



## FRP SERIES

Tank top return filter

The FRP Series features:

- With or without inbuilt air breather
- With 2, 4 or 6 tank mounting holes
- Flow rate up to 300 l/min (200 l/min with AEB valve)
- With double tank mounting pattern
- Anti emptying back pressure valve (AEB valve) available



### HOUSING

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

PRESSURE:	Max operating: 10 bar
CONNECTION:	G 1" ÷ G 1 1/2"
MATERIALS:	Head: aluminium alloy Bowl and top cover: PA6 reinforced Seal: NBR
BYPASS VALVE:	Inbuilt in the filter element C version 3 bar

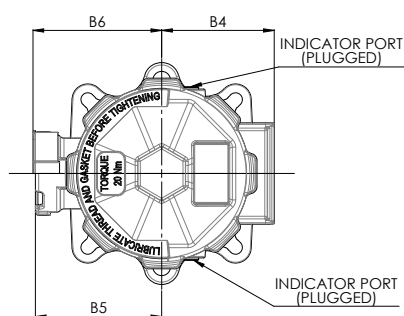
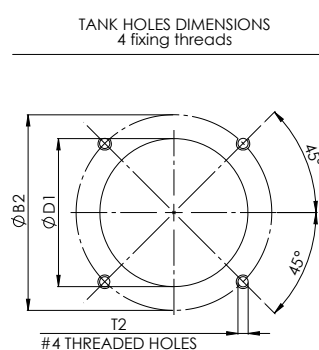
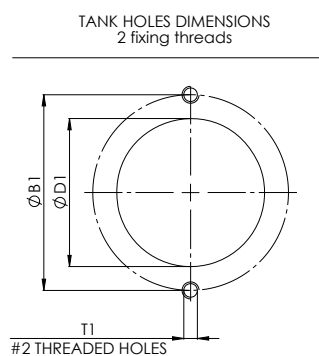
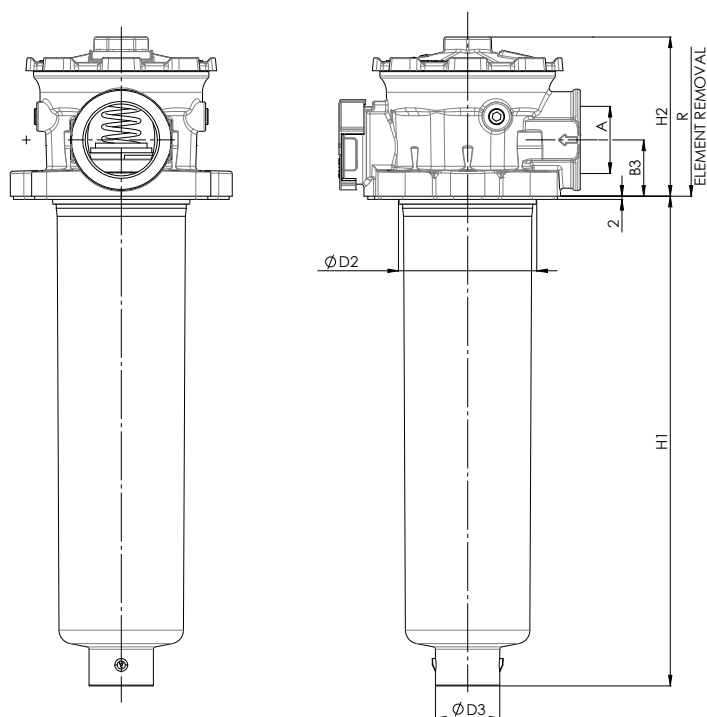
### ELEMENT

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

FILTER MEDIA:	Inorganic microfiber G06 - G10 - G15 - G25 - G40 Paper: C10 Synthetic: M05 - M10 - M15 Metal wire mesh: T60
COLLAPSE 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 Filtrec Customer Service (info@filtrec.it).

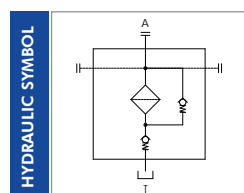
\* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

## OVERALL DIMENSIONS



## NOMINAL SIZE

MODEL	A	Ø D1	Ø D2	D3	Ø B1	Ø B2	T1	T2	B3	B4	B5	B6	H1	H2	R	WEIGHT Kg	
FRP R120	6B	G 1" G 1 1/4" G 1 1/2"	87/95	86	40	112/116	126/130	M10	M8	35	70	78,5	80	87	99	210	1
FRP R122														132		260	1,5
FRP R130														214		340	1,1
FRP R131														318		440	1,2
FRP R136														305		420	1,5



## ORDERING INFORMATION

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
<b>FRP</b>	<b>6B</b>	<b>R1</b>	<b>36</b>	<b>G10</b>	<b>C</b>	<b>B</b>	<b>B7</b>	<b>A</b>	<b>1</b>	<b>B</b>	<b>000</b>	<b>S</b>	<b>0</b>
SPARE ELEMENT		<b>R1</b>	<b>36</b>	<b>G10</b>	<b>C</b>								

1. FILTER SERIES	FRP	
2. TANK MOUNTING HOLES	6B	2 holes tank pattern Ø 112-116mm M10 / 4 holes tank pattern Ø 126-130mm M8
3. FILTER ELEMENT SERIES	R1	
4. FILTER SIZE	20-22	
	30-31	
	36	
5. FILTER MEDIA	000	whitout filter element
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	C10	paper $\beta_{10\mu m(c)} \geq 2$
	T60	wire mesh 60 $\mu m$
	M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$
	M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$
	M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$
6. BYPASS VALVE	C	3 bar
omitted for no element option		
7. SEALS	B	NBR
8. CONNECTION PORT	B5	G 1
	B6	G 1 1/4"
	B7	G 1 1/2"
9. AEB VALVE	0	no back pressure valve
AEB=anti emptying back pressure valve	A	anti emptying back pressure valve 0,4 bar (available for R136 size only)
10. INBUILT AIR BREATHER	0	no air breather
	1	with air breather (on request)
11. INDICATOR PORT	B	2 x G 1/8"

## ORDERING INFORMATION

12. COMPULSORY FIELD	000	Filtrec standard
13. CORROSION PROTECTION	S	standard
14. OPTIONS	0	no option

## ACCESSORIES

The accessories must be ordered separately

INDICATORS	MPC	pressure gauge rear connection
	MRC	pressure gauge radial connection
	PDC	pressure switch
	LC24	LED connector for pressure switch
EXTENSION TUBE	ET2250	extension tube 250 mm long
	ET2500	extension tube 500 mm long
CONNECTION TUBE	CT2250	connection tube 250 mm long
DIFFUSER	DF040	diffuser Ø 40 mm
AIR BREATHER	B610F03	Spare air breather

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

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

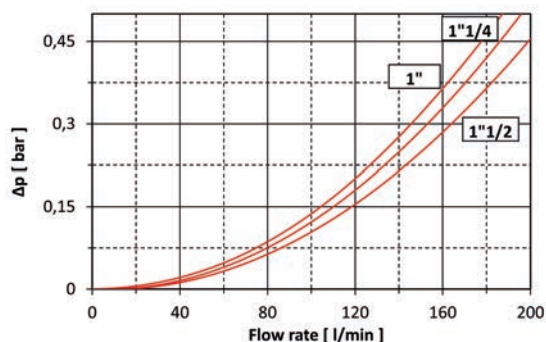
The max recommended total  $\Delta p$  for return filters with anti emptying back pressure valve is 0.8 - 1.0 bar with clean element.

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>.

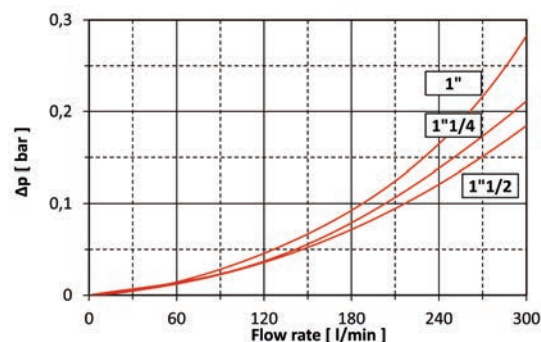
## HOUSING PRESSURE DROP

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

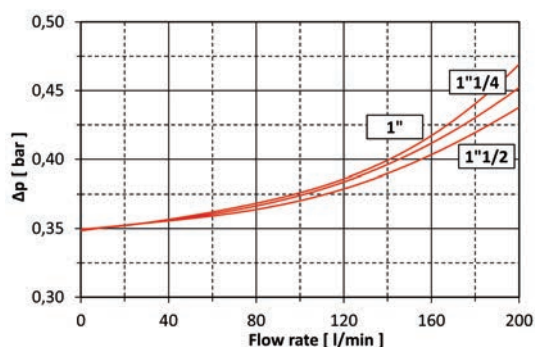
**FRP-R12x without AEB valve**



**FRP-R13x without AEB valve**



**FRP-R136 with AEB valve**



## 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: 80 l/min with R136G10C and oil viscosity 46 cSt  $> 80 \times 2,06/1000 \times 46/32 = 0,24$  bar

	G06	G10	G15	G25	G40	C10	T60	M05	M10	M15
R120	13,85	8,65	6,44	6,32	2,77	4,09	0,86	5,65	4,83	3,19
R122	7,80	5,27	3,92	3,60	1,55	2,70	0,76	3,83	3,27	1,79
R130	5,09	3,19	2,25	2,06	0,90	1,64	0,49	2,31	1,98	1,02
R131	3,34	1,94	1,37	1,26	0,46	1,06	0,24	1,41	1,20	0,63
R136	3,54	2,06	1,58	1,45	0,56	1,24	0,28	1,52	1,35	0,72

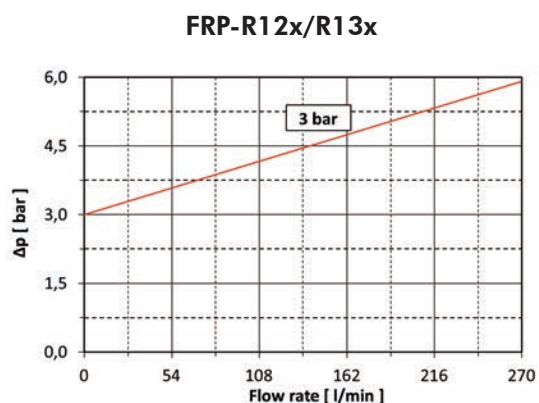
## EXAMPLE OF TOTAL $\Delta p$ CALCULATION

FRP6BR136G10CBB7A1B000S0 with 80 l/min and oil 46 cSt:

Housing  $\Delta p$  0,36 bar + element  $\Delta p$  0,24 bar  $(80 \times 2,06/1000 \times 46/32) =$  total assembly  $\Delta p$  0,6 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.



## ACCESSORIES

These accessories fit all our standard models and must be ordered separately.



### A AIR BREATHER

PART NR.	FILTRATION	FLOW RATE	$\Delta p$
B610F03	3 $\mu m$	up to 300 NI/min	50 mbar

N.B. we recommend to replace the air breather when replacing the oil filter element.

(when working in a very dirt environment, a more frequent air breather replacement could be necessary)

### B EXTENSION TUBE

The flow from the filter must come out below the oil level to avoid possible generation of free air or foam.

When necessary an extension tube can be fitted onto the knobs of the bowl end.

06.016.00476	ET2250	extension tube 250 mm long
06.016.00477	ET2500	extension tube 500 mm long

### C CONNECTION TUBE

Connection tube is the necessary device between filter bowl and extension tubes (ET2250/ET2550) and/or diffuser (DF040). Its plug and play option makes it easy to install and versatile.

06.016.00486	CT2250	connection tube 250 mm long
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### D DIFFUSER

Diffuser is an effective way to reduce foaming and turbulence normally caused by return lines. Plug and play option to be directly installed on the filter bowl or to connection tube (CT2250). Installation of a diffuser in the hydraulic tank is an easy way to ensure the reliability of the overall system.

Diffuser must always be installed below the minimum oil level.

06.016.00492	DF040	diffuser $\varnothing$ 40 mm
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## USER TIPS



- 1 COVER
- 2 SPRING
- 3 O-RING
- 4 FILTER ELEMENT
- 5 FILTER BOWL+AEB VALVE
- 6 FILTER HEAD
- 7 SHAPED GASKET
- 8 AIR BREATHER

### SPARE SEALS KIT (3+7)

	NBR
FRP-6B-R12x/3x	06.021.00311


### COVER TIGHTENING TORQUE

20 Nm


### INDICATOR TIGHTENING TORQUE

10 Nm


## 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

- The gasket (7) must be properly positioned and the head (6) well secured on the tank lid through the fixing holes.
- The hose must be properly connected to the IN port.
-  The OUT port must be clear (an extension tube could be fitted, if needed for having the outlet below the oil level).
- Verify that no tension is present on the filter after mounting.
- When present the air breather (8), it must be in a protected position.
- Enough space must be available for filter element replacement.
- The visual clogging indicator must be in a easily viewable position.
- When a electrical indicator is used, make sure that it is properly wired.
- Keep in stock a spare FILTREC filter element for timely replacement when required.

## OPERATION

-  The filter must work within the operating conditions of pressure, temperature and compatibility given in the first page of this data sheet.
- The filter element must be replaced as soon as the clogging indicator signals at working temperature (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
- If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

-  Before removing the cover (1), ensure that the system is switched off and there is no residual pressure in the filter.
- Unscrew the cover (1) by turning it anti-clockwise and remove it.
- Remove the spring (2) first, then the dirty element (4) and the bowl (5).
- Clean the bowl (5) and fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating.
- When fitting the new element (4), open its plastic protection on the open end side and insert it onto the spigot in the filter bowl, then remove completely the plastic protection.
- Check the O-ring (3) conditions and replace if necessary.
- Put the spring (2) in its position on the filter element.
- Screw the cover (1) by turning it clockwise, tighten at the recommended torque.
-  The used filter elements cannot be cleaned and re-used.



