FRI
RETURN LINE FILTER

DESCRIPTION

Tank top or external mounting return line filter

MATERIALS

Head : Aluminum alloy
Cover and Bowl: Aluminum alloy
Bypass valve: Polyamide
Seals: NBR Nitrile
Indicator housing: Brass

PRESSURE

Max. working: 1000 kPa (10 bar)
Collapse, differential for the filter element (ISO 2941):
300 kPa (3 bar)

BYPASS VALVE

Setting: 170 kPa (1,7 bar) ± 10%

FLOW RATE

Qmax 250 l/min

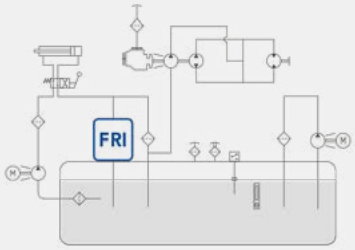
WORKING TEMPERATURE

From -25° to +90° C

COMPATIBILITY (ISO 2943)

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

HYDRAULIC DIAGRAM



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

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ORDERING AND OPTION CHART

F	R	I	COMPLETE FILTER FAMILY					FILTER ELEMENT FAMILY	E	R	A
			SIZE & LENGTH	21	31	32	41	SIZE & LENGTH			
			PORT TYPE								
			B = BSP thread	B	B	B	B				
			PORT SIZE								
			04 = 1/2”	04	-	-	-				
			06 = 3/4”	-	06	-	-				
			08 = 1”	-	-	08	-				
			10 = 1” 1/4	-	-	-	10				
		B	BYPASS VALVE								
			B = 170 kPa (1,7 bar)	B	B	B	B				
			SEALS					SEALS			
			N = NBR Nitrile	N	N	N	N				
			FormulaUFI MEDIA					FormulaUFI MEDIA			
			FA = FormulaUFI.MICRON 5 $\mu m_{(c)}$ β>1.000	FA	FA	FA	FA				
			FB = FormulaUFI.MICRON 7 $\mu m_{(c)}$ β>1.000	FB	FB	FB	FB				
			FC = FormulaUFI.MICRON 12 $\mu m_{(c)}$ β>1.000	FC	FC	FC	FC				
			FD = FormulaUFI.MICRON 21 $\mu m_{(c)}$ β>1.000	FD	FD	FD	FD				
			CD = FormulaUFI.CELL 25 µm β>2	CD	CD	CD	CD				
			CC = FormulaUFI.CELL 10 µm β>2	CC	CC	CC	CC				
			ME = FormulaUFI.WEB 60 µm	ME	ME	ME	ME				
			MF = FormulaUFI.WEB 90 µm	MF	MF	MF	MF				
			MG = FormulaUFI.WEB 250 µm	MG	MG	MG	MG				
			CLOGGING INDICATOR								
			01 = 1/8” port, plugged	01	01	01	01				
			30 = pressure gauge, rear connection	30	30	30	30				
			32 = pressure gauge, bottom connection	32	32	32	32				
			P1 = SPDT pressure switch	P1	P1	P1	P1				
		X	ACCESSORIES								
			X = no accessory	X	X	X	X				
		X	ACCESSORIES								
			X = no accessory	X	X	X	X				

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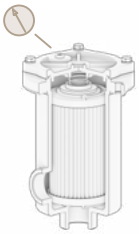
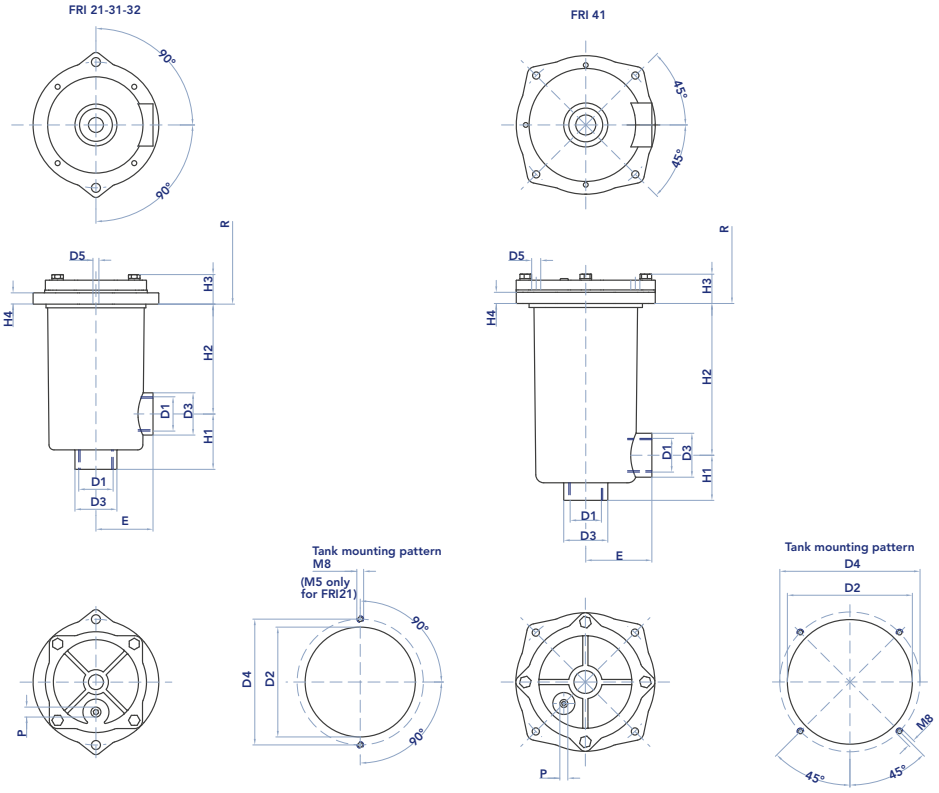
SPARE PARTS

FILTER HOUSING	FILTER ELEMENT	CLOGGING INDICATOR	ACCESSORY
			
B R I B B X X	E R A		X X

INSTALLATION DRAWING



FILTER HOUSING

	D1	min D2	max D2	D3	D4	D5	E	H1	H2	H3	H4	P	R	kg
FRI21	1/2"	88	89	35	100	6,5	48	33	71	22	7	1/8"	115	0,90
FRI31	3/4"	110	111	32	126	9	58	49	68	30	11	1/8"	125	1,40
FRI32	1"	110	111	42	126	9	58	57	110	30	11	1/8"	170	1,60
FRI41	1"1/4	155	157	55	175	9	83	57	190	37	14	1/8"	250	3,90

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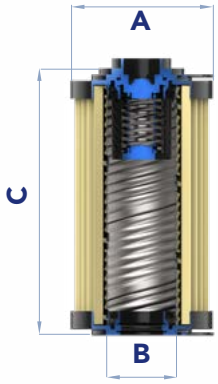
FILTER ELEMENT

	A	B	C	Kg	AREA (cm^2) Media F+	Media C+	Media M+
ERA21	52	24	70	0,10	310	380	240
ERA31	70	28	85	0,20	620	990	460
ERA32	70	28	130	0,25	1.000	1.600	740
ERA41	99	40	211	0,75	3.800	4.280	1.900



SPARE SEAL KIT

	NBR
FRI21	521.0138.2
FRI31	521.0139.2
FRI32	521.0139.2
FRI41	521.0141.2

SPARE SPRING

	NBR
FRI21	008.0381.1
FRI31	008.0381.1
FRI32	008.0381.1
FRI41	522.0001.2

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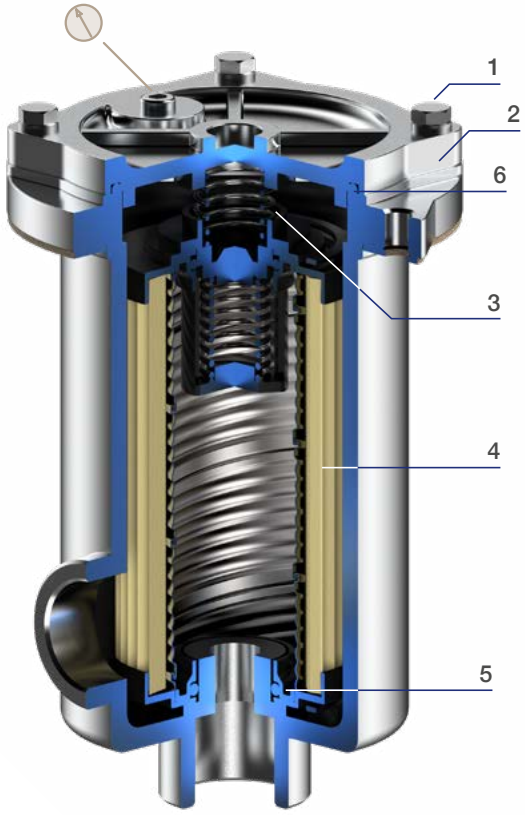
MAINTENANCE

Replacement of filter element and any accessories

1) Stop the system and ensure there is no pressure in the filter.
2) Unscrew the screws (1).
3) Remove the cover (2) and the spring (3) below.
4) Remove the dirty filter element (4) using its handle.

N.B. The exhausted filter elements and the oil dirty filter parts are classified as "Dangerous waste material" and must be disposed of according to local laws, by authorized companies.

5) Check the new filter element part number on the filter label or in the ordering and option chart. Use only original spare parts.
6) Lubricate the element O-ring gasket (5) with oil.
7) Insert the clean element into its seat, handling with care.
8) Re-assembly the spring (3).
9) Check the cover O-ring condition (6) and lubricate with oil. If damaged, check the seal kit part number in the spare seal kit table or contact the customer care service.
10) Re-assembly the cover (2) and tighten the screws (1).



Replacement of filter element and any accessories.

1) Accessories:
   Clogging indicator.
   If damaged, unscrew and replace it with a new one (please check the part number in the ordering and option chart). Apply a thread-sealing and screw until tight. N.B. over-tightening can damage the thread.

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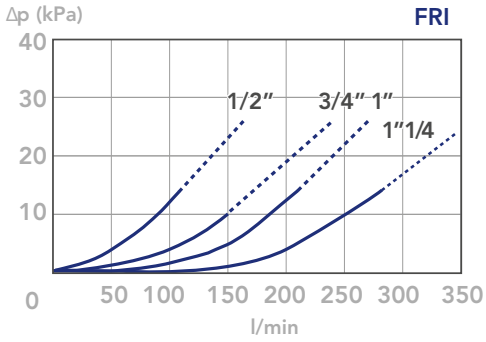
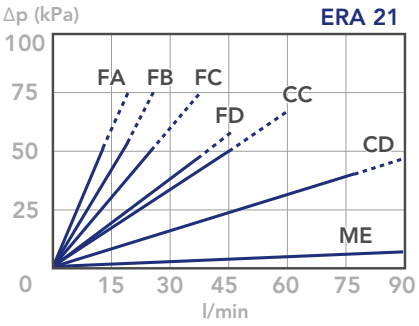
PRESSURE DROP CURVES (ΔP)

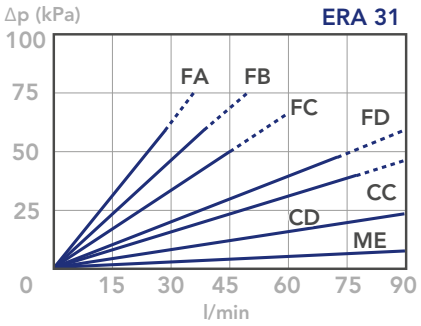
The “Assembly Pressure Drop (Δp)” is obtained by adding the pressure drop values of the Filter Housing and of the Clean Filter Element corresponding to the considered Flow Rate and it must be lower than 50 kPa (0,5 bar). In any case this value should never exceed 1/3 of the bypass valve setting.

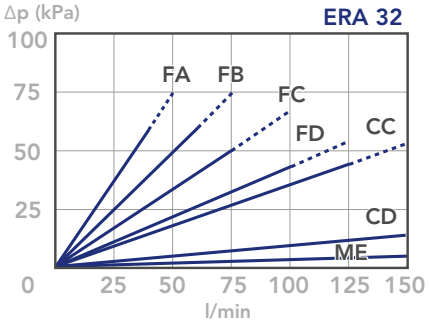
FILTER HOUSING PRESSURE DROP
(mainly depending on the port size)

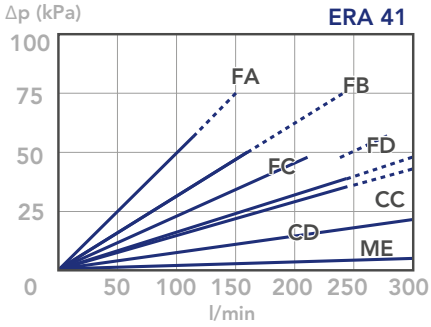


CLEAN FILTER ELEMENT PRESSURE DROP WITH F+ , C+ AND M+ MEDIA
(depending both on the internal diameter of the element and on the filter media)









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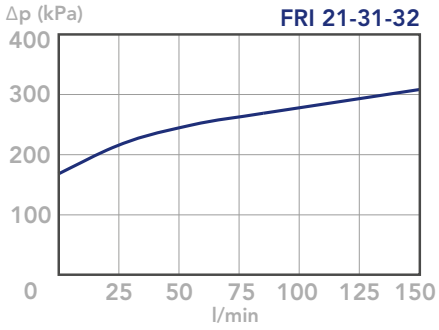
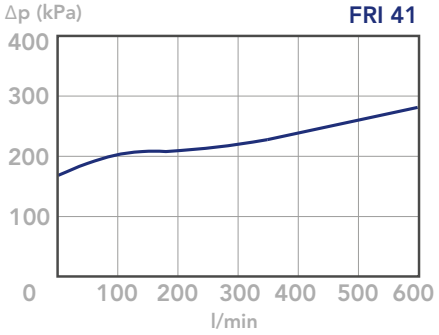
BYPASS VALVE PRESSURE DROP

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 0,86 kg/dm3; 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 FILTERS HYDRAULICS Laboratory, according to the specification ISO 3968. In case of discrepancy, please check the contamination level, viscosity and features of the fluid in use.