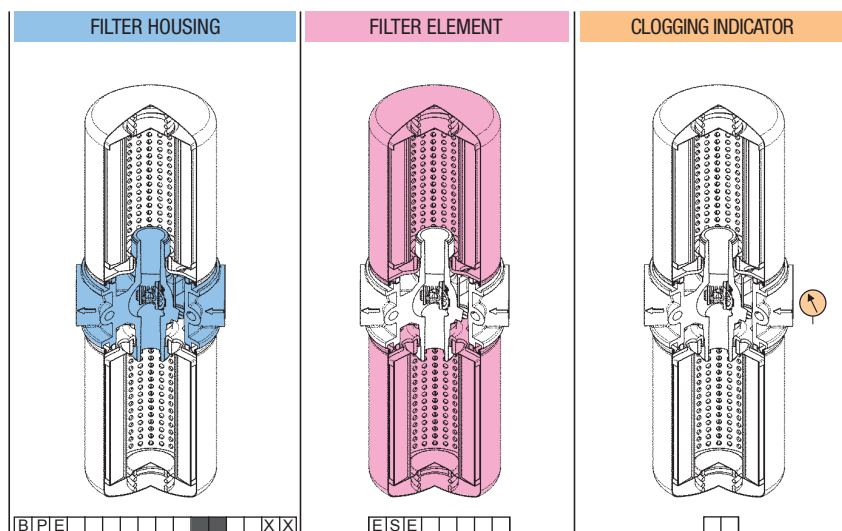
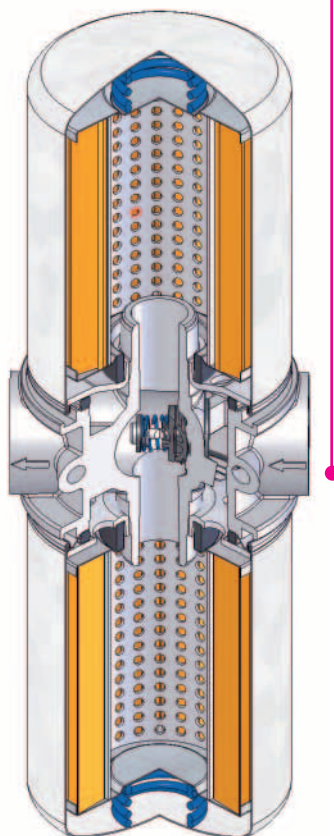
## EASY MAINTENANCE

## STRONG CONSTRUCTION

### CLOGGING INDICATOR



### Differential



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



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