

# 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



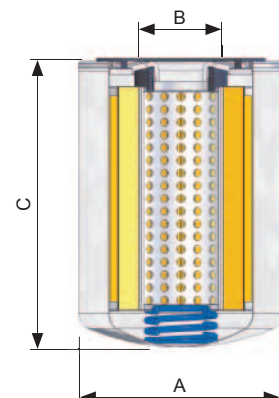


TYPE										ELEMENT		E	
F = FILTER COMPLETE		F	F	F	F	F	F	F	F				
B = FILTER HOUSING		B	B	B	B	B	B	B	B				
P	E	FAMILY NOMINAL SIZE & LENGTH								FAMILY SIZE & LENGTH		S	E
PORT TYPE													
B = BSP thread		B	B	B	B	B	B	B	B				
F = SAE flange 3000 psi		-	-	-	-	-	-	F	F				
PORT SIZE													
06 = 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 μm <sub>(c)</sub> β>1.000		FA	FA	FA	FA	FA	FA	FA	FA	FA = fiber 5 μm <sub>(c)</sub>			
FB = fiber 7 μm <sub>(c)</sub> β>1.000		FB	FB	FB	FB	FB	FB	FB	FB	FB = fiber 7 μm <sub>(c)</sub>			
FC = fiber 12 μm <sub>(c)</sub> β>1.000		FC	FC	FC	FC	FC	FC	FC	FC	FC = fiber 12 μm <sub>(c)</sub>			
FD = fiber 21 μm <sub>(c)</sub> β>1.000		FD	FD	FD	FD	FD	FD	FD	FD	FD = fiber 21 μm <sub>(c)</sub>			
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				

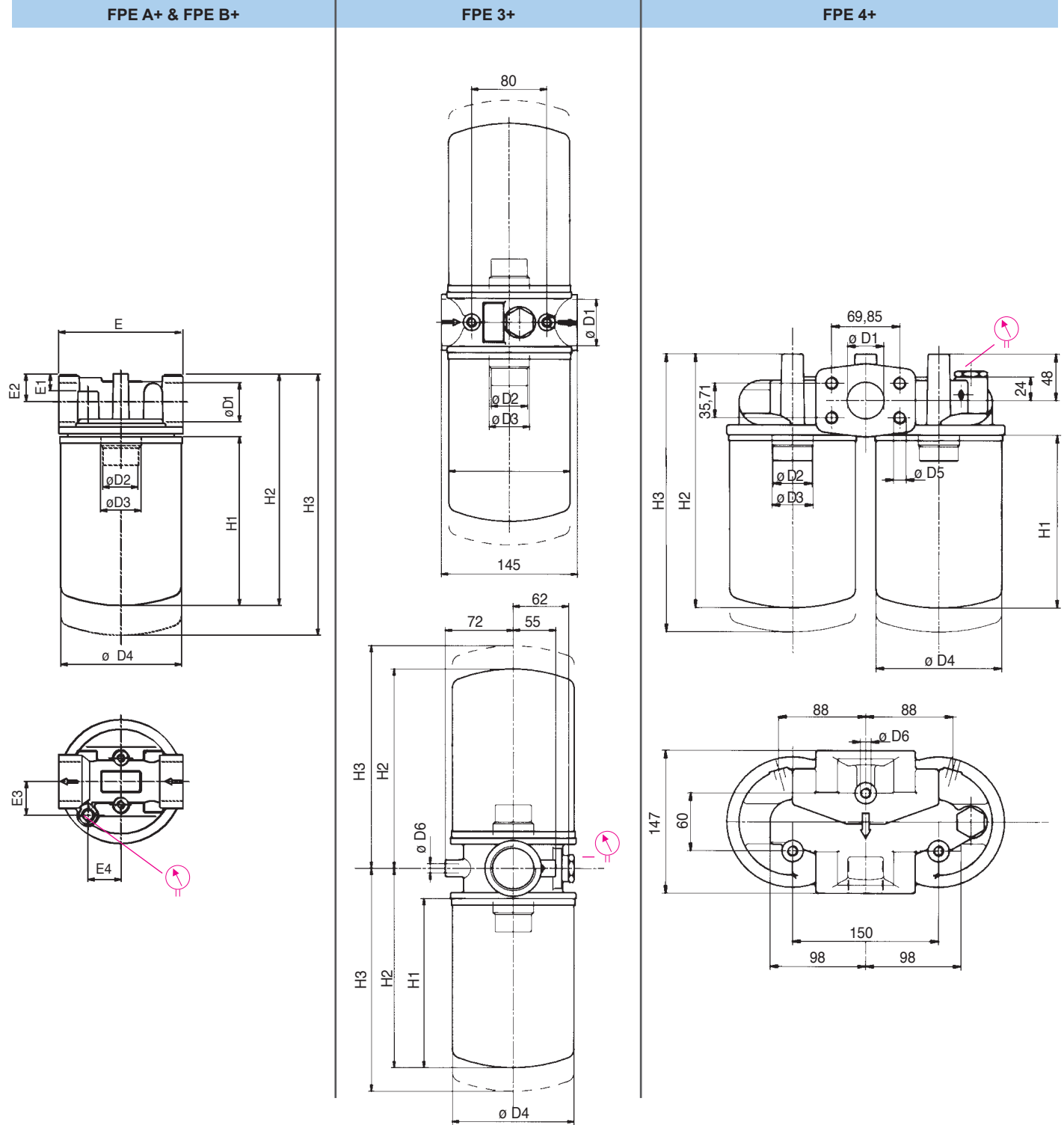
NOTE:  
ESE31+++ = nr. 2 x ESE21+++  
ESE32+++ = nr. 2 x ESE22+++  
ESE41+++ = nr. 2 x ESE21+++  
ESE42+++ = nr. 2 x ESE22+++

FILTER ELEMENT

	A	B	C	kg	Area (cm <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



**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

TYPE										ELEMENT		E
F = FILTER COMPLETE		F	F	F	F	F	F	F	F			
B = FILTER HOUSING		B	B	B	B	B	B	B	B			
P E	FAMILY									FAMILY		S
	NOMINAL SIZE & LENGTH	A1	A2	B1	B2	31	32	41	42	SIZE & LENGTH		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 μm <sub>(c)</sub> β>1.000		FA	FA	FA	FA	FA	FA	FA	FA	FA = fiber 5 μm <sub>(c)</sub>		
FB = fiber 7 μm <sub>(c)</sub> β>1.000		FB	FB	FB	FB	FB	FB	FB	FB	FB = fiber 7 μm <sub>(c)</sub>		
FC = fiber 12 μm <sub>(c)</sub> β>1.000		FC	FC	FC	FC	FC	FC	FC	FC	FC = fiber 12 μm <sub>(c)</sub>		
FD = fiber 21 μm <sub>(c)</sub> β>1.000		FD	FD	FD	FD	FD	FD	FD	FD	FD = fiber 21 μm <sub>(c)</sub>		
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	-	-	-	-			
ACCESSORIES												
XX = no accessory available		XX	XX	XX	XX	XX	XX	XX	XX			

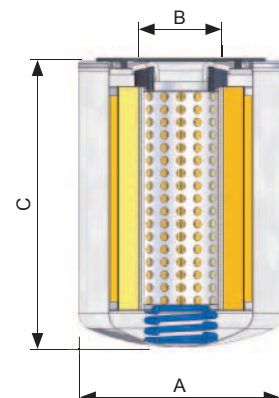
NOTE:  
ESEA1+++ = ESE11+++  
ESEA2+++ = ESE12+++  
ESEB1+++ = ESE21+++  
ESEB2+++ = ESE22+++  
ESE31+++ = nr. 2 x ESE21+++  
ESE32+++ = nr. 2 x ESE22+++  
ESE41+++ = nr. 2 x ESE21+++  
ESE42+++ = nr. 2 x ESE22+++

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

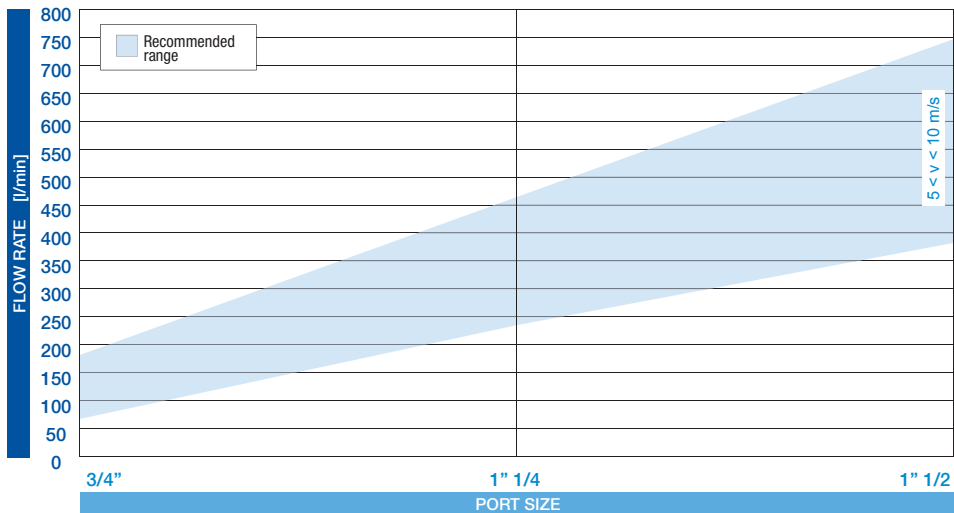
FILTER ELEMENT

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

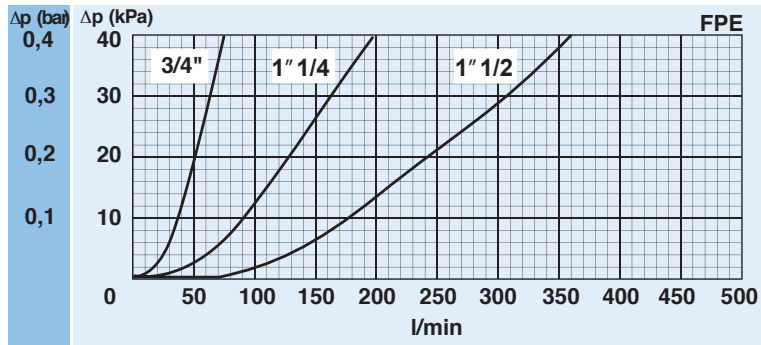


### PRESSURE DROP CURVES ( $\Delta p$ )

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)



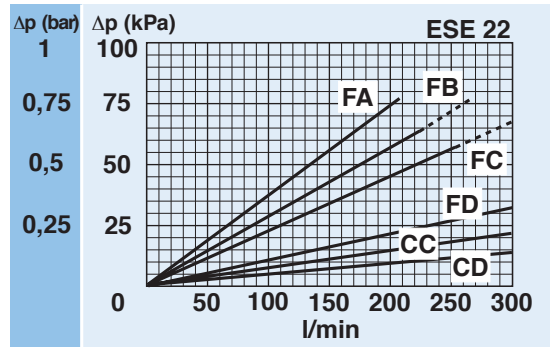
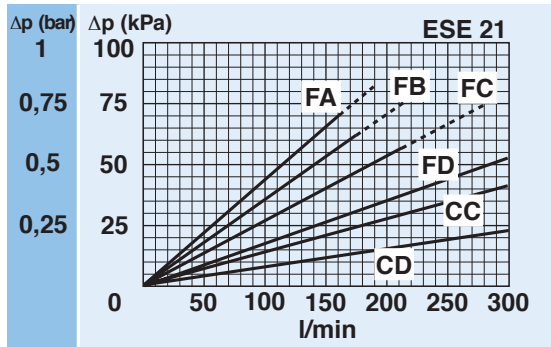
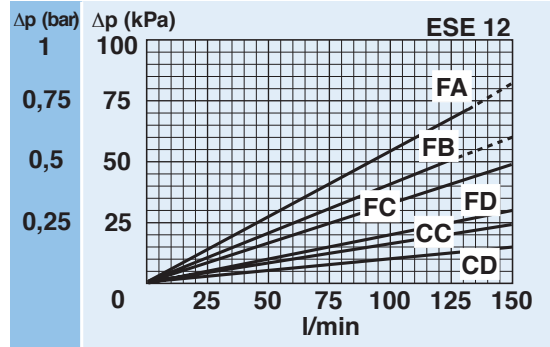
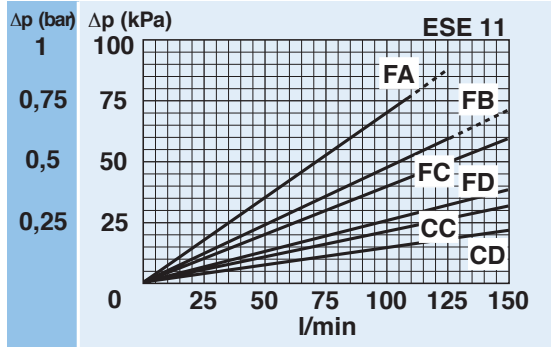
N.B. All the curves have been obtained with mineral oil having a kinematic viscosity 30 cSt and specific gravity 0,9 kg/dm<sup>3</sup>; for fluids with different features, please consider the factors described in the first part of this catalogue. All the curves are obtained from test done at the UFI 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 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**

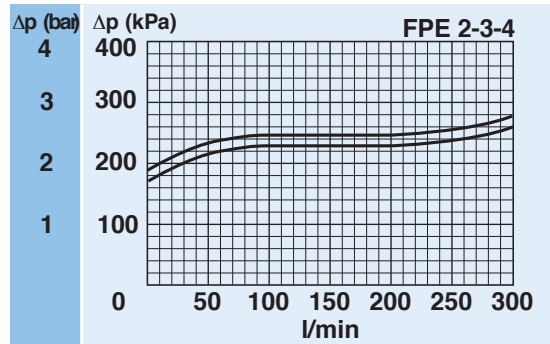
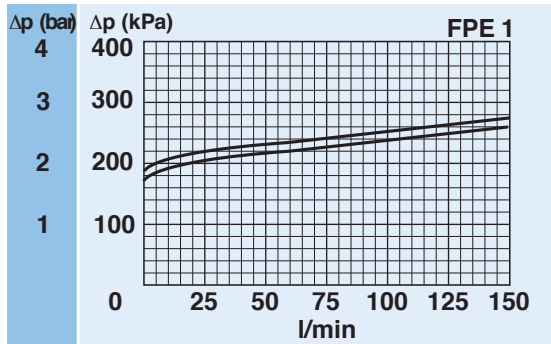
(depending both on the internal diameter of the element and on the filter media)



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.



N.B. All the curves have been obtained with mineral oil having a kinematic viscosity 30 cSt and specific gravity 0,9 kg/dm<sup>3</sup>; 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.





