



# RETURN FILTER - RA

## Pressure (ISO 10771-1:2002)

Max working: 300 kPa (3 bar)  
 Test: 500 kPa (5 bar)  
 Bursting: 1 MPa (10 bar)  
 Collapse, differential for the filter element (ISO 2941): 300 kPa (3 bar)

## Bypass Valve

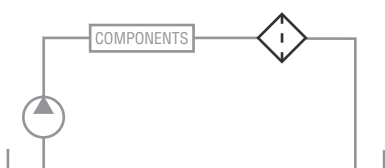
Setting: 170 kPa (1.7 bar) ± 10%

## Working Temperature

From -25° to +110° C

## Compatibility (ISO 2943:1999)

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



### Application Example



## Materials

Head and cover: Aluminium alloy  
 Bowl: Polyamide for FRA21-31-32-33-41  
 Zinc plated steel for FRA11-42-51-52-53-5D  
 Bypass valve: Polyamide  
 Seals: NBR Nitrile  
 FKM Fluoroelastomer on request  
 Indicator housing: Brass

## Ordering Codes - Element

E		Element													
R	A			Family, Nominal Size, Length	11	21	31	32	33	41	42	51	52	53	5D
		Seals													
		N = NBR Nitrile													
		F = FKM Fluoroelastomer													
		Filter Media													
		CC = Cellulose 10µm β>2													
		CD = Cellulose 25µm β>2													
		FA = Fibre 5µm(c) β>1.000													
		FB = Fibre 7µm(c) β>1.000													
		FC = Fibre 12µm(c) β>1.000													
		FD = Fibre 21µm(c) β>1.000													
		ME = wire mesh 60µm													

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## Ordering Codes - Filter

		<b>Type</b>										
		F = Filter Complete										
		F	F	F	F	F	F	F	F	F	F	F
		B = Filter Housing										
		B	B	B	B	B	B	B	B	B	B	B

R	A													
<b>Family, Nominal Size, Length</b>				11	21	31	32	33	41	42	51	52	53	5D

		<b>Port Type</b>										
		B = BSP Thread										
		B	B	B	B	B	B	B	B	B	B	B
		N = NPT Thread										
		N	N	N	N	N	N	N	N	N	N	N
		S = SAE Thread										
		-	S	S	S	S	S	S	S	S	S	S
		F = SAE flange 3000 psi										
		-	-	-	-	-	-	-	F	F	F	F

		<b>Port Size</b>										
		03 = 3/8"										
		03	-	-	-	-	-	-	-	-	-	-
		04 = 1/2"										
		-	04	04	-	-	-	-	-	-	-	-
		06 = 3/4"										
		-	-	06	06	06	-	-	-	-	-	-
		08 = 1"										
		-	-	-	08	08	08	08	-	-	-	-
		10 = 1 1/4" (F10 not available)										
		-	-	-	-	-	10	10	10	10	-	-
		12 = 1 1/2" (**F12 available for FRA4+ only)										
		-	-	-	-	-	(**)	(**)	12	12	-	-
		16 = 2"(F16 not available)										
		-	-	-	-	-	-	-	16	16	16	16
		20 = 2 1/2"										
		-	-	-	-	-	-	-	20	20	20	20

B	<b>Bypass Valve</b>											
B = 170 kPa (1.7 bar)												
	B	B	B	B	B	B	B	B	B	B	B	B

		<b>Seals</b>										
		N = NBR Nitrile										
		N	N	N	N	N	N	N	N	N	N	N
		F = FKM Fluoroelastomer										
		F	F	F	F	F	F	F	F	F	F	F

		<b>Filter Media</b>										
		CC = Cellulose 10µm β>2										
		CC	CC	CC	CC	CC	CC	CC	CC	CC	CC	CC
		CD = Cellulose 25µm β>2										
		CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD
		FA = Fibre 5µm <sub>(c)</sub> β>1.000										
		FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
		FB = Fibre 7µm <sub>(c)</sub> β>1.000										
		FB	FB	FB	FB	FB	FB	FB	FB	FB	FB	FB
		FC = Fibre 12µm <sub>(c)</sub> β>1.000										
		FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC
		FD = Fibre 21µm <sub>(c)</sub> β>1.000										
		FD	FD	FD	FD	FD	FD	FD	FD	FD	FD	FD
		ME = wire mesh 60µm										
		ME	ME	ME	ME	ME	ME	ME	ME	ME	ME	ME

		<b>Clogging Indicator</b>										
		01 = 1/8" port, plugged										
		01	01	01	01	01	01	01	01	01	01	01
		30 = pressure gauge, rear connection										
		30	30	30	30	30	30	30	30	30	30	30
		32 = pressure gauge, bottom connection										
		32	32	32	32	32	32	32	32	32	32	32
		P1 = SPDT, pressure switch										
		P1	P1	P1	P1	P1	P1	P1	P1	P1	P1	P1

		<b>Accessories</b>										
		W = without										
		W	W	W	W	W	W	W	W	W	W	W
		P = with filling plug										
		P	P	P	P	P	P	P	P	P	P	P

X	<b>Accessories X = no other accessories available</b>											
	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

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## HOUSINGS

Body Size	Connection	Flow Rate Max Lpm	Price £	Price €
FRA11	3/8"	25	ON REQUEST	
FRA21	1/2"	90	ON REQUEST	
FRA31	3/4"	150	ON REQUEST	
FRA32	1"	180	ON REQUEST	
FRA33	1"	180	ON REQUEST	
FRA41	1 1/4"	250	ON REQUEST	
FRA42	1 1/4"	250	ON REQUEST	
FRA51	2"	550	ON REQUEST	
FRA52	2"	550	ON REQUEST	
FRA53	2 1/2"	750	ON REQUEST	

## CLOGGING INDICATOR

Description	Article No	Price £	Price €
None - plugged	01	ON REQUEST	
Pressure gauge back entry	30	ON REQUEST	
Pressure gauge bottom entry	32	ON REQUEST	
Pressure switch - electrical signal	P1	ON REQUEST	

## FOR ELEMENT PART NUMBER

<b>E</b>	- ELEMENT
<b>RA</b>	- FILTER FAMILY SERIES
<b>11</b>	- FILTER HOUSING SIZE
<b>CC</b>	- ELEMENT MEDIA

Example:  
Part **ERA11CC** : element in 10 micron cellulose media for a size "11" housing

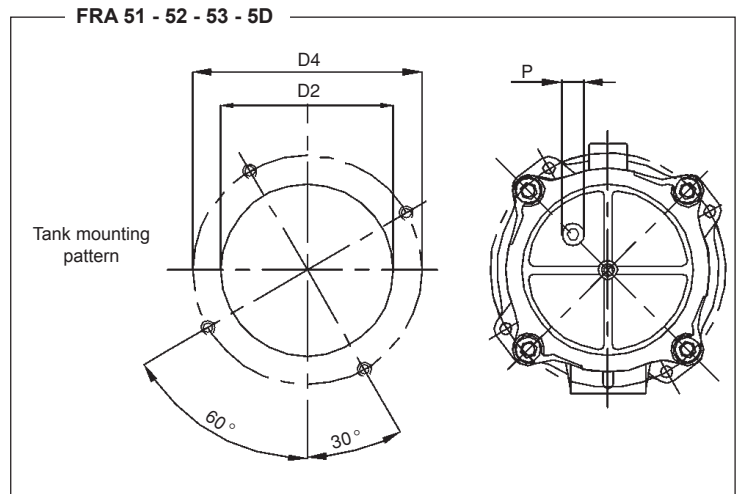
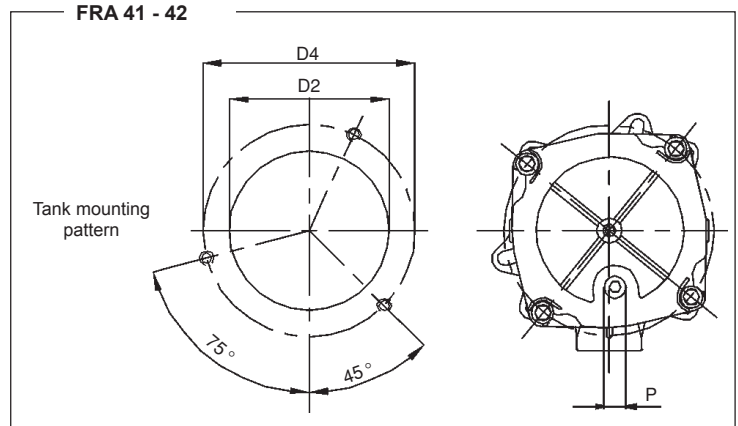
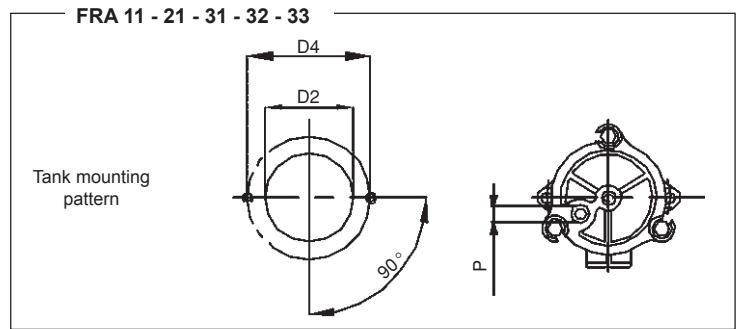
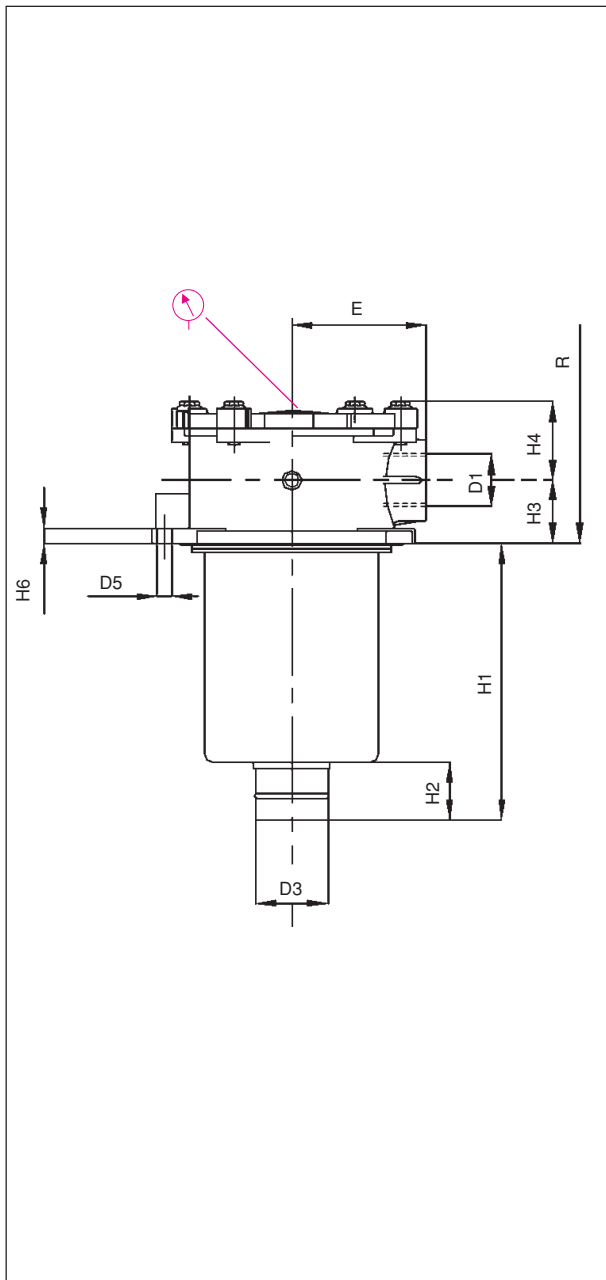
## ELEMENT to be added - Sizes 11 - 33

Element	Filtration	Size 11	Size 21	Size 31	Size 32	Size 33
FA	5 micron			ON REQUEST		
FB	7 micron			ON REQUEST		
FC	12 micron			ON REQUEST		
FD	21 micron			ON REQUEST		
CC	10 micron			ON REQUEST		
CD	25 micron			ON REQUEST		
ME	60 micron			ON REQUEST		

## ELEMENT to be added - Sizes 41 - 53

Element	Filtration	Size 41	Size 42	Size 51	Size 52	Size 53
FA	5 micron			ON REQUEST		
FB	7 micron			ON REQUEST		
FC	12 micron			ON REQUEST		
FD	21 micron			ON REQUEST		
CC	10 micron			ON REQUEST		
CD	25 micron			ON REQUEST		
ME	60 micron			ON REQUEST		

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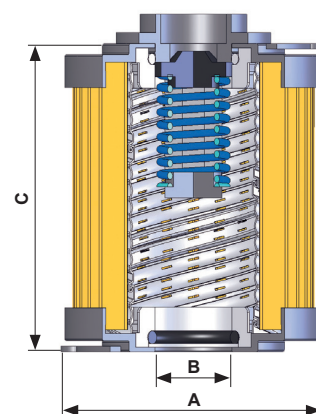


FILTER HOUSING															
	D1	min D2	max D2	D3	D4	D5	E	H1	H2	H3	H4	H6	P	R	kg
FRA11	3/8"	50	50	12	80	6,5	40	59	16	12	33	9	1/8"	90	0,30
FRA21	1/2"	67	68	24	90	6,5	50	80	20	22	33	9	3/8"	120	0,45
FRA31	1/2" - 3/4"	89	90	28	115	9	67	102	25	28	47	10	3/8"	150	0,80
FRA32	3/4" - 1"	89	90	28	115	9	67	150	25	28	47	10	3/8"	190	0,95
FRA33	3/4" - 1"	89	90	40	115	9	67	234	30	28	47	10	3/8"	270	1,10
FRA41	1" - 1 1/4" - 1 1/2"	126	131	40	175	10,5	95	248	50	35	56	13	1/2"	289	2,10
FRA42	1" - 1 1/4" - 1 1/2"	126	131	40	175	10,5	95	265	30	35	56	13	1/2"	306	2,30
FRA51	1 1/4" - 1 1/2" - 2" - 2 1/2"	174	180	50	220	10,5	115	178	50	55	69	13	1/2"	250	3,10
FRA52	1 1/4" - 1 1/2" - 2" - 2 1/2"	174	180	63,5	220	10,5	115	240	50	55	69	13	1/2"	315	3,60
FRA53	2" - 2 1/2"	174	180	63,5	220	10,5	115	285	50	55	69	13	1/2"	355	4,10
FRA5D	2" - 2 1/2"	174	180	63,5	220	10,5	115	300	50	55	69	13	1/2"	370	4,30

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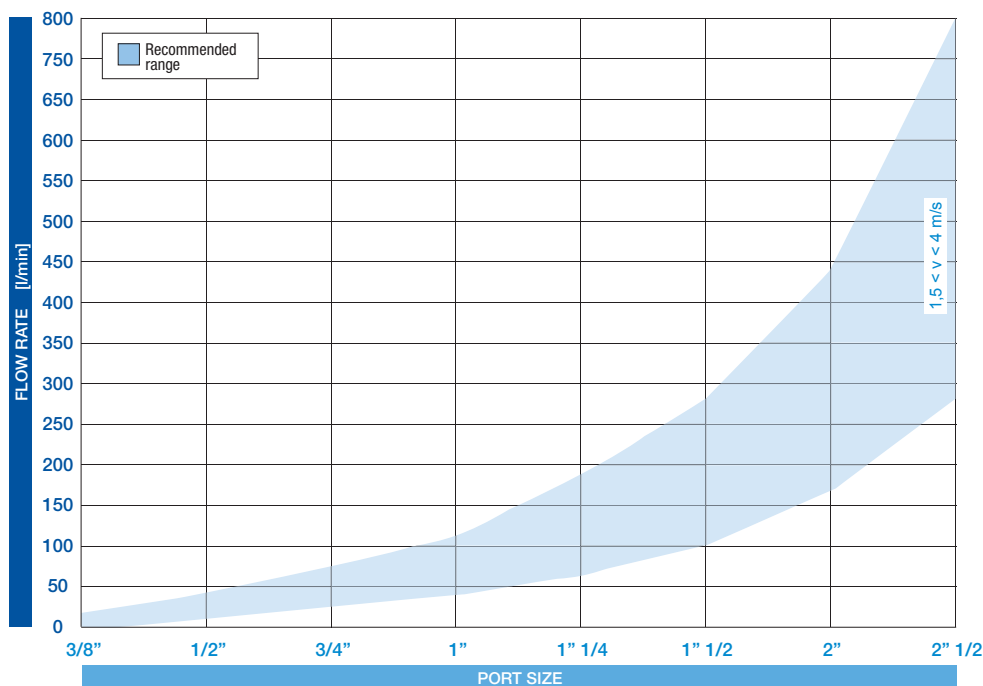
## FILTER ELEMENT

	A	B	C	kg	Area (cm <sup>2</sup> )	
					Media F+	Media C+
ERA11	38	13	50	0,05	270	345
ERA21	52	24	70	0,10	310	380
ERA31	70	28	85	0,20	620	990
ERA32	70	28	130	0,25	1.000	1.600
ERA33	70	40	210	0,40	1.660	2.670
ERA41	99	40	211	0,75	3.800	4.280
ERA42	99	40	250	0,90	4.550	5.100
ERA51	130	51	140	1,00	4.140	4.360
ERA52	130	63	200	1,35	6.190	6.520
ERA53	130	63	251	1,50	7.930	8.350
ERA5D	130	63	266	1,60	8.400	8.800



## FLUID SPEED

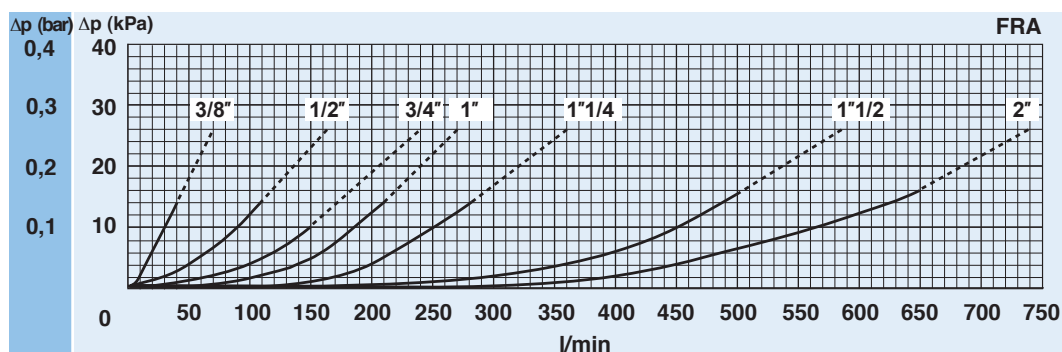
(when selecting the filter size, we suggest to consider also the max recommended fluid speed (in return lines normally  $1,5 < v < 4$  m/s))



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

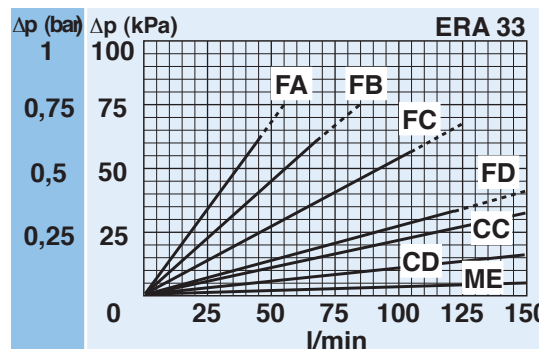
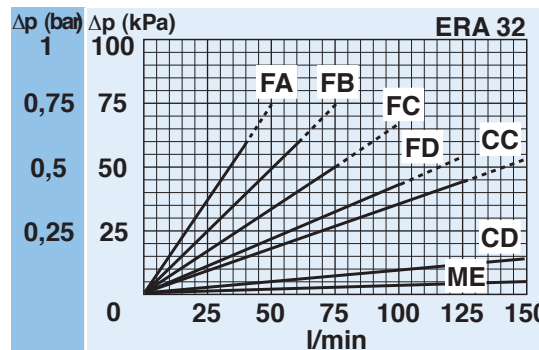
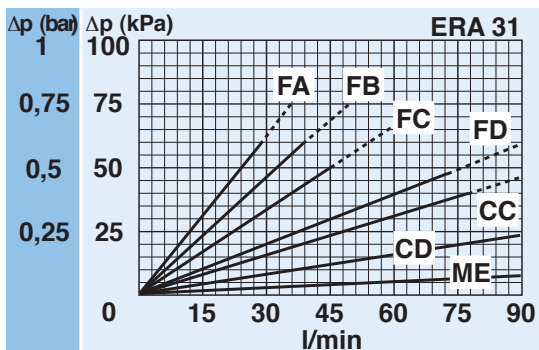
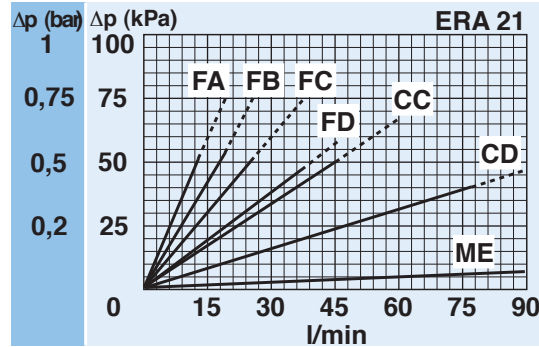
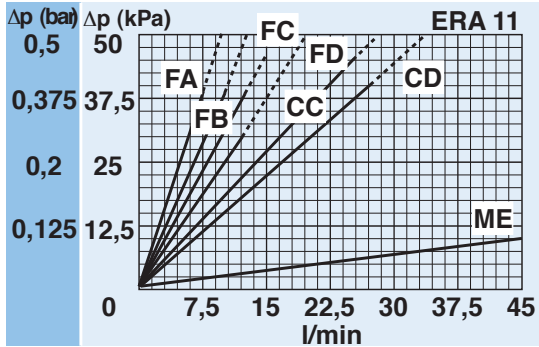
The "Assembly Pressure Drop ( $\Delta p$ )" is obtained by adding the pressure drop values of the Filter Housing and of the Clean Filter Element corresponding to the considered Flow Rate and it must be lower than 50 kPa (0,5 bar).

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



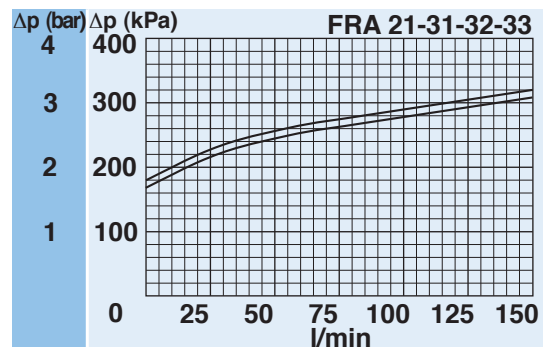
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CLEAN FILTER ELEMENT PRESSURE DROP WITH F+, C+ AND ME MEDIA  
(depending both on the internal diameter of the element and on the filter media)



## BYPASS VALVE PRESSURE DROP

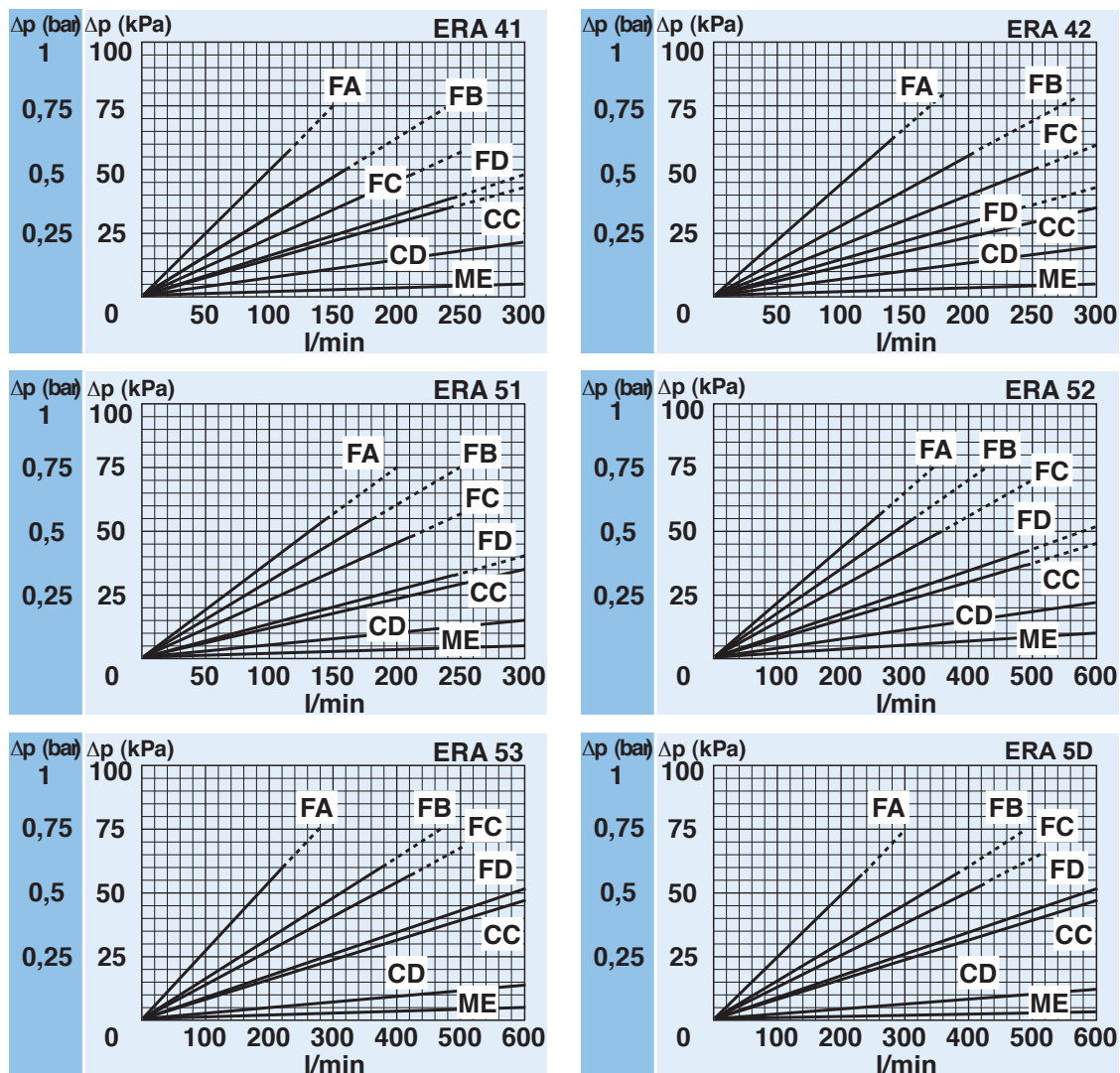
When selecting the filter size, these curves must be taken into account if it is foreseen that any flow peak is to be absorbed by the bypass valve, it also must be of proper configuration to avoid pressure peaks. The valve pressure drop is directly proportional to fluid specific gravity.



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## BYPASS VALVE PRESSURE DROP

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