



## FCR7F-2-3 SERIES

Tank top return filters

Return filter for mounting on the tank lid. Filtration from inside to outside.

Flow rates up to 1200 l/min.



### HOUSING

tested according to NFPA T3.10.5.1\*, ISO 10771\*, ISO 3968

**PRESSURE:** Max operating: 10 bar  
Burst: 20 bar

**CONNECTIONS:** G 1" - G 1 1/2"  
1 1/4" SAE 3000 FLANGE M  
2" SAE 3000 FLANGE M  
2 1/2" SAE 3000 FLANGE M

**MATERIALS:** Head and cover: aluminium alloy  
Element holder: aluminium alloy  
Diffuser: stainless steel  
Seal: NBR (FKM on request)

**BYPASS VALVE:** B version 1,7 bar  
C version 3 bar

### ELEMENT

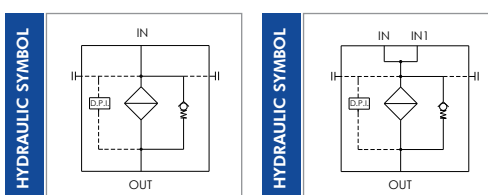
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181

**FILTER MEDIA:** Inorganic microfiber  
G03 - G06 - G10 - G15 - G25 - G40  
Paper: C10 - C25  
Wire mesh: T60  
Synthetic: M05 - M10 - M15

**BURST PRESSURE:** 10 bar

**TEMPERATURE RANGE:** -30°C +100°C

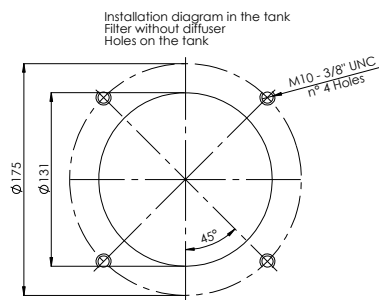
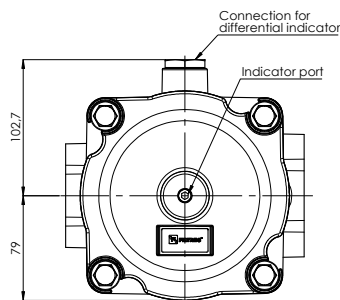
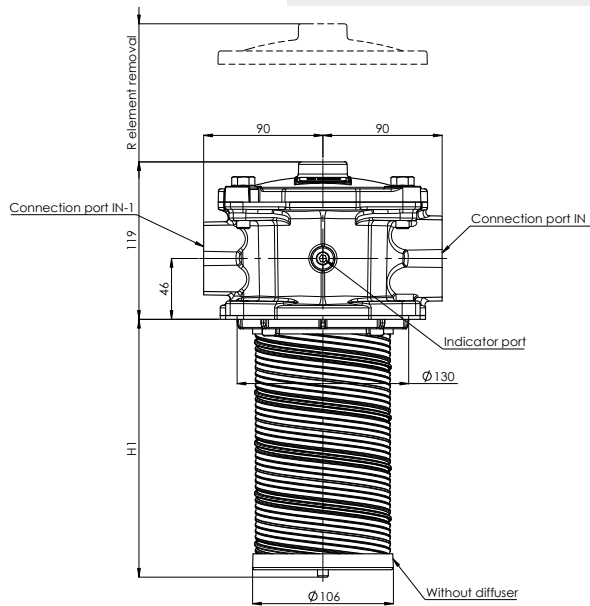
**FLUID COMPATIBILITY:** Full with HH-HL-HM-HV  
HETG-HEES (acc. to ISO 6743/4).  
For use with other fluid please contact Filtrac Customer Service (info@filtrac.it).



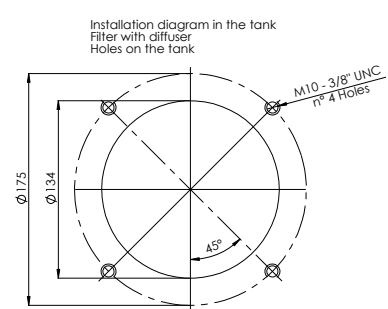
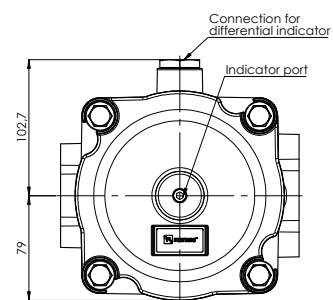
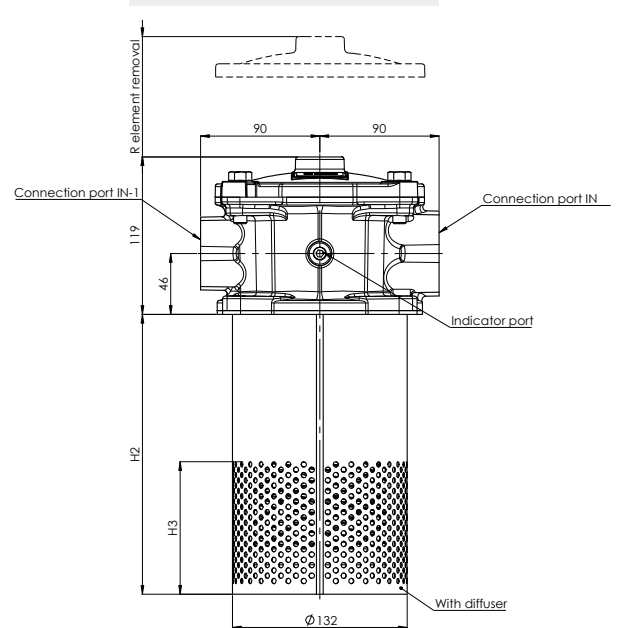
\* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

# FCR7F-2X

## VERSION 0



## VERSION S



## NOMINAL SIZE

MODEL	IN	IN-1	H1	H2	H3	R	WEIGHT*	
							Vers. 0	Vers. S
FCR7F-20	G 1 1/2"	G 1" 1 1/4" SAE 3000 M	194,5	211	100	274	2,7 Kg	3,1 Kg
FCR7F-21			264,5	281		344	2,7 Kg	3,5 Kg
FCR7F-22			469,5	486	150	549	2,9 Kg	4,1 Kg
FCR7F-26			524,5	541		604	2,9 Kg	4,3 Kg

\* Weight without element and magnets

## ORDERING INFORMATION

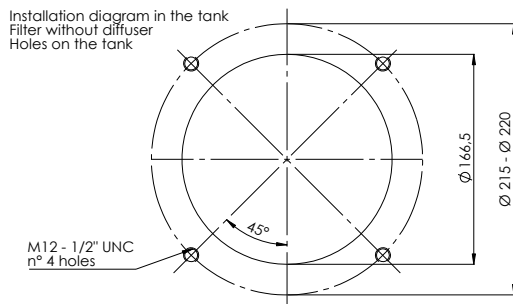
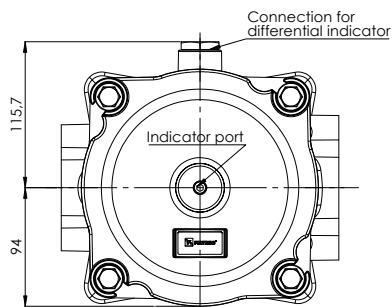
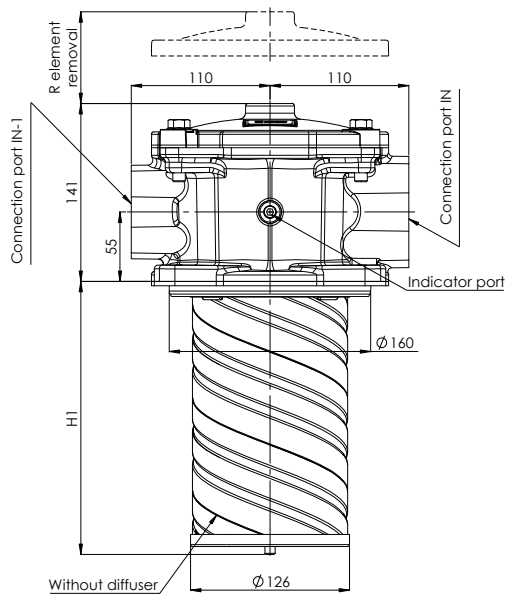
1.	2.	3.	4.	5.	6.	7.	8.	9.	10	11.	12.	13.
<b>FC</b>	<b>R7F</b>	<b>21</b>	<b>G10</b>	<b>B</b>	<b>B7</b>	<b>B5F6M</b>	<b>B</b>	<b>0</b>	<b>0</b>	<b>T</b>	<b>0</b>	<b>000</b>
SPARE ELEMENT	<b>R7F</b>	<b>21</b>	<b>G10</b>	<b>B</b>								

1. FILTER SERIES	FC	
2. FILTER ELEMENT SERIES	R7F	
3. FILTER SIZE	20	
	21	
	22	
	26	
4. FILTER MEDIA	00	no element
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} > 1.000$
	C10	paper $\beta_{10\mu m(c)} > 2$
	C25	paper $\beta_{25\mu m(c)} > 2$
	T60	wire mesh 60 $\mu m$
	M05	synthetic $\beta_{10\mu m(c)} > 1.000$
	M10	synthetic $\beta_{15\mu m(c)} > 1.000$
	M15	synthetic $\beta_{20\mu m(c)} > 1.000$
5. SEALS	B	NBR
	V	FKM (on request)
6. MAIN PORT	B7	G 1 1/2"
7. ADDITIONAL PORT	B5F6M	G 1" + 1 1/4" SAE 3000 FLANGE M
8. BYPASS VALVE	B	1,7 bar
	C	3 bar
9. MAGNETS	0	no magnets
	M	with magnets
10. DIFFUSER	0	no diffuser
	S	with diffuser
11. INDICATOR PORT OPTION (R 1/8" plugged)	P	differential indicator port with plastic plug
	T	differential indicator port with metal plug
12. COVER OPTION	0	without
	T	with filling plug on top cover G 3/4"
	C	R 1/8" on the cover (plugged)
13. COMPULSORY FIELD	000	Filtrec standard

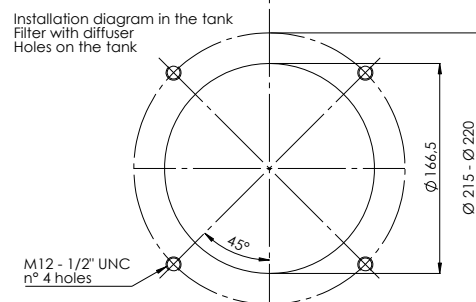
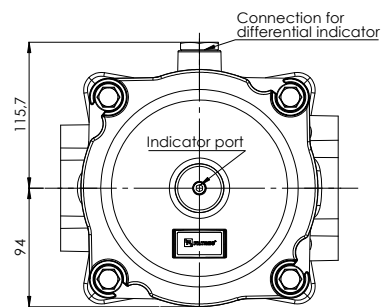
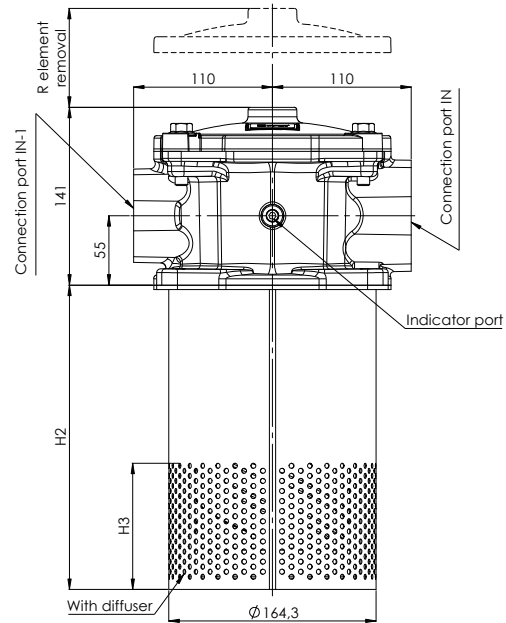
ACCESSORIES	LC24	LED connector for PDB / PDC / E02	
The accessories must be ordered separately (F) digit for FKM seal option	MPB	pressure gauge rear connection	
	MRB	pressure gauge radial connection	with "B" bypass option
	PDB	pressure switch	
	MPC	pressure gauge rear connection	
	MRC	pressure gauge radial connection	
	PDC	pressure switch	with "C" bypass option
	E02 (EF2)	differential visual 2,7 bar	
	V02 (VF2)	differential electric 2,7 bar	
	VEF2	differential visual electric 2,7 bar	

# FC-R7F-3X

## VERSION 0



## VERSION S



## NOMINAL SIZE

MODEL	IN	IN-1	H1	H2	H3	R	WEIGHT*	
							Vers. 0	Vers. S
FCR7F-30	2 1/2" SAE 3000 M or not machined	2" SAE 3000 M or not machined	216	241	100	290	6,4 Kg	7,4 Kg
FCR7F-31			296	321		370	6,5 Kg	7,7 Kg
FCR7F-33			396	421		470	6,6 Kg	8,1 Kg
FCR7F-32			486	511	150	560	6,6 Kg	8,3Kg
FCR7F-37			786	811		860	6,8 Kg	9,5 Kg

\* Weight without element and magnets

# ORDERING INFORMATION



	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
	<b>FC</b>	<b>R7F</b>	<b>32</b>	<b>G10</b>	<b>B</b>	<b>F9M</b>	<b>F8M</b>	<b>B</b>	<b>0</b>	<b>0</b>	<b>T</b>	<b>0</b>	<b>000</b>
SPARE ELEMENT	<b>R7F</b>	<b>32</b>	<b>G10</b>	<b>B</b>									

1. FILTER SERIES	FC	
2. FILTER ELEMENT SERIES	R7F	
3. FILTER SIZE	30	
	31	
	33	
	32	
	37	
4. FILTER MEDIA	00	no element
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} > 1.000$
	C10	paper $\beta_{10\mu m(c)} > 2$
	C25	paper $\beta_{25\mu m(c)} > 2$
	T60	wire mesh 60 $\mu m$
	M05	synthetic $\beta_{10\mu m(c)} > 1.000$
	M10	synthetic $\beta_{15\mu m(c)} > 1.000$
	M15	synthetic $\beta_{20\mu m(c)} > 1.000$
5. SEALS	B	NBR
	V	FKM (on request)
6. MAIN PORT	00	not machined
	F9M	2 1/2" SAE 3000 FLANGE M
7. ADDITIONAL PORT	00	not machined
	F8M	2" SAE 3000 FLANGE M
8. BYPASS VALVE	B	1,7 bar
	C	3 bar
9. MAGNETS	0	no magnets
	M	with magnets
10. DIFFUSER	0	no diffuser
	S	with diffuser
11. INDICATOR PORT OPTION (R 1/8" plugged)	P	differential indicator port with plastic plug
	T	differential indicator port with metal plug
12. COVER OPTION	0	without
	T	with filling plug on top cover G 3/4"
	C	R 1/8" on the cover (plugged)
13. COMPULSARY FIELD	000	Filtrec standard

ACCESSORIES	LC24	LED connector for PDB / PDC / E02	
The accessories must be ordered separately (F) digit for FKM seal option	MPB	pressure gauge rear connection	
	MRB	pressure gauge radial connection	with "B" bypass option
	PDB	pressure switch	
	MPC	pressure gauge rear connection	
	MRC	pressure gauge radial connection	
	PDC	pressure switch	
	E02 (EF2)	differential visual 2,7 bar	
	V02 (VF2)	differential electric 2,7 bar	
	VEF2	differential visual electric 2,7 bar	with "C" bypass option

## PRESSURE DROP ( $\Delta p$ ) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing  $\Delta p$  + Element  $\Delta p$ .

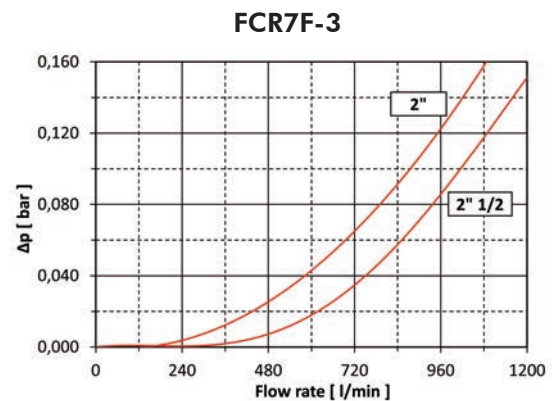
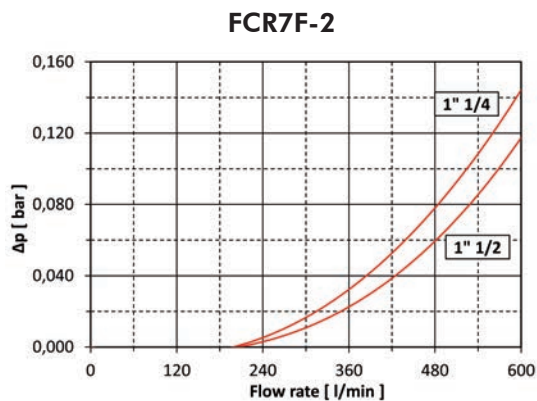
The max recommended total  $\Delta p$  for return filters is 0,4 – 0,6 bar with clean element.

For multiport versions, the housing  $\Delta p$  to be considered is the sum of the  $\Delta p$  through all the ports that can be used contemporarily.

N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity at 40°C and density 0,875 kg/dm<sup>3</sup>.

## HOUSING PRESSURE DROP

The housing  $\Delta p$  is given by the curve of the considered model and port, in correspondence of the flow rate value.



## ELEMENT PRESSURE DROP

The element  $\Delta p$  (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000.

If the oil has a viscosity  $V_1$  different than 32 cSt a corrective factor  $V_1/32$  must be applied.

Example: 600 l/min with R7F32G10B and oil viscosity 46 cSt:  $600 \times 0,56/1000 \times 46/32 = 0,48$  bar

	G03	G06	G10	G15	G25	G40	M05	M10	M15	C10	C25	T60
<b>R7F20</b>	3,62	2,95	1,31	1,06	0,97	0,68	1,01	0,88	0,70	0,79	0,60	0,19
<b>R7F21</b>	2,35	1,99	0,98	0,82	0,74	0,51	0,76	0,64	0,56	0,60	0,49	0,12
<b>R7F22</b>	1,67	1,42	0,62	0,48	0,41	0,27	0,47	0,38	0,29	0,34	0,25	0,09
<b>R7F26</b>	1,10	0,95	0,42	0,29	0,25	0,19	0,28	0,24	0,20	0,22	0,17	0,07
<b>R7F30</b>	2,81	2,24	1,21	0,94	0,83	0,54	0,92	0,78	0,63	0,70	0,50	0,13
<b>R7F31</b>	1,85	1,71	0,76	0,49	0,35	0,29	0,47	0,34	0,30	0,33	0,25	0,10
<b>R7F33</b>	1,18	1,07	0,44	0,38	0,30	0,21	0,36	0,29	0,24	0,28	0,18	0,08
<b>R7F32</b>	1,32	1,11	0,56	0,40	0,32	0,24	0,39	0,31	0,26	0,31	0,20	0,09
<b>R7F37</b>	0,59	0,45	0,32	0,28	0,24	0,15	0,26	0,20	0,16	0,18	0,13	0,06

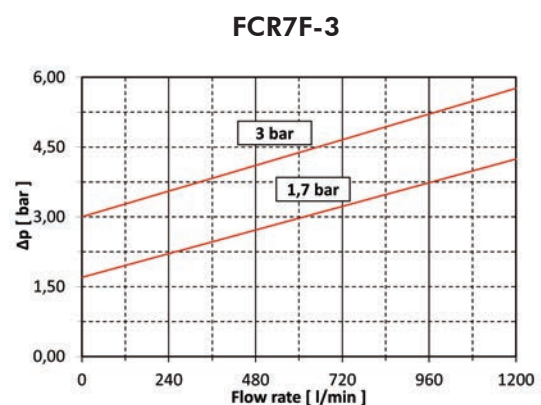
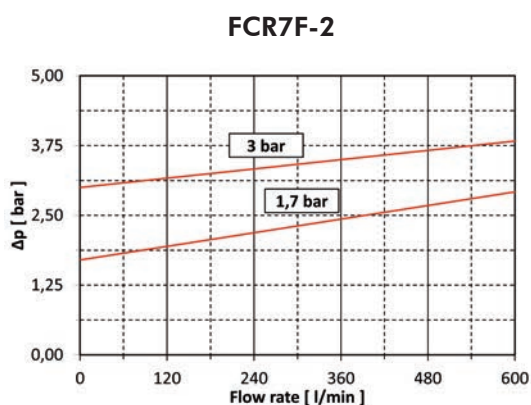
## EXAMPLE OF TOTAL $\Delta p$ CALCULATION

FCR7F32G10BF9MF8MBOOT0MPB with **80** l/min and oil **46** cSt:

Housing  $\Delta p$  0,02 bar + element  $\Delta p$  0,48 bar ( $600 \times 0,56/1000 \times 46/32$ ) = total assembly  $\Delta p$  0,50 bar

## BYPASS VALVE PRESSURE DROP

The bypass valve  $\Delta p$  is given by the curve of the considered model and setting, in correspondence of the flow rate value.



N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity and density 0,875 Kg/dm<sup>3</sup>.

## USER TIPS



- 1 COVER
- 2 SCREW
- 3 SPRING
- 4 ELEMENT HOLDER
- 5 GASKETS
- 6 MAGNETS
- 7 FILTER ELEMENT
- 8 FIXING NUT
- 9 FILTER HEAD
- 10 DIFFUSER
- 11 DIFFERENTIAL INDICATOR PORT

### SPARE SEALS KIT (5)

	NBR	FKM (on request)
FCR7F2-X-XXX	06.021.00351	06.021.00352
FCR7F3-X-XXX	06.021.00353	06.021.00354

### INDICATOR TIGHTENING TORQUE

PRESSURE GAUGE / SWITCH	10 Nm
DIFFERENTIAL	50 Nm

### COVER SCREWS TIGHTENING TORQUE (2)

M10	30 Nm
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## WARNING

- ⚠ Make sure that Personal Protective Equipment (PPE) is worn during installation and maintenance operation.

## DISPOSAL OF FILTER ELEMENT

- ⚠ The used filter elements and the filter parts dirty of oil are classified as "Dangerous waste material": they must be disposed according to the local laws by authorized Companies.

## INSTALLATION

- ⚠ 1. make sure that all the filter components are properly mounted as per exploded view directions
- 2. enough space must be available for filter element replacement
- 3. keep in stock a spare FILTREC filter element for timely replacement when required

## OPERATION

- ⚠ 1. the filter must work within the operating conditions of pressure, temperature and compatibility given in the first page of this data sheet
- 2. the filter element must be replaced as soon as the clogging indicator signals at working temperature
- 3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations

## MAINTENANCE

- ⚠ 1. before removing the access cover (1), ensure that the system is switched off and there is no residual pressure in the filter
- 2. remove the access cover (1)
- 3. remove the spring (3) and extract the filter element assembly
- ⚠ 4. warning : a certain quantity of oil can be retained within the filter element, provide to have a proper container available for it
- 5. unscrew the nut at the bottom of the insert and slip the dirty filter element carefully
- 6. clean the tie rod (and the magnets if present) and check the support gaskets / o-ring (5) conditions, replace them if necessary
- 7. fit a new FILTREC element, the spacer and the washer over the tie rod, then screw on it the fixing nut. To achieve the optimal element fitting, tighten the nut until it gets in touch with the washer and the element is stuck; then screw in the nut for one more turn
- 8. put the insert assembly into its seat within the tank, put the spring (3) in its position over the element holder (4), then mount the access cover (1) and secure it properly
- ⚠ 9. the used filter elements cannot be cleaned and re-used



