



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

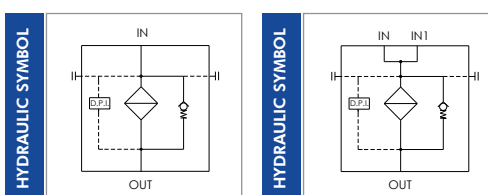
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181

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 Filtrec Customer Service (info@filtrec.it).



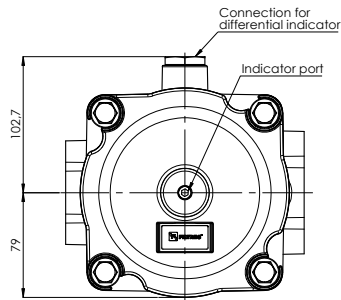
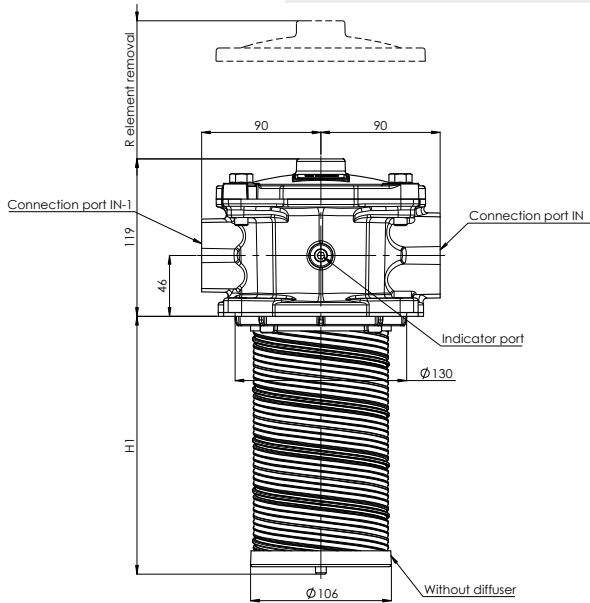
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

For more information:

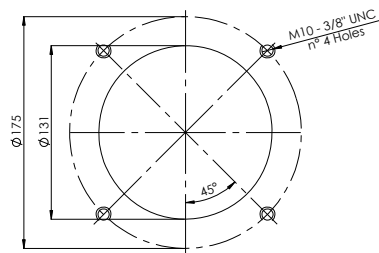
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FCR7F-2X

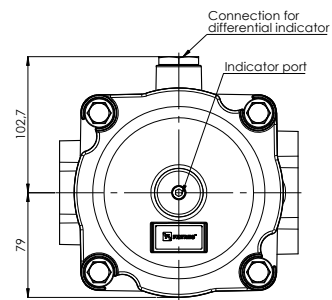
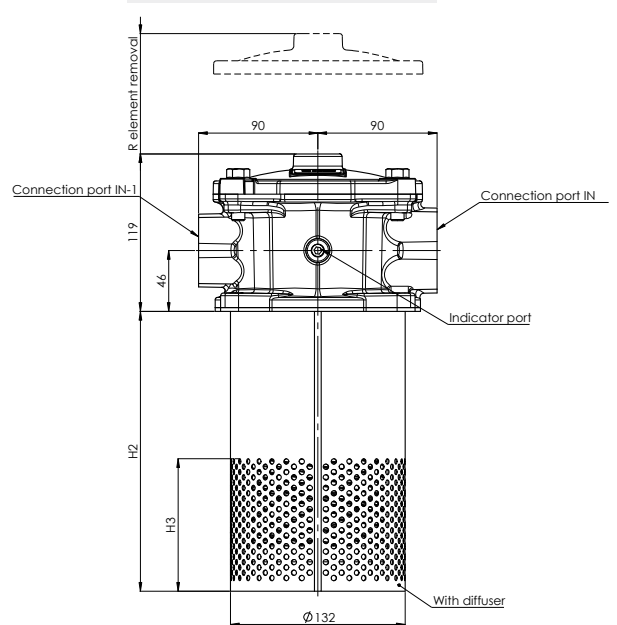
VERSION 0



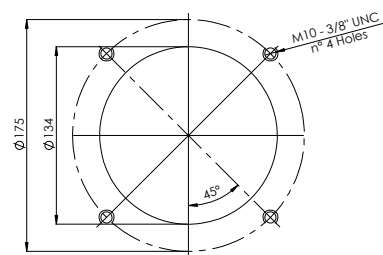
Installation diagram in the tank
Filter without diffuser
Holes on the tank



VERSION S



Installation diagram in the tank
Filter with diffuser
Holes on the tank



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

For more information:

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ORDERING INFORMATION

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

| | | |
|---|-------|---|
| 1. FILTER SERIES | FC | |
| 2. FILTER ELEMENT SERIES | R7F | |
| 3. FILTER SIZE | 20 | |
| | 21 | |
| | 22 | |
| | 26 | |
| 4. FILTER MEDIA | 000 | 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 μm |
| | 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 |

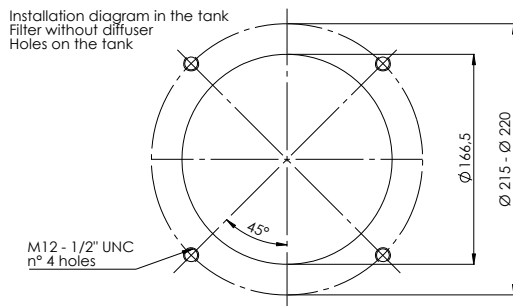
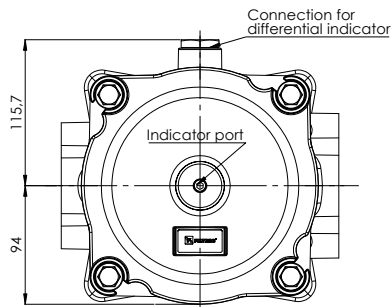
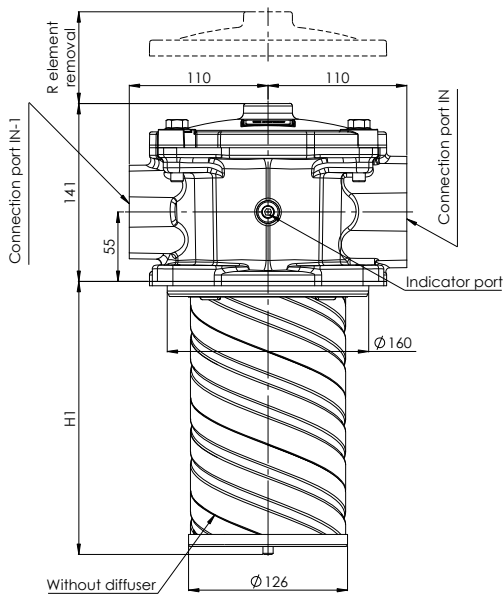
| | | | |
|---|-----------|--------------------------------------|------------------------|
| ACCESSORIES | MPB | pressure gauge rear connection | |
| The accessories must be ordered separately (F) digit for FKM seal option | MRB | pressure gauge radial connection | with "B" bypass option |
| | PDB |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

For more information:

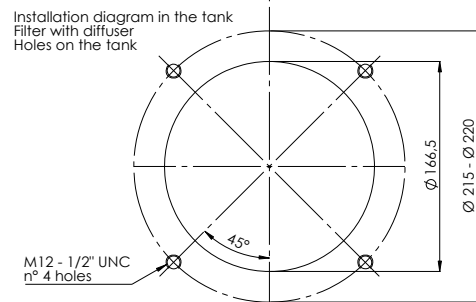
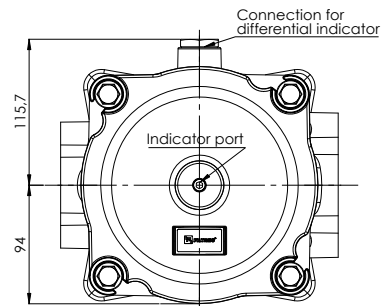
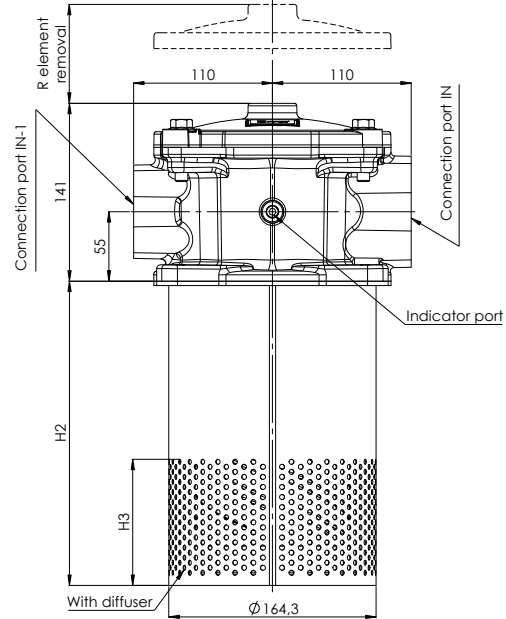
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FC-R7F-3X

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 | 560 | 6,6 Kg | 8,3Kg | |
| FCR7F-37 | | | 786 | 811 | 150 | 860 | 6,8 Kg | 9,5 Kg |

* Weight without element and magnets

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ORDERING INFORMATION



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

| | | |
|---|-----|---|
| 1. FILTER SERIES | FC | |
| 2. FILTER ELEMENT SERIES | R7F | |
| 3. FILTER SIZE | 30 | |
| | 31 | |
| | 33 | |
| | 32 | |
| | 37 | |
| 4. FILTER MEDIA | 000 | 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 μm |
| | 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 | MPB | pressure gauge rear connection | |
| The accessories must be ordered separately (F) digit for FKM seal option | 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 electric 2,7 bar | |
| | V02 (VF2) | differential visual 2,7 bar | |
| | VEF2 | differential visual electric 2,7 bar | |
| | LC24 | LED connector for PDB / PDC / E02 | |

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PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp .

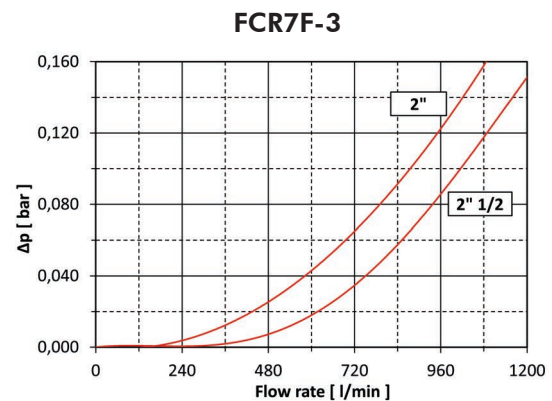
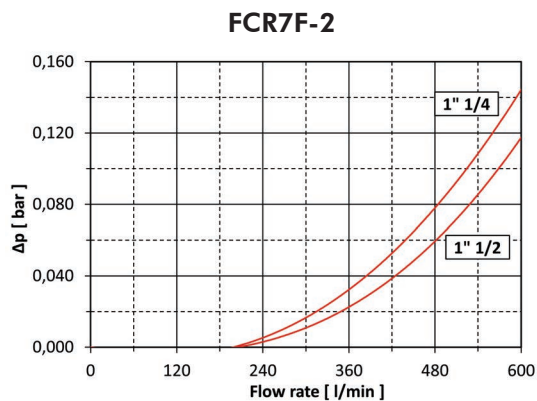
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.

For multiport versions, the housing Δp to be considered is the sum of the Δp 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/dm³.

HOUSING PRESSURE DROP

The housing Δp is given by the curve of the considered model and port, in correspondence of the flow rate value.



ELEMENT PRESSURE DROP

The element Δp (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 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|
| R7F20 | 3,62 | 2,95 | 1,31 | 1,06 | 0,97 | 0,68 | 1,01 | 0,88 | 0,70 | 0,79 | 0,60 | 0,19 |
| R7F21 | 2,35 | 1,99 | 0,98 | 0,82 | 0,74 | 0,51 | 0,76 | 0,64 | 0,56 | 0,60 | 0,49 | 0,12 |
| R7F22 | 1,67 | 1,42 | 0,62 | 0,48 | 0,41 | 0,27 | 0,47 | 0,38 | 0,29 | 0,34 | 0,25 | 0,09 |
| R7F26 | 1,10 | 0,95 | 0,42 | 0,29 | 0,25 | 0,19 | 0,28 | 0,24 | 0,20 | 0,22 | 0,17 | 0,07 |
| R7F30 | 2,81 | 2,24 | 1,21 | 0,94 | 0,83 | 0,54 | 0,92 | 0,78 | 0,63 | 0,70 | 0,50 | 0,13 |
| R7F31 | 1,85 | 1,71 | 0,76 | 0,49 | 0,35 | 0,29 | 0,47 | 0,34 | 0,30 | 0,33 | 0,25 | 0,10 |
| R7F33 | 1,32 | 1,11 | 0,56 | 0,40 | 0,32 | 0,24 | 0,39 | 0,31 | 0,26 | 0,31 | 0,20 | 0,09 |
| R7F32 | 1,18 | 1,07 | 0,44 | 0,38 | 0,30 | 0,21 | 0,36 | 0,29 | 0,24 | 0,28 | 0,18 | 0,08 |
| R7F37 | 0,59 | 0,45 | 0,32 | 0,28 | 0,24 | 0,15 | 0,26 | 0,20 | 0,16 | 0,18 | 0,13 | 0,06 |

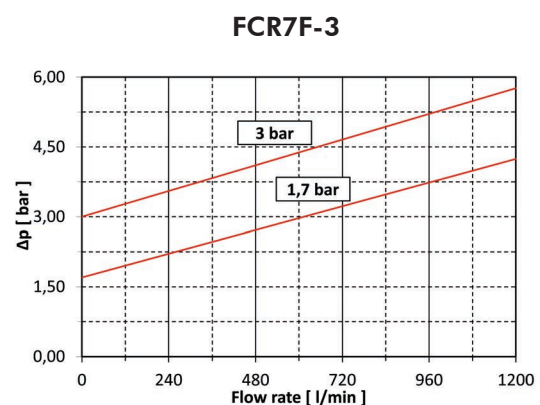
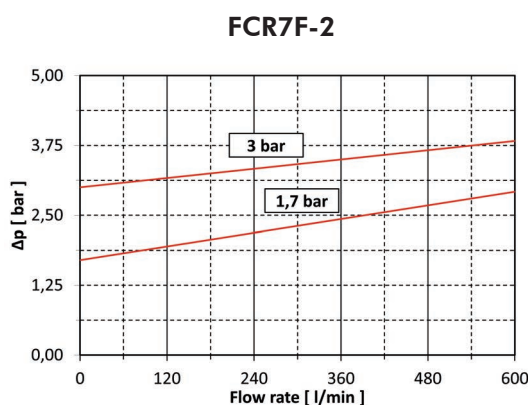
EXAMPLE OF TOTAL Δp CALCULATION

FCR7F32G10BF9MF8MB00T0000 with **600** l/min and oil **46** cSt:

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

BYPASS VALVE PRESSURE DROP

The bypass valve Δp 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/dm³.

For more information:

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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 |
|-----|-------|

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.
- 4. 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 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.