



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

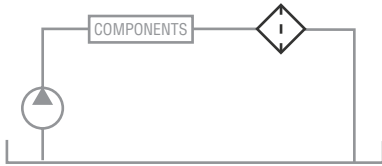
Setting: 170 kPa (1.7 bar) ± 10%

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
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	Seals													
	N = NBR Nitrile	N	N	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	F	F

	Filter Media													
	CC = Cellulose 10µm β>2	CC	CC	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	CD	CD
	FA = Fibre 5µm(e) β>1.000	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
	FB = Fibre 7µm(e) β>1.000	FB	FB	FB	FB	FB	FB	FB	FB	FB	FB	FB	FB	FB
	FC = Fibre 12µm(e) β>1.000	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC
	FD = Fibre 21µm(e) β>1.000	FD	FD	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	ME	ME

Return Filter - RA

Ordering Codes - Filter

<input type="checkbox"/>		Type										
		F = Filter Complete	F	F	F	F	F	F	F	F	F	F
		B = Filter Housing	B	B	B	B	B	B	B	B	B	B

<input type="checkbox"/>	<input type="checkbox"/>	Family, Nominal Size, Length	11	21	31	32	33	41	42	51	52	53	5D
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<input type="checkbox"/>		Port Type											
		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	F

<input type="checkbox"/>	<input type="checkbox"/>	Port Size											
		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

<input type="checkbox"/>	<input type="checkbox"/>	Bypass Valve											
		B = 170 kPa (1.7 bar)	B	B	B	B	B	B	B	B	B	B	B

<input type="checkbox"/>		Seals											
		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

<input type="checkbox"/>	<input type="checkbox"/>	Filter Media											
		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(e) β>1.000	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA	FA
		FB = Fibre 7µm(e) β>1.000	FB	FB	FB	FB	FB	FB	FB	FB	FB	FB	FB
		FC = Fibre 12µm(e) β>1.000	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC
		FD = Fibre 21µm(e) 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

<input type="checkbox"/>	<input type="checkbox"/>	Clogging Indicator											
		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

<input type="checkbox"/>	<input type="checkbox"/>	Accessories											
		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

<input type="checkbox"/>	<input type="checkbox"/>	Accessories X = no other accessories available	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	

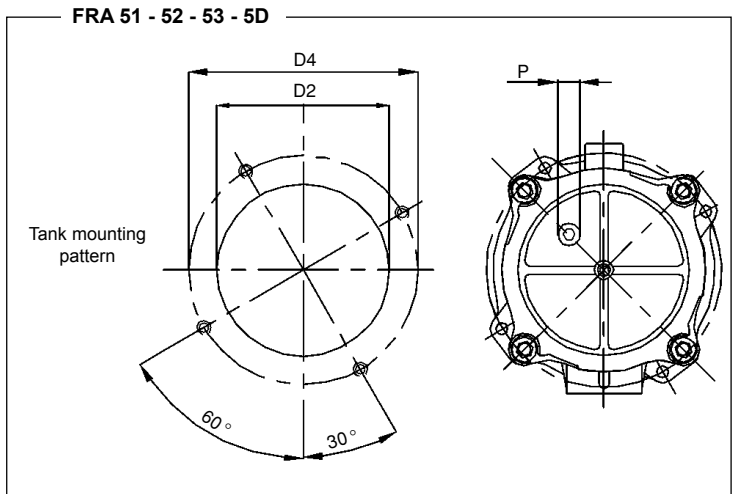
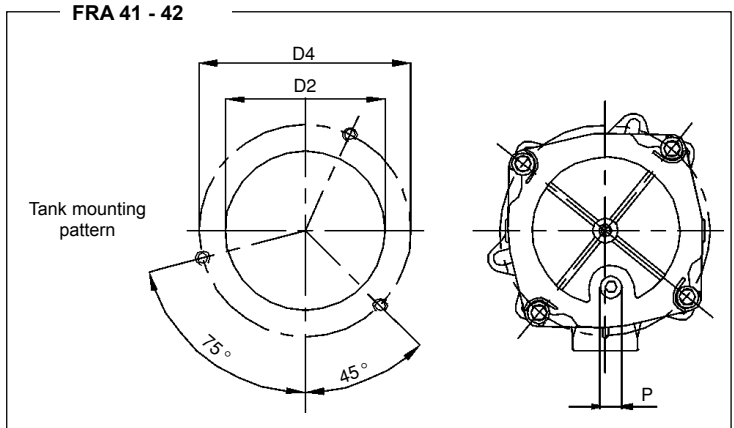
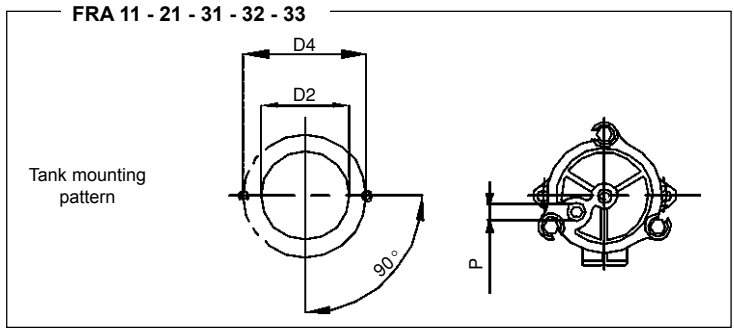
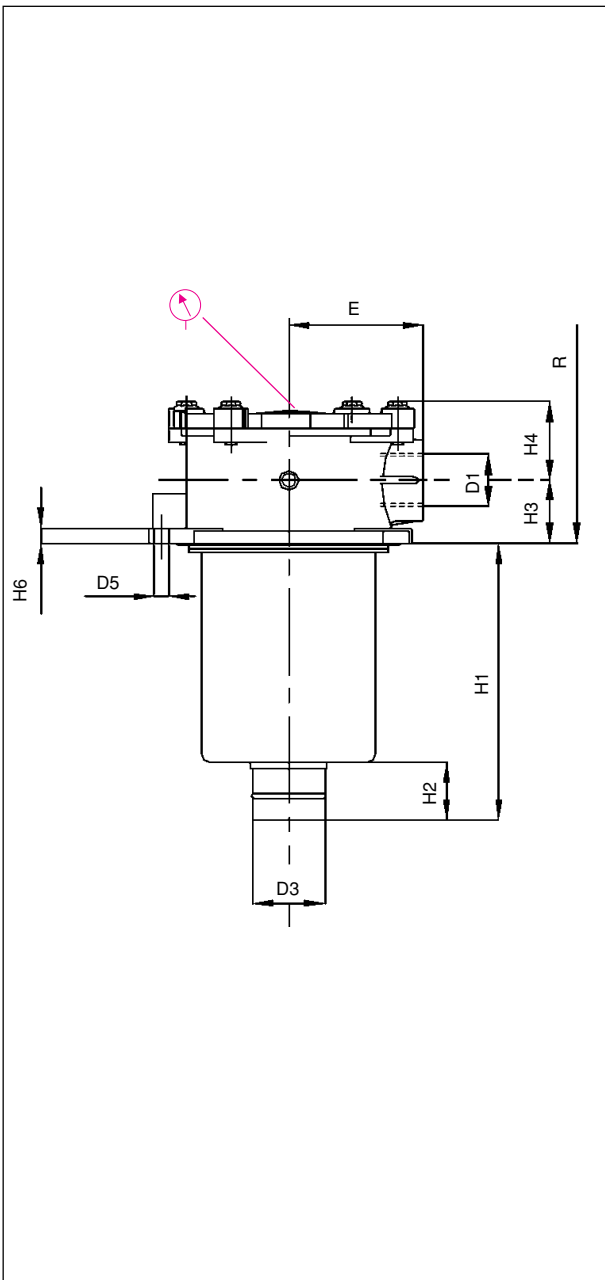
FOR ELEMENT PART NUMBER	
E	- ELEMENT
RA	- FILTER FAMILY SERIES
11	- FILTER HOUSING SIZE
CC	- ELEMENT MEDIA

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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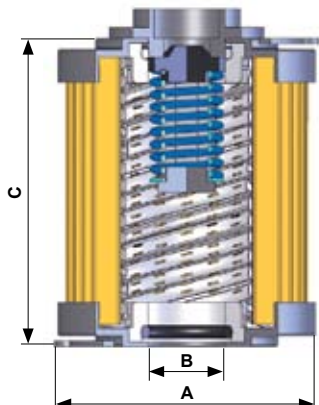


FILTER HOUSING

	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

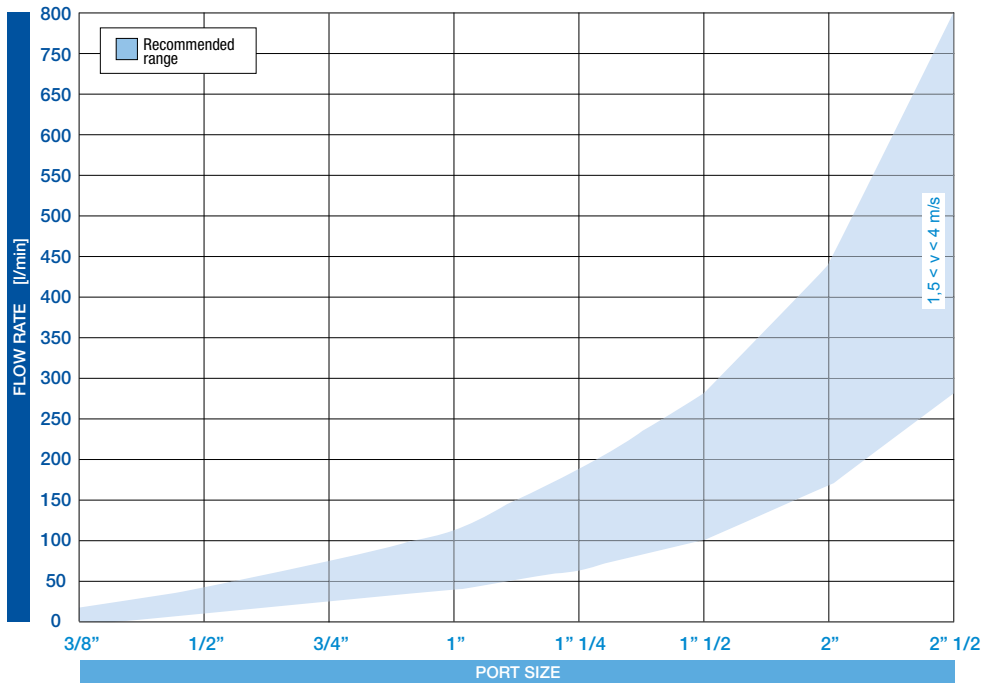
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FILTER ELEMENT	FILTER ELEMENT					
	A	B	C	kg	Area (cm ²)	
					Media F+	Media C+
ERA11	38	13	50	0,05	270	345
ERA21	52	24	70	0,10	310	380
ERA31	70	28	85	0,20	620	990
ERA32	70	28	130	0,25	1.000	1.600
ERA33	70	40	210	0,40	1.660	2.670
ERA41	99	40	211	0,75	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

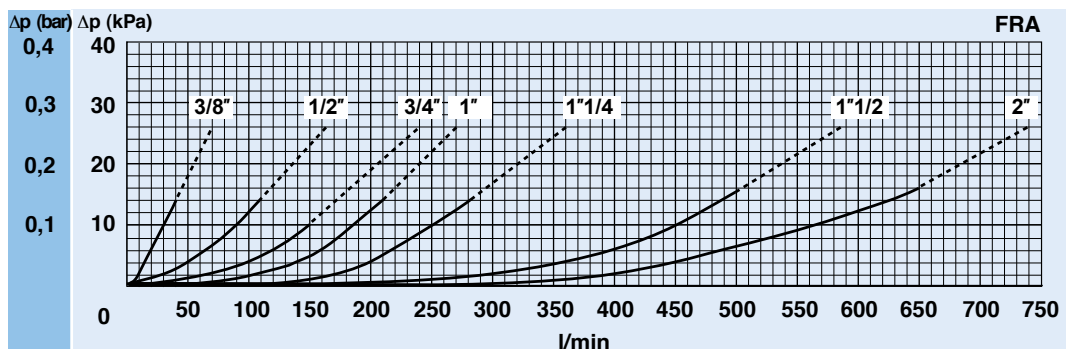
(when selecting the filter size, we suggest to consider also the max recommended fluid speed (in return lines normally $1,5 < v < 4$ m/s))



PRESSURE DROP CURVES (Δp)

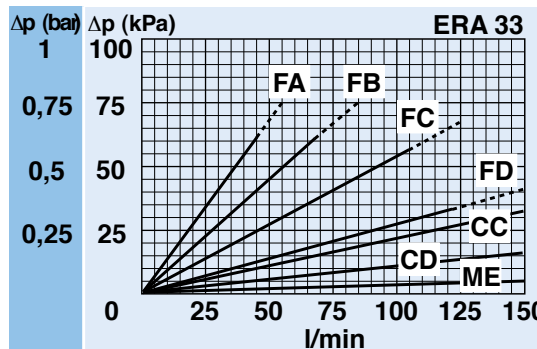
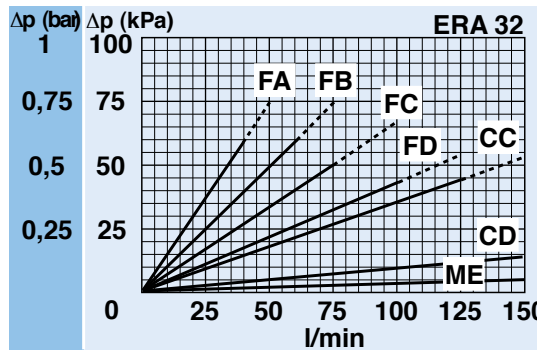
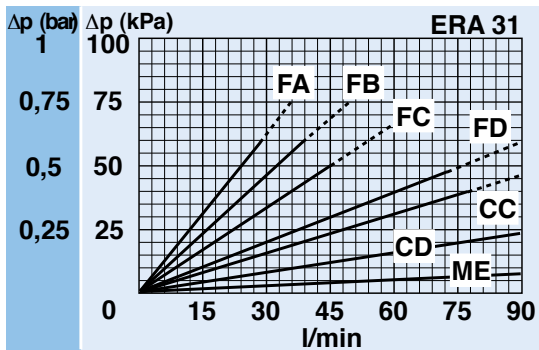
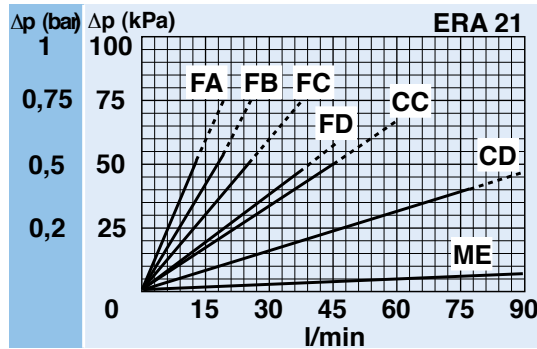
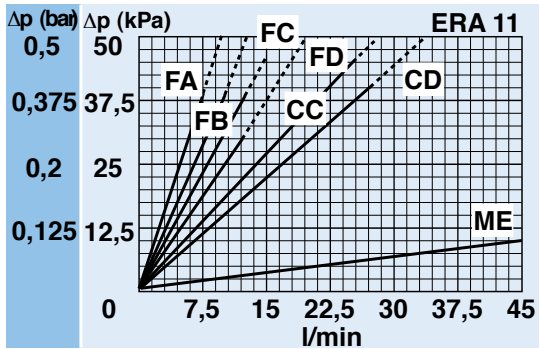
The "Assembly Pressure Drop (Δp)" is obtained by adding the pressure drop values of the Filter Housing and of the Clean Filter Element corresponding to the considered Flow Rate and it must be lower than 50 kPa (0,5 bar).

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



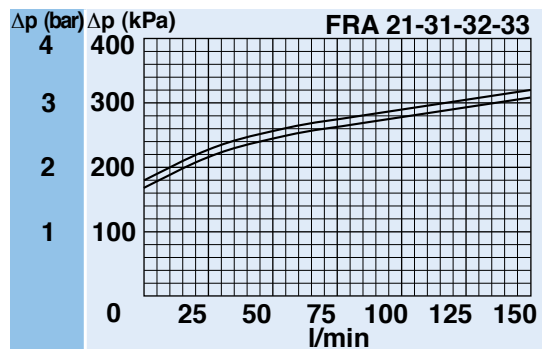
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CLEAN FILTER ELEMENT PRESSURE DROP WITH F+, C+ AND ME MEDIA
(depending both on the internal diameter of the element and on the filter media)



BYPASS VALVE PRESSURE DROP

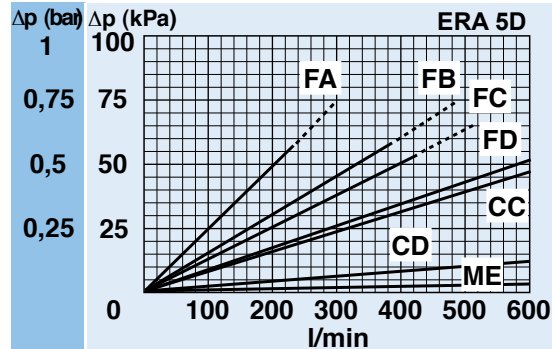
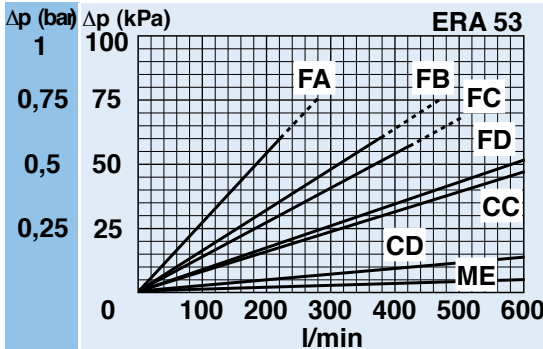
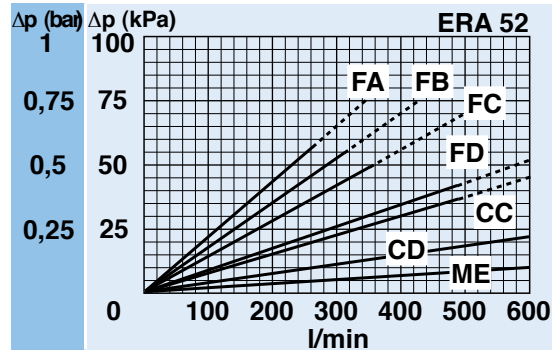
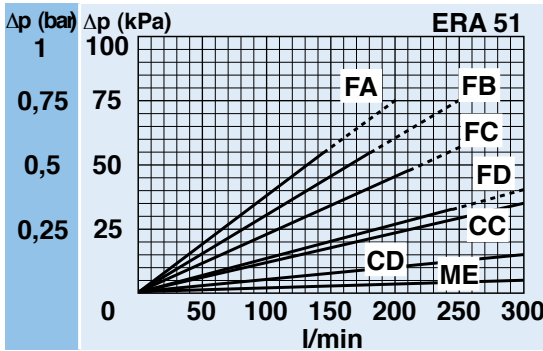
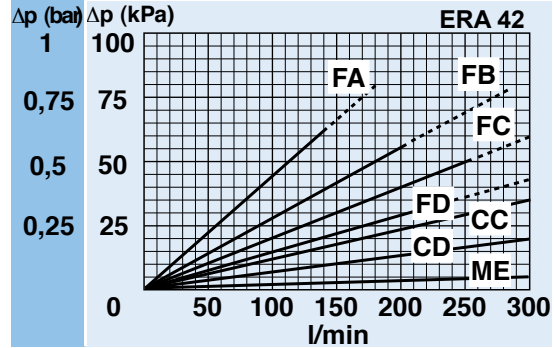
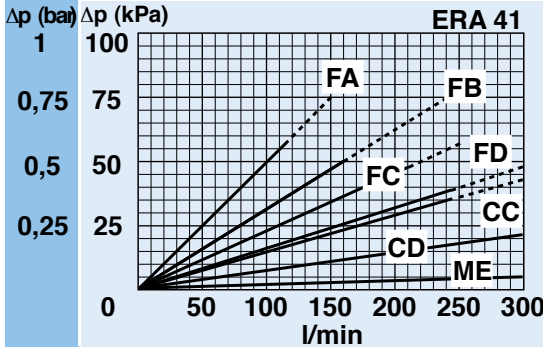
When selecting the filter size, these curves must be taken into account if it is foreseen that any flow peak is to be absorbed by the bypass valve, it also must be of proper configuration to avoid pressure peaks. The valve pressure drop is directly proportional to fluid specific gravity.



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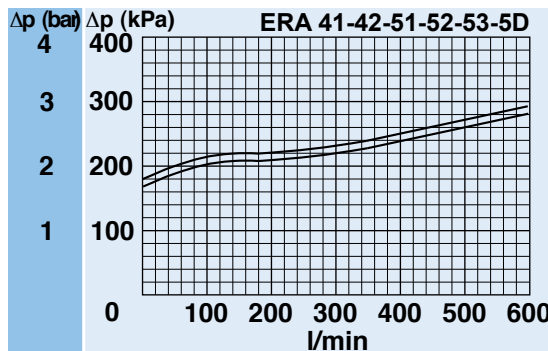
PRESSURE DROP CURVES (Δp)

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).



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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CLOGGING INDICATOR

A visual or electrical indicator is available as an option and allows monitoring of the element condition. The port for the indicator is a standard feature.

FILLING PLUG

The filling plug option gives the possibility of easily and efficiently filtering the oil from the drum.

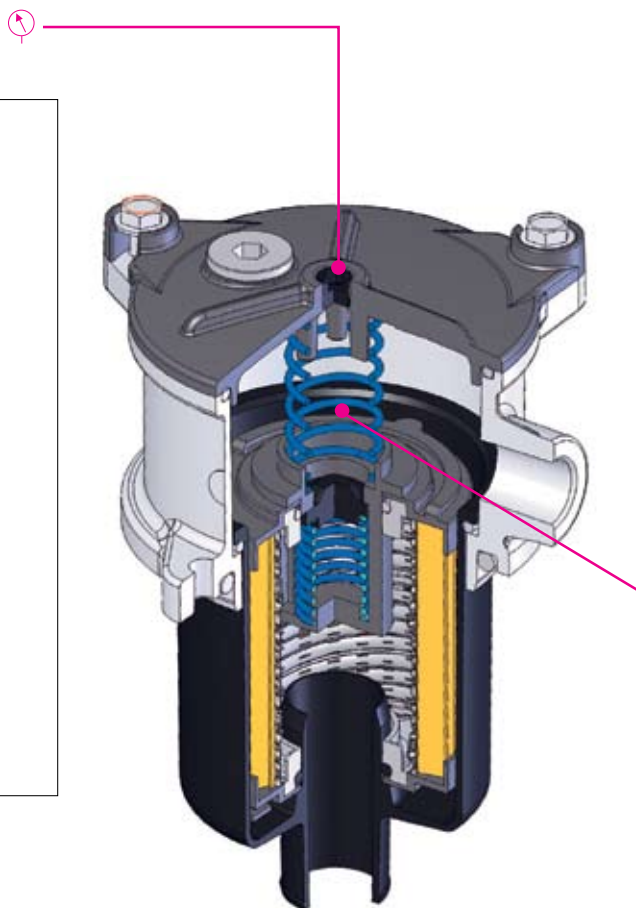
EASY REPLACEMENT

The top end cap includes a handle allowing an easy removal of the element and a complete cleaning of the bowl.

NO LEAKS

The end cap with captive O-ring ensures a perfect seal between filter element and bowl.

CLOGGING INDICATOR



SPARE SEAL KIT

	NBR	FKM
FRA11	521.0032.2	521.0039.2
FRA21	521.0012.2	521.0040.2
FRA31	521.0013.2	521.0041.2
FRA32	521.0013.2	521.0041.2
FRA33	521.0013.2	521.0041.2
FRA41	521.0014.2	521.0043.2
FRA42	521.0014.2	521.0043.2
FRA51	521.0015.2	521.0044.2
FRA52	521.0015.2	521.0044.2
FRA53	521.0015.2	521.0044.2
FRA5D	521.0015.2	521.0044.2

SPARE SPRING

FRA11	008.0032.1
FRA21	008.0149.1
FRA31	008.0003.1
FRA32	008.0003.1
FRA33	008.0003.1
FRA41	008.0151.1
FRA42	008.0151.1
FRA51	008.0028.1
FRA52	008.0028.1
FRA53	008.0028.1
FRA5D	008.0028.1

SPARE PARTS ELEMENTS

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

FILTER HOUSING	FILTER ELEMENT	CLOGGING INDICATOR	ACCESSORY
<input type="checkbox"/> B <input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/> <input type="checkbox"/> B <input type="checkbox"/> <input type="checkbox"/> X	<input type="checkbox"/> E <input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> X
			FILLING PLUG