



## FRT-XR400-630 / R6-7x SERIES

Tank top return filters

Return filter for the tank lid mounting.

Flow rates up to 1000 l/min.

Range of accessories available.

Elements XR according to DIN 24550.



### HOUSING

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

#### PRESSURE:

Max operating: 10 bar  
Burst: 20 bar

#### CONNECTIONS:

2 1/2" SAE 3000 FLANGE

#### ADDITIONAL PORT:

G 1" (standard)

#### MATERIALS:

Cover and head: aluminum alloy  
Bowl: painted carbon steel  
Seal: NBR (FKM on request)

#### BYPASS VALVE:

As separate part into the filter housing  
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  
Synthetic: M05 - M10 - M15

#### COLLAPSE PRESSURE:

10 bar

#### TEMPERATURE RANGE:

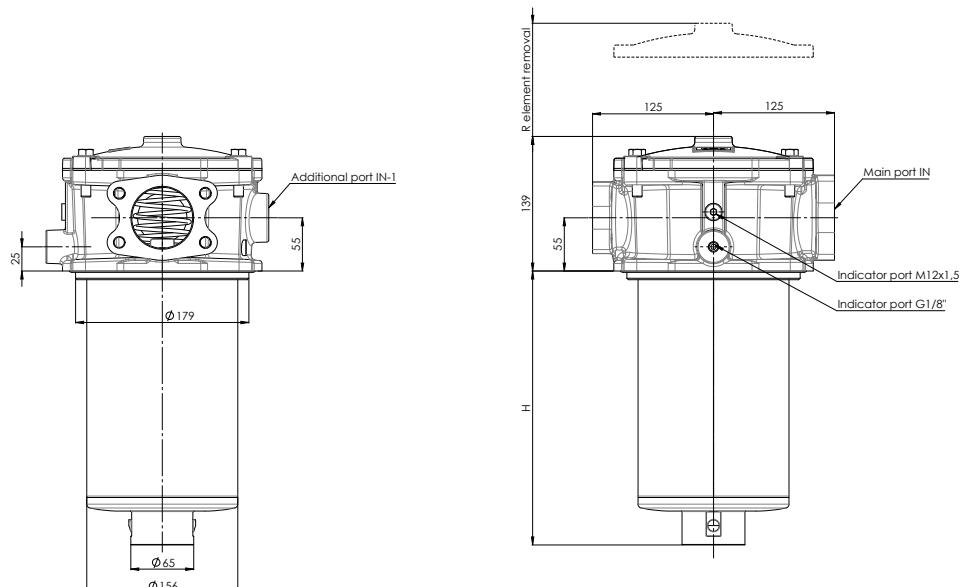
-30°C +100°C

#### FLUID COMPATIBILITY:

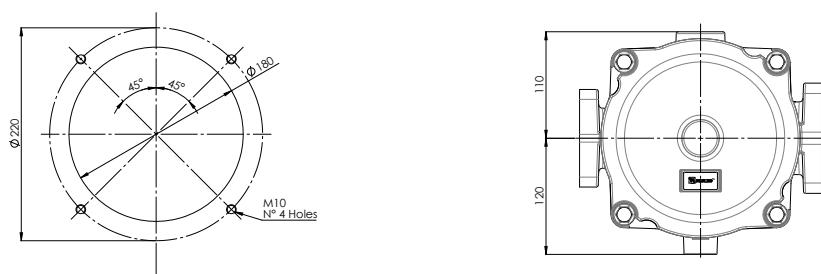
Full with HH-HL-HM-HV  
HETG-HEES (acc. to ISO 6743/4).  
For use with other fluid please  
contact Filtrec Customer Service  
(info@filtrec.it).

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

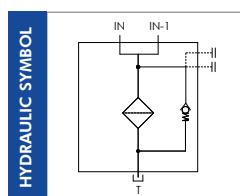
## OVERALL DIMENSIONS



### TANK HOLE



FRT-...-F9MB5



### NOMINAL SIZE

MODEL	IN	IN-1	H	R	WEIGHT Kg
FRT-R6-70					
FRT-XR-400			283	375	8,7
FRT-R6-71	2 1/2" SAE 3000				
FRT-XR-630	FLANGE M	G 1"	434	525	9,8
FRT-R6-72			639	730	12,5

## ORDERING INFORMATION

### FRT-XR400/630

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
<b>FRT</b>	<b>XR</b>	<b>400</b>	<b>G10</b>	<b>B</b>	<b>0</b>	<b>F9M</b>	<b>B5</b>	<b>C</b>	<b>000</b>	<b>S</b>	<b>0</b>
SPARE ELEMENT	<b>XR</b>	<b>400</b>	<b>G10</b>	<b>B</b>	<b>0</b>						

1. FILTER SERIES	FRT	
2. FILTER ELEMENT SERIES	XR	
3. FILTER SIZE	400	
	630	
4. FILTER MEDIA	000	no element
	G03	glassfiber $\beta_{5\mu\text{m}(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu\text{m}(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu\text{m}(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu\text{m}(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu\text{m}(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu\text{m}(c)} \geq 1.000$
	M05	synthetic $\beta_{10\mu\text{m}(c)} \geq 1.000$
	M10	synthetic $\beta_{15\mu\text{m}(c)} \geq 1.000$
	M15	synthetic $\beta_{20\mu\text{m}(c)} \geq 1.000$
5. SEALS	*B	NBR
* omitted for spare elements		
6. BYPASS VALVE	0	no by-pass
inbuilt into the filter element		
7. MAIN PORT (IN)	F9M	2 1/2" SAE 3000 FLANGE
8. ADDITIONAL PORT (IN-1)	B5	G 1"
9. BYPASS VALVE	C	3 bar
As separate part into the filter housing		
10. COMPULSORY FIELD	000	Filtrec standard
11. CORROSION PROTECTION	S	standard
12. OPTION	0	no options

## ORDERING INFORMATION

### FRT-R6-7x

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
<b>FRT</b>	<b>R6</b>	<b>72</b>	<b>G10</b>	<b>B</b>	<b>F9M</b>	<b>B5</b>	<b>C</b>	<b>000</b>	<b>S</b>	<b>0</b>
SPARE ELEMENT	<b>R6</b>	<b>72</b>	<b>G10</b>							

1. FILTER SERIES	FRT	
2. FILTER ELEMENT SERIES	R6	
3. FILTER SIZE	70-71-72	
4. FILTER MEDIA	000	no element
	G06	glassfiber $\beta_{7\mu\text{m}(c)}$ ≥ 1.000
	G10	glassfiber $\beta_{12\mu\text{m}(c)}$ ≥ 1.000
	G15	glassfiber $\beta_{17\mu\text{m}(c)}$ ≥ 1.000
5. SEALS	*B	NBR
* omitted for spare elements		
6. MAIN PORT (IN)	F9M	2 1/2" SAE 3000 FLANGE
7. ADDITIONAL PORT (IN-1)	B5	G 1"
8. BYPASS VALVE	C	3 bar
As separate part into the filter housing		
9. COMPULSORY FIELD	000	Filtrec standard
10. CORROSION PROTECTION	S	standard
11. OPTION	0	no options

## ACCESSORIES

The accessories must be ordered separately

INDICATOR	MPC	press. gauge rear connection	
For other indicators, see the "Clogging Indicator" catalogue in the download section	MRC	press. gauge radial connection	for "C" bypass
	PDC	pressure switch	
PLUG	P03B5	threaded plug G 1" - NBR	
EXTENSION TUBE	ET4200	extension tube 200 mm long	
	ET4500	extension tube 500 mm long	
CONNECTION TUBE	CT4200	connection tube 200 mm long	
DIFFUSER	DF065	diffuser Ø 65 mm	

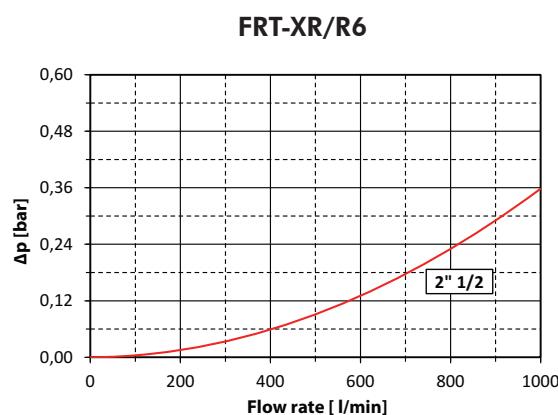
## PRESSURE DROP ( $\Delta p$ ) INFORMATION FOR FILTER SIZING

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.

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: 400 l/min with XR400G10B0 and oil viscosity 46 cSt =  $400 \times (0,47/1000) \times (46/32) = 0,27$  bar

	<b>G03</b>	<b>G06</b>	<b>G10</b>	<b>G15</b>	<b>G25</b>	<b>G40</b>	<b>M05</b>	<b>M10</b>	<b>M15</b>
<b>XR400</b>	1,00	0,80	0,47	0,39	0,33	0,21	0,40	0,36	0,29
<b>XR630</b>	0,68	0,55	0,30	0,28	0,19	0,10	0,25	0,22	0,18
<b>G06</b> <b>G10</b> <b>G15</b>									
<b>R670</b>	0,90	0,57	0,44						
<b>R671</b>	0,56	0,32	0,30						
<b>R672</b>	0,35	0,18	0,20						

## EXAMPLE OF TOTAL $\Delta p$ CALCULATION

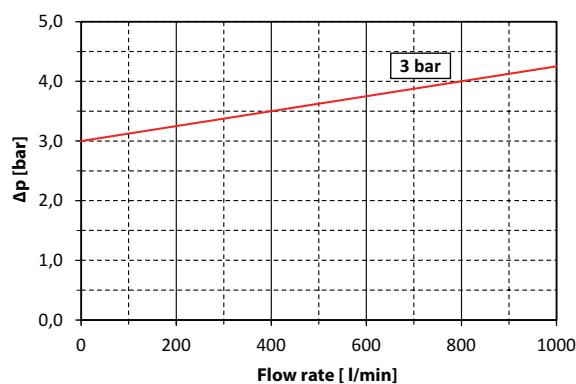
FRTXR400G10B0F9MB5C000SO with 400 l/min and oil 46 cSt:

Housing  $\Delta p$  0,09 bar + element  $\Delta p$  0,27 bar ( $400 \times 0,47 / 1000 \times 46/32$ ) = total assembly  $\Delta p$  0,36 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.

**FRT -XR/R6**



## ACCESSORIES

These accessories must be ordered separately.

### A 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.



06.016.00480	ET4200	extension tube 200 mm long
06.016.00481	ET4500	extension tube 500 mm long

### B CONNECTION TUBE

Connection tube is the necessary device between filter bowl and extension tubes (ET4200 / ET4500) and/or dif- fuser (DF065). Its plug and play option makes it easy to install and versatile.

06.016.00488	CT4200	connection tube 200 mm long
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### C 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 (CT4200). Installation of a diffuser in the hydraulic tank is an easy way to ensure the reliability of the overall system.

A diffuser must always be installed below the minimum oil level.

06.016.00493	DF065	diffuser Ø 65 mm
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## USER TIPS



- 1 FILTER HEAD
- 2 FILTER BOWL
- 3 FILTER ELEMENT
- 4 SPRING
- 5 BY-PASS
- 6 SEAL KIT
- 7 SCREWS
- 8 COVER
- 9 G 1" PORT

### SPARE SEALS KIT (6)

	NBR
FRT-XR400-630/R6-7x	06.021.00498

### COVER SCREW TIGHTENING TORQUE

30 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

1. The filter head (1) must be properly positioned and well secured on the tank lid through the fixing holes.
2. The hose must be properly connected to the IN port.
-  3. The OUT port must be clear (an extension tube could be fitted, if needed for having the outlet below the oil level), at least it's suggested the diffuser.
4. Verify that no tension is present on the filter after mounting.
5. Enough space must be available for filter element replacement.
6. The visual clogging indicator must be in a easily viewable position.
7. When a electrical indicator is used, make sure that it is properly wired.
8. Keep in stock a spare FILTREC filter element for timely replacement when required.
9. Filter housing should be earthed.

## 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 top cover from the head, ensure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the fixing bolts of the top cover and remove it.
3. Remove the spring (4) first, then the bowl (2) with the dirty element (3) and reusable bypass (5).
4. Clean the bowl (2) and fit a new FILTREC element (3) verifying the part number particularly concerning the micron rating, then install the reusable bypass (5) on the top open end.
5. Check the top cover O-ring conditions and replace them if necessary.
6. Put the spring (4) in its position on the reusable bypass (5).
7. Mount the top cover onto the head and fix it screwing the fixing bolts.
-  8. The used filter elements cannot be cleaned and re-used.

