# FILTREC

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# PRODUCT CATALOGUE 2026

Hydraulic Filters | Process Filters | Technology Brochures

**Reference edition prepared for internal commercial use**

Source technical content: FILTREC

89 source documents - 617 original catalogue pages

Prepared for Fidar Industrial Group

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# HYDRAULIC

## HYDRAULIC FILTERS

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# FH700 SERIES

In line high pressure filters

In line filters for operating pressure up to 700 bar.
Flow rate up to 30 l/min.

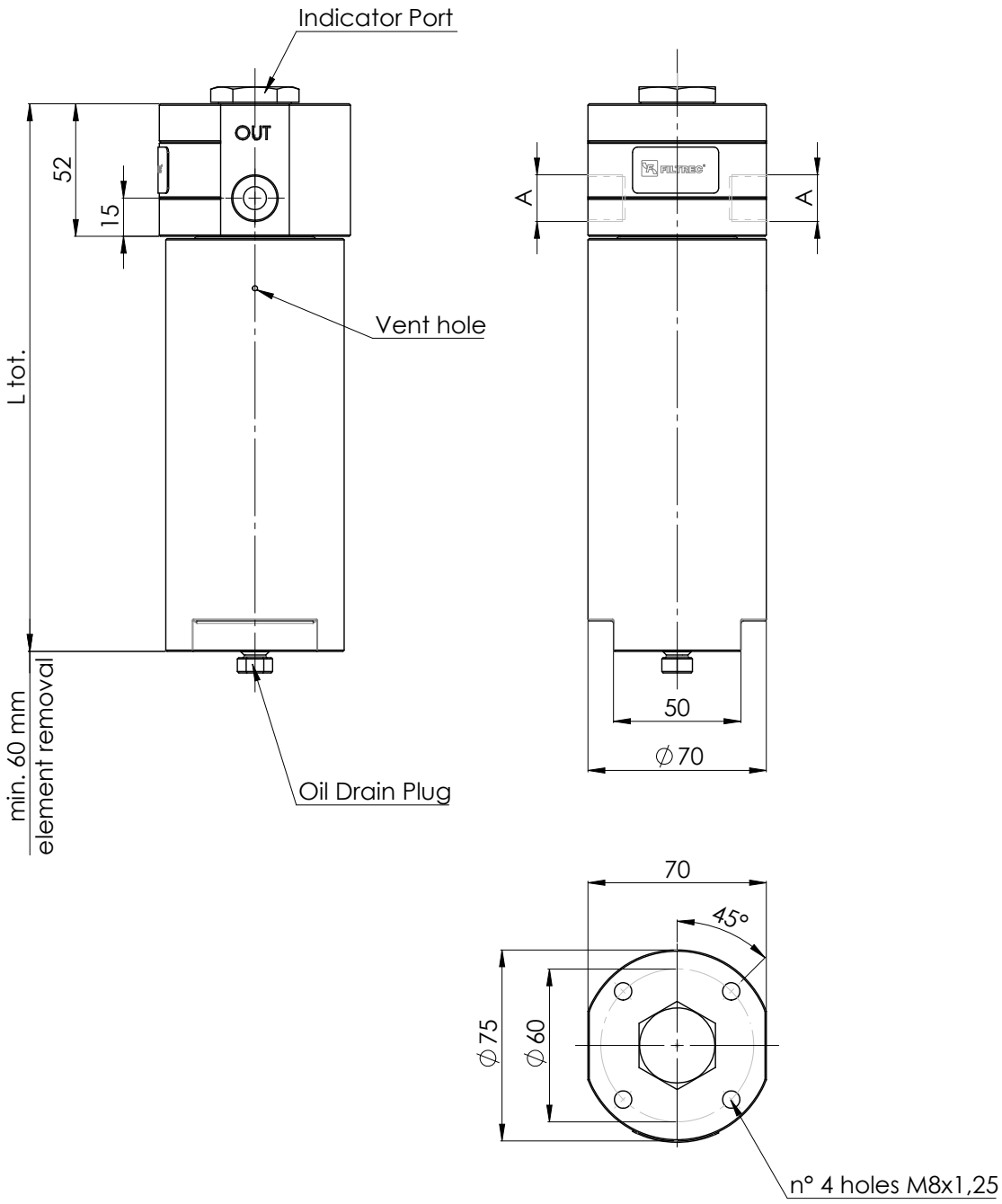



| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: up to 700 bar<br>Fatigue rating: $10^6$ cycles 0÷700 bar<br>Burst: 2100 bar |
| CONNECTION PORTS: | 1/4", 3/8", 1/2" NPTF |
| MATERIALS: | Head: SS 316L<br>Bowl: SS 316L<br>Seal: NBR, FKM |
| BYPASS VALVE | 6 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G06<br>G10 - G15 - G25 |
| COLLAPSE PRESSURE: | 21 bar<br>210 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | HH,HG,HL,HM,HR,HV,HS,HE..,HFDU, (HFB,HFC water < 50% ) - ISO 6743/4<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS




## NOMINAL SIZE

| MODEL | A | L tot | WEIGHT |
|---|---|---|---|
| FH700-D1-01 | 1/4" NPTF - 3/8" NPTF - 1/2" NPTF | 165,5 | 4,76 Kg |
| FH700-D1-02 | | 214,5 | 5,8 Kg |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FH700** | **D1** | **02** | **G10** | **X** | **B0** | **NF2** | **D** | **W** | **000** | **S** | **0** |
| SPARE ELEMENT | **D1** | **02** | **G10** | **X** | **B0** | | | | | | |

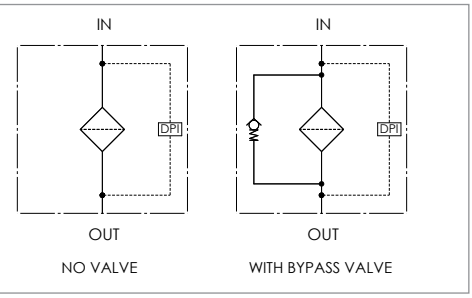
| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FH700 | | |
| 2. FILTER ELEMENT SERIES | D1 | | |
| 3. FILTER SIZE | 01 | | |
| | 02 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| 5. ELEMENT COLLAPSE | Y | 21 bar | |
| | X | 210 bar | |
| 6. SEALS & COMPATIBILITY | B0 | NBR | |
| *= All metal parts in SS 316L<br>Only for spare element<br>"/" before digit suffix is needed | V0 | FKM | |
| | *B0/7 | NBR Improved compatibility for high water content fluid | Only for high collapse filter element |
| | *V0/7 | FKM Improved compatibility for high water content fluid | |
| 7. CONNECTIONS | NF1 | 1/4" NPTF | |
| For different thread options please check availability with Filtrec Customer Service. | NF2 | 3/8" NPTF | |
| | NF3 | 1/2" NPTF | |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 6 bar | |
| 9. INDICATOR PORT OPTION | S | with metal plug | |
| | W | with plastic plug | |
| 10. COMPULSORY FIELD | 000 | standard | |
| 11. CORROSION PROTECTION | S | SS 316L as standard | |
| 12. OPTION | 0 | standard | |

## ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR | 000 | no indicator | |
| ***LC24**=Led connector<br>For other options see clogging indicators catalogue | VSLXF5 | visual 5 bar FKM reversed sockets | |
| | ESLXF5 | differential electrical 5 bar FKM reversed sockets | |
| | ESLXF5L | differential electrical 5 bar FKM reversed sockets + *LC24 | |
| | VSLXF8 | visual 8 bar FKM reversed sockets | recommended for no by-pass option |
| | ESLXF8 | differential electrical 8 bar FKM reversed sockets | |
| | ESLXF8L | differential electric 8 bar FKM reversed sockets + *LC24 | |

HYDRAULIC SYMBOL



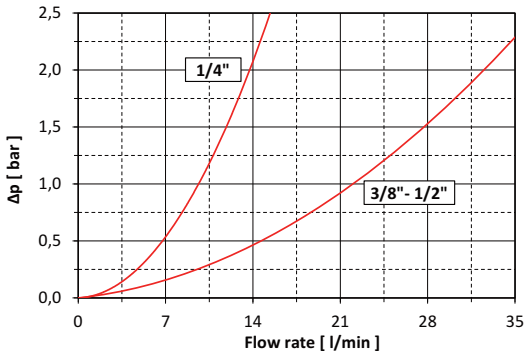

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Δp through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

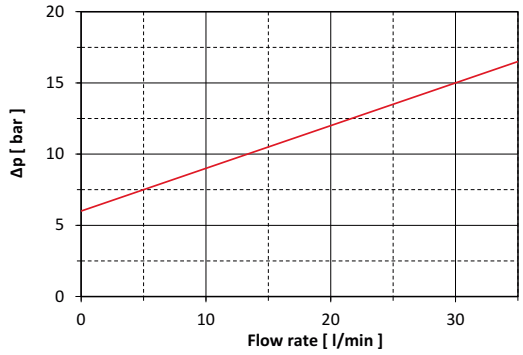
**FH700-D1-0X**




## 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.

**FH700**




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$^3$.

## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 10 l/min with D102G10YB0 and oil viscosity 46 cSt: (10 x 22)/1000 x (46/32) = 0,32 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **D101** | 119,35 | 96,67 | 63,33 | 33,33 | 20,30 | 16,67 |
| **D102** | 77,43 | 64,58 | 44,23 | 22,00 | 13,90 | 12,00 |

## EXAMPLE OF TOTAL Δp CALCULATION

FH700D102G10YB0NF2DW000S0 with 20 l/min and oil 46 cSt:
Housing Δp 0,25 bar + element Δp 0,32 bar (10 x 22)/1000 x (46/32) = total assembly Δp 0,57 bar

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 10 l/min with D102G10XB0 and oil viscosity 46 cSt: (10 x 36)/1000 x (46/32) = 0,52 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **D101** | 173,16 | 138,32 | 76,50 | 53,33 | 34,50 | 30,00 |
| **D102** | 111,27 | 91,48 | 51,81 | 36,00 | 23,33 | 20,00 |

## EXAMPLE OF TOTAL Δp CALCULATION

FH700D102G10XB0NF2DW000S0 with 20 l/min and oil 46 cSt:
Housing Δp 0,25 bar + element Δp 0,52 bar (10 x 36)/1000 x (46/32) = total assembly Δp 0,77 bar

## USER TIPS




1. FILTER HEAD
2. INDICATOR PLUG
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. IDENTIFICATION LABEL
8. OIL DRAIN PLUG

### INDICATOR TIGHTENING TORQUE

| 100 Nm |
|---|

### SPARE SEAL KIT PART NUMBER (5)

| SIZE | NBR | FKM |
|---|---|---|
| FH700-D102/D101 | 06.021.00474 | 06.021.00475 |

### BOWL TIGHTENING TORQUE

| 120 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 IN and OUT ports must be connected to the hoses in the correct flow direction; the direction flow symbols shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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 an easily viewable position.
7. When an electrical indicator is used, make sure that it is properly wired.
⚠ 8. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the oil drain plug (8) by turning it anti clockwise, then make the same with the bowl (6) and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verify the part number, particularly concerning the micron rating; open its plastic protection on the open-end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (5) conditions and replace them if necessary.
6. Lubricate the bowl's thread and seal cone (6) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl with 120 Nm tightening torque.
8. Lubricate the oil drain plug's thread and seal cone (8) and screw by turning it clockwise.
⚠ 9. The used filter elements cannot be cleaned and re-used.

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Technical information may change without notice

CT142-rev.03/25

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# FAP A4 SERIES

In line medium pressure filters

Inline filters with coupled spin-on cartridges, specifically designed for hydraulic applications. Operating pressure up to 24 bar, flow rate up to 500 l/min.

The indicator ports allow to fit a visual electrical differential indicator and an absolute clock manometer or pressure switch.

Sampling port, for fluid contamination analysis, available and easily accessible on the filter head.

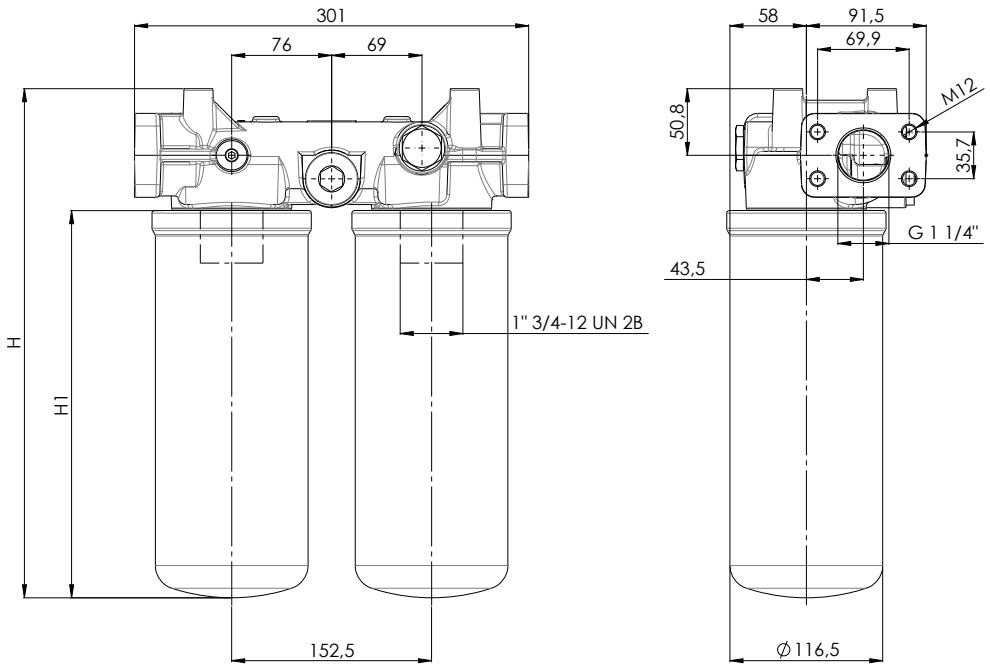


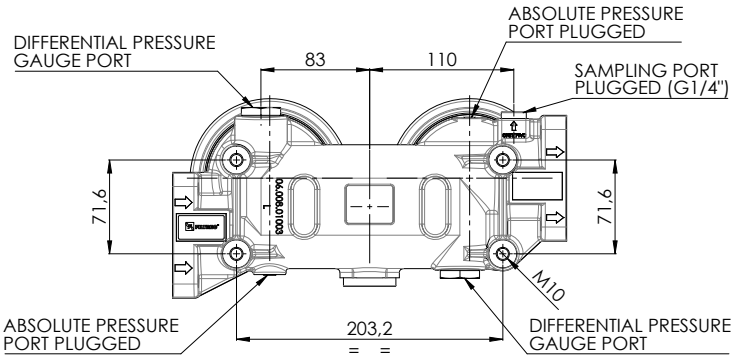

| HOUSING | tested according to NFPA T3.10.17, ISO12829, ISO3968 |
|---|---|
| PRESSURE: | Max operating: 24 bar<br>Burst: 55 bar |
| CONNECTION: | G 1 1/4" and 1 1/2" SAE 3000 |
| MATERIALS: | Head: aluminium alloy<br>Bowl: painted steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | No bypass<br>3,5 bar setting |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G03 - G06 - G10 - G15 G25 - G40<br>Paper:<br>C10 - C25 |
| COLLAPSE PRESSURE: | 12 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal is<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION) is<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

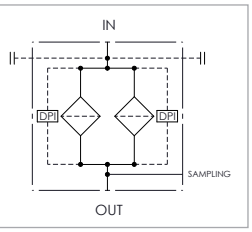


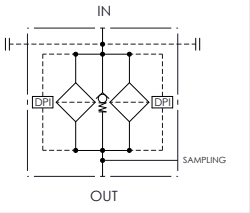

## NOMINAL SIZE

| CODE | H | H1 | WEIGHT |
|---|---|---|---|
| FAPA4-21 | 388 | 295 | 9,2 Kg |
| FAPA4-22 | 452 | 358 | 10,3 Kg |

HYDRAULIC SYMBOL NO BY-PASS




HYDRAULIC SYMBOL WITH BY-PASS



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FAP** | **A4** | **21** | **G10** | **B** | **B6F7M** | **0** | **Z** | **000** | **S** | **0** |
| SPARE ELEMENT | | **A4** | **21** | **G10** | | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FAP | |
| 2. FILTER ELEMENT SERIES | A4 | |
| 3. FILTER SIZE | 21-22 | |
| 4. FILTER MEDIA | 000 | no element |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | C10 | cellulose $ß_{10\mu m(c)} \geq 2$ |
| | C25 | cellulose $ß_{25\mu m(c)} \geq 2$ |
| 5. SEALS | *B | NBR |
| *omitted for spare element | V | FKM |
| 6. CONNECTIONS | B6F7M | G 1 1/4" + 1 1/2" SAE 3000 FLANGE |
| 7. BYPASS VALVE | 0 | no bypass |
| Inbuilt into the filter head | D | 3,5 bar |
| 8. INDICATOR PORT OPTION | Z | ports for absolute pressure gauge and differential clogging indicator all plugged with metal plug |
| 9. COMPULSORY FIELD | 000 | Filtrec standard |
| 10. CORROSION PROTECTION | S | standard (filter head with no treatment) |
| 11. OPTIONS | 0 | no option |

## ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| INDICATOR | MP0 | pressure gauge rear connection, scale 0-16 bar |
| (Y and F) digit for FKM seal option<br>For other options see clogging indicators catalogue | MPC | pressure gauge rear connection, setting 3 bar, scale 0-10 bar |
| | MRC | pressure gauge radial connection, setting 3 bar, scale 0-10 bar |
| | EX2 (EY2) | differential electric 2,7 bar |
| | VX2 (VY2) | differential visual 2,7 bar |
| | VEXF2 | differential visual electric 2,7 bar |
| | P01 (PF1) | metal plug for indicator seat |
| ACCESSORIES | PF4NF6F7M | FKM flange kit |
| | FMSA08S0 | sampling point - check coupling M16x2 with G"1/4 connection thread |
| | FMSA09S0 | microhose for check coupling M16x2 – length 1m |

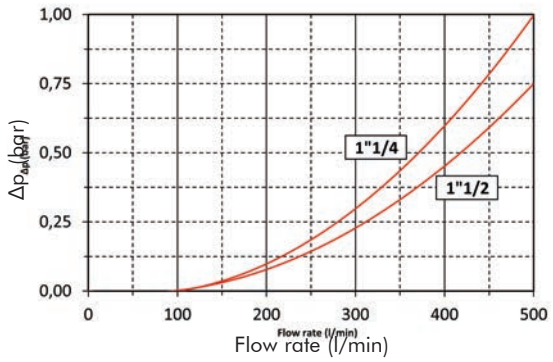
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve. 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$^3$.

## HOUSING PRESSURE DROP

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

**FAP A4 2x**




## ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below correspon-ding to the selected media and divided by 1000.If the oil has a viscosity Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 200 l/min with A421G10 and oil viscosity 46 cSt:200 x (0,88/1000) x (46/32) = 0,25bar

| | G03 | G06 | G10 | G15 | G25 | G40 | C10 | C25 |
|---|---|---|---|---|---|---|---|---|
| **A421** | 1,82 | 1,45 | 0,88 | 0,55 | 0,40 | 0,20 | 0,30 | 0,25 |
| **A422** | 0,68 | 0,54 | 0,37 | 0,35 | 0,33 | 0,14 | 0,21 | 0,14 |

## EXAMPLE OF TOTAL Δp CALCULATION

FAPA421G10BB6F7M0Z000S0 with 200 l/min and oil 46 cSt (using G 1 ¼" threaded port)
Housing Δp 0,12 bar + element Dp 0,25 bar (200 x 0,88/1000 x 46/32) = total assembly Δp 0,37 bar

## ACCESSORIES

These accessories must be ordered separately.



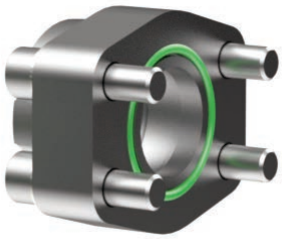
| | | |
|---|---|---|
| 04.006.00539 | **FMSA08S0** | sampling point - check coupling M16x2 with G 1/4 connection thread |

Allows you to control the pressure safely while the system is at full capacity and can be used to obtain fluid samples.



| | | |
|---|---|---|
| 04.006.00538 | **FMSA09S0** | microhose for check coupling M16x2 – length 1m |

Allows to connect the check coupling to the microhose by screwing them together by hand, without the use of special tools and without the risk of leaks while the system is in operation. The connection is automatically sealed and does not become loose as a result of vibration or pressure surges.



| | | |
|---|---|---|
| 07.036.00109 | **PF4NF6F7M** | FKM flange kit |

Flange to switch from 1 1/2" SAE 3000 connection to 1 1/2" NPTF. The kit includes 1 flange, 1 o-ring, 4 screws and 4 washers.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER CARTRIDGES
5. SAMPLING PLUG PORT

| CARTRIDGE TIGHTENING TORQUE | |
|---|---|
| All models | 1/2 turn |

| INDICATOR TIGHTENING TORQUE | |
|---|---|
| Differential | 50 Nm |
| Absolute | 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the cartridge (4) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
4. Verify that no tension is present on the filter after mounting.
5. Enough space must be available for filter element cartridge replacement.
6. The visual clogging indicator must be in an easily viewable position.
7. When an electrical indicator is used, make sure that it is properly wired.

⚠ 8. Never run the system with no filter element fitted.

9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, fluid temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter cartridges (4) by turning them anti-clockwise and remove them. Check the condition of the gaskets located at the end of the threated spigots; replace them if necessary.
3. Fit new FILTREC cartridge elements (4), verifying the part number, particularly concerning the micron rating.

⚠ 4. Ensure that the head mounting face is clean.
5. Lubricate the gaskets of the replacement cartridges and the threads prior to assembly.
6. Spin on the new cartridges until they reach the mounting face and tighten for 1/2 turn.

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# FAP A5 SERIES

In line medium pressure filters

Inline filters with coupled spin-on cartridges, specifically designed for fuel oil applications. Operating pressure up to 24 bar, flow rate up to 500 l/min.

The indicator ports allow to fit a visual electrical differential indicator and an absolute clock manometer or pressure switch.

Sampling port, for fluid contamination analysis, available and easily accessible on the filter head.

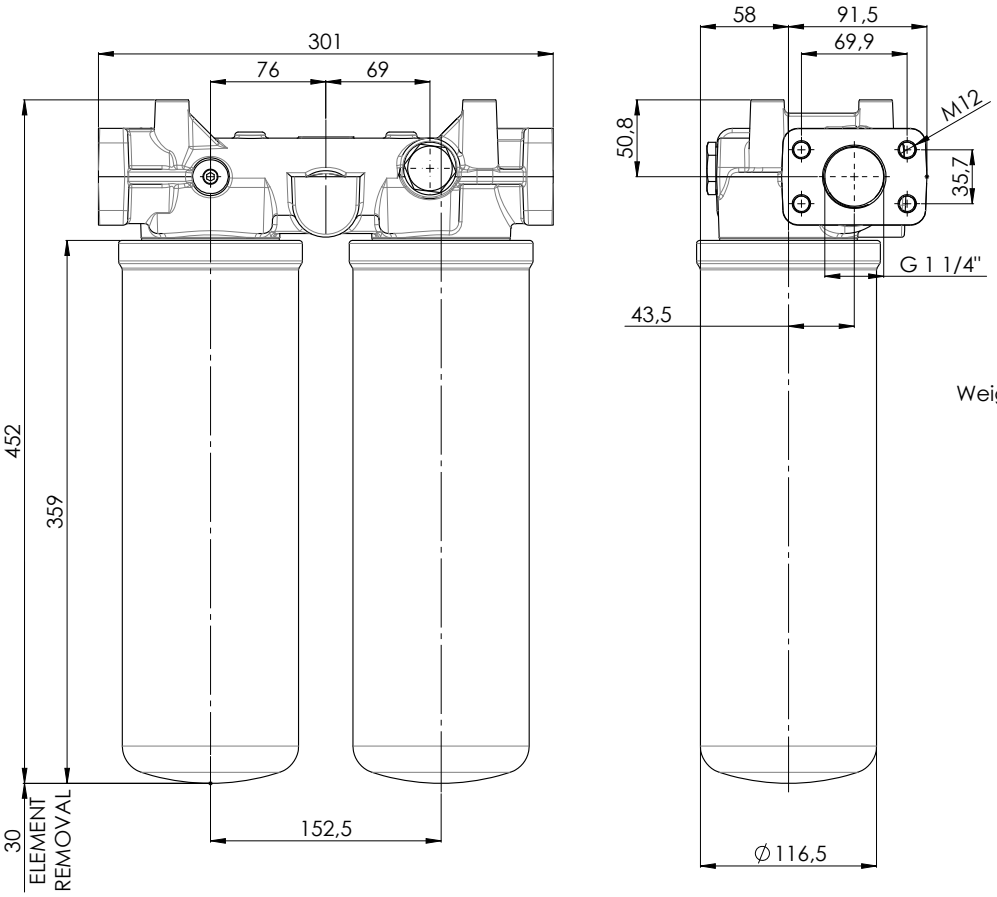



| HOUSING | tested according to NFPA T3.10.17, ISO12829, ISO3968 |
|---|---|
| PRESSURE: | Max operating: 24 bar<br>Burst: 55 bar |
| CONNECTION: | G 1 1/4" and 1 1/2" SAE 3000 |
| MATERIALS: | Head: aluminium alloy<br>Bowl: painted steel<br>Seal: FKM |
| BYPASS VALVE: | No bypass |

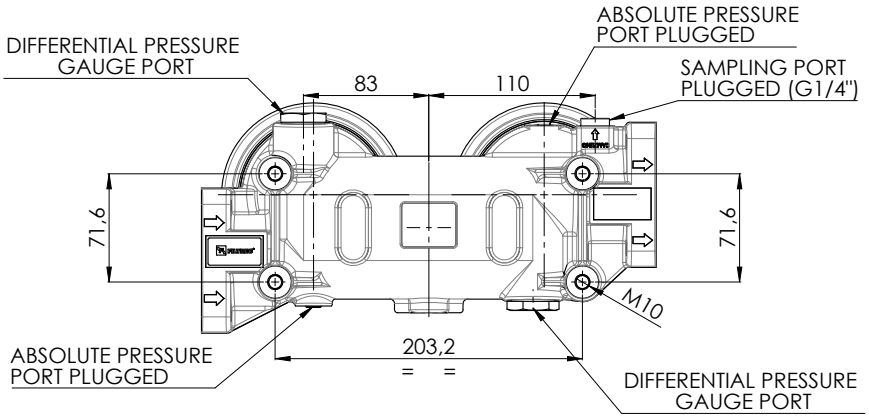
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G01 - G03 - G06 - G10 G25<br>Inorganic microfiber + water absorbent:<br>GW40 |
| COLLAPSE PRESSURE: | 12 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>Diesel EN590, ASTMD975<br>Biodiesel B0 to B100 EN14214<br>Fuel oil EN51603-1<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

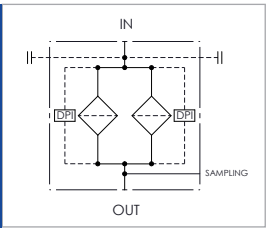
## OVERALL DIMENSIONS




Weight: 10,3 kg




HYDRAULIC SYMBOL



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FAP** | **A5** | **22** | **G01** | **V** | **0** | **AB2** | **B6F7M** | **0** | **Z** | **000** | **S** | **0** |
| SPARE ELEMENT | | **A5** | **22** | **G01** | **V** | **0** | **/AB2** | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FAP | | |
| 2. FILTER ELEMENT SERIES | A5 | | |
| 3. FILTER SIZE | 22 | | |
| 4. FILTER MEDIA | | /AB2 | /AB1 |
| | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 10.000$ | glassfiber $ß_{4\mu m(c)} \geq 2.000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 5.000$ | glassfiber $ß_{4\mu m(c)} \geq 2.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 2.000$ | |
| | G10 | glassfiber $ß_{10\mu m(c)} \geq 2.000$ | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{25\mu m(c)} \geq 2.000$ | |
| | GW40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ + water absorbent | |
| 5. SEALS | V | FKM | |
| 6. BYPASS VALVE | 0 | no bypass | |
| Inbuilt into the filter element | | | |
| 7. ELEMENT SUFFIX | AB1 | AbsoluteBeta - high capacity / efficiency filter element with AB1 connection | |
| only for spare element "/" before the three digit suffix is needed | AB2 | AbsoluteBeta 2 - very high capacity / efficiency filter element with AB2 connection | |
| 8. CONNECTIONS | B6F7M | G 1 1/4" + 1 1/2" SAE 3000 FLANGE | |
| 9. BYPASS VALVE | 0 | no bypass | |
| Inbuilt into the filter head | | | |
| 10. INDICATOR PORT OPTION | Z | ports for absolute pressure gauge and differential clogging indicator both plugged with metal plug | |
| 11. COMPULSORY FIELD | 000 | Filtrec standard | |
| 12. CORROSION PROTECTION | S | standard (filter head with no treatment) | |
| 13. OPTIONS | 0 | AB2 thread | |
| | 2 | AB1 thread | |

### ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| INDICATOR | MP0 | pressure gauge rear connection, scale 0-16 bar |
| (Y and F) digit for FKM seal option<br>For other options see clogging indicators catalogue | MPC | pressure gauge rear connection, setting 3 bar, scale 0-10 bar |
| | MRC | pressure gauge radial connection, setting 3 bar, scale 0-10 bar |
| | EY2 | differential electric 2,7 bar |
| | VY2 | differential visual 2,7 bar |
| | VEXF2 | differential visual electric 2,7 bar |
| | PF1 | metal plug for indicator seat - FKM |
| ACCESSORIES | PF4NF6F7M | FKM flange kit |
| | FMSA08S0 | sampling point - check coupling M16x2 with G 1/4 connection thread |
| | FMSA09S0 | microhose for check coupling M16x2 – length 1m |

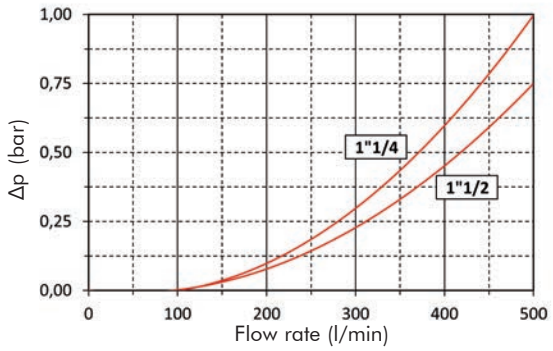
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp; this ideally should not exceed 1,0 bar. 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$^3$.

## HOUSING PRESSURE DROP

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

**FAP A5 2x**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 200 l/min with A522G01V0/AB2 and oil viscosity 4 cSt: 200 x (2,9/1000) x (4/32) = 0,073bar

| | | G01 | G03 | G06 | G10 | G25 | GW40 |
|---|---|---|---|---|---|---|---|
| A522 | AB2 | 2,90 | 1,65 | 0,54 | 0,42 | 0,33 | 0,49 |
| | AB1 | 1,64 | 0,68 | | 0,36 | | |

## EXAMPLE OF TOTAL Δp CALCULATION

FAPA522G01V0AB2B6F7M0Z000S0 with 200 l/min and oil 4 cSt (using G 1 ¼" threaded port)
Housing Δp 0,12 bar + element Dp 0,073 bar (200 x 2,9/1000 x 4/32) = total assembly Δp 0,193 bar

## ACCESSORIES

These accessories must be ordered separately.



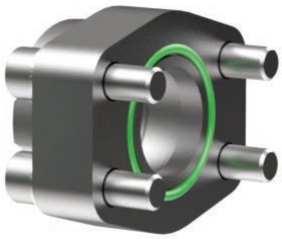
| | | |
|---|---|---|
| 04.006.00539 | **FMSA08S0** | sampling point - check coupling M16x2 with G 1/4 connection thread |

Allows you to control the pressure safely while the system is at full capacity and can be used to obtain fluid samples.



| | | |
|---|---|---|
| 04.006.00538 | **FMSA09S0** | microhose for check coupling M16x2 – length 1m |

Allows to connect the check coupling to the microhose by screwing them together by hand, without the use of special tools and without the risk of leaks while the system is in operation. The connection is automatically sealed and does not become loose as a result of vibration or pressure surges.



| | | |
|---|---|---|
| 07.036.00109 | **PF4NF6F7M** | FKM flange kit |

Flange to switch from 1 1/2" SAE 3000 connection to 1 1/2" NPTF. The kit includes 1 flange, 1 o-ring, 4 screws and 4 washers.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER CARTRIDGES
5. SEAL KIT
6. SAMPLING PLUG PORT

| CARTRIDGE TIGHTENING TORQUE | |
|---|---|
| All models | 1/2 turn |

| INDICATOR TIGHTENING TORQUE | |
|---|---|
| Differential | 50 Nm |
| Absolute | 10 Nm |

| SPARE SEAL KIT (5) | |
|---|---|
| | FKM |
| FAPA5-22 | 06.021.00411 |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the cartridge (4) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
4. Verify that no tension is present on the filter after mounting.
5. Enough space must be available for filter element cartridge replacement.
6. The visual clogging indicator must be in an easily viewable position.
7. When an electrical indicator is used, make sure that it is properly wired.

⚠ 8. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, fluid temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter cartridges (4) by turning them anti-clockwise and remove them. Check the condition of the gaskets located at the end of the threated spigots; replace them if necessary.
3. Fit new FILTREC cartridge element (4), verifying the part number, particularly concerning the micron rating.

⚠ 4. Ensure that the head mounting face is clean.
5. Lubricate the gaskets of the replacement cartridges and the threads prior to assembly.
6. Spin on the new cartridges until they reach the mounting face and tighten for 1/2 turn.

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Technical information may change without notice

CT141-04/25

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# FH420-XD SERIES

In line high pressure filters

In line filters for operating pressure up to 420 bar. Flow rate up to 500 l/min.
Elements according to DIN 24550



## HOUSING

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

| | |
|---|---|
| PRESSURE: | Max operating: up to 420 bar<br>Fatigue rating: $10^6$ cycles 0÷420 bar<br>Burst: 1260 bar |
| CONNECTIONS: | THREADED: G 1/2" ÷ G 1 1/2"<br>FLANGED: 1 1/4" ÷ 1 1/2"<br>SAE J 518-6000 FLANGE METRIC SCREWS |
| MATERIALS: | Head: cast iron<br>Bowl: carbon steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | 6 bar<br>ABF valve (on request)<br>ABF valve+RF valve (on request) |

## ELEMENT

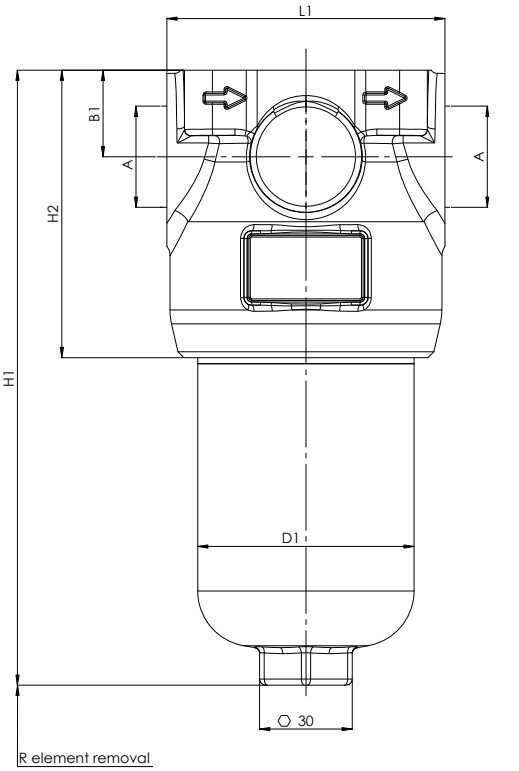
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181

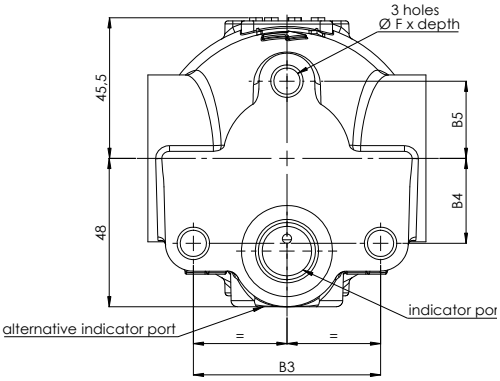
| | |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G06 - G10<br>G15 - G25 |
| COLLAPSE PRESSURE: | 21 bar<br>210 bar |
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

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## OVERALL DIMENSIONS

FH420-XD-040-063-100



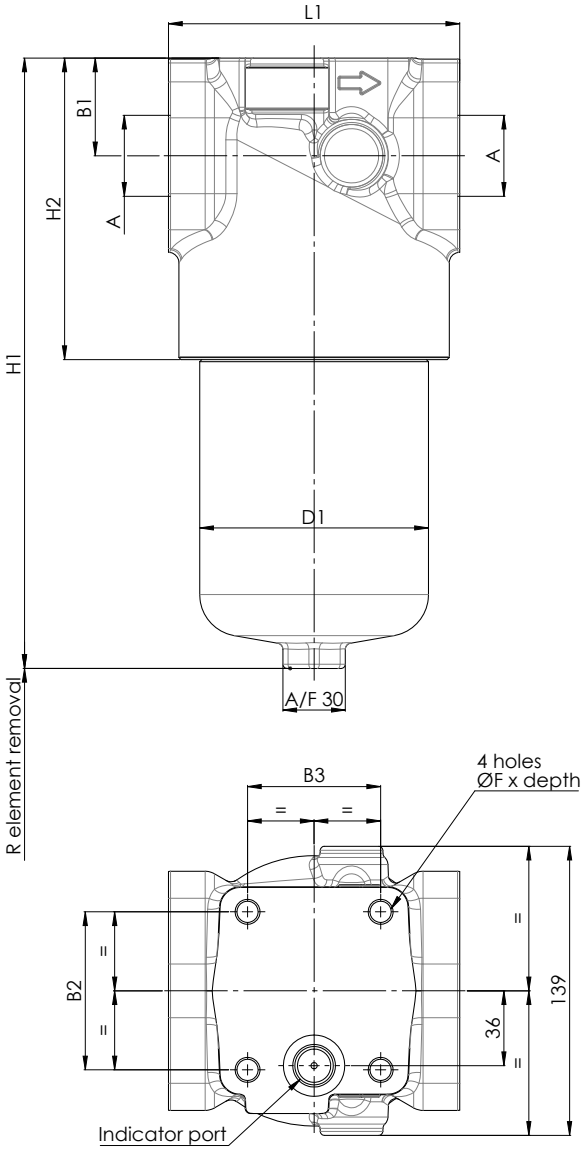

## NOMINAL SIZE

| MODEL | A | B1 | B3 | B4 | B5 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FH420-XD040 | G 1/2″ | 28 | 60,6 | 27,5 | 25 | 70 | M10x15 | 191 | 93 | 90 | 110 | 4,1 Kg |
| FH420-XD063 | G 3/4″ | | | | | | | 246 | | | | 4,8 Kg |
| FH420-XD100 | G 1″ | | | | | | | 340 | | | | 5,9 Kg |

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## OVERALL DIMENSIONS

FH420-XD-160-250-400

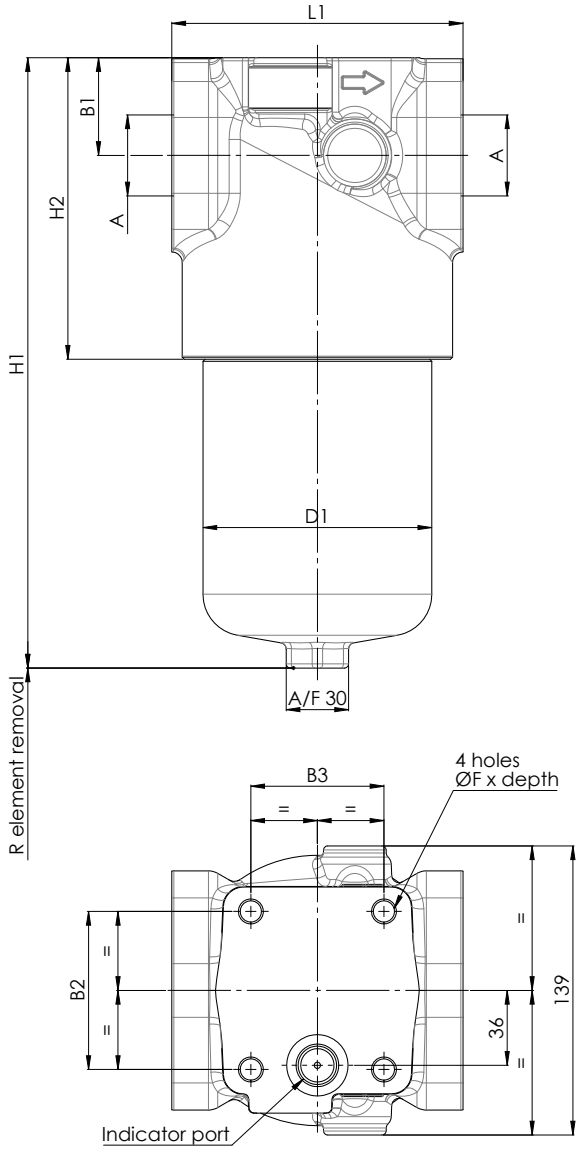



## NOMINAL SIZE

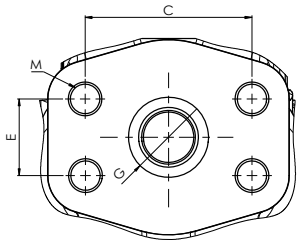
| MODEL | A | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FH420-XD160 | G 1″ | 47 | 76 | 64 | 110 | M12x22 | 293,5 | 145 | 140 | 130 | 12,6 Kg |
| FH420-XD250 | G 1 1/4″ | | | | | | 384,5 | | | | 13,7 Kg |
| FH420-XD400 | G 1 1/2″ | | | | | | 533,5 | | | | 18,1 Kg |

## OVERALL DIMENSIONS

FH420-XD-160-250-400




**-A- PORT DIMENSIONS**




| A | G | M | C | E |
|---|---|---|---|---|
| 1 1/4" SAE J 518-6000 M FLANGE | 32 | M14 | 66,7 | 31,8 |
| 1 1/2" SAE J 518-6000 M FLANGE | 38 | M16 | 79,4 | 36,5 |

## NOMINAL SIZE

| MODEL | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|
| FH420-XD160 | 47 | 76 | 64 | 110 | M12x22 | 293,5 | 145 | 140 | 130 | 12,6 Kg |
| FH420-XD250 | | | | | | 384,5 | | | | 13,7 Kg |
| FH420-XD400 | | | | | | 533,5 | | | | 18,1 Kg |

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## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FH420** | **XD** | **160** | **G10** | **A** | **B** | **B5** | **D** | **C** | **W** | **000** | **S** | **0** |
| SPARE ELEMENT | | **XD** | **160** | **G10** | **A** | | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FH420 | | |
| 2. FILTER ELEMENT SERIES | XD | | |
| 3. FILTER SIZE | 040-063-100 | | |
| | 160-250-400 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | |
| | Y | 21 bar - with ABF / RF valve | |
| | B | 210 bar | |
| | X | 210 bar - with ABF / RF valve | |
| 6. SEALS | *B | NBR | |
| *omitted for spare element | V | FKM (on request) | |
| 7. CONNECTIONS | B3 | G 1/2" | for size 040 to 100 |
| For different thread options please check availability with Filtrec Customer Service. | B4 | G 3/4" | |
| | B5 | G 1" | for size 040 to 400 |
| | B6 | G 1 1/4" | for size 160 to 400 |
| | B7 | G 1 1/2" | |
| | H6M | 1 1/4" SAE J518-6000 Psi-M | |
| | H7M | 1 1/2" SAE J518-6000 Psi-M | |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 6 bar | |
| 9. ABF VALVE / RF VALVE | 0 | no valve | |
| ABF=anti back flow valve<br>RF= reverse flow valve | C | ABF valve (on request) | |
| | R | ABF valve+RF valve (on request) | |
| 10. INDICATOR PORT OPTION | S | with metal plug | |
| | W | with plastic plug | |
| 11. COMPULSORY FIELD | 000 | Filtrec standard | |
| 12. CORROSION PROTECTION | S | phosphated - standard | |
| 13. OPTION | 0 | standard | |
| | D | drain plug (on request) | standard on size 400 |

## ORDERING INFORMATION

### ACCESSORIES

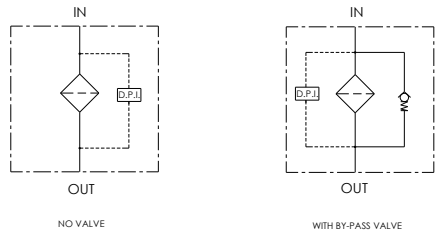
The accessories must be ordered separately

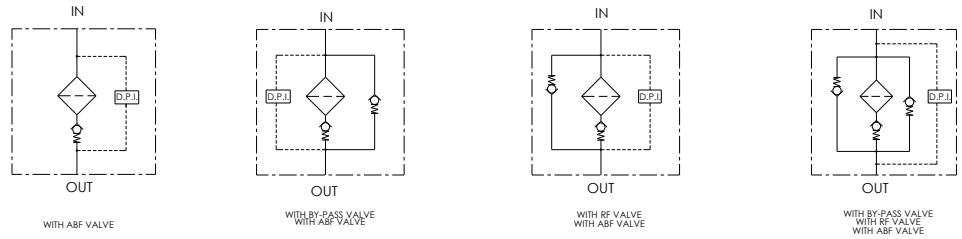
INDICATOR

**(F)** digit for FKM seal option
***LC24**=Led connector
For other options see clogging indicators catalogue

| | | |
|---|---|---|
| V05 (VF5) | differential visual 5 bar | |
| E05 (EF5) | differential electric 5 bar | |
| E05L (EF5L) | differential electric 5 bar + *LC24 | |
| VEF5 | differential visual and electric 5 bar | |
| V08 (VF8) | differential visual 8 bar | |
| E08 (EF8) | differential electric 8 bar | recommended for no by-pass option |
| E08L (EF8L) | differential electric 8 bar + *LC24 | |
| VEF8 | differential visual and electric 8 bar | |

## HYDRAULIC SYMBOLS



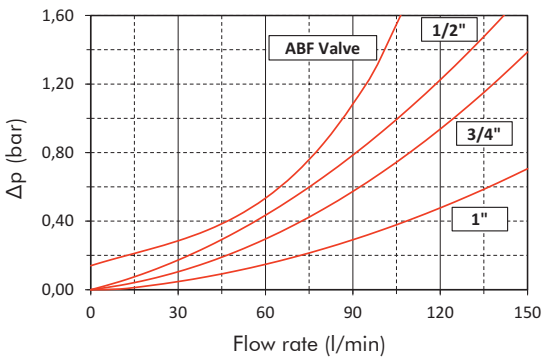

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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.

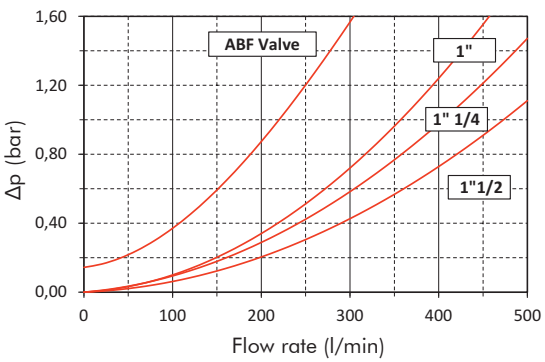
## HOUSING PRESSURE DROP

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

### FH420 XD-040-063-100




### FH420 XD-160-250-400



## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 100 l/min with XD160G10A and oil viscosity 46 cSt = (100 x 2,63)/1000 x (46/32) = 0,38 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **XD040** | 22,00 | 15,40 | 13,5 | 7,88 | 6,75 | 5,63 |
| **XD063** | 16,15 | 11,31 | 9,00 | 5,54 | 4,85 | 4,15 |
| **XD100** | 12,00 | 8,40 | 5,85 | 3,60 | 3,15 | 2,70 |
| **XD160** | 7,81 | 5,47 | 4,47 | 2,63 | 1,84 | 1,49 |
| **XD250** | 5,20 | 3,64 | 2,61 | 1,68 | 0,91 | 0,86 |
| **XD400** | 3,25 | 2,28 | 1,52 | 1,12 | 0,64 | 0,57 |

### EXAMPLE OF TOTAL Δp CALCULATION

FH420XD160G10ABB5DCW000S0 with 100 l/min and oil 46 cSt:
Housing Δp 0,1 bar + element Δp 0,38 bar (100 x 2,63)/1000 x (46/32) = total assembly Δp 0,48 bar

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 100 l/min with XD160G10B and oil viscosity 46 cSt = (100 x 3,37)/1000 x (46/32) = 0,48 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **XD040** | 34,97 | 24,48 | 22,50 | 14,63 | 12,38 | 10,13 |
| **XD063** | 29,23 | 20,46 | 16,62 | 10,38 | 8,65 | 6,92 |
| **XD100** | 19,00 | 13,30 | 10,35 | 6,75 | 5,85 | 4,95 |
| **XD160** | 8,13 | 5,69 | 4,74 | 3,37 | 2,81 | 2,25 |
| **XD250** | 5,40 | 3,78 | 3,06 | 2,52 | 2,16 | 1,80 |
| **XD400** | 3,38 | 2,36 | 1,94 | 1,57 | 1,29 | 1,01 |

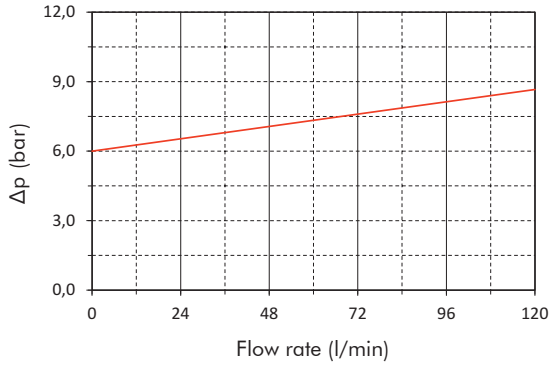
### EXAMPLE OF TOTAL Δp CALCULATION

FH420XD160G10BBB5DCW000S0 with 100 l/min and oil 46 cSt :
Housing Δp 0,1 bar + element Δp 0,48 bar (100 x 3,37)/1000 x (46/32) = total assembly Δp 0,58 bar

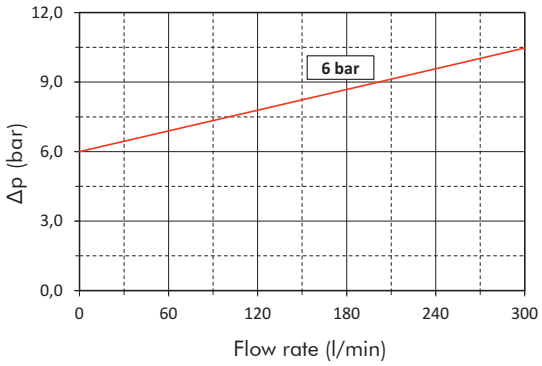
## BYPASS VALVE PRESSURE DROP

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

### FH420 XD040-063-100

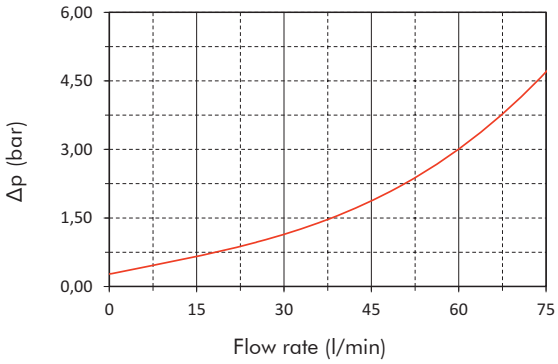



### FH420 – XD160-250-400

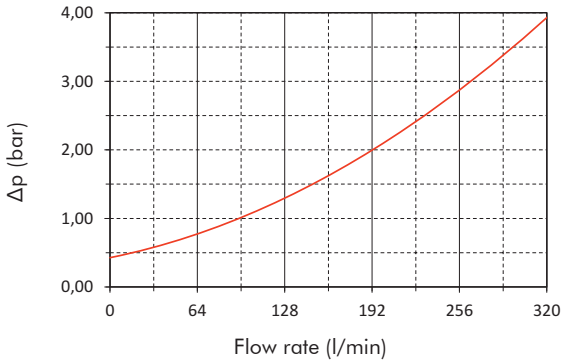



## RF VALVE PRESSURE DROP

### FH420 XD040-063-100




### FH420 XD160-250-400




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$^3$.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. IDENTIFICATION LABEL
8. DRAIN PLUG
9. INDICATOR PLUG

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 90 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR | FKM |
|---|---|---|
| FH420 XD **040-060-100** | 06.021.00268 | 06.021.00269 |
| FH420 XD **160-250-400** | 06.021.00272 | 06.021.00273 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (6) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (5) conditions and replace if necessary.
6. Lubricate the bowl's thread (6) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.

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Technical information may change without notice

CT136-02/26

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# FH420 SERIES

In line high pressure filters

In line filters for operating pressure up to 420 bar.
Flow rate up to 500 l/min.



## HOUSING

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

| | |
|---|---|
| PRESSURE: | Max operating: up to 420 bar<br>Fatigue rating: $10^6$ cycles 0÷420 bar<br>Burst: 1260 bar |
| CONNECTIONS: | THREADED: G 1/2" ÷ G 1 1/2"<br>FLANGED: 3/4" ÷1 1/2" SAE J 518-6000<br>FLANGE METRIC SCREWS |
| MATERIALS: | Head: cast iron<br>Bowl: carbon steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | 6 bar<br>ABF valve<br>ABF valve+RF valve |

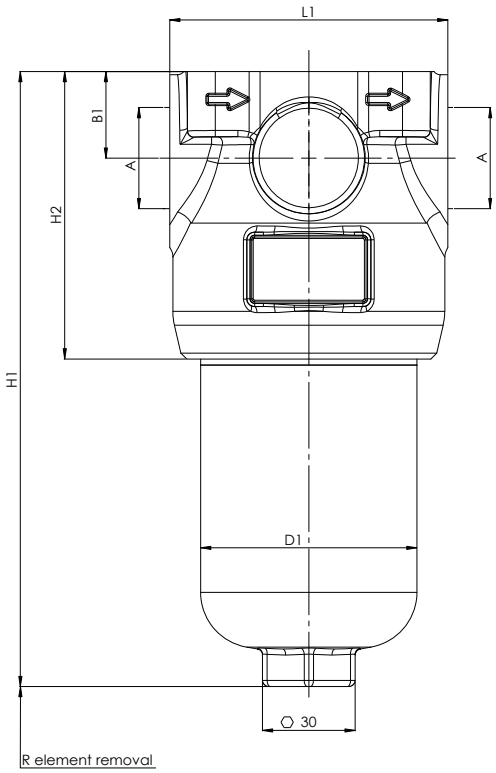
## ELEMENT

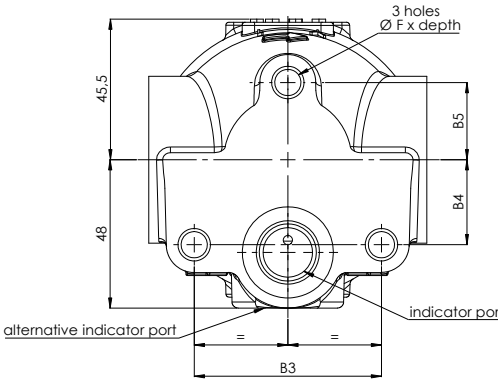
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181

| | |
|---|---|
| FILTER MEDIA: | Inorganic microfiber: G01 - G03<br>G06 - G10 - G15 - G25 |
| COLLAPSE PRESSURE: | 21 bar<br>210 bar |
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

FH420-D1-2x



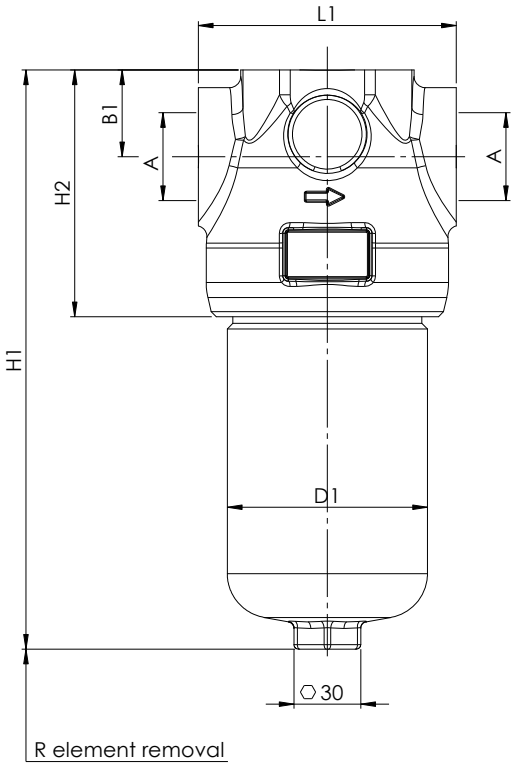

## NOMINAL SIZE

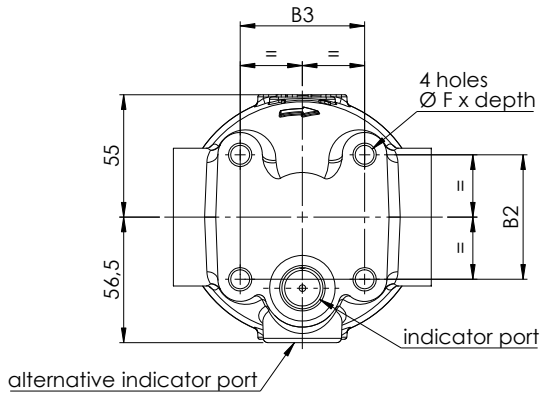
| MODEL | A | B1 | B3 | B4 | B5 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FH420-D125 | G 1/2″<br>G 3/4″<br>G 1″ | 28 | 60,6 | 27,5 | 25 | 70 | M10x15 | 162 | 93 | 90 | 110 | 3,5 Kg |
| FH420-D120 | | | | | | | | 203 | | | | 4 Kg |
| FH420-D124 | | | | | | | | 246 | | | | 4,5 Kg |
| FH420-D121 | | | | | | | | 296 | | | | 5 Kg |
| FH420-D126 | | | | | | | | 340 | | | | 5,4 Kg |

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## OVERALL DIMENSIONS

FH420-D1-3x



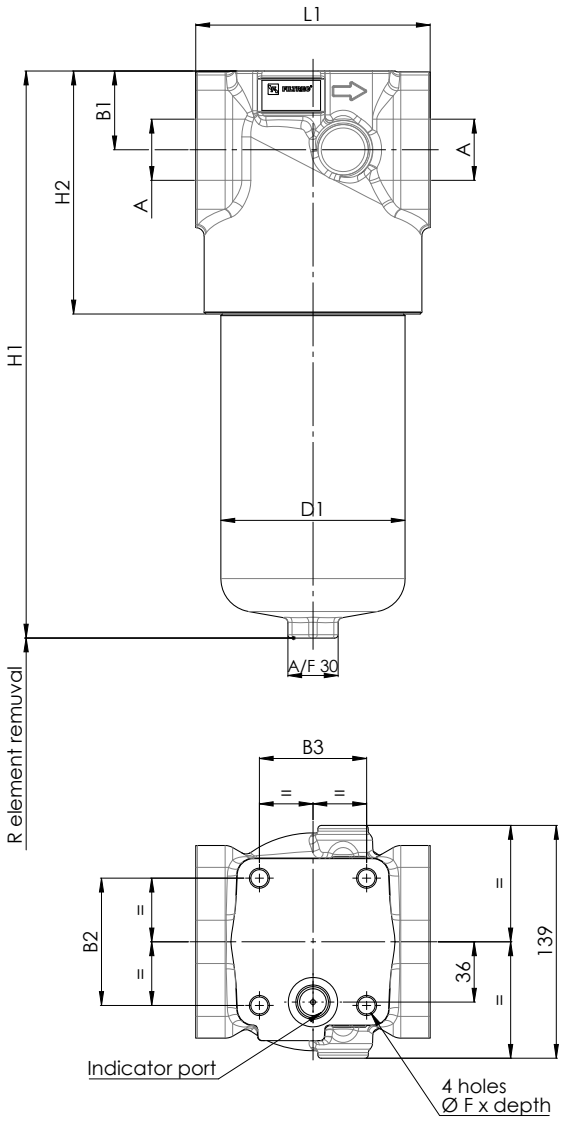

## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FH420-D135 | G 1″<br>G 1 1/4″ | 39 | 56 | 56 | 90 | M10x15 | 261 | 111 | 116 | 120 | 7,4 Kg |
| FH420-D136 | | | | | | | 320 | | | | 8,5 Kg |
| FH420-D137 | | | | | | | 390 | | | | 9,9 Kg |

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## OVERALL DIMENSIONS

FH420-D1-4x




## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FH420-D140 | G 1″<br>G 1 1/4″<br>G 1 1/2″ | 47 | 76 | 64 | 110 | M12x22 | 245,5 | 145 | 140 | 130 | 13,5 Kg |
| FH420-D141 | | | | | | | 338,5 | | | | 16,2 Kg |
| FH420-D142 | | | | | | | 458,5 | | | | 19,5 Kg |
| FH420-D143 | | | | | | | 557,5 | | | | 22,5 Kg |

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## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FH420** | **D1** | **20** | **G10** | **A** | **B** | **B4** | **D** | **C** | **W** | **000** | **S** | **0** |
| SPARE ELEMENT | | **D1** | **20** | **G10** | **A** | | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FH420 | | |
| 2. FILTER ELEMENT SERIES | D1 | | |
| 3. FILTER SIZE | 25-20-24-21-26 | | |
| | 35-36-37 | | |
| | 40-41-42-43 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | |
| | Y | 21 bar - with ABF / RF valve | |
| | B | 210 bar | |
| | X | 210 bar - with ABF / RF valve | |
| 6. SEALS | *B | NBR | |
| *omitted for spare element | V | FKM (on request) | |
| 7. CONNECTIONS | B3 | G 1/2" | for size 2x |
| For different thread options please check availability with Filtrec Customer Service. | B4 | G 3/4" | |
| | B5 | G 1" | for size 2x - 3x - 4x |
| | B6 | G 1 1/4" | for size 3x - 4x |
| | B7 | G 1 1/2" | for size 4x |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 6 bar | |
| 9. ABF VALVE / RF VALVE | 0 | no valve | |
| ABF=anti back flow valve<br>RF= reverse flow valve | C | ABF valve | |
| | R | ABF valve+RF valve | only for 4x ON REQUEST |
| 10. INDICATOR PORT OPTION | S | with metal plug | |
| | W | with plastic plug | |
| 11. COMPULSORY FIELD | 000 | Filtrec standard | |
| 12. CORROSION PROTECTION | S | phosphated - standard | |
| 13. OPTION | 0 | standard | |
| | D | drain plug (on request) | standard on size 43 |

## ORDERING INFORMATION

### ACCESSORIES

The accessories must be ordered separately

INDICATOR

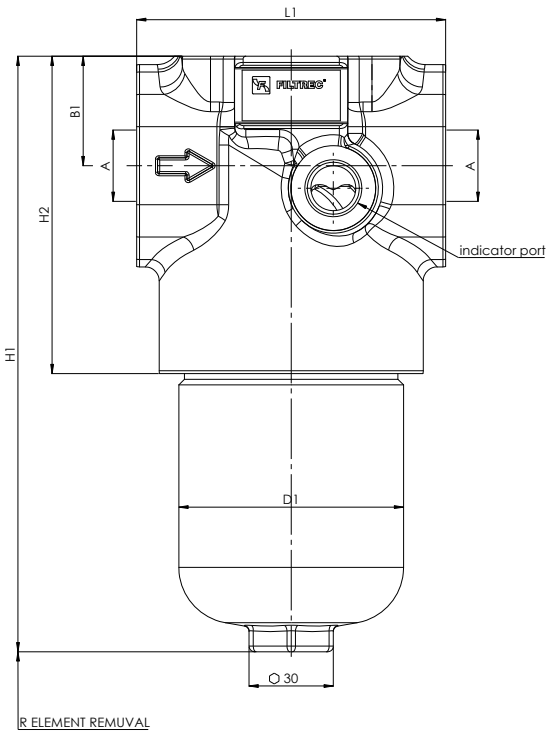
**(F)** digit for FKM seal option
***LC24**=Led connector
For other options see clogging indicators catalogue

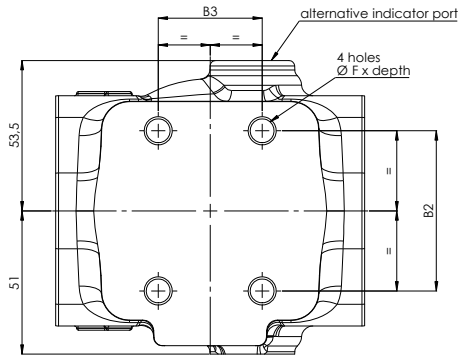
| | | |
|---|---|---|
| V05 (VF5) | differential visual 5 bar | |
| E05 (EF5) | differential electric 5 bar | |
| E05L (EF5L) | differential electric 5 bar + *LC24 | |
| VEF5 | differential visual and electric 5 bar | |
| V08 (VF8) | differential visual 8 bar | |
| E08 (EF8) | differential electric 8 bar | recommended for no by-pass option |
| E08L (EF8L) | differential electric 8 bar + *LC24 | |
| VEF8 | differential visual and electric 8 bar | |

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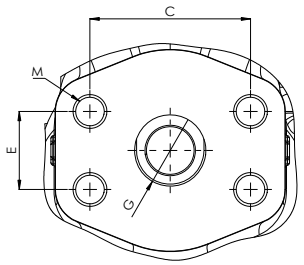
## OVERALL DIMENSIONS

FH420-D1-2x




-**A**- PORT DIMENSIONS



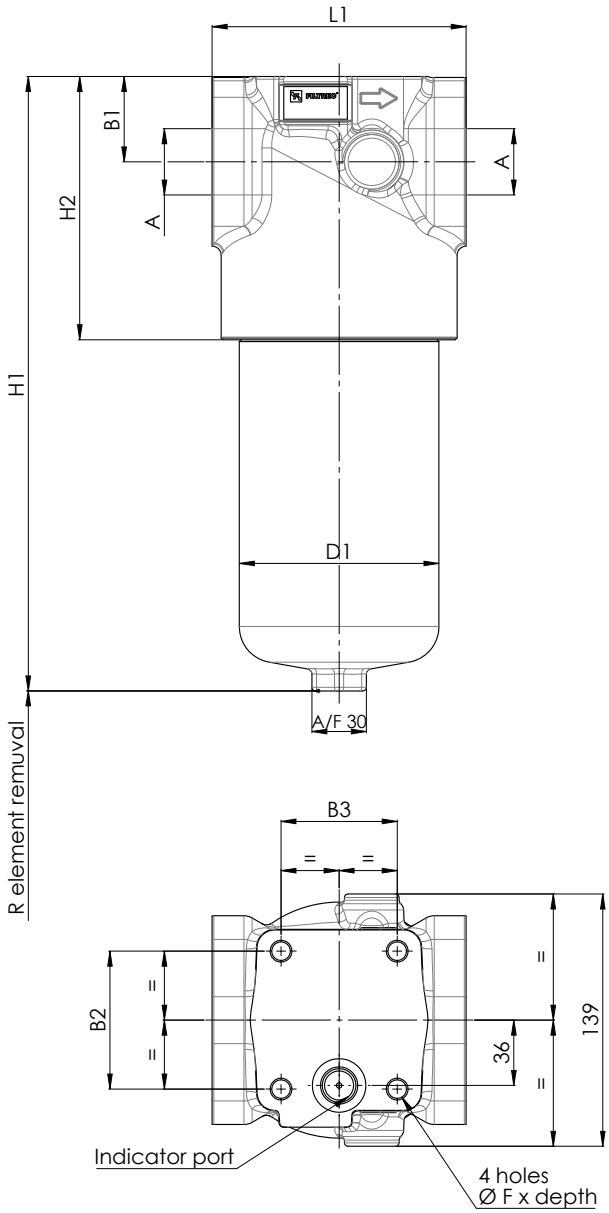

| A | G | M | C | E |
|---|---|---|---|---|
| 3/4" SAE J 518-6000 M FLANGE | 19 | M10 | 50,8 | 23,8 |
| 1" SAE J 518-6000 M FLANGE | 25 | M12 | 57,2 | 27,8 |

## NOMINAL SIZE

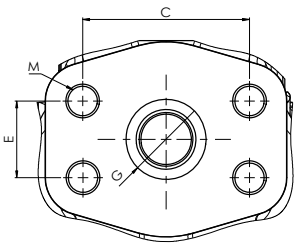
| MODEL | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|
| FH420-D120 | 38 | 57 | 37 | 80 | M10x15 | 212 | 113 | 110 | 120 | 6,8 Kg |
| FH420-D121 | | | | | | 300 | | | | 8,5 Kg |

## OVERALL DIMENSIONS

FH420-D1-4x




**-A- PORT DIMENSIONS**




| A | G | M | C | E |
|---|---|---|---|---|
| 1 1/4" SAE J 518-6000 M FLANGE | 32 | M14 | 66,7 | 31,8 |
| 1 1/2" SAE J 518-6000 M FLANGE | 38 | M16 | 79,4 | 36,5 |

## NOMINAL SIZE

| MODEL | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|
| FH420-D140 | 47 | 76 | 64 | 110 | M12x22 | 245,5 | 145 | 140 | 130 | 13,5 Kg |
| FH420-D141 | | | | | | 338,5 | | | | 16,2 Kg |
| FH420-D142 | | | | | | 458,5 | | | | 19,5 Kg |
| FH420-D143 | | | | | | 557,5 | | | | 22,5 Kg |

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## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FH420** | **D1** | **20** | **G10** | **A** | **B** | **H4M** | **D** | **0** | **W** | **000** | **S** | **0** |
| SPARE ELEMENT | | **D1** | **20** | **G10** | **A** | | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FH420 | | |
| 2. FILTER ELEMENT SERIES | D1 | | |
| 3. FILTER SIZE | 20-21 | | |
| | 40-41-42-43 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | |
| | Y | 21 bar - with ABF | |
| | B | 210 bar | |
| | X | 210 bar - with ABF | |
| 6. SEALS | *B | NBR | |
| *omitted for spare element | V | FKM (on request) | |
| 7. CONNECTIONS | H4M | 3/4" SAE J518-6000 Psi-M | for size 2x |
| | H5M | 1" SAE J518-6000 Psi-M | |
| | H6M | 1 1/4" SAE J518-6000 Psi-M | for size 4x |
| | H7M | 1 1/2" SAE J518-6000 Psi-M | |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 6 bar | |
| 9. ABF VALVE / RF VALVE | 0 | no valve | |
| ABF=anti back flow valve<br>RF= reverse flow valve | C | ABF valve | |
| | R | ABF valve+RF valve | only for 4x ON REQUEST |
| 10. INDICATOR PORT OPTION | S | with metal plug | only for size 4x |
| | W | with plastic plug | |
| | T | with metal plug | only for size 2x |
| | P | with plastic plug | |
| 11. COMPULSORY FIELD | 000 | Filtrec standard | |
| 12. CORROSION PROTECTION | S | phosphated - standard | |
| 13. OPTION | 0 | standard | |
| | D | drain plug (on request) | standard on size 43 |

## ORDERING INFORMATION

### ACCESSORIES

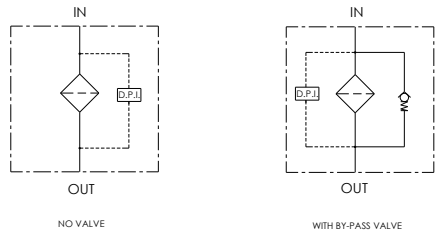
The accessories must be ordered separately

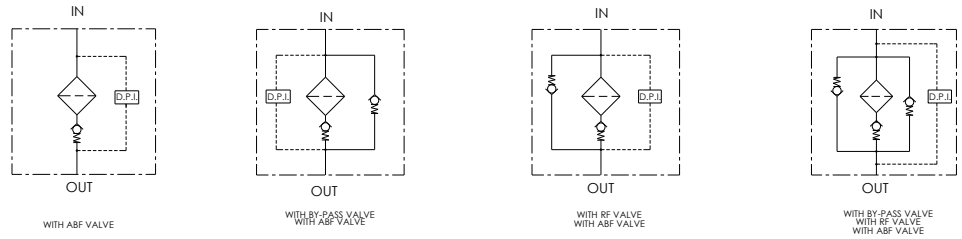
INDICATOR

**(F)** digit for FKM seal option
***LC24**=Led connector
For other options see clogging indicators catalogue

| | | |
|---|---|---|
| V05 (VF5) | differential visual 5 bar | |
| E05 (EF5) | differential electric 5 bar | |
| E05L (EF5L) | differential electric 5 bar + *LC24 | |
| VEF5 | differential visual and electric 5 bar | |
| V08 (VF8) | differential visual 8 bar | |
| E08 (EF8) | differential electric 8 bar | recommended for no by-pass option |
| E08L (EF8L) | differential electric 8 bar + *LC24 | |
| VEF8 | differential visual and electric 8 bar | |

## HYDRAULIC SYMBOLS



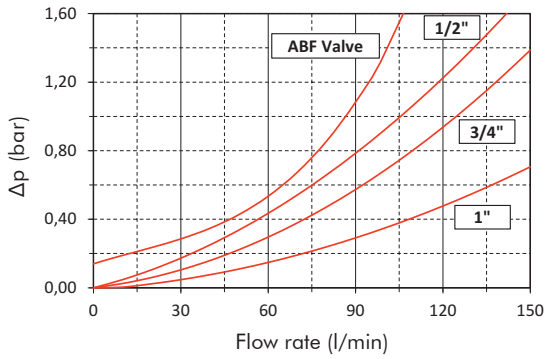

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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.

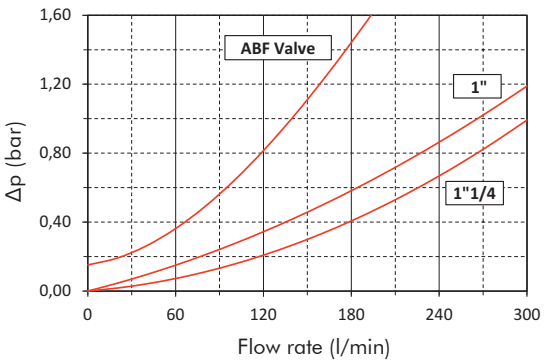
## HOUSING PRESSURE DROP

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

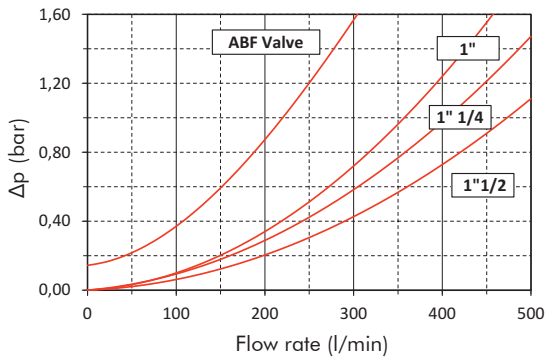
### FH420 D1-2x




### FH420 D1-3x




### FH420 D1-4x



## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with D121G10A and oil viscosity 46 cSt = (80 x 4,42)/1000 x (46/32) = 0,51 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **D125** | 50,24 | 35,56 | 25,75 | 15,51 | 8,27 | 7,57 |
| **D120** | 30,43 | 21,30 | 13,97 | 8,39 | 5,18 | 4,78 |
| **D124** | 19,90 | 13,93 | 8,42 | 5,17 | 4,16 | 3,60 |
| **D121** | 15,48 | 10,84 | 6,79 | 4,42 | 3,38 | 2,93 |
| **D126** | 13,24 | 8,61 | 5,75 | 4,03 | 2,91 | 2,43 |
| **D135** | 15,82 | 11,07 | 7,27 | 4,45 | 3,03 | 2,87 |
| **D136** | 13,19 | 9,23 | 6,06 | 3,71 | 2,53 | 2,39 |
| **D137** | 9,63 | 6,74 | 4,43 | 2,71 | 1,85 | 1,75 |
| **D140** | 14,65 | 10,26 | 6,73 | 4,12 | 2,81 | 2,66 |
| **D141** | 6,88 | 4,82 | 2,98 | 2,02 | 1,42 | 1,21 |
| **D142** | 4,67 | 3,27 | 1,99 | 1,36 | 1,04 | 0,77 |
| **D143** | 3,28 | 2,30 | 1,26 | 0,70 | 0,56 | 0,40 |

### EXAMPLE OF TOTAL Δp CALCULATION

FH420D121G10ABB5DCW000S0 with **80** l/min and oil **46** cSt:
Housing Δp 0,25 bar + element Δp 0,51 bar (80 x 4,42)/1000 x (46/32) = total assembly Δp 0,76 bar

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with D121G10B and oil viscosity 46 cSt = (80 x 5,25)/1000 x (46/32) = 0,60 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **D125** | 57,38 | 89,23 | 27,5 | 16,53 | 10,15 | 8,03 |
| **D120** | 37,18 | 26,03 | 14,77 | 11,57 | 6,89 | 6,13 |
| **D124** | 24,56 | 17,19 | 11,37 | 6,63 | 4,93 | 3,92 |
| **D121** | 23,89 | 16,72 | 11,25 | 5,25 | 3,85 | 3,34 |
| **D126** | 17,65 | 11,48 | 7,79 | 5,17 | 3,55 | 2,85 |
| **D135** | 20,27 | 14,19 | 9,50 | 5,66 | 4,01 | 3,41 |
| **D136** | 16,90 | 11,83 | 7,92 | 4,72 | 3,34 | 2,84 |
| **D137** | 12,35 | 8,64 | 5,79 | 3,45 | 2,44 | 2,07 |
| **D140** | 18,57 | 13,00 | 9,63 | 5,05 | 3,74 | 3,33 |
| **D141** | 10,22 | 7,15 | 4,00 | 2,57 | 1,76 | 1,44 |
| **D142** | 5,53 | 3,87 | 2,93 | 1,67 | 1,12 | 0,83 |
| **D143** | 4,59 | 3,21 | 1,80 | 1,10 | 0,93 | 0,70 |

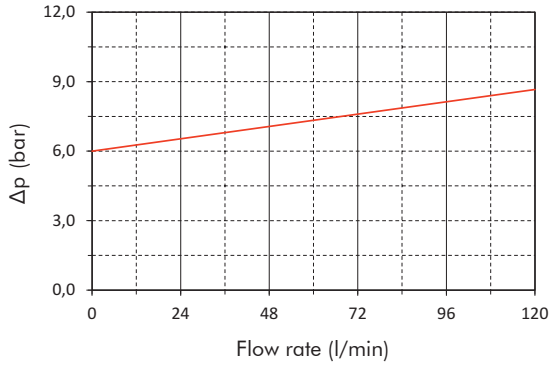
### EXAMPLE OF TOTAL Δp CALCULATION

FH420D121G10BBB5DCW000S0 with **80** l/min and oil **46** cSt :
Housing Δp 0,25 bar + element Δp 0,60 bar (80 x 5,25)/1000 x (46/32) = total assembly Δp 0,85 bar

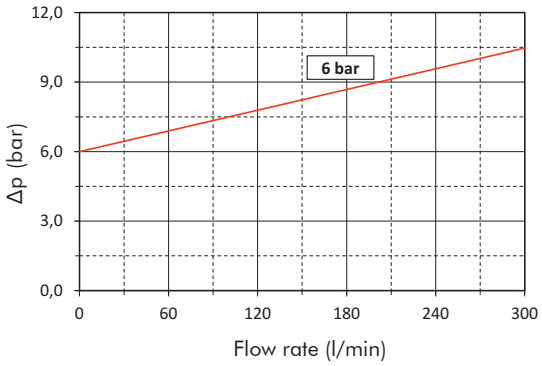
## BYPASS VALVE PRESSURE DROP

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

### FH420 D12x

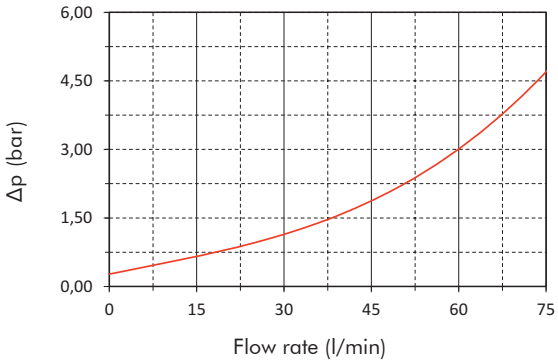



### FH420 D13x - D14x

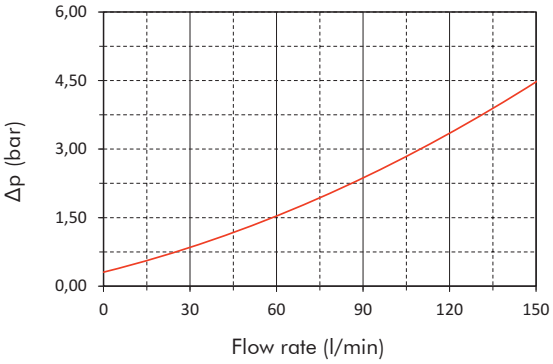



## RF VALVE PRESSURE DROP

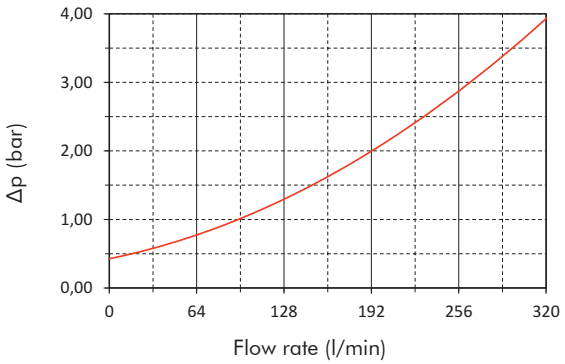
### FH420 D12x




### FH420 D13x




### FH420 D14x




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$^3$.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. IDENTIFICATION LABEL
8. DRAIN PLUG
9. INDICATOR PLUG

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 90 Nm |

### SPARE SEAL KIT PART NUMBER (5) THREADED VERSION

| | NBR | FKM |
|---|---|---|
| FH420 D1-2x | 06.021.00268 | 06.021.00269 |
| FH420 D1-3x | 06.021.00270 | 06.021.00271 |
| FH420 D1-4x | 06.021.00272 | 06.021.00273 |

### SPARE SEAL KIT PART NUMBER (5) FLANGED VERSION

| | NBR | FKM |
|---|---|---|
| FH420 D12x | 06.021.00275 | 06.021.00276 |
| FH420 D14x | 06.021.00272 | 06.021.00273 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (6) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (5) conditions and replace if necessary.
6. Lubricate the bowl's thread (6) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.

www.filtrec.com
Technical information may change without notice

CT90-02/26

WWW.SUMY.IR

# KRT SERIES

Tank top return filters

Return filter kits for tank mounting. Filter element with inbuilt bypass valve. Flow rates up to 900 l/min with a wide range of accessories available.



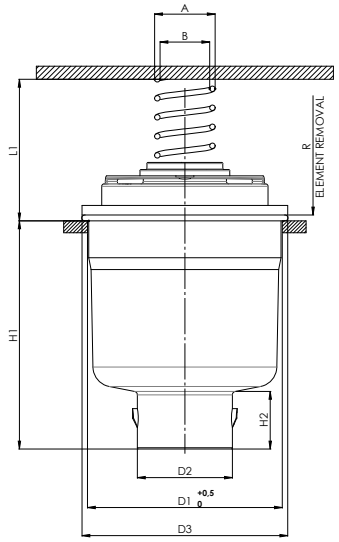
| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 8 bar<br>Burst: 16 bar |
| MATERIALS: | Cover and head: aluminium alloy<br>Bowl: PA6 reinforced<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | Inbuilt in the filter element<br>B version 1,7 bar<br>C version 3 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber<br>G06 - G10 - G15 - G25 - G40<br>Paper: C10 - C25<br>Synthetic: M05 - M10 - M15<br>Metal wire mesh: T60 |
| COLLAPSE PRESSURE: | 10 bar |
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

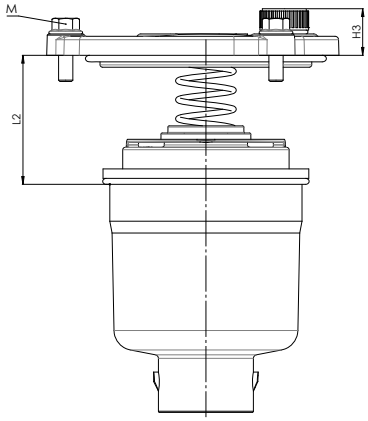
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

## OVERALL DIMENSIONS

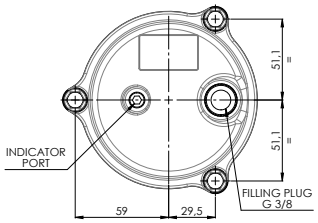
CONFIGURATION 0 - NO COVER



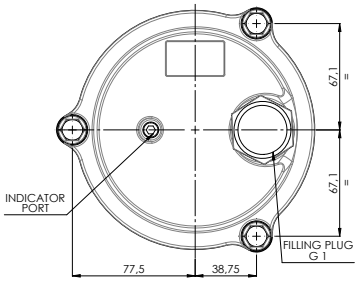

CONFIGURATION 1 & 2 - WITH COVER



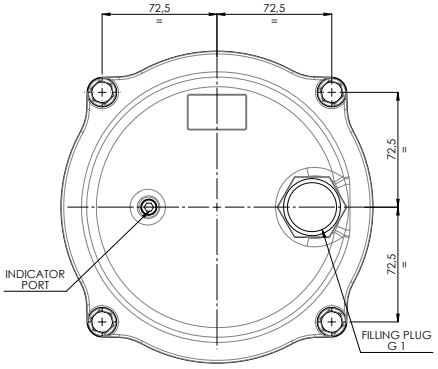

## COVER OPTIONS




KRT R1 10|11|20|22|30|31




KRT R1 40|43|45




KRT R1 50|51|60|64|66

## NOMINAL SIZE

| MODEL | A | B | ØD1 | ØD2 | ØD3 | H1 | H2 | H3 | L1 | L2 | M | R | WEIGHT Kg | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | CONF. 0 | CONF. 1 | CONF. 2 |
| KRT R1 10 | 25,5 | 20,9 | 61 | 24 | 66,5 | 85,6 | 21 | 20 | 49,4 | 54,5 | M6x20 | 150 | 0,18 | 0,31 | 0,32 |
| KRT R1 11 | | | | | | 158,6 | | | | | | 220 | 0,29 | 0,43 | 0,44 |
| KRT R1 20 | | | 81 | 40 | 87 | 96 | 24 | 24 | 59,6 | 54,3 | | 160 | 0,26 | 0,46 | 0,47 |
| KRT R1 22 | | | | | | 141 | | | | | | 210 | 0,36 | 0,56 | 0,57 |
| KRT R1 30 | | | | | | 222,5 | | | | | | 290 | 0,56 | 0,76 | 0,77 |
| KRT R1 31 | | | | | | 326,5 | | | | | | 390 | 0,76 | 0,96 | 0,97 |
| KRT R1 40 | 36,5 | 31,5 | 111,5 | | 129 | 224 | 30,8 | 30,8 | 73,7 | 69 | M8x25 | 300 | 0,84 | 1,30 | 1,32 |
| KRT R1 43 | | | | | | 270 | | | | | | 350 | 1,14 | 1,60 | 1,62 |
| KRT R1 45 | | | | | | 437 | | | | | | 520 | 1,84 | 2,30 | 2,32 |
| KRT R1 50 | 64,5 | 56,9 | 150 | 65 | 160 | 163 | 39,6 | 23,5 | 88,5 | 85,2 | M8x30 | 250 | 0,44 | 1,31 | 1,33 |
| KRT R1 51 | | | | | | 222 | | | | | | 310 | 0,84 | 1,71 | 1,73 |
| KRT R1 60 | | | | | | | | | | | | | | | |
| KRT R1 64 | | | | | | 272 | | | | | | 360 | 1,44 | 2,31 | 2,33 |
| KRT R1 66 | | | | | | 422 | | | | | | 510 | 2,64 | 3,51 | 3,53 |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **KRT** | **R1** | **30** | **G10** | **B** | **B** | **S** | **0** |
| SPARE ELEMENT | **R1** | **30** | **G10** | **B** | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | KRT | |
| 2. FILTER ELEMENT SERIES | R1 | |
| 3. FILTER SIZE | 10-11 | |
| | 20-22-30-31 | |
| | 40-43-45 | |
| | 50-51-60-64-66 | |
| 4. FILTER MEDIA | 000 | no element |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | C10 | paper $ß_{10\mu m(c)} \geq 2$ |
| | C25 | paper $ß_{25\mu m(c)} \geq 2$ |
| | T60 | wire mesh 60 $\mu$m |
| | M05 | synthetic $ß_{10\mu m(c)} \geq 1.000$ |
| | M10 | synthetic $ß_{15\mu m(c)} \geq 1.000$ |
| | M15 | synthetic $ß_{20\mu m(c)} \geq 1.000$ |
| 5. BYPASS VALVE | B | 1,7 bar (for paper and wire mesh elements) |
| inbuilt into the filter element | C | 3 bar (for glassfiber elements) |
| 6. SEALS | *B | NBR |
| * omitted for spare elements | V | FKM (on request) |
| 7. COMPULSORY FIELD | S | standard |
| 8. CONFIGURATION | 0 | no cover |
| | 1 | with cover without filing plug |
| | 2 | with cover with filing plug |

Continued on the next page

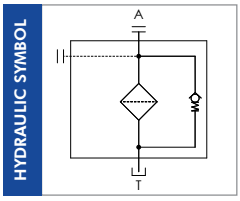
## ORDERING INFORMATION

### ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR | MPB | press. gauge rear connection | for "B" bypass |
| | MRB | press. gauge radial connection | |
| | PDB | pressure switch | |
| | MPC | press. gauge rear connection | for "C" bypass |
| | MRC | press. gauge radial connection | |
| | PDC | pressure switch | |
| | LC24 | LED connector for pressure switch | |
| EXTENSION TUBE | ET2250 | extension tube 250 mm long | (for sizes 20-22-30-31-40-43-45) |
| | ET2500 | extension tube 500 mm long | |
| | ET4200 | extension tube 200 mm long | (for sizes 50-51-60-64-66) |
| | ET4500 | extension tube 500 mm long | |
| CONNECTION TUBE | CT2250 | connection tube 250 mm long | (for sizes 20-22-30-31-40-43-45) |
| | CT4200 | connection tube 200 mm long | (for sizes 50-51-60-64-66) |
| DIFFUSER | DF040 | diffuser Ø 40 mm | (for sizes 20-22-30-31-40-43-45) |
| | DF065 | diffuser Ø 65 mm | (for sizes 50-51-60-64-66) |

HYDRAULIC SYMBOL



## 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.

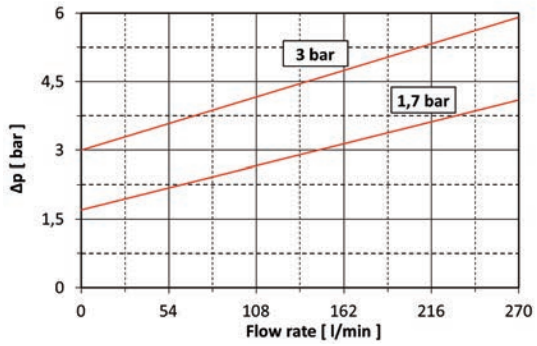
If the oil has a viscosity $V_1$ different than 32 cSt a corrective factor $V_1/32$ must be applied.
Example: 80 l/min with R130G10B and oil viscosity 46 cSt: (80 x 3,19)/1000 x (46/32) = 0,36 bar

| | G06 | G10 | G15 | G25 | G40 | C10 | C25 | T60 | M05 | M10 | M15 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **R110** | 33,84 | 15,68 | 12,5 | 8,81 | 4,54 | 4,83 | 4,13 | 2,56 | 10,46 | 8,94 | 5,58 |
| **R111** | 12,28 | 7,32 | 4,48 | 4,28 | 2,27 | 2,74 | 2,06 | 0,81 | 4,79 | 4,09 | 2,00 |
| **R120** | 13,85 | 8,65 | 6,44 | 6,32 | 2,77 | 4,09 | 2,52 | 0,86 | 5,65 | 4,83 | 3,19 |
| **R122** | 7,80 | 5,27 | 3,92 | 3,60 | 1,55 | 2,70 | 1,41 | 0,76 | 3,83 | 3,27 | 1,79 |
| **R130** | 5,09 | 3,19 | 2,25 | 2,06 | 0,90 | 1,64 | 0,82 | 0,49 | 2,31 | 1,98 | 1,02 |
| **R131** | 3,34 | 1,94 | 1,37 | 1,26 | 0,46 | 1,06 | 0,42 | 0,24 | 1,41 | 1,20 | 0,63 |
| **R140** | 2,43 | 1,31 | 1,25 | 1,10 | 0,43 | 0,85 | 0,39 | 0,22 | 0,95 | 0,82 | 0,62 |
| **R143** | 2,25 | 1,21 | 1,15 | 1,00 | 0,39 | 0,83 | 0,35 | 0,20 | 0,88 | 0,75 | 0,57 |
| **R145** | 1,35 | 0,55 | 0,52 | 0,50 | 0,17 | 0,42 | 0,22 | 0,10 | 0,52 | 0,44 | 0,32 |
| **R150** | 2,16 | 1,12 | 1,08 | 0,96 | 0,37 | 0,82 | 0,34 | 0,19 | 0,81 | 0,69 | 0,54 |
| **R151** | 1,80 | 0,88 | 0,77 | 0,71 | 0,29 | 0,64 | 0,26 | 0,15 | 0,64 | 0,55 | 0,38 |
| **R160** | 1,49 | 0,74 | 0,71 | 0,51 | 0,25 | 0,45 | 0,23 | 0,10 | 0,54 | 0,46 | 0,35 |
| **R164** | 1,32 | 0,52 | 0,45 | 0,42 | 0,13 | 0,36 | 0,12 | 0,10 | 0,38 | 0,32 | 0,21 |
| **R166** | 0,80 | 0,43 | 0,34 | 0,24 | 0,11 | 0,20 | 0,10 | 0,06 | 0,22 | 0,20 | 0,18 |

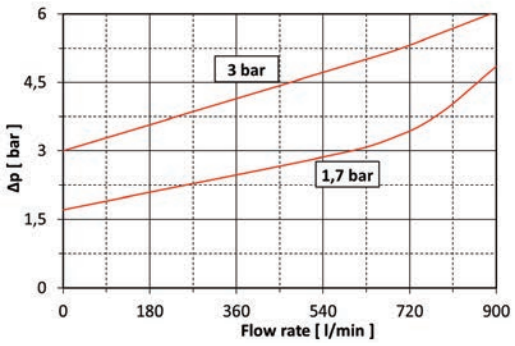
## BYPASS VALVE PRESSURE DROP

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

**KRT R1 10-31**




**KRT R1 40-66**



## ACCESSORIES

These accessories must be ordered separately; they fit all our models except sizes 10-11.




### 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.

for size 20 to 45

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

for size 50 to 66

| | | |
|---|---|---|
| 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 (ET2250 / ET2500 / ET4200 / ET4500) and/or diffuser (DF040 / DF065). Its plug and play option makes it easy to install and versatile.

for size 20 to 45

| | | |
|---|---|---|
| 06.016.00486 | CT2250 | connection tube 250 mm long |

for size 50 to 66

| | | |
|---|---|---|
| 06.016.00488 | CT4200 | connection tube 200 mm long |

### 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 (CT2250/CT4200). 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.

for size 20 to 45

| | | |
|---|---|---|
| 06.016.00492 | DF040 | diffuser Ø 40 mm |

for size 50 to 66

| | | |
|---|---|---|
| 06.016.00493 | DF065 | diffuser Ø 65 mm |

## USER TIPS




1 COVER
2 FILTER BOWL
3 FILTER ELEMENT
4 SPRING
5 INDICATOR PORT
6 SEAL KIT
7 SCREWS
8 PLUG

### SPARE SEALS KIT (6)

| | NBR | FKM |
|---|---|---|
| KRT-R1-10/11-S0 | 06.021.00458 | 06.021.00459 |
| KRT-R1-10/11-Sx | 06.021.00460 | 06.021.00461 |
| KRT-R1-20/22/30/31-S0 | 06.021.00462 | 06.021.00463 |
| KRT-R1-20/22/30/31-Sx | 06.021.00464 | 06.021.00465 |
| KRT-R1-40/43/45-S0 | 06.021.00466 | 06.021.00467 |
| KRT-R1-40/43/45-Sx | 06.021.00468 | 06.021.00469 |
| KRT-R1-50/51/60/64/66-S0 | 06.021.00470 | 06.021.00471 |
| KRT-R1-50/51/60/64/66-Sx | 06.021.00472 | 06.021.00473 |

### COVER SCREW TIGHTENING TORQUE

| | |
|---|---|
| M6 - for size 10 to 31 | 10 Nm |
| M8 - for size 40 to 66 | 25 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 bowl (2) should be preferably mounted downward.
2. ⚠ 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.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in an easily viewable position.
6. When an electrical indicator is used, make sure that it is properly wired.
7. Keep in stock a spare FILTREC filter element for timely replacement when required.
8. 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 tank, 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 dirty element (3) and the bowl (2).
4. Clean the bowl (2) and fit a new FILTREC element (3), verifying the part number, particularly concerning the micron rating.
5. When fitting the new element (3), 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.
6. Check the top cover O-ring conditions and replace if necessary.
7. Put the spring (4) in its position on the filter element (3).
8. Mount the top cover onto the tank and fix it screwing the fixing bolts.
9. ⚠ The used filter elements cannot be cleaned and re-used.

Technical information may change without notice.

CT139-rev. 01/26

WWW.SUMY.IR

# KH420 SERIES

High pressure filter kit

FILTREC KH420 series is specifically designed to be screwed directly on the control block.

Flow rate is up 500 l/min with a wide range of bowls for a best tailored solution.

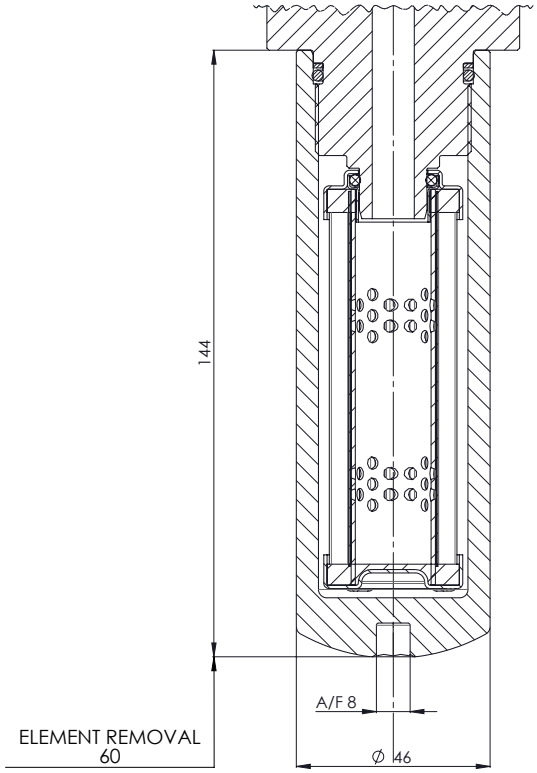


| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: up to 420 bar<br>Fatigue pressure test, over $10^6$ cycles from zero to max working pressure.<br>Burst: over 1260 bar |
| MATERIALS: | Bowl: carbon steel<br>Seal: NBR (FKM on request) |

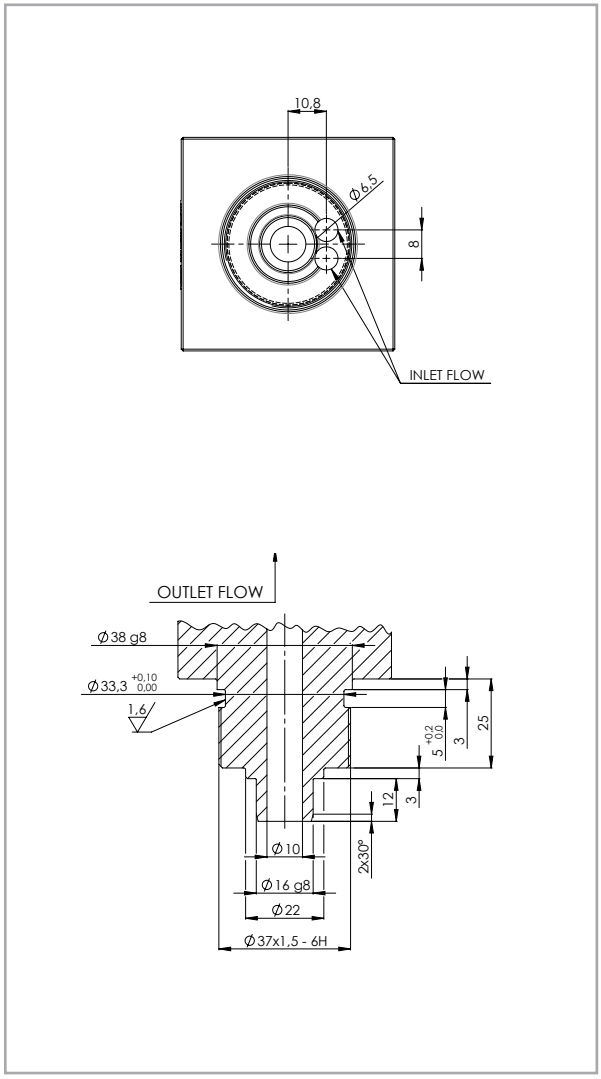
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G06 - G10 G15 - G25 |
| COLLAPSE PRESSURE: | 21 bar<br>With bypass<br>210 bar<br>Without bypass |
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

KH420 **D1 08**



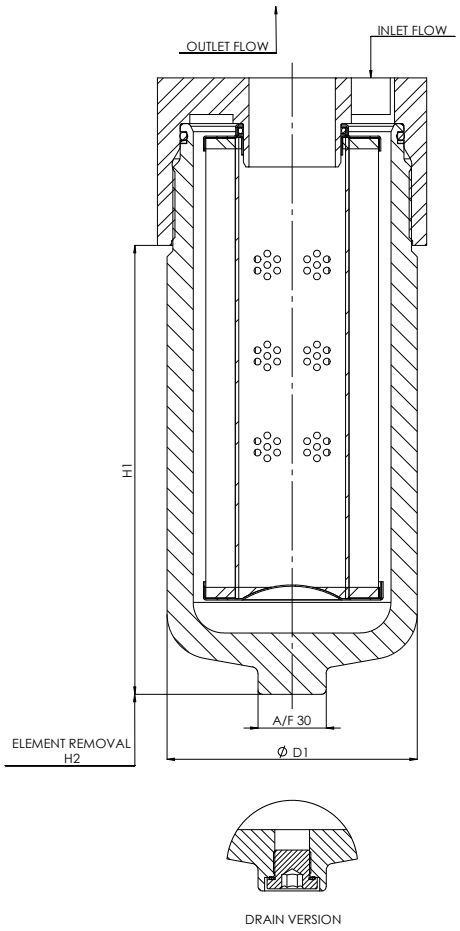

**D1 08** WEIGHT: 1 Kg




CONTROL BLOCK MACHINING
REFERENCE DRAWING

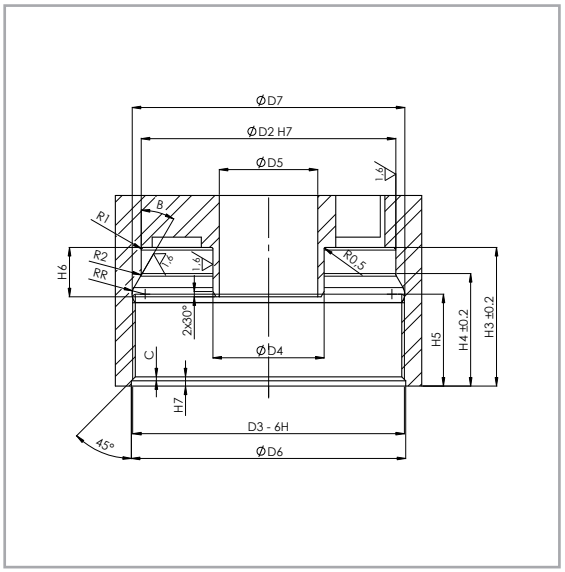
## OVERALL DIMENSIONS

KH420 **D1 2xx / 3xx / 4xx**






DRAIN VERSION




CONTROL BLOCK MACHINING
REFERENCE DRAWING

## NOMINAL SIZE

| MODEL | D1 | D2 | D3 | D4 | D5 | D6 | D7 | H1 | H2 | H3 | H4 | H5 | H6 | H7 | RR | B | C | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **D1 25** | 70 | 65,5 | M70x1,5 | 23,7 | 19 | 70,5 | 70,3 | 69 | 110 | 41 | 31,7 | 26,2 | 16 | 2 | 4 | 30° | 1x45° | 1,1 Kg |
| **D1 20** | 70 | 65,5 | M70x1,5 | 23,7 | 19 | 70,5 | 70,3 | 110 | 110 | 41 | 31,7 | 26,2 | 16 | 2 | 4 | 30° | 1x45° | 1,8 Kg |
| **D1 24** | 70 | 65,5 | M70x1,5 | 23,7 | 19 | 70,5 | 70,3 | 153 | 110 | 41 | 31,7 | 26,2 | 16 | 2 | 4 | 30° | 1x45° | 2,1 Kg |
| **D1 21** | 70 | 65,5 | M70x1,5 | 23,7 | 19 | 70,5 | 70,3 | 203 | 110 | 41 | 31,7 | 26,2 | 16 | 2 | 4 | 30° | 1x45° | 2,7 Kg |
| **D1 26** | 70 | 65,5 | M70x1,5 | 23,7 | 19 | 70,5 | 70,3 | 247 | 110 | 41 | 31,7 | 26,2 | 16 | 2 | 4 | 30° | 1x45° | 3,2 Kg |
| **D1 35** | 90 | 81,5 | M85x1,5 | 32 | 27 | 86 | 85,5 | 151 | 120 | 43 | 33,5 | 28,5 | 19 | 2,5 | 4 | 25° | 1,25x45° | 3,4 Kg |
| **D1 36** | 90 | 81,5 | M85x1,5 | 32 | 27 | 86 | 85,5 | 211 | 120 | 43 | 33,5 | 28,5 | 19 | 2,5 | 4 | 25° | 1,25x45° | 4,5 Kg |
| **D1 37** | 90 | 81,5 | M85x1,5 | 32 | 27 | 86 | 85,5 | 281 | 120 | 43 | 33,5 | 28,5 | 19 | 2,5 | 4 | 25° | 1,25x45° | 5,9 Kg |
| **D1 40** | 110 | 98,4 | M105x2 | 42,9 | 38 | 106 | 105,5 | 104,5 | 130 | 53,5 | 43,4 | 35,5 | 19 | 3,5 | 5 | 30° | 1,5x45° | 3,9 Kg |
| **D1 41** | 110 | 98,4 | M105x2 | 42,9 | 38 | 106 | 105,5 | 197,5 | 130 | 53,5 | 43,4 | 35,5 | 19 | 3,5 | 5 | 30° | 1,5x45° | 6,4 Kg |
| **D1 42** | 110 | 98,4 | M105x2 | 42,9 | 38 | 106 | 105,5 | 317,5 | 130 | 53,5 | 43,4 | 35,5 | 19 | 3,5 | 5 | 30° | 1,5x45° | 9,8 Kg |
| **D1 43** | 110 | 98,4 | M105x2 | 42,9 | 38 | 106 | 105,5 | 416,5 | 130 | 53,5 | 43,4 | 35,5 | 19 | 3,5 | 5 | 30° | 1,5x45° | 12,4 Kg |

## ORDERING INFORMATION

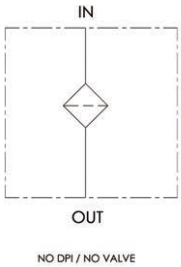
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **KH420** | **D1** | **20** | **G10** | **A** | **B** | **S** | **0** |
| SPARE ELEMENT | **D1** | **20** | **G10** | **A** | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | KH420 | | |
| 2. FILTER ELEMENT SERIES | D1 | | |
| 3. FILTER SIZE | 08 | | |
| | 25-20-24-21-26 | | |
| | 35-36-37 | | |
| | 40-41-42-43 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | not available for size 08 |
| | B | 210 bar | |
| 6. SEALS | *B | NBR | |
| *omitted for spare element | V | FKM (option) | |
| 7. CORROSION PROTECTION | S | standard | |
| 8. OPTION | 0 | no option | |
| | D | drain plug (on request) | not available for size 08 - standard for size 43 |

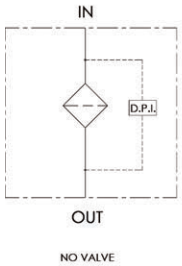
By pass valve, indicator and related measurements and tolerances for machining available on request.

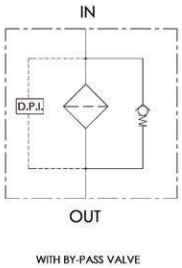
## HYDRAULIC SYMBOLS

STANDARD




ON REQUEST



## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with D121G10A and oil viscosity 46 cSt >(80 x 4,42)/1000 x (46/32) = 0,51 bar

| | G01A | G03A | G06A | G10A | G15A | G25A |
|---|---|---|---|---|---|---|
| **D125** | 50,24 | 35,56 | 25,75 | 15,51 | 8,27 | 7,57 |
| **D120** | 30,43 | 21,30 | 13,97 | 8,39 | 5,18 | 4,78 |
| **D124** | 19,90 | 13,93 | 8,42 | 5,17 | 4,16 | 3,60 |
| **D121** | 15,48 | 10,84 | 6,79 | 4,42 | 3,38 | 2,93 |
| **D126** | 13,24 | 8,61 | 5,75 | 4,03 | 2,91 | 2,43 |
| **D135** | 15,82 | 11,07 | 7,27 | 4,45 | 3,03 | 2,87 |
| **D136** | 13,19 | 9,23 | 6,06 | 3,71 | 2,53 | 2,39 |
| **D137** | 9,63 | 6,74 | 4,43 | 2,71 | 1,85 | 1,75 |
| **D140** | 14,65 | 10,26 | 6,73 | 4,12 | 2,81 | 2,66 |
| **D141** | 6,88 | 4,82 | 2,98 | 2,02 | 1,42 | 1,21 |
| **D142** | 4,67 | 3,27 | 1,99 | 1,36 | 1,04 | 0,83 |
| **D143** | 3,28 | 2,30 | 1,26 | 0,70 | 0,56 | 0,40 |

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with D121G10B and oil viscosity 46 cSt > (80 x 5,25)/1000 x (46/32) = 0,60 bar

| | G01B | G03B | G06B | G10B | G15B | G25B |
|---|---|---|---|---|---|---|
| **D108** | 120,86 | 83,59 | 57,25 | 34,76 | 24,65 | 15,93 |
| **D125** | 57,38 | 39,23 | 27,50 | 16,53 | 10,15 | 8,03 |
| **D120** | 37,18 | 26,03 | 14,77 | 11,57 | 6,89 | 6,13 |
| **D124** | 24,56 | 17,19 | 11,37 | 6,63 | 4,93 | 3,92 |
| **D121** | 23,89 | 16,72 | 11,25 | 5,25 | 3,85 | 3,34 |
| **D126** | 17,65 | 11,48 | 7,79 | 5,17 | 3,55 | 2,85 |
| **D135** | 20,27 | 14,19 | 9,50 | 5,66 | 4,01 | 3,41 |
| **D136** | 16,90 | 11,83 | 7,92 | 4,72 | 3,34 | 2,84 |
| **D137** | 12,35 | 8,64 | 5,79 | 3,45 | 2,44 | 2,07 |
| **D140** | 18,57 | 13,00 | 9,63 | 5,05 | 3,74 | 3,33 |
| **D141** | 10,22 | 7,15 | 4,00 | 2,57 | 1,76 | 1,44 |
| **D142** | 5,53 | 3,87 | 2,93 | 1,67 | 1,12 | 0,77 |
| **D143** | 4,59 | 3,21 | 1,80 | 1,10 | 0,93 | 0,70 |

## USER TIPS




1. FILTER ELEMENT
2. SEAL KIT
3. FILTER BOWL
4. IDENTIFICATION LABEL

### SPARE SEAL KIT PART NUMBER

| | NBR | FKM |
|---|---|---|
| KH420 D1-08 | 06.021.00313 | 06.021.00314 |
| KH420 D1-2x | 06.021.00268 | 06.021.00269 |
| KH420 D1-3x | 06.021.00270 | 06.021.00271 |
| KH420 D1-4x | 06.021.00272 | 06.021.00273 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 bowl should be preferably mounted (3) downward
2. enough space must be available for filter element replacement
3. the visual clogging indicator must be in a easily viewable position
4. when a electrical indicator is used, make sure that it is properly wired
5. never run the system with no filter element fitted
6. keep in stock a spare FILTREC filter element for timely replacement when required
7. the hydraulic system 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity)
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations

## MAINTENANCE

⚠ 1. make sure that the system is switched off and there is no residual pressure in the filter / hydraulic system
2. unscrew the bowl (3) by turning it anti-clockwise and remove it
3. remove the dirty element (1)
4. fit a new FILTREC element (1), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection
5. clean carefully the bowl; check the O-rings (2) conditions and replace if necessary
6. lubricate the bowl's thread (3) and screw it by hand in your hydraulic system by turning it clockwise
⚠ 7. screw in the bowl to stop
8. the used filter elements cannot be cleaned and re-used

Technical information may change without notice.
**CT94-rev.09/23**

WWW.SUMY.IR

# FH320 SERIES

In line pressure filters

Inline filters for operating pressure up to 320 bar, flow rate up to 150 l/min.

Available with or without bypass, indicator port is a standard option to fit a visual or electrical differential indicator.




## HOUSING

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

| | |
|---|---|
| PRESSURE: | Max operating:<br>320 bar<br>Fatigue rating:<br>$10^6$ cycles 0÷320 bar |
| CONNECTIONS: | G 1/2"÷1" - M22x1,5 on request |
| MATERIALS: | Head: cast iron<br>Bowl: extruded steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | No by-pass or 6 bar setting |

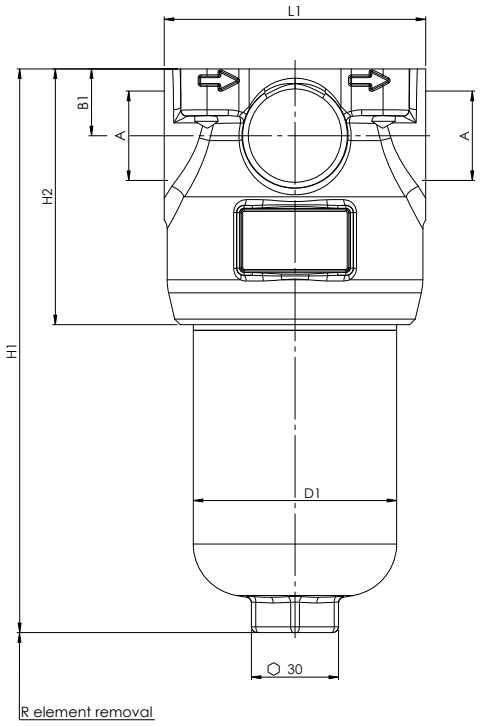
## ELEMENT

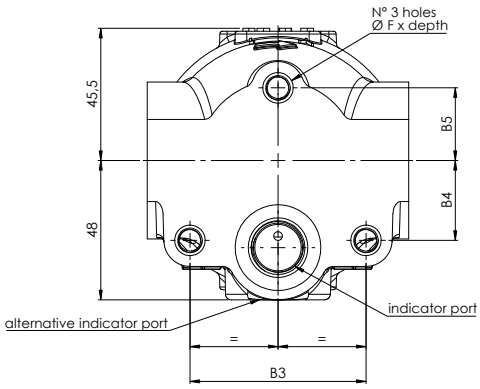
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181

| | |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G01 - G03 - G06 - G10<br>G15 - G25 |
| COLLAPSE PRESSURE: | 21 bar<br>210 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

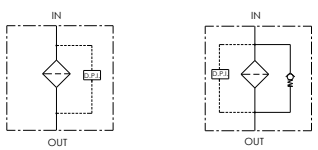



## NOMINAL SIZE

| MODEL | A | B1 | B3 | B4 | B5 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FH320-D125 | G 1/2" G 3/4" G 1" M22x1,5 | 23 | 60,6 | 27,5 | 25 | 70 | M10x15 | 157 | 88 | 90 | 110 | 3,3 Kg |
| FH320-D120 | | | | | | | | 198 | | | | 3,9 Kg |
| FH320-D124 | | | | | | | | 241 | | | | 4,4 Kg |
| FH320-D121 | | | | | | | | 291 | | | | 4,9 Kg |
| FH320-D126 | | | | | | | | 335 | | | | 5,3 Kg |

HYDRAULIC SYMBOL



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FH320** | **D1** | **20** | **G10** | **A** | **B** | **B3** | **D** | **W** | **E05** | **S** | **0** |
| SPARE ELEMENT | | **D1** | **20** | **G10** | **A** | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FH320 | | |
| 2. FILTER ELEMENT SERIES | D1 | | |
| 3. FILTER SIZE | 25-20-24-21-26 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G15 | glassfiber $ß_{18\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | |
| | B | 210 bar | recommended with no by-pass option |
| 6. SEALS<br>*omitted for spare element | B | *NBR | |
| | V | FKM | |
| 7. CONNECTIONS<br>For different thread options please check availability with Filtrec Customer Service. | B3 | G 1/2" | |
| | B4 | G 3/4" | |
| | B5 | G 1" | |
| | M22 | M22 x 1,5 (on request) | |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 6 bar | |
| 9. INDICATOR PORT OPTION | S | with metal plug | |
| | W | with plastic plug | when using an indicator |
| 10. INDICATOR<br>(F) digit for FKM seal option<br>***LC24**=Led connector (see clogging indicators catalogue) | 000 | no indicator | |
| | V05 (VF5) | differential visual 5 bar | |
| | E05 (EF5) | differential electrical 5 bar | |
| | E05L (EF5L) | differential electric 5 bar + *LC24 | |
| | V08 (VF8) | differential visual 8 bar | recommended for no by-pass option |
| | E08 (EF8) | differential electrical 8 bar | |
| | E08L (EF8L) | differential electric 8 bar + *LC24 | |
| 11. CORROSION PROTECTION | S | phosphated - standard | |
| 12. OPTIONS | 0 | standard | |

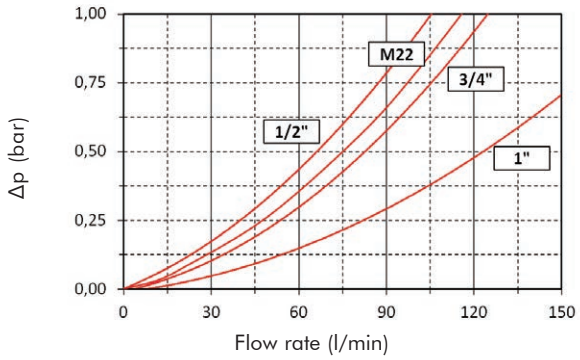
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**FH320 D12xx**




## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with D121G10A and oil viscosity 46 cSt >(80 x 4,42)/1000 x (46/32) = 0,51 bar

| | G01A | G03A | G06A | G10A | G15A | G25A |
|---|---|---|---|---|---|---|
| **D125** | 50,24 | 35,56 | 25,75 | 15,51 | 8,27 | 7,57 |
| **D120** | 30,43 | 21,30 | 13,97 | 8,39 | 5,18 | 4,78 |
| **D124** | 19,90 | 13,93 | 8,42 | 5,17 | 4,16 | 3,60 |
| **D121** | 15,48 | 10,84 | 6,79 | 4,42 | 3,38 | 2,93 |
| **D126** | 13,24 | 8,61 | 5,75 | 4,03 | 2,91 | 2,43 |

## EXAMPLE OF TOTAL Δp CALCULATION

FH320D121G10ABB5DWV05 with **80** l/min and oil **46** cSt:
Housing Δp 0,25 bar + element Δp 0,51 bar (80 x 4,42)/1000 x (46/32) = total assembly Δp 0,76 bar

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with D121G10B and oil viscosity 46 cSt > (80 x 5,25)/1000 x (46/32) = 0,60 bar

| | G01B | G03B | G06B | G10B | G15B | G25B |
|---|---|---|---|---|---|---|
| **D125** | 57,38 | 39,23 | 27,50 | 16,53 | 10,15 | 8,03 |
| **D120** | 37,18 | 26,03 | 14,77 | 11,57 | 6,89 | 6,13 |
| **D124** | 24,56 | 17,19 | 11,37 | 6,63 | 4,93 | 3,92 |
| **D121** | 23,89 | 16,72 | 11,25 | 5,25 | 3,85 | 3,34 |
| **D126** | 17,65 | 11,48 | 7,79 | 5,17 | 3,55 | 2,85 |

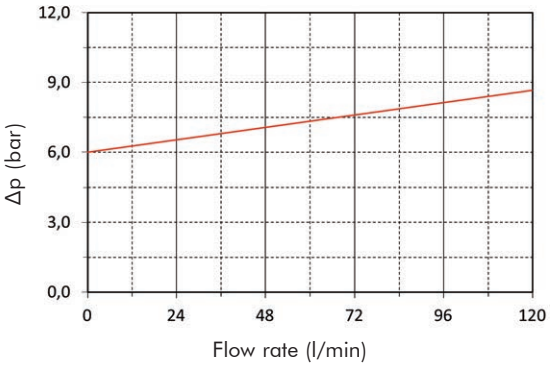
## EXAMPLE OF TOTAL Δp CALCULATION

FH320D121G10BBB5DWV08 with **80** l/min and oil **46** cSt :
Housing Δp 0,25 bar + element Δp 0,60 bar (80 x 5,25)/1000 x (46/32) = total assembly Δp 0,85 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.

**FH320 D12x**




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$^3$.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. FILTER BOWL
6. SEAL KIT
7. IDENTIFICATION LABEL

| INDICATOR TIGHTENING TORQUE |
|---|
| 90 Nm |

| SPARE SEAL KIT PART NUMBER (6) | | |
|---|---|---|
| | NBR | FKM |
| FH320 D1-2x | 06.021.00268 | 06.021.00269 |

| BOWL TIGHTENING TORQUE |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (5) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (5) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (6) conditions and replace if necessary.
6. Lubricate the bowl's thread (5) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.
⚠ 8. The used filter elements cannot be cleaned and re-used.

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# FH323-324 SERIES

In line high pressure filters

In line filters for operating pressure up to 320 bar. Flow rate up to 100 l/min.




## HOUSING

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

| | |
|---|---|
| PRESSURE: | Max operating: up to 320 bar<br>Fatigue rating: $10^6$ cycles 0÷320 bar<br>Burst: 960 bar |
| CONNECTIONS: | G 1/2" ÷ G 3/4" - M22<br>M18 (on request) |
| MATERIALS: | Head: cast iron<br>Bowl: carbon steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | 7 bar |

## ELEMENT

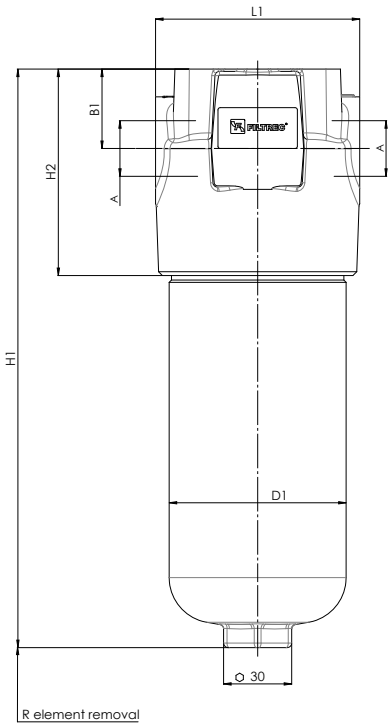
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181

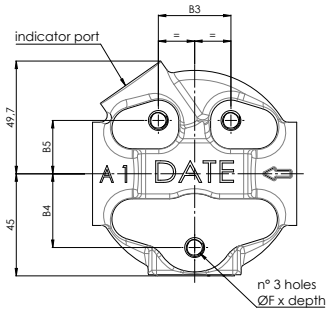
| | |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G01 - G03 - G05 - G10 - G15 - G20 |
| COLLAPSE PRESSURE: | 20 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

FH323



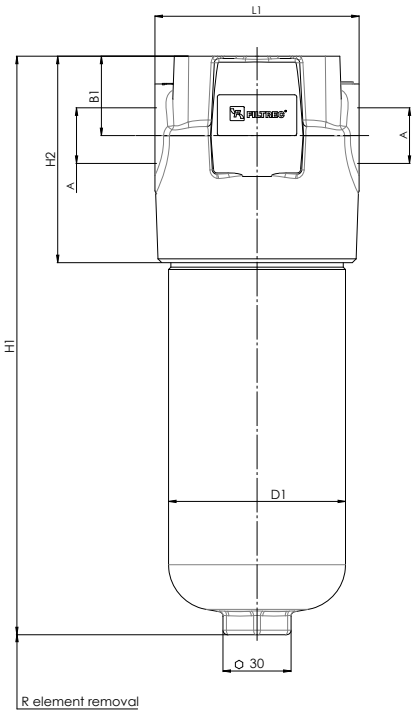



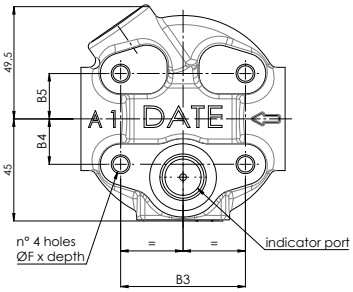

## NOMINAL SIZE

| MODEL | A | B1 | B3 | B4 | B5 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FH323-DHD55 | G 1/2" G 3/4" M18x1,5 M22x1,5 | 35 | 32 | 32,5 | 23,5 | 78 | M8x13 | 204 | 91 | 90 | 110 | 4,2 Kg |
| FH323-DHD75 | | | | | | | | 255 | | | | 4,9 Kg |
| FH323-DHD95 | | | | | | | | 295 | | | | 5,4 Kg |

## OVERALL DIMENSIONS

FH324




## NOMINAL SIZE

| MODEL | A | B1 | B3 | B4 | B5 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FH324-DHD55 | G 1/2" G 3/4" M18x1,5 M22x1,5 | 35 | 55 | 20 | 20 | 78 | M8x13 | 204 | 91 | 90 | 110 | 4,2 Kg |
| FH324-DHD75 | | | | | | | | 255 | | | | 4,9 Kg |
| FH324-DHD95 | | | | | | | | 295 | | | | 5,4 Kg |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FH323/324** | **DHD** | **95** | **G10** | **B** | **0** | **B4** | **H** | **W** | **000** | **S** | **0** |
| SPARE ELEMENT | **DHD** | **95** | **G10** | **B** | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FH323/324 | | |
| 2. FILTER ELEMENT SERIES | DHD | | |
| 3. FILTER SIZE | 55-75-95 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G05 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G20 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| 5. SEALS | B | NBR | |
| | V | FKM (on request) | |
| 6. ELEMENT SUFFIX | 0* | for element with std. connection | |
| * Omitted for spare element<br>** Only for spare element "/8" | 8** | for element with special connection | |
| 7. CONNECTIONS | B3 | G 1/2" | |
| | B4 | G 3/4" | |
| | M18 | M18x1,5 (on request) | |
| | M22 | M22x1,5 | |
| 8. BYPASS VALVE | H | 7 bar | |
| 9. INDICATOR PORT OPTION | S | on top - with metal plug | only for FH324 |
| | W | on top- with plastic plug | |
| | T | on side - with metal plug | only for FH323 |
| | P | on side - with plastic plug | |
| 10. COMPULSORY FIELD | 000 | Filtrec standard | |
| 11. CORROSION PROTECTION | S | phosphated - standard | |
| 12. OPTION | 0 | standard | |
| | 1 | only for filter with element DHD.../8 | |

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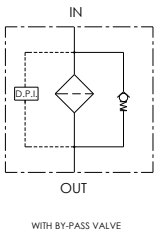
## ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| INDICATOR<br>(F) digit for FKM seal option<br>**For other indicators, see the "Clogging Indicators" catalogue in the download section** | V05 (VF5) | differential visual 5 bar |
| | E05 (EF5) | differential electric 5 bar |
| | E05L (EF5L) | differential electric 5 bar + *LC24 |
| | VEF5 | differential visual and electric 5 bar |
| | V08 (VF8) | differential visual 8 bar |
| | E08 (EF8) | differential electric 8 bar |
| | E08L (EF8L) | differential electric 8 bar + *LC24 |
| | VEF8 | differential visual and electric 8 bar |

| | | |
|---|---|---|
| ADDITIONAL INDICATOR | EC SERIES | differential electric indicator with integrated connector |
| | EW SERIES | differential electric indicator with cable and connector |
| | ET SERIES | differential electric indicator with thermostatic switch |

## HYDRAULIC SYMBOLS



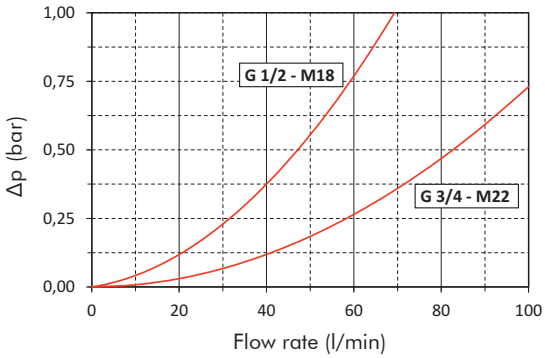

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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.

## HOUSING PRESSURE DROP

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

**FH323-324**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with DHD95G10B and oil viscosity 46 cSt = (80 x 4,12)/1000 x (46/32) = 0,474 bar

| | G01 | G03 | G05 | G10 | G15 | G20 |
|---|---|---|---|---|---|---|
| **DHD55** | 25,70 | 12,60 | 9,60 | 8,33 | 4,75 | 4,20 |
| **DHD75** | 17,45 | 9,23 | 7,69 | 5,38 | 4,03 | 3,08 |
| **DHD95** | 14,15 | 7,65 | 5,88 | 4,12 | 3,13 | 2,35 |

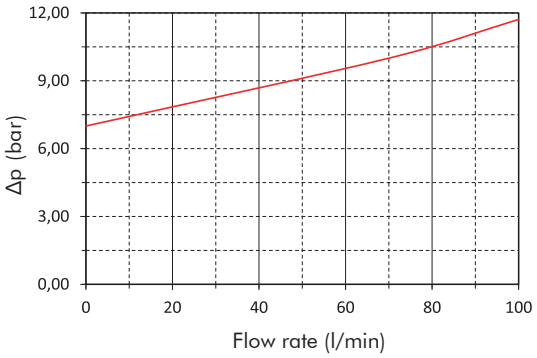
## EXAMPLE OF TOTAL Δp CALCULATION

FH323DHD95G10B0B4HW000S0 with 80 l/min and oil 46 cSt:
Housing Δp 0,47 bar + element Δp 0,47 bar (80 x 4,12)/1000 x (46/32) = total assembly Δp 0,94 bar

## BYPASS VALVE PRESSURE DROP

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

### FH323-324



## ADDITIONAL INDICATORS

These accessories must be ordered separately, for order codes see dedicated catalogues.

### ET Series



- Electrical differential clogging indicators with thermostatic switch set at 30°C
- Connector type: according to DIN43650 with cable gland PG09/PG11
- Degree of protection: IP65 according to EN60529

**Coding:**
**ET xx**

- 05 setting 5,0 bar
- 08 setting 8,0 bar

### EW Series



- Electrical differential indicators with cable and connector with and without thermostatic switch set at 30°C
- Connector type: Deutsch DT04-2P
  SUPERSEAL 1.5 2 WAY
  JUNIOR POWER TIMER 2 WAY
- Degree of protection: IP67 according to EN60529

**Coding:**
**EW xx x x x**

- 0 without thermostatic switch
- T with thermostatic switch
- A normally open
- C normally closed
- D Deutsch DT04-2P
- S Superseal 1,5 2 way
- J Junior Power timer 2 way
- 05 setting 5,0 bar
- 08 setting 8,0 bar

### EC Series



- Electrical differential indicators with integrated connector
- Connector type: Deutsch DT04-2P
  SUPERSEAL 1.5 2 WAY
  JUNIOR POWER TIMER 2 WAY
- Degree of protection: IP67 according to EN60529

**Coding:**
**EC xx x x 0**

- A normally open
- C normally closed
- D Deutsch DT04-2P
- S Superseal 1,5 2 way
- J Junior Power timer 2 way
- 05 setting 5,0 bar
- 08 setting 8,0 bar

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. IDENTIFICATION LABEL
8. INDICATOR PLUG

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 90 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR | FKM |
|---|---|---|
| FH323-324 | 06.021.00495 | 06.021.00496 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrowshows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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 located in an easily visible position.
7. When an electrical indicator is used, make sure that it is properly wired.

⚠ 8. Never run the system with no filter element fitted.

9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (6) by turning it anti-clockwi seand remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (5) conditions and replace if necessary.
6. Lubricate the bowl's thread (6) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.

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CT143-03/26

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# FLC SERIES

Pressure filters

"Last Chance" type filters for protection of the tractor's hydraulic system from the contaminant coming from the auxiliary devices.

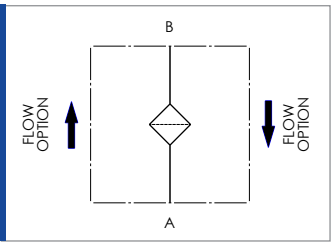



| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 | |
|---|---|---|
| PRESSURE: | max operating 350 bar | |
| CONNECTION PORTS: | G 1/4" - G 3/8" - G 1/2" | |
| MATERIALS: | Housing: | Anodized aluminium alloy |
| | Seals: | NBR |

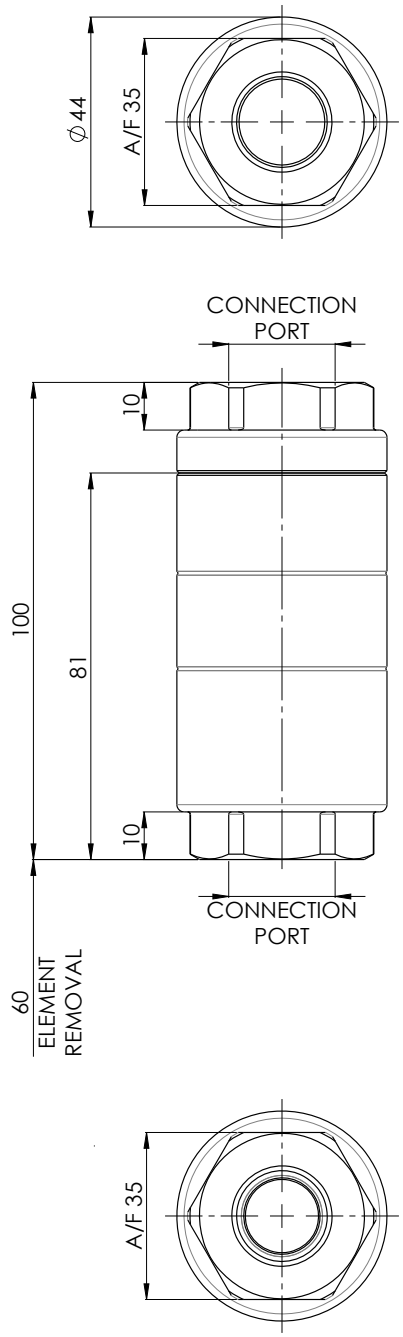
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968 |
|---|---|
| FILTER MEDIA: | S25 - S40 |
| COLLAPSE PRESSURE: | 80 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | -30 °C to +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). |

HYDRAULIC SYMBOL



## OVERALL DIMENSIONS




## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|---|
| | **FLC** | **1** | **S25** | **B** | **B3** |
| SPARE ELEMENT | **ELC** | **1** | **S25** | **B** | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FLC | |
| 2. FILTER SIZE | 1 | |
| 3. FILTER MEDIA | S25 | syntered bronze 25 $\mu$m |
| | S40 | syntered bronze 40 $\mu$m |
| 4. SEALS | B | NBR |
| 5. CONNECTION PORTS | B1 | G 1/4" |
| | B2 | G 3/8" |
| | B3 | G 1/2" |

WEIGHT: 0,3 Kg

## FLOW RATE

| MODEL | PRESSURE DROP bar at 10 l/min | at 20 l/min | at 40 l/min | WEIGHT |
|---|---|---|---|---|
| FLC1S25BB3 | 0,75 | 1,5 | 3 | 0,3 Kg |
| FLC1S40BB3 | 0,25 | 0,5 | 1 | |

## USER TIPS




1. FILTER HEAD
2. SEAL KIT
3. FILTER ELEMENT
4. FILTER BOWL

| SPARE SEAL KIT PART NUMBER (2) |
|---|
| NBR |
| 06.021.00280 |

| TIGHTENING TORQUE |
|---|
| 90 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. Verify that no tension is present on the filter after mounting.
2. Enough space must be available for filter element replacement.
⚠ 3. Never run the system with no filter element fitted.
4. Keep in stock a spare FILTREC filter element for timely replacement when required.
5. 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. Replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter bowl (4) by turning it anti-clockwise and remove it.
3. Remove the dirty filter element (3).
4. Clean carefully the filter bowl (4); check the seals (2) conditions and replace if necessary.
5. Before fitting a new FILTREC element (3), verify the part number, particularly concerning the micron rating; then insert the element into the filter bowl (4).
6. Lubricate the filter bowl (4) thread and screw it by hand in the filter head (1) by turning it clock wise.
7. Screw in the bowl to stop.
⚠ 8. The used filter elements cannot be cleaned and re-used.

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CT88-rev.06/25

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# FML320 SERIES

In line pressure filters

Inline filters for operating pressure up to 320 bar.
Flow rate up to 500 l/min



## HOUSING

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

| | |
|---|---|
| PRESSURE: | Max operating: up to 320 bar<br>Fatigue rating: $10^6$ cycles 0÷320 bar<br>Burst: 750 bar |
| CONNECTIONS: | Manifold block mounting |
| MATERIALS: | Head: cast iron<br>Bowl: carbon steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | 6 bar<br>ABF valve |

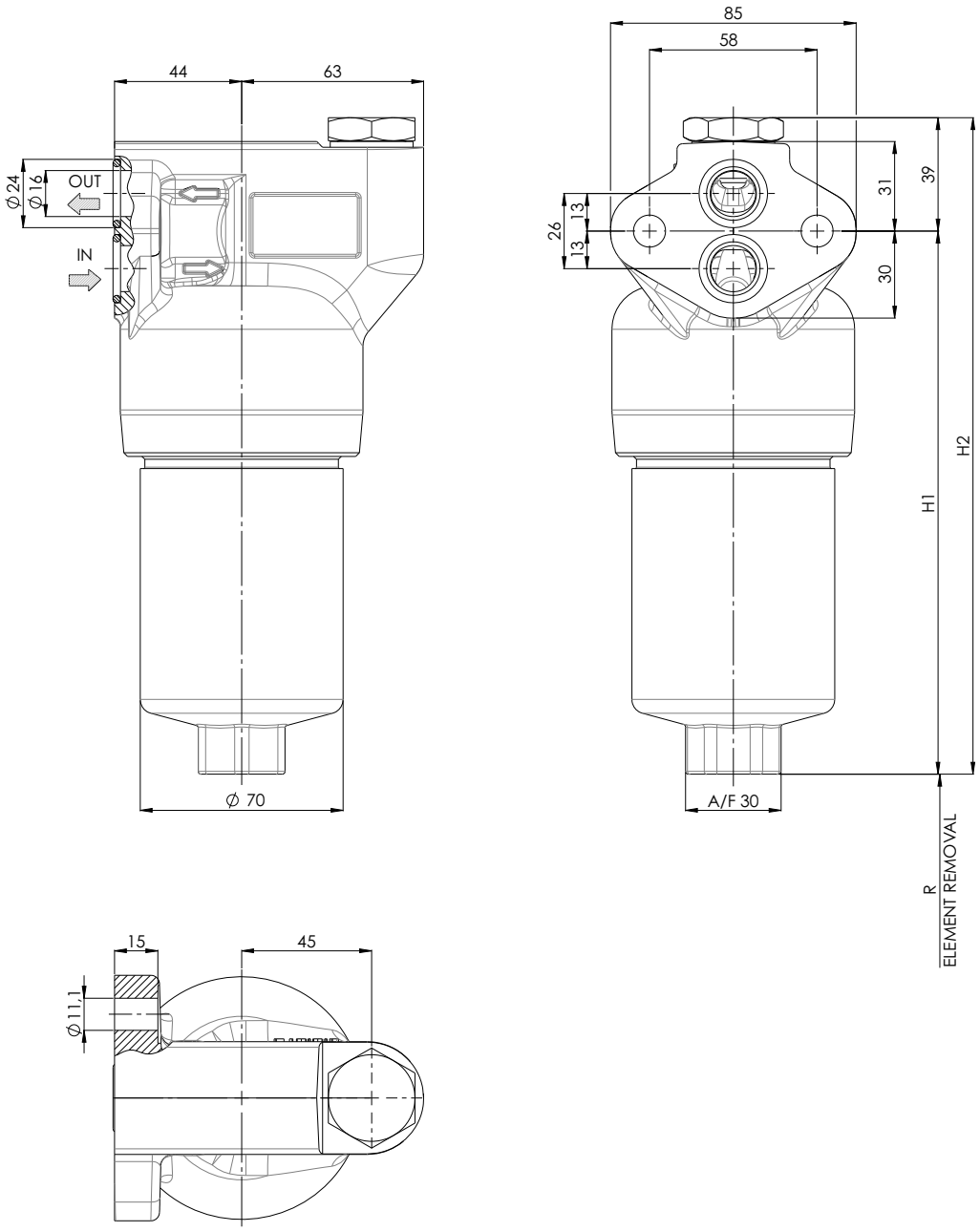
## ELEMENT

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

| | |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G01 - G03 - G06 - G10<br>G15 - G25 |
| COLLAPSE PRESSURE: | 21 bar<br>210 bar |
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

FML320 - D1 - 2x FLANGE SIZE 1

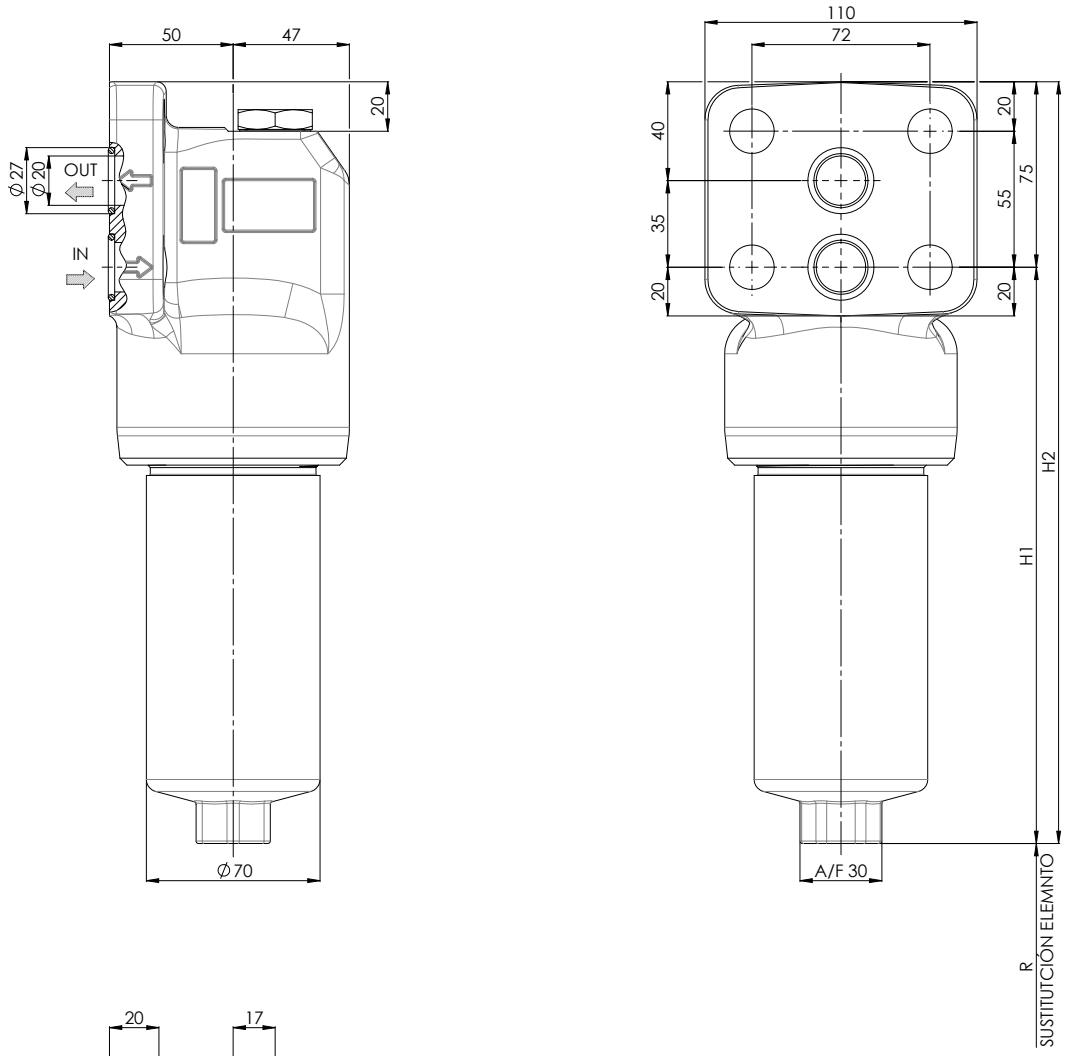


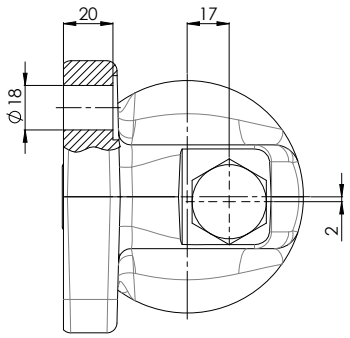

## NOMINAL SIZE

| MODEL | FLANGE SIZE | H1 | H2 | R | WEIGHT |
|---|---|---|---|---|---|
| FML320-D125 | 1 | 147 | 186 | 110 | 3,3 Kg |
| FML320-D120 | | 188 | 227 | | 3,8 Kg |
| FML320-D124 | | 231 | 270 | | 4,3 Kg |
| FML320-D121 | | 281 | 320 | | 4,9 Kg |
| FML320-D126 | | 325 | 364 | | 5,4 Kg |

## OVERALL DIMENSIONS

FML320 - D1 - 2x - FLANGE SIZE 2



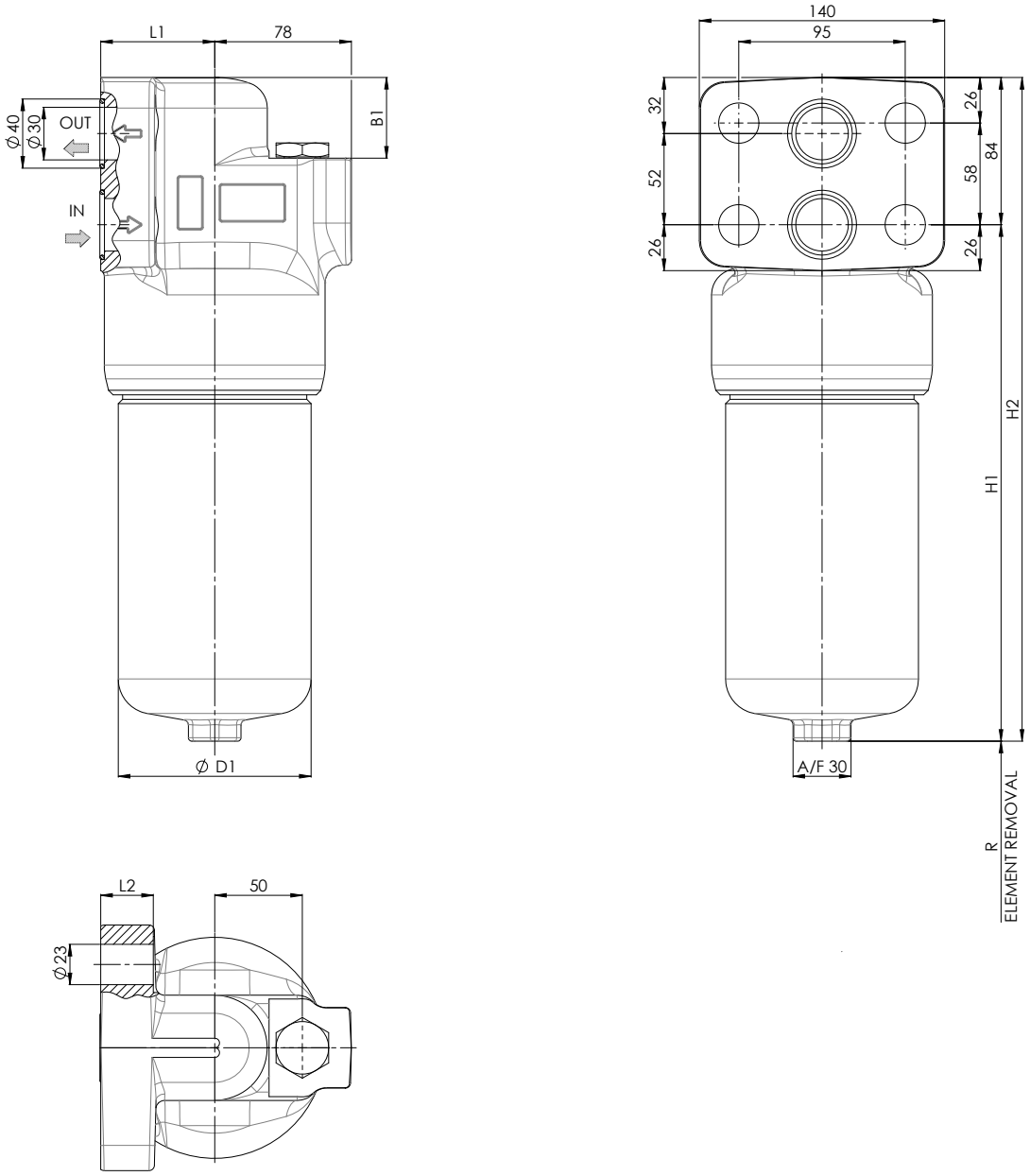




## NOMINAL SIZE

| MODEL | FLANGE SIZE | H1 | H2 | R | WEIGHT |
|---|---|---|---|---|---|
| FML320-D125 | 2 | 149 | 224 | 110 | 5,5 Kg |
| FML320-D120 | | 190 | 265 | | 6,0 Kg |
| FML320-D124 | | 233 | 308 | | 6,5 Kg |
| FML320-D121 | | 283 | 358 | | 7,1 Kg |
| FML320-D126 | | 327 | 402 | | 7,6 Kg |

## OVERALL DIMENSIONS

FML320 - D1 - 3x - FLANGE SIZE 3




## NOMINAL SIZE

| MODEL | FLANGE SIZE | B1 | D1 | H1 | H2 | L1 | L2 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|
| FML320-D135 | 3 | 56 | 90 | 240 | 324 | 55 | 25 | 120 | 9,8 Kg |
| FML320-D136 | | | | 299 | 383 | | | | 11 Kg |
| FML320-D137 | | | | 369 | 453 | | | | 12,3 Kg |
| FML320-D140 | | 46 | 110 | 202 | 287 | 65 | 30 | 130 | 12,2 Kg |
| FML320-D141 | | | | 295 | 380 | | | | 14,8 Kg |
| FML320-D142 | | | | 415 | 500 | | | | 18,0 Kg |
| FML320-D143 | | | | 514 | 599 | | | | 20,8 Kg |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FML320** | **D1** | **21** | **G10** | **A** | **B** | **2** | **D** | **C** | **W** | **000** | **S** | **0** |
| SPARE ELEMENT | **D1** | **21** | **G10** | **A** | | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FML320 | | |
| 2. FILTER ELEMENT SERIES | D1 | | |
| 3. FILTER SIZE | 25-20-24-21-26 | | |
| | 35-36-37 | | |
| | 40-41-42-43 | | |
| 4. FILTER MEDIA<br>For different media options please check availability with Filtrec Customer Service. | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | |
| | Y | 21 bar - with ABF | |
| | B | 210 bar | |
| | X | 210 bar - with ABF | |
| 6. SEALS / COMPATIBILITY<br>*omitted for spare element | *B | NBR | |
| | V | FKM | |
| 7. CONNECTIONS<br>For different thread options please check availability with Filtrec Customer Service. | 1 | size 1 flange 2 fixing bolts | available for D1 25/20/24/21/26 |
| | 2 | size 2 flange 4 fixing bolts | available for D1 25/20/24/21/26 |
| | 3 | size 3 flange 4 fixing bolts | available for D1 35/36/36/37/40/41/42/43 |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 6 bar | |
| 9. ABF VALVE<br>ABF=anti back flow valve | 0 | no valve | |
| | C | ABF valve | |
| 10. INDICATOR PORT OPTION | S | upper dif. indicator seat with metallic cap | |
| | W | upper dif. indicator seat with plastic cap | |
| 11. COMPULSORY FIELD | 000 | Filtrec standard | |
| 12. CORROSION PROTECTION | S | standard | |
| 13. OPTIONS | 0 | standard | |
| | D | drain plug (on request) | standard on size 43 |

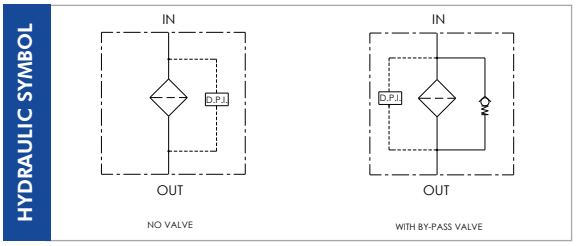
## ACCESSORIES

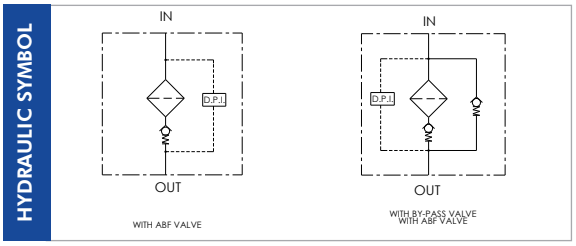
The accessories must be ordered separately

## INDICATOR

**(F)** digit for FKM seal option
***LC24**=Led connector (see clogging indicators catalogue)

| | | |
|---|---|---|
| V02 (VF2) | differential visual 2,7 bar | |
| E02 (EF2) | differential electrical 2,7 bar | |
| E02L (EF2L) | differential electric 2,7 bar + *LC24 | |
| VEF2 | differential visual and electric 2,7 bar | |
| V05 (VF5) | differential visual 5 bar | |
| E05 (EF5) | differential electrical 5 bar | |
| E05L (EF5L) | differential electric 5 bar + *LC24 | |
| VEF5 | differential visual and electric 5 bar | |
| V08 (VF8) | differential visual 8 bar | |
| E08 (EF8) | differential electrical 8 bar | recommended for no by-pass option |
| E08L (EF8L) | differential electric 8 bar + *LC24 | |
| VEF8 | differential visual and electric 8 bar | |



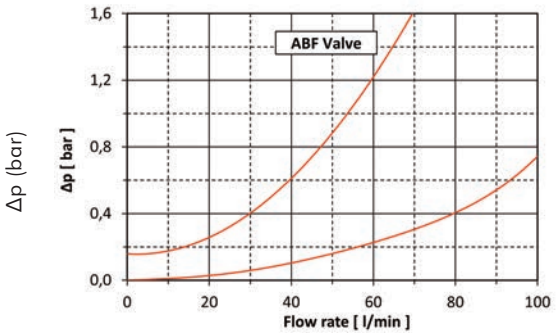

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Δp through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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.

## HOUSING PRESSURE DROP

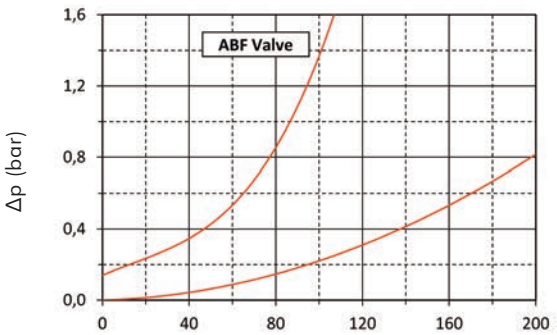
The housing Δp is given by the curve of the considered model and port, in correspondence of the flow rate value.

### FML320-D12x - Size 1



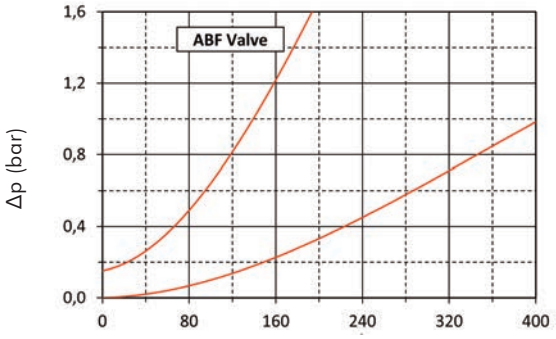

Flow rate (l/min)

### FML320-D12x - Size 2



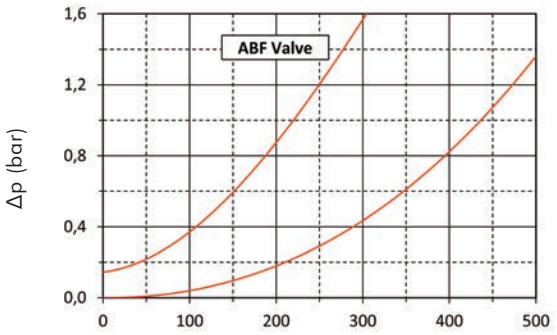

Flow rate (l/min)

### FML320-D13x - Size 3




Flow rate (l/min)

### FML320-D14x - Size 3




Flow rate (l/min)

## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 90 l/min with D121G10A and oil viscosity 46 cSt: (90 x 4,42)/1000 x (46/32) = 0,57 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **D125** | 50,24 | 35,56 | 25,75 | 15,51 | 8,27 | 7,57 |
| **D120** | 30,43 | 21,30 | 13,97 | 8,39 | 5,18 | 4,78 |
| **D124** | 19,90 | 13,93 | 8,42 | 5,17 | 4,16 | 3,60 |
| **D121** | 15,48 | 10,84 | 6,79 | 4,42 | 3,38 | 2,93 |
| **D126** | 13,24 | 8,61 | 5,75 | 4,03 | 2,91 | 2,43 |
| **D135** | 15,82 | 11,07 | 7,27 | 4,45 | 3,03 | 2,87 |
| **D136** | 13,19 | 9,23 | 6,06 | 3,71 | 2,53 | 2,39 |
| **D137** | 9,63 | 6,74 | 4,43 | 2,71 | 1,85 | 1,75 |
| **D140** | 14,65 | 10,26 | 6,73 | 4,12 | 2,81 | 2,66 |
| **D141** | 6,88 | 4,82 | 2,98 | 2,02 | 1,42 | 1,21 |
| **D142** | 4,67 | 3,27 | 1,99 | 1,36 | 1,04 | 0,77 |
| **D143** | 3,28 | 2,30 | 1,26 | 0,70 | 0,56 | 0,40 |

### EXAMPLE OF TOTAL Δp CALCULATION

FML320D121G10AB2DCWE05S0 with **90** l/min and oil **46** cSt:
Housing Δp 0,18 bar + element Δp 0,57 bar: (90 x 4,42)/1000 x (46/32)= total assembly Δp 0,75 bar

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 90 l/min with D121G10B and oil viscosity 46 cSt: (90 x 5,25)/1000 x (46/32) = 0,68 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **D125** | 57,38 | 39,23 | 27,50 | 16,53 | 10,15 | 8,03 |
| **D120** | 37,18 | 26,03 | 14,77 | 11,57 | 6,89 | 6,13 |
| **D124** | 24,56 | 17,19 | 11,37 | 6,63 | 4,93 | 3,92 |
| **D121** | 23,89 | 16,72 | 11,25 | 5,25 | 3,85 | 3,34 |
| **D126** | 17,65 | 11,48 | 7,79 | 5,17 | 3,55 | 2,85 |
| **D135** | 20,27 | 14,19 | 9,50 | 5,66 | 4,01 | 3,41 |
| **D136** | 16,90 | 11,83 | 7,92 | 4,72 | 3,34 | 2,84 |
| **D137** | 12,35 | 8,64 | 5,79 | 3,45 | 2,44 | 2,07 |
| **D140** | 18,57 | 13,00 | 9,63 | 5,05 | 3,74 | 3,33 |
| **D141** | 10,22 | 7,15 | 4,00 | 2,57 | 1,76 | 1,44 |
| **D142** | 5,53 | 3,87 | 2,93 | 1,67 | 1,12 | 0,83 |
| **D143** | 4,59 | 3,21 | 1,80 | 1,10 | 0,93 | 0,70 |

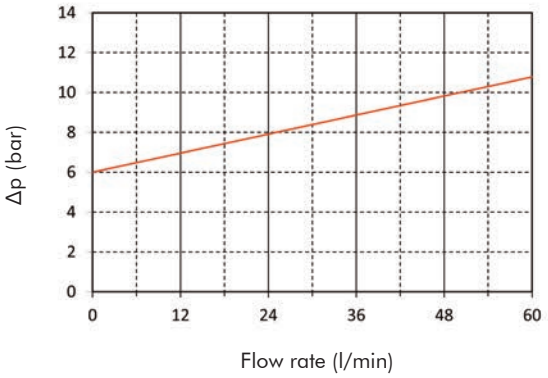
### EXAMPLE OF TOTAL Δp CALCULATION

FML320D121G10BB2DCWE05S0 with **90** l/min and oil **46** cSt :
Housing Δp 0,18 bar + element Δp 0,68 bar: (90 x 5,25)/1000 x (46/32) = total assembly Δp 0,86 bar

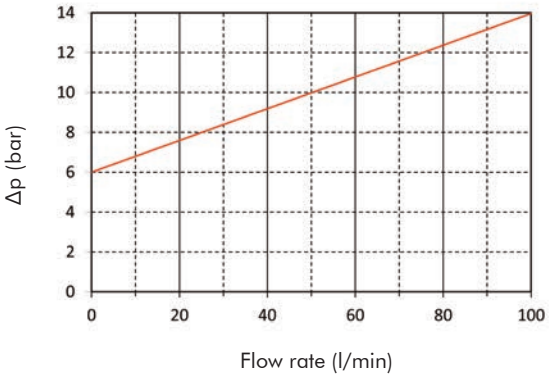
## BYPASS VALVE PRESSURE DROP

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

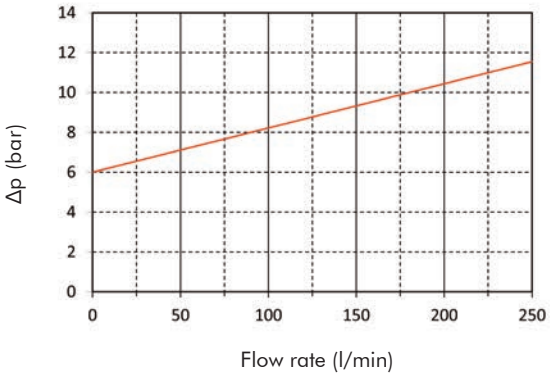
### FML320 Size 1




### FML320 Size 2

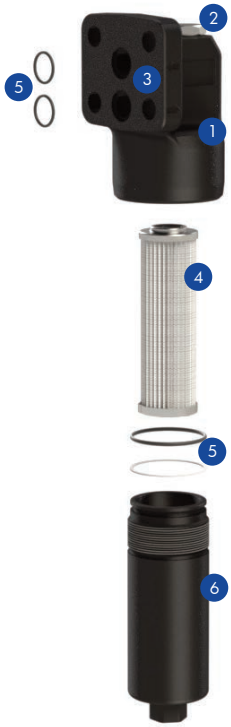



### FML320 Size 3




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.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 90 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | Flange size | NBR | FKM |
|---|---|---|---|
| FML320 D1-2x | 1 | 06.021.00332 | 06.021.00333 |
| FML320 D1-2x | 2 | 06.021.00334 | 06.021.00335 |
| FML320 D1-3x | 3 | 06.021.00336 | 06.021.00337 |
| FML320 D1-4x | 3 | 06.021.00338 | 06.021.00339 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 housing should be preferably mounted with the bowl (6) downward.
2. Secure to the frame the filter head (1) using the fixing holes (3).
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in a easily viewable position.
6. When a electrical indicator is used, make sure that it is properly wired.
⚠ 7. Never run the system with no filter element fitted
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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (6) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (5) conditions and replace if necessary.
6. Lubricate the bowl's thread (6) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.
⚠ 8. The used filter elements cannot be cleaned and re-used.

www.filtrec.com
Technical information may change without notice

CT99 - 01/26

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# FDM SERIES

Modular in-line high pressure filters

Modular in-line filters with CETOP interface for operating pressure up to 315 bar. Flow rate up to 60 l/min.



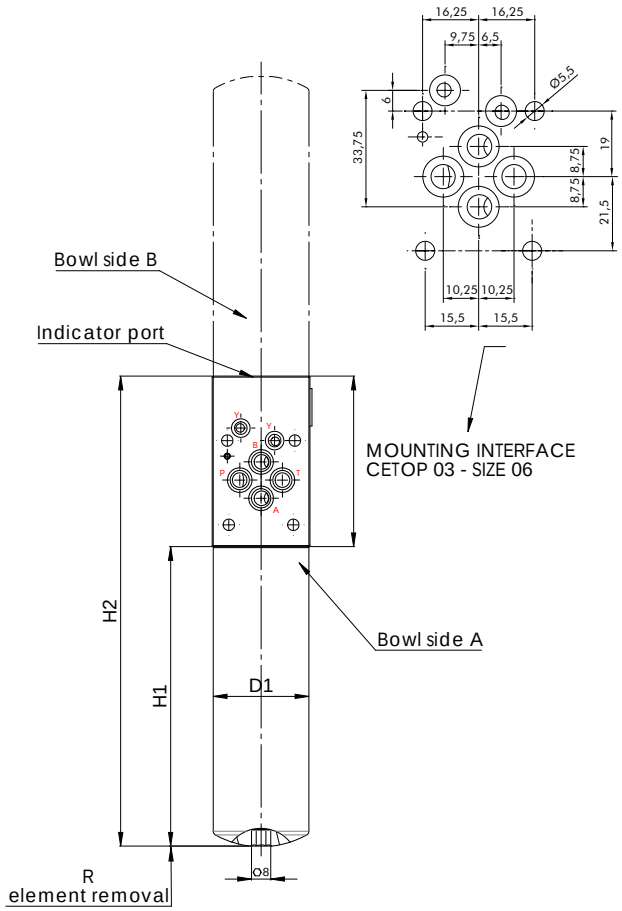
| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 315 bar<br>Fatigue rating: $10^6$ cycles 0÷315 bar<br>Burst: 945 bar |
| CONNECTIONS: | CETOP 03<br>CETOP 05 |
| MATERIALS: | Head: steel<br>Bowl: steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | no by-pass |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fiberglass: G01- G03 - G06<br>G10 - G15 - G25 |
| COLLAPSE PRESSURE: | 210 bar |

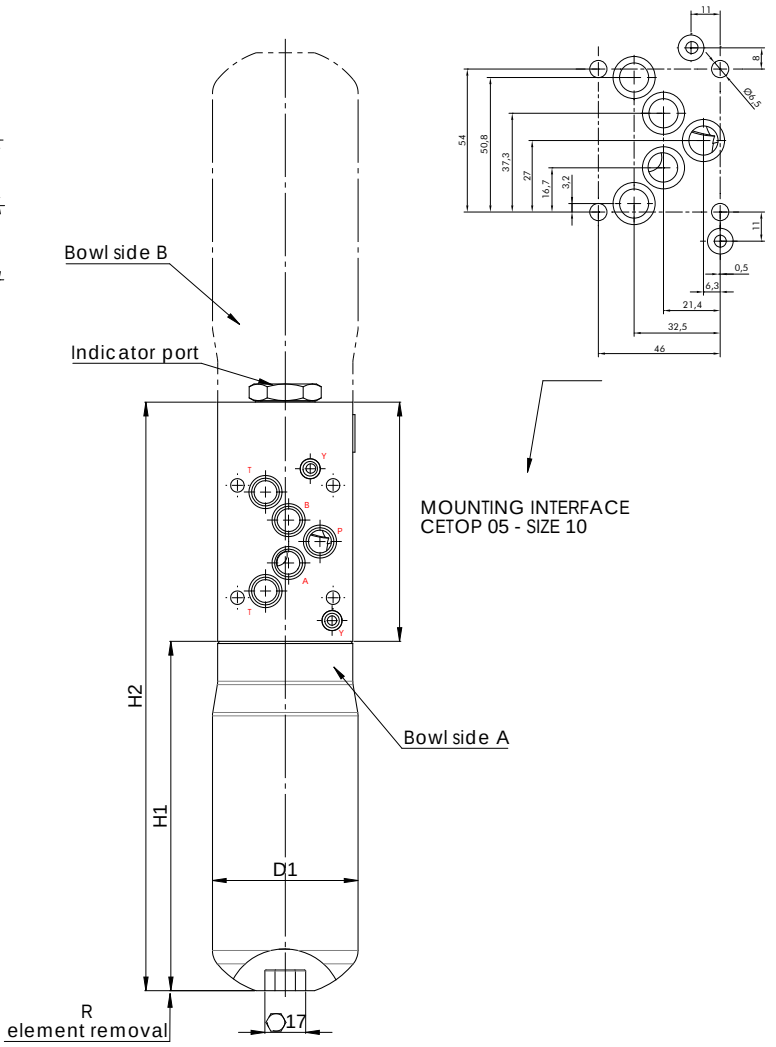
| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

CETOP 03




CETOP 05




## NOMINAL SIZE

| MODEL | D1 | H1 | H2 | R | WEIGHT |
|---|---|---|---|---|---|
| FDM-D1-08 | Ø 46 | 144 | 266 | 60 | 2.5 Kg |
| FDM-D1-11 | Ø 70 | 169 | 284 | 80 | 4.0 Kg |
| FDM-D1-12 | | 265 | 380 | | 5.4 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. |
|---|---|---|---|---|---|---|---|---|---|
| | **FDM** | **D1** | **12** | **G10** | **B** | **B** | **D** | **W** | **000** |
| SPARE ELEMENT | | **D1** | **12** | **G10** | **B** | | | | |

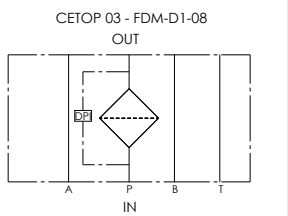
| | | |
|---|---|---|
| 1. FILTER SERIES | FDM | |
| 2. FILTER ELEMENT SERIES | D1 | |
| 3. FILTER SIZE | 08 | |
| | 11-12 | |
| 4. FILTER MEDIA | 000 | no element |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1000$ |
| 5. ELEMENT COLLAPSE | B | 210 bar |
| 6. SEALS | B | NBR (omit for element) |
| | V | FKM |
| 7. BOWL POSITION | D | bowl side A - (standard) |
| | S | bowl side B - (optional) |
| 8. INDICATOR PORT OPTION | S | indicator seat with metal plug |
| | W | indicator seat with plastic plug |
| 9. COMPULSORY FIELD | 000 | Filtrec standard |

## ACCESSORIES

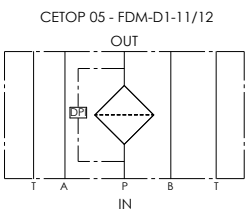
The accessories must be ordered separately

| INDICATOR | | |
|---|---|---|
| **(Y)** digit for FKM seal option<br>For other indicators, see the "Clogging Indicator" catalogue in the download section | VX5 (VY5) | differential visual 5 bar |
| | EX5 (EY5) | differential electric 5 bar |
| | EX5L (EY5L) | differential electric 5 bar + *LC24 |
| | VX8 (VY8) | differential visual 8 bar |
| | EX8 (EY8) | differential electric 8 bar |
| | EX8L (EY8L) | differential electric 8 bar + *LC24 |

HYDRAULIC SYMBOL




HYDRAULIC SYMBOL




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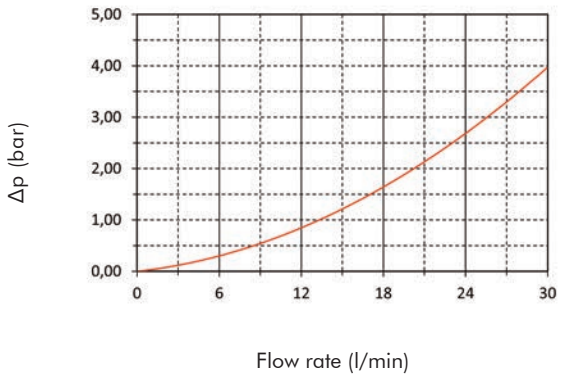
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Δp through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,5 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 and density 0,875 Kg/dm$^3$.

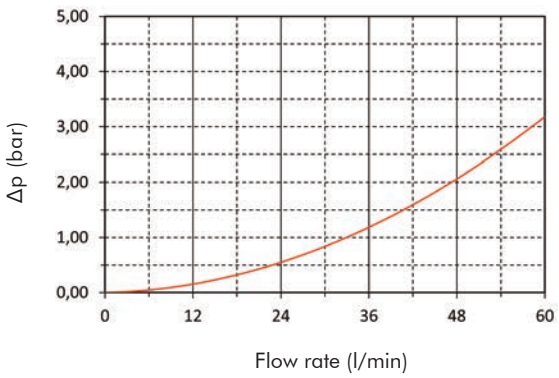
## HOUSING PRESSURE DROP

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

**FDM D1-08**




**FDM D1-11/12**



## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
xample: 24 l/min with D112G10B and oil viscosity 46 cSt: (24 x 8,33 / 1000) x (46/32) = 0,29 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **D108** | 120,86 | 83,59 | 57,25 | 34,76 | 24,65 | 15,93 |
| **D111** | 59,98 | 41,99 | 28,63 | 17,10 | 12,38 | 8,59 |
| **D112** | 28,51 | 19,96 | 11,70 | 8,33 | 8,33 | 4,77 |

## EXAMPLE OF TOTAL Δp CALCULATION

FDMD112G10BBDW000 with 24 l/min and oil 46 cSt:
Housing Δp 0,55 bar + element Δp 0,29 bar, i.e 0,55 + (24 x 8,33 / 1000) x (46/32) = total assembly Δp 0,84 bar

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. MOUNTING INTERFACE
4. FILTER ELEMENT
5. FILTER BOWL
6. SEAL KIT
7. IDENTIFICATION LABEL
8. INDICATOR PLUG

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 90 Nm |

### BOWL TIGHTENING TORQUE

| | |
|---|---|
| FDM D108 | 70 Nm |
| FDM D111-12 | |

### SPARE SEAL KIT PART NUMBER (6)

| | NBR | FKM |
|---|---|---|
| FDM D108 | 06.021.00154 | 06.021.00124 |
| FDM D111-12 | 06.021.00155 | 06.021.00125 |

## 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 mounted, facing correctly the corresponding components interface.
2. Secure the filter head (1) between valve and block, through the dedicated fixing holes.
3. Enough space must be available for filter element replacement.
4. The visual clogging indicator must be in a easly viewable position.
5. When an electrical indicator is used, make sure that is properly wired.
6. Never run the system with no filter element fitted.
⚠ 7. Keep in stock a spare FILTREC filter element for timely replacement when required.
8. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (5) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open-end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean the bowl carefully; check condition of O- rings (6) and replace them if necessary.
6. Lubricate the bowl's thread (5) and screw it by hand into the filter head (1) by turning it clock wise.
7. Screw in the bowl to stop.
⚠ 8. The used filter elements cannot be cleaned and re-used.

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# FHLC SERIES

Pressure filters

FHLC filters help prevention of sudden, critical failure in fluid systems by providing protection to point-of-use components. Designed to supplement the main filtration systems, they are mounted upstream of critical components such as valves and nozzles.

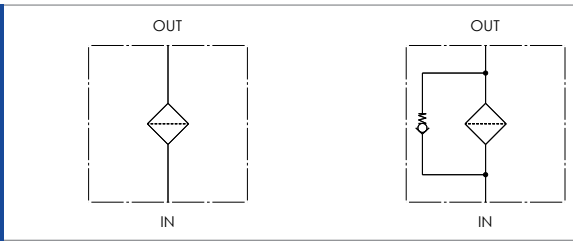



| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 | |
|---|---|---|
| PRESSURE: | max operating 420 bar | |
| CONNECTION PORTS: | G 1/2" - G 3/4" - M22x1,5 - M26x1,5 | |
| MATERIALS: | Housing: | Zinc plated carbon steel |
| | Seals: | NBR - FKM |

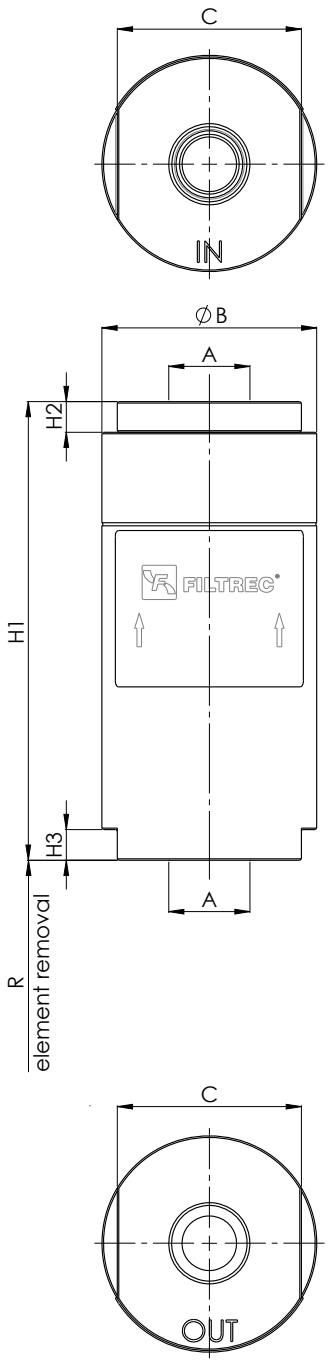
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | G10 - G25 - T60 - T125 |
| COLLAPSE PRESSURE: | 21- 210 bar |
| BYPASS | 3 or 6 bar or no bypass |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

HYDRAULIC SYMBOL



## OVERALL DIMENSIONS




## NOMINAL SIZE

| MODEL | A | B | C | H1 | H2 | H3 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|
| FHLC D101 | G1/2" M22 M26 | Ø50 | 42 | 108 | 7,5 | 10 | 70 | 1,1 Kg |
| FHLC D102 | | | | 158 | | | | 1,4 Kg |
| FHLC D109 | G 3/4" | Ø70 | 60 | 150 | 10 | 10 | 80 | 2,7 Kg |

FILTREC
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## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|---|---|---|---|---|
| **FHLC** | **D1** | **02** | **G10** | **X** | **B** | **0** | **B3** | **S** | **0** |
| SPARE ELEMENT | **D1** | **02** | **G10** | **X** | **B** | **0** | | | |

### 1. FILTER SERIES

| | |
|---|---|
| FHLC | |

### 2. FILTER ELEMENT SERIES

| | |
|---|---|
| D1 | |

### 3. FILTER SIZE

| | |
|---|---|
| 01 | |
| 02 | |
| 09 | |

### 4. FILTER MEDIA

For different media options please check availability with Filtrec Customer Service.

| | |
|---|---|
| 000 | no element |
| G10 | glassfiber $\beta_{12\mu m(c)} \geq 1.000$ |
| G25 | glassfiber $\beta_{22\mu m(c)} \geq 1.000$ |
| T60 | wire mesh |
| T125 | wire mesh |

### 5. ELEMENT COLLAPSE

| | | |
|---|---|---|
| 0 | no element | |
| Y | 21 bar | available with bypass only |
| X | 210 bar | available with no bypass only |
| A | 21 bar | available for wire mesh with bypass only |
| B | 210 bar | available for wire mesh with no bypass only |

### 6. SEALS

| | |
|---|---|
| B | NBR |
| V | FKM |

### 7. BYPASS SETTING

| | |
|---|---|
| 0 | no bypass |
| 3 | 3 bar |
| 6 | 6 bar on request |

### 8. CONNECTIONS

| | | |
|---|---|---|
| B3 | G 1/2" | |
| M22 | M22x1,5 | for size D101 and D102 |
| M26 | M26x1,5 | |
| B4 | G 3/4" | for size D109 |

### 9. CORROSION PROTECTION

| | |
|---|---|
| S | standard |

### 10. OPTION

| | |
|---|---|
| 0 | no option |

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

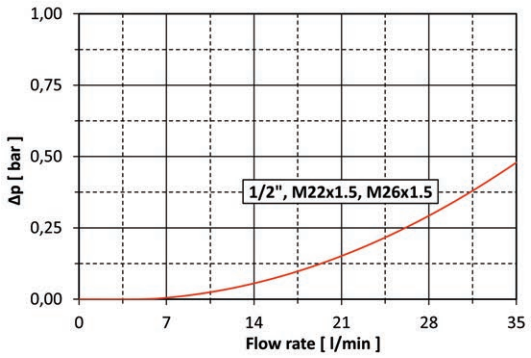
FILTREC
WWW.SUMY.IR

The total Δp through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1/3 of the set value of the by-pass valve.
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$^3$.

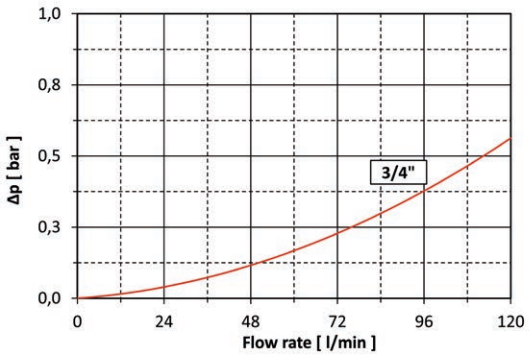
## HOUSING PRESSURE DROP

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

**FHLC-D101-D102**




**FHLC_D109**




## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 20 l/min with D102G10YB6 and oil viscosity 45 cSt (20 x 22)/1000 x (46/32) = 0,63 bar

| | G10 | G25 | T60 | T125 |
|---|---|---|---|---|
| **D101** | 33,33 | 16,67 | 4 | 3,5 |
| **D102** | 22 | 12 | 3,05 | 2,35 |
| **D109** | 13,75 | 7,5 | 1,25 | 1 |

### EXAMPLE OF TOTAL Δp CALCULATION

FHLCD102G10YB6B3S0 with 20 l/min and oil 46 cSt
Housing Δp 0,15 bar + element Dp 0,63 bar (20 x 22)/1000 x (46/32) = total assembly Δp 0,78 bar

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied .
Example: 20 l/min with D102G10XB0 and oil viscosity 45 cSt (20 x 36)/1000 x (46/32) = 1,04 bar

| | G10 | G25 | T60 | T125 |
|---|---|---|---|---|
| **D101** | 53,33 | 30 | 4 | 3,5 |
| **D102** | 36 | 20 | 3,05 | 2,35 |
| **D109** | 17,5 | 12,5 | 1,25 | 1 |

### EXAMPLE OF TOTAL Δp CALCULATION

FHLCD102G10XB0B3S0 with 20 l/min and oil 46 cSt
Housing Δp 0,15 bar + element Dp 1,04 bar (20 x 36)/1000 x (46/32) = total assembly Δp 1,19 bar

## USER TIPS




1. FILTER HEAD
2. SEAL KIT
3. FILTER ELEMENT
4. FILTER BOWL

**SPARE SEAL KIT PART NUMBER (2)**

| SIZE | NBR | FKM |
|---|---|---|
| FHLC-D101/02 | 06.021.00395 | 06.021.00396 |
| FHLC-D109 | 06.021.00398 | 06.021.00399 |

**TIGHTENING TORQUE**

| |
|---|
| Screw up filter bowl till end |

## 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. Verify that no tension is present on the filter after mounting.
2. Enough space must be available for filter element replacement.
⚠ 3. Never run the system with no filter element fitted.
4. Keep in stock a spare FILTREC filter element for timely replacement when required.
5. 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. Replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter bowl (4) by turning it anti-clockwise and remove it.
3. Remove the dirty filter element (3).
4. Clean carefully the filter bowl (4); check the seals (2) conditions and replace if necessary.
5. Before fitting a new FILTREC element (3), verify the part number, particularly concerning the micron rating; then insert the element into the filter bowl (4).
6. Lubricate the filter bowl (4) thread and screw it by hand in the filter head (1) by turning it clock wise.
7. Screw in the bowl to stop.
⚠ 8. The used filter elements cannot be cleaned and re-used.

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# FH250 SERIES

In line high pressure filters

Inline filters for operating pressure up to 250 bar.
Flow rate up to 50 l/min

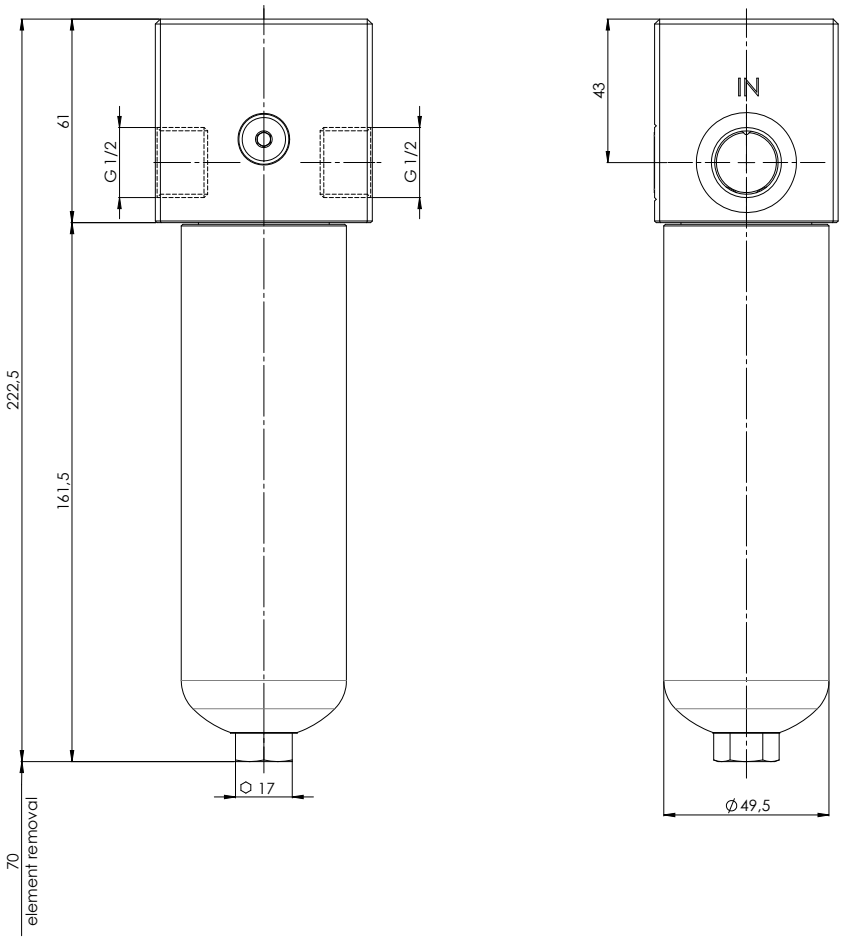


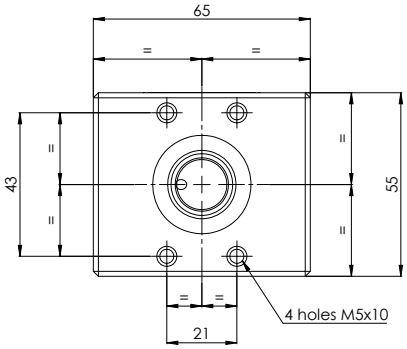

| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: up to 250 bar<br>Fatigue pressure test, over $10^6$ cycles from zero to max working pressure.<br>Burst: over 500 bar |
| CONNECTIONS: | G 1/2" |
| MATERIALS: | Head: anodized aluminium alloy<br>Bowl: anodized aluminium alloy<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | 6 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | inorganic microfiber:<br>G01-G03-G06-G10-G15-G25 |
| COLLAPSE PRESSURE: | 210 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

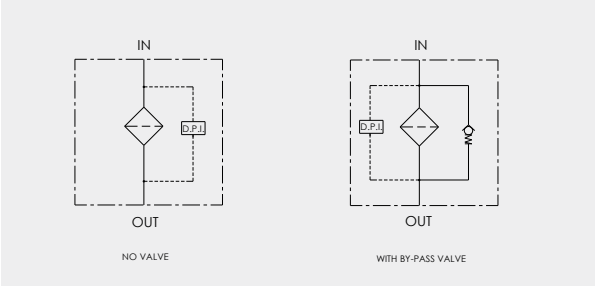
## OVERALL DIMENSIONS




WEIGHT: 1,1 Kg

## VALVES OPTION



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FH250** | **D1** | **08** | **G10** | **B** | **B** | **B3** | **D** | **W** | **E05** | **A** | **0** |
| SPARE ELEMENT | | **D1** | **08** | **G10** | **B** | | | | | | | |

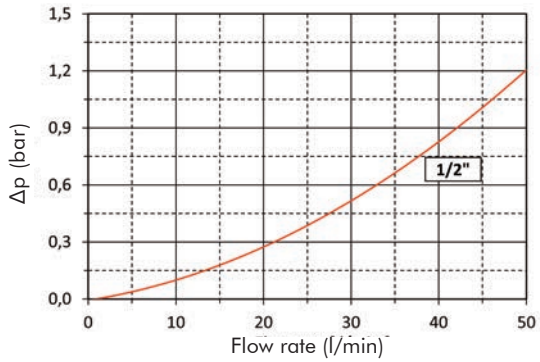
| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FH250 | | |
| 2. FILTER ELEMENT SERIES | D1 | | |
| 3. FILTER SIZE | 08 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| 5. ELEMENT COLLAPSE | B | 210 bar | |
| 6. SEALS | *B | NBR | |
| *omitted for spare element | V | FKM (option) | |
| 7. CONNECTIONS | B3 | G 1/2 | |
| 8. BYPASS VALVE | D | 6 bar | |
| 9. INDICATOR PORT OPTION | S | upper differential indicator seat with metallic cap | |
| | W | upper differential indicator seat with plastic cap | |
| 10. INDICATOR | 000 | no indicator | |
| (F) digit for FKM seal option<br>***LC24**=Led connector (see clogging indicators catalogue) | V05 (VF5) | differential visual 5 bar | |
| | E05 (EF5) | differential electrical 5 bar | |
| | E05L (EF5L) | differential electric 5 bar + *LC24 | |
| | V08 (VF8) | differential visual 8 bar | |
| | E08 (EF8) | differential electrical 8 bar | recommended for no by-pass option |
| | E08L (EF8L) | differential electric 8 bar + *LC24 | |
| 11. CORROSION PROTECTION | A | anodized (standard) | |
| 12. OPTION | 0 | standard | |

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should never exceed 1/3 of the set value of the by-pass valve.
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.

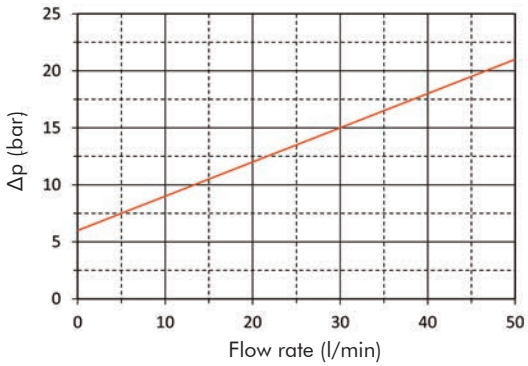
## HOUSING PRESSURE DROP

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




## 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.

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 25 l/min with D108G10B and oil viscosity 46 cSt: (25 x 34,76)/1000 x (46/32) = 1,25 bar

| | G01B | G03B | G06B | G10B | G15B | G25B |
|---|---|---|---|---|---|---|
| **D108** | 120,86 | 83,59 | 57,25 | 34,76 | 24,65 | 15,93 |

## EXAMPLE OF TOTAL Δp CALCULATION

FH250D108G10BBB3DWE05A0 with **25** l/min and oil **46** cSt :
Housing Δp 0,4 bar + element Δp 1,25 bar (25 x 34,76)/1000 x (46/32) = total assembly Δp 1,65 bar

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. IDENTIFICATION LABEL
8. BYPASS VALVE

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 50 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR | FKM |
|---|---|---|
| FH250 D1-08 | 06.021.00317 | 06.021.00318 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction “IN” and “OUT” labels are marked on filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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. Never run the system with no filter element fitted.

9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (6) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (5) conditions and replace if necessary.
6. Lubricate the bowl's thread (6) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.

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Technical information may change without notice

CT96-02/25

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# FD3 SERIES

In line high pressure filters

Inline filters for operating pressure up to 110 bar, flow rate up to 80 l/min.

Available with or without bypass, indicator port is a standard option to fit a visual or electrical differential indicator.

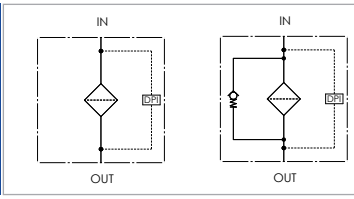


| HOUSING | tested according to NFPA T3.10.5.1,ISO 10771, ISO3968 |
|---|---|
| PRESSURE: | Max operating: 110 bar<br>Burst: 330 bar |
| CONNECTION: | G 1/2" |
| MATERIALS: | Head: anodized aluminium alloy<br>Bowl: anodized aluminium alloy<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | No bypass or 6 bar setting |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G01 - G03 - G06 - G10 - G15 - G25<br>Paper:<br>C10 |
| COLLAPSE PRESSURE: | 21 bar |

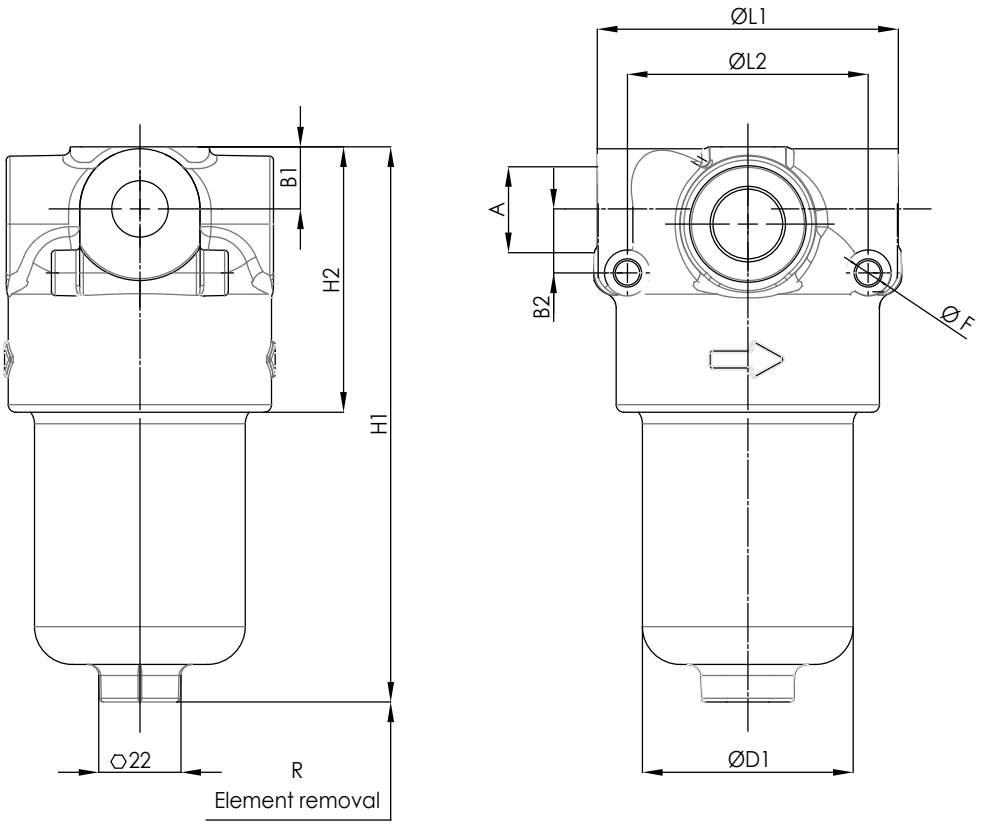
| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal is<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION) is<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

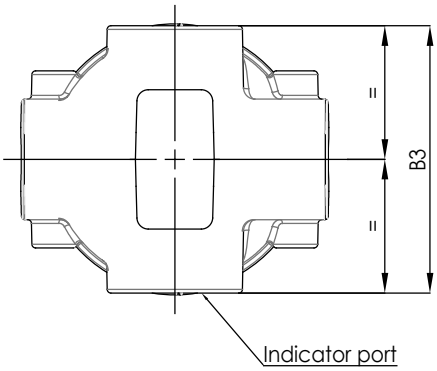
HYDRAULIC SYMBOL



## OVERALL DIMENSIONS

F-D3-1x




## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | L2 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FD3-10 | G 1/2" | 16 | 17 | 72 | 56 | 6,5 | 147 | 70 | 80 | 64 | 90 | 2,4 Kg |
| FD3-11 | | | | | | | 236 | | | | | 2,6 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|---|---|---|---|---|---|
| | **F** | **D3** | **10** | **G10** | **A** | **B** | **B3** | **D** | **W** | **EX5** |
| SPARE ELEMENT | | **D3** | **10** | **G10** | **A** | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER | F | | |
| 2. SERIES | D3 | | |
| 3. FILTER SIZE | 10-11 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} > 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| | C10 | paper $ß_{10\mu m(c)} > 2$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | |
| 6. SEALS | B | NBR | |
| | V | FKM | |
| 7. CONNECTIONS | B3 | G 1/2" | |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 6 bar | |
| 9. INDICATOR PORT OPTION | T | with metal plug | |
| | W | with plastic plug | when using an indicator |
| 10. INDICATOR | 000 | no indicator | |
| | VX5 | differential visual 5 bar | |
| | EX5 | differential electric 5 bar | |
| | VEXF5 | differential visual-electric 5 bar | |
| | VX8 | differential visual 8 bar | |
| | EX8 | differential electric 8 bar | recommended for no bypass option |
| | VEXF8 | differential visual-electric 8 bar | |

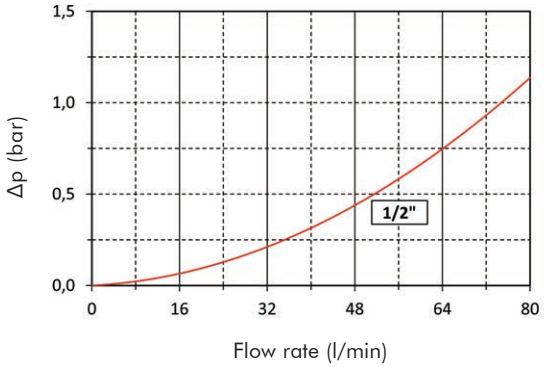
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**FD3**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 20 l/min with D310G10A and oil viscosity 46 cSt: (20 x 19,29) / 1000 x (46/32) = 0,55 bar

| | G01 | G03 | G06 | G10 | G15 | G25 | C10 |
|---|---|---|---|---|---|---|---|
| **D310** | 88,57 | 62,00 | 41,14 | 19,29 | 14,14 | 9,70 | 8,57 |
| **D311** | 35,71 | 25,00 | 15,43 | 19,00 | 6,43 | 4,20 | 2,86 |

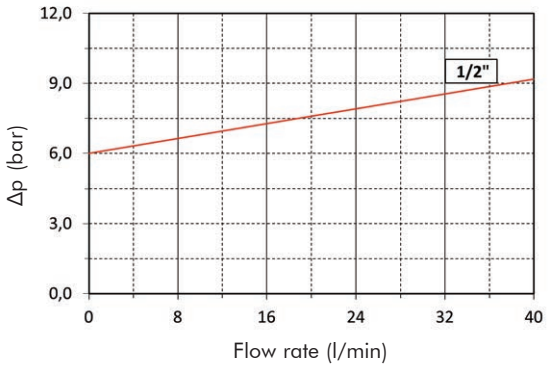
## EXAMPLE OF TOTAL Δp CALCULATION

FD3G10ABB3DWV05 with **20** l/min and oil **46** cSt:
Housing Δp 0,1 bar + element Dp 0,55 bar (20 x 19,29/1000 x 46/32) = total assembly Δp 0,65 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.

**FD3**




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$^3$.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. BY- PASS VALVE
5. FILTER ELEMENT
6. FILTER BOWL
7. SEAL KIT
8. IDENTIFICATION LABEL

| INDICATOR TIGHTENING TORQUE | |
|---|---|
| VX5/EX5 | 50 Nm |

| SPARE SEAL KIT PART NUMBER (7) | | |
|---|---|---|
| | NBR | FKM |
| FD3 | 06.021.00147 | 06.021.00148 |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction, an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. Filter housing shoul 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (6) by turning it anti-clockwise and remove it.
3. Remove the dirty element (5).
4. Fit a new FILTREC element (5), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (7) conditions and replace if necessary.
6. Lubricate the bowl's thread (6) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.



Technical information may change without notice

CT20-rev.02/24

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# FH100 SERIES

In line pressure filters

Inline filters for operating pressure up to 100 bar.
Flow rate up to 300 l/min



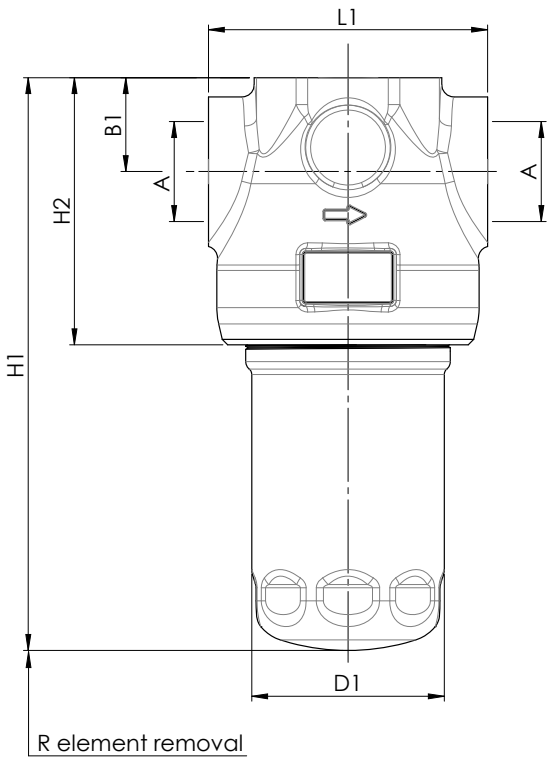
| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 100 bar<br>Fatigue rating: $10^6$ cycles 0÷100 bar<br>Burst: 300 bar |
| CONNECTIONS: | G 1" ÷ G 1 1/4" |
| MATERIALS: | Head: cast iron<br>Bowl: carbon steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | 6 bar<br>3,5 bar (on request)<br>ABF valve<br>ABF valve+RF valve |

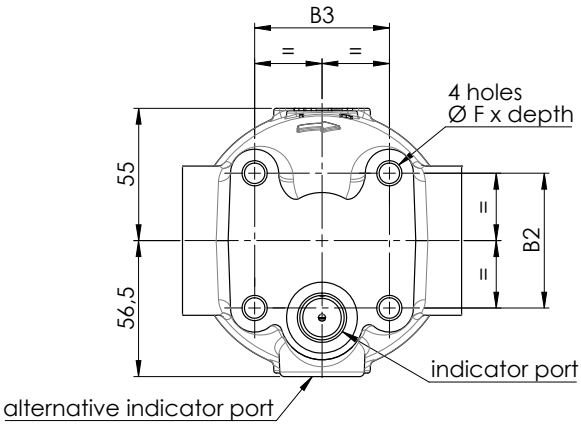
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G01 - G03 - G06 - G10<br>G15 - G25<br>Synthetic:<br>M05 - M10 - M15 |
| COLLAPSE PRESSURE: | 21 bar<br>210 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

FH100-D1-3x




## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FH100-D135 | G 1″<br>G 1 1/4″ | 39 | 56 | 56 | 80 | M10X15 | 238 | 111 | 116 | 120 | 5,15 Kg |
| FH100-D136 | | | | | | | 298 | | | | 5,5 Kg |
| FH100-D137 | | | | | | | 368 | | | | 5,9 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FH100** | **D1** | **36** | **G10** | **A** | **B** | **B5** | **D** | **0** | **S** | **000** | **S** | **0** |
| SPARE ELEMENT | | **D1** | **36** | **G10** | **A** | | | | | | | | |

### 1. FILTER SERIES

| |
|---|
| FH100 |

### 2. FILTER ELEMENT SERIES

| |
|---|
| D1 |

### 3. FILTER SIZE

| |
|---|
| 35-36-37 |

### 4. FILTER MEDIA

For different media options please check availability with Filtrec Customer Service.

| | |
|---|---|
| 000 | no element |
| G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ |
| G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| M05 | synthetic $ß_{10\mu m(c)} \geq 1.000$ |
| M10 | synthetic $ß_{15\mu m(c)} \geq 1.000$ |
| M15 | synthetic $ß_{20\mu m(c)} \geq 1.000$ |

### 5. ELEMENT COLLAPSE

| | | |
|---|---|---|
| A | 21 bar | |
| Y | 21 bar - with ABF / RF valve | |
| B | 210 bar | not available for “M” media |
| X | 210 bar - with ABF / RF valve | not available for “M” media |

### 6. SEALS

*omitted for spare element

| | |
|---|---|
| *B | NBR |
| V | FKM (option) |

### 7. CONNECTIONS

For different thread options please check availability with Filtrec Customer Service.

| | |
|---|---|
| B5 | G 1” |
| B6 | G 1 1/4” |

### 8. BYPASS VALVE

| | |
|---|---|
| 0 | no by-pass |
| D | 6 bar |
| L | 3,5 bar (on request) |

### 9. ABF VALVE / RF VALVE

ABF=anti back flow valve
RF= reverse flow valve

| | |
|---|---|
| 0 | no valve |
| C | ABF valve |
| R | ABF valve+RF valve |

### 10. INDICATOR PORT OPTION

| | |
|---|---|
| S | upper differential indicator seat with metallic cap |
| W | upper differential indicator seat with plastic cap |

Continued on the next page

| | | |
|---|---|---|
| 11. COMPULSORY FIELD | 000 | standard |
| 12. CORROSION PROTECTION | S | standard |
| 13. OPTION | 0 | no option |

## ACCESSORIES

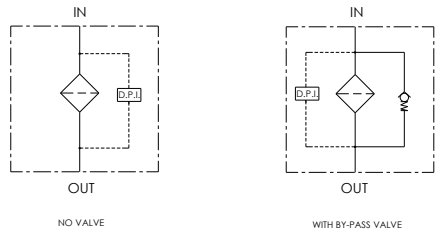
The accessories must be ordered separately

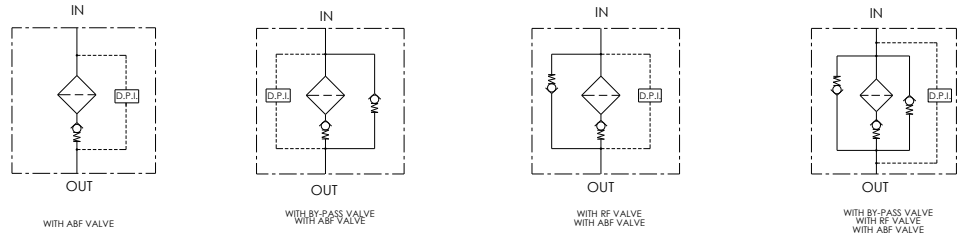
## INDICATOR

**(F)** digit for FKM seal option
***LC24**=Led connector
For other options see clogging indicators catalogue

| | | |
|---|---|---|
| V02 (VF2) | differential visual 2,7 bar | |
| E02 (EF2) | differential electrical 2,7 bar | |
| E02L (EF2L) | differential electric 2,7 bar + *LC24 | |
| VEF2 | differential visual and electric 2,7 bar | |
| V05 (VF5) | differential visual 5 bar | |
| E05 (EF5) | differential electrical 5 bar | |
| E05L (EF5L) | differential electric 5 bar + *LC24 | |
| VEF5 | differential visual and electric 5 bar | |
| V08 (VF8) | differential visual 8 bar | recommended for no by-pass option |
| E08 (EF8) | differential electrical 8 bar | |
| E08L (EF8L) | differential electric 8 bar + *LC24 | |
| VEF8 | differential visual and electric 8 bar | |

## HYDRAULIC SYMBOLS



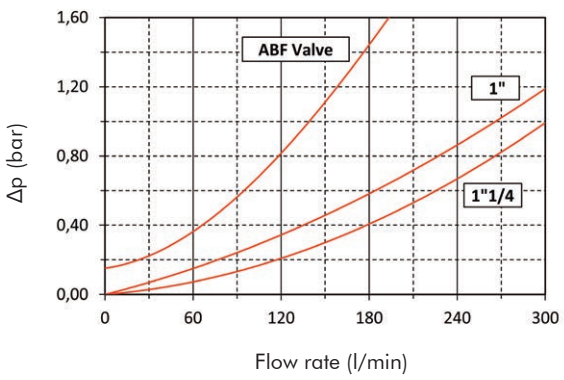

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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.

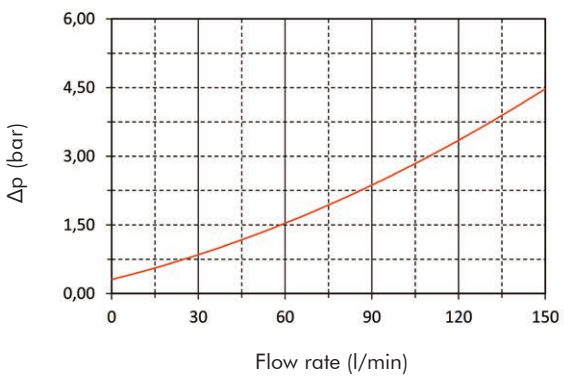
## HOUSING PRESSURE DROP

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

### FH100 D1-3x




### RF VALVE



## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 90 l/min with D136G10A and oil viscosity 46 cSt: (90 x 3,71)/1000 x (46/32) = 0,48 bar

| | G01 | G03 | G06 | G10 | G15 | G25 | M05 | M10 | M15 |
|---|---|---|---|---|---|---|---|---|---|
| **D135** | 15,82 | 11,07 | 7,27 | 4,45 | 3,03 | 2,87 | 3,11 | 2,36 | 1,58 |
| **D136** | 13,19 | 9,23 | 6,06 | 3,71 | 2,53 | 2,39 | 2,59 | 1,97 | 1,32 |
| **D137** | 9,63 | 6,74 | 4,43 | 2,71 | 1,85 | 1,75 | 1,89 | 1,44 | 0,96 |

### EXAMPLE OF TOTAL Δp CALCULATION

FH100D136G10ABB5D0S000S0 with **90** l/min and oil **46** cSt:
Housing Δp 0,25 bar + element Δp 0,48 bar: (90 x 3,71)/1000 x (46/32) = total assembly Δp 0,73 bar

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 90 l/min with D136G10B and oil viscosity 46 cSt: (90 x 4,72)/1000 x (46/32) = 0,61 bar

| | G01 | G03 | G06 | G10 | G15 | G25 |
|---|---|---|---|---|---|---|
| **D135** | 20,27 | 14,19 | 9,50 | 5,66 | 4,01 | 3,41 |
| **D136** | 16,90 | 11,83 | 7,92 | 4,72 | 3,34 | 2,84 |
| **D137** | 12,35 | 8,64 | 5,79 | 3,45 | 2,44 | 2,07 |

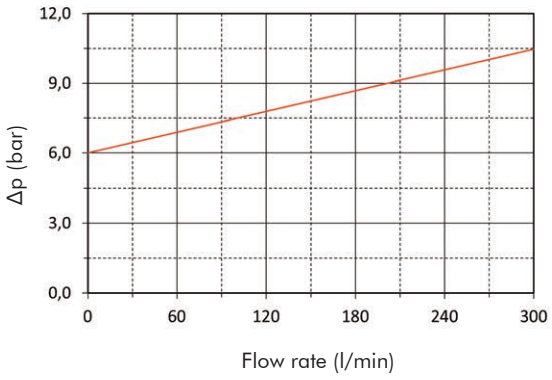
### EXAMPLE OF TOTAL Δp CALCULATION

FH100D136G10ABB5D0S000S0 with **90** l/min and oil **46** cSt :
Housing Δp 0,25 bar + element Δp 0,61 bar: (90 x 4,72)/1000 x (46/32) = total assembly Δp 0,86 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.

**FH100 D13x**




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.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. IDENTIFICATION LABEL

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 90 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR | FKM |
|---|---|---|
| FH100 D1-3x | 06.021.00270 | 06.021.00271 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction, an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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 an easily viewable position.
7. When an electrical indicator is used, make sure that it is properly wired.

⚠ 8. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (6) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open-end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean the bowl carefully; check condition of O-rings (5) and replace them if necessary.
6. Lubricate the bowl's thread (6) and screw it by hand into the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.

WWW.SUMY.IR

# F100 SERIES

In line high pressure filters (elements according to DIN 24550)

Inline filters for operating pressure up to 100 bar, flow rate up to 400 l/min.
Available with or without bypass, indicator port is a standard option to fit a visual or electrical differential indicator.

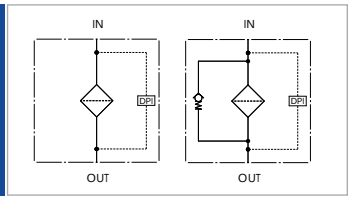



| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating:<br>F100 XD040-063-100: 100 bar<br>F100 XD160-250-400. 80 bar<br>Burst:<br>F100 XD040-063-100: 300 bar<br>F100 XD160-250-400: 200 bar |
| CONNECTIONS: | G 1/2"÷1 1/2" |
| MATERIALS: | Head: aluminium alloy<br>Bowl: aluminium alloy<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | No by-pass or 6 bar setting |

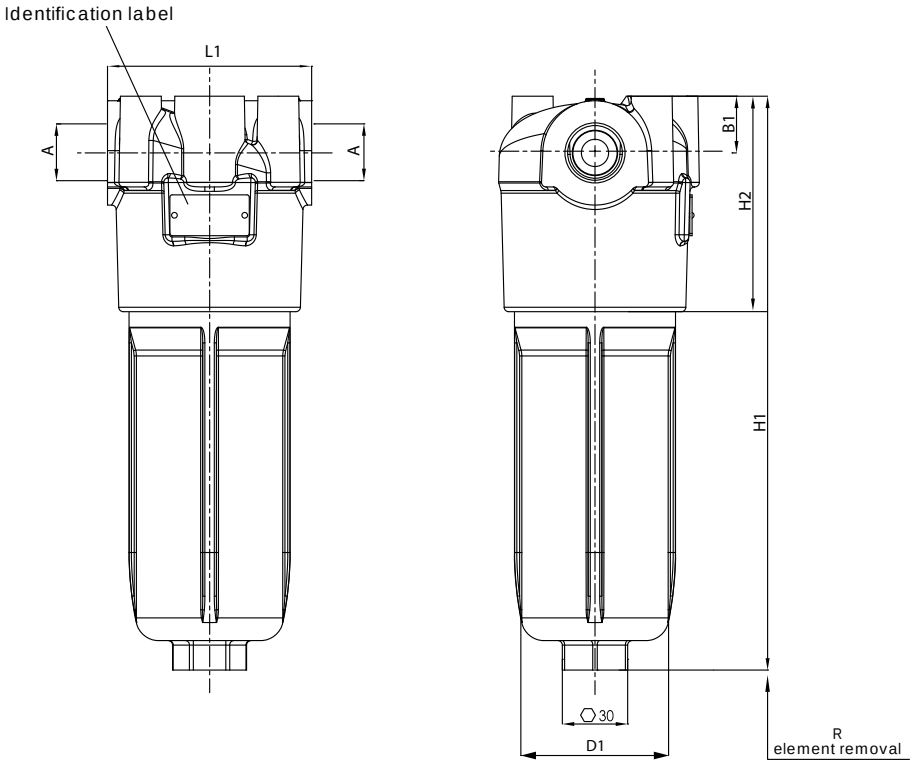
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Glassfiber:<br>G03 - G06 - G10 - G15 - G25<br>Paper:<br>C10 |
| COLLAPSE PRESSURE: | 21 bar<br>210 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

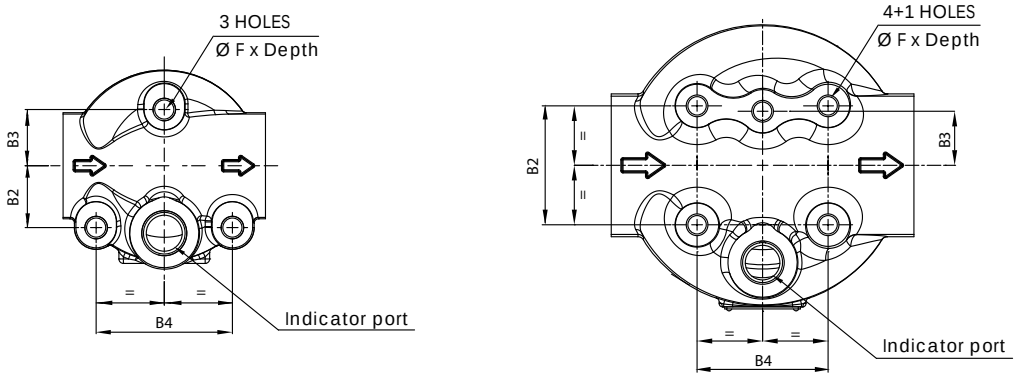
HYDRAULIC SYMBOL



## OVERALL DIMENSIONS




**F100-XD160/250/400**




## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | B4 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F100-XD040 | G 1/2″ | 25 | 27,5 | 25 | 60,6 | 65 | M10x15 | 183 | 95 | 90 | 110 | 1,45 Kg |
| F100-XD063 | G 3/4″ | | | | | | | 253 | | | | 1,55 Kg |
| F100-XD100 | G 1″ | | | | | | | 332 | | | | 1,8 Kg |
| F100-XD160 | G 1 1/4″ | 40 | 55 | | | 110 | | 289 | 129 | 140 | 130 | 3,7 Kg |
| F100-XD250 | G 1 1/2″ | | | | | | | 361 | | | | 4,4 Kg |
| F100-XD400 | | | | | | | | 514 | | | | 5,6 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|---|---|---|---|---|---|
| | **F100** | **XD** | **100** | **G10** | **A** | **B** | **B3** | **D** | **W** | **000** |
| SPARE ELEMENT | | **XD** | **100** | **G10** | **A** | | | | | |

### 1. FILTER SERIES

| | |
|---|---|
| F100 | |

### 2. FILTER ELEMENT SERIES

| | |
|---|---|
| XD | |

### 3. FILTER SIZE

| | |
|---|---|
| 040-063-100 | |
| 160-250-400 | |

### 4. FILTER MEDIA

For different media options please check availability with Filtrec Customer Service.

| | | |
|---|---|---|
| 000 | no element | |
| G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| C10 | paper $ß_{10\mu m(c)} \geq 2$ | only for element collapse Dp 21bar |

### 5. ELEMENT COLLAPSE

| | | |
|---|---|---|
| A | 21 bar | |
| B | 210 bar | recommended with no by-pass option |

### 6. SEALS

| | | |
|---|---|---|
| B | NBR | |
| V | FKM (on request) | |

### 7. CONNECTIONS

For different thread options please check availability with Filtrec Customer Service.

| | | |
|---|---|---|
| B3 | G 1/2″ | |
| B4 | G 3/4″ | for sizes 040-063-100 |
| B5 | G 1″ | |
| B6 | G 1 1/4″ | for sizes 160-250-400 |
| B7 | G 1 1/2″ | |

### 8. BYPASS VALVE

| | | |
|---|---|---|
| 0 | no by-pass | |
| D | 6 bar | |

### 9. INDICATOR PORT OPTION

| | | |
|---|---|---|
| S | with metal plug | |
| W | with plastic plug | |

### 10. COMPULSORY FIELD

| | | |
|---|---|---|
| 000 | Filtrec standard | |

### ACCESSORIES

The accessories must be ordered separately

### INDICATOR

**(Y and F)** digit for FKM seal option
For other options see clogging indicators catalogue

| | | |
|---|---|---|
| 000 | no indicator | |
| V05 (VY5) | differential visual 5 bar | |
| E05 (EF5) | differential electrical 5 bar | |
| E05L (EF5L) | differential electric 5 bar + *LC24 | |
| VEF5 | differential visual and electric 5 bar | |
| V08 (VY8) | differential visual 8 bar | |
| E08 (EF8) | differential electrical 8 bar | recommended for no by-pass option |
| E08L (EF8L) | differential electric 8 bar + *LC24 | |
| VEF8 | differential visual and electric 8 bar | |
| *LC24 | LED connector | |

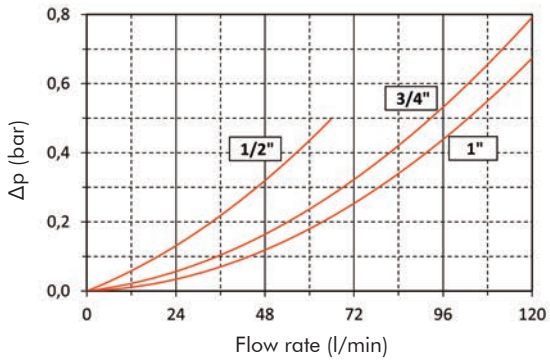
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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.

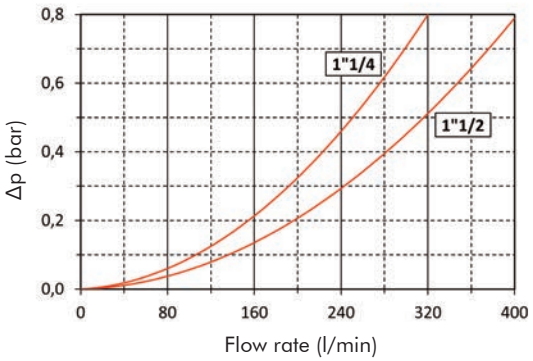
## HOUSING PRESSURE DROP

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

**F100 XD040-063-100**




**F100 XD160-250-400**




## ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with XD063G25A and oil viscosity 46 cSt: (80 x 4,15)/1000 x (46/32) = 0,48 bar

| | G03A | G06A | G10A | G15A | G25A | C10A |
|---|---|---|---|---|---|---|
| **XD040** | 15,40 | 13,5 | 7,88 | 6,75 | 5,63 | 5,00 |
| **XD063** | 11,31 | 9,00 | 5,54 | 4,85 | 4,15 | 3,85 |
| **XD100** | 8,40 | 5,85 | 3,6 | 3,15 | 2,70 | 2,00 |
| **XD160** | 5,47 | 4,47 | 2,63 | 1,84 | 1,49 | 0,94 |
| **XD250** | 3,64 | 2,61 | 1,68 | 0,91 | 0,86 | 0,58 |
| **XD400** | 2,28 | 1,52 | 1,12 | 0,64 | 0,57 | 0,36 |

## EXAMPLE OF TOTAL Δp CALCULATION

F100XD063G25ABB5DW000 with **80** l/min and oil **46** cSt:
Housing Δp 0,3 bar + element Dp 0,48 bar (80 x 4,15/1000 x 46/32) = total assembly Δp 0,78 bar

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with XD100G25B and oil viscosity 46 cSt:(80 x 4,95)/1000 x 46/32 = 0,57 bar

| | G03B | G06B | G10B | G15B | G25B |
|---|---|---|---|---|---|
| **XD040** | 24,48 | 22,50 | 14,63 | 12,38 | 10,10 |
| **XD063** | 20,46 | 16,62 | 10,38 | 8,65 | 6,92 |
| **XD100** | 13,30 | 10,35 | 6,75 | 5,85 | 4,95 |
| **XD160** | 5,69 | 4,74 | 3,37 | 2,81 | 2,25 |
| **XD250** | 3,78 | 3,06 | 2,52 | 2,16 | 1,80 |
| **XD400** | 2,36 | 1,94 | 1,57 | 1,29 | 1,01 |

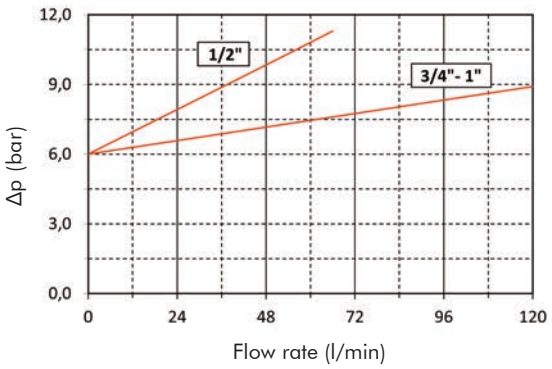
## EXAMPLE OF TOTAL Δp CALCULATION

F100XD100G25BBB5DW000 with **80** l/min and oil **46** cSt :
Housing Δp 0,3 bar + element Dp 0,57 bar (80 x 4,95/1000 x 46/32) = total assembly Δp 0,87 bar

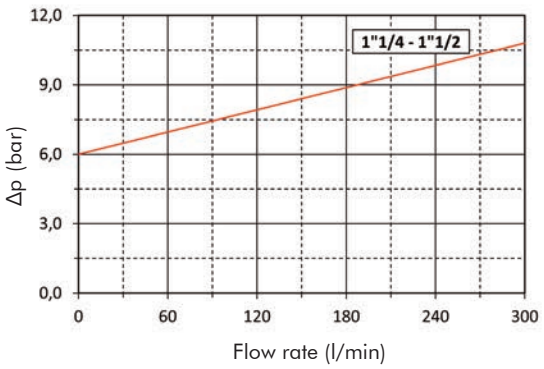
## BYPASS VALVE PRESSURE DROP

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

**F100 XD040-063-100**




**F100 XD160-250-400**




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.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. FILTER BOWL
6. SEAL KIT
7. IDENTIFICATION LABEL

| INDICATOR TIGHTENING TORQUE |
|---|
| 50 Nm |

**SPARE SEAL KIT PART NUMBER (6)**

| | NBR | FKM |
|---|---|---|
| F100 XD040-063-100 | 06.021.00090 | 06.021.00135 |
| F100 XD160-250-400 | 06.021.00096 | 06.021.00114 |

| BOWL TIGHTENING TORQUE |
|---|
| screw up filter till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction, an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (5) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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 an easily viewable position.
7. When an electrical indicator is used, make sure that it is properly wired.

⚠ 8. Never run the system with no filter element fitted.
9. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (5) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (6) conditions and replace if necessary.
6. Lubricate the bowl's thread (5) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.



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Technical information may change without notice

CT52-09/24

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# F035 SERIES

In line medium pressure filters

Inline filters for operating pressure up to 30 bar, flow rate up to 400 l/min, suitable for use on suction, return or low pressure line.

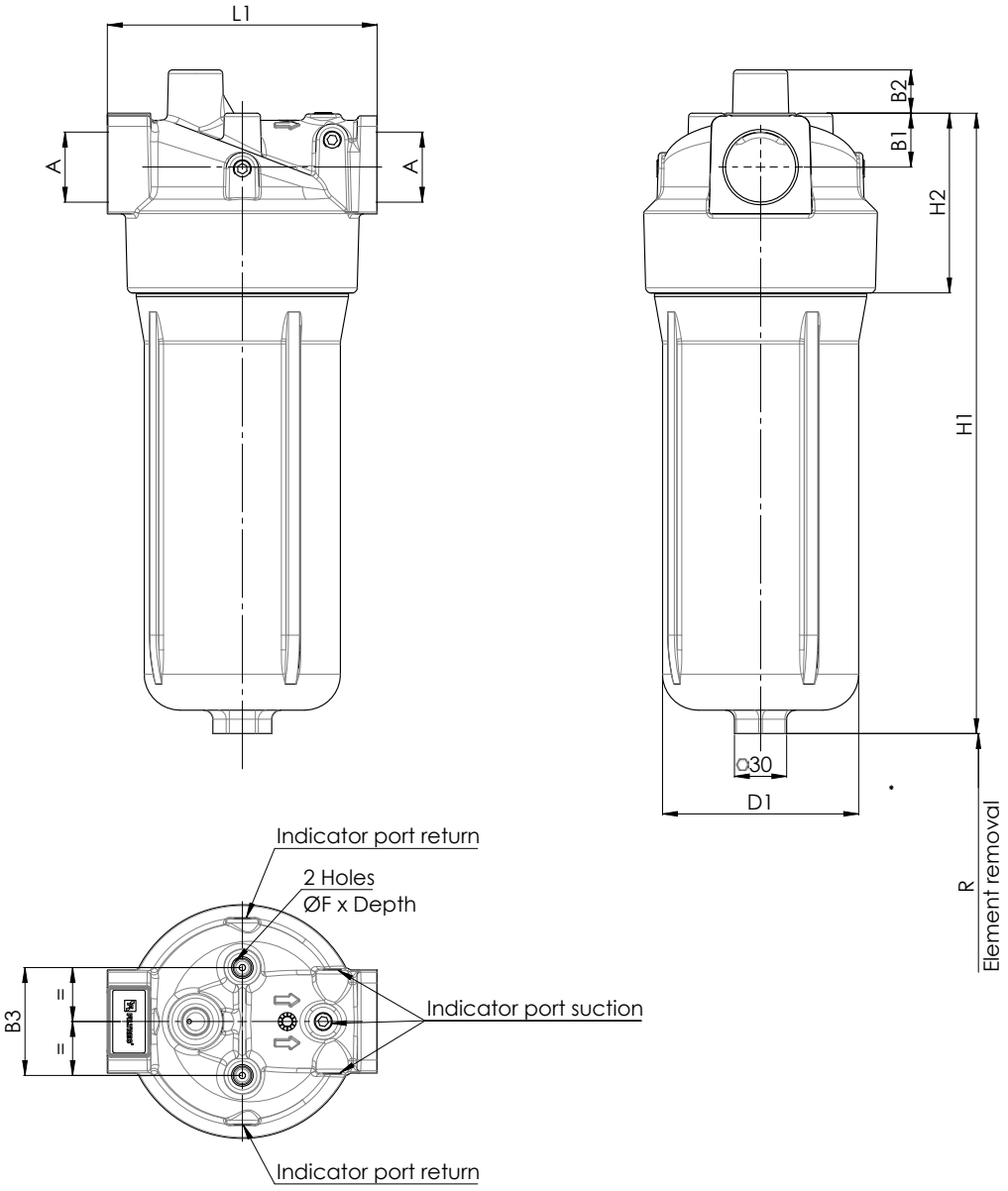


| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 30 bar<br>Burst: 120 bar |
| CONNECTIONS: | G 1 1/4" |
| MATERIALS: | Head: aluminium alloy<br>Bowl: aluminium alloy<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | Inbuilt in the filter element<br>S version 0,25 bar<br>3 version 3 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G01 - G03 - G06 - G10<br>G15 - G25 - G40<br>Paper:<br>C10 - C25<br>Wire mesh:<br>T60 - T125 - T250<br>Synthetic:<br>M05 - M10 - M15 |
| COLLAPSE PRESSURE: | 10 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

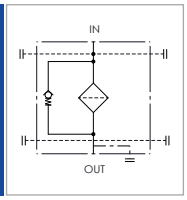
## OVERALL DIMENSIONS



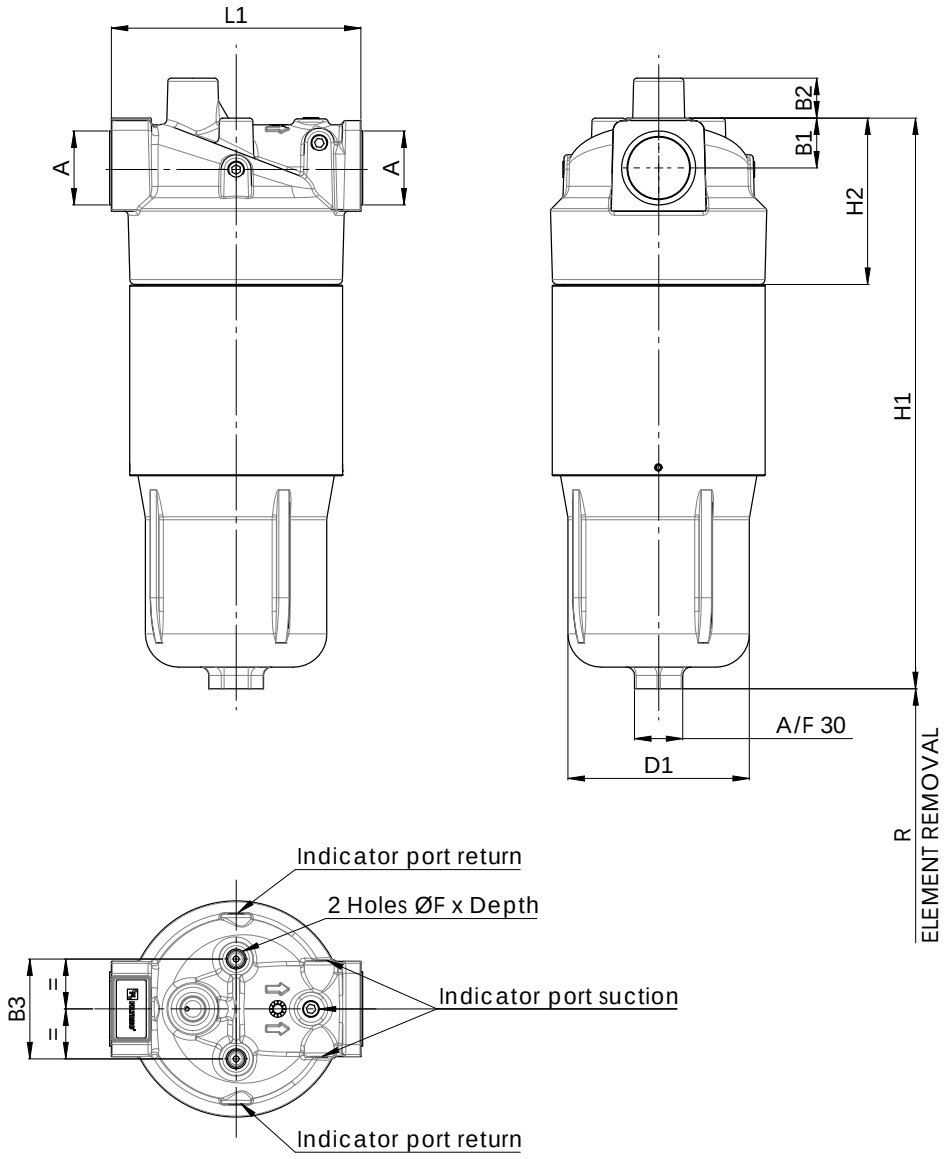

## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| F035-DMD0014 | G 1 1/4" | 30 | 24 | 60 | 109 | M12x18 | 230 | 100 | 150 | 130 | 2,9 Kg |

HYDRAULIC SYMBOL



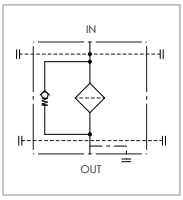
## OVERALL DIMENSIONS




## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| F035-DMD0029 | G 1 1/4" | 30 | 24 | 60 | 109 | M12x18 | 343 | 100 | 150 | 130 | 3,9 Kg |
| F035-DMD0044 | | | | | | | 461 | | | | 4,9 Kg |

HYDRAULIC SYMBOL



## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. |
|---|---|---|---|---|---|---|---|---|---|---|
| **F035** | **DMD** | **0014** | **G10** | **B3** | **B** | **B6** | **0** | **000** | **S** | **0** |
| SPARE ELEMENT | **DMD** | **0014** | **G10** | **B3** | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | F035 | | |
| 2. FILTER ELEMENT SERIES | DMD | | |
| 3. FILTER SIZE | 0014-0029-0044 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | for line/return |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ | for line/return/suction |
| | C10 | cellulose $ß_{10\mu m(c)} \geq 2$ | |
| | C25 | cellulose $ß_{25\mu m(c)} \geq 2$ | |
| | T60 | wire mesh | for suction |
| | T125 | wire mesh | |
| | T250 | wire mesh | |
| | M05 | synthetic $ß_{10\mu m(c)} \geq 1.000$ | |
| | M10 | synthetic $ß_{15\mu m(c)} \geq 1.000$ | for line/return |
| | M15 | synthetic $ß_{20\mu m(c)} \geq 1.000$ | |
| 5. BYPASS VALVE<br>inbuilt in the element | B0 | no by-pass (empty housing) | |
| | BS | 0,25 bar - suction | |
| | B3 | 3 bar - line/return | |
| 6. HOUSING SEALS | B | NBR | |
| | V | FKM | |
| 7. CONNECTIONS | B6 | G 1 1/4" | |
| 8. INDICATOR PORT OPTION | Y | 5 x G 1/8" no.3 suction side, no.2 return side | |
| 9. COMPULSORY FIELD | 000 | Filtrec standard | |
| 10. CORROSION PROTECTION | S | standard | |
| 11. OPTIONS | 0 | standard | |

### ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR | MPC | pressure gauge 0-10 bar | |
| | MRC | pressure gauge 0-10 bar | for return |
| | PDC | pressure switch 2 bar SPDT | |
| | MP0 | pressure gauge 0-16 bar | |
| | MPS | vacuum gauge 0 / -1 bar | for suction |
| | PDS | vacuum switch -0,2 bar SPDT | |

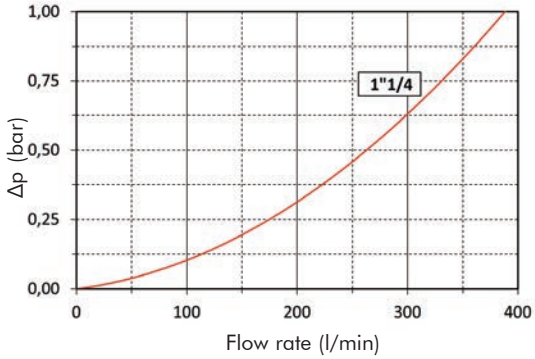
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**F035DMD0014-0029-0044**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 175 l/min with DMD0029G10B3 and oil viscosity 46 cSt: (175 x 1,40)/1000 x (46/32)= 0,35 bar

| | G01 | G03 | G06 | G10 | G15 | G25 | G40 | C10 | C25 | T60 | T125 | T250 | M05 | M10 | M15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DMD0014** | 13,19 | 9,45 | 5,56 | 3,09 | 2,25 | 1,61 | 0,89 | 1,59 | 0,80 | 0,30 | 0,29 | 0,28 | 1,68 | 1,64 | 1,60 |
| **DMD0029** | 6,22 | 4,48 | 2,75 | 1,40 | 1,03 | 0,75 | 0,40 | 0,73 | 0,39 | 0,21 | 0,20 | 0,19 | 0,78 | 0,76 | 0,74 |
| **DMD0044** | 3,99 | 2,84 | 1,82 | 1,00 | 0,78 | 0,69 | 0,33 | 0,60 | 0,32 | 0,17 | 0,16 | 0,15 | 0,64 | 0,60 | 0,50 |

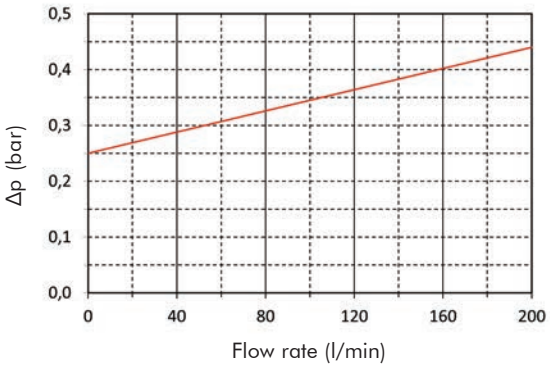
## EXAMPLE OF TOTAL Δp CALCULATION

F035DMD0014G10B3B60000S0 with 60 l/min and oil 46 cSt:
Housing Δp 0,25 bar + element Dp 0,35 bar (175 x 1,40/1000 x 46/32) = total assembly Δp 0,60 bar

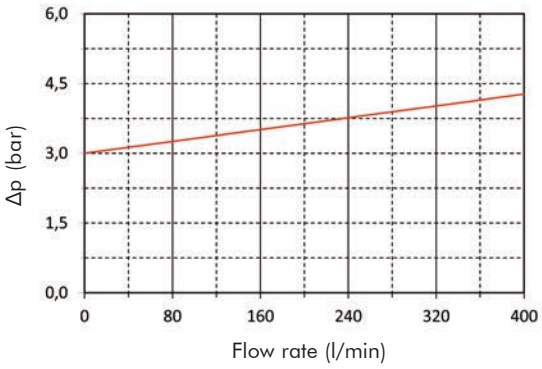
## BYPASS VALVE PRESSURE DROP

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

F035DMD0014-0029-0044 **0,25 bar**




F035DMD0014-0029-0044 **3 bar**




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$^3$.

## USER TIPS




1. FILTER HEAD
2. FIXING HOLES
3. FILTER ELEMENT
4. FILTER BOWL
5. SEAL KIT
6. IDENTIFICATION LABEL
7. INDICATOR PORTS

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 10 Nm |

### BOWL TIGHTENING TORQUE

| |
|---|
| Screw up filtre bowl till end |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR | FKM |
|---|---|---|
| F035 DMD0014/29/44 | 06.021.00129 | 06.021.00130 |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (4) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (2).
4. Verify that no tension is present on the filter after mounting.
5. Enough space must be available for filter element replacement.
6. Never run the system with no filter element fitted.

⚠ 7. Keep in stock a spare FILTREC filter element for timely replacement when required.
8. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (4) by turning it anti-clockwise and remove it.
3. Remove the dirty element (3).
4. Fit a new FILTREC element (3), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (5) conditions and replace if necessary.
6. Lubricate the bowl's thread (4) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.

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# F040 SERIES

In line medium pressure filters

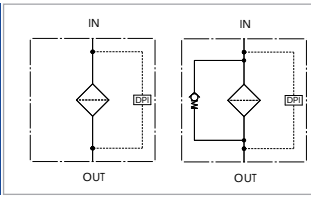
Inline filters for operating pressure up to 70 bar, flow rate up to 400 l/min.
Available with or without bypass, indicator port is a standard option to fit a visual or electrical differential indicator.



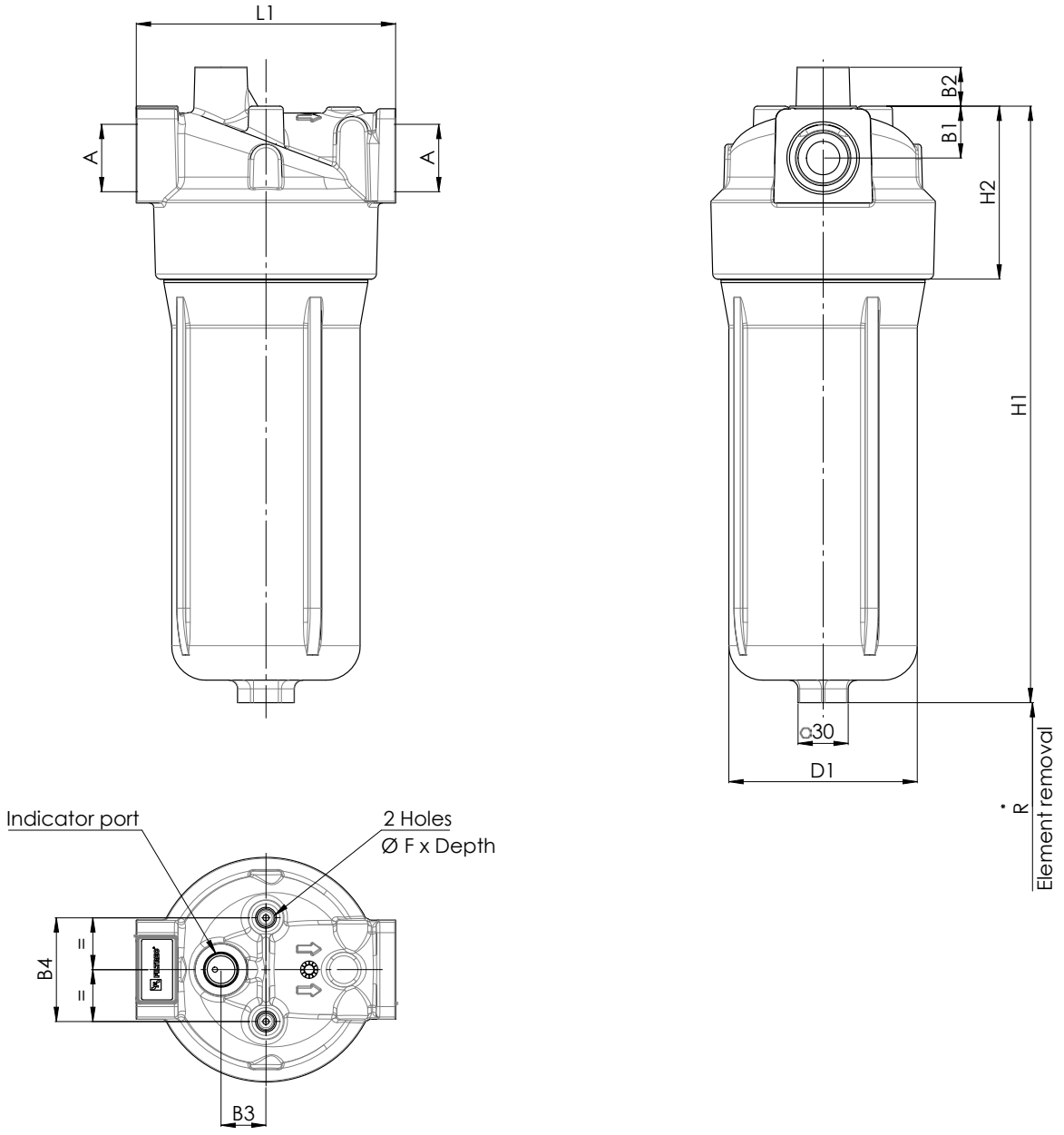
| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating:<br>F040 DMD0005-8-11: 70 bar<br>F040 DMD0015-30-45: 40 bar<br>Burst:<br>F040 DMD0005-8-11: 210 bar<br>F040 DMD0015-30-45: 120 bar |
| CONNECTIONS: | G 3/4"÷1 1/4" |
| MATERIALS: | Head: aluminium alloy<br>Bowl: aluminium alloy<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | No by-pass or 3,5 bar setting |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | **For 30 bar differential collapse pressure:**<br>Inorganic microfiber:<br>E01B- E03B - E05B - E10B - E15B - E20B<br>Paper: D10B<br>Wire mesh: B60B<br>**For 210 bar differential collapse pressure:**<br>Inorganic microfiber:<br>F01B- F03B - F05B - F10B - F15B - F20B<br>Wire mesh: W60B |
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

HYDRAULIC SYMBOL



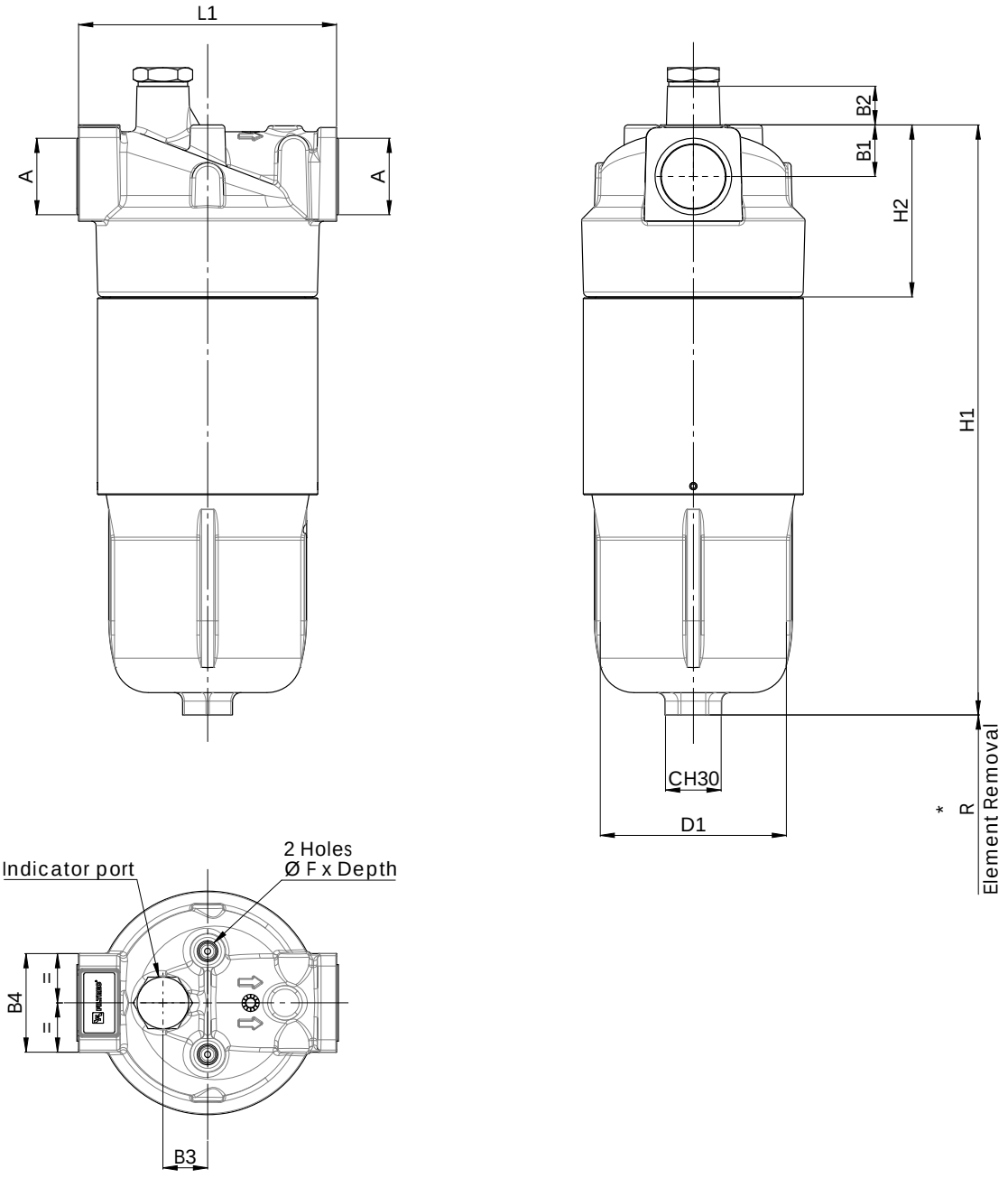
## OVERALL DIMENSIONS




## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | B4 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F040-DMD0005 | G 3/4" | 19 | 28 | 15 | 45 | 65 | M8x12 | 160 | 100 | 95 | 110 | 1,0 Kg |
| F040-DMD0008 | | | | | | | | 238 | | | | 1,3 Kg |
| F040-DMD0011 | | | | | | | | 312 | | | | 1,6 Kg |
| F040-DMD0015 | G 1 1/4" | 30 | 24 | 26 | 60 | 109 | M12x18 | 230 | 100 | 150 | 130 | 2,9 Kg |

## OVERALL DIMENSIONS




## NOMINAL SIZE

| MODEL | A | B1 | B2 | B3 | B4 | D1 | F | H1 | H2 | L1 | R | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F040-DMD0030 | G 1 1/4" | 30 | 24 | 26 | 60 | 109 | M12x18 | 343 | 100 | 150 | 130 | 3,9 Kg |
| F040-DMD0045 | | | | | | | | 461 | | | | 4,9 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **F040** | **DMD** | **0015** | **E10B** | **B** | **B4** | **D** | **W** | **000** | **S** | **0** |
| SPARE ELEMENT | | **DMD** | **0015** | **E10B** | | | | | | | |

### 1. FILTER SERIES

| | |
|---|---|
| F040 | |

### 2. FILTER ELEMENT SERIES

| | |
|---|---|
| DMD | |

### 3. FILTER SIZE

| | |
|---|---|
| 0005-0008-0011 | |
| 0015-0030-0045 | |

### 4. FILTER MEDIA

For different media options please check availability with Filtrec Customer Service.

| | | |
|---|---|---|
| 000 | no element | |
| E01B | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| E03B | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| E05B | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| E10B | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | 30 bar collapse pressure |
| E15B | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| E20B | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| D10B | cellulose $ß_{10\mu m(c)} \geq 2$ | |
| B60B | wire mesh 60µm | |
| F01B | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| F03B | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| F05B | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| F10B | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | 210 bar collapse pressure |
| F15B | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| F20B | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| W60B | wire mesh 60µm | |

### 5. SEALS

*compleate filter seals

| | | |
|---|---|---|
| B | NBR | |
| V | FKM (on request) | |

### 6. CONNECTIONS

| | | |
|---|---|---|
| B4 | G 3/4" | for size 0005-0008-0011 |
| B6 | G 1 1/4" | for size 0015-0030-0045 |

### 7. BYPASS VALVE

| | |
|---|---|
| 0 | no by-pass |
| D | 3,5 bar |

### 8. INDICATOR PORT OPTION

| | |
|---|---|
| S | with metal plug |
| W | with plastic plug |

### 9. COMPULSORY FIELD

| | |
|---|---|
| 000 | Filtrec standard |

### 10. CORROSION PROTECTION

| | |
|---|---|
| S | standard |

### 11. OPTIONS

| | |
|---|---|
| 0 | standard |

## ACCESSORIES

The accessories must be ordered separately

## INDICATOR

**(Y and F)** digit for FKM seal option
For other options see clogging indicators catalogue

| | | |
|---|---|---|
| V02 (VY2) | differential visual 2,7 bar | |
| E02 (EF2) | differential electrical 2,7 bar | |
| E02L (EF2L) | differential electric 2,7 bar + *LC24 | |
| VEF2 | differential visual and electric 2,7 bar | |
| V05 (VY5) | differential visual 5 bar | recommended for no by-pass option |
| E05 (EF5) | differential electrical 5 bar | |
| E05L (EF5L) | differential electric 5 bar + *LC24 | |
| VEF5 | differential visual and electric 5 bar | |
| LC24 | LED connector | |

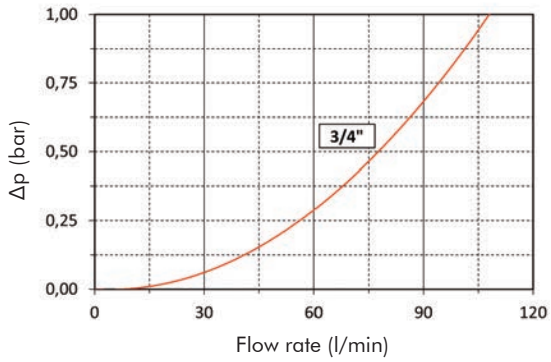
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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.

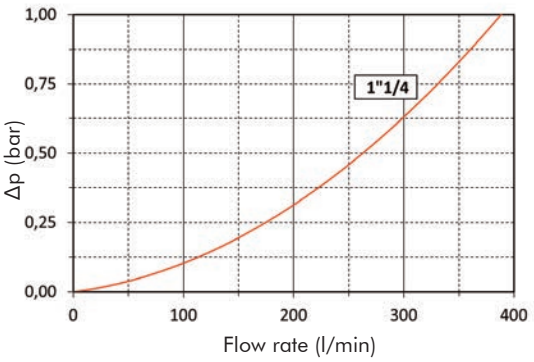
## HOUSING PRESSURE DROP

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

**F040DMD0005-0008-0011**




**F040DMD0015-0030-0045**




## ELEMENT PRESSURE DROP (filter element 30 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 60 l/min with DMD0011E10B and oil viscosity: (60 x 5,10)/1000 x (46/32)= 0,44 bar

| | E01B | E03B | E05B | E10B | E15B | E20B | D10B | B60B |
|---|---|---|---|---|---|---|---|---|
| **DMD0005** | 49,98 | 34,99 | 29,14 | 17,71 | 12,16 | 10,67 | 8,84 | 3,54 |
| **DMD0008** | 30,99 | 21,69 | 12,56 | 9,00 | 5,92 | 4,99 | 3,56 | 1,42 |
| **DMD0011** | 22,17 | 15,52 | 9,30 | 5,10 | 3,75 | 3,15 | 2,58 | 1,03 |
| **DMD0015** | 10,55 | 7,39 | 4,25 | 2,40 | 1,68 | 1,20 | 1,04 | 0,42 |
| **DMD0030** | 5,62 | 3,93 | 2,57 | 1,18 | 0,93 | 0,72 | 0,63 | 0,25 |
| **DMD0045** | 3,48 | 2,43 | 1,53 | 0,99 | 0,68 | 0,50 | 0,48 | 0,17 |

## EXAMPLE OF TOTAL Δp CALCULATION

F040DMD0011E10BBB4DW000S0 with 60 l/min and oil 46 cSt:
Housing Δp 0,27 bar + element Dp 0,44 bar (60 x 5,10/1000 x 46/32) = total assembly Δp 0,71 bar

## ELEMENT PRESSURE DROP (filter element 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 60 l/min with DMD0011F10B and oil viscosity 46 cSt: (60 x 6,63)/1000 x (46/32) = 0,57 bar

| | F01B | F03B | F05B | F10B | F15B | F20B | W60B |
|---|---|---|---|---|---|---|---|
| **DMD0005** | 64,37 | 45,23 | 37,88 | 23,41 | 15,81 | 13,84 | 4,43 |
| **DMD0008** | 40,29 | 28,34 | 16,33 | 11,39 | 7,7 | 6,63 | 1,72 |
| **DMD0011** | 28,82 | 20,18 | 12,09 | 6,63 | 4,88 | 4,36 | 1,22 |
| **DMD0015** | 13,72 | 9,8 | 5,53 | 3,12 | 2,18 | 1,56 | 0,54 |
| **DMD0030** | 7,35 | 5,23 | 3,34 | 1,54 | 1,21 | 0,94 | 0,32 |
| **DMD0045** | 4,52 | 3,16 | 1,99 | 1,39 | 0,88 | 0,65 | 0,22 |

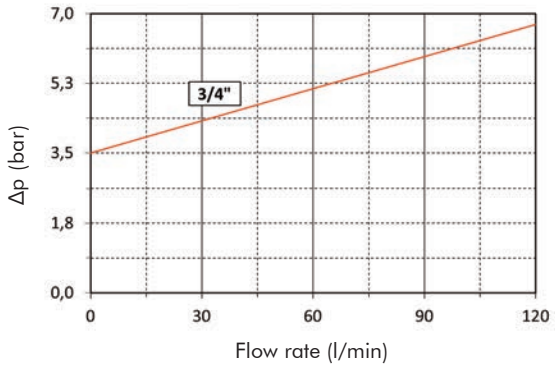
## EXAMPLE OF TOTAL Δp CALCULATION

F040DMD0011F10BBB4DW000S0 with 60 l/min and oil 46 cSt:
Housing Δp 0,27 bar + element Dp 0,57 bar (60 x 6,63)/1000 x (46/32) = total assembly Δp 0,84 bar

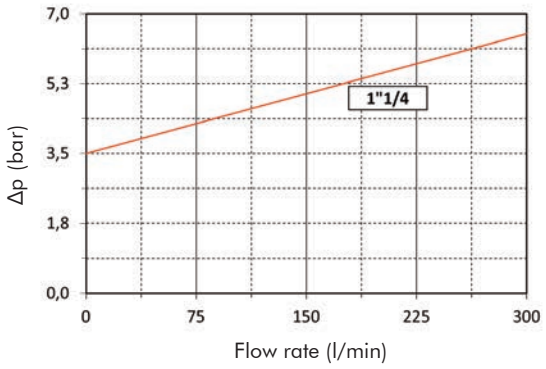
## BYPASS VALVE PRESSURE DROP

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

**F040DMD0005-0008-0011**




**F040DMD0015-0030-0045**




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.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PLUG
3. FIXING HOLES
4. FILTER ELEMENT
5. FILTER BOWL
6. SEAL KIT
7. IDENTIFICATION LABEL

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 50 Nm |

### SPARE SEAL KIT PART NUMBER (6)

| | NBR | FKM |
|---|---|---|
| F040 DMD005/8/11 | 06.021.00127 | 06.021.00128 |
| F040 DMD0015/30/45 | 06.021.00129 | 06.021.00130 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction, an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (5) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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 an easily viewable position.
7. When an electrical indicator is used, make sure that it is properly wired.

⚠ 8. Never run the system with no filter element fitted.
9. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the bowl (5) by turning it anti-clockwise and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; open its plastic protection on the open end side and insert it onto the spigot in the filter head, then remove completely the plastic protection.
5. Clean carefully the bowl; check the O-rings (6) conditions and replace if necessary.
6. Lubricate the bowl's thread (5) and screw it by hand in the filter head (1) by turning it clockwise.
7. Screw in the bowl to stop.

⚠ 8. The used filter elements cannot be cleaned and re-used.



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Technical information may change without notice

CT64-05/26

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# FLR-U5 SERIES

In line medium pressure filters

In line filters for operating pressure up to 30 bar.
Flow rate up to 2600 l/min.



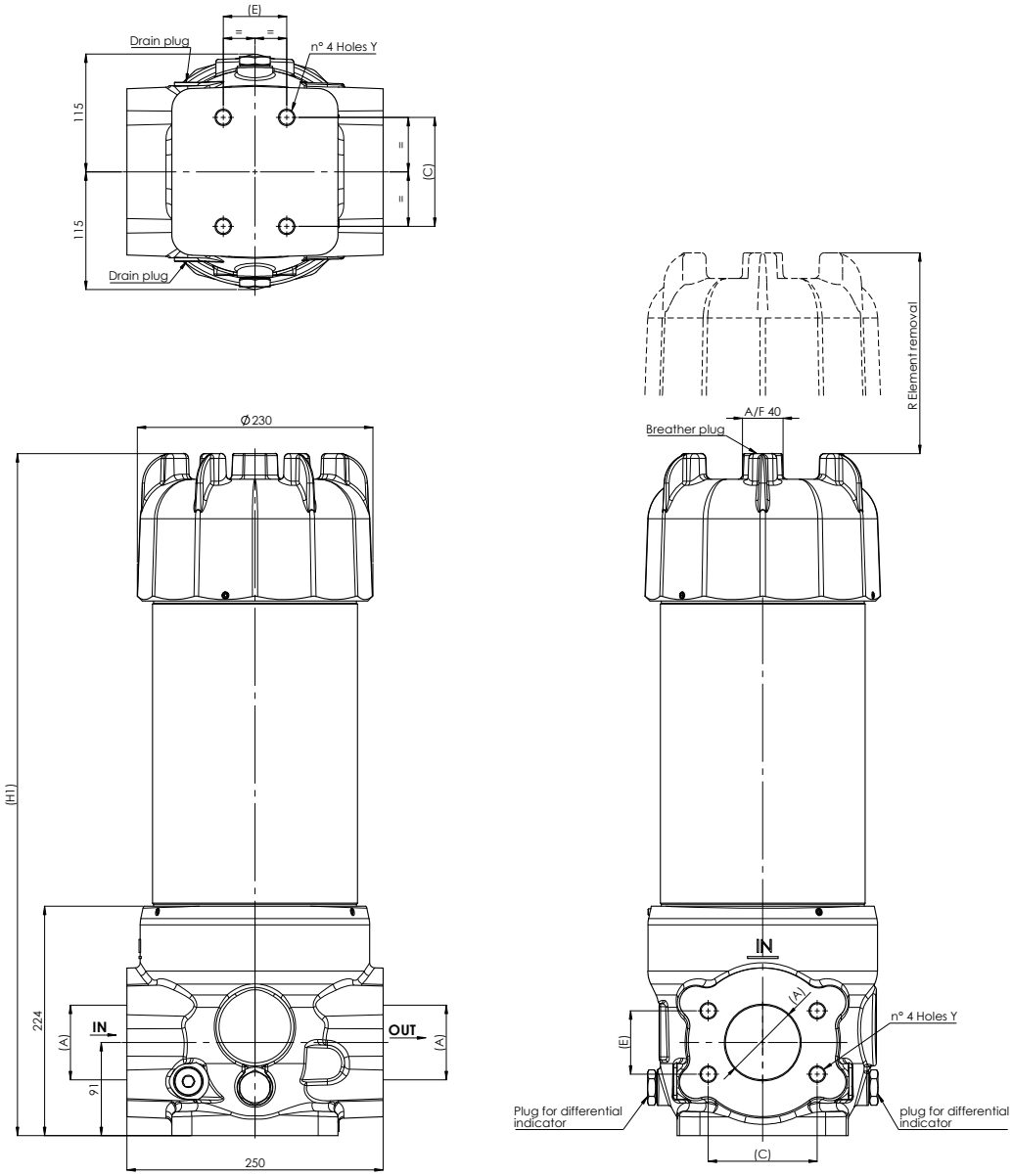
| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 30 bar<br>Fatigue rating: $10^6$ cycles 0÷30 bar<br>Burst: 90 bar |
| CONNECTIONS: | 3″ - 4″ SAE 3000 FLANGE |
| MATERIALS: | Head: anodized aluminium<br>Bowl: anodized aluminium<br>Body: anticorodal aluminium<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | inbuilt in the filter element<br>no bypass<br>1 bar<br>3 bar<br>4 bar<br>6 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G06 - G10<br>G15 - G25 - G40 - GW03 - GW10<br>AW40 |
| COLLAPSE PRESSURE: | 10 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

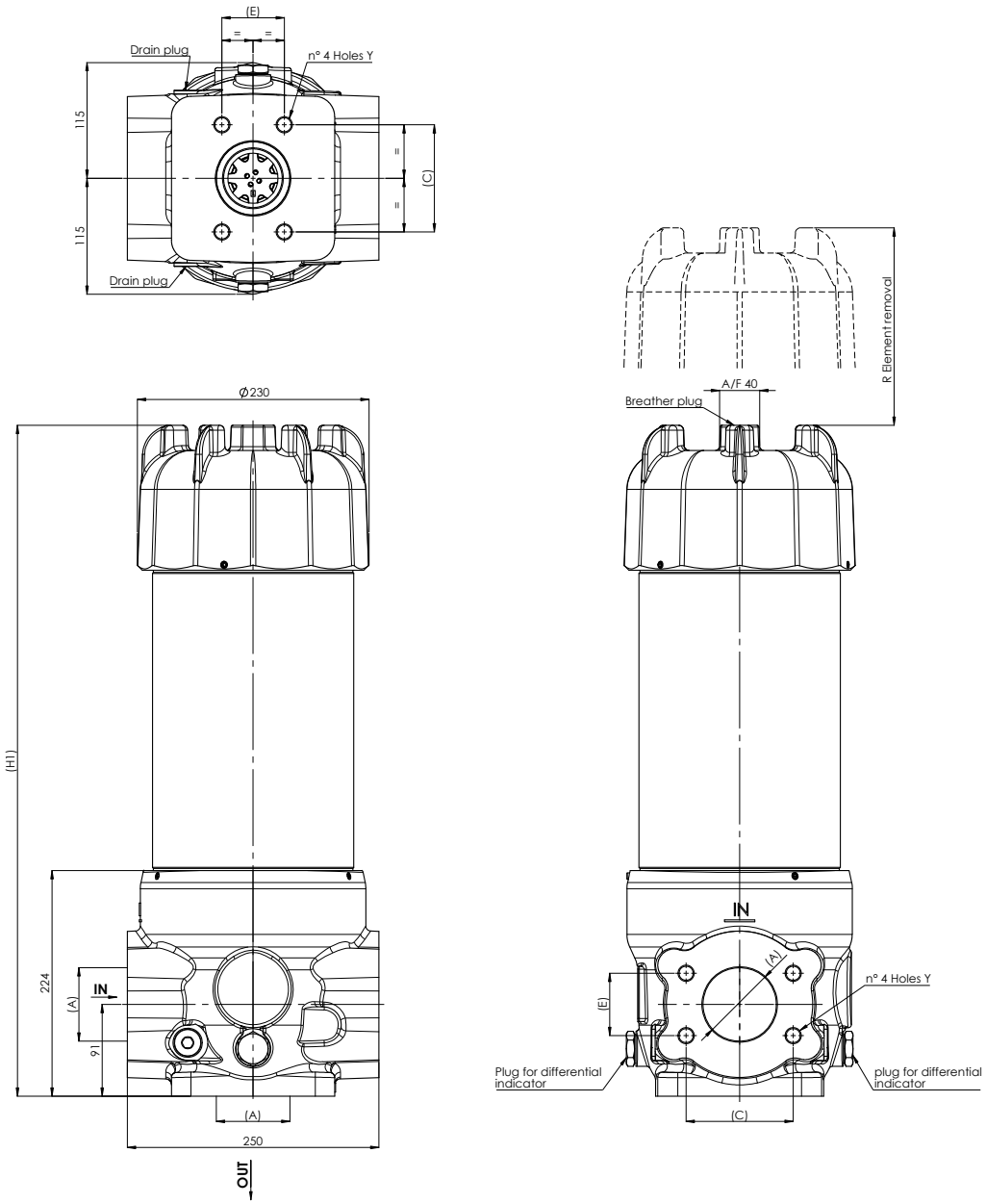
## OVERALL DIMENSIONS

### **A** Version



## OVERALL DIMENSIONS

**B** Version




## NOMINAL SIZE

| MODEL | PORT SIZE A | Y | A | C | E | H1 | R | BODY WEIGHT |
|---|---|---|---|---|---|---|---|---|
| FLR-U562 | FLANGE 3" SAE 3000-M | M16 x 24 | Ø73 | 106,38 | 61,93 | 718 | 460 | 29 Kg |
| | FLANGE 4" SAE 3000-M | | Ø99 | 130,18 | 77,77 | | | |
| FLR-U564 | FLANGE 3" SAE 3000-M | | Ø73 | 106,38 | 61,93 | 1156 | 900 | 35 Kg |
| | FLANGE 4" SAE 3000-M | | Ø99 | 130,18 | 77,77 | | | |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FLR** | **U5** | **62** | **G10** | **B** | **6** | **F10M** | **A** | **2** | **000** | **A** | **0** |
| SPARE ELEMENT | | **U5** | **62** | **G10** | **B** | **6** | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FLR | | |
| 2. FILTER ELEMENT SERIES | U5 | | |
| 3. FILTER SIZE | 62 | | |
| | 64 | | |
| 4. FILTER MEDIA | 000 | no element | |
| AbsoluteBeta **ULTRA HIGH CAPACITY FILTER ELEMENT** | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ | |
| | GW03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ + water absorbent | |
| | GW10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ + water absorbent | |
| | AW40 | water absorbent only | |
| 5. SEALS | B | NBR | |
| | V | FKM | |
| 6. BYPASS VALVE | 0 | no bypass or no element | |
| Inbuilt into the filter element | 1 | 1 bar | |
| | 3 | 3 bar | |
| | 4 | 4 bar | |
| | 6 | 6 bar | |
| 7. MAIN PORT | F10M | 3" SAE 3000 FLANGE | |
| | F12M | 4" SAE 3000 FLANGE | |
| 8. PORTS LAYOUT | A | straight: horizontal inlet - horizontal outlet | |
| | B | corner: horizontal inlet - vertical outlet | |
| 9. INDICATOR PORT OPTION | 1 | indicator seat on both sides: left metal plug, right plastic cap | |
| | 2 | indicator seat on both sides with metal plug | preferred option |
| 10. COMPULSORY FIELD | 000 | filtrec standard | |
| 11. CORROSION PROTECTION | A | anodized | |
| 12. OPTION | 0 | no option | |
| | 1 | internal tube for low flow rate 150-200 LPM | |

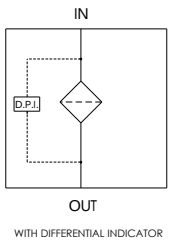
## ORDERING INFORMATION

### ACCESSORIES

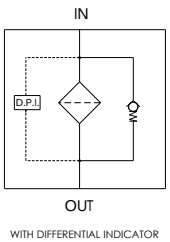
The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR<br>**(Y and F)** digit for FKM seal option<br>***LC24**=Led connector<br>For other options see clogging indicators catalogue | VX2 (VY2) | differential visual 2,7bar | |
| | EX2 (EY2) | differential electric 2,7bar | |
| | EX2L (EY2L) | differential electric 2,7bar + LC24* | |
| | VEXF2 | differential visual and electric 2,7 bar | |
| | VX5 (VY5) | differential visual 5bar | |
| | EX5 (EY5) | differential electric 5bar | |
| | EX5L (EY5L) | differential electric 5bar + LC24* | |
| | VEXF5 | differential visual and electric 5bar | |
| | VX8 (VY8) | differential visual 8bar | |
| | EX8 (EY8) | differential electric 8bar | recommended for no by-pass option |
| | EX8L (EY8L) | differential electric 8bar + LC24* | |
| | VEXF8 | differential visual and electric 8 bar | |
| | LC24 | LED connector for pressure switch | |
| PLUG | P01 | metal plug for indicator port - NBR | |
| | PF1 | metal plug for indicator port - FKM | |

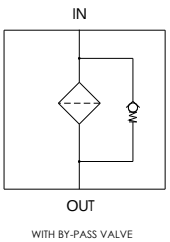
## HYDRAULIC SYMBOLS



WITH DIFFERENTIAL INDICATOR



WITH DIFFERENTIAL INDICATOR AND BY-PASS VALVE



WITH BY-PASS VALVE

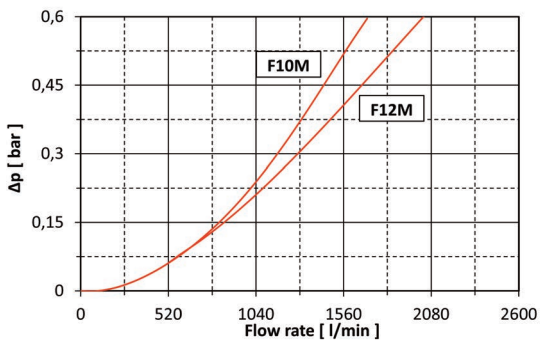
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**FLR U5 xx**



## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
1000 l/min with U564G10B and oil viscosity 46 cSt: (1000 x 0.09) / 1000 x (46 / 32) = 0,13 bar

| | G01 | G03 | G06 | G10 | G15 | G25 | G40 | GW03 | GW10 | AW40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **U562** | 0,97 | 0,4 | 0,32 | 0,19 | 0,17 | 0,11 | 0,07 | 1,15 | 0,55 | 0,22 |
| **U564** | 0,45 | 0,19 | 0,15 | 0,09 | 0,08 | 0,06 | 0,03 | 0,58 | 0,28 | 0,11 |

## EXAMPLE OF TOTAL Δp CALCULATION

FLRU5G10B0F10MA1000A0 with 1000 l/min and oil 46 cSt:
Housing Δp + element Δp = 0,22 bar + (1000 x 0.09 / 1000 x (46 / 32) bar = 0,35 bar

## GW03, GW10 AND AW40 QUICK SIZE TABLE

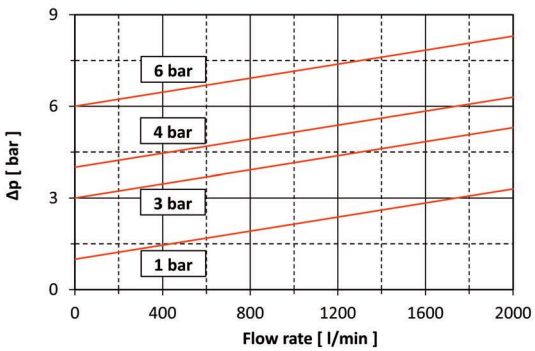
| | suggested flow rate [l/min] | GW03 and GW10 water capacity* [l] | AW40 water capacity* [l] |
|---|---|---|---|
| U562 | 75 | 1.31 | 1.50 |
| U564 | 152 | 2.65 | 3.03 |

* at final Δp = 3 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.

**FLR U5 xx**




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.

## USER TIPS



1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. INTERNAL TUBE FOR LOW FLOW RATE
8. VENT PLUG
9. DRAIN PLUG
10. INDICATOR PLUG
11. FILTER BODY
12. FIXING SCREWS
13. SUPPORT TUBE

### INDICATOR TIGHTENING TORQUE

50 Nm

### SPARE SEAL KIT PART NUMBER (5)

| | NBR | FKM |
|---|---|---|
| FLR... | 06.021.00389 | 06.021.00390 |

### BOWL/BODY TIGHTENING TORQUE

screw up filter bowl/body till end

### DRAIN/VENT TIGHTENING TORQUE

50 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 IN and OUT ports must be connected to the hoses in the correct flow direction (an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) upward.
3. Secure to the frame the filter head (1) using the fixing holes (3).
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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠
1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Loosen vent screw (8).
3. Remove drain plug (9) in housing bottom and drain oil.
4. Unscrew filter bowl counter-clockwise.
5. Lift out filter element (4).
6. Check seal on filter bowl (5). We recommend replacement in any case.
7. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element, first open the plastic bag, then push the element over the spigot in the filter head. Now remove plastic bag.
8. Push the element carefully over the spigot and tighten the 3 grub screws (12) of the filter bowl (6).
9. Tighten drain plug (9) in housing bottom.
10. Tight vent screw (8).

⚠
11. The used filter elements can not be cleaned and re-use.

www.filtrec.com
Technical information may change without notice

CT101-05/24

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# FLR-RHR SERIES

In line medium pressure filters

In line filters for operating pressure up to 30 bar.
Flow rate up to 2600 l/min.



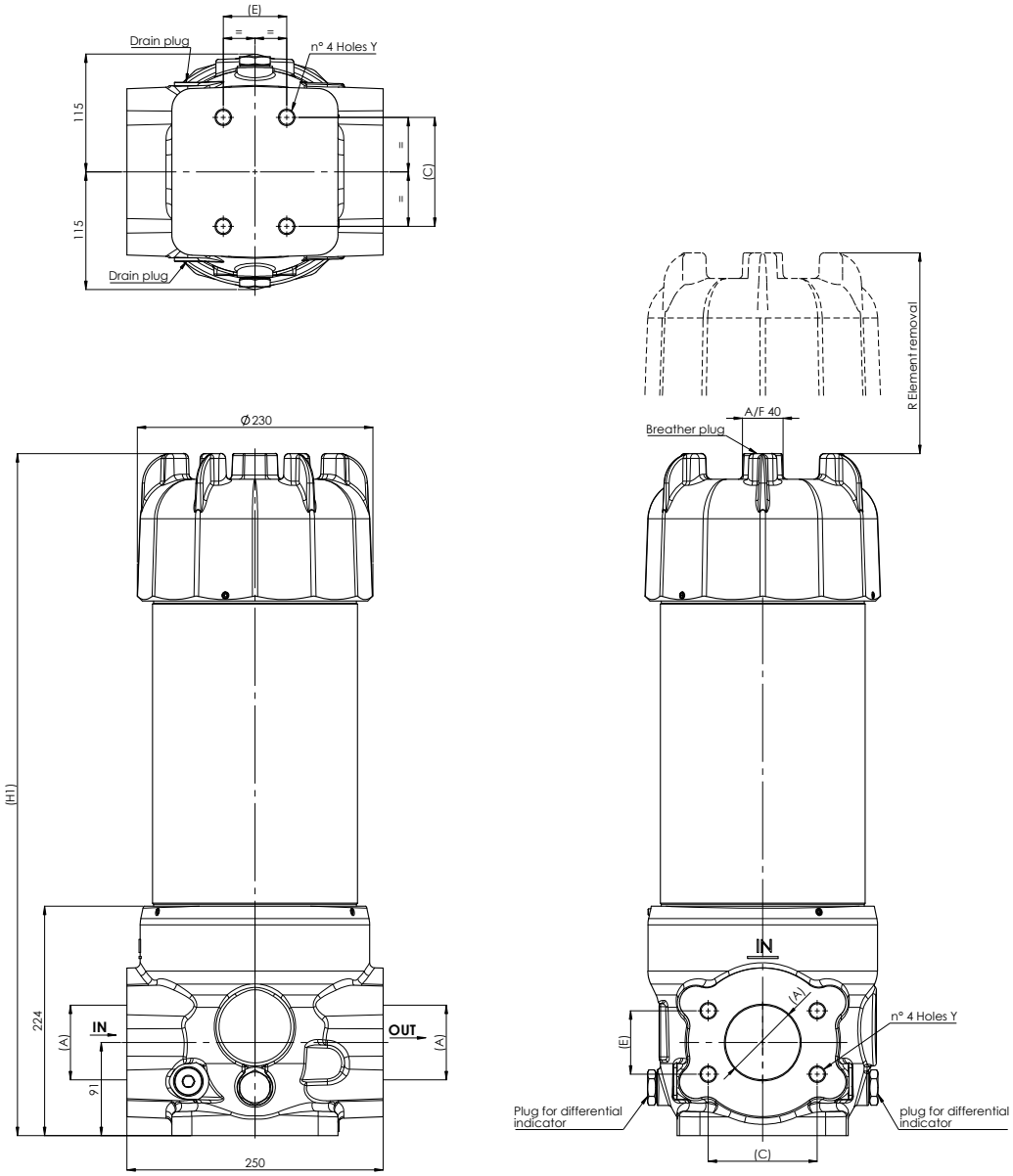
| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 30 bar<br>Fatigue rating: $10^6$ cycles 0÷30 bar<br>Burst: 90 bar |
| CONNECTIONS: | 3″ - 4″ SAE 3000 FLANGE |
| MATERIALS: | Head: anodized aluminium<br>Bowl: anodized aluminium<br>Body: anticorodal aluminium<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | inbuilt in the filter element<br>no bypass<br>1 bar<br>3 bar<br>4 bar<br>6 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G05 - G10<br>G15 - G20 - G40 - GW03 - GW10<br>AW40 |
| COLLAPSE PRESSURE: | 20 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

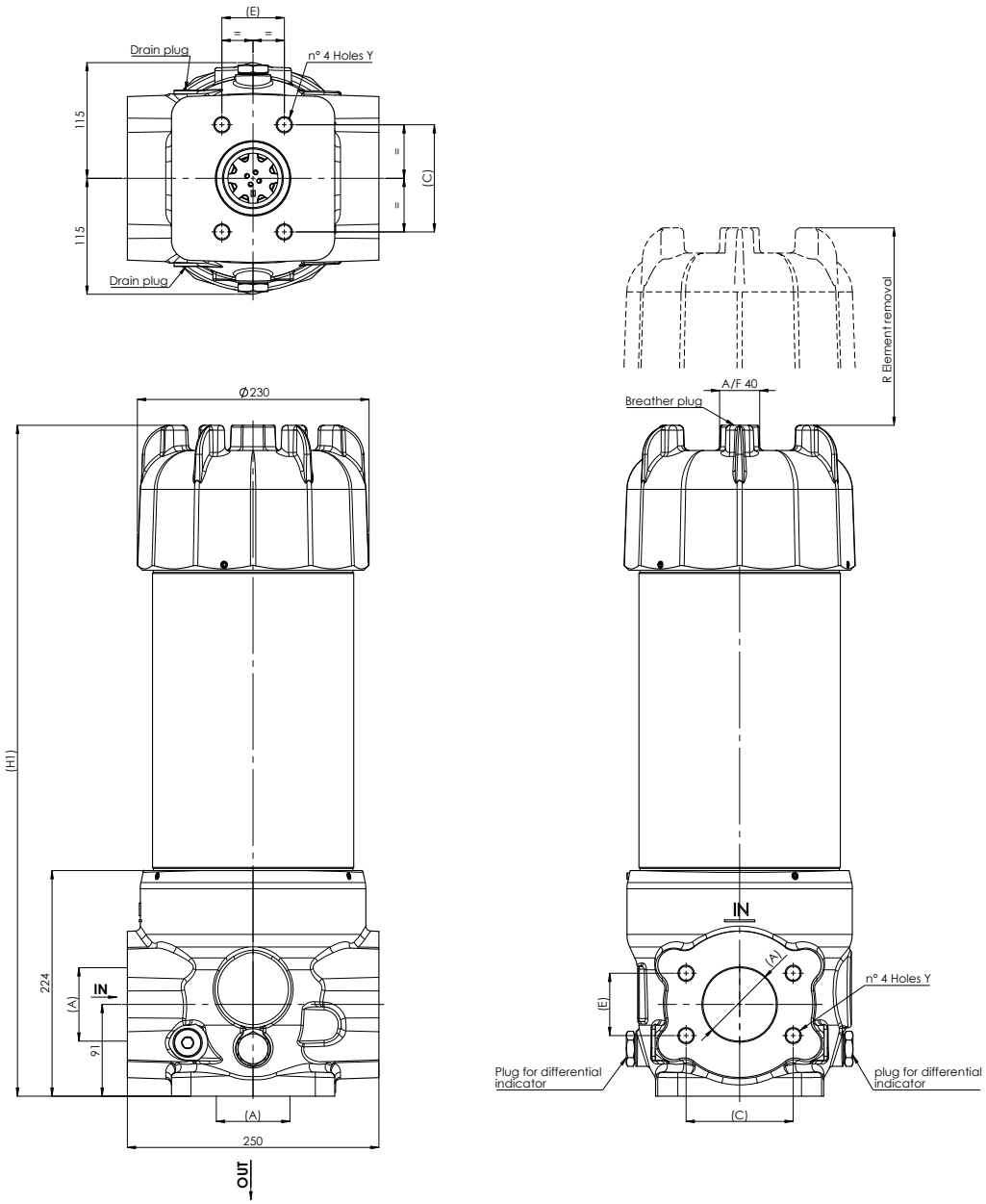
## OVERALL DIMENSIONS

### **A** Version



## OVERALL DIMENSIONS

**B** Version




## NOMINAL SIZE

| MODEL | PORT SIZE A | Y | A | C | E | H1 | R | BODY WEIGHT |
|---|---|---|---|---|---|---|---|---|
| FLR-RHR1300 | FLANGE 3" SAE 3000-M | M16 x 24 | Ø73 | 106,38 | 61,93 | 718 | 460 | 29 Kg |
| | FLANGE 4" SAE 3000-M | | Ø99 | 130,18 | 77,77 | | | |
| FLR-RHR2600 | FLANGE 3" SAE 3000-M | | Ø73 | 106,38 | 61,93 | 1156 | 900 | 35 Kg |
| | FLANGE 4" SAE 3000-M | | Ø99 | 130,18 | 77,77 | | | |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FLR** | **RHR** | **2600** | **G10** | **B** | **6** | **AB1** | **F10M** | **A** | **1** | **000** | **A** | **0** |
| SPARE ELEMENT | | **RHR** | **2600** | **G10** | **B** | **6** | **/AB1** | | | | | | |

### 1. FILTER SERIES

| |
|---|
| FLR |

### 2. FILTER ELEMENT SERIES

| |
|---|
| RHR |

### 3. FILTER SIZE

| |
|---|
| 1300 |
| 2600 |

### 4. FILTER MEDIA

| | |
|---|---|
| 000 | no element |
| G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ |
| G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| G05 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| G20 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| GW03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ + water absorbent |
| GW10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ + water absorbent |
| AW40 | water absorbent only |

### 5. SEALS

| | |
|---|---|
| B | NBR |
| V | FKM |

### 6. BYPASS VALVE

Inbuilt into the filter element

| | |
|---|---|
| 0 | no bypass or no element |
| 1 | 1 bar |
| 3 | 3 bar |
| 4 | 4 bar |
| 6 | 6 bar |

### 7. ELEMENT SUFFIX

Only for spare element
"/" before the three digit suffix is needed

| | |
|---|---|
| 0 | no element (empty housing config) |
| AB1 | AbsoluteBeta - **HIGH CAPACITY FILTER ELEMENT** Øext = 143mm |
| 012 | AbsoluteBeta - **ULTRA HIGH CAPACITY FILTER ELEMENT** Øext = 153mm |
| 005 | AbsoluteBeta - **HIGH CAPACITY FILTER ELEMENT** Øext = 143mm + safety element 50mic for bypass valve |
| 014 | AbsoluteBeta - **ULTRA HIGH CAPACITY FILTER ELEMENT** Øext = 153mm + safety element 50mic for bypass valve |

### 8. MAIN PORT

| | |
|---|---|
| F10M | 3" SAE 3000 FLANGE |
| F12M | 4" SAE 3000 FLANGE |

## ORDERING INFORMATION

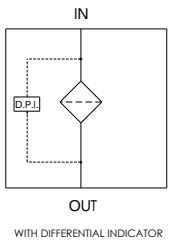
| | | | |
|---|---|---|---|
| 9. PORTS LAYOUT | A | straight: horizontal inlet - horizontal outlet | |
| | B | corner: horizontal inlet - vertical outlet | |
| 10. INDICATOR PORT OPTION | 1 | indicator seat on both sides:<br>left metal plug, right plastic cap | |
| | 2 | indicator seat on both sides with metal plug | preferred option |
| 11. COMPULSORY FIELD | 000 | filtrec standard | |
| 12. CORROSION PROTECTION | A | anodized | |
| 13. OPTION | 0 | no option | |
| | 1 | internal tube for low flow rate<br>150-200 LPM (not suitable with elements suffix "/005" and "/014" ) | |

## ACCESSORIES

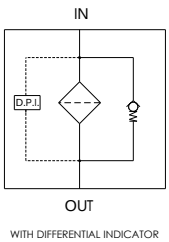
The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR<br>**(Y and F)** digit for FKM seal option<br>***LC24**=Led connector<br>For other options see clogging indicators catalogue | VX2 (VY2) | differential visual 2,7bar | |
| | EX2 (EY2) | differential electric 2,7bar | |
| | EX2L (EY2L) | differential electric 2,7bar + LC24* | |
| | VEXF2 | differential visual and electric 2,7 bar | |
| | VX5 (VY5) | differential visual 5bar | |
| | EX5 (EY5) | differential electric 5bar | |
| | EX5L (EY5L) | differential electric 5bar + LC24* | |
| | VEXF5 | differential visual and electric 5bar | |
| | VX8 (VY8) | differential visual 8bar | |
| | EX8 (EY8) | differential electric 8bar | recommended for no by-pass option |
| | EX8L (EY8L) | differential electric 8bar + LC24* | |
| | VEXF8 | differential visual and electric 8 bar | |
| | LC24 | LED connector for pressure switch | |
| PLUG | P01 | metal plug for indicator port - NBR | |
| | PF1 | metal plug for indicator port - FKM | |

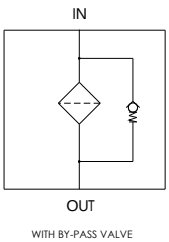
## HYDRAULIC SYMBOLS



WITH DIFFERENTIAL INDICATOR



WITH DIFFERENTIAL INDICATOR AND BY-PASS VALVE



WITH BY-PASS VALVE

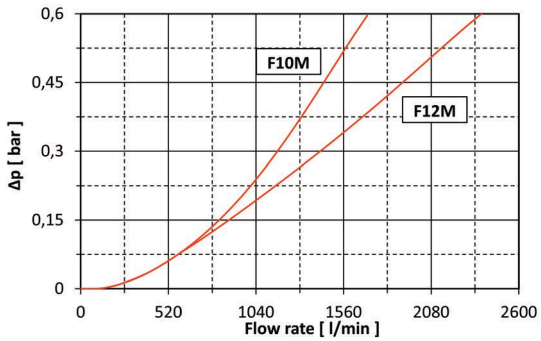
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**FLR RHRxx**



## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
1000 l/min with RHR1300G10B0/AB1 and oil viscosity 46 cSt: (1000 x 0.33) / 1000 x (46 / 32) = 0,47 bar

| | G01 | G03 | G05 | G10 | G15 | G20 | G40 | GW03 | GW10 | AW40 |
|---|---|---|---|---|---|---|---|---|---|---|
| RHR1300...AB1 - 005* | 1.70 | 0.70 | 0.57 | 0.33 | 0.30 | 0.20 | 0.12 | 2.1 | 0.99 | 0.39 |
| RHR1300...012 - 014* | 1.13 | 0.47 | 0.38 | 0.22 | 0.20 | 0.13 | 0.08 | 1.4 | 0.66 | 0.26 |
| RHR2600...AB1 - 005* | 0.82 | 0.34 | 0.27 | 0.16 | 0.14 | 0.10 | 0.06 | 1.02 | 0.48 | 0.19 |
| RHR2600...012 - 014* | 0.55 | 0.23 | 0.18 | 0.11 | 0.09 | 0.07 | 0.04 | 0.68 | 0.32 | 0.13 |

*= 005 and 014 element option, suggested for flow up to 500 l/min, for different flow rate please contact Filtrec Customer Service

## EXAMPLE OF TOTAL Δp CALCULATION

FLRRHR1300G10B0AB1F10MA00A0 with 1000 l/min and oil 46 cSt:
Housing Δp + element Δp = 0,22 bar + (1000 x 0.33) / 1000 x (46 / 32) bar = 0,69 bar

## GW03, GW10 AND AW40 QUICK SIZE TABLE

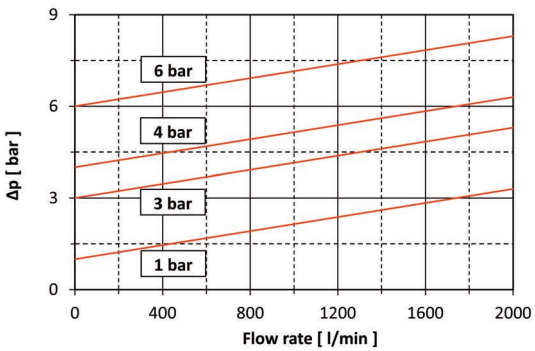
| | suggested flow rate [l/min] | GW03 and GW10 water capacity* [l] | AW40 water capacity* [l] |
|---|---|---|---|
| RHR1300...AB1 - 005 | 51 | 0.90 | 1.03 |
| RHR1300...012 - 014 | 65 | 1.15 | 1.31 |
| RHR2600...AB1 - 005 | 99 | 1.74 | 1.98 |
| RHR2600...012 - 014 | 130 | 2.28 | 2.60 |

* at final Δp = 3 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.

**FLR RHRxx**




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.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. INTERNAL TUBE FOR LOW FLOW RATE
8. VENT PLUG
9. DRAIN PLUG
10. INDICATOR PLUG
11. FILTER BODY
12. FIXING SCREWS
13. ADAPTER

### INDICATOR TIGHTENING TORQUE

50 Nm

### SPARE SEAL KIT PART NUMBER (5)

| | NBR | FKM |
|---|---|---|
| FLR... | 06.021.00389 | 06.021.00390 |

### BOWL/BODY TIGHTENING TORQUE

screw up filter bowl/body till end

### DRAIN/VENT TIGHTENING TORQUE

50 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) upward.
3. Secure to the frame the filter head (1) using the fixing holes (3).
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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠
1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Loosen vent screw (8).
3. Remove drain plug (9) in housing bottom and drain oil.
4. Unscrew filter bowl counter-clockwise.
5. Lift out filter element (4).
6. Check seal on filter bowl (5). We recommend replacement in any case.
7. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element, first open the plastic bag, then push the element over the spigot in the filter head. Now remove plastic bag.
8. Push the element carefully over the spigot and tighten the 3 grub screws (12) of the filter bowl (6).
9. Tighten drain plug (9) in housing bottom.
10. Tight vent screw (8).

⚠
11. The used filter elements can not be cleaned and re-use.

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# FLR-R4 SERIES

In line medium pressure filters

In line filters for operating pressure up to 30 bar.
Flow rate up to 2600 l/min.



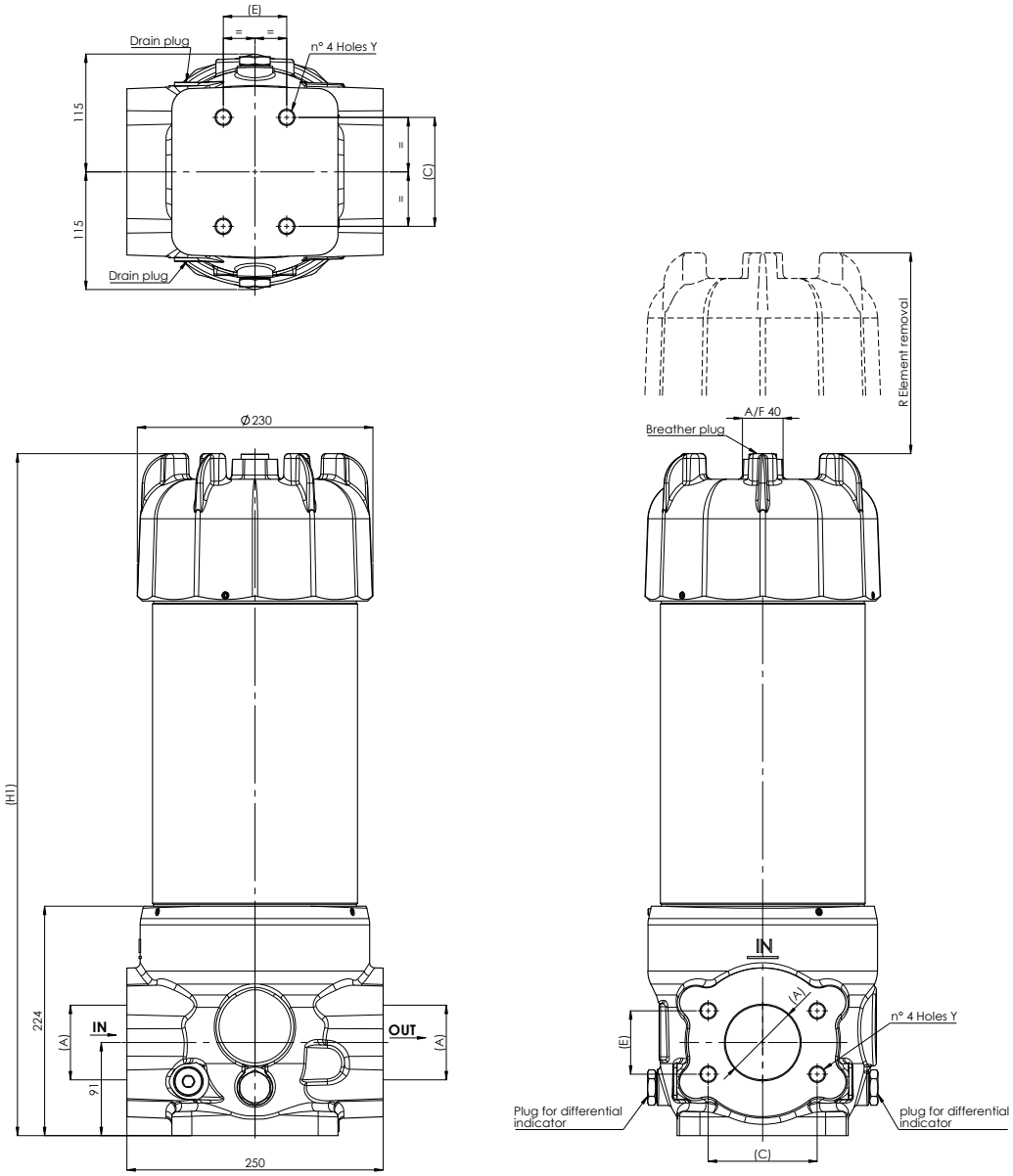
| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 30 bar<br>Fatigue rating: $10^6$ cycles 0÷30 bar<br>Burst: 90 bar |
| CONNECTIONS: | 3″ - 4″ SAE 3000 FLANGE |
| MATERIALS: | Head: anodized aluminium<br>Bowl: anodized aluminium<br>Body: anticorodal aluminium<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | no bypass<br>3 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G06 - G10<br>G15 - G25 - G40 - GW03 - GW10<br>AW40 |
| COLLAPSE PRESSURE: | 10 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

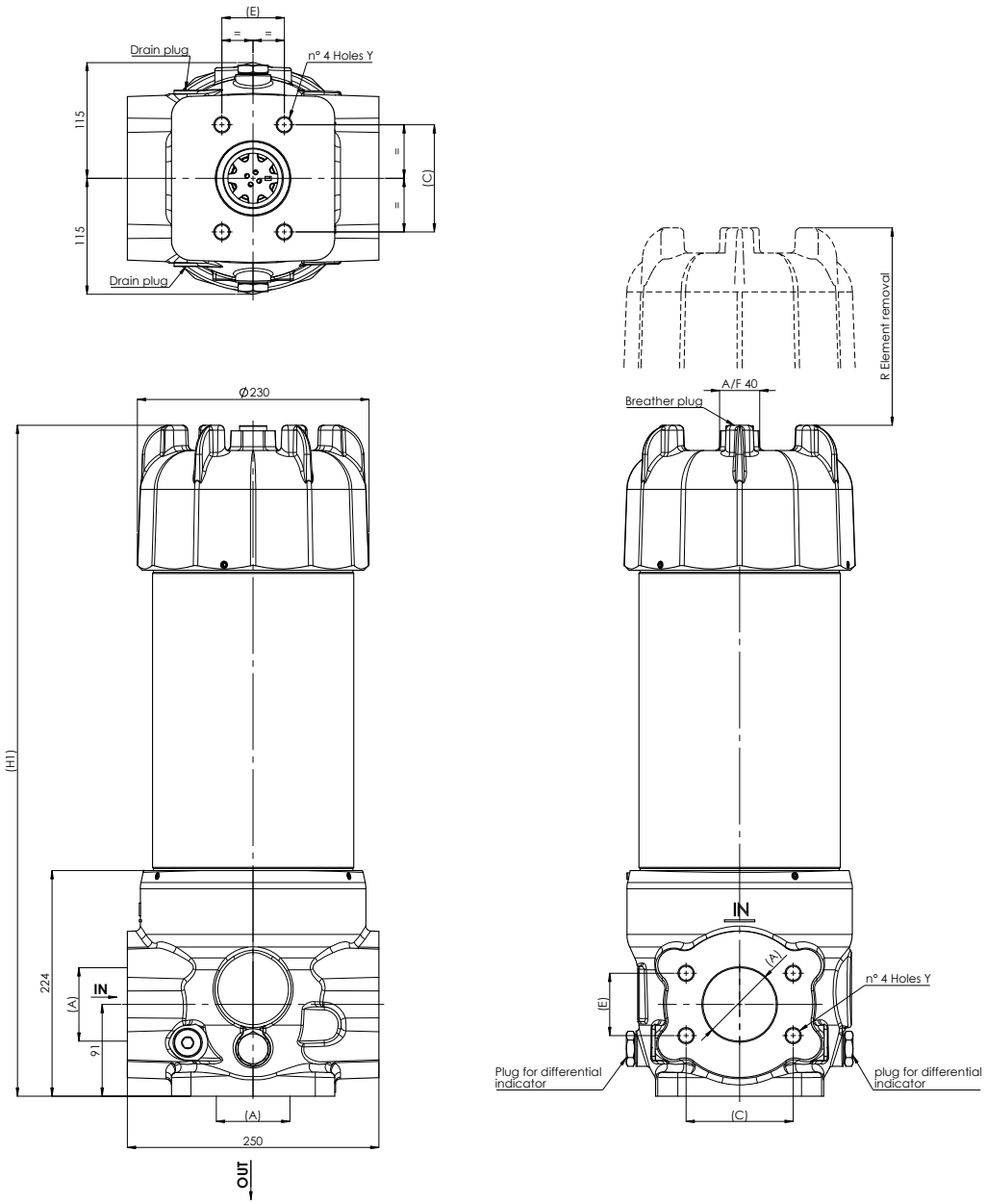
## OVERALL DIMENSIONS

### **A** Version



## OVERALL DIMENSIONS

**B** Version




## NOMINAL SIZE

| MODEL | PORT SIZE A | Y | A | C | E | H1 | R | BODY WEIGHT |
|---|---|---|---|---|---|---|---|---|
| FLR-R432 | FLANGE 3" SAE 3000-M | M16 x 24 | Ø73 | 106,38 | 61,93 | 666 | 430 | 29 Kg |
| | FLANGE 4" SAE 3000-M | | Ø99 | 130,18 | 77,77 | | | |
| FLR-R434 | FLANGE 3" SAE 3000-M | | Ø73 | 106,38 | 61,93 | 1219 | 990 | 35 Kg |
| | FLANGE 4" SAE 3000-M | | Ø99 | 130,18 | 77,77 | | | |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FLR** | **R4** | **34** | **G10** | **B** | **3** | **F10M** | **A** | **2** | **000** | **A** | **0** |
| SPARE ELEMENT | | **R4** | **34** | **G10** | | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FLR | | |
| 2. FILTER ELEMENT SERIES | R4 | | |
| 3. FILTER SIZE | 32 | | |
| | 34 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ | |
| | GW03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ + water absorbent | |
| | GW10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ + water absorbent | |
| | AW40 | water absorbent only | |
| 5. SEALS | B* | NBR | |
| *omitted for filter elements | V | FKM | |
| 6. BYPASS VALVE | 0 | no bypass or no element | |
| as separate part into the filter housing | 3 | 3 bar | |
| 7. MAIN PORT | F10M | 3" SAE 3000 FLANGE | |
| | F12M | 4" SAE 3000 FLANGE | |
| 8. PORTS LAYOUT | A | straight: horizontal inlet - horizontal outlet | |
| | B | corner: horizontal inlet - vertical outlet | |
| 9. INDICATOR PORT OPTION | 1 | indicator seat on both sides:<br>left metal plug, right plastic cap | |
| | 2 | indicator seat on both sides with metal plug | preferred option |
| 10. COMPULSORY FIELD | 000 | filtrec standard | |
| 11. CORROSION PROTECTION | A | anodized | |
| 12. OPTION | 0 | no option | |
| | 1 | internal tube for low flow rate<br>150-200 LPM | |

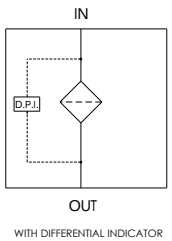
## ORDERING INFORMATION

### ACCESSORIES

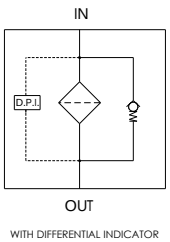
The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR<br>**(Y and F)** digit for FKM seal option<br>***LC24**=Led connector<br>For other options see clogging indicators catalogue | VX2 (VY2) | differential visual 2,7bar | |
| | EX2 (EY2) | differential electric 2,7bar | |
| | EX2L (EY2L) | differential electric 2,7bar + LC24* | |
| | VEXF2 | differential visual and electric 2,7 bar | |
| | VX5 (VY5) | differential visual 5bar | |
| | EX5 (EY5) | differential electric 5bar | |
| | EX5L (EY5L) | differential electric 5bar + LC24* | |
| | VEXF5 | differential visual and electric 5bar | |
| | VX8 (VY8) | differential visual 8bar | |
| | EX8 (EY8) | differential electric 8bar | recommended for no by-pass option |
| | EX8L (EY8L) | differential electric 8bar + LC24* | |
| | VEXF8 | differential visual and electric 8 bar | |
| | LC24 | LED connector for pressure switch | |
| PLUG | P01 | metal plug for indicator port - NBR | |
| | PF1 | metal plug for indicator port - FKM | |

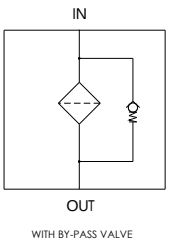
## HYDRAULIC SYMBOLS



WITH DIFFERENTIAL INDICATOR



WITH DIFFERENTIAL INDICATOR AND BY-PASS VALVE



WITH BY-PASS VALVE

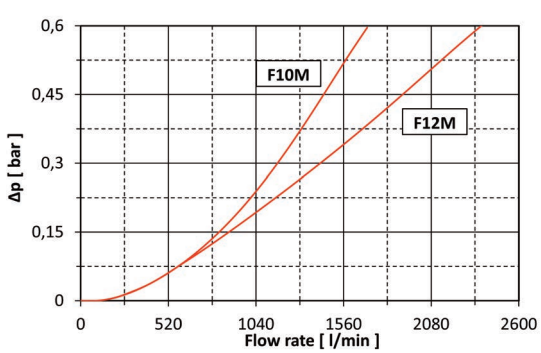
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**FLR R4 xx**



## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
1000 l/min with R434G10 and oil viscosity 46 cSt: (1000 x 0.16) / 1000 x (46 / 32) = 0,23 bar

| | G01 | G03 | G06 | G10 | G15 | G25 | G40 | GW03 | GW10 | AW40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **R432** | 1,41 | 0,6 | 0,48 | 0,33 | 0,26 | 0,22 | 0,11 | 2,31 | 1,09 | 0,43 |
| **R434** | 0,64 | 0,3 | 0,23 | 0,16 | 0,13 | 0,1 | 0,06 | 1 | 0,47 | 0,19 |

## EXAMPLE OF TOTAL Δp CALCULATION

FLRR434G10B0F10MA1000A0 with 1000 l/min and oil 46 cSt:
Housing Δp + element Δp = 0,22 bar + (1000 x 0.16 / 1000 x (46 / 32) bar = 0,45 bar

## GW03, GW10 AND AW40 QUICK SIZE TABLE

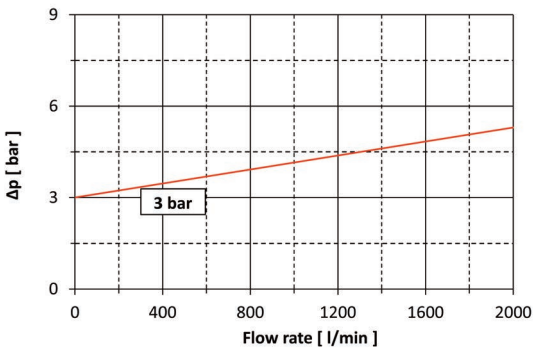
| | suggested flow rate [l/min] | GW03 and GW10 water capacity* [l] | AW40 water capacity* [l] |
|---|---|---|---|
| R432 | 48 | 0.85 | 0.97 |
| R434 | 108 | 1.89 | 2.16 |

* at final Δp = 3 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.

**FLR R4 xx**




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.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. INTERNAL TUBE FOR LOW FLOW RATE
8. VENT PLUG
9. DRAIN PLUG
10. INDICATOR PLUG
11. FILTER BODY
12. FIXING SCREWS
13. ADAPTER
14. BY-PASS ASSEMBLY

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 50 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR | FKM |
|---|---|---|
| FLR... | 06.021.00389 | 06.021.00390 |

### BOWL/BODY TIGHTENING TORQUE

| |
|---|
| screw up filter bowl/body till end |

### DRAIN/VENT TIGHTENING TORQUE

| |
|---|
| 50 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 IN and OUT ports must be connected to the hoses in the correct flow direction (an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) upward.
3. Secure to the frame the filter head (1) using the fixing holes (3).
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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Loosen vent screw (8).
3. Remove drain plug (9) in housing bottom and drain oil.
4. Unscrew filter bowl counter-clockwise.
5. Pull out the bypass assembly (14) with the handle and separate it from the filter element.
6. Lift out filter element (4).
7. Check seal on filter bowl (5). We recommend replacement in any case.
8. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element, first open the plastic bag, then push the element over the spigot in the filter head. Now remove plastic bag.

⚠ 9. Push the element carefully over the spigot, insert the bypass assembly (14) into the filter element mount the filter bowl (6) and tighten the 3 grub screws (12).
10. Tighten drain plug (9) in housing bottom.
11. Tight vent screw (8).
12. The used filter elements can not be cleaned and re-use.

www.filtrec.com
Technical information may change without notice

CT102-05/24

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# FLRD-U5 SERIES

In line medium pressure filters

In line filters for operating pressure up to 16 bar.
Flow rate up to 1600 l/min.

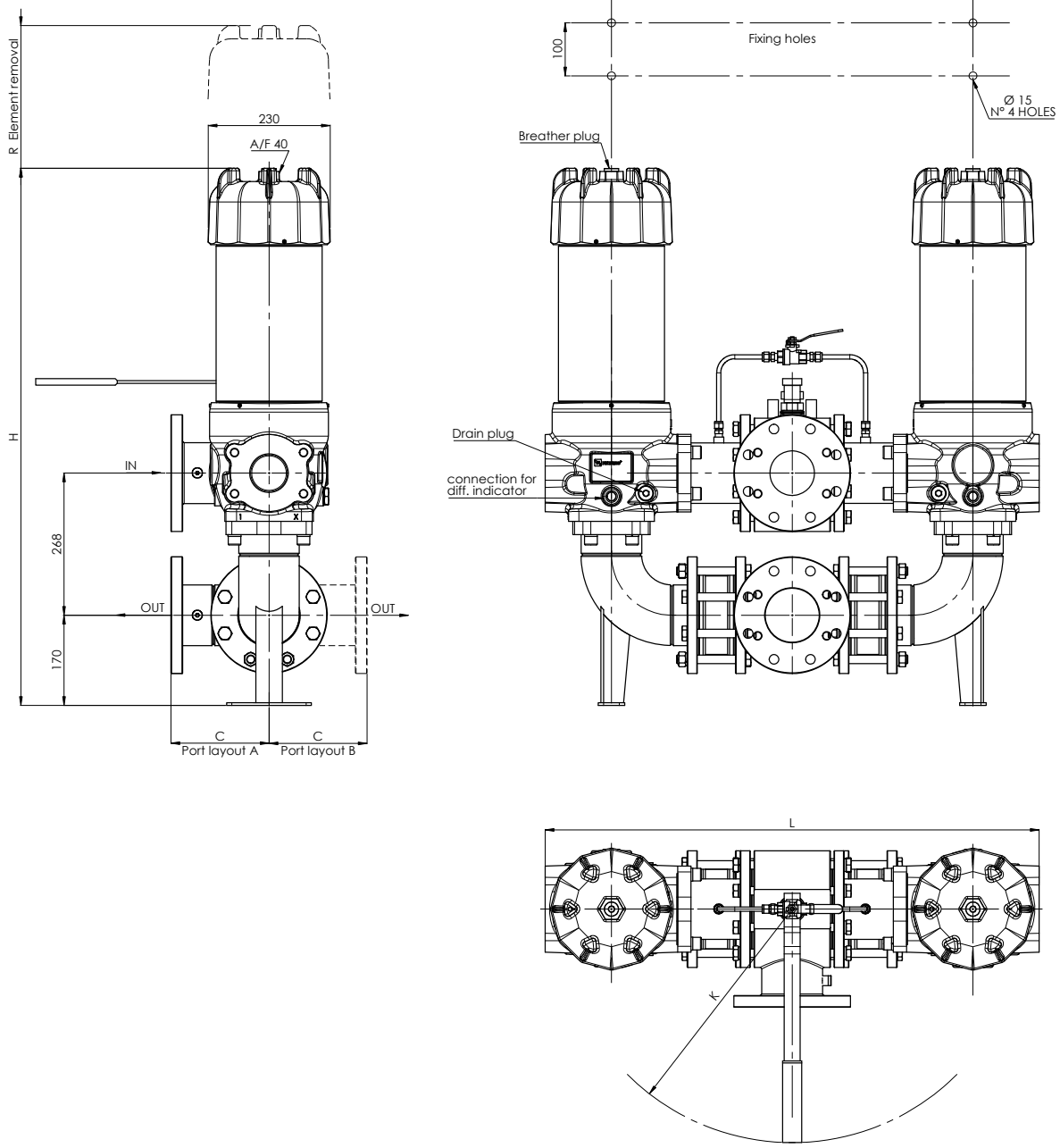


| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 16 bar |
| CONNECTIONS: | DN80 + 3" SAE 3000 FLANGE-M<br>DN100 + 4" SAE 3000 FLANGE-M |
| MATERIALS: | Head: anodized aluminium<br>Bowl: anodized aluminium<br>Body: anticorodal aluminium<br>Seal: NBR (FKM on request)<br>Manifold Welded: Carbon steel<br>3-Way valve: Steel<br>Check valve: Cast steel |
| BYPASS VALVE: | no bypass<br>1 bar<br>3 bar<br>4 bar<br>6 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G06 - G10<br>G15 - G25 - G40 - GW03 - GW10<br>AW40 |
| COLLAPSE PRESSURE: | 10 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS




## NOMINAL SIZE

| XX | MODEL | PORTS LAYOUT | PORT SIZE (IN - OUT) | L | L1 | C | K | R | H | BODY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|
| F10M | FLRD-U5-62 | A | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | 460 | 1065 | 138 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 166 Kg |
| F10M | | B | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | | | 138 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 166 Kg |
| F10M | FLRD-U5-64 | A | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | 900 | 1503 | 157 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 185 Kg |
| F10M | | B | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | | | 157 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 185 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FLRD** | **U5** | **64** | **G10** | **B** | **0** | **F12M** | **A** | **1** | **000** | **S** | **0** |
| SPARE ELEMENT | | **U5** | **64** | **G10** | **B** | **0** | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FLRD | |
| 2. FILTER ELEMENT SERIES | U5 | |
| 3. FILTER SIZE | 62 | |
| | 64 | |
| 4. FILTER MEDIA | 000 | no element |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | GW03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ + water absorbent |
| | GW10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ + water absorbent |
| | AW40 | water absorbent only |
| 5. SEALS | B | NBR |
| | V | FKM |
| 6. BYPASS VALVE<br>Inbuilt into the filter element | 0 | no bypass |
| | 1 | 1 bar |
| | 3 | 3 bar |
| | 4 | 4 bar |
| | 6 | 6 bar |
| 7. MAIN PORT | F10M | MAIN INLET AND OUTLET DN80 + 3" SAE 3000 FLANGE (METRIC SCREWS) |
| | F12M | MAIN INLET AND OUTLET DN100 + 4" SAE 3000 FLANGE (METRIC SCREWS) |
| 8. PORTS LAYOUT | A | front: inlet and outlet on the same side |
| | B | in line: inlet and outlet on the opposite side |
| 9. INDICATOR PORT OPTION | 1 | indicator seat on both sides:<br>left metal plug, right plastic cap |
| | 2 | indicator seat on both sides with metal plug |
| | 3 | indicator seat on both sides with plastic plug |
| 10. COMPULSORY FIELD | 000 | filtrec standard |
| 11. CORROSION PROTECTION | S | painted piping and valve + anodized filters |
| 12. OPTION | 0 | no option |
| | 1 | internal tube for low flow rate 150-200 LPM |

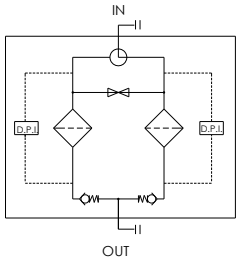
## ORDERING INFORMATION

### ACCESSORIES

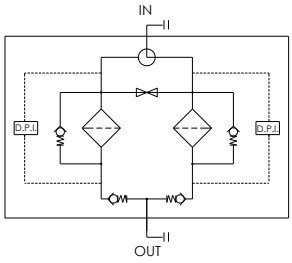
The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR<br>**(Y and F)** digit for FKM seal option<br>***LC24**=Led connector<br>For other options see clogging indicators catalogue | VX2 (VY2) | differential visual 2,7bar | |
| | EX2 (EY2) | differential electric 2,7bar | |
| | EX2L (EY2L) | differential electric 2,7bar + LC24* | |
| | VEXF2 | differential visual and electric 2,7 bar | |
| | VX5 (VY5) | differential visual 5bar | |
| | EX5 (EY5) | differential electric 5bar | |
| | EX5L (EY5L) | differential electric 5bar + LC24* | |
| | VEXF5 | differential visual and electric 5bar | |
| | VX8 (VY8) | differential visual 8bar | |
| | EX8 (EY8) | differential electric 8bar | recommended for no by-pass option |
| | EX8L (EY8L) | differential electric 8bar + LC24* | |
| | VEXF8 | differential visual and electric 8 bar | |
| | LC24 | LED connector for pressure switch | |
| PLUG | P01 | metal plug for indicator port - NBR | |
| | PF1 | metal plug for indicator port - FKM | |

## HYDRAULIC SYMBOLS




WITH DIFFERENTIAL INDICATOR




WITH DIFFERENTIAL INDICATOR
AND BY-PASS VALVE

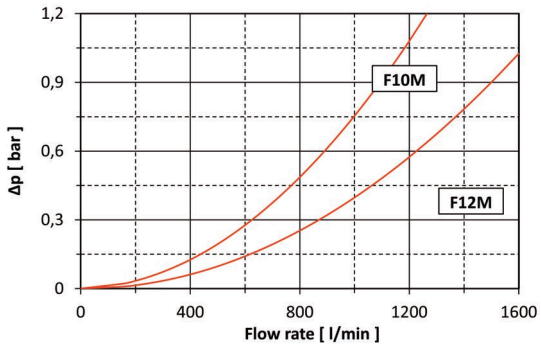
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1.0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**FLRD U5 xx**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
1000 l/min with U564G10B0 and oil viscosity 46 cSt: (1000 x 0.09 / 1000) x (46 / 32) = 0.13 bar

| | G01 | G03 | G06 | G10 | G15 | G25 | G40 | GW03 | GW10 | AW40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **U562** | 0.97 | 0.40 | 0.32 | 0.19 | 0.17 | 0.11 | 0.07 | 1.15 | 0.55 | 0.22 |
| **U564** | 0.45 | 0.19 | 0.15 | 0.09 | 0.08 | 0.06 | 0.03 | 0.58 | 0.28 | 0.11 |

## EXAMPLE OF TOTAL Δp CALCULATION

FLRDU564G10B0F12MA1000S0 with 1000 l/min and oil 46 cSt:
Housing Δp + element Δp = 0.40 bar + (1000 x 0.09 / 1000) x (46 / 32) bar = 0.53 bar

## GW03, GW10 AND AW40 QUICK SIZE TABLE

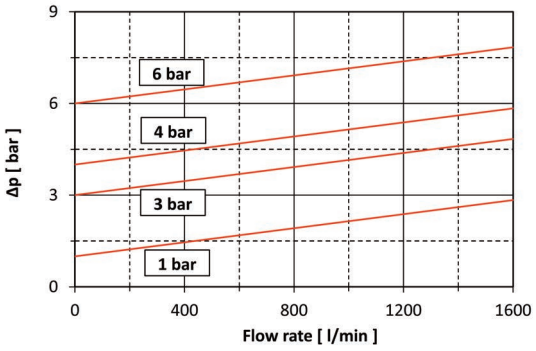
| | suggested flow rate [l/min] | GW03 and GW10 water capacity* [l] | AW40 water capacity* [l] |
|---|---|---|---|
| U562 | 75 | 1.31 | 1.50 |
| U564 | 152 | 2.65 | 3.03 |

* at final Δp = 3 bar

## BYPASS VALVE PRESSURE DROP

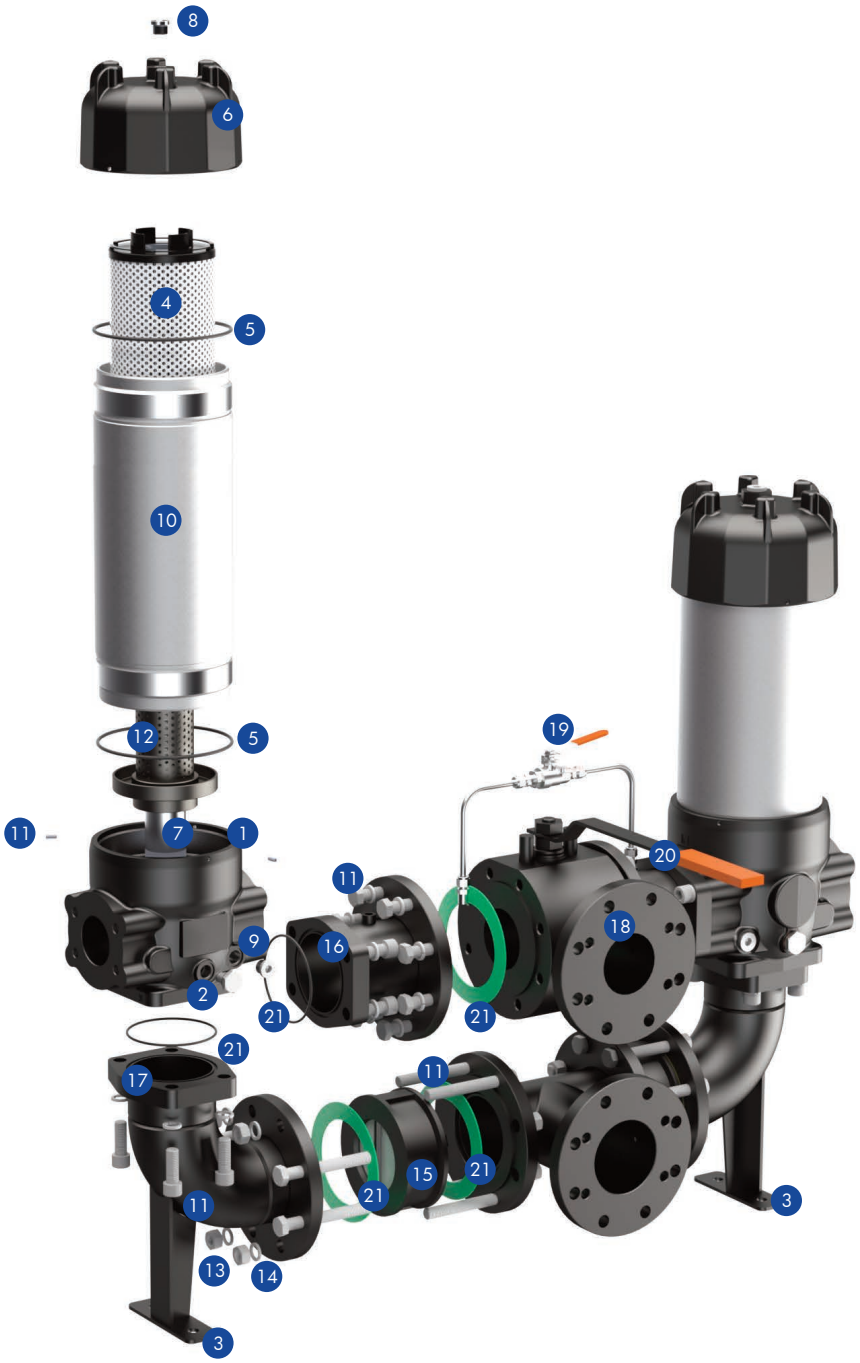
The bypass valve Δp is given by the curve of the considered model and setting, in correspondence of the flow rate value.

**FLRD U5 xx**




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$^3$.

## USER TIPS



1 FILTER HEAD
2 INDICATOR PORT
3 FIXING HOLES
4 FILTER ELEMENT
5 SEAL KIT FILTERS
6 FILTER BOWL
7 INTERNAL TUBE FOR LOW FLOW RATE
8 VENT PLUG
9 DRAIN PLUG
10 FILTER BODY
11 FIXING SCREWS
12 SUPPORT TUBE
13 NUT
14 WASHER
15 CHECK VALVE
16 FLANGE ASSEMBLY
17 FITTING ASSEMBLY
18 VALVE
19 PRESSURE EQUALIZING
20 SWITCHING LEVER
21 SEAL KIT PIPINGS

### SPARE SEAL KIT PART NUMBER

| | NBR | FKM |
|---|---|---|
| FLRD...F10... **(21)** (3" SAE / DN 80) | 06.021.00407 | 06.021.00408 |
| FLRD...F12... **(21)** (4" SAE / DN 100) | 06.021.00409 | 06.021.00410 |
| FLR... **(5)** | 06.021.00389 | 06.021.00390 |

### BOWL/BODY TIGHTENING TORQUE

screw up filter bowl/body till end

### INDICATOR/DRAIN/VENT TIGHTENING TORQUE

50 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. Secure the frame of the filter using the fixing holes (3).
2. The IN and OUT ports must be connected to the hoses in the correct flow direction.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in a easily viewable position.
6. When a electrical indicator is used, make sure that it is properly wired.

⚠
7. Never run the system with no filter element fitted.
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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠
1. Operate and hold pressure equalizing (19) lever located behind switching lever. Pull catch knob and swivel switching lever (20).
2. Loosen vent screw (8).
3. Remove drain plug (9) in housing bottom and drain oil.
4. Unscrew filter bowl counter-clockwise.
5. Lift out filter element (4).
6. Check seal on filter bowl (5). We recommend replacement in any case.
7. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element, first open the plastic bag, then push the element over the spigot in the filter head. Now remove plastic bag.

⚠
8. Push the element carefully over the spigot, mount the filter bowl (6) and tighten the 3 grub screws (11).
9. Tighten drain plug (9) in housing bottom.
10. To refill the filter chamber, operate only the pressure equalizing lever, until fluid emerges bubble-free from the vent cavity.
11. Tight vent screw. Check for leckage by actuating the equalizing lever again.
12. The used filter elements can not be cleaned and re-use.

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# FLRD-RHR SERIES

In line medium pressure filters

In line filters for operating pressure up to 16 bar.
Flow rate up to 1600 l/min.

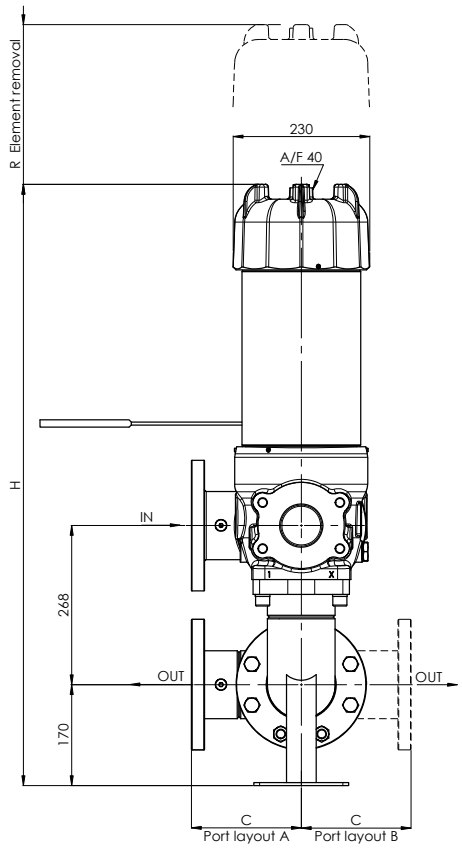


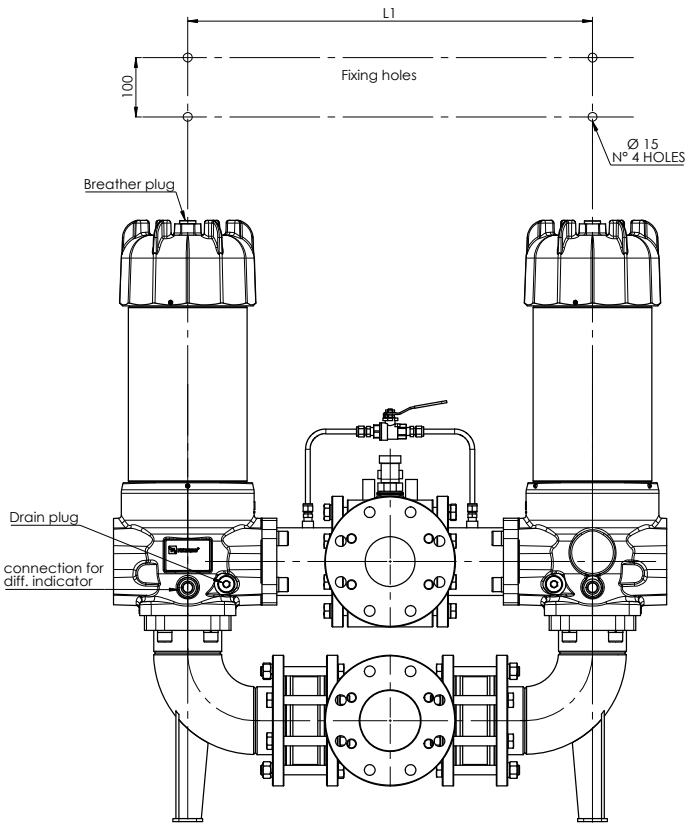
| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 16 bar |
| CONNECTIONS: | DN80 + 3" SAE 3000 FLANGE-M<br>DN100 + 4" SAE 3000 FLANGE-M |
| MATERIALS: | Head: anodized aluminium<br>Bowl: anodized aluminium<br>Body: anticorodal aluminium<br>Seal: NBR (FKM on request)<br>Manifold Welded: Carbon steel<br>3-Way valve: Steel<br>Check valve: Cast steel |
| BYPASS VALVE: | no bypass<br>1 bar<br>3 bar<br>4 bar<br>6 bar |

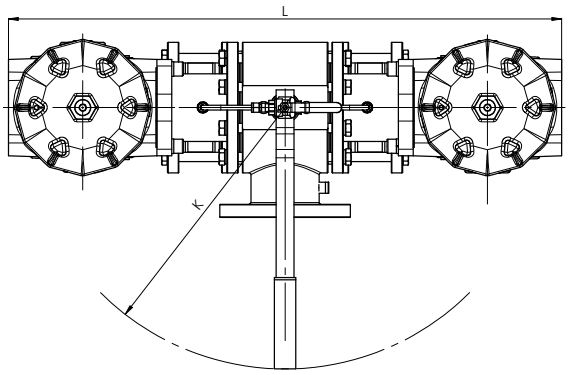
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G05 - G10<br>G15 - G20 - G40 - GW03 - GW10<br>AW40 |
| COLLAPSE PRESSURE: | 20 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS




## NOMINAL SIZE

| XX | MODEL | PORTS LAYOUT | PORT SIZE (IN - OUT) | L | L1 | C | K | R | H | BODY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|
| F10M | FLRD-RHR-1300 | A | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | 460 | 1065 | 133 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 162 Kg |
| F10M | | B | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | | | 133 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 162 Kg |
| F10M | FLRD-RHR-2600 | A | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | 900 | 1503 | 140 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 170 Kg |
| F10M | | B | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | | | 140 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 170 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FLRD** | **RHR** | **1300** | **G10** | **B** | **0** | **AB1** | **F12M** | **A** | **1** | **000** | **S** | **0** |
| SPARE ELEMENT | | **RHR** | **1300** | **G10** | **B** | **0** | **/AB1** | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FLRD | |
| 2. FILTER ELEMENT SERIES | RHR | |
| 3. FILTER SIZE | 1300 | |
| | 2600 | |
| 4. FILTER MEDIA | 000 | no element |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| | G05 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G20 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | GW03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ + water absorbent |
| | GW10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ + water absorbent |
| | AW40 | water absorbent only |
| 5. SEALS | B | NBR |
| | V | FKM |
| 6. BYPASS VALVE<br>Inbuilt into the filter element | 0 | no bypass |
| | 1 | 1 bar |
| | 3 | 3 bar |
| | 4 | 4 bar |
| | 6 | 6 bar |
| 7. ELEMENT SUFFIX<br>only for spare element<br>"/" before the three digit suffix<br>is needed | 0 | no element (empty housing config) |
| | AB1 | AbsoluteBeta filter element Øext = 143mm |
| | 012 | AbsoluteBeta high capacity filter element Øext = 153mm |
| | 005 | AbsoluteBeta filter element Øext = 143mm +safety element 50 mic for bvp |
| | 014 | AbsoluteBeta filter element Øext = 153mm +safety element 50 mic for bvp |
| 8. MAIN PORT | F10M | MAIN INLET AND OUTLET DN80 + 3" SAE 3000 FLANGE (METRIC SCREWS) |
| | F12M | MAIN INLET AND OUTLET DN100 + 4" SAE 3000 FLANGE (METRIC SCREWS) |
| 9. PORTS LAYOUT | A | front: inlet and outlet on the same side |
| | B | in line: inlet and outlet on the opposite side |
| 10. INDICATOR PORT OPTION | 1 | indicator seat on both sides:<br>left metal plug, right plastic cap |
| | 2 | indicator seat on both sides with metal plug |
| | 3 | indicator seat on both sides with plastic plug |

## ORDERING INFORMATION

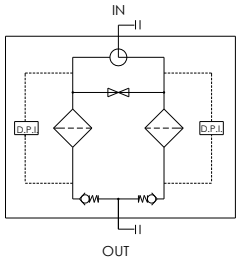
| | | |
|---|---|---|
| 11. COMPULSORY FIELD | 000 | filtrec standard |
| 12. CORROSION PROTECTION | S | painted piping and valve + anodized filters |
| 13. OPTION | 0 | no option |
| | 1 | internal tube for low flow rate 150-200 LPM |

## ACCESSORIES

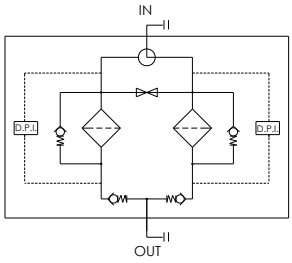
The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR<br>**(Y and F)** digit for FKM seal option<br>***LC24**=Led connector<br>For other options see clogging indicators catalogue | VX2 (VY2) | differential visual 2,7bar | |
| | EX2 (EY2) | differential electric 2,7bar | |
| | EX2L (EY2L) | differential electric 2,7bar + LC24* | |
| | VEXF2 | differential visual and electric 2,7 bar | |
| | VX5 (VY5) | differential visual 5bar | |
| | EX5 (EY5) | differential electric 5bar | |
| | EX5L (EY5L) | differential electric 5bar + LC24* | |
| | VEXF5 | differential visual and electric 5bar | |
| | VX8 (VY8) | differential visual 8bar | |
| | EX8 (EY8) | differential electric 8bar | recommended for no by-pass option |
| | EX8L (EY8L) | differential electric 8bar + LC24* | |
| | VEXF8 | differential visual and electric 8 bar | |
| | LC24 | LED connector for pressure switch | |
| PLUG | P01 | metal plug for indicator port - NBR | |
| | PF1 | metal plug for indicator port - FKM | |

## HYDRAULIC SYMBOLS




WITH DIFFERENTIAL INDICATOR




WITH DIFFERENTIAL INDICATOR
AND BY-PASS VALVE

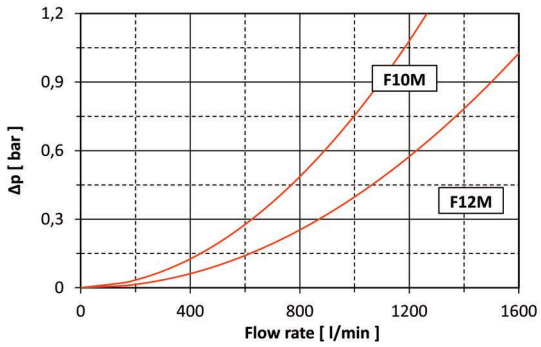
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1.0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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.

## HOUSING PRESSURE DROP

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

**FLRD RHR xx**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
1000 l/min with RHR1300G10B0/AB1 and oil viscosity 46 cSt: (1000 x 0.33 / 1000) x (46 / 32) = 0.47 bar

| | G01 | G03 | G05 | G10 | G15 | G20 | G40 | GW03 | GW10 | AW40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **RHR1300...AB1-005*** | 1.70 | 0.70 | 0.57 | 0.33 | 0.30 | 0.20 | 0.12 | 2.10 | 0.99 | 0.39 |
| **RHR1300...012-014*** | 1.13 | 0.47 | 0.38 | 0.22 | 0.20 | 0.13 | 0.08 | 1.40 | 0.66 | 0.26 |
| **RHR2600..AB1-005*** | 0.82 | 0.34 | 0.27 | 0.16 | 0.14 | 0.10 | 0.06 | 1.02 | 0.48 | 0.19 |
| **RHR2600...012-014*** | 0.55 | 0.23 | 0.18 | 0.11 | 0.09 | 0.07 | 0.04 | 0.68 | 0.32 | 0.13 |

*= 005 and 014 element option, suggested for flow up to 500 l/min, for different flow rate please contact Filtrec Customer Service

## EXAMPLE OF TOTAL Δp CALCULATION

FLRDRHR1300G10B0AB1F12MA1000S0 with 1000 l/min and oil 46 cSt:
Housing Δp + element Δp = 0.40 bar + (1000 x 0.33 / 1000) x (46 / 32) bar = 0.87 bar

## GW03, GW10 AND AW40 QUICK SIZE TABLE

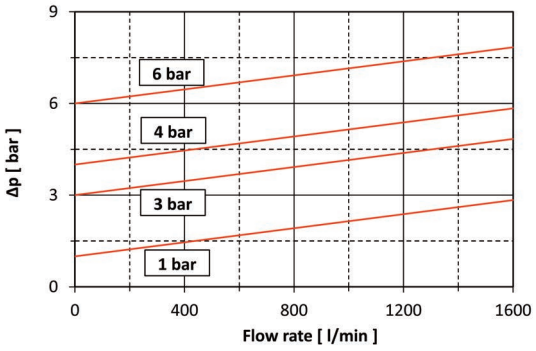
| | suggested flow rate [l/min] | GW03 and GW10 water capacity* [l] | AW40 water capacity* [l] |
|---|---|---|---|
| **RHR1300...AB1-005** | 51 | 0.90 | 1.03 |
| **RHR1300...012-014** | 65 | 1.15 | 1.31 |
| **RHR2600..AB1-005** | 99 | 1.74 | 1.98 |
| **RHR2600...012-014** | 130 | 2.28 | 2.60 |

* at final Δp = 3 bar

## BYPASS VALVE PRESSURE DROP

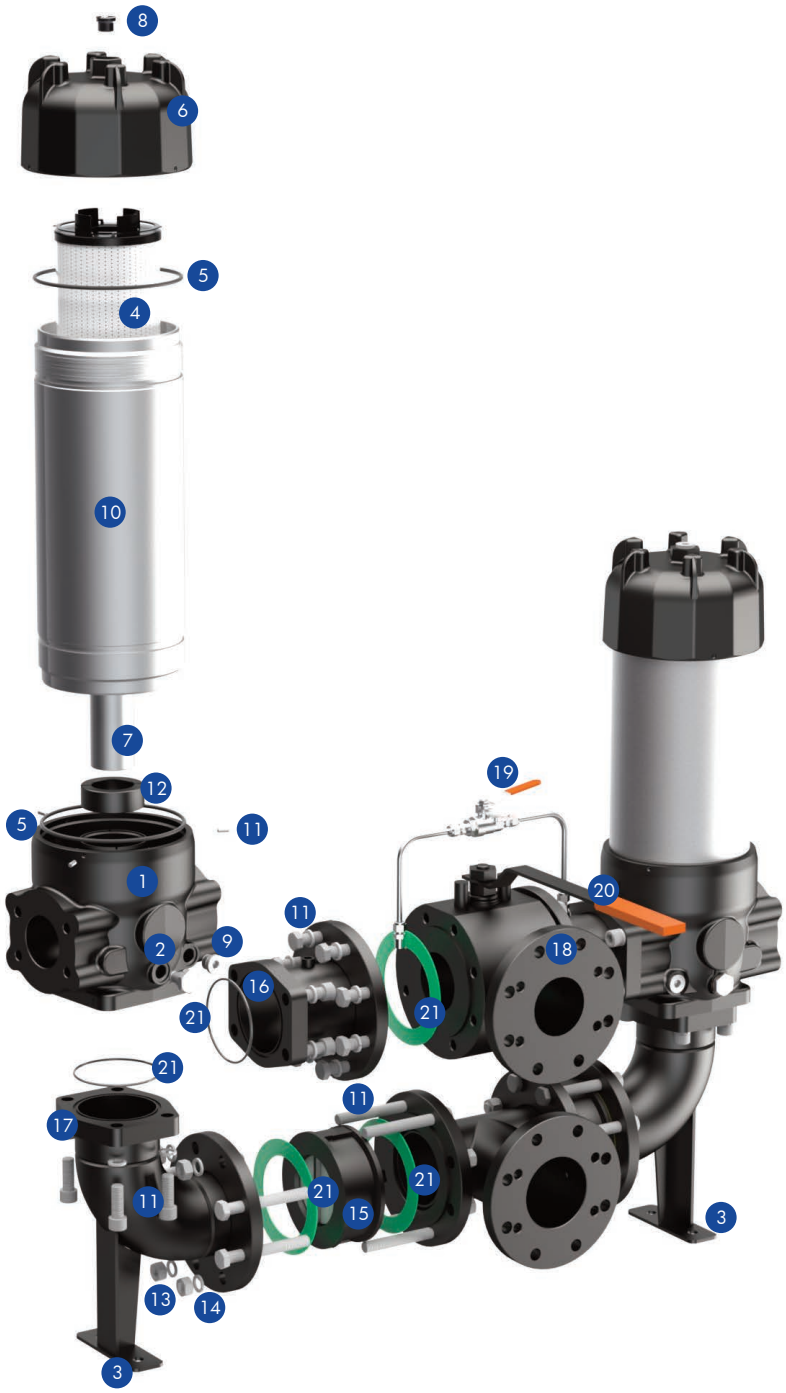
The bypass valve Δp is given by the curve of the considered model and setting, in correspondence of the flow rate value.

**FLRD RHR xx**




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$^3$.

## USER TIPS



1 FILTER HEAD
2 INDICATOR PORT
3 FIXING HOLES
4 FILTER ELEMENT
5 SEAL KIT FILTERS
6 FILTER BOWL
7 INTERNAL TUBE FOR LOW FLOW RATE
8 VENT PLUG
9 DRAIN PLUG
10 FILTER BODY
11 FIXING SCREWS
12 ADAPTER
13 NUT
14 WASHER
15 CHECK VALVE
16 FLANGE ASSEMBLY
17 FITTING ASSEMBLY
18 VALVE
19 PRESSURE EQUALIZING
20 SWITCHING LEVER
21 SEAL KIT PIPINGS

### SPARE SEAL KIT PART NUMBER

| | NBR | FKM |
|---|---|---|
| FLRD...F10... **(21)** (3" SAE / DN 80) | 06.021.00407 | 06.021.00408 |
| FLRD...F12... **(21)** (4" SAE / DN 100) | 06.021.00409 | 06.021.00410 |
| FLR... **(5)** | 06.021.00389 | 06.021.00390 |

### BOWL/BODY TIGHTENING TORQUE

screw up filter bowl/body till end

### INDICATOR/DRAIN/VENT TIGHTENING TORQUE

50 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. Secure the frame of the filter using the fixing holes (3).
2. The IN and OUT ports must be connected to the hoses in the correct flow direction.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in a easily viewable position.
6. When a electrical indicator is used, make sure that it is properly wired.

⚠
7. Never run the system with no filter element fitted.
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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠
1. Operate and hold pressure equalizing (19) lever located behind switching lever. Pull catch knob and swivel switching lever (20).
2. Loosen vent screw (8).
3. Remove drain plug (9) in housing bottom and drain oil.
4. Unscrew filter bowl counter-clockwise.
5. Lift out filter element (4).
6. Check seal on filter bowl (5). We recommend replacement in any case.
7. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element, first open the plastic bag, then push the element over the spigot in the filter head. Now remove plastic bag.

⚠
8. Push the element carefully over the spigot, mount the filter bowl (6) and tighten the 3 grub screws (11).
9. Tighten drain plug (9) in housing bottom.
10. To refill the filter chamber, operate only the pressure equalizing lever, until fluid emerges bubble-free from the vent cavity.
11. Tight vent screw. Check for leckage by actuating the equalizing lever again.
12. The used filter elements can not be cleaned and re-use.

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Technical information may change without notice

CT117-05/24

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# FLRD-R4 SERIES

In line medium pressure filters

In line filters for operating pressure up to 16 bar.
Flow rate up to 1600 l/min.

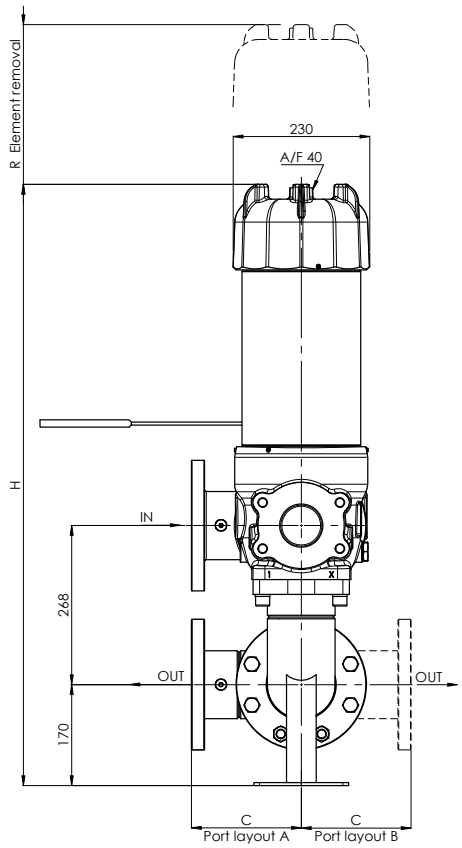


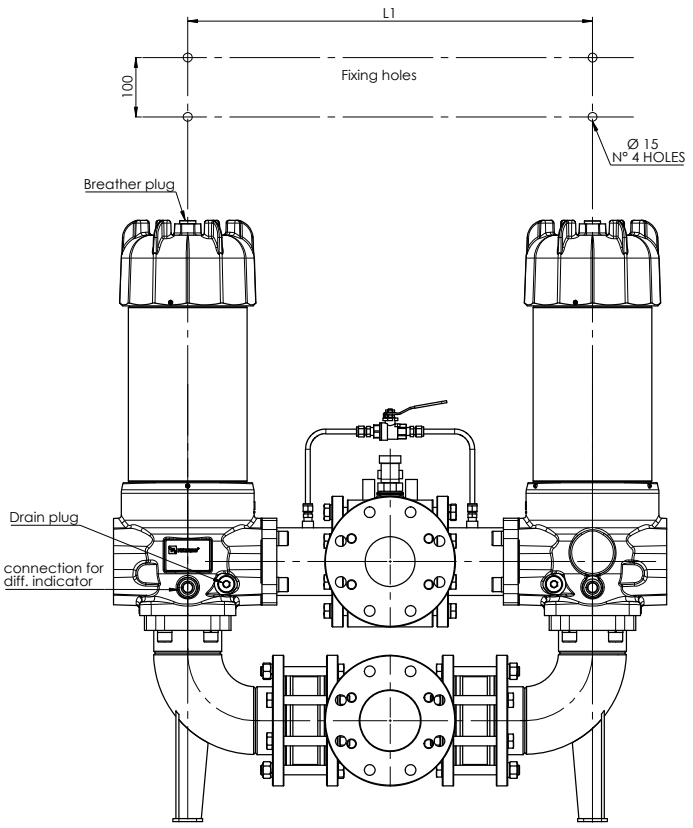
| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 16 bar |
| CONNECTIONS: | DN80 + 3" SAE 3000 FLANGE-M<br>DN100 + 4" SAE 3000 FLANGE-M |
| MATERIALS: | Head: anodized aluminium<br>Bowl: anodized aluminium<br>Body: anticorodal aluminium<br>Seal: NBR (FKM on request)<br>Manifold Welded: Carbon steel<br>3-Way valve: Steel<br>Check valve: Cast steel |
| BYPASS VALVE: | no bypass<br>3 bar |

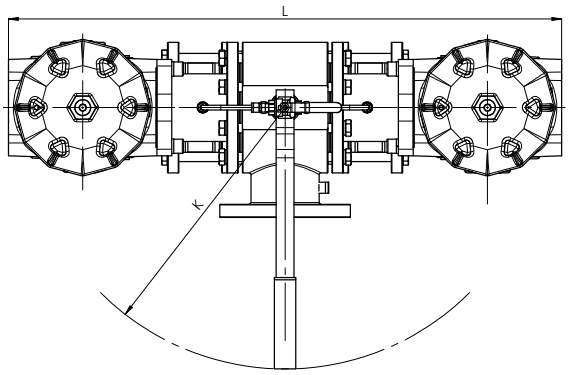
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Fibreglass: G01 - G03 - G06 - G10<br>G15 - G25 - G40 - GW03 - GW10<br>AW40 |
| COLLAPSE PRESSURE: | 10 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS




## NOMINAL SIZE

| XX | MODEL | PORTS LAYOUT | PORT SIZE (IN - OUT) | L | L1 | C | K | R | H | BODY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|
| F10M | FLRD-R4-32 | A | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | 430 | 1013 | 132 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 160 Kg |
| F10M | | B | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | | | 132 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 160 Kg |
| F10M | FLRD-R4-34 | A | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | 990 | 1566 | 150 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 180 Kg |
| F10M | | B | DN80 + 3" SAE 3000 FLANGE-M | 870 | 588 | 175 | 380 | | | 150 Kg |
| F12M | | | DN100 + 4" SAE 3000 FLANGE-M | 932 | 682 | 185 | 440 | | | 180 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FLRD** | **R4** | **34** | **G10** | **B** | **0** | **F12M** | **A** | **1** | **000** | **S** | **0** |
| SPARE ELEMENT | | **R4** | **34** | **G10** | | | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FLRD | |
| 2. FILTER ELEMENT SERIES | R4 | |
| 3. FILTER SIZE | 32 | |
| | 34 | |
| 4. FILTER MEDIA | 000 | no element |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 1.000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | GW03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ + water absorbent |
| | GW10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ + water absorbent |
| | AW40 | water absorbent only |
| 5. SEALS<br>*omitted for filter elements | B* | NBR |
| | V | FKM |
| 6. BYPASS VALVE<br>as separate part into the filter housing | 0 | no bypass |
| | 3 | 3 bar |
| 7. MAIN PORT | F10M | MAIN INLET AND OUTLET DN80 + 3" SAE 3000 FLANGE (METRIC SCREWS) |
| | F12M | MAIN INLET AND OUTLET DN100 + 4" SAE 3000 FLANGE (METRIC SCREWS) |
| 8. PORTS LAYOUT | A | front: inlet and outlet on the same side |
| | B | in line: inlet and outlet on the opposite side |
| 9. INDICATOR PORT OPTION | 1 | indicator seat on both sides:<br>left metal plug, right plastic cap |
| | 2 | indicator seat on both sides with metal plug |
| | 3 | indicator seat on both sides with plastic plug |
| 10. COMPULSORY FIELD | 000 | filtrec standard |
| 11. CORROSION PROTECTION | S | painted piping and valve + anodized filters |
| 12. OPTION | 0 | no option |
| | 1 | internal tube for low flow rate 150-200 LPM |

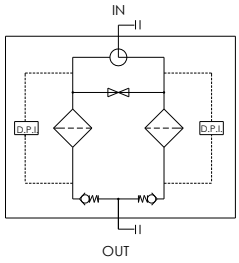
## ORDERING INFORMATION

### ACCESSORIES

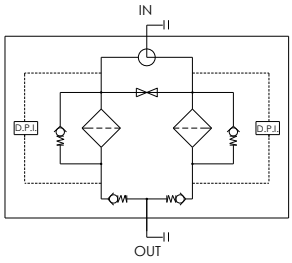
The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR<br>**(Y and F)** digit for FKM seal option<br>***LC24**=Led connector<br>For other options see clogging indicators catalogue | VX2 (VY2) | differential visual 2,7bar | |
| | EX2 (EY2) | differential electric 2,7bar | |
| | EX2L (EY2L) | differential electric 2,7bar + LC24* | |
| | VEXF2 | differential visual and electric 2,7 bar | |
| | VX5 (VY5) | differential visual 5bar | |
| | EX5 (EY5) | differential electric 5bar | |
| | EX5L (EY5L) | differential electric 5bar + LC24* | |
| | VEXF5 | differential visual and electric 5bar | |
| | VX8 (VY8) | differential visual 8bar | |
| | EX8 (EY8) | differential electric 8bar | recommended for no by-pass option |
| | EX8L (EY8L) | differential electric 8bar + LC24* | |
| | VEXF8 | differential visual and electric 8 bar | |
| | LC24 | LED connector for pressure switch | |
| PLUG | P01 | metal plug for indicator port - NBR | |
| | PF1 | metal plug for indicator port - FKM | |

## HYDRAULIC SYMBOLS




WITH DIFFERENTIAL INDICATOR




WITH DIFFERENTIAL INDICATOR
AND BY-PASS VALVE

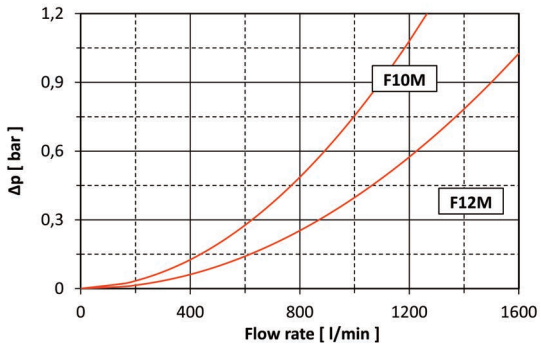
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1.0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**FLRD R4 xx**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
1000 l/min with R434G10 and oil viscosity 46 cSt: (1000 x 0.16 / 1000) x (46 / 32) = 0.23 bar

| | G01 | G03 | G06 | G10 | G15 | G25 | G40 | GW03 | GW10 | AW40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **R432** | 1.41 | 0.60 | 0.48 | 0.33 | 0.26 | 0.22 | 0.11 | 2.31 | 1.09 | 0.43 |
| **R434** | 0.64 | 0.30 | 0.23 | 0.16 | 0.13 | 0.10 | 0.06 | 1.00 | 0.47 | 0.19 |

## EXAMPLE OF TOTAL Δp CALCULATION

FLRDR434G10B0F12MA1000S0 with 1000 l/min and oil 46 cSt:
Housing Δp + element Δp = 0.40 bar + (1000 x 0.16 / 1000) x (46 / 32) bar = 0.63 bar

## GW03, GW10 AND AW40 QUICK SIZE TABLE

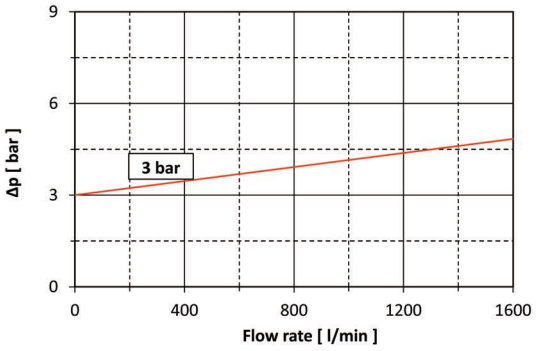
| | suggested flow rate [l/min] | GW03 and GW10 water capacity* [l] | AW40 water capacity* [l] |
|---|---|---|---|
| R432 | 48 | 0.85 | 0.97 |
| R434 | 108 | 1.89 | 2.16 |

* at final Δp = 3 bar

## BYPASS VALVE PRESSURE DROP

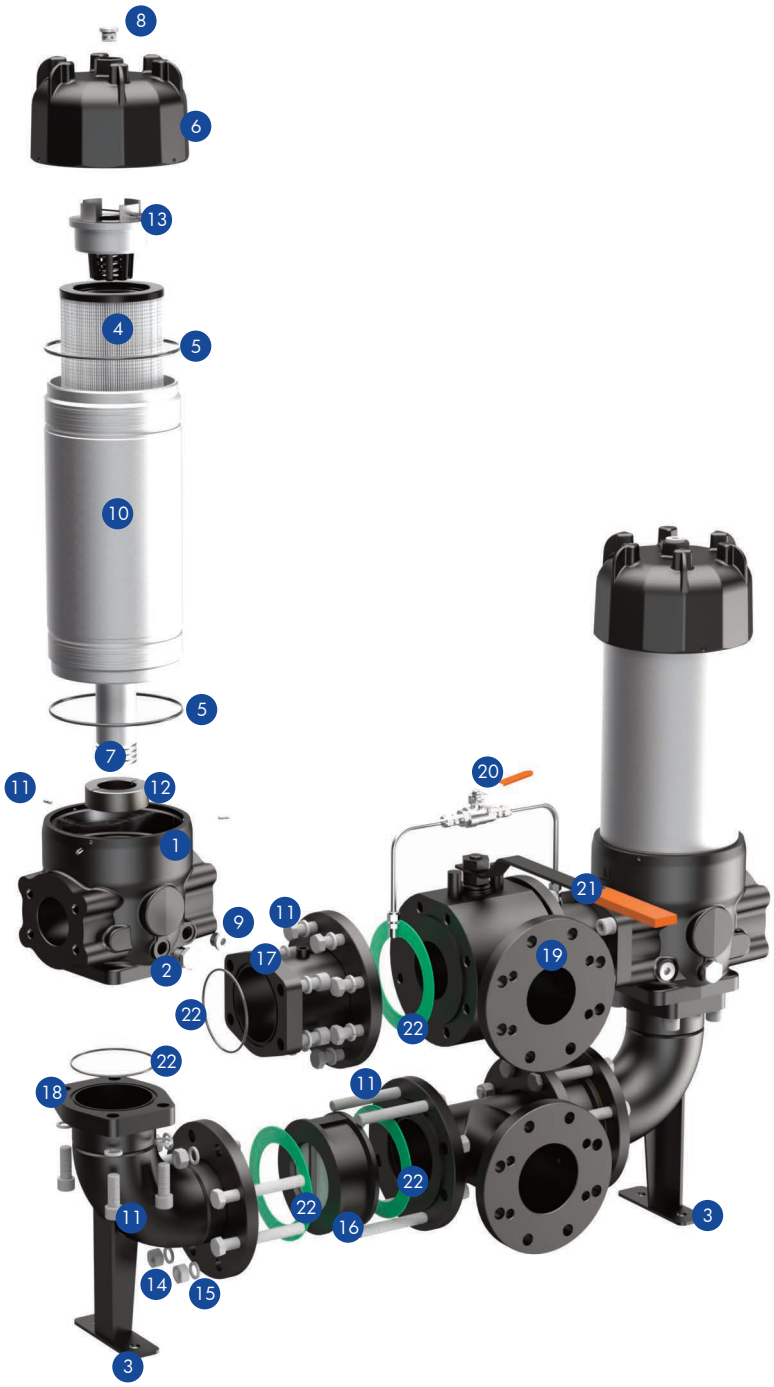
The bypass valve Δp is given by the curve of the considered model and setting, in correspondence of the flow rate value.

**FLRD R4 xx**




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$^3$.

## USER TIPS



1 FILTER HEAD
2 INDICATOR PORT
3 FIXING HOLES
4 FILTER ELEMENT
5 SEAL KIT FILTERS
6 FILTER BOWL
7 INTERNAL TUBE FOR LOW FLOW RATE
8 VENT PLUG
9 DRAIN PLUG
10 FILTER BODY
11 FIXING SCREWS
12 ADAPTER
13 BY-PASS ASSEMBLY
14 NUT
15 WASHER
16 CHECK VALVE
17 FLANGE ASSEMBLY
18 FITTING ASSEMBLY
19 VALVE
20 PRESSURE EQUALIZING
21 SWITCHING LEVER
22 SEAL KIT PIPINGS

### SPARE SEAL KIT PART NUMBER

| | NBR | FKM |
|---|---|---|
| FLRD...F10... **(22)** (3" SAE / DN 80) | 06.021.00407 | 06.021.00408 |
| FLRD...F12... **(22)** (4" SAE / DN 100) | 06.021.00409 | 06.021.00410 |
| FLR... **(5)** | 06.021.00389 | 06.021.00390 |

### BOWL/BODY TIGHTENING TORQUE

screw up filter bowl/body till end

### INDICATOR/DRAIN/VENT TIGHTENING TORQUE

50 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. Secure the frame of the filter using the fixing holes (3).
2. The IN and OUT ports must be connected to the hoses in the correct flow direction.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in a easily viewable position.
6. When a electrical indicator is used, make sure that it is properly wired.

⚠
7. Never run the system with no filter element fitted.
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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠
1. Operate and hold pressure equalizing (20) lever located behind switching lever. Pull catch knob and swivel switching lever (21).
2. Loosen vent screw (8).
3. Remove drain plug (9) in housing bottom and drain oil.
4. Unscrew filter bowl counter-clockwise.
5. Pull out the bypass assembly (13) with the handle and separate it from the filter element.
6. Lift out filter element (4).
7. Check seal on filter bowl (5). We recommend replacement in any case.
8. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element, first open the plastic bag, then push the element over the spigot in the filter head. Now remove plastic bag.

⚠
9. Push the element carefully over the spigot, insert the bypass assembly (13) into the filter element mount the filter bowl (6) and tighten the 3 grub screws (11).
10. Tighten drain plug (9) in housing bottom.
11. To refill the filter chamber, operate only the pressure equalizing lever, until fluid emerges bubble-free from the vent cavity.
12. Tight vent screw. Check for leckage by actuating the equalizing lever again.
13. The used filter elements can not be cleaned and re-use.

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# FDD040 SERIES

Duplex low pressure filters
Sizes 040 to 400 according to DIN 24550

Inline filters for operating pressure up to 63 bar, flow rate up to 400 l/min.
Duplex construction for uninterrupted service. Change over valve on upstream side, ergonomic switch-over handle with safety lock and pressure compensation.

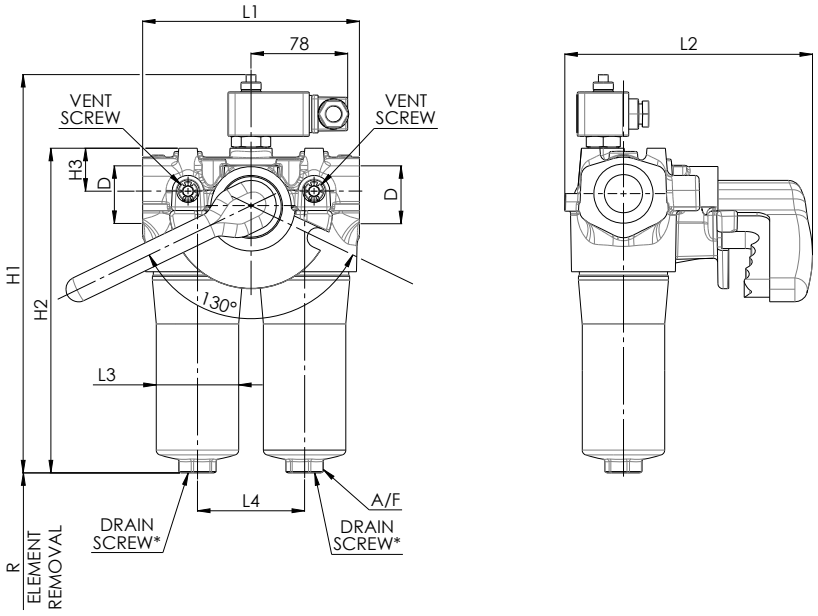



| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | max operating 63 bar sizes 040 to 100<br>max operating 32 bar sizes 160 to 400 |
| CONNECTIONS: | G 1"<br>G 1 1/2" |
| MATERIALS: | Head: aluminium alloy<br>Bowl : aluminium alloy; painted<br>carbon steel for size FDD040XD400 only<br>Seals: NBR |
| BYPASS VALVE: | 3,5 bar |

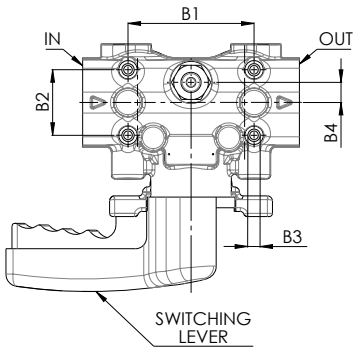
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | glassfiber G01 - G03 - G06 - G10 -G15 G25 |
| COLLAPSE PRESSURE: | 20 bar<br>210 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS



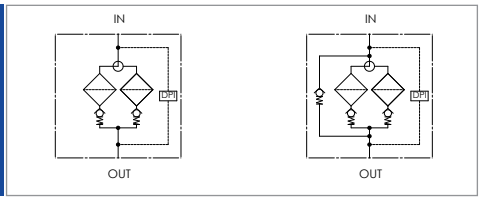

* AVAILABLE FOR SIZE FDD040XD400 ONLY




## NOMINAL SIZE

| MODEL | B1 | B2 | B3 | B4 | D | L1 | L2 | L3 | L4 | H1 | H2 | H3 | A/F | R | WEIGH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FDD040XD040 | | | | | | | | | | 258 | 200 | | | | 2,6 Kg |
| FDD040XD063 | 100 | 52 | M8x15 | 16 | G 1" | 172 | 189 | 66 | 85 | 316 | 258 | 34 | 27 | 80 | 2,9 Kg |
| FDD040XD100 | | | | | | | | | | 406 | 348 | | | | 3,3 Kg |
| FDD040XD160 | | | | | | | | | | 347 | 284 | | | | 8,6 Kg |
| FDD040XD250 | 210 | 62 | M10x20 | 19 | G 1 1/2" | 283 | 252 | 109 | 140 | 448 | 385 | 42 | 32 | 110 | 9,5 Kg |
| FDD040XD400 | | | | | | | | | | 590 | 527 | | | | 19,0 Kg |

HYDRAULIC SYMBOL



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FDD040** | **XD** | **100** | **G10** | **A** | **B** | **B5** | **D** | **S** | **000** | **S** | **0** |
| SPARE ELEMENT | | **XD** | **100** | **G10** | **A** | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FDD040 | | |
| 2. FILTER ELEMENT SERIES | XD | | |
| 3. FILTER SIZE | 040-063-100 | | |
| | 160-250-400 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} > 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | |
| | B | 210 bar | |
| 6. SEALS | B | NBR | |
| 7. CONNECTIONS | B5 | G 1" | for sizes 040-063-100 |
| | B7 | G 1 1/2" | for sizes 160-250-400 |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 3,5 bar | |
| 9. INDICATOR PORT OPTION | S | with metal plug | |
| 10. COMPULSORY FIELD | 000 | filtrec standard | |
| 11. CORROSION PROTECTION | S | standard | |
| 12. OPTION | 0 | no option | |

## ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR | FG2 | differential visual and electric 2,2 bar | |
| For indicators detail see service instructions | FG5 | differential visual and electric 5 bar | recommended for no bypass option |
| | FG8 | differential visual and electric 8 bar | |

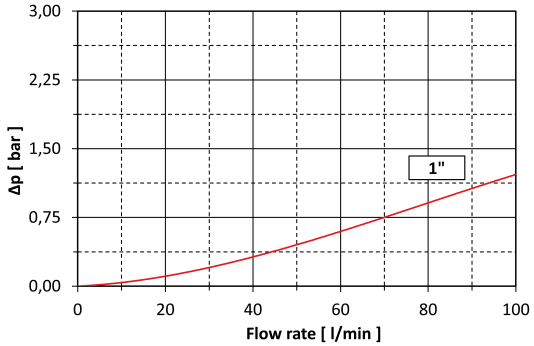
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

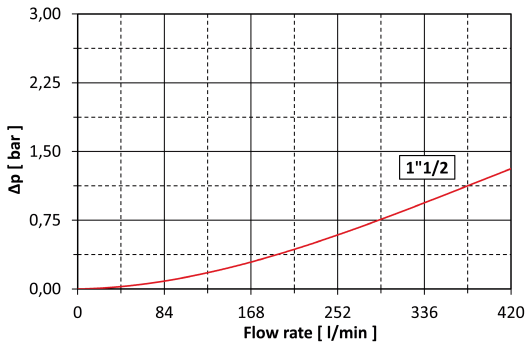
## HOUSING PRESSURE DROP

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

**FDD040 XD040-063-100**




**FDD040 XD160-250-400**




## ELEMENT PRESSURE DROP (filter elements 20 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 40 l/min with XD100G10A and oil viscosity 46 cSt: 40 x 3,6/1000 x 46/32 = 0,21 bar.

| | G01A | G03A | G06A | G10A | G15A | G25A |
|---|---|---|---|---|---|---|
| **XD040** | 22 | 15,4 | 13,5 | 7,88 | 6,75 | 5,63 |
| **XD063** | 16,15 | 11,31 | 9 | 5,54 | 4,85 | 4,15 |
| **XD100** | 12 | 8,4 | 5,85 | 3,6 | 3,15 | 2,7 |
| **XD160** | 7,81 | 5,47 | 4,47 | 2,63 | 1,84 | 1,49 |
| **XD250** | 5,2 | 3,64 | 2,61 | 1,68 | 0,91 | 0,86 |
| **XD400** | 3,25 | 2,28 | 1,52 | 1,12 | 0,64 | 0,57 |

### EXAMPLE OF TOTAL Δp CALCULATION

FDD040XD100G10ABB5DS000S0 with **40** l/min and oil **46** cSt:
Housing Δp 0,38 bar + element Dp 0,21 bar (40 x 3,6/1000 x 46/32) = total assembly Δp 0,59 bar.

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 40 l/min with XD100G10B and oil viscosity 46 cSt: 40 x 6,75/1000 x 46/32 = 0,39 bar.

| | G01B | G03B | G06B | G10B | G15B | G25B |
|---|---|---|---|---|---|---|
| **XD040** | 34,97 | 24,48 | 22,5 | 14,63 | 12,38 | 10,13 |
| **XD063** | 29,23 | 20,46 | 16,62 | 10,38 | 8,65 | 6,92 |
| **XD100** | 19 | 13,3 | 10,35 | 6,75 | 5,85 | 4,95 |
| **XD160** | 8,13 | 5,69 | 4,74 | 3,37 | 2,81 | 2,25 |
| **XD250** | 5,4 | 3,78 | 3,06 | 2,52 | 2,16 | 1,8 |
| **XD400** | 3,38 | 2,36 | 1,94 | 1,57 | 1,29 | 1,01 |

## EXAMPLE OF TOTAL Δp CALCULATION

FDD040XD100G10ABB5DS000S0 with **40** l/min and oil **46** cSt:
Housing Δp 0,38 bar + element Dp 0,39 bar (40 x 6,75/1000 x 46/32) = total assembly Δp 0,77 bar.

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$^3$.

## USER TIPS




1. FILTER HEAD
2. INDICATOR
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. VENT

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 50 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR |
|---|---|
| XD040-063-100 | 06.021.00322 |
| XD160-250-400 | 06.021.00324 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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. Never run the system with no filter element fitted.

⚠ 9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Operate and hold pressure equalizing lever located behind switching lever. Pull catch knob and swivel switching lever. Engage the catch on the clear filter side. Place through or drip pan underneath to collect leaving oil.
2. Loosen vent screw of the filter side not in use by 2-3 turns; max. until contact is made with the safety stop.
3. Unscrew filter bowl by rotating same counter-clockwise and clean with a suitable medium.
Warning: The shift lever may not, from now until the screwing back in of the filter bowl, be activated under any circumstances!
4. Remove filter element with a side-to-side motion.
5. Check O-ring on the filter bowl for damage and replace, if necessary.

⚠ 6. Make sure that the order number on the spare element corresponds to the oder number of the filter name-plate.
7. Lightly lubricate the threads of the filter bowl and screw into the filter head.
8. To refill the filter chamber, operate only the pressure equalizing lever (leave the switching lever arrested in its catch) long enough for the medium to emerge bubble-free from the vent bore.
9. Tighten vent screw and check filter for leaks by operating the pressure equalizing lever once again.

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Technical information may change without notice

CT83-rev.07/24

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# FDD040 SERIES

Duplex low pressure filters
Sizes 630 to 1000 according to DIN 24550

Inline filters for operating pressure up to 40 bar, flow rate up to 1000 l/min.
Duplex construction for uninterrupted service. Change over valve on upstream side, ergonomic switch-over handle with safety lock and pressure compensation.

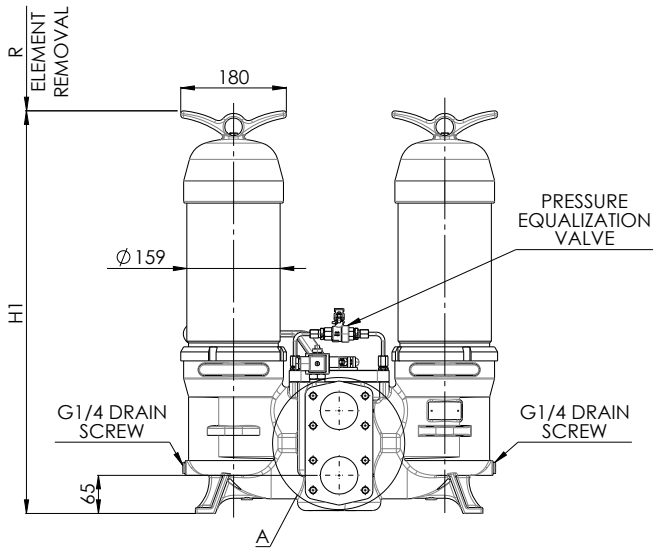


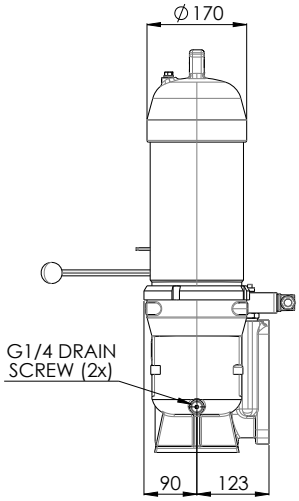

| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | max operating 40 bar |
| CONNECTIONS: | SAE Flange 2 1/2" 3000 psi |
| MATERIALS: | Body: painted carbon steel<br>Head: painted cast iron<br>Bowl: painted cast iron<br>Seals: NBR |
| BYPASS VALVE: | 3,5 bar |

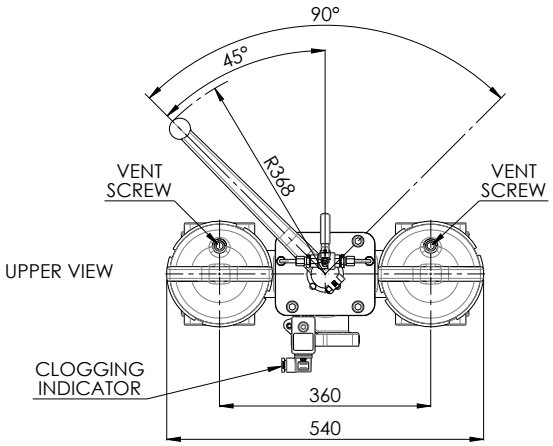
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | glassfiber G01 - G03 - G06 - G10 -G15 G25 |
| COLLAPSE PRESSURE: | 20 bar<br>210 bar |

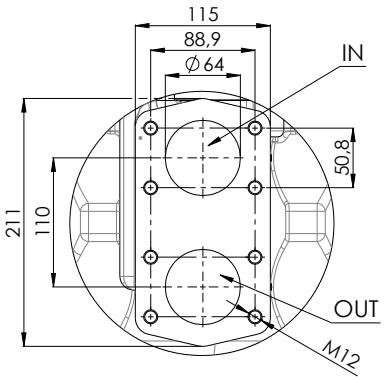
| | |
|---|---|
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS



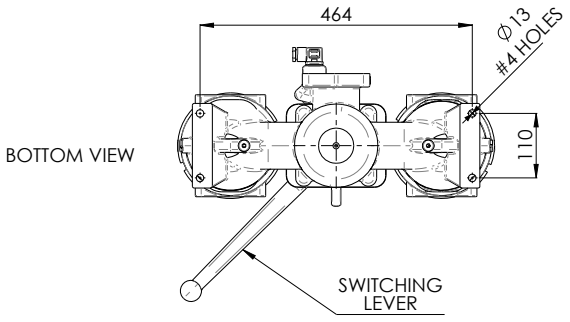




DETAIL A

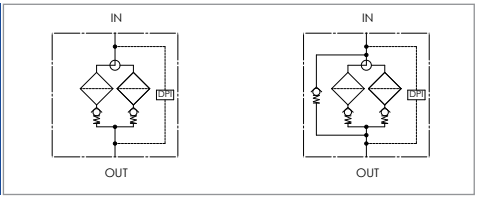
IN & OUT FLANGES
SAE 2-1/2" 3000 psi - M12
DN64




## NOMINAL SIZE

| MODEL | H1 | R | WEIGHT |
|---|---|---|---|
| FDD040XD630 | 690 | 300 | 80 Kg |
| FDD040XD1000 | 920 | 530 | 100 Kg |

HYDRAULIC SYMBOL



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FDD040** | **XD** | **1000** | **G10** | **A** | **B** | **F9M** | **D** | **S** | **000** | **S** | **0** |
| SPARE ELEMENT | | **XD** | **1000** | **G10** | **A** | | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FDD040 | |
| 2. FILTER ELEMENT SERIES | XD | |
| 3. FILTER SIZE | 630 - 1000 | |
| 4. FILTER MEDIA | 000 | no element |
| | G01 | glassfiber $ß_{4\mu m(c)} > 1.000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ |
| 5. ELEMENT COLLAPSE | A | 21 bar |
| | B | 210 bar |
| 6. SEALS | B | NBR |
| 7. CONNECTIONS | F9M | 2 1/2" SAE 3000 psi - M12 |
| 8. BYPASS VALVE | 0 | no by-pass |
| | D | 3,5 bar |
| 9. INDICATOR PORT OPTION | S | with metal plug |
| 10. COMPULSORY FIELD | 000 | filtrec standard |
| 11. CORROSION PROTECTION | S | standard |
| 12. OPTION | 0 | no option |

## ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR | FG2 | differential visual and electric 2,2 bar | |
| For indicators detail see service instructions | FG5 | differential visual and electric 5 bar | recommended for no bypass option |
| | FG8 | differential visual and electric 8 bar | |

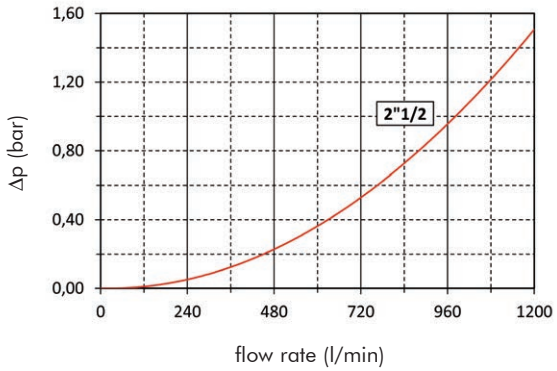
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

## HOUSING PRESSURE DROP

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

**FDD040 XD630 - 1000**




## ELEMENT PRESSURE DROP (filter elements 20 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 400 l/min with XD1000G10A and oil viscosity 46 cSt: 400 x 0,54/1000 x 46/32 = 0,31 bar.

| | G01A | G03A | G06A | G10A | G15A | G25A |
|---|---|---|---|---|---|---|
| **XD630** | 2,14 | 1,5 | 1,19 | 0,78 | 0,6 | 0,55 |
| **XD1000** | 1,46 | 1,02 | 0,82 | 0,54 | 0,42 | 0,39 |

### EXAMPLE OF TOTAL Δp CALCULATION

FDD040XD1000G10ABF9MDS000S0 with 400 l/min and oil 46 cSt:
Housing Δp 0,15 bar + element Dp 0,31 bar (400 x 0,54/1000 x 46/32) = total assembly Δp 0,46 bar.

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 400 l/min with XD1000G10B and oil viscosity 46 cSt: 400 x 0,67/1000 x 46/32 = 0,38 bar.

| | G01B | G03B | G06B | G10B | G15B | G25B |
|---|---|---|---|---|---|---|
| **XD630** | 2,65 | 1,85 | 1,47 | 0,97 | 0,87 | 0,7 |
| **XD1000** | 1,81 | 1,27 | 1,02 | 0,67 | 0,59 | 0,48 |

## EXAMPLE OF TOTAL Δp CALCULATION

FDD040XD1000G10ABF9MDS000S0 with 400 l/min and oil 46 cSt:
Housing Δp 0,15 bar + element Dp 0,38 bar (400 x 0,67/1000 x 46/32) = total assembly Δp 0,53 bar.

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$^3$.

## USER TIPS



1. FILTER HEAD
2. INDICATOR
3. FIXING HOLES
4. DRAIN
5. SEAL KIT
6. FILTER BODY
7. FILTER ELEMENT
8. FILTER BOWL
9. VENT

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 50 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR |
|---|---|
| XD630-1000 | 06.021.00326 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (8) upward.
3. Secure to the frame the filter head (1) using the fixing holes (3).
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. Never run the system with no filter element fitted.

⚠ 9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Operate and hold pressure equalizing lever located behind switching lever. Pull catch knob and swivel switching lever. Place through or drip pan underneath to collect leaving oil. Close pressure equalization valve.
2. Loosen vent screw of the filter side not in use by 2-3 turns; max. until contact is made with the safety stop.
3. Remove drain plug in housing bottom and drain oil.
4. Unscrew filter bowl counter-clockwise.
Warning: The shift and equalizing levers may not, from now until the screwing back in of the filter bowl, be activated under any circumstances!
5. Lift out filter element.
6. Check seal on filter bowl. We recommend replacement in any case.

⚠ 7. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element, first open the plastic bag, then push the element over the spigot in the filter head. Now remove plastic bag.
8. Push the element carefully over the spigot and tight filter bowl until full stop. Back off the filter bowl 1/8 turn.
9. Tighten drain plug housing bottom.
10. To refill the filter chamber, operate only the pressure equalizing lever, until fluid emerges bubble-free from the drain cavity.
11. Tight vent screw. Check for leckage by actuating the equalizing lever again.

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Technical information may change without notice

CT89-rev.02/24

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# FDD315 SERIES

Duplex high pressure filters

Inline filters for operating pressure up to 315 bar, flow rate up to 400 l/min. Duplex construction for uninterrupted service. Change over valve on upstream side, ergonomic switch-over handle with safety lock and pressure compensation. Filter elements sizes according to DIN 24550

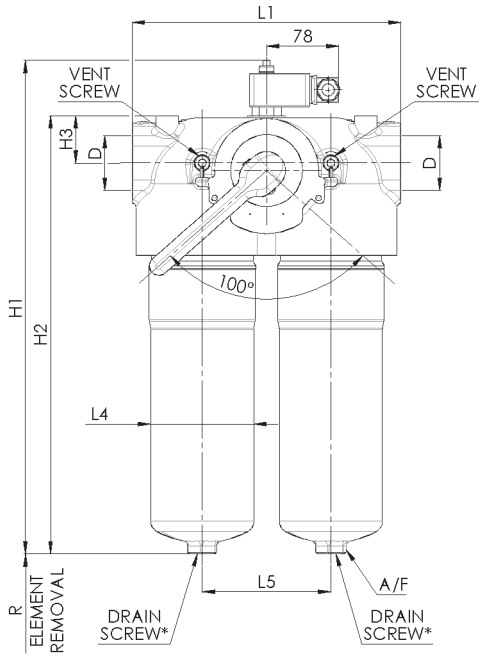



| HOUSING | tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968 |
|---|---|
| PRESSURE: | max operating 315 bar sizes 040 to 100<br>max operating 200 bar sizes 160 to 400 |
| CONNECTIONS: | G 1"<br>G 1 1/2"<br>SAE Flange 1 1/2" 3000 psi |
| MATERIALS: | Head: painted cast iron<br>Bowl: painted carbon steel<br>Seal: NBR |
| BYPASS VALVE: | 7 bar |

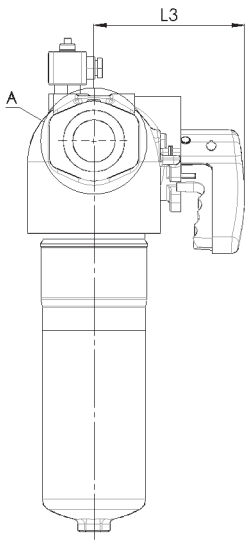
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | glassfiber G01 - G03 - G06 - G10 -G15 G25 |
| COLLAPSE PRESSURE: | 20 bar<br>210 bar |

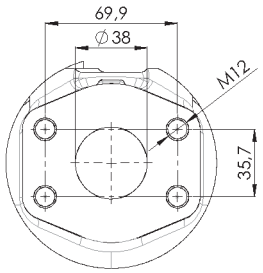
| | |
|---|---|
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

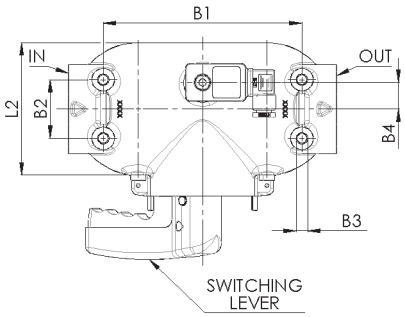



* AVAILABLE FOR SIZES FDD040XD250 AND FDD040XD400 ONLY



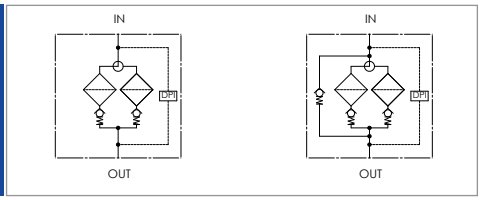

DETAIL A
IN & OUT FLANGES
SAE 1-1/2" 3000 psi - M12
DN38




## NOMINAL SIZE

| MODEL | B1 | B2 | B3 | B4 | D | L1 | L2 | L3 | L4 | L5 | H1 | H2 | H3 | A/F | R | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FDD315XD040 | 100 | 55 | M8 x12 | 10 | G 1" | 182 | 90 | 144 | 66 | 86 | 285 | 228 | 38 | 27 | 80 | 10,5 |
| FDD315XD063 | | | | | | | | | | | 345 | 288 | | | | 12 |
| FDD315XD100 | | | | | | | | | | | 427 | 370 | | | | 14 |
| FDD315XD160 | 210 | 62 | M12 x18 | 28 | G 1 1/2" | 280 | 140 | 160 | 110 | 136 | 363 | 311 | 50 | 30 | 110 | 30 |
| FDD315XD250 | | | | | | | | | | | 463 | 412 | | | | 35 |
| FDD315XD400 | | | | | SAE FLANGE 1-1/2" 3000 psi - M12 | | | | | | 614 | 562 | | 30 | | 41 |

HYDRAULIC SYMBOL



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FDD315** | **XD** | **100** | **G10** | **A** | **B** | **B5** | **D** | **S** | **000** | **S** | **0** |
| SPARE ELEMENT | | **XD** | **100** | **G10** | **A** | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FDD315 | | |
| 2. FILTER ELEMENT SERIES | XD | | |
| 3. FILTER SIZE | 040-063-100 | | |
| | 160-250-400 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} > 1.000$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| 5. ELEMENT COLLAPSE | A | 21 bar | |
| | B | 210 bar | |
| 6. SEALS | B | NBR | |
| 7. CONNECTIONS | B5 | G 1″ | for sizes 040-063-100 |
| | B7 | G 1 1/2″ | for sizes 160-250 |
| | F7M | 1 1/2″ SAE 3000 psi-M12 | for sizes 400 |
| 8. BYPASS VALVE | 0 | no by-pass | |
| | D | 7 bar | |
| 9. INDICATOR PORT OPTION | S | with metal plug | |
| 10. COMPULSORY FIELD | 000 | filtrec standard | |
| 11. CORROSION PROTECTION | S | standard | |
| 12. OPTION | 0 | no option | |

## ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR | FG5 | differential visual and electric 5 bar | |
| For indicators detail see service instructions | FG8 | differential visual and electric 8 bar | recommended for no bypass option |

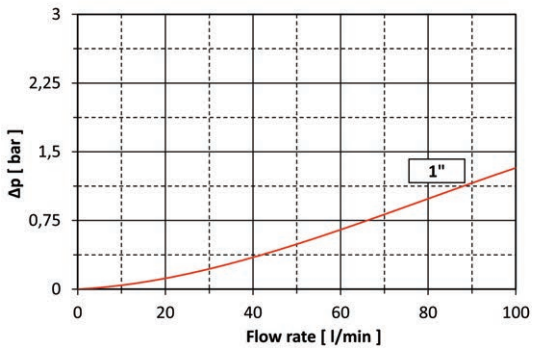
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve.
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$^3$.

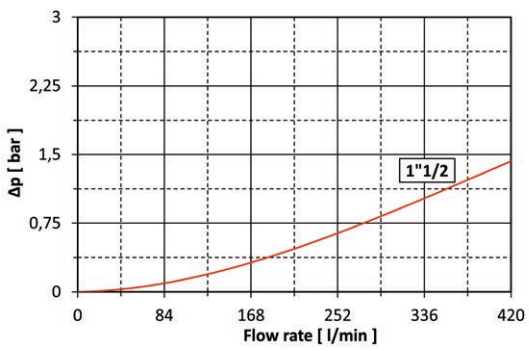
## HOUSING PRESSURE DROP

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

**FDD315 XD040-063-100**




**FDD315 XD160-250-400**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 40 l/min with XD100G10A and oil viscosity 46 cSt: 40 x 3,6/1000 x 46/32 = 0,21 bar.

| | G01A | G03A | G06A | G10A | G15A | G25A |
|---|---|---|---|---|---|---|
| **XD040** | 22 | 15,4 | 13,5 | 7,88 | 6,75 | 5,63 |
| **XD063** | 16,15 | 11,31 | 9 | 5,54 | 4,85 | 4,15 |
| **XD100** | 12 | 8,4 | 5,85 | 3,6 | 3,15 | 2,7 |
| **XD160** | 7,81 | 5,47 | 4,47 | 2,63 | 1,84 | 1,49 |
| **XD250** | 5,2 | 3,64 | 2,61 | 1,68 | 0,91 | 0,86 |
| **XD400** | 3,25 | 2,28 | 1,52 | 1,12 | 0,64 | 0,57 |

### EXAMPLE OF TOTAL Δp CALCULATION

FDD315XD100G10ABB5DS000S0 with **40** l/min and oil **46** cSt:
Housing Δp 0,38 bar + element Dp 0,45 bar (40 x 3,6/1000 x 46/32) = total assembly Δp 0,59 bar.

## ELEMENT PRESSURE DROP (filter elements 210 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 40 l/min with XD100G10B and oil viscosity 46 cSt: 40 x 6,75/1000 x 46/32 =0,39 bar.

| | G01B | G03B | G06B | G10B | G15B | G25B |
|---|---|---|---|---|---|---|
| **XD040** | 34,97 | 24,48 | 22,5 | 14,63 | 12,38 | 10,13 |
| **XD063** | 29,23 | 20,46 | 16,62 | 10,38 | 8,65 | 6,92 |
| **XD100** | 19 | 13,3 | 10,35 | 6,75 | 5,85 | 4,95 |
| **XD160** | 8,13 | 5,69 | 4,74 | 3,37 | 2,81 | 2,25 |
| **XD250** | 5,4 | 3,78 | 3,06 | 2,52 | 2,16 | 1,8 |
| **XD400** | 3,38 | 2,36 | 1,94 | 1,57 | 1,29 | 1,01 |

## EXAMPLE OF TOTAL Δp CALCULATION

FDD315XD100G10ABB5DS000S0 with **40** l/min and oil **46** cSt:
Housing Δp 0,38 bar + element Dp 0,84 bar (40 x 6,75/1000 x 46/32) = total assembly Δp 0,77 bar.

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$^3$.

## USER TIPS




1. FILTER HEAD
2. INDICATOR
3. FIXING HOLES
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. VENT

### INDICATOR TIGHTENING TORQUE

| |
|---|
| 90 Nm |

### SPARE SEAL KIT PART NUMBER (5)

| | NBR |
|---|---|
| XD040-063-100 | 06.021.00328 |
| XD160-250-400 | 06.021.00330 |

### BOWL TIGHTENING TORQUE

| |
|---|
| screw up filter bowl till end |

## 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 IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the bowl (6) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Operate and hold pressure equalizing lever located behind switching lever. Pull catch knob and swivel switching lever. Engage the catch on the clear filter side. Place through or drip pan underneath to collect leaving oil.
2. Loosen vent screw of the filter side not in use by 2-3 turns; max. until contact is made with the safety stop.
3. Unscrew filter bowl by turning counter-clockwise. Clean the bowl using a suitable cleaning solvent. Warning: The shift lever may not, from now until the screwing back in of the filter bowl, be activated under any circumstances!
4. Remove filter element by pulling down carefully.
5. Check o-ring on the filter housing for damage. Replace, if necessary.

⚠ 6. Make sure that the order number on the spare element corresponds to the order number of the filter name-plate. To ensure no contamination occurs during the exchange of the element first open the plastic bag and push the element over the spigot in the filter head. Now remove plastic bag.
7. Lightly lubricate the threads of the filter bowl and screw into the filter head.
8. To refill the filter chamber, operate only the pressure equalizing lever (leave the switching lever arrested in its catch) long enough for the medium to emerge bubble-free from the vent bore.
9. Tighten vent screw. Check filter for leaks by operating the pressure equalizing lever once again.

FILTREC
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# FA5 SERIES

In line medium pressure filters

Inline filters with spin-on cartridge for operating pressure up to 24 bar, flow rate up to 250 l/min.

The indicator ports allow to fit a visual electrical differential indicator and an absolute clock manometer or pressure switch.

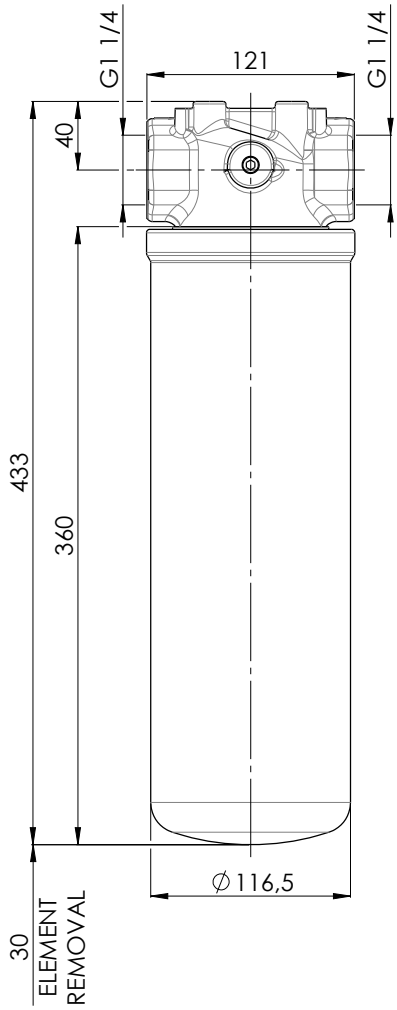



| HOUSING | tested according to NFPA T3.10.17, ISO12829, ISO3968 |
|---|---|
| PRESSURE: | Max operating: 24 bar<br>Burst: 55 bar |
| CONNECTION: | G 1 1/4" |
| MATERIALS: | Head: aluminium alloy<br>Bowl: painted steel<br>Seal: FKM |
| BYPASS VALVE: | No by-pass |

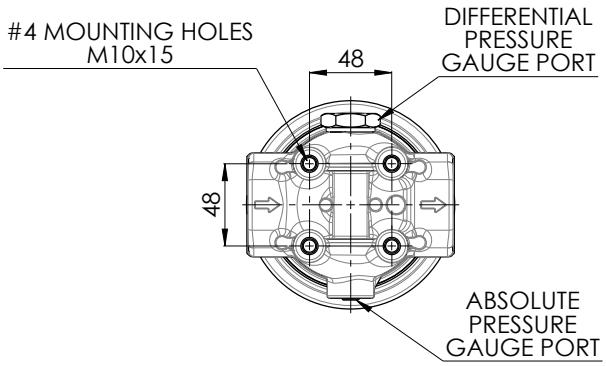
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G01 - G03 - G06 - G10 - G25<br>Inorganic microfiber + water absorbent:<br>GW40 |
| COLLAPSE PRESSURE: | 12 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>Diesel EN590, ASTMD975<br>Biodiesel B0 to B100 EN14214<br>Fuel oil EN51603-1<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

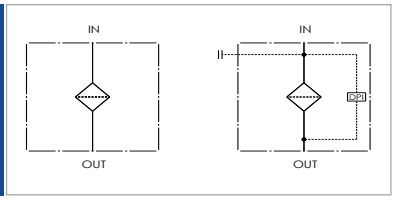
## OVERALL DIMENSIONS




Weight: 3,9Kg




HYDRAULIC SYMBOL



## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FA5** | | **22** | **G01** | **V** | **0** | **AB2** | **B6** | **0** | **Z** | **000** | **S** | **0** |
| SPARE ELEMENT | **A5** | **22** | **G01** | **V** | **0** | **/AB2** | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FA5 | | |
| 2. FILTER ELEMENT SERIES | A5 | | |
| 3. FILTER SIZE | 22 | | |
| | | /AB2 | /AB1 |
| 4. FILTER MEDIA | 000 | no element | |
| | G01 | glassfiber $ß_{4\mu m(c)} \geq 10.000$ | glassfiber $ß_{4\mu m(c)} \geq 2.000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 5.000$ | glassfiber $ß_{4\mu m(c)} \geq 2.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 2.000$ | |
| | G10 | glassfiber $ß_{10\mu m(c)} \geq 2.000$ | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{25\mu m(c)} \geq 2.000$ | |
| | GW40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ + water absorbent | |
| 5. SEALS | V | FKM | |
| 6. BYPASS VALVE<br>inbuilt into the filter element | 0 | no by-pass | |
| 7. ELEMENT SUFFIX<br>only for spare element<br>"/" before the three digit suffix is needed | AB1 | AbsoluteBeta - high capacity / efficiency filter element with AB1 connection | |
| | AB2 | AbsoluteBeta 2 - very high capacity / efficiency filter element with AB2 connection | |
| 8. CONNECTIONS | B6 | G 1 1/4" | |
| 9. BYPASS VALVE<br>inbuilt into the filter head | 0 | no by-pass | |
| 10. INDICATOR PORT OPTION | 0 | no indicator port | |
| | Z | ports for absolute pressure gauge and differential clogging indicator both plugged with metal plug | |
| 11. COMPULSORY FIELD | 000 | Filtrec standard | |
| 12. CORROSION PROTECTION | S | standard (Filter head with no treatment) | |
| 13. OPTIONS | 0 | AB2 thread | |
| | 3 | AB1 thread | |

## ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| INDICATOR<br>(Y and F) digit for FKM seal option<br>For other options see clogging indicators catalogue | MP0 | pressure gauge rear connection, scale 0-16 bar |
| | MPC | pressure gauge rear connection, setting 3 bar, scale 0-10 bar |
| | MRC | pressure gauge radial connection, setting 3 bar, scale 0-10 bar |
| | EY2 | differential electric 2,7 bar |
| | VY2 | differential visual 2,7 bar |
| | VEXF2 | differential visual electric 2,7 bar |
| | PF1 | metal plug for indicator seat - FKM |

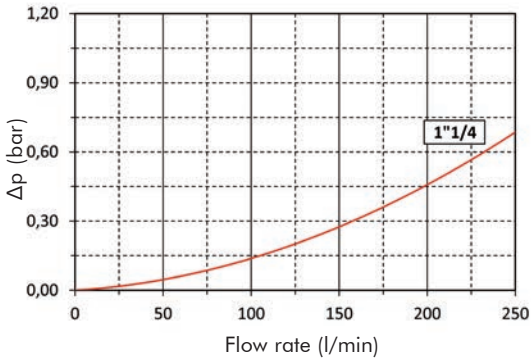
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp; this ideally should not exceed 1,0 bar. 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$^3$.

## HOUSING PRESSURE DROP

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

**FA5 22**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 100 l/min with A522G01V0/AB2 and oil viscosity 46 cSt > 100 x 5,8/1000 x 46/32 = 0,83 bar

| | | G01 | G03 | G06 | G10 | G25 | GW40 |
|---|---|---|---|---|---|---|---|
| **A522** | **AB2** | 5,80 | 3,29 | 1,08 | 0,83 | 0,65 | 0,98 |
| | **AB1** | 3,29 | 1,35 | | 0,73 | | |

## EXAMPLE OF TOTAL Δp CALCULATION

FA522G01V0AB2B60Z000S0 with 100 l/min and oil 46 cSt
Housing Δp 0,14 bar + element Dp 0,83 bar (100 x 5,8/1000 x 46/32) = total assembly Δp 0,97 bar

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER CARTRIDGE
5. SEAL KIT

| CARTRIDGE TIGHTENING TORQUE | |
|---|---|
| All models | 1/2 turn |

| INDICATOR TIGHTENING TORQUE | |
|---|---|
| Differential | 50 Nm |
| Absolute | 10 Nm |

| *SPARE SEAL KIT (5) | |
|---|---|
| | **FKM** |
| FA5-2x | 06.021.00411 |

* The kit includes 2 o-rings

## 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 or fuel are classified as “Dangerous waste material”: they must be disposed according to the local laws by authorized Companies.

## INSTALLATION

⚠ 1. The IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the cartridge (4) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
4. Verify that no tension is present on the filter after mounting.
5. Enough space must be available for filter element cartridge 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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, fluid temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter cartridge (4) by turning it anti-clockwise and remove it. Check the condition of the gasket located at the end of the threated spigot; replace it if necessary.
3. Fit a new FILTREC cartridge element (4), verifying the part number, particularly concerning the micron rating.
4. Ensure that the head mounting face is clean.

⚠ 5. Lubricate the gasket of the replacement cartridge and the thread prior to assembly.
6. Spin on the new cartridge until it reaches the mounting face and tighten for 1/2 turn.

www.filtrec.com
Technical information may change without notice

CT110-02/25

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# FA4 SERIES

In line medium pressure filters

Inline filters with spin-on cartridge for operating pressure up to 35 bar, flow rate up to 250 l/min.

Available with bypass as preferred option; the optional indicator port allows to fit a visual or electrical differential indicator.

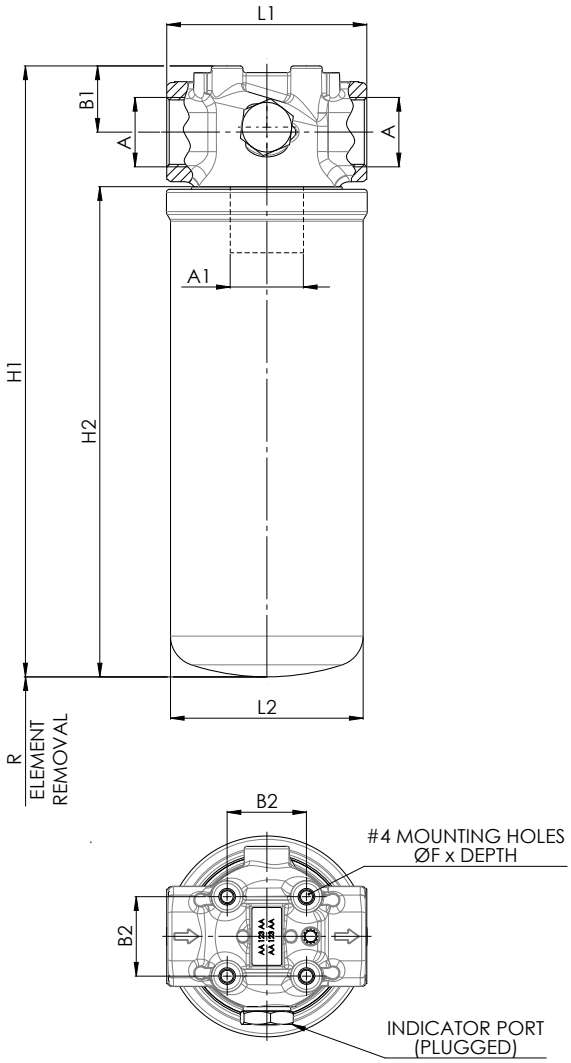



| HOUSING | tested according to NFPA T3.10.17, ISO12829, ISO3968 |
|---|---|
| PRESSURE: | Max operating: 34,5 bar for FA4 1x<br>24 bar for FA4 2x<br>Burst: 69 bar for FA4 1x<br>55 bar for FA4 2x |
| CONNECTION: | G 3/4" - G 1" - G 1 1/4" |
| MATERIALS: | Head: aluminium alloy<br>Bowl: painted steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | No bypass (on request)<br>3,5 bar setting (preferred option) |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G03 - G06 - G10 - G15 G25 - G40<br>Paper:<br>C10 - C25 |
| COLLAPSE PRESSURE: | 15 bar for FA4 1x<br>12 bar for FA4 2x |

| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal is<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION) is<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

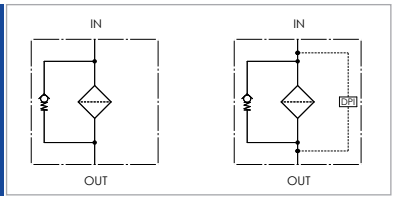
## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | A | A1 | B1 | B2 | F | H1 | L1 | R | WEIGHT | H2 | L2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FA4-05 | G 3/4" G 1" | 1" 3/8-12 UN 2B | 34 | 35 | M10x15 | 165 | 100 | 30 | 1,6 Kg | 100 | 97 |
| FA4-11 | | | | | | 216 | | | 1,8 Kg | 152 | |
| FA4-12 | | | | | | 245 | | | 1,9 Kg | 180 | |
| FA4-13 | | | | | | 302 | | | 2,2 Kg | 240 | |
| FA4-21 | G 1 1/4" | 1" 3/4-12 UN 2B | 40 | 48 | | 369 | 121 | | 3,2 Kg | 295 | 120 |
| FA4-22 | | | | | | 444 | | | 3,7 Kg | 360 | |

HYDRAULIC SYMBOL



## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. |
|---|---|---|---|---|---|---|---|---|---|---|
| **FA4** | | **21** | **G10** | **B** | **B6** | **D** | **T** | **000** | **S** | **0** |
| SPARE ELEMENT | **A4** | **21** | **G10** | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | F | | |
| 2. FILTER ELEMENT SERIES | A4 | | |
| 3. FILTER SIZE | 05-11-12-13 | | |
| | 21-22 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | C10 | paper $ß_{10\mu m(c)} > 2$ | |
| | C25 | paper $ß_{25\mu m(c)} > 2$ | |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ | |
| 5. SEALS | B | NBR (omit for element) | |
| | V | FKM | N.B. subject to MOQ |
| 6. CONNECTIONS | B4 | G 3/4" | for sizes 05-11-12-13 |
| | B5 | G 1" | |
| | B6 | G 1 1/4" | for size 2x |
| 7. BYPASS VALVE | 0 | no bypass (on request) | |
| | D | 3,5 bar (preferred option) | |
| 8. INDICATOR PORT OPTION | 0 | no indicator port | |
| | T | indicator port plugged | |
| 9. INDICATOR | 000 | compulsory field | |
| 10. CORROSION PROTECTION | S | standard (filter head with no treatment) | |
| 11. OPTIONS | 0 | no option | |

## ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| INDICATOR | EX2 | differential electric 2,7 bar - NBR |
| | VX2 | differential visual 2,7 bar - NBR |
| | VEXF2 | differential visual-electric 2,7 bar - FKM |
| PLUG | P01 | metal plug for indicator port - NBR |
| | PF1 | metal plug for indicator port - FKM |

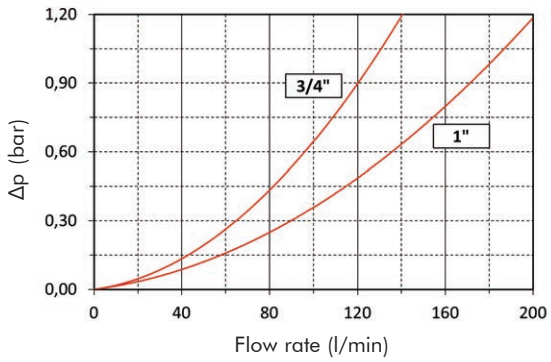
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve. 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$^3$.

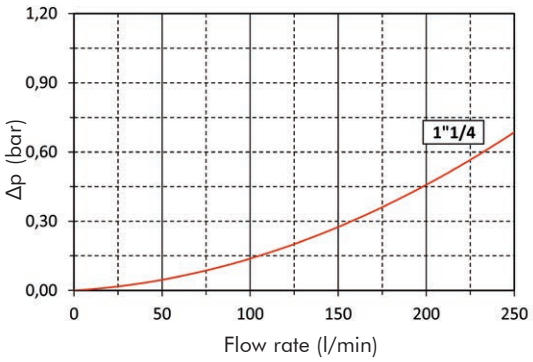
## HOUSING PRESSURE DROP

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

**FA4 05-11-12-13**




**FA4 21-22**




## ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below correspon-ding to the selected media and divided by 1000.If the oil has a viscosity Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 100 l/min with A421G10 and oil viscosity 46 cSt: (100 x 1,75) / 1000 x (46 / 32) = 0,25 bar

| | G03 | G06 | G10 | G15 | G25 | G40 | C10 | C25 |
|---|---|---|---|---|---|---|---|---|
| **A405** | 25,00 | 13,89 | 7,00 | 5,00 | 4,67 | 1,67 | 3,33 | 2,78 |
| **A411** | 16,67 | 10,92 | 5,77 | 3,62 | 2,85 | 1,31 | 2,46 | 2,06 |
| **A412** | 11,11 | 6,67 | 4,92 | 3,13 | 2,78 | 1,04 | 2,08 | 1,67 |
| **A413** | 6,54 | 4,69 | 3,00 | 1,85 | 1,69 | 0,69 | 1,23 | 1,00 |
| **A421** | 3,64 | 2,90 | 1,75 | 1,10 | 0,80 | 0,40 | 0,60 | 0,50 |
| **A422** | 1,35 | 1,08 | 0,73 | 0,69 | 0,65 | 0,27 | 0,42 | 0,28 |

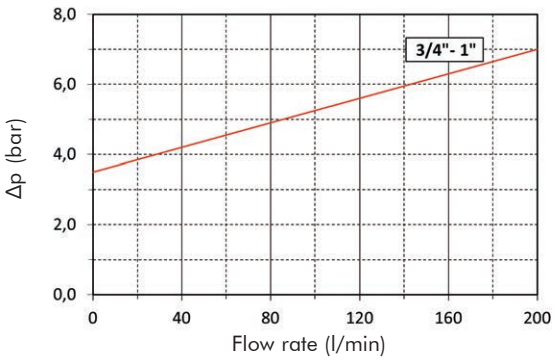
## EXAMPLE OF TOTAL Δp CALCULATION

FA421G10BB6D0000S0 with 100 l/min and oil 46 cSt
Housing Δp 0,14 bar + element Dp 0,25 bar (100 x 1,75/1000 x 46/32) = total assembly Δp 0,39 bar

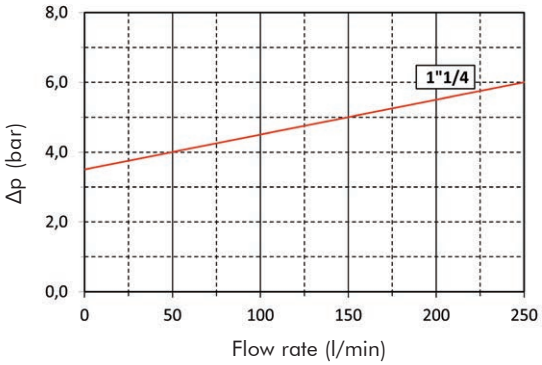
## BYPASS VALVE PRESSURE DROP

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

**FA4 05-11-12-13**




**FA4 21-22**




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$^3$.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER CARTRIDGE

| CARTRIDGE TIGHTENING TORQUE | |
|---|---|
| All models | 1/2 turn |

| INDICATOR TIGHTENING TORQUE | |
|---|---|
| All models | 50 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 IN and OUT ports must be connected to the hoses in the correct flow direction, an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the cartridge (4) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
4. Verify that no tension is present on the filter after mounting.
5. Enough space must be available for filter element cartridge 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. Never run the system with no filter element fitted.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter cartridge (4) by turning it anti-clockwise and remove it.
3. Fit a new FILTREC cartridge element (4), verifying the part number, particularly concerning the micron rating.
4. Ensure that the head mounting face is clean.

⚠ 5. Lubricate the gasket of the replacement cartridge and the thread prior to assembly.
7. Spin on the new cartridge until it reaches the mounting face and tighten for 1/2 turn.

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# FAH SERIES

In line spin-on type filters

Inline filters with spin-on cartridge, suitable for use on return or low pressure line.
Available with or without bypass, indicator port is a standard option to fit a visual or electrical indicator.



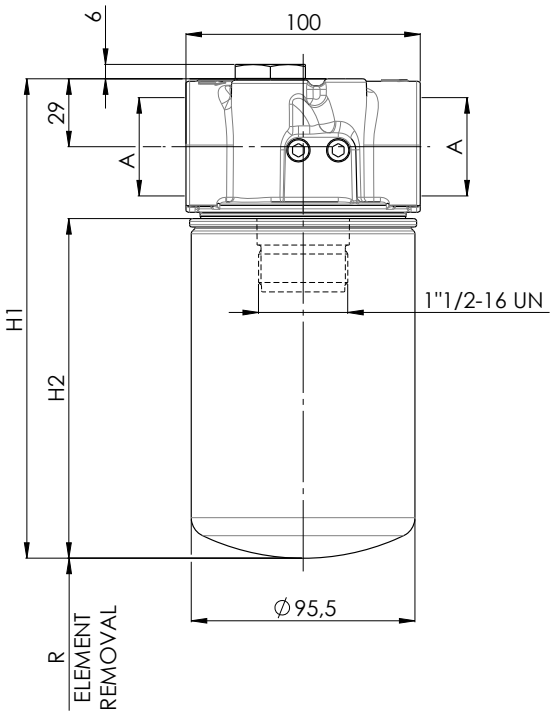

| HOUSING | tested according to NFPA T3.10.17, ISO12829, ISO3968 |
|---|---|
| PRESSURE: | Max operating 14 bar for FAH-A15x - FAHD-A15x<br>Max operating 17 bar for FAH-A14x<br>Burst: 20 bar for FAH-A15x - FAHD-A15x<br>Burst: 28 bar for FAH-A14x |
| CONNECTIONS: | G 3/4"÷G 1 1/2"<br>SAE Flange 1 1/2" 3000 psi |
| MATERIALS: | Head: aluminium alloy<br>Bowl: painted steel<br>Seal: NBR |
| BYPASS VALVE: | 3,5 bar |

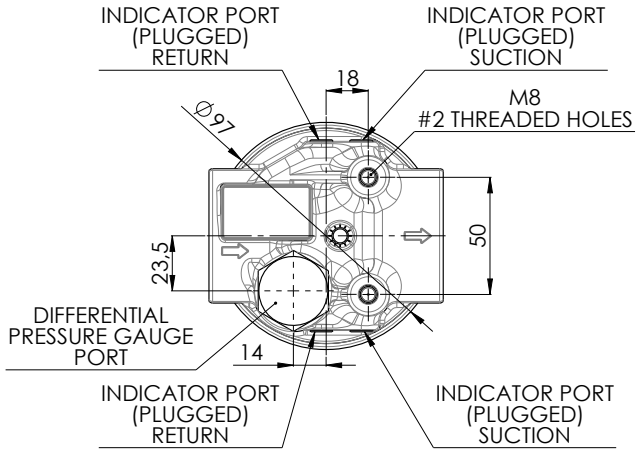
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber:<br>G03 - G06 - G10 - G25 - G40 - GW03 - GW06 - GW10 - GW25<br>Paper:<br>C10 - C25 - CW25<br>Wire mesh:<br>T60 - T125 |
| COLLAPSE PRESSURE: | 5 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | from -30 °C to +100 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

### FAH - A14x



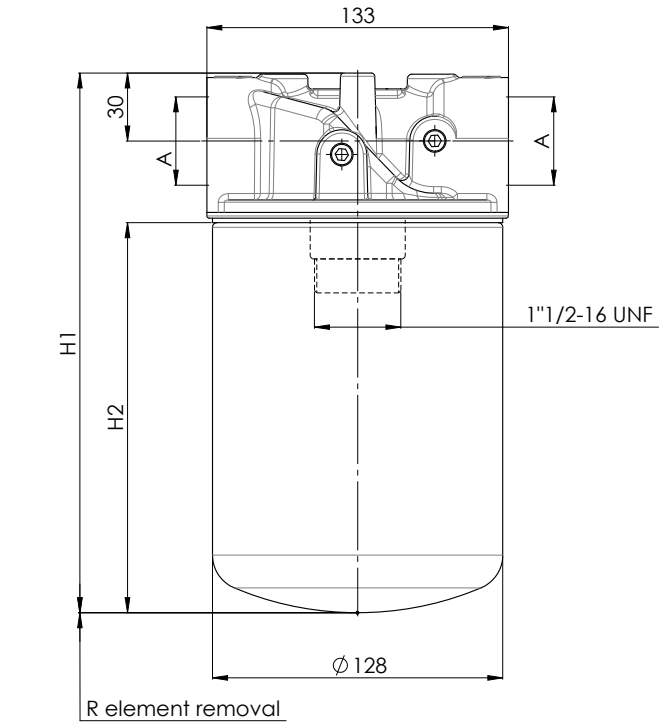



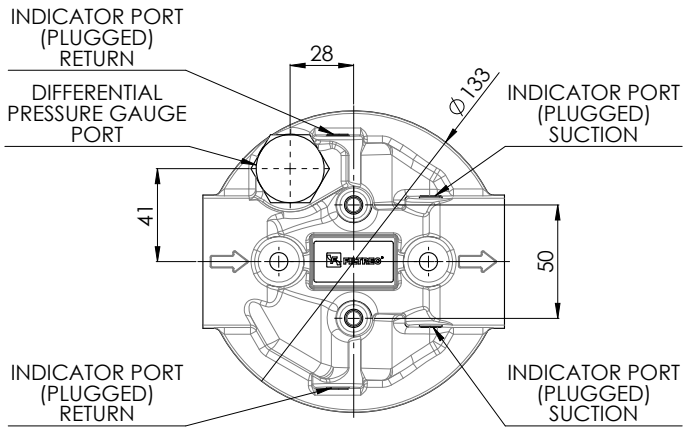

## NOMINAL SIZE

| CODE | A | H1 | H2 | R | WEIGHT |
|---|---|---|---|---|---|
| FAH - A140 | G 3/4″<br>G 1″<br>G 1 1/4″ | 205 | 145 | 20 | 1,2 Kg |
| FAH - A142 | | 270 | 210 | | 1,4 Kg |

## OVERALL DIMENSIONS

### FAH - A15x



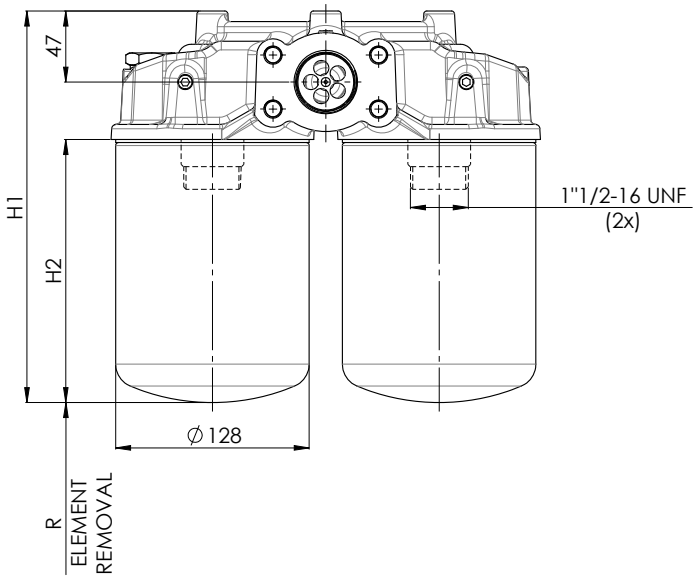




## NOMINAL SIZE

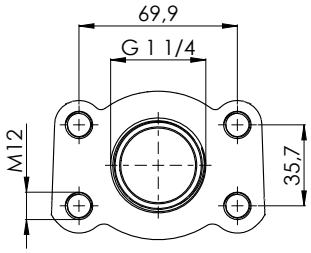
| CODE | A | H1 | H2 | R | WEIGHT |
|---|---|---|---|---|---|
| FAH - A150 | G 1 1/4" | 238 | 172 | 40 | 2 Kg |
| FAH - A152 | | 398 | 266 | | 2,3 Kg |

## OVERALL DIMENSIONS

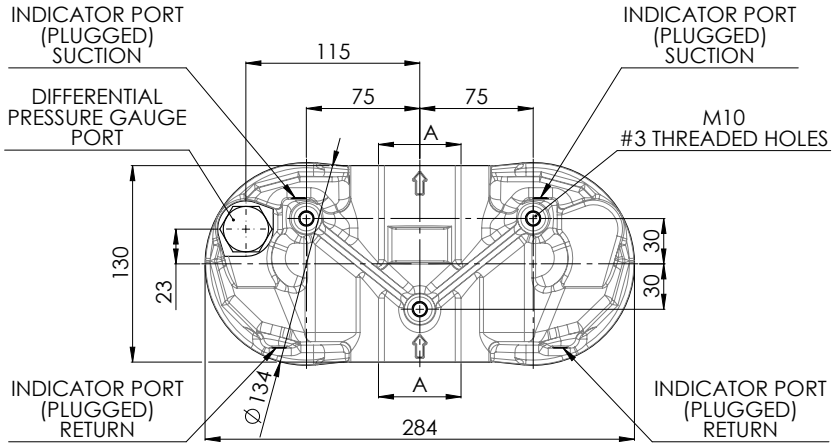
### FAHD - A15x




DETAIL FOR CONNECTION B6F7M




G1 1/4 + 1 1/2" SAE J518-3000 - M12




## NOMINAL SIZE

| CODE | A | H1 | H2 | R | WEIGHT |
|---|---|---|---|---|---|
| FAHD - A150 | G 1 1/2<br>G1 1/4" + 1 1/2" SAE J518-3000 - M12 | 257 | 172 | 40 | 6,4 Kg |
| FAHD - A152 | | 351 | 266 | | 7 Kg |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FAH** | **A1** | **50** | **G25** | **B** | **B6** | **D** | **S** | **000** | **S** | **0** |
| SPARE ELEMENT | | **A1** | **50** | **G25** | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FAH | | |
| | FAHD | | |
| 2. FILTER ELEMENT SERIES | A1 | | |
| 3. FILTER SIZE | 40-42 | only for FAH | |
| | 50-52 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ | |
| | GW03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ + water absorbent | |
| | GW06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ + water absorbent | |
| | GW10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ + water absorbent | |
| | GW25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ + water absorbent | |
| | C10 | paper $ß_{10\mu m(c)} \geq 2$ | |
| | C25 | paper $ß_{25\mu m(c)} \geq 2$ | |
| | CW25 | paper $ß_{25\mu m(c)} \geq 2$ + water absorbent | |
| | T60 | wire mesh 60 $\mu$m | |
| | T125 | wire mesh 125 $\mu$m | |
| 5. SEALS | B | NBR | ommitted for spare elements |
| 6. CONNECTIONS | B4 | G 3/4" | for size 40-42 only |
| | B5 | G1" | |
| | B6 | G 1 1/4" | |
| | B7 | G 1 1/2" | for FAHD-50-52 only |
| | B6F7M | G 1 1/4" or 1 1/2" SAE J518-3000 psi - M12 | |
| 7. BYPASS VALVE | 0 | no bypass | on request only for size 40-42 |
| | D | 3,5 bar | |
| 8. INDICATOR PORT | S | differential with metal plug | |
| | W | differential with plastic plug | |
| 9. COMPULSORY FIELD | 000 | filtrec standard | |
| 10. CORROSION PROTECTION | S | standard | |
| 11. OPTIONS | 0 | standard | |

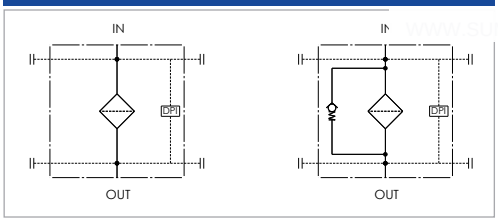
## ACCESSORIES

The accessories must be ordered separately

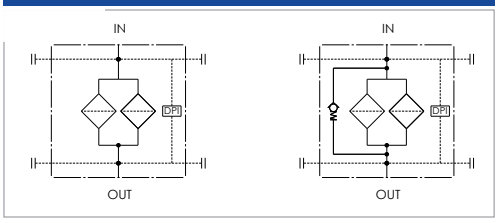
| | | |
|---|---|---|
| INDICATOR | MPC | pressure gauge 0÷10 bar setting 3 bar |
| For other options see clogging indicators catalogue | MRC | pressure gauge 0÷10 bar setting 3 bar |
| | PDC | pressure switch 2 bar SPDT |
| | VEF2 | differential visual-electric 2,7 bar |
| | V02 | differential visual 2,7bar |
| | E02 | differential electric 2,7bar |
| | E02L | differential electric 2,7bar + LC24* |
| | LC24 | LED connector for pressure switch |
| PLUG | P01 | metal plug for indicator port - NBR |

## HYDRAULIC SYMBOLS

**FAH - A14x / FAH - A15x**




**FAHD - A15x**



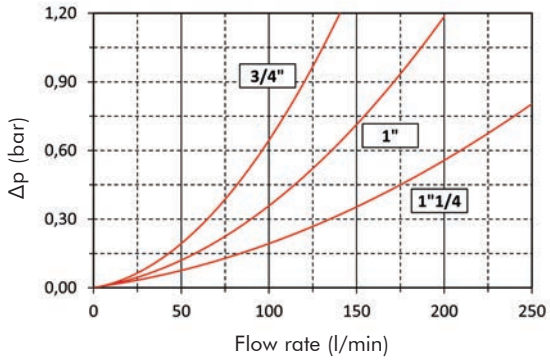

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.This ideally should not exceed 0,5 bar for return application (it should never exceed 1/3 of the set value of the by-pass valve).
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$^3$.

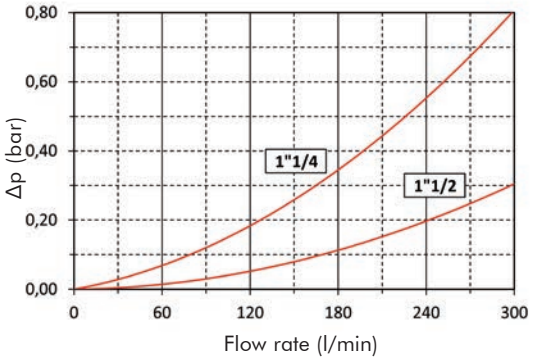
## HOUSING PRESSURE DROP

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

**FAH - A14x**




**FAH - A15x / FAHD - A15x**



## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 120 l/min with A150G25 and oil viscosity 46 cSt: (120 x 1,41)/1000 x (46/32)= 0,24 bar
Example: 120 l/min with (*1) 2x A150G25 and oil viscosity 46 cSt: (120 x 0,71)/1000 x (46/32)= 0,12 bar

| | G03 | G06 | G10 | G25 | G40 | GW03 | GW06 | GW10 | GW25 | C10 | C25 | CW25 | T60 | T125 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A140** | 6,92 | 6,39 | 3,83 | 2,98 | 1,99 | 19,52 | 18,02 | 10,81 | 8,41 | 2,02 | 1,81 | 5,11 | 0,96 | 0,64 |
| **A142** | 4,47 | 4,16 | 3,54 | 1,66 | 1,03 | 12,61 | 11,73 | 9,97 | 4,69 | 1,66 | 0,94 | 2,64 | 0,52 | 0,26 |
| **A150** | 4,98 | 4,22 | 2,68 | 1,41 | 0,72 | 14,03 | 11,89 | 7,55 | 3,99 | 0,77 | 0,65 | 1,85 | 0,31 | 0,26 |
| **A152** | 3,16 | 2,30 | 1,72 | 0,86 | 0,45 | 8,91 | 6,48 | 4,86 | 2,43 | 0,52 | 0,40 | 1,14 | 0,20 | 0,17 |
| **(*1) 2 x A150** | 2,49 | 2,11 | 1,34 | 0,71 | 0,36 | 7,02 | 5,95 | 3,77 | 1,99 | 0,38 | 0,33 | 0,92 | 0,15 | 0,13 |
| **(*2) 2 x A152** | 1,58 | 1,15 | 0,86 | 0,43 | 0,22 | 4,45 | 3,24 | 2,43 | 1,21 | 0,26 | 0,20 | 0,57 | 0,10 | 0,08 |

(*1) values for FAHD-A150 (*2) values for FAHD-A152. These sizes are fitting 2 cartridges each

## EXAMPLE OF TOTAL Δp CALCULATION

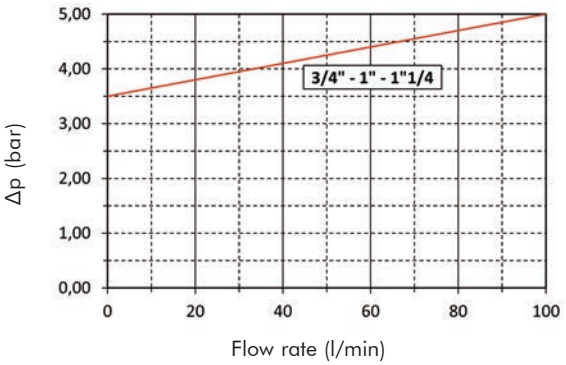
FAHA150G25BB6DS000S0 with 120 l/min and oil 46 cSt:
Housing Δp 0,19 bar + element Δp 0,24 bar (120 x 1,41)/1000 x (46/32) = Total assembly Δp 0,43 bar.

FAHDA150G25BB7DS000S0 with 120 l/min and oil 46 cSt:
Housing Δp 0,05 bar + element Δp 0,12 bar (120 x 0,71)/1000 x (46/32) = Total assembly Δp 0,17 bar

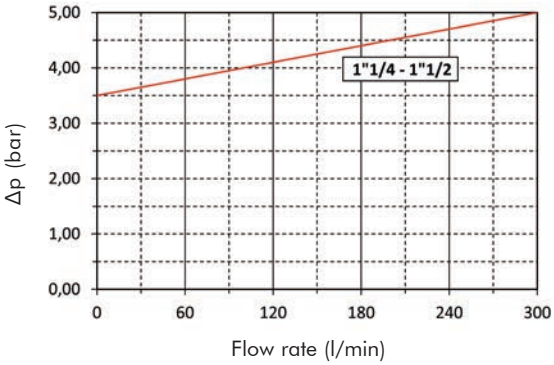
## BYPASS VALVE PRESSURE DROP

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

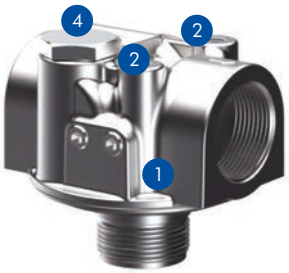
**FAH-A14x**




**FAH-A15x**



## USER TIPS




1 FILTER HEAD
2 FIXING HOLES
3 FILTER CARTRIDGE
4 IDENTIFICATION LABEL




| CARTRIDGE TIGHTENING TORQUE | |
|---|---|
| All models | 3/4 turn |

| INDICATOR TIGHTENING TORQUE | |
|---|---|
| Differential pressure gauge | 50 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 IN and OUT ports must be connected to the hoses in the correct flow direction, an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the cartridge (3) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (2).
4. Verify that no tension is present on the filter after mounting.
5. Enough space must be available for filter element cartridge 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. Never run the system with no filter element fitted.
9. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter cartridge (3) by turning it anti-clockwise and remove it.
3. Fit a new FILTREC cartridge element (3), verifying the part number, particularly concerning the micron rating.
4. Ensure that the head mounting face is clean.
⚠ 5. Lubricate the gasket of the replacement cartridge and the thread prior to assembly.
7. Spin on the new cartridge until it reaches the mounting face and tighten for 3/4 turn.

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CT100-rev.08/25

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# FA1 SERIES

In line spin-on type filters

Inline filters with spin-on cartridge, suitable for use on suction, return or low pressure line.
Available with or without bypass, indicator port is a standard option to fit a visual or electrical indicator.



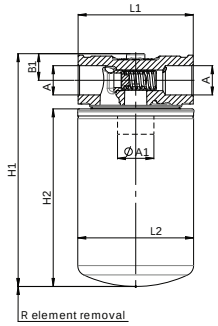

| HOUSING | tested according to NFPA T3.10.17, ISO12829, ISO3968 |
|---|---|
| PRESSURE: | Max operating: 12 bar<br>Burst: 20 bar |
| CONNECTIONS: | G 3/4"÷G 1 1/2" |
| MATERIALS: | Head: aluminium alloy<br>Bowl: painted steel<br>Seal: NBR |
| BYPASS VALVE: | No by-pass (max work pressure 5 bar)<br>0,25 bar setting (SUCTION)<br>1,7 bar setting (RETURN/IN LINE) |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Paper:<br>C10 - C25 - CW25<br>Inorganic microfiber:<br>G10 - G25<br>Wire mesh:<br>T60 - T125 |
| COLLAPSE PRESSURE: | 5 bar |

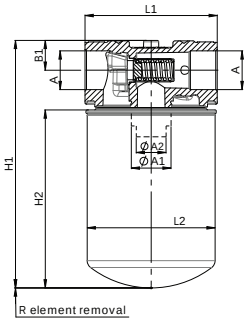
| | |
|---|---|
| TEMPERATURE RANGE: | from -30 °C to +100 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

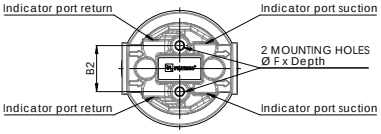
## OVERALL DIMENSIONS

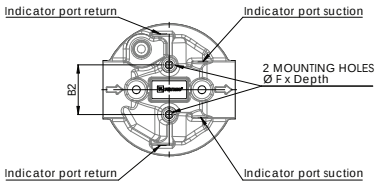
**FA1-10/11**



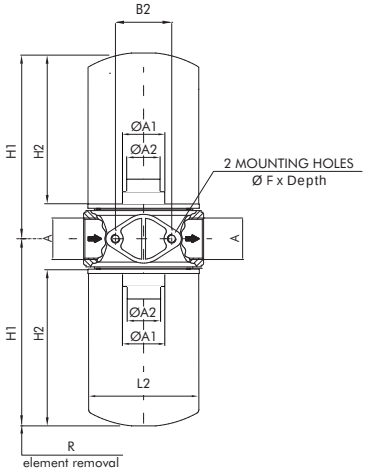

**FA1-20/21/22**

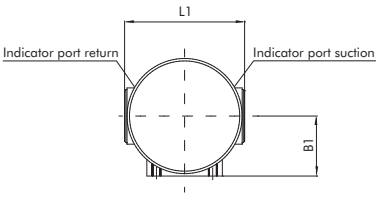


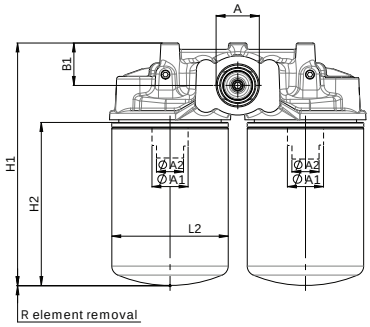



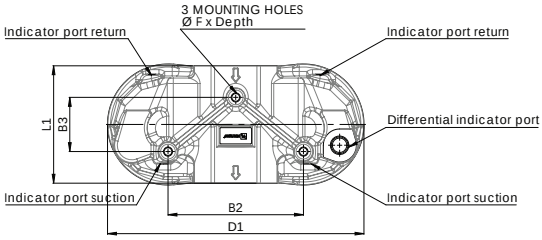

**FA1 30/31/32**




**FA1 40/41/42**




## NOMINAL SIZE

| CODE | A | A1 | A2 | B1 | B2 | B3 | D1 | F | H1 | L1 | R | WEIGHT | ELEMENT | H2 | L2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FA1-10 | G 3/4" | G 3/4" | --- | 22 | 38 | | | | 192 | 95 | 20 | 1,3 Kg | A-1-10 | 148 | 96 |
| FA1-11 | | | | | | | | | 257 | | | 1,5 Kg | A-1-11 | 213 | |
| FA1-20 | | | | | | | | | 249 | | | 1,9 Kg | A-1-20 | 182 | |
| FA1-21 | G 1 1/4" | G 1 1/4" | 1 1/2" 16-UN | 30 | 50 | --- | --- | M8x15 | 295 | 133 | | 2,2 Kg | A-1-21 | 228 | |
| FA1-22 | | | | | | | | | 380 | | | 2,6 Kg | A-1-22 | 313 | |
| FA1-30 | | | | | | | | | 218 | | | 3,5 Kg | 2x A-1-20 | 182 | |
| FA1-31 | G 1 1/2" | | | 70 | 65 | | | | 264 | 140 | 40 | 3,8 Kg | 2x A-1-21 | 228 | 128 |
| FA1-32 | | | | | | | | | 349 | | | 4,2 Kg | 2x A-1-22 | 313 | |
| FA1-40 | G 1 1/2" | G 1 1/4" | 1 1/2" 16-UN | | | | | M10x15 | 267 | | | 5,0 Kg | 2x A-1-20 | 182 | |
| FA1-41 | G 1 1/4"+ 1 1/2" SAE J518-3000 | | | 46 | 150 | 60 | 284 | | 313 | 130 | | 5,2 Kg | 2x A-1-21 | 228 | |
| FA1-42 | | | | | | | | | 398 | | | 5,6 Kg | 2x A-1-22 | 313 | |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **F** | **A1** | **21** | **G10** | **B** | **B6** | **R** | **000** |
| SPARE ELEMENT | **A1** | **21** | **G10** | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | F | | |
| 2. FILTER ELEMENT SERIES | A1 | | |
| 3. FILTER SIZE | 10-11 | | |
| | 20-21-22 | | |
| | 30-31-32 | fit 2 elements A120-A121-A122 | |
| | 40-41-42 | fit 2 elements A120-A121-A122 | |
| 4. FILTER MEDIA | 000 | no element | |
| | C10 | paper $ß_{10\mu m(c)} \geq 2$ | |
| | C25 | paper $ß_{25\mu m(c)} \geq 2$ | |
| | CW25 | paper $ß_{25\mu m(c)} \geq 2$ + water absorbent | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| | T60 | wire mesh 60 $\mu$m | |
| | T125 | wire mesh 125 $\mu$m | |
| 5. SEALS | B | NBR | |
| 6. CONNECTIONS | B4 | G 3/4" | for sizes 10-11 |
| | B6 | G 1 1/4" | for sizes 20-21-22 |
| | B7 | G 1 1/2" | for sizes 30-31-32-40-41-42 |
| | B6F7M | G 1 1/4" +1 1/2" SAE J518-3000 psi - M12 | for sizes 40-41-42 |
| 7. BYPASS VALVE | 0 | no by-pass | |
| | R | 1,7 bar (return application) | |
| | S | 0,25 bar (suction application) | |
| 8. COMPULSORY FIELD | 000 | Filtrec standard | |

## ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR | MPB | pressure gauge 0÷10 bar | for return application |
| * **Available also with LC24**=Led connector (see clogging indicators catalogue) | * PDB | pressure switch 1,3 bar SPDT | |
| | MP0 | pressure gauge 0÷16 bar | for inline application |
| | MPA | pressure/vacuum gauge -1÷5 bar | for return and suction application |
| | MPS | vacuum gauge 0÷-1 bar | for suction application |
| | * PDS | vacuum switch -0,2 bar | |
| | LC24 | LED connector pressure/vacuum switch | |

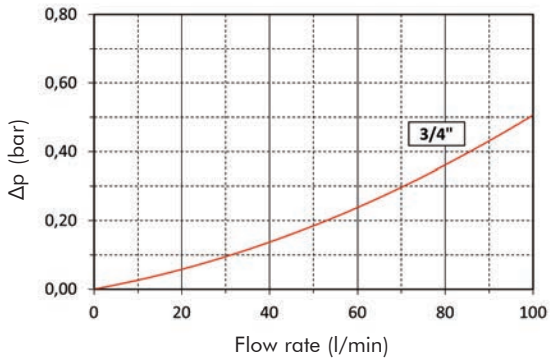
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.This ideally should not exceed 0,2 bar for suction application and 0,5 bar for return (it should never exceed 1/3 of the set value of the by-pass valve). 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$^3$.

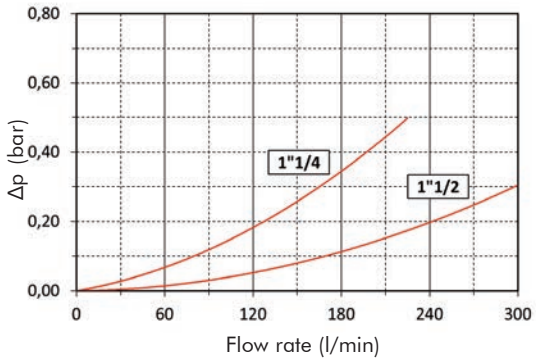
## HOUSING PRESSURE DROP

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

**FA1 1x**




**FA1 2x - 3x -4x**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with A120G10 and oil viscosity 46 cSt: (80 x 2,33)/1000 x (46/32)= 0,27 bar
Example: 80 l/min with (*1) 2x A120G10 and oil viscosity 46 cSt: (80 x 1,17)/1000 x (46/32)= 0,13 bar

| | C10 | C25 | CW25 | G10 | G25 | T60 | T125 |
|---|---|---|---|---|---|---|---|
| **A110** | 1,90 | 1,70 | 6,17 | 3,60 | 2,80 | 0,90 | 0,60 |
| **A111** | 1,60 | 0,90 | 3,67 | 3,40 | 1,60 | 0,50 | 0,25 |
| **A120** | 0,67 | 0,57 | 2,27 | 2,33 | 1,23 | 0,27 | 0,23 |
| **A121** | 0,60 | 0,47 | 1,4 | 2,00 | 1,00 | 0,23 | 0,20 |
| **A122** | 0,33 | 0,26 | 0,94 | 1,13 | 0,57 | 0,13 | 0,11 |
| **(*1) 2 x A120** | 0,34 | 0,29 | 1,13 | 1,17 | 0,62 | 0,14 | 0,12 |
| **(*2) 2 x A121** | 0,30 | 0,24 | 0,70 | 1,00 | 0,50 | 0,12 | 0,10 |
| **(*3) 2 x A122** | 0,16 | 0,13 | 0,47 | 0,56 | 0,28 | 0,06 | 0,05 |

(*1) values for FA130 & FA140 - (*2) values for FA131 & FA141 - (*3) values for FA132 & FA142
These sizes are fitting 2 cartridges each

## EXAMPLE OF TOTAL Δp CALCULATION

FA120G10BB6R000 with 80 l/min and oil 46 cSt:
Housing Δp 0,1 bar + element Dp 0,27 bar (80 x 2,33)/1000 x (46/32)= total assembly Δp 0,37 bar.

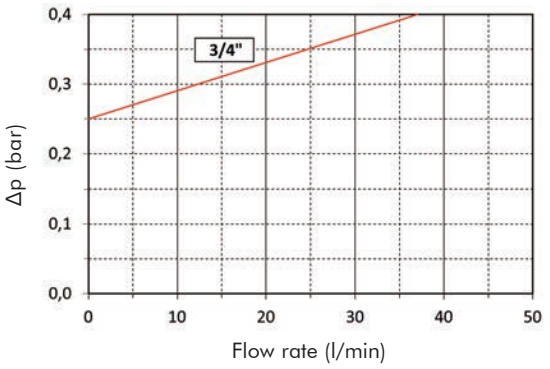
FA140G10BB6R000 with 80 l/min and oil 46 cSt:
Housing Δp 0,03 bar + element Dp 0,13 bar (80 x 1,17)/1000 x (46/32)= total assembly Δp 0,16 bar.

## BYPASS VALVE PRESSURE DROP

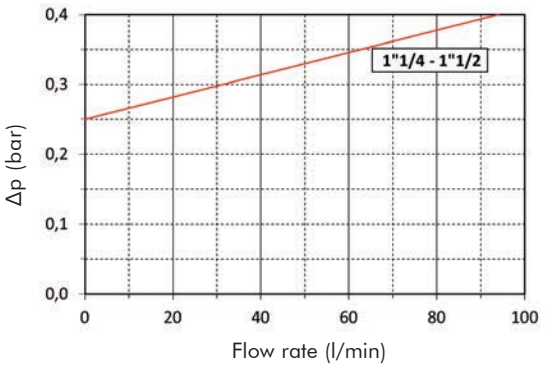
The bypass valve Δp is given by the curve of the considered model and setting, in correspondence of the flow rate value.

### SUCTION BYPASS

**FA11x**

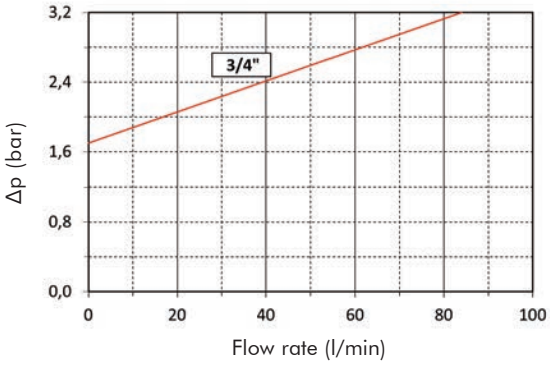



**FA12x - 3x -4x**

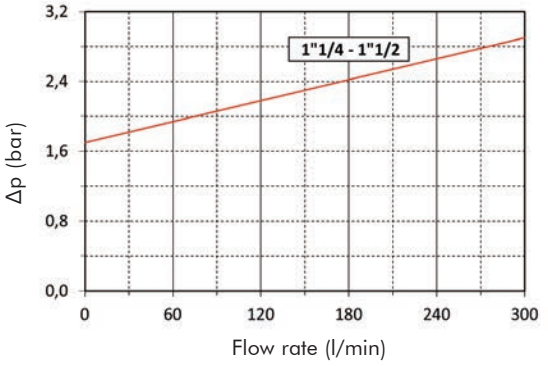



### RETURN/INLINE BYPASS

**FA11x**



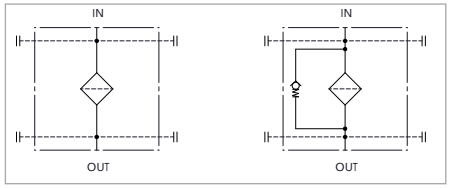

**FA12x - 3x -4x**



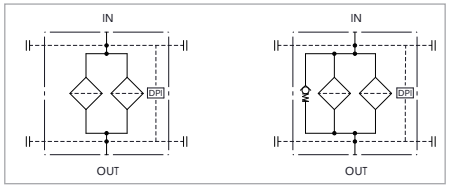

N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity and density 0,875 Kg/dm$^3$.

## HYDRAULIC SIMBOLS

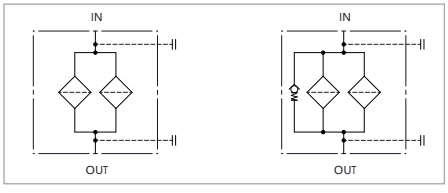
**FA1-1x / FA1-2x**




**FA1-4x**




**FA1-3x**



## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER CARTRIDGE
5. IDENTIFICATION LABEL

### CARTRIDGE TIGHTENING TORQUE

| | |
|---|---|
| All models | 3/4 turn |

### INDICATOR TIGHTENING TORQUE

| | |
|---|---|
| Absolute | 10 Nm |
| Differential | 50 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 IN and OUT ports must be connected to the hoses in the correct flow direction (an arrow shows on the filter head (1).
2. The filter housing should be preferably mounted with the cartridge (5) downward.
3. Secure to the frame the filter head (1) using the threaded fixing holes (3).
4. Verify that no tension is present on the filter after mounting.
5. Enough space must be available for filter element cartridge 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. Never run the system with no filter element fitted.

9. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter cartridge (5) by turning it anti-clockwise and remove it.
3. Fit a new FILTREC cartridge element (5), verifying the part number, particularly concerning the micron rating.
4. Ensure that the head mounting face is clean.

⚠ 5. Lubricate the gasket of the replacement cartridge and the thread prior to assembly.

7. Spin on the new cartridge until it reaches the mounting face and tighten for 3/4 turn.

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CT05-rev.07/25

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# FR6 SERIES

Tank top return filters

The FR6 filters are available with various configurations:

- With or without inbuilt air breather
- With 2, 4 or 6 tank mounting holes
- With or without supplementary inlet ports
- Flow rate up to 300 l/min



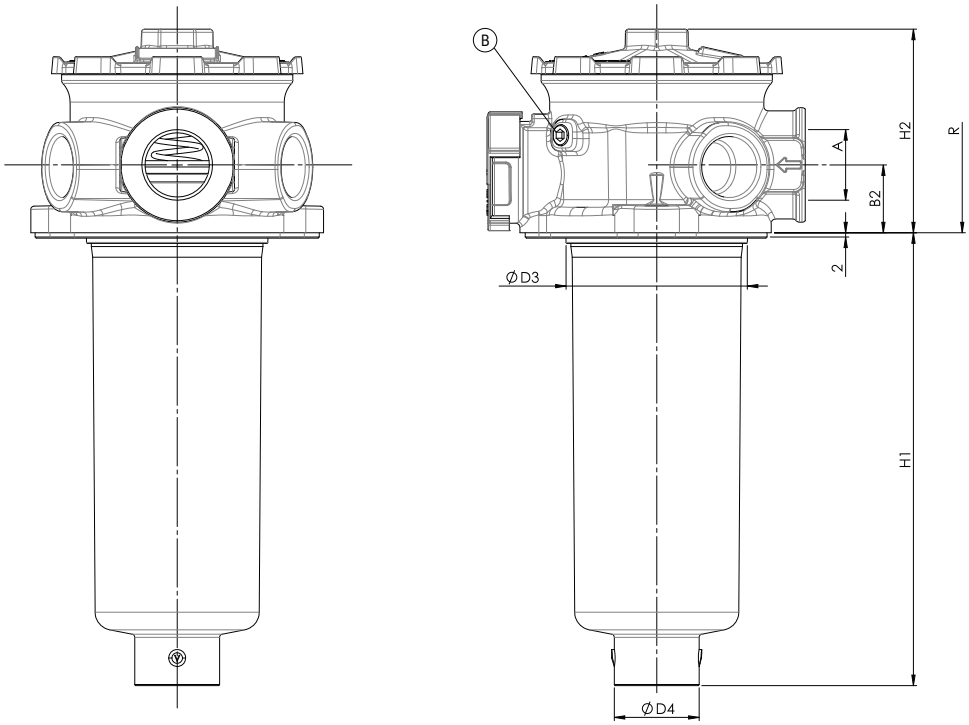


| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 10 bar |
| CONNECTIONS: | Main ports: G 3/4" to 1 1/4"<br>Additional ports (optional): G 1/2" to 1" |
| MATERIALS: | Head: aluminium alloy<br>Bowl and top cover: PA6 reinforced<br>Seal: NBR |
| BYPASS VALVE: | Inbuilt in the filter element<br>B version 1,7 bar<br>C version 3 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber<br>G06 - G10 - G15 - G25 - G40<br>Paper: C10<br>Synthetic: M05 - M10 - M15<br>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).<br>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.

## 2 MOUNTING HOLES

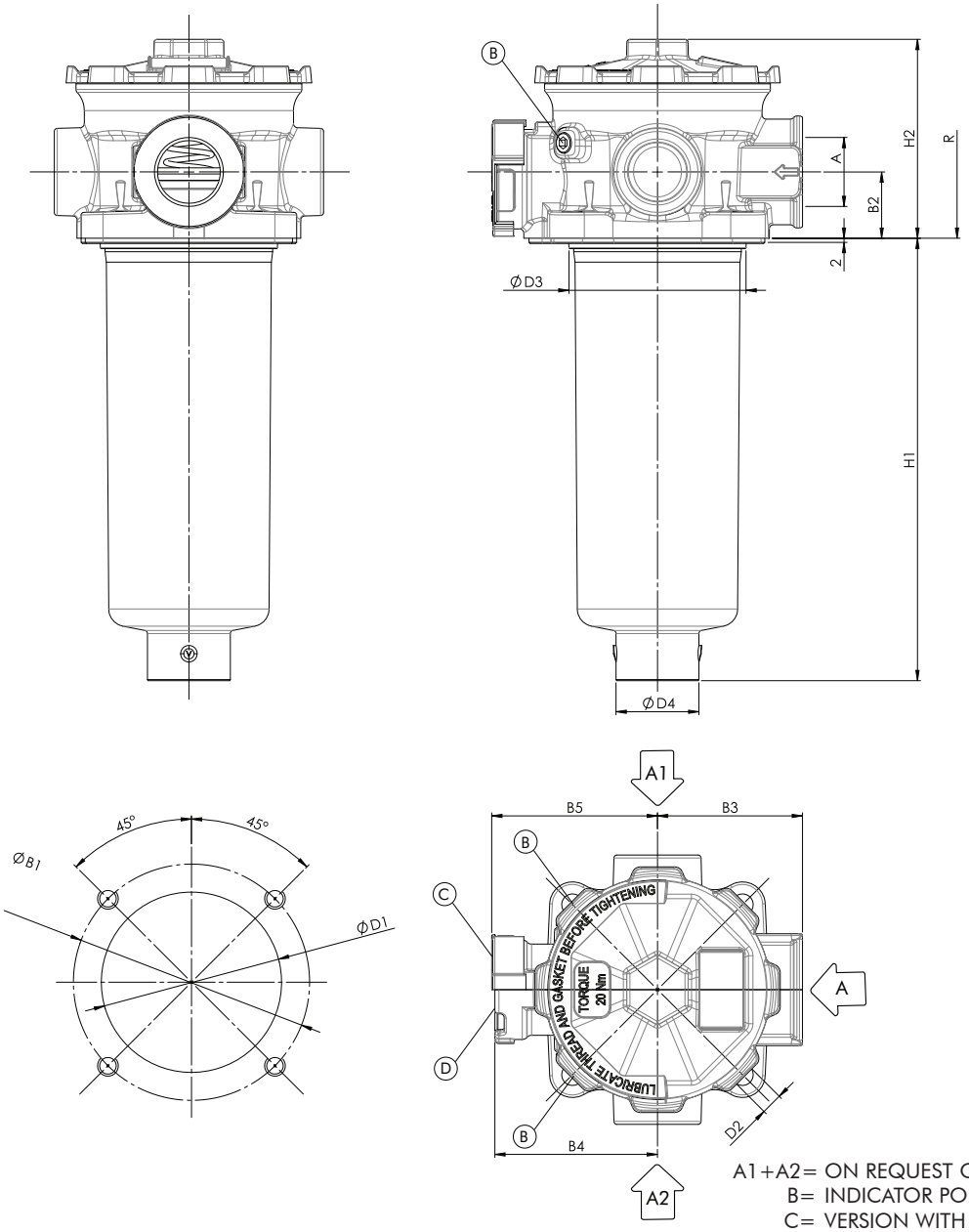



A1+A2= ON REQUEST ONLY
B= INDICATOR PORTS
C= VERSION WITH AIR BREATHER
D= VERSION WITHOUT AIR BREATHER

## NOMINAL SIZE

| MODEL | A | A1-A2 OPTIONAL | Ø B1 | B2 | B3 | B4 | B5 | Ø D1 | D2 | Ø D3 | Ø D4 | H1 | H2 | R | WEIGHT Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FR62R101 | G 3/4" | G 1/2" | 84 - 88 | 26 | 51 | 62 | 64 | 60 - 64 | 11 | 59 | 25 | 104 | 77 | 200 | 0,8 |
| FR62R102 | | | | | | | | | | | | 168 | 77 | 265 | 0,8 |
| FR62R104 | | | | | | | | | | | | 201 | 77 | 300 | 0,9 |
| FR62R120 | G 1" | G 1" | 114 - 116 | 32 | 70 | 78 | 80 | 87 - 91 | 11 | 86 | 40 | 87 | 96 | 210 | 1,0 |
| FR62R122 | | | | | | | | | | | | 132 | 96 | 260 | 1,0 |
| FR62R130 | G 1 1/4" | | | | | | | | | | | 214 | 96 | 340 | 1,1 |
| FR62R131 | | | | | | | | | | | | 318 | 96 | 440 | 1,2 |

## 4 MOUNTING HOLES

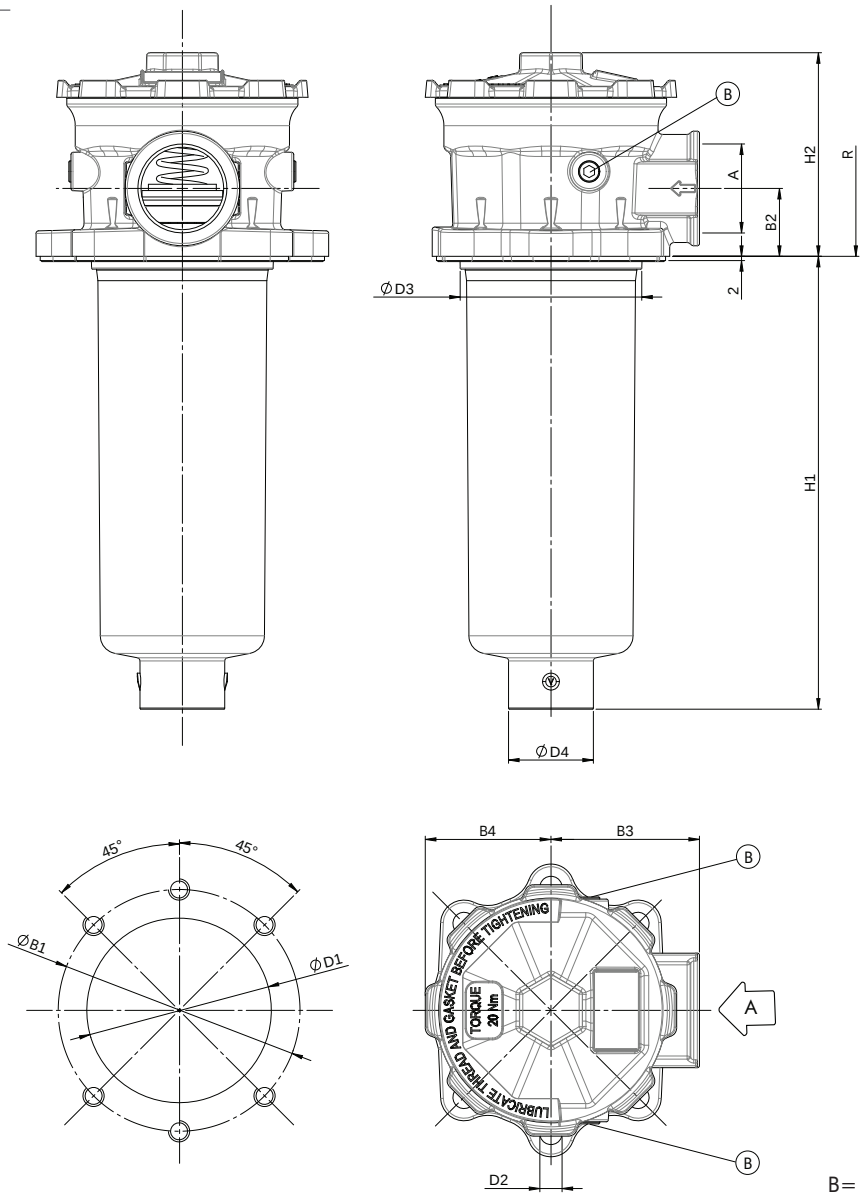



A1+A2= ON REQUEST ONLY
B= INDICATOR PORTS
C= VERSION WITH AIR BREATHER
D= VERSION WITHOUT AIR BREATHER

## NOMINAL SIZE

| MODEL | A | A1-A2 OPTIONAL | Ø B1 | B2 | B3 | B4 | B5 | Ø D1 | D2 | Ø D3 | Ø D4 | H1 | H2 | R | WEIGHT Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FR64R101 | G 3/4" | G 1/2" | 84 - 88 | 26 | 51 | 62 | 64 | 60 - 64 | 11 | 59 | 25 | 104 | 77 | 200 | 0,9 |
| FR64R102 | | | | | | | | | | | | 168 | 77 | 265 | 0,9 |
| FR64R104 | | | | | | | | | | | | 201 | 77 | 300 | 1,0 |
| FR64R120 | G 1" | G 1" | 114 -116 | 32 | 70 | 78 | 80 | 87 - 91 | 11 | 86 | 40 | 87 | 96 | 210 | 1,1 |
| FR64R122 | | | | | | | | | | | | 132 | 96 | 260 | 1,1 |
| FR64R130 | G 1 1/4" | | | | | | | | | | | 214 | 96 | 340 | 1,2 |
| FR64R131 | | | | | | | | | | | | 318 | 96 | 440 | 1,3 |

## 6 MOUNTING HOLES can fit both 2 or 4 holes tank mounting pattern

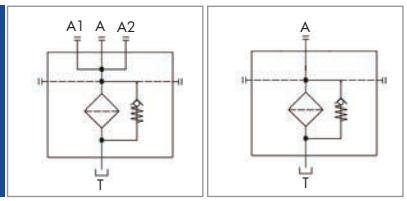



B= INDICATOR PORTS

## NOMINAL SIZE

| MODEL | A | Ø B1 | B2 | B3 | B4 | B5 | Ø D1 | D2 | Ø D3 | Ø D4 | H1 | H2 | R | WEIGHT Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FR66R120 | G 1″ | 114 -116 | 32 | 70 | 60 | 80 | 87-91 | 11 | 86 | 40 | 87 | 96 | 210 | 1,0 |
| FR66R122 | | | | | | | | | | | 132 | | 260 | 1,0 |
| FR66R130 | G 1 1/4″ | | | | | | | | | | 214 | | 340 | 1,1 |
| FR66R131 | | | | | | | | | | | 318 | | 440 | 1,2 |

HYDRAULIC SYMBOL



## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FR6** | **2** | **R1** | **30** | **G15** | **C** | **B** | **B6** | **00** | **1** | **B** | **000** |
| SPARE ELEMENT | | **R1** | **30** | **G15** | **C** | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FR6 | |
| 2. TANK MOUNTING HOLES | 2 | 2 holes |
| | 4 | 4 holes |
| | 6 | 2 + 4 holes (for size 20-22-30-31) |
| 3. FILTER ELEMENT SERIES | R1 | |
| 4. FILTER SIZE | 01-02-04 | (available for 2 and 4 holes version only) |
| | 20-22-30-31 | |
| 5. FILTER MEDIA | 000 | no element |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | C10 | paper $ß_{10\mu m(c)} \geq 2$ |
| | T60 | wire mesh 60 $\mu$m |
| | M05 | synthetic $ß_{10\mu m(c)} \geq 1.000$ |
| | M10 | synthetic $ß_{15\mu m(c)} \geq 1.000$ |
| | M15 | synthetic $ß_{20\mu m(c)} \geq 1.000$ |
| 6. BYPASS VALVE | B | 1,7 bar (for paper and wire mesh elements) |
| | C | 3 bar (for glassfiber elements) |
| 7. SEALS | B | NBR |
| 8. MAIN PORT | B4 | G 3/4" (for size 01-02-04) |
| | B5 | G 1" (for size 20-22-30-31) |
| | B6 | G 1 1/4" (for size 20-22-30-31) |
| 9. ADDITIONAL PORTS | 00 | no additional port (mandatory for FR6 6) |
| | B3 | 2 x G 1/2 (for size 01-02-04) |
| | B5 | 2 x G 1 (for size 20-22-30-31) |
| 10. INBUILT AIR BREATHER | 0 | no air breather |
| | 1 | with air breather (not for FR66) |
| 11. INDICATOR PORTS | B | 2 x G 1/8" |
| 12. CLOGGING INDICATORS | 000 | without indicator |
| For other indicators, see the "Clogging Indicator" catalogue in the download section | MPB | pressure gauge (for "B" bypass) |
| | MPC | pressure gauge (for "C" bypass) |
| | PDB | pressure switch (for "B" bypass) |
| | PDC | pressure switch (for "C" bypass) |
| ACCESSORIES | LC24 | LED connector for pressure switch |
| The accessories must be ordered separately | DS350 | dipstick (not available for 2 holes version) |
| | ET0250 | extension tube 250 mm long (for size 01-02-04) |
| | ET0500 | extension tube 500 mm long (for size 01-02-04) |
| | ET2250 | extension tube 250 mm long (for size 20-22-30-31) |
| | ET2500 | extension tube 500 mm long (for size 20-22-30-31) |
| | CT2250 | connection tube 250 mm long (for size 20-22-30-31) |
| | DF040 | diffuser Ø 40 mm (for size 20-22-30-31) |
| | B610F03 | spare air breather |

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

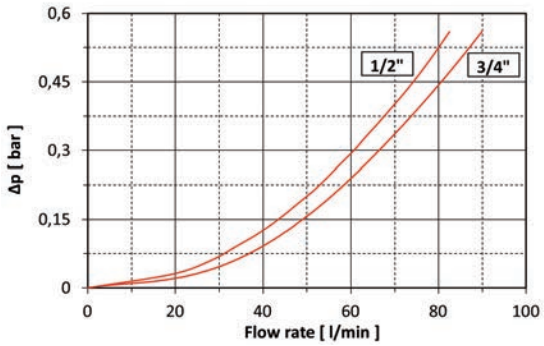
The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.
For multiport versions, the housing Δp to be considered is the sum of the Δp through all the ports that can be used contemporarily.

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/dm$^3$.

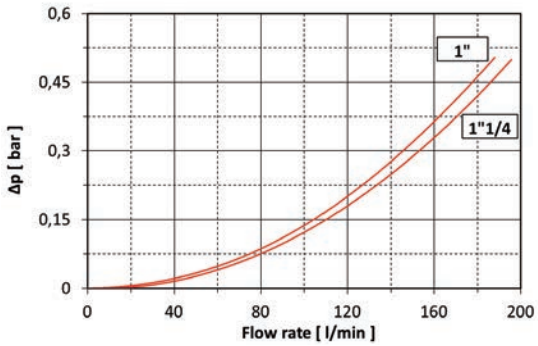
## HOUSING PRESSURE DROP

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

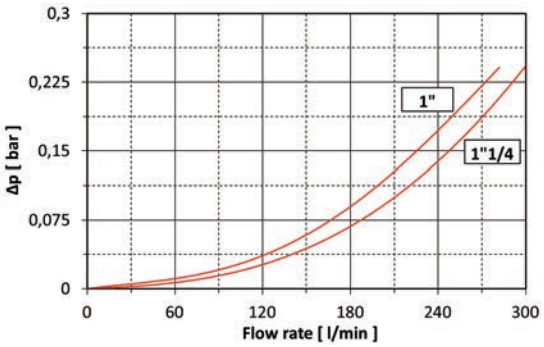
**FR6x R101-02-04**




**FR6x R120-22**




**FR6x R130-31**



## 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: 80 l/min with R130G10B and oil viscosity 46 cSt > 80 x 3,19/1000 x 46/32 = 0,36 bar

| | G06 | G10 | G15 | G25 | G40 | C10 | T60 | M05 | M10 | M15 |
|---|---|---|---|---|---|---|---|---|---|---|
| **R101** | 26,84 | 15,20 | 10,04 | 8,37 | 4,32 | 4,59 | 2,43 | 9,94 | 8,49 | 5,30 |
| **R102** | 13,16 | 8,22 | 4,94 | 4,55 | 2,63 | 2,88 | 0,82 | 5,37 | 4,59 | 3,03 |
| **R104** | 10,96 | 6,41 | 4,00 | 3,82 | 2,02 | 2,45 | 0,79 | 4,27 | 3,65 | 1,79 |
| **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 |

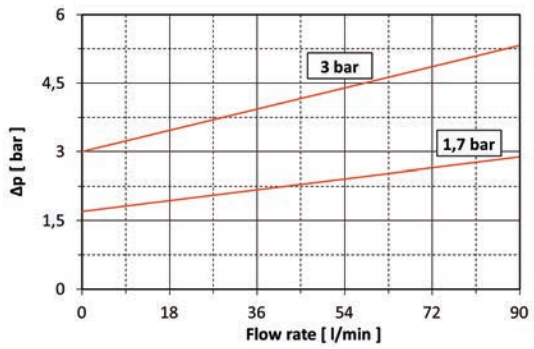
## EXAMPLE OF TOTAL Δp CALCULATION

FR62**R130**G10BB**B6**001B000 with **80** l/min and oil **46** cSt:
Housing Δp 0,01 bar + element Δp 0,36 bar (80 x 3,19/1000 x 46/32) = total assembly Δp 0,37 bar

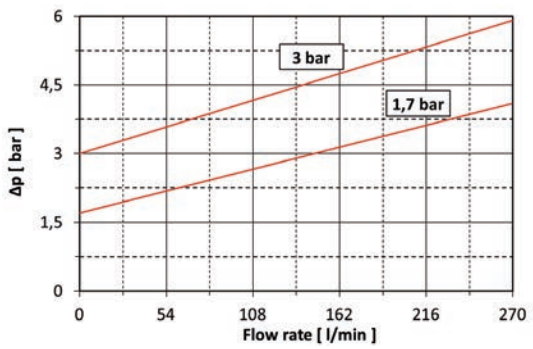
## BYPASS VALVE PRESSURE DROP

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

**FR6x R101-02-04**

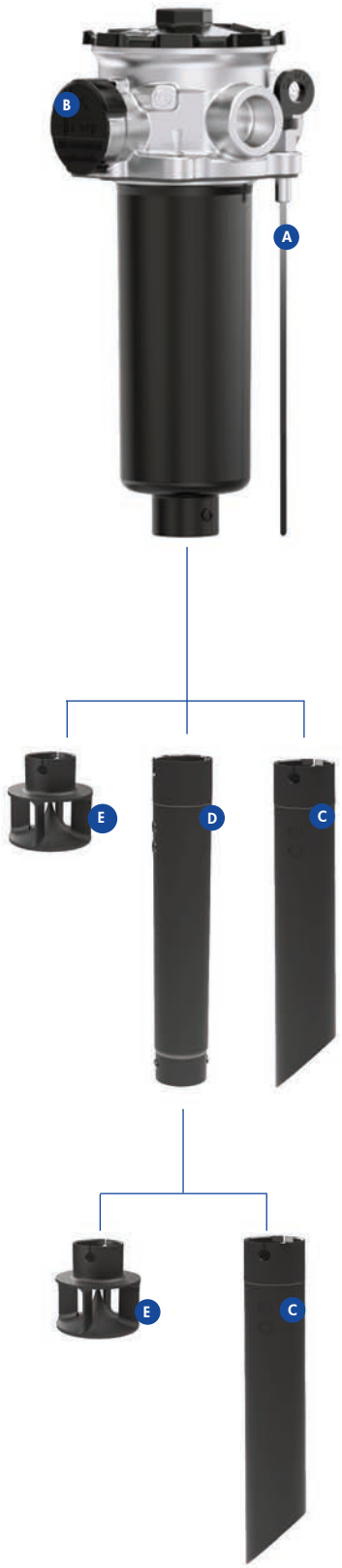



**FR6x R120-22-30-31**



## ACCESSORIES

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




### A * DIPSTICK for oil level detection

When reduced space available, one of the tank fixing hole can be used for a dipstick to check the oil level; it is supplied with a M10 bolt support.

* not available for 2 holes version

| | | |
|---|---|---|
| 06.014.00853 | DS350 | dipstick 350 mm long |

### B AIR BREATHER

| PART NR. | FILTRATION | FLOW RATE | Δp |
|---|---|---|---|
| B610F03 | 3 μm | up to 300 Nl/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)

### C 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.

for size 01-02-04

| | | |
|---|---|---|
| 06.016.00472 | ET0250 | extension tube 250 mm long |
| 06.016.00473 | ET0500 | extension tube 500 mm long |

for size 20-22-30-31

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

### D 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.

for size 20-22-30-31

| | | |
|---|---|---|
| 06.016.00486 | CT2250 | connection tube 250 mm long |

### E 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.

for size 20-22-30-31

| | | |
|---|---|---|
| 06.016.00492 | DF040 | diffuser Ø 40 mm |

## USER TIPS




1. COVER
2. SPRING
3. SEAL KIT
4. FILTER ELEMENT
5. FILTER BOWL
6. FILTER HEAD
7. AIR BREATHER

### SPARE SEALS KIT (3)

| | NBR |
|---|---|
| FR6-2-R1-0x | 06.021.00256 |
| FR6-4-R1-0x | 06.021.00257 |
| FR6-2-R1-2x/3x | 06.021.00258 |
| FR6-4-R1-2x/3x | 06.021.00259 |
| FR6-6-R1-2x/3x | 06.021.00260 |

### 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

1. The gasket (7) must be properly positioned and the head (6) 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).
4. Verify that no tension is present on the filter after mounting.
5. When present the air breather (8), it must be in a protected position.
6. Enough space must be available for filter element replacement.
7. The visual clogging indicator must be in a easily viewable position.
8. When a electrical indicator is used, make sure that it is properly wired.
9. Keep in stock a spare FILTREC filter element for timely replacement when required.
10. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

## MAINTENANCE

⚠

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

WWW.SUMY.IR

# FRT SERIES

Tank top return filters

Return filter for the tank lid mounting. Filter element with inbuilt bypass valve. Flow rates up to 900 l/min.
Range of accessories available.

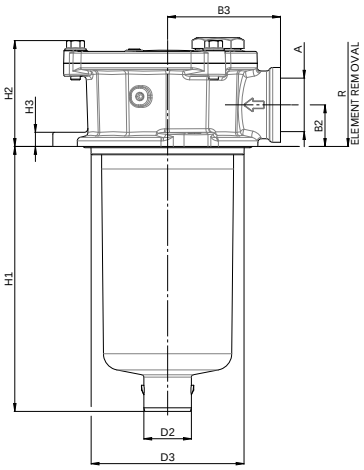


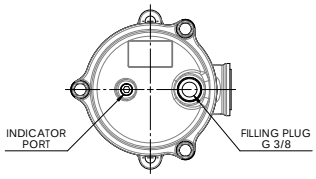
| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 8 bar<br>Burst: 16 bar |
| CONNECTIONS: | G 3/8″ ÷ G 2″ |
| MATERIALS: | Cover and head: aluminium alloy<br>Bowl: PA6 reinforced<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | Inbuilt in the filter element<br>B version 1,7 bar<br>C version 3 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber<br>G06 - G10 - G15 - G25 - G40<br>Paper: C10 - C25<br>Synthetic: M05 - M10 - M15<br>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).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

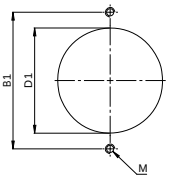
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

## OVERALL DIMENSIONS

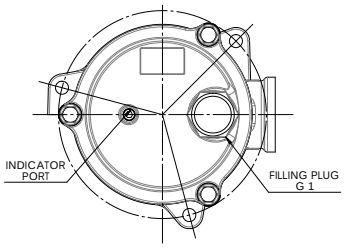


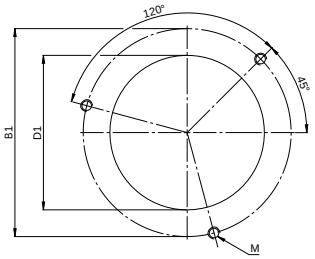

FRT R1 10 | 11 | 20 | 22 | 30 | 31



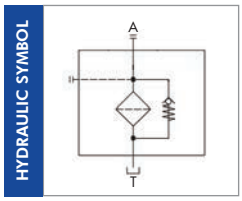

TANK MOUNTING PATTERN

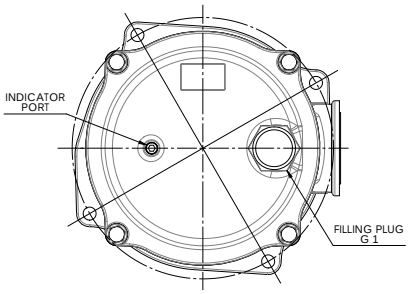



FRT R1 40 | 43 | 45

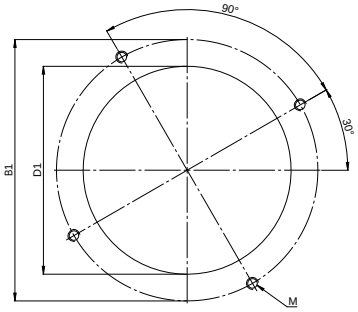



TANK MOUNTING PATTERN




FRT R1 50 | 51 | 60 | 64 | 66




TANK MOUNTING PATTERN

## NOMINAL SIZE

| MODEL | A | Ø B1 | B2 | B3 | Ø D1 | Ø D2 | Ø D3 | H1 | H2 | H3 | M | R | WEIGHT Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FRT R1 10 | G 3/8" - G 1/2" G 3/4" | 89 | 25 | 51 | 67,5 | 24 | 67 | 82 | 60 | 8 | M6 | 150 | 0,45 |
| FRT R1 11 | | | | | | | | 155 | | | | 220 | 0,60 |
| FRT R1 20 | G 1/2" - G 3/4" G 1" | 115 | 28,5 | 67 | 88,5 | 40 | 87 | 92 | 73 | 11 | M8 | 160 | 0,80 |
| FRT R1 22 | | | | | | | | 137 | | | | 210 | 0,90 |
| FRT R1 30 | G 3/4" - G 1" G 1 1/4" | | | | | | | 218 | | | | 290 | 1,10 |
| FRT R1 31 | | | 32 | | | | | 322 | | | | 390 | 1,30 |
| FRT R1 40 | G 1" - G 1 1/4" G 1 1/2" | 175 | 35 | 95 | 130 | | 129 | 223 | 90 | | M10 | 300 | 2,10 |
| FRT R1 43 | | | | | | | | 269 | | | | 350 | 2,40 |
| FRT R1 45 | | | | | | | | 436 | | | | 520 | 3,10 |
| FRT R1 50 | G 1 1/4" G 1 1/2" G 2" | 220 | 42 | 115 | 175 | 65 | 174 | 164 | 105 | | | 250 | 2,90 |
| FRT R1 51 | | | | | | | | 223 | | | | 310 | 3,30 |
| FRT R1 60 | | | | | | | | | | | | | |
| FRT R1 64 | | | | | | | | 273 | | | | 360 | 3,90 |
| FRT R1 66 | | | | | | | | 423 | | | | 510 | 5,10 |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FRT** | **R1** | **30** | **G10** | **B** | **B** | **B6** | **0** | **C** | **000** | **S** | **0** |
| SPARE ELEMENT | | **R1** | **30** | **G10** | **B** | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FRT | | |
| 2. FILTER ELEMENT SERIES | R1 | | |
| 3. FILTER SIZE | 10-11 | | |
| | 20-22-30-31 | | |
| | 40-43-45 | | |
| | 50-51-60-64-66 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ | |
| | C10 | paper $ß_{10\mu m(c)} \geq 2$ | |
| | C25 | paper $ß_{25\mu m(c)} \geq 2$ | |
| | T60 | wire mesh 60 $\mu$m | |
| | M05 | synthetic $ß_{10\mu m(c)} \geq 1.000$ | |
| | M10 | synthetic $ß_{15\mu m(c)} \geq 1.000$ | |
| | M15 | synthetic $ß_{20\mu m(c)} \geq 1.000$ | |
| 5. BYPASS VALVE | B | 1,7 bar (for paper and wire mesh elements) | |
| * omitted for no element versions | C | 3 bar (for glassfiber elements) | |
| 6. SEALS | *B | NBR | |
| * omitted for spare elements | V | FKM (on request) | |
| 7. CONNECTION PORT | B2 | G 3/8″ | size 10 to 11 |
| | B3 | G 1/2″ | size 10 to 22 |
| | B4 | G 3/4″ | size 10 to 31 |
| | B5 | G 1″ | size 20 to 45 |
| | B6 | G 1 1/4″ | size 30 to 66 |
| | B7 | G 1 1/2″ | size 40 to 66 |
| | B8 | G 2″ | size 50 to 66 |
| 8. FILLING PLUG | 0 | no filling plug | |
| | T | with filling plug | |

Continued on the next page

## ORDERING INFORMATION

| | | |
|---|---|---|
| 9. INDICATOR PORT | C | 1 x 1/8" plugged (cover) |
| | Y | 3 x 1/8" plugged (cover and filter head sides) |
| 10. COMPULSORY FIELD | 000 | Filtrec standard |
| 11. CORROSION PROTECTION | S | standard |
| 12. OPTION | 0 | no options |

### ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR | MPB | press. gauge rear connection | for "B" bypass |
| | MRB | press. gauge radial connection | |
| | PDB | pressure switch | |
| | MPC | press. gauge rear connection | for "C" bypass |
| | MRC | press. gauge radial connection | |
| | PDC | pressure switch | |
| | LC24 | LED connector for pressure switch | |
| EXTENSION TUBE | ET2250 | extension tube 250 mm long | (for sizes 20-22-30-31-40-43-45) |
| | ET2500 | extension tube 500 mm long | |
| | ET4200 | extension tube 200 mm long | (for sizes 50-51-60-64-66) |
| | ET4500 | extension tube 500 mm long | |
| CONNECTION TUBE | CT2250 | connection tube 250 mm long | (for sizes 20-22-30-31-40-43-45) |
| | CT4200 | connection tube 200 mm long | (for sizes 50-51-60-64-66) |
| DIFFUSER | DF040 | diffuser Ø 40 mm | (for sizes 20-22-30-31-40-43-45) |
| | DF065 | diffuser Ø 65 mm | (for sizes 50-51-60-64-66) |
| DIPSTICK | DS350 | dipstick 350mm long | (for sizes 40-43-45-50-51-60-64-66) |

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

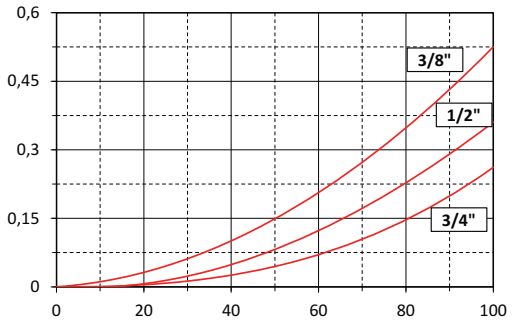
The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.

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$^3$.

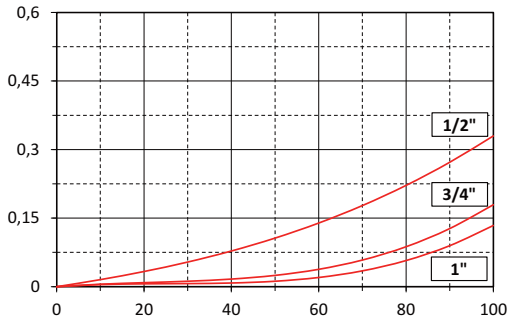
## HOUSING PRESSURE DROP

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

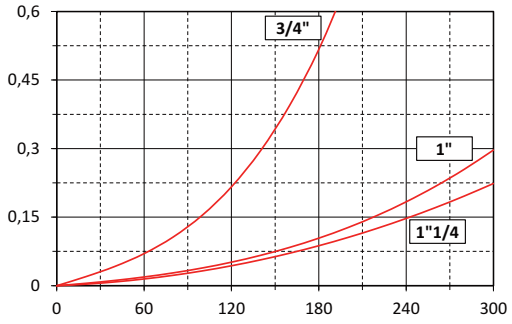
### FRT R1 10-11



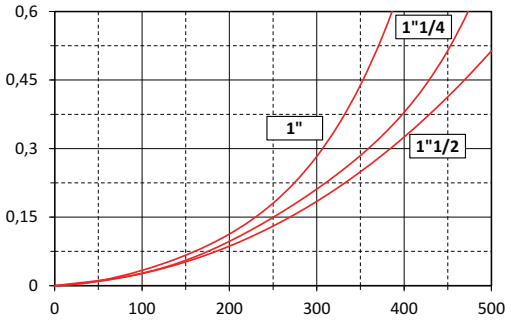

### FRT R1 20-22



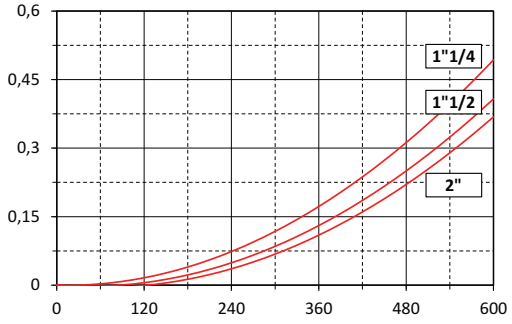

### FRT R1 30-31



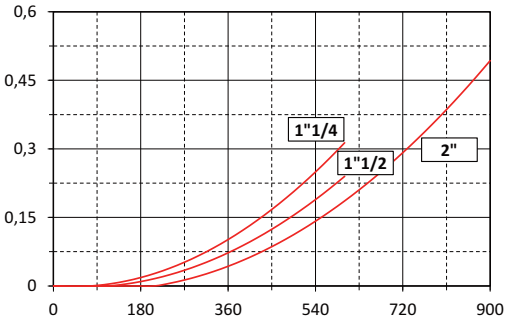

### FRT R1 40-43-45




### FRT R1 50-51




### FRT R1 60-64-66



## 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: 80 l/min with R130G10B and oil viscosity 46 cSt > 80 x 3,19/1000 x 46/32 = 0,36 bar

| | G06 | G10 | G15 | G25 | G40 | C10 | C25 | T60 | M05 | M10 | M15 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **R110** | 33,84 | 15,68 | 12,5 | 8,81 | 4,54 | 4,83 | 4,13 | 2,56 | 10,46 | 8,94 | 5,58 |
| **R111** | 12,28 | 7,32 | 4,48 | 4,28 | 2,27 | 2,74 | 2,06 | 0,81 | 4,79 | 4,09 | 2,00 |
| **R120** | 13,85 | 8,65 | 6,44 | 6,32 | 2,77 | 4,09 | 2,52 | 0,86 | 5,65 | 4,83 | 3,19 |
| **R122** | 7,80 | 5,27 | 3,92 | 3,60 | 1,55 | 2,70 | 1,41 | 0,76 | 3,83 | 3,27 | 1,79 |
| **R130** | 5,09 | 3,19 | 2,25 | 2,06 | 0,90 | 1,64 | 0,82 | 0,49 | 2,31 | 1,98 | 1,02 |
| **R131** | 3,34 | 1,94 | 1,37 | 1,26 | 0,46 | 1,06 | 0,42 | 0,24 | 1,41 | 1,20 | 0,63 |
| **R140** | 2,43 | 1,31 | 1,25 | 1,10 | 0,43 | 0,85 | 0,39 | 0,22 | 0,95 | 0,82 | 0,62 |
| **R143** | 2,25 | 1,21 | 1,15 | 1,00 | 0,39 | 0,83 | 0,35 | 0,20 | 0,88 | 0,75 | 0,57 |
| **R145** | 1,35 | 0,55 | 0,52 | 0,50 | 0,17 | 0,42 | 0,22 | 0,10 | 0,52 | 0,44 | 0,32 |
| **R150** | 2,16 | 1,12 | 1,08 | 0,96 | 0,37 | 0,82 | 0,34 | 0,19 | 0,81 | 0,69 | 0,54 |
| **R151** | 1,80 | 0,88 | 0,77 | 0,71 | 0,29 | 0,64 | 0,26 | 0,15 | 0,64 | 0,55 | 0,38 |
| **R160** | 1,49 | 0,74 | 0,71 | 0,51 | 0,25 | 0,45 | 0,23 | 0,10 | 0,54 | 0,46 | 0,35 |
| **R164** | 1,32 | 0,52 | 0,45 | 0,42 | 0,13 | 0,36 | 0,12 | 0,10 | 0,38 | 0,32 | 0,21 |
| **R166** | 0,80 | 0,43 | 0,34 | 0,24 | 0,11 | 0,20 | 0,10 | 0,06 | 0,22 | 0,20 | 0,18 |

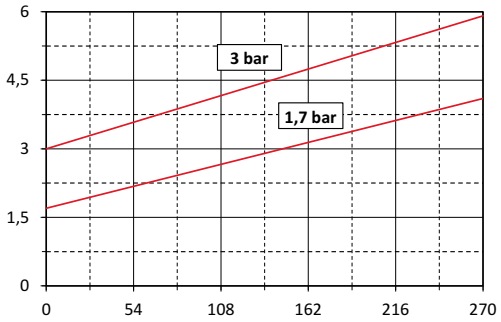
## EXAMPLE OF TOTAL Δp CALCULATION

FRTR130G10BBB60C000S0 with **80** l/min and oil **46** cSt:
Housing Δp 0,01 bar + element Δp 0,36 bar (80 x 3,19/1000 x 46/32) = total assembly Δp 0,37 bar

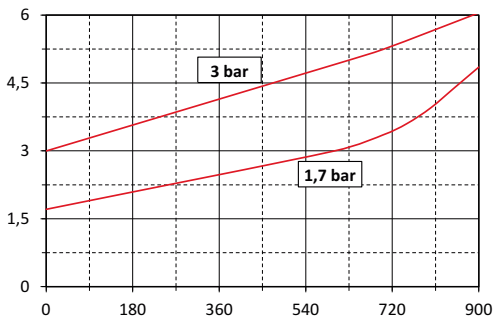
## BYPASS VALVE PRESSURE DROP

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

**FRT R1 10-31**




**FRT R1 40-66**



## ACCESSORIES

These accessories must be ordered separately; they fit all our models except sizes 10-11.




### 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.

for size 20 to 45

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

for size 50 to 66

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




### B CONNECTION TUBE

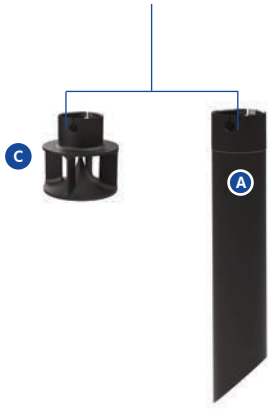
Connection tube is the necessary device between filter bowl and extension tubes (ET2250 / ET2500 / ET4200 / ET4500) and/or diffuser (DF040 / DF065). Its plug and play option makes it easy to install and versatile.

for size 20 to 45

| | | |
|---|---|---|
| 06.016.00486 | CT2250 | connection tube 250 mm long |

for size 50 to 66

| | | |
|---|---|---|
| 06.016.00488 | CT4200 | connection tube 200 mm long |




### 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 (CT2250/CT4200). 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.

for size 20 to 45

| | | |
|---|---|---|
| 06.016.00492 | DF040 | diffuser Ø 40 mm |

for size 50 to 66

| | | |
|---|---|---|
| 06.016.00493 | DF065 | diffuser Ø 65 mm |

### D DIPSTICK for oil level detection

When reduced space available, one of the tank fixing hole can be used for a dipstick to check the oil level; it is supplied with a M10 bolt support.

for sizes 40 to 66

| | | |
|---|---|---|
| 06.014.00853 | DS350 | dipstick 350 mm long |

## USER TIPS




1. FILTER HEAD
2. FILTER BOWL
3. FILTER ELEMENT
4. SPRING
5. INDICATOR PORT
6. SEAL KIT
7. SCREWS
8. COVER

### SPARE SEALS KIT (6)

| | NBR | FKM |
|---|---|---|
| FRT-R1-10/11 | 06.021.00170 | 06.021.00174 |
| FRT-R1-20/22/30/31 | 06.021.00171 | 06.021.00175 |
| FRT-R1-40/43/45 | 06.021.00172 | 06.021.00176 |
| FRT-R1-50/51/60/64/66 | 06.021.00173 | 06.021.00177 |

### COVER SCREW TIGHTENING TORQUE

| | |
|---|---|
| M6 - for size 10 to 31 | 10 Nm |
| M8 - for size 40 to 66 | 25 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 dirty element (3) and the bowl (2).
4. Clean the bowl (2) and fit a new FILTREC element (3), verifying the part number, particularly concerning the micron rating.
5. When fitting the new element (3), 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.
6. Check the top cover O-ring conditions and replace if necessary.
7. Put the spring (4) in its position on the filter element (3).
8. Mount the top cover onto the head and fix it screwing the fixing bolts.
9. ⚠ The used filter elements cannot be cleaned and re-used.

Technical information may change without notice.

CT92-rev. 08/26

WWW.SUMY.IR

# 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.



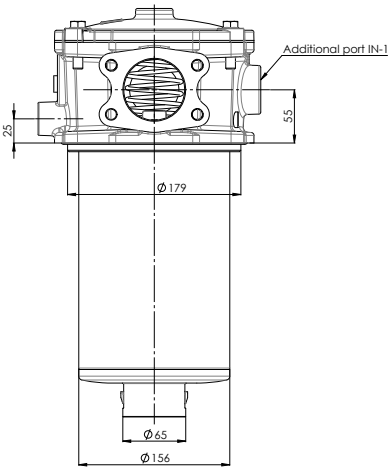
| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 10 bar<br>Burst: 20 bar |
| CONNECTIONS: | 2 1/2" SAE 3000 FLANGE |
| ADDITIONAL PORT: | G 1" (standard) |
| MATERIALS: | Cover and head: aluminum alloy<br>Bowl: painted carbon steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | As separate part into the filter housing<br>3 bar |

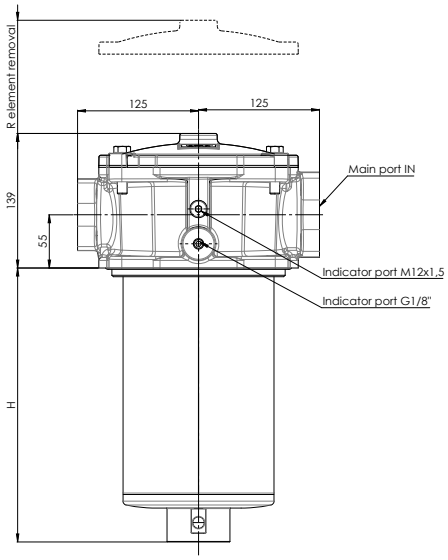
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber<br>G03 - G06 - G10 - G15 - G25 - G40<br>Synthetic: M05 - M10 - M15 |
| COLLAPSE PRESSURE: | 10 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

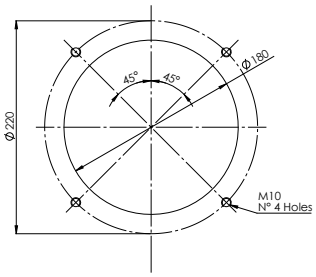
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

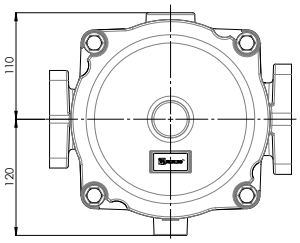
## OVERALL DIMENSIONS



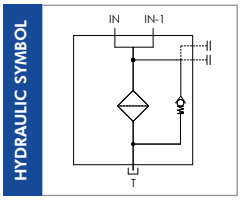




TANK HOLE




FRT-…-F9MB5




## NOMINAL SIZE

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

## ORDERING INFORMATION

### FRT-XR400/630

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FRT** | **XR** | **400** | **G10** | **B** | **0** | **F9M** | **B5** | **C** | **000** | **S** | **0** |
| SPARE ELEMENT | | **XR** | **400** | **G10** | **B** | **0** | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FRT | |
| 2. FILTER ELEMENT SERIES | XR | |
| 3. FILTER SIZE | 400 | |
| | 630 | |
| 4. FILTER MEDIA | 000 | no element |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | M05 | synthetic $ß_{10\mu m(c)} \geq 1.000$ |
| | M10 | synthetic $ß_{15\mu m(c)} \geq 1.000$ |
| | M15 | synthetic $ß_{20\mu m(c)} \geq 1.000$ |
| 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FRT** | **R6** | **72** | **G10** | **B** | **F9M** | **B5** | **C** | **000** | **S** | **0** |
| SPARE ELEMENT | | **R6** | **72** | **G10** | | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FRT | |
| 2. FILTER ELEMENT SERIES | R6 | |
| 3. FILTER SIZE | 70-71-72 | |
| 4. FILTER MEDIA | 000 | no element |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| 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 "C" bypass |
| For other indicators, see the "Clogging Indicator" catalogue in the download section | MRC | press. gauge radial connection | |
| | 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 (Δp) INFORMATION FOR FILTER SIZING

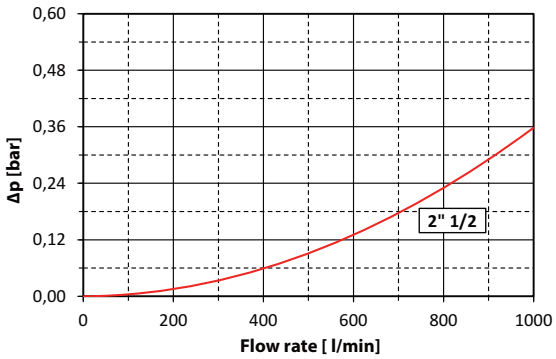
The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.

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$^3$.

## HOUSING PRESSURE DROP

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

**FRT-XR/R6**



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

| | G03 | G06 | G10 | G15 | G25 | G40 | M05 | M10 | M15 |
|---|---|---|---|---|---|---|---|---|---|
| **XR400** | 1,00 | 0,80 | 0,47 | 0,39 | 0,33 | 0,21 | 0,40 | 0,36 | 0,29 |
| **XR630** | 0,68 | 0,55 | 0,30 | 0,28 | 0,19 | 0,10 | 0,25 | 0,22 | 0,18 |

| | G06 | G10 | G15 |
|---|---|---|---|
| **R670** | 0,90 | 0,57 | 0,44 |
| **R671** | 0,56 | 0,32 | 0,30 |
| **R672** | 0,35 | 0,18 | 0,20 |

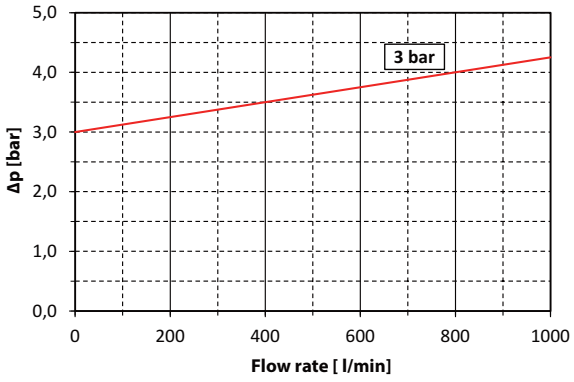
## EXAMPLE OF TOTAL Δp CALCULATION

FRTXR400G10B0F9MB5C000S0 with 400 l/min and oil 46 cSt:
Housing Δp 0,09 bar + element Δp 0,27 bar (400 x 0,47 /1000 x 46/32) = total assembly Δp 0,36 bar

## BYPASS VALVE PRESSURE DROP

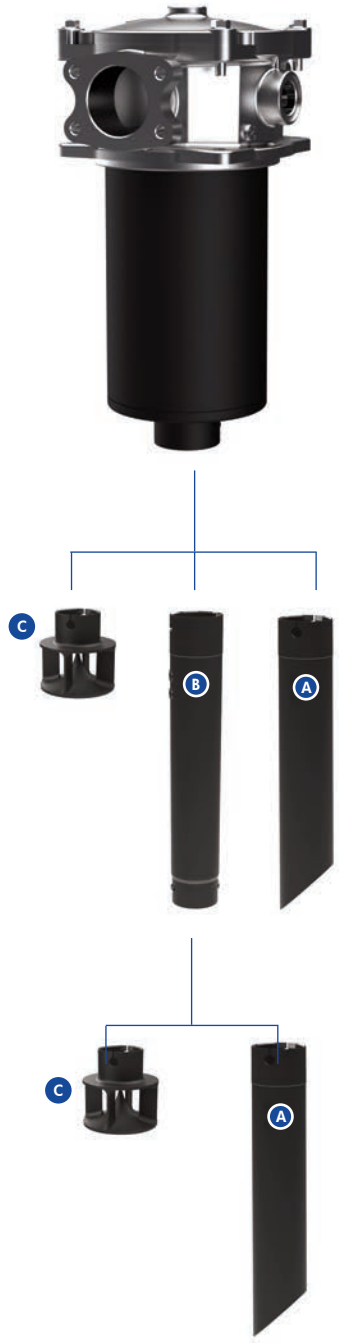
The bypass valve Δp is given by the curve of the considered model and setting, in correspondence of the flow rate value.

**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 |

### 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 |

## 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.

Technical information may change without notice.

CT146-rev. 02/26

WWW.SUMY.IR

# FHT SERIES

Return/suction filter for hydrostatic systems

Filters for operating pressure up to 10 bar. Flow rate up to 120 l/min.

In systems with hydrostatic drive, this return-suction filter can combine the suction and return filter in one system, providing clean oil to the feed pump while keeping under control the oil contamination of the main return flow.



| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 | |
|---|---|---|
| PRESSURE: | Max operating:<br>Burst: | up to 10 bar<br>20 bar |
| CONNECTIONS: | G 3/4" ÷ G 1" | |
| MATERIALS: | Head: aluminum<br>Cover: PA6 + GF<br>Bowl: PA6+GF+CF<br>Seal: NBR (FKM on request) | |
| BYPASS VALVE: | 2,5 bar | |
| PRESSURIZATION VALVE: | 0,5 bar | |

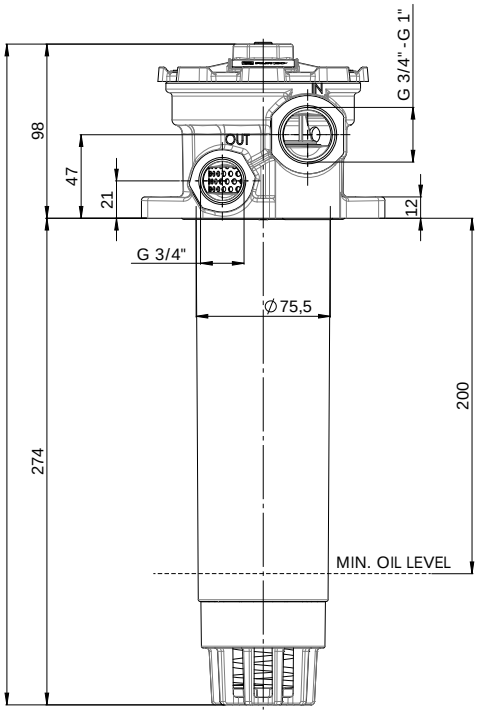
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA:<br>Available in std. and antistatic version | Inorganic microfiber:<br>G06 - G10 - G15 - G25<br>Synthetic:<br>M05 – M10 – M15 |
| COLLAPSE PRESSURE: | 10 bar |

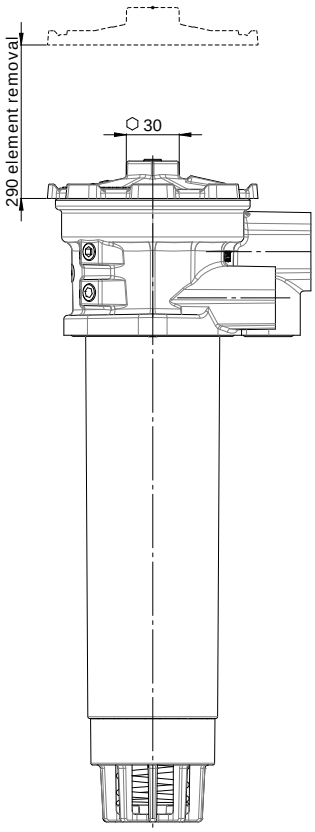
| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br>(short term up to -40°C)<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

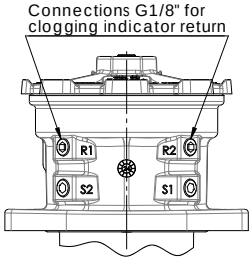
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

## OVERALL DIMENSIONS

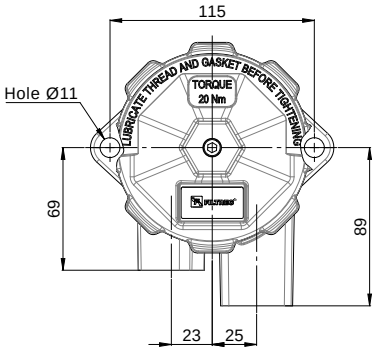
FHT-A/B/C/D



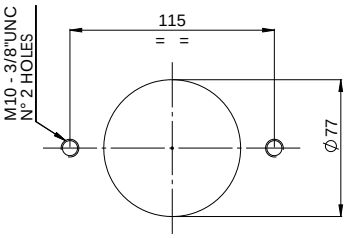



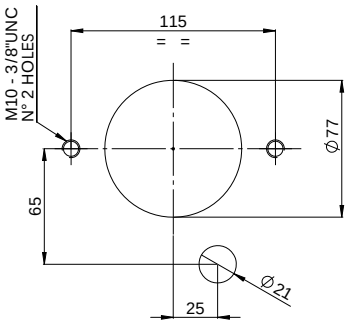




**Weight: 1,7 Kg**



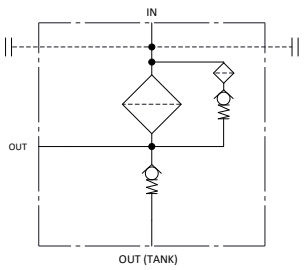

TANK MOUNTING PATTERN POSSIBLE IN BOTH CONFIGURATIONS



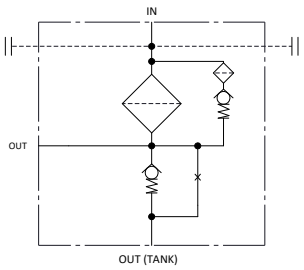




## HYDRAULIC SYMBOLS

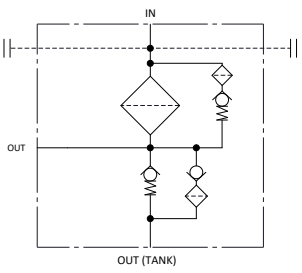
FHT-A-H5-11



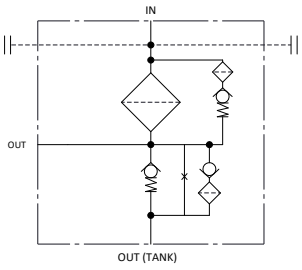

FHT-B-H5-11




FHT-C-H5-11

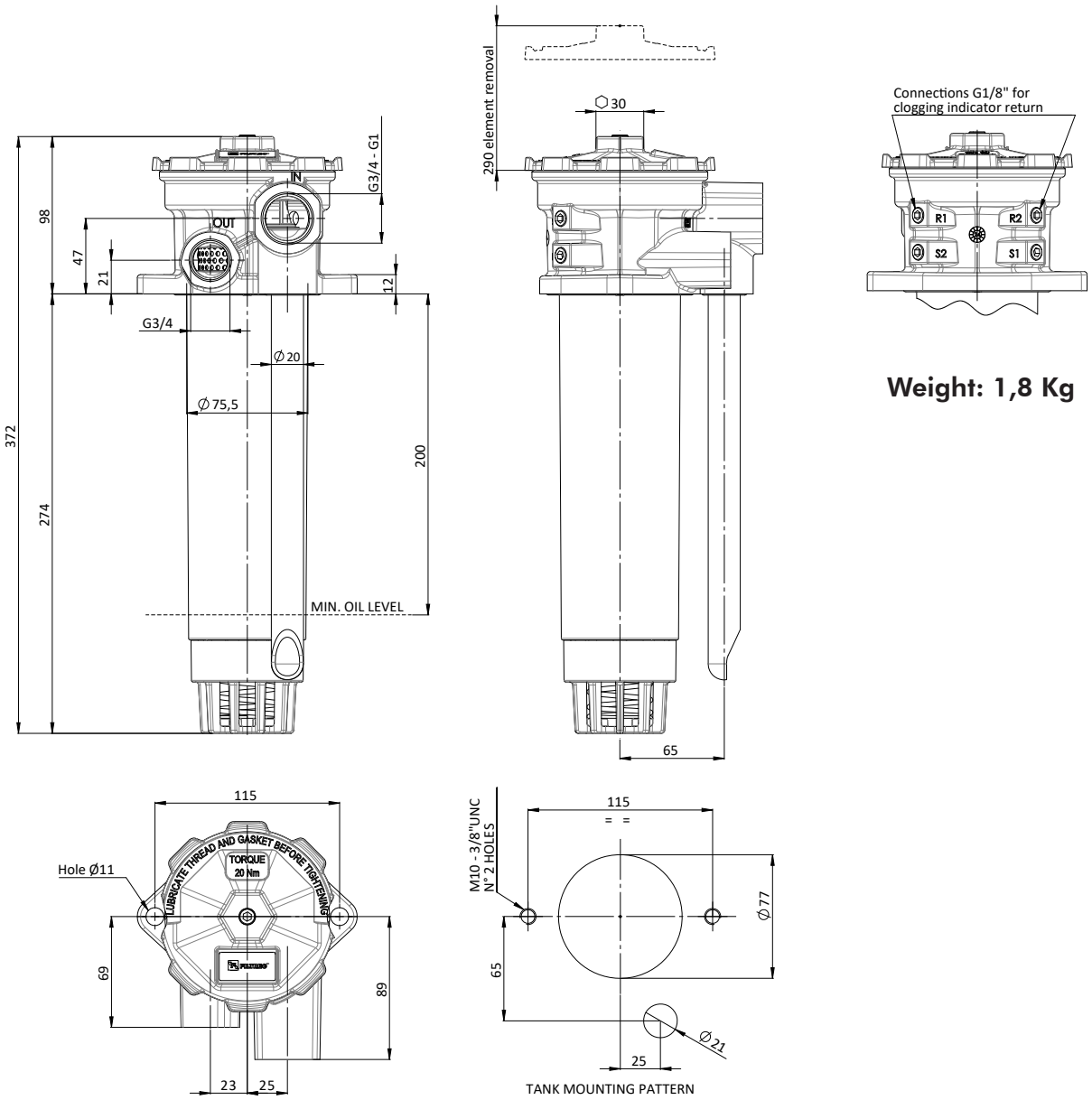



FHT-D-H5-11



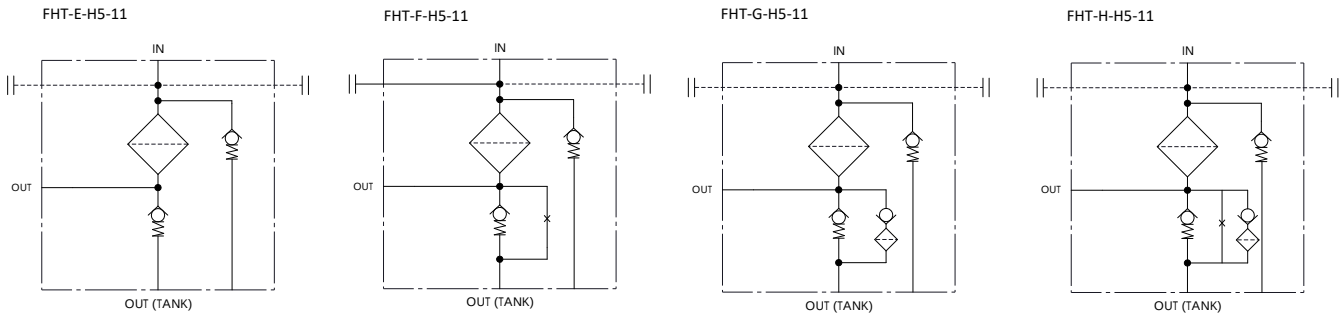
## OVERALL DIMENSIONS

FHT-E/F/G/H




**Weight: 1,8 Kg**

## HYDRAULIC SYMBOLS



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FHT** | **C** | **H5** | **11** | **M15** | **B** | **2** | **ESD** | **B5** | **B4** | **1** | **000** | **S** | **1** |
| SPARE ELEMENT | | | **H5** | **11** | **M15** | **B** | **2** | **/ESD** | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FHT | |
| 2. CONFIGURATION | A | BYPASS INSIDE THE ELEMENT WITH STRAINER + pressurization valve |
| | B | BYPASS INSIDE THE ELEMENT WITH STRAINER + pressurization valve + drain hole |
| | C | BYPASS INSIDE THE ELEMENT WITH STRAINER + pressurization valve + anticavitation valve + safety strainer |
| | D | BYPASS INSIDE THE ELEMENT WITH STRAINER + pressurization valve + drain hole + anticavitation valve + safety strainer |
| | E | EXTERNAL BYPASS 2,5bar setting + pressurization valve |
| | F | EXTERNAL BYPASS 2,5bar setting + pressurization valve + drain hole |
| | G | EXTERNAL BYPASS 2,5bar setting + pressurization valve + anticavitation valve + safety strainer |
| | H | EXTERNAL BYPASS 2,5bar setting + pressurization valve + drain hole + anticavitation valve + safety strainer |
| 3. FILTER ELEMENT SERIES | H5 | |
| 4. FILTER SIZE | 11 | |
| 5. FILTER MEDIA | 000 | no element |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | M05 | synthetic $ß_{10\mu m(c)} \geq 1.000$ |
| | M10 | synthetic $ß_{15\mu m(c)} \geq 1.000$ |
| | M15 | synthetic $ß_{20\mu m(c)} \geq 1.000$ |
| 6. SEALS | B | NBR |
| 7. BYPASS VALVE<br>Inbuilt into the filter element | 0 | no bypass or no element (only for configuration E-F-G-H or empty housing config) |
| | 2 | 2,5 bar (only for configuration A-B-C-D) |
| 8. ELEMENT SUFFIX<br>only for spare element "/" before the three-digit suffix is needed | ESD | antistatic version |
| 9. RETURN CONNECTIONS (A) | B4 | G 3/4" |
| | B5 | G 1" |
| 10. SUCTION CONNECTIONS (B) | B4 | G 3/4" |
| 11. INDICATOR PORT | 1 | R1+R2 ports (2x1/8" INDICATOR PORTS ON RETURN) |
| 12. COMPULSORY FIELD | 000 | Filtrec standard |
| 13. CORROSION PROTECTION | S | standard – without treatment |
| 14. OPTION | 1 | dissipative compound |
| | 3 | dissipative compound + G 1/8" INDICATOR PORTS ON COVER |

PREFERRED OPTION

## ORDERING INFORMATION

### ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| INDICATOR | MPD | pressure gauge rear connection - 2,5 bar setting |
| | MRD | pressure gauge radial connection - 2,5 bar setting |
| | PDC | pressure switch - 2 bar setting |

### FILTER FEATURES

In systems with hydrostatic drive, this return-suction filter can combine the suction and return filter in one system, providing clean oil to the feed pump while keeping under control the oil contamination of the main return flow.

Among the different configurations proposed (hydraulic schemes on page 2 and 3), we suggest the FHT-C one.
This configuration guarantees the cleanliness of the oil to the feed pump, filtered by the main filter or, in case of clogging, by the safety strainer in the element.

In certain conditions, the integrated emergency suction valve provides sufficient oil flow to the feed pump.

Moreover, the back-pressure valve downstream the filter maintains a pressure of about 0,5 bar into the feed line avoiding any cavitation problem. Please consider that the return flow must exceed the suction flow under any operating condition; in general, good tip is to consider that the main return flow must be 2x the feed pump flow.

Both the filter housing and the filter cartridge are by default in anti-static version avoiding any electrostatic discharge inside the filter generated by certain types of fluids (without ZDDP additives and biodegradables).

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

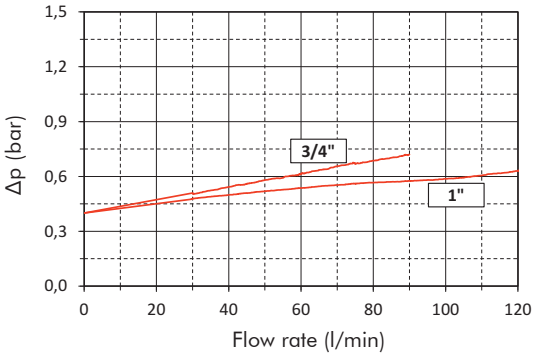
The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp is 1 bar with clean element.

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

## HOUSING PRESSURE DROP

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

**FHT-x-H5-11**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 80 l/min with H511M15B2/ESD and oil viscosity 46 cSt: (80 x 2,40)/1000 x (46/32) = 0,276 bar

| | G06 | G10 | G15 | G25 | M05 | M10 | M15 |
|---|---|---|---|---|---|---|---|
| **H511** | 5,76 | 4,27 | 4,32 | 3,73 | 2,88 | 2,51 | 2,40 |

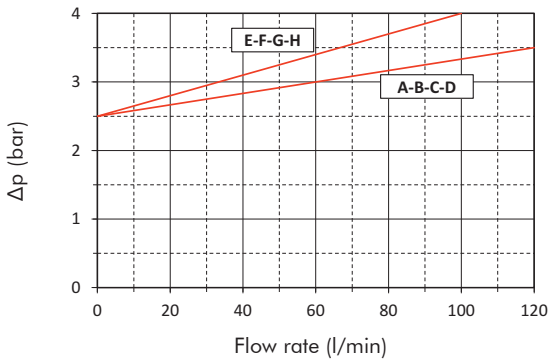
## EXAMPLE OF TOTAL Δp CALCULATION

FHTCH511M15B2ESDB5B41000S1 with 80 l/min and oil 46 cSt:
Housing Δp 0,58 bar + element Δp 0,276 bar (80 x 2,40)/1000 x (46/32) = total assembly Δp 0,856 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.

**FHT-x-H5-11**




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.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. COVER
4. FILTER ELEMENT
5. SEAL KIT
6. FILTER BOWL
7. IDENTIFICATION LABEL
8. EXTERNAL BY-PASS (only for configuration E-F-G-H)

### INDICATOR TIGHTENING TORQUE

| 10 Nm |
|---|

### SPARE SEAL KIT PART NUMBER (5)

| | NBR |
|---|---|
| FHT-H5-11 | 06.021.00453 |

### COVER TIGHTENING TORQUE

| 20 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 hoses must be properly connected to the IN and OUT port.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in an easily viewable position.
6. When an electrical indicator is used, make sure that it is properly wired.

⚠ 7. Never run the system with no filter element fitted.
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 emperature (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
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 top cover (3) and remove it.
3. Remove the dirty element (4).
4. Fit a new FILTREC element (4), verifying the part number, particularly concerning the micron rating; remove completely the plastic protection and insert the element in the filter head.
5. Check the O-rings (5) conditions and replace them if necessary.
6. Screw the top cover (3) onto the head.

⚠ 7. The used filter elements cannot be cleaned and re-used.

www.filtrec.com
Technical information may change without notice

CT145-02/26

WWW.SUMY.IR

# FRM SERIES

Tank top return filters

The FRM filters are available with various configurations:

- with 3 or 4 tank mounting holes
- with supplementary inlet ports
- flow rate up to 500 l/min
- with quick service cover



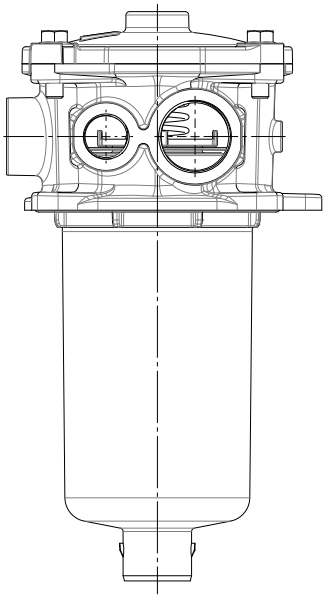


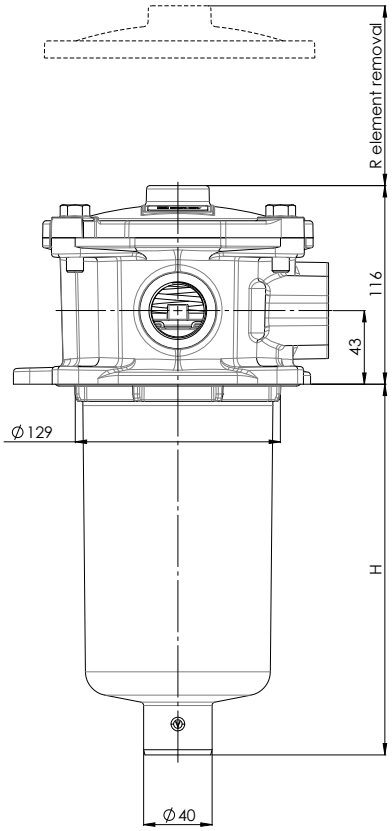
| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 10 bar |
| CONNECTIONS: | G 1 1/4" - G 3/4" – G 1"<br>G 1 1/2" – G 1" + 1 1/4" SAE 3000 FLANGE M |
| MATERIALS: | Head: aluminium alloy<br>Bowl: PA6 reinforced<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | Inbuilt in the filter element<br>C version 3 bar<br>B version 1,7 bar |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber<br>G03 - G06 - G10 - G15 - G25 - G40<br>Paper: C10 – C25<br>Wire mesh: T60<br>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).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

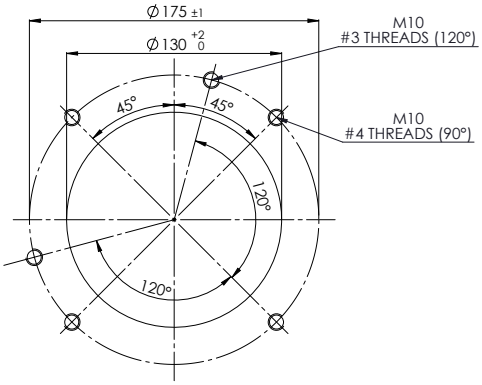
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

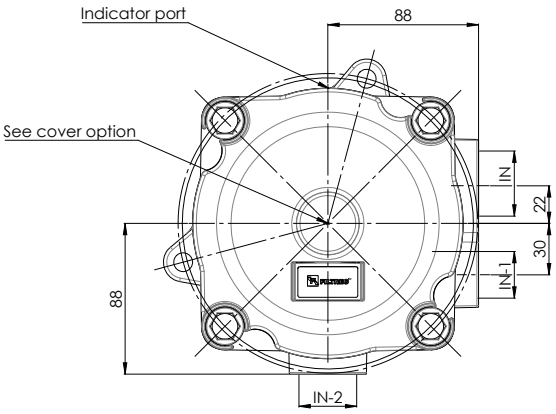
## OVERALL DIMENSIONS FRM 40 43 45 B6B4B5






## TANK MOUNTING PATTERN

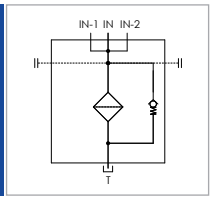


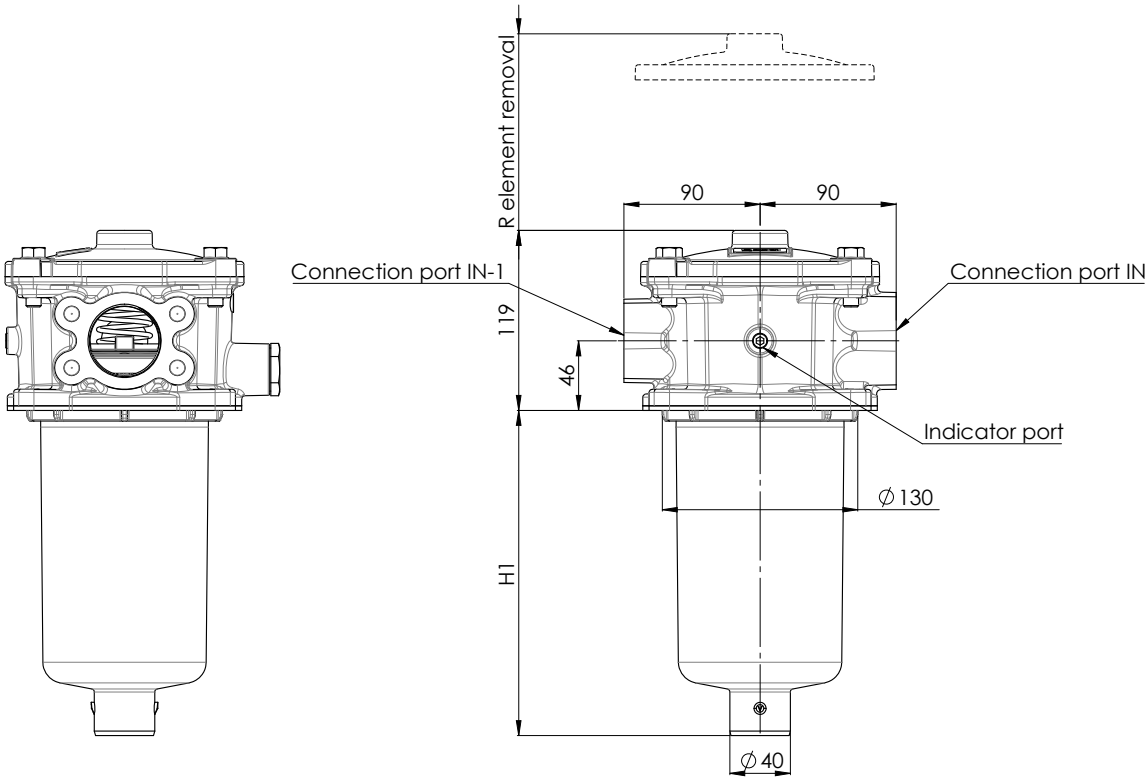

## NOMINAL SIZE

| MODEL | IN | IN-1 | IN-2 | H | R | WEIGHT |
|---|---|---|---|---|---|---|
| FRM-R1-40-B6B4B5 | G 1 1/4" | G 3/4" | G 1" | 217 | 300 | 2,1 Kg |
| FRM-R1-43-B6B4B5 | | | | 263 | 350 | 2,2 Kg |
| FRM-R1-45-B6B4B5 | | | | 430 | 520 | 2,4 Kg |

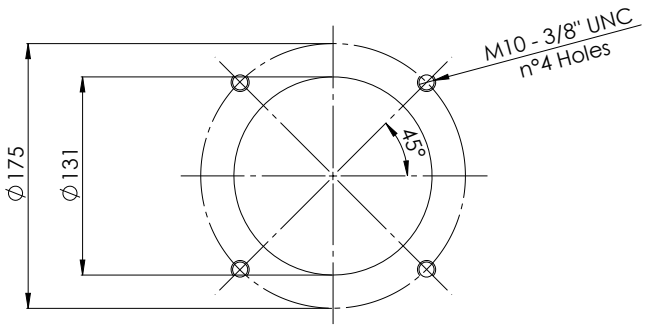
HYDRAULIC SYMBOL

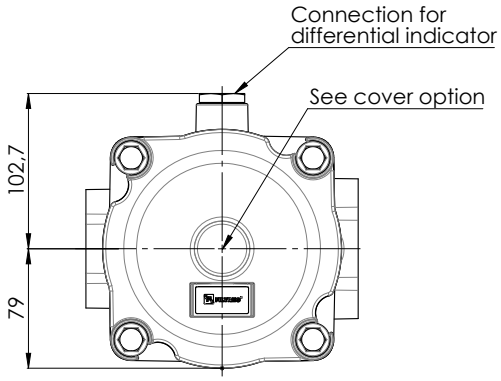


## OVERAL DIMENSIONS FRM 40 43 45 B7B5F6M




## TANK MOUNTING PATTERN

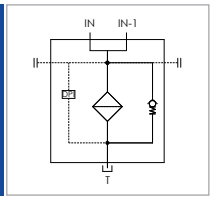



## NOMINAL SIZE

| MODEL | IN | IN-1 | H1 | R | WEIGHT |
|---|---|---|---|---|---|
| FRM-R1-40-B7B5F6M | G 1 1/2" | G 1" + 1 1/4" SAE 3000 M | 215 | 300 | 3,5 Kg |
| FRM-R1-43-B7B5F6M | | | 261 | 350 | 3,65 Kg |
| FRM-R1-45-B7B5F6M | | | 428 | 520 | 4,25 Kg |

HYDRAULIC SYMBOL



## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FRM** | **R1** | **43** | **G10** | **C** | **B** | **B6B4B5** | **0** | **T** | **000** | **S** | **0** |
| SPARE ELEMENT | | **R1** | **43** | **G10** | **C** | | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FRM | |
| 2. FILTER ELEMENT SERIES | R1 | |
| 3. FILTER SIZE | 40 | |
| | 43 | |
| | 45 | |
| 4. FILTER MEDIA | 000 | no element |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | C10 | paper $ß_{10\mu m(c)} \geq 2$ |
| | C25 | paper $ß_{25\mu m(c)} \geq 2$ |
| | T60 | wire mesh 60 $\mu$m |
| | M05 | synthetic $ß_{10\mu m(c)} \geq 1.000$ |
| | M10 | synthetic $ß_{15\mu m(c)} \geq 1.000$ |
| | M15 | synthetic $ß_{20\mu m(c)} \geq 1.000$ |
| 5. BYPASS VALVE | C | 3 bar |
| Inbuilt into the filter element | B | 1,7 bar |
| 6. SEALS | *B | NBR |
| *omitted for spare element | V | FKM |
| 7. HEAD CONFIGURATION | B6B4B5 | (IN) G 1 1/4" - (IN-1) G 3/4" - (IN-2) G 1" |
| | B7B5F6M | (IN) G 1 1/2" - (IN-1) G 1" + 1 1/4" SAE 3000 FLANGE M |
| 8. COVER OPTION | 0 | without |
| | T | with filling plug 3/4" on top cover (on request) |
| | C | 1/8" on top cover (plugged) (on request) |
| 9. INDICATOR PORT OPTION | T | indicator ports with metal plug |
| | P | 1/8" port with metal plug+differential port with plastic plug - only for head config. B7B5F6M |
| 10. COMPULSORY FIELD | 000 | Filtrec standard |
| 11. CORROSION PROTECTION | S | standard |
| 12. OPTIONS | 0 | no option |

## ORDERING INFORMATION

### ACCESSORIES

The accessories must be ordered separately

| | | | |
|---|---|---|---|
| INDICATOR<br>The accessories must be ordered separately<br>**(F)** digit for FKM seal option<br>LC24=Led connector (see clogging indicators catalogue)<br>*only for B7B5F6M | MPB | press. gauge rear connection | with “B” bypass option |
| | MRB | press. gauge radial connection | |
| | PDB | pressure switch | |
| | MPC | press. gauge rear connection | with “C” bypass option |
| | MRC | press. gauge radial connection | |
| | PDC | pressure switch | |
| | *V02 (VF2) | differential visual 2,7 bar | |
| | *E02 (EF2) | differential electric 2,7 bar | |
| | *VEF2 | differential visual electric 2,7 bar | |
| | LC24 | LED connector for PDB / PDC / E02 | |
| 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 | |

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

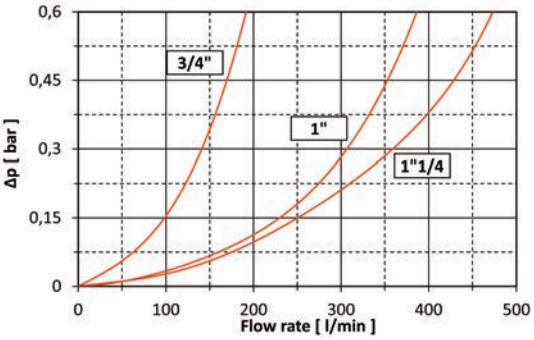
The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.

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.

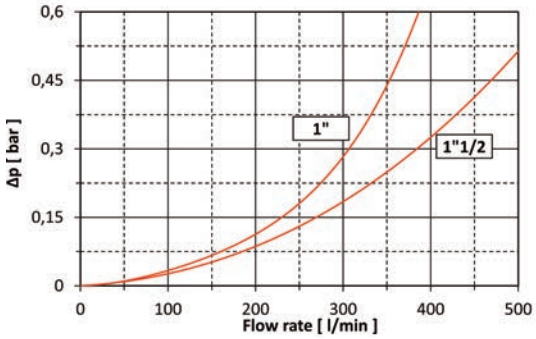
## HOUSING PRESSURE DROP

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

**FRM 40 43 45 B6B4B5**




**FRM 40 43 45 B7B5F6M**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 200 l/min with R143G10C and oil viscosity 46 cSt: (200 x 1,21)/1000 x (46/32) = 0,35 bar

| | G03 | G06 | G10 | G15 | G25 | G40 | C10 | C25 | T60 | M05 | M10 | M15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **R140** | 3,59 | 2,43 | 1,31 | 1,25 | 1,10 | 0,43 | 0,85 | 0,39 | 0,22 | 0,95 | 0,82 | 0,62 |
| **R143** | 3,33 | 2,25 | 1,21 | 1,15 | 1,00 | 0,39 | 0,83 | 0,35 | 0,20 | 0,88 | 0,75 | 0,57 |
| **R145** | 2,15 | 1,35 | 0,55 | 0,52 | 0,50 | 0,17 | 0,42 | 0,22 | 0,10 | 0,52 | 0,44 | 0,32 |

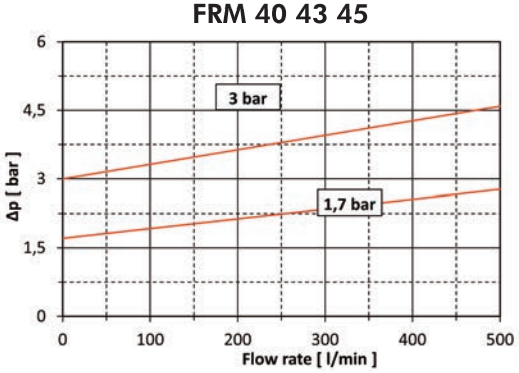
## EXAMPLE OF TOTAL Δp CALCULATION

FRMR143G10CBB6B4B50T000S0 with **200** l/min and oil **46** cSt ( for port 1" 1/4 ):
Housing Δp 0,10 bar + element Δp 0,35 bar (200 x 1,21)/1000 x (46/32) = total assembly Δp 0,45 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.

**FRM 40 43 45**



## ACCESSORIES

These accessories fit all our standard models and 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.

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

### B CONNECTION TUBE

Connection tube is the necessary device between filter bowl and extension tubes (ET2250 / ET2500) and/or dif- fuser (DF040). Its plug and play option makes it easy to install and versatile.

| | | |
|---|---|---|
| 06.016.00486 | CT2250 | connection tube 250 mm long |

### 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 (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 Ø 40 mm |

## USER TIPS FRM 40 43 45 B6B4B5




1 COVER
2 SCREWS
3 SPRING
4 SEALS KIT
5 IDENTIFICATION LABEL
6 BOWL
7 FILTER ELEMENT
8 FILTER HEAD
9 FIXING HOLES

### SPARE SEALS KIT (4)

| | NBR | FKM |
|---|---|---|
| FRM 40 43 45 B6B4B5 | 06.021.00282 | 06.021.00283 |

### COVER SCREWS TIGHTENING TORQUE (2)

| | |
|---|---|
| M10 | 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 (8) 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).
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. Loosen the cover fixing bolts and rotate for element removal.
3. Remove the spring (3) first, then the dirty element (7) and the bowl (6).
4. Clean the bowl (6) and fit a new FILTREC element (7), verifying the part number, particularly concerning the micron rating.
5. When fitting the new element (7), 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.
6. Check the top cover O-ring conditions and replace if necessary.
7. Put the spring (3) in its position on the filter element (7).
8. Mount the top cover onto the head and fix it screwing the fixing bolts.
9. ⚠ The used filter elements cannot be cleaned and re-used.

## USER TIPS FRM 40 43 45 B7B5F6M



1. COVER
2. SCREWS
3. SPRING
4. SEALS KIT
5. COLLAR
6. BOWL
7. FILTER ELEMENT
8. FILTER HEAD
9. PRESSURE GAUGE SWITCH PORT
10. DIFFERENTIAL INDICATOR PORT
11. FIXING HOLES

### SPARE SEALS KIT (4)

| | NBR | FKM |
|---|---|---|
| FRM 40 43 45 B7B5F6M | 06.021.00439 | 06.021.00440 |

### INDICATOR TIGHTENING TORQUE

| | |
|---|---|
| PRESSURE GAUGE / SWITCH | 10 Nm |
| DIFFERENTIAL | 50 Nm |

### COVER SCREW 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 top cover (1), ensure that the system is switched off and there is no residual pressure in the filter.
2. Remove the top cover (1).
3. Remove the spring (3) first, then the dirty element (7) and the bowl (6).
4. Clean the bowl (6) and fit a new FILTREC element (7), verifying the part number, particularly concerning the micron rating.
5. When fitting the new element (7), 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.
6. Check the top cover O-ring conditions and replace if necessary.
7. Put the spring (3) in its position on the filter element (7).
8. Mount the top cover onto the head and fix it screwing the fixing bolts.

⚠ 9. The used filter elements cannot be cleaned and re-used.

Technical information may change without notice.

CT91-rev. 01/26

WWW.SUMY.IR

# FCR7F-1 SERIES

Tank top return filters

Return filter for mounting on the tank lid. Filtration from inside to outside.
Flow rates up to 400 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 1/4" - G 1 1/2" | |
| MATERIALS: | Head: | aluminium alloy |
| | Top cover: | PA6 |
| | Element holder: | aluminium alloy |
| | Diffuser: | stainless steel |
| | Seal: | NBR (FKM on request) |
| BYPASS VALVE: | B version 1,7 bar<br>C version 3 bar | |

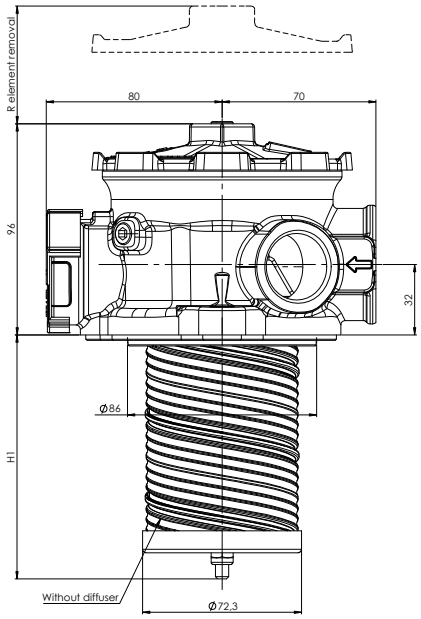
| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber<br>G03 - G06 - G10 - G15 - G25 - G40<br>Paper: C10 - C25<br>Wire mesh: T60<br>Synthetic: M05 - M10 - M15 |
| BURST PRESSURE: | 10 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

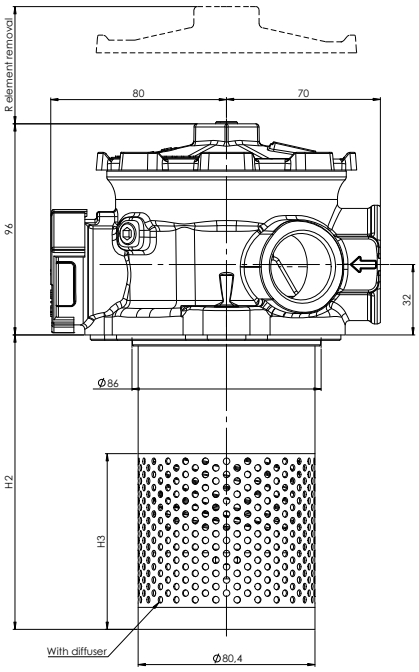
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

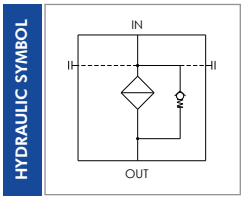
## FCR7F-1X-...-X-2A

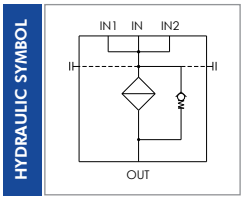
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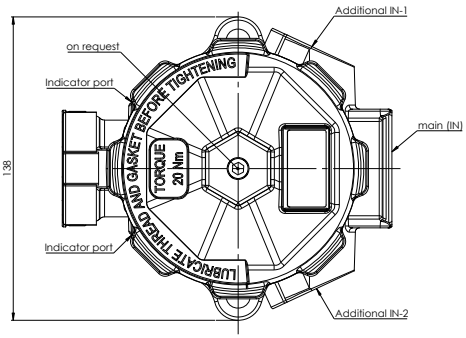


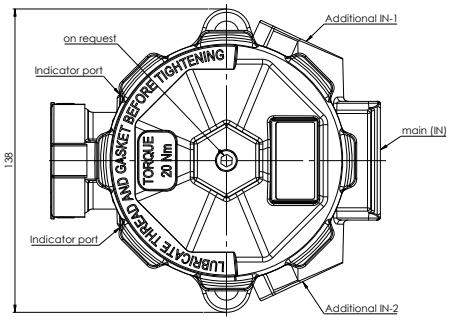

VERSION S

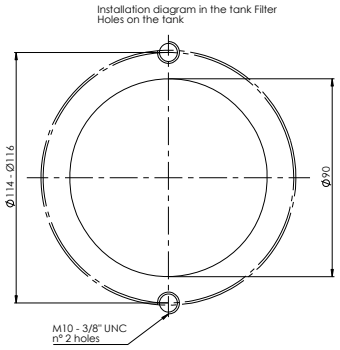


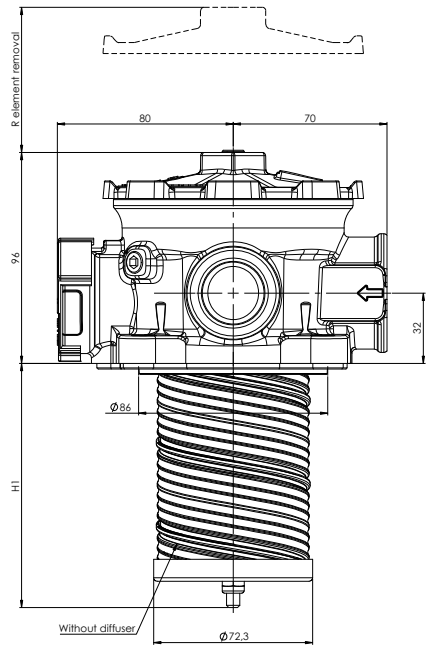

## NOMINAL SIZE

| MODEL | IN | IN-1 | IN-2 | H1 | H2 | H3 | R | WEIGHT* Vers. 0 | WEIGHT* Vers. S |
|---|---|---|---|---|---|---|---|---|---|
| FCR7F-11 | G 1" G 1 1/4" | not machined or G 1" | | 111 | 134 | 80 | 220 | 1,7 Kg | 2 Kg |
| FCR7F-12 | | | | 156 | 179 | | 265 | 1,7 Kg | 2 Kg |
| FCR7F-13 | | | | 206 | 229 | | 315 | 1,8 Kg | 2,2 Kg |
| FCR7F-14 | | | | 306 | 329 | 100 | 415 | 1,8 Kg | 2,3 Kg |

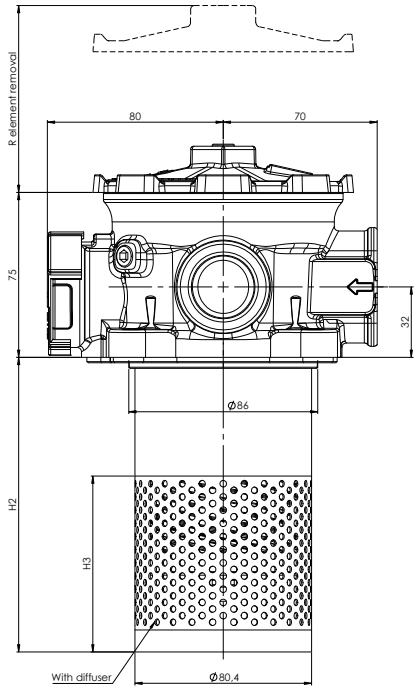
* Weight without element and magnets

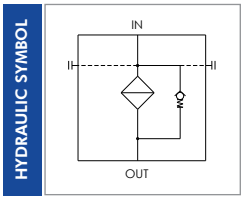
## FC-R7F-1X-...-X-4A

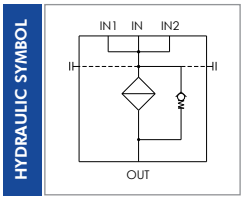
VERSION 0

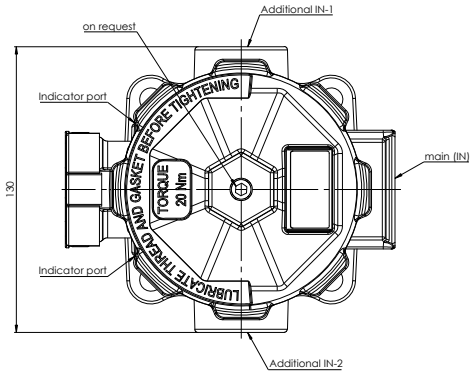


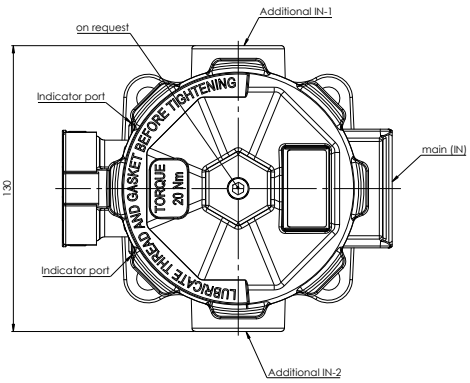

VERSION S

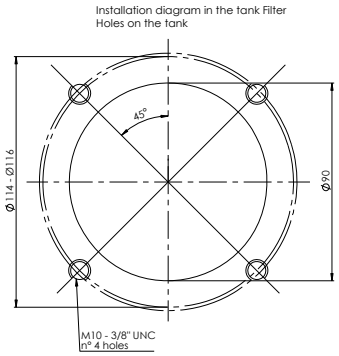


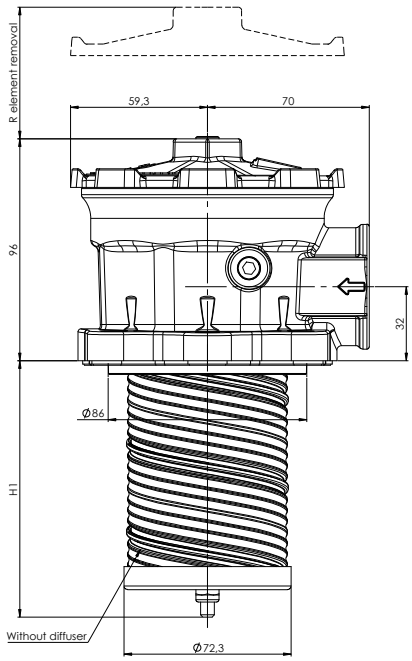

## NOMINAL SIZE

| MODEL | IN | IN-1 | IN-2 | H1 | H2 | H3 | R | WEIGHT* Vers. 0 | WEIGHT* Vers. S |
|---|---|---|---|---|---|---|---|---|---|
| FCR7F-11 | G 1" G 1 1/4" | not machined or G 1" | | 111 | 134 | 80 | 220 | 1,8 Kg | 2,1 Kg |
| FCR7F-12 | | | | 156 | 179 | | 265 | 1,8 Kg | 2,2 Kg |
| FCR7F-13 | | | | 206 | 229 | | 315 | 1,9 Kg | 2,3 Kg |
| FCR7F-14 | | | | 306 | 329 | 100 | 415 | 1,9 Kg | 2,4 Kg |

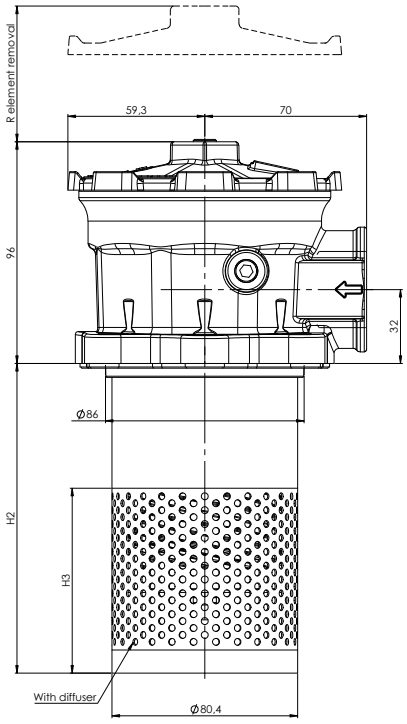
* Weight without element and magnets

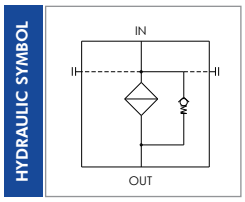
## FC-R7F-1X-...-0-6A

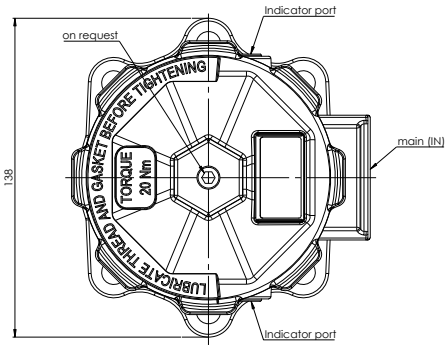
VERSION 0

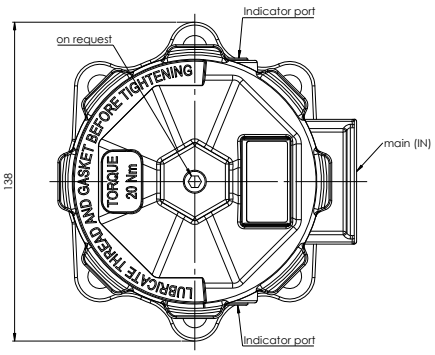


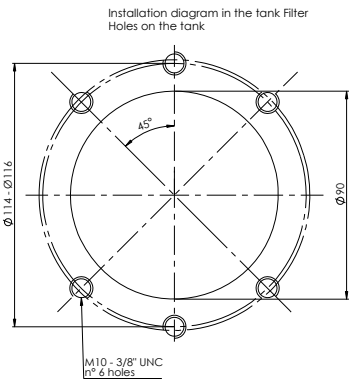

VERSION S




## NOMINAL SIZE

| MODEL | IN | H1 | H2 | H3 | R | WEIGHT* Vers. 0 | WEIGHT* Vers. S |
|---|---|---|---|---|---|---|---|
| FCR7F-11 | G 1" G 1 1/4" | 111 | 134 | 80 | 220 | 1,5 Kg | 1,8 Kg |
| FCR7F-12 | | 156 | 179 | | 265 | 1,5 Kg | 1,9 Kg |
| FCR7F-13 | | 206 | 229 | | 315 | 1,6 Kg | 2 Kg |
| FCR7F-14 | | 306 | 329 | 100 | 415 | 1,6 Kg | 2,1 Kg |

* Weight without element and magnets

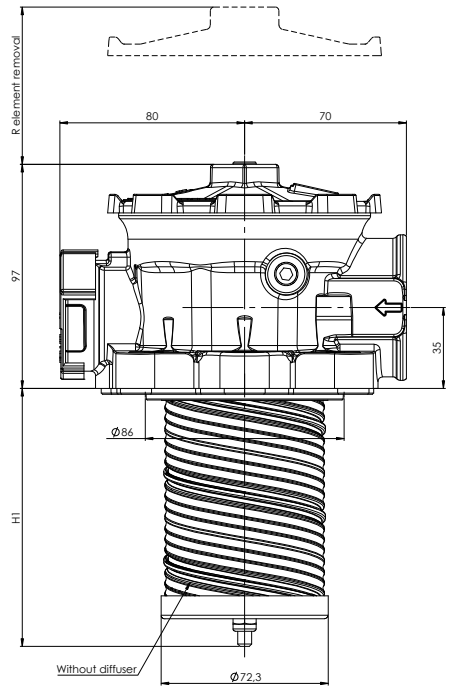
## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FC** | **R7F** | **14** | **G40** | **B** | **B6** | **00** | **B** | **0** | **0** | **B** | **0** | **000** | **1** | **2A** |
| SPARE ELEMENT | | **R7F** | **14** | **G40** | **B** | | | | | | | | | | |

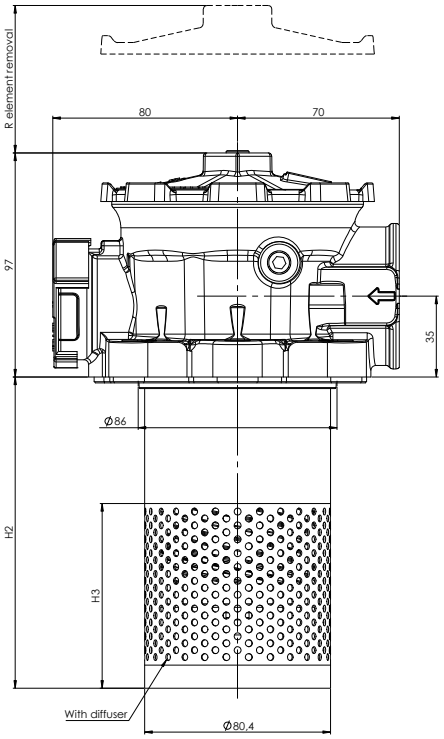
| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FC | | |
| 2. FILTER ELEMENT SERIES | R7F | | |
| 3. FILTER SIZE | 11 | | |
| | 12 | | |
| | 13 | | |
| | 14 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ | |
| | C10 | paper $ß_{10\mu m(c)} > 2$ | |
| | C25 | paper $ß_{25\mu m(c)} > 2$ | |
| | T60 | wire mesh 60 $\mu$m | |
| | M05 | synthetic $ß_{10\mu m(c)} > 1.000$ | |
| | M10 | synthetic $ß_{15\mu m(c)} > 1.000$ | |
| | M15 | synthetic $ß_{20\mu m(c)} > 1.000$ | |
| 5. SEALS | B | NBR | |
| | V | FKM (on request) | |
| 6. MAIN PORT | B5 | G 1" | |
| | B6 | G 1 1/4" | |
| 7. ADDITIONAL PORT | 00 | no additional port | |
| | B5 | G 1"x 2 | not available for 6A |
| 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 | B | 2x G 1/8" | |
| 12. COVER OPTION | 0 | without | |
| 13. COMPULSORY FIELD | 000 | Filtrec standard | |
| 14. INBUILT AIR BREATHER | 0 | no airbreather | |
| | 1 | with airbreather | not available for 6A |
| 15. TANK MOUNTING HOLES | 2A | 2 holes - tank mounting pattern Ø 114-116mm M10 | |
| | 4A | 4 holes - tank mounting pattern Ø 114-116mm M10 | |
| | 6A | 2+4 holes - tank mounting pattern Ø 114-116mm M10 | |
| ACCESSORIES | B610F03 | spare airbreather | |
| The accessories must be ordered separately | DS350 | dipstick | |
| | MPB | pressure gauge rear connection | with "B" bypass option |
| | MRB | pressure gauge radial connection | |
| | PDB | pressure switch | |
| | MPC | pressure gauge rear connection | with "C" bypass option |
| | MRC | pressure gauge radial connection | |
| | PDC | pressure switch | |
| | LC24 | LED connector for pressure switch | |

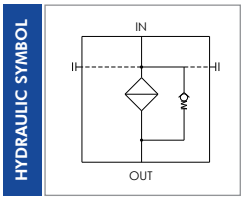
## FC-R7F-1X-...-1-6A

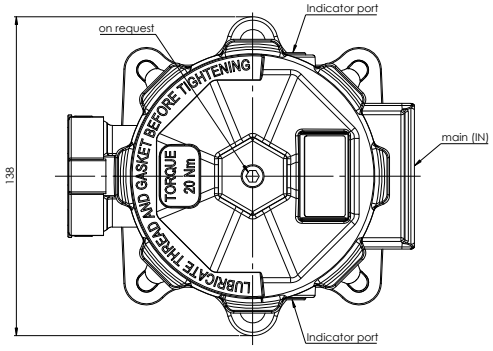
VERSION 0

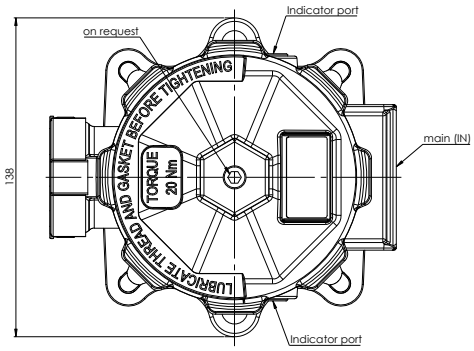


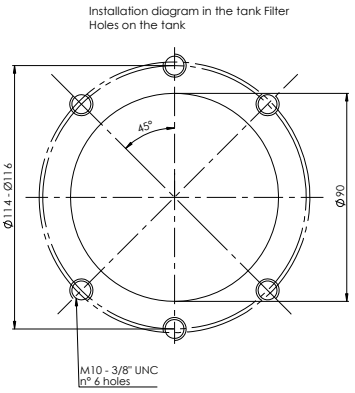

VERSION S



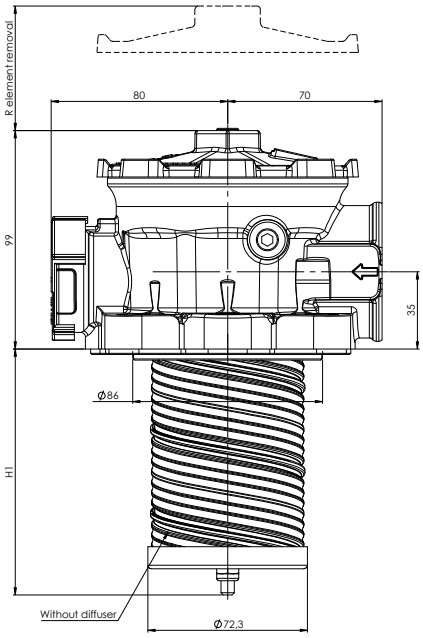



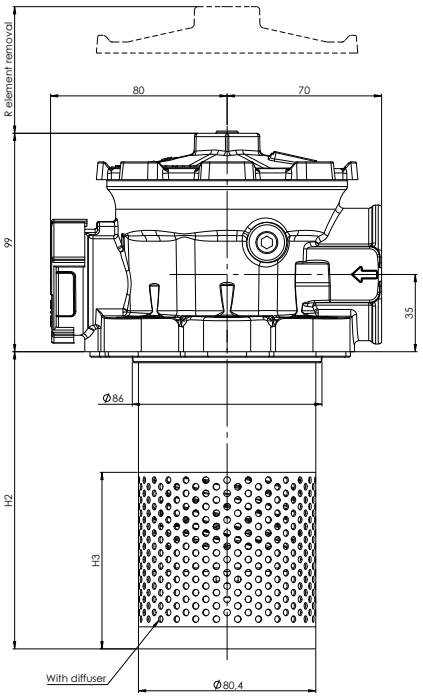

## NOMINAL SIZE

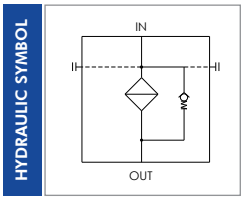
| MODEL | IN | H1 | H2 | H3 | R | WEIGHT* Vers. 0 | WEIGHT* Vers. S |
|---|---|---|---|---|---|---|---|
| FCR7F-13 | G 1 1/2" | 206 | 229 | 80 | 315 | 1,7 Kg | 2,1 Kg |
| FCR7F-14 | | 306 | 329 | 100 | 415 | 1,8 Kg | 2,3 Kg |

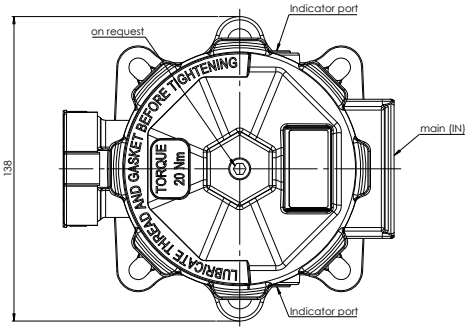
* Weight without element and magnets

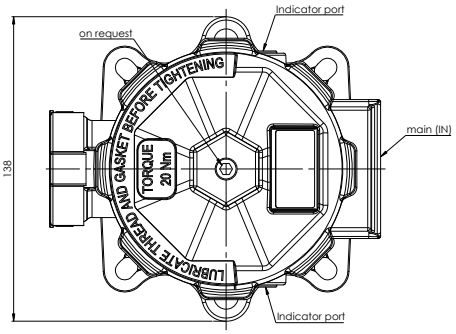
## FC-R7F-1X-...-1-6B

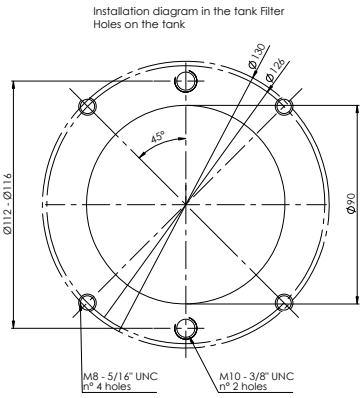



## NOMINAL SIZE

| MODEL | IN | H1 | H2 | H3 | R | WEIGHT* Vers. 0 | WEIGHT* Vers. S |
|---|---|---|---|---|---|---|---|
| FCR7F-13 | G 1 1/2" | 206 | 229 | 80 | 315 | 1,9 Kg | 2,3 Kg |
| FCR7F-14 | | 306 | 329 | 100 | 415 | 2 Kg | 2,5 Kg |

* Weight without element and magnets

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FC** | **R7F** | **14** | **G40** | **B** | **B7** | **00** | **B** | **0** | **0** | **B** | **0** | **000** | **1** | **6B** |
| SPARE ELEMENT | | **R7F** | **14** | **G40** | **B** | | | | | | | | | | |

| | | |
|---|---|---|
| 1. FILTER SERIES | FC | |
| 2. FILTER ELEMENT SERIES | R7F | |
| 3. FILTER SIZE | 13 | |
| | 14 | |
| 4. FILTER MEDIA | 000 | no element |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ |
| | C10 | paper $ß_{10\mu m(c)} > 2$ |
| | C25 | paper $ß_{25\mu m(c)} > 2$ |
| | T60 | wire mesh 60 $\mu$m |
| | M05 | synthetic $ß_{10\mu m(c)} > 1.000$ |
| | M10 | synthetic $ß_{15\mu m(c)} > 1.000$ |
| | M15 | synthetic $ß_{20\mu m(c)} > 1.000$ |
| 5. SEALS | B | NBR |
| | V | FKM (on request) |
| 6. MAIN PORT | B7 | G 1 1/2" |
| 7. ADDITIONAL PORT | 00 | no additional port |
| 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 | B | 2x G 1/8" |
| 12. COVER OPTION | 0 | without |
| 13. COMPULSORY FIELD | 000 | Filtrec standard |
| 14. INBUILT AIR BREATHER | 1 | with airbreather |
| 15. TANK MOUNTING HOLES | 6A | 2+4 holes - tank mounting pattern Ø 114-116mm M10 |
| | 6B | 2+4 holes<br>2 hole tank mounting pattern Ø 112-116mm M10<br>4 hole tank mounting pattern Ø 126-130mm M8 |

| | | | |
|---|---|---|---|
| ACCESSORIES | B610F03 | spare airbreather | |
| The accessories must be ordered separately | DS350 | dipstick | |
| | MPB | pressure gauge rear connection | with "B" bypass option |
| | MRB | pressure gauge radial connection | |
| | PDB | pressure switch | |
| | MPC | pressure gauge rear connection | with "C" bypass option |
| | MRC | pressure gauge radial connection | |
| | PDC | pressure switch | |
| | LC24 | LED connector for pressure switch | |

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

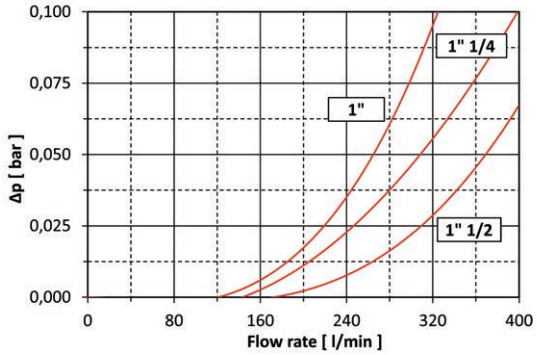
The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.
For multiport versions, the housing Δp to be considered is the sum of the Δp through all the ports that can be used contemporarily.

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/dm$^3$.

## HOUSING PRESSURE DROP

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

**FCR7F-1**



## 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: 300 l/min with R7F14G40B and oil viscosity 46 cSt: 300 x 1,10/1000 x 46/32 = 0,47 bar

| | G03 | G06 | G10 | G15 | G25 | G40 | M05 | M10 | M15 | C10 | C25 | T60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **R7F11** | 17,12 | 15,19 | 6,24 | 4,77 | 4,15 | 2,53 | 4,70 | 3,51 | 2,60 | 2,95 | 2,47 | 0,30 |
| **R7F12** | 10,51 | 9,73 | 3,89 | 3,10 | 2,79 | 2,49 | 3,02 | 2,70 | 2,54 | 2,68 | 2,38 | 0,28 |
| **R7F13** | 6,98 | 6,17 | 3,35 | 2,70 | 2,46 | 1,93 | 2,60 | 2,20 | 1,97 | 2,10 | 1,85 | 0,22 |
| **R7F14** | 4,97 | 4,46 | 2,14 | 1,96 | 1,56 | 1,10 | 1,66 | 1,34 | 1,20 | 1,22 | 1,00 | 0,20 |

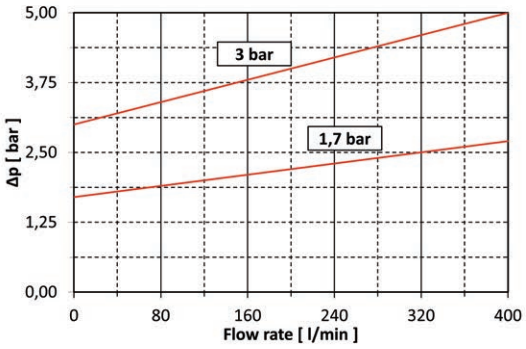
## EXAMPLE OF TOTAL Δp CALCULATION

FCR7F14G40BB700B00B000016B with **300** l/min and oil **46** cSt:
Housing Δp 0,02 bar + element Δp 0,47 bar (300 x 1,10/1000 x 46/32) = total assembly Δp 0,49 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.

**FCR7F-1**




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$^3$.

## ACCESSORIES

These accessories fit all our standard models and must be ordered separately.
For clogging indicators see the catalogue.




### A DIPSTICK
**for oil level detection**

When reduced space available, one of the tank fixing hole can be used for a dipstick to check the oil level; it is supplied with a M10 bolt support.

| PART NR. | DESCRIPTION |
|---|---|
| DS350 | dipstick 350 mm long |




### B AIR BREATHER

| PART NR. | FILTRATION | FLOW RATE | Δp |
|---|---|---|---|
| B610F03 | 3 μm | up to 300 Nl/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)




### C LED CONNECTOR

The LC24 connector can replace the standard black connector of the pressure switch indicators (N.B. supplied separately).
Feeded with 24V, it gives a visual indication of the filter element conditions: normally the GREEN light is on, the RED light switch on when the element is clogged.

| PART NR. | DESCRIPTION |
|---|---|
| LC24 | LED connector for pressure switch |

## USER TIPS




1. COVER
2. SPRING
3. ELEMENT HOLDER
4. GASKETS
5. MAGNETS
6. FILTER ELEMENT
7. FIXING NUT
8. DIFFUSER
9. FILTER HEAD
10. AIR BREATHER
(if included)

### SPARE SEALS KIT (4)

| | NBR | FKM (on request) |
|---|---|---|
| FCR7F1-X-XX-X-2A | 06.021.00341 | 06.021.00346 |
| FCR7F1-X-XX-X-4A | 06.021.00342 | 06.021.00347 |
| FCR7F1-X-XX-0-6A | 06.021.00343 | 06.021.00348 |
| FCR7F1-X-XX-1-6A | 06.021.00344 | 06.021.00349 |
| FCR7F1-X-XX-1-6B | 06.021.00345 | 06.021.00350 |

### INDICATOR TIGHTENING TORQUE

10 Nm

### COVER TIGHTENING TORQUE (1)

20 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 (2) 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 (4) 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 (2) in its position over the element holder(3), then mount the access cover (1) and secure it properly.

⚠
9. The used filter elements cannot be cleaned and re-used.

FILTREC®
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FILTREC®

# 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 | |

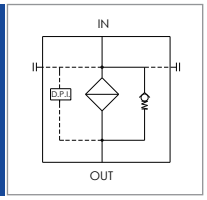
## ELEMENT

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

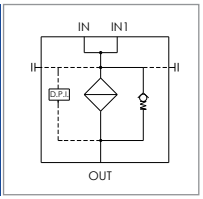
| | |
|---|---|
| FILTER MEDIA: | Inorganic microfiber<br>G03 - G06 - G10 - G15 - G25 - G40<br>Paper: C10 - C25<br>Wire mesh: T60<br>Synthetic: M05 - M10 - M15 |
| BURST PRESSURE: | 10 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

HYDRAULIC SYMBOL



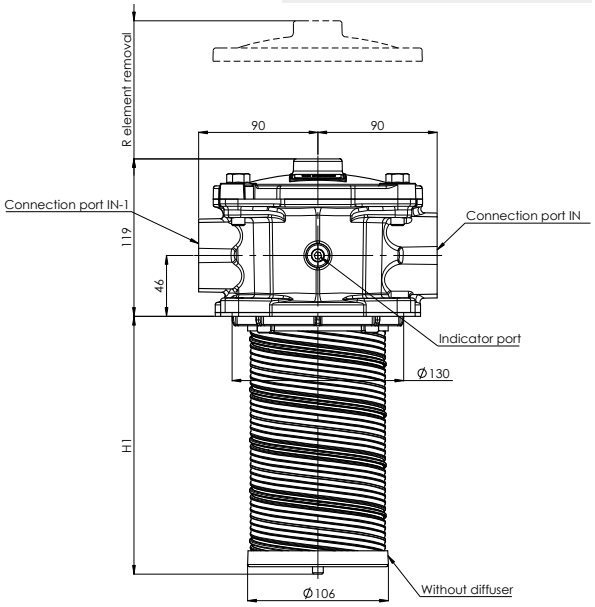

HYDRAULIC SYMBOL



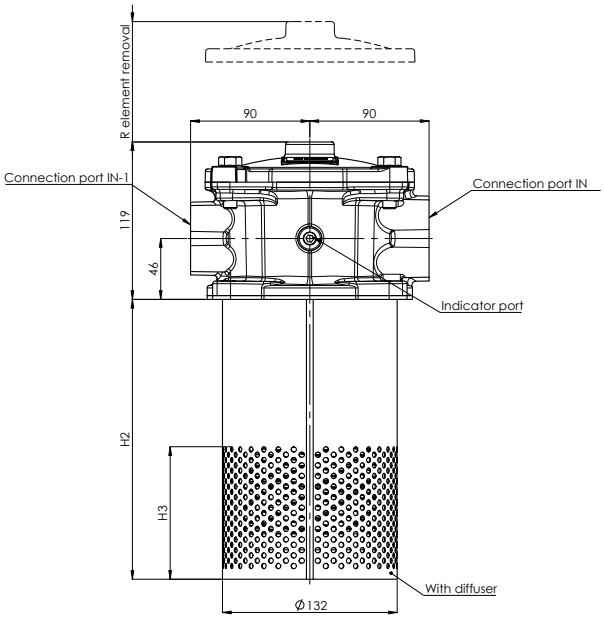

* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

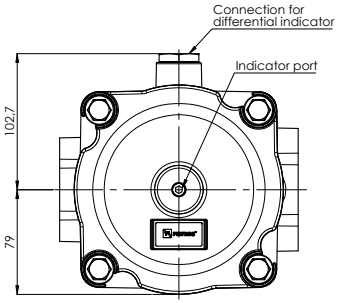
## FCR7F-2X

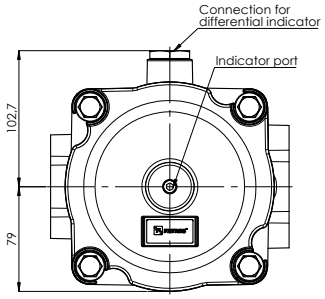
VERSION 0

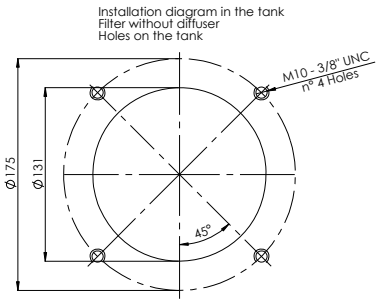


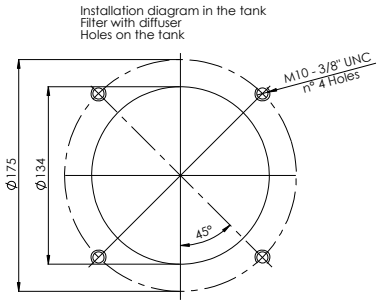

VERSION S




## NOMINAL SIZE

| MODEL | IN | IN-1 | H1 | H2 | H3 | R | WEIGHT* Vers. 0 | WEIGHT* 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

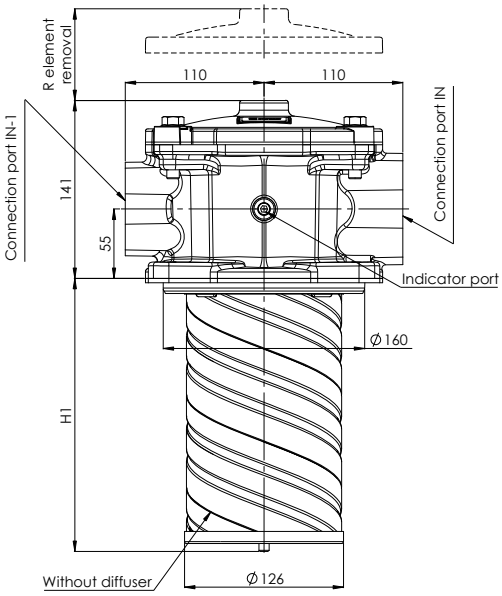
| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10 | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FC** | **R7F** | **21** | **G10** | **B** | **B7** | **B5F6M** | **B** | **0** | **0** | **T** | **0** | **000** |
| SPARE ELEMENT | | **R7F** | **21** | **G10** | **B**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

| | | |
|---|---|---|
| 1. FILTER SERIES | FC | |
| 2. FILTER ELEMENT SERIES | R7F | |
| 3. FILTER SIZE | 20 | |
| | 21 | |
| | 22 | |
| | 26 | |
| 4. FILTER MEDIA | 000 | no element |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ |
| | C10 | paper $ß_{10\mu m(c)} > 2$ |
| | C25 | paper $ß_{25\mu m(c)} > 2$ |
| | T60 | wire mesh 60 $\mu$m |
| | M05 | synthetic $ß_{10\mu m(c)} > 1.000$ |
| | M10 | synthetic $ß_{15\mu m(c)} > 1.000$ |
| | M15 | synthetic $ß_{20\mu m(c)} > 1.000$ |
| 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 | P | differential indicator port with plastic plug |
| (R 1/8" plugged) | 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 |

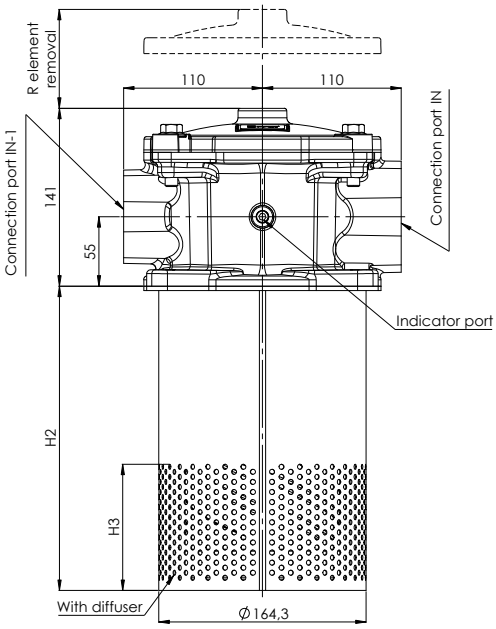
| ACCESSORIES | | | |
|---|---|---|---|
| The accessories must be ordered separately<br>**(F)** digit for FKM seal option | MPB | pressure gauge rear connection | with "B" bypass option |
| | MRB | pressure gauge radial connection | |
| | PDB | pressure switch | |
| | MPC | pressure gauge rear connection | with "C" bypass option |
| | MRC | pressure gauge radial connection | |
| | PDC | pressure switch | |
| | 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 | |

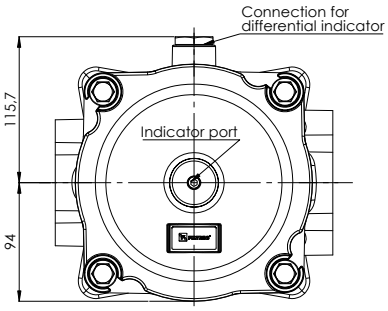
## FC-R7F-3X

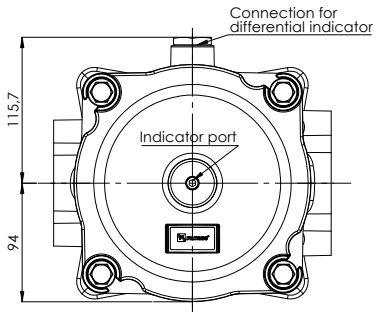
VERSION 0

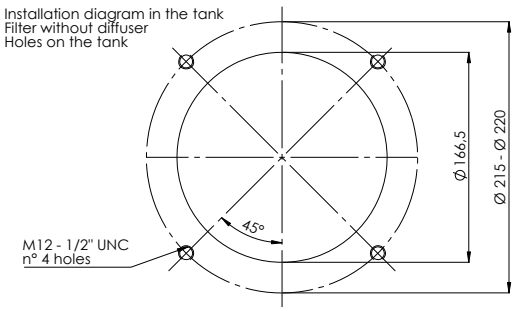


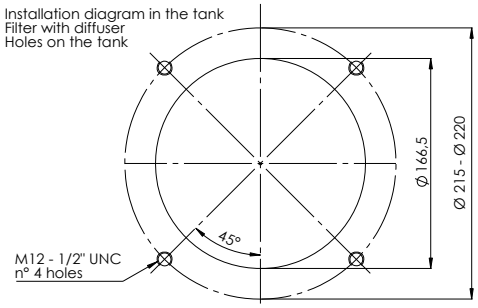

VERSION S




## NOMINAL SIZE

| MODEL | IN | IN-1 | H1 | H2 | H3 | R | WEIGHT* Vers. 0 | WEIGHT* 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **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 $ß_{5\mu m(c)} > 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ |
| | C10 | paper $ß_{10\mu m(c)} > 2$ |
| | C25 | paper $ß_{25\mu m(c)} > 2$ |
| | T60 | wire mesh 60 $\mu$m |
| | M05 | synthetic $ß_{10\mu m(c)} > 1.000$ |
| | M10 | synthetic $ß_{15\mu m(c)} > 1.000$ |
| | M15 | synthetic $ß_{20\mu m(c)} > 1.000$ |
| 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 | P | differential indicator port with plastic plug |
| (R 1/8" plugged) | 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 | | | |
|---|---|---|---|
| The accessories must be ordered separately<br>**(F)** digit for FKM seal option | MPB | pressure gauge rear connection | with "B" bypass option |
| | MRB | pressure gauge radial connection | |
| | PDB | pressure switch | |
| | MPC | pressure gauge rear connection | with "C" bypass option |
| | MRC | pressure gauge radial connection | |
| | PDC | pressure switch | |
| | 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 | |

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

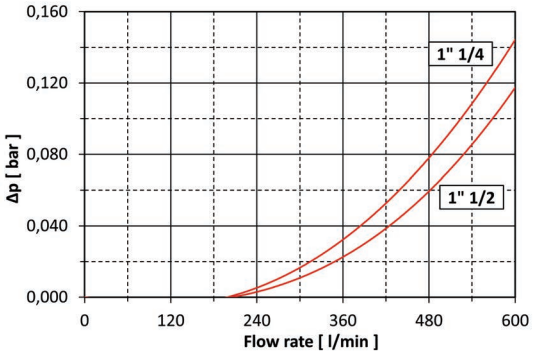
The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.
For multiport versions, the housing Δp to be considered is the sum of the Δp through all the ports that can be used contemporarily.

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/dm$^3$.

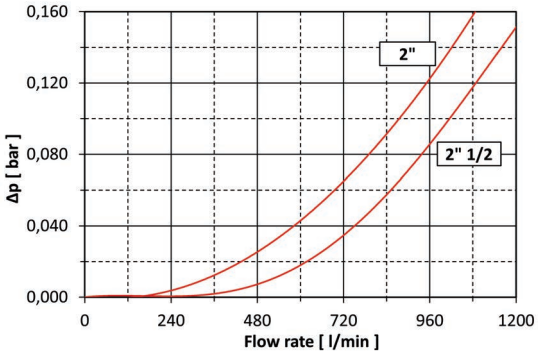
## HOUSING PRESSURE DROP

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

**FCR7F-2**




**FCR7F-3**



## 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 x 0,56/1000 x 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 |

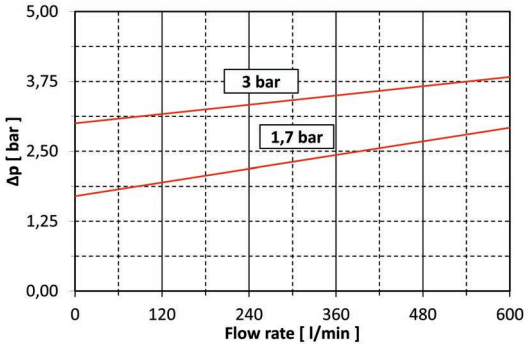
## EXAMPLE OF TOTAL Δp CALCULATION

FCR7F32G10BF9MF8MB00T0000 with **600** l/min and oil **46** cSt:
Housing Δp 0,02 bar + element Δp 0,48 bar (600 x 0,56/1000 x 46/32) = total assembly Δp 0,50 bar

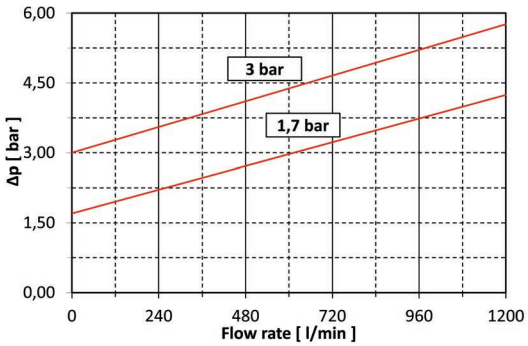
## BYPASS VALVE PRESSURE DROP

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

**FCR7F-2**




**FCR7F-3**




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$^3$.

## 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.

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# FVR7F SERIES

Return filter inserts

Filter inserts for mounting inside the tank on the return line. Filtration from inside to outside.
Flow rates up to 3500 l/min.

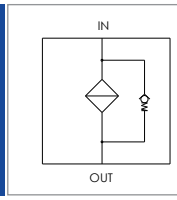


| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 |
|---|---|
| PRESSURE: | Max operating: 10 bar |
| MATERIALS: | Element holder: aluminium alloy<br>Diffuser: stainless steel<br>Seal: NBR (FKM on request) |
| BYPASS VALVE: | B version 1,7 bar<br>C version 3 bar (not available for FVR7F4x) |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Inorganic microfiber<br>G03 - G06 - G10 - G15 - G25 - G40<br>Paper: C10 - C25<br>Wire mesh: T60<br>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).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

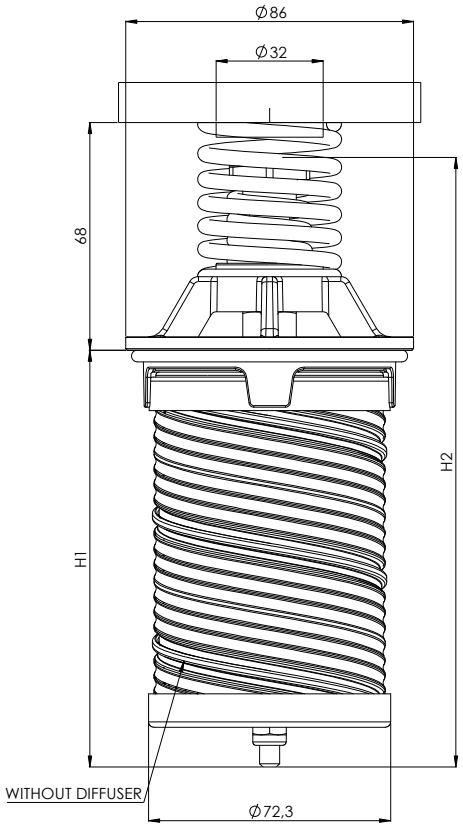
HYDRAULIC SYMBOL



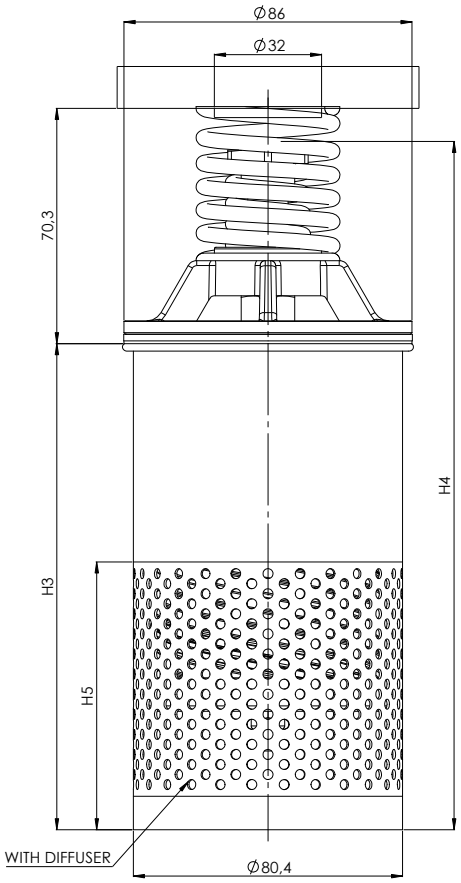

* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

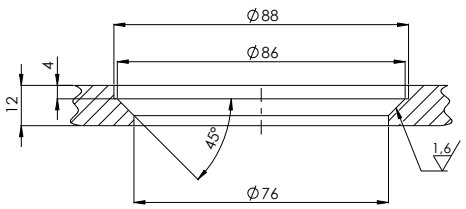
## FV-R7F-1X

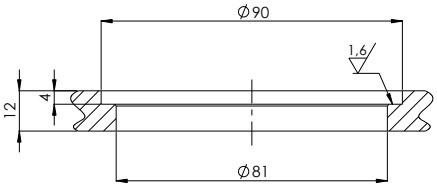
VERSION 0




VERSION D



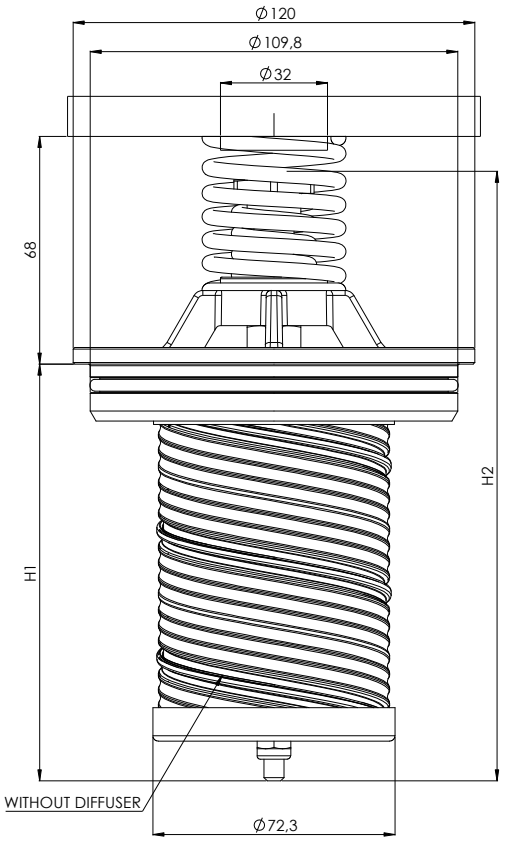

## NOMINAL SIZE

| MODEL | H1 | H2 | H3 | H4 | H5 | H6 | H7 | WEIGHT* Vers. 0 | WEIGHT* Vers. D |
|---|---|---|---|---|---|---|---|---|---|
| FVR7F-11 | 124,5 | 182 | 145 | 205,5 | 80 | 148 | 205,5 | 0,4 Kg | 0,6 Kg |
| FVR7F-12 | 169,5 | 227 | 190 | 250,5 | 80 | 193 | 250,5 | 0,4 Kg | 0,7 Kg |
| FVR7F-13 | 219,5 | 277 | 240 | 300,5 | 80 | 243 | 300,5 | 0,4 Kg | 0,8 Kg |
| FVR7F-14 | 319,5 | 377 | 340 | 400,5 | 100 | 380 | 400,5 | 0,5 Kg | 1 Kg |

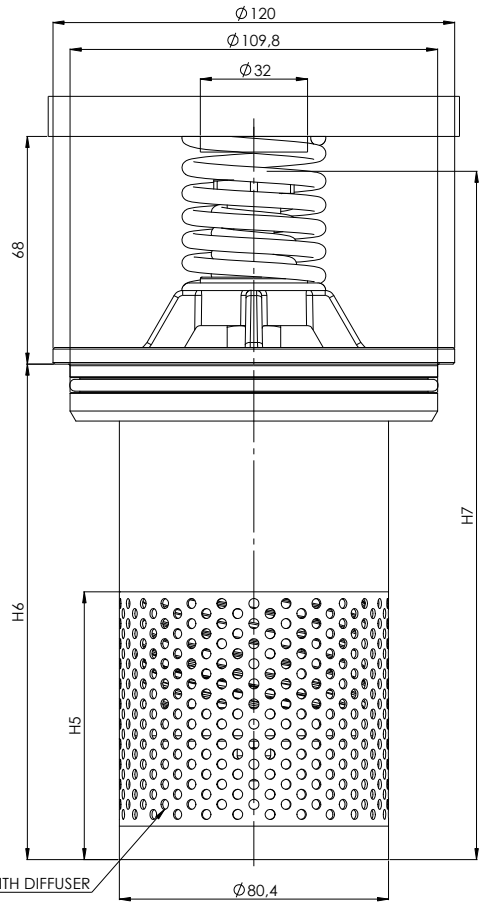
* Weight without element and magnets

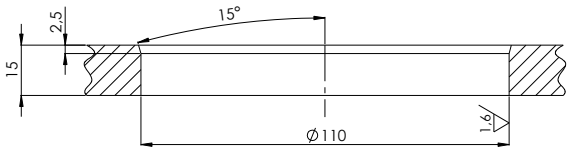
## FV-R7F-1X

VERSION W




VERSION S



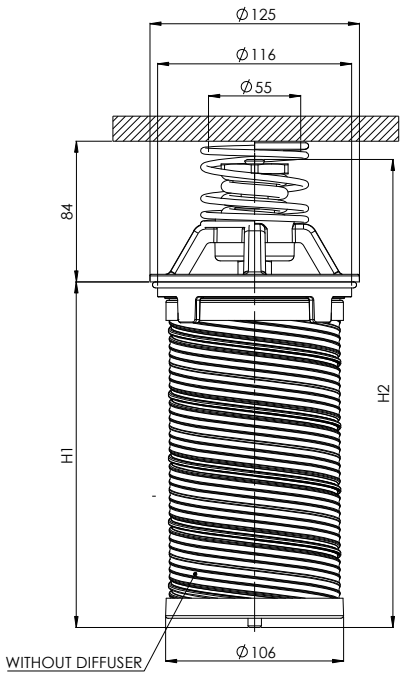

## NOMINAL SIZE

| MODEL | H1 | H2 | H3 | H4 | H5 | H6 | H7 | WEIGHT Vers. W | WEIGHT Vers. S |
|---|---|---|---|---|---|---|---|---|---|
| FVR7F-11 | 124,5 | 182 | 145 | 205,5 | 80 | 148 | 205,5 | 0,6Kg | 0,9 Kg |
| FVR7F-12 | 169,5 | 227 | 190 | 250,5 | 80 | 193 | 250,5 | 0,7 Kg | 1 Kg |
| FVR7F-13 | 219,5 | 277 | 240 | 300,5 | 80 | 243 | 300,5 | 0,7 Kg | 1,1 Kg |
| FVR7F-14 | 319,5 | 377 | 340 | 400,5 | 100 | 380 | 400,5 | 0,7 Kg | 1,3 Kg |

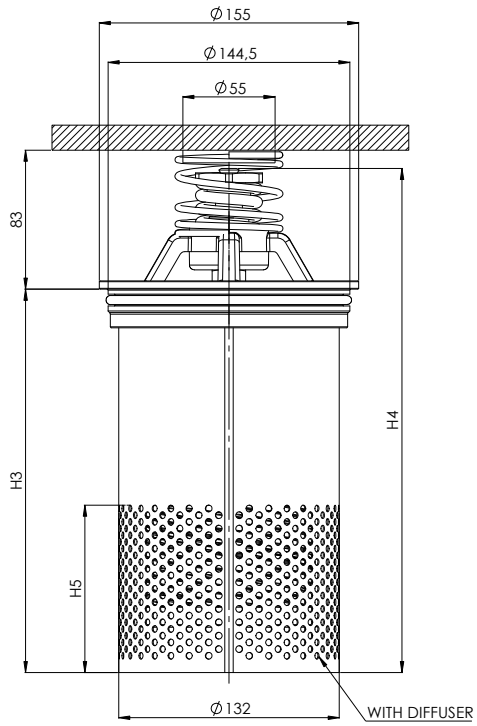
* Weight without element and magnets

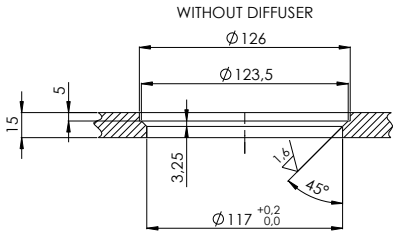
## FV-R7F-2

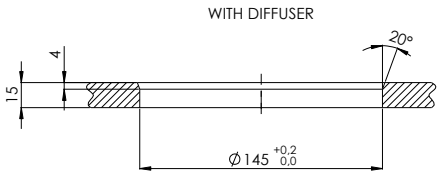
VERSION 0




VERSION S



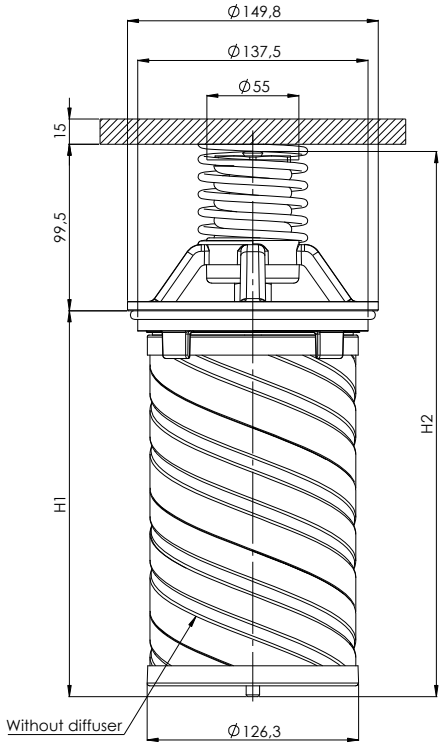

## NOMINAL SIZE

| MODEL | H1 | H2 | H3 | H4 | H5 | WEIGHT* Vers. 0 | WEIGHT* Vers. S |
|---|---|---|---|---|---|---|---|
| FVR7F-20 | 206,5 | 277,5 | 229 | 299 | 100 | 0,9 Kg | 1,5 Kg |
| FVR7F-21 | 276,5 | 347,5 | 299 | 369 | 100 | 0,9 Kg | 1,7 Kg |
| FVR7F-22 | 481,5 | 552,5 | 504 | 574 | 150 | 1,1 Kg | 2,3 Kg |
| FVR7F-26 | 536,5 | 697,5 | 559 | 629 | 150 | 1,1 Kg | 2,5 Kg |

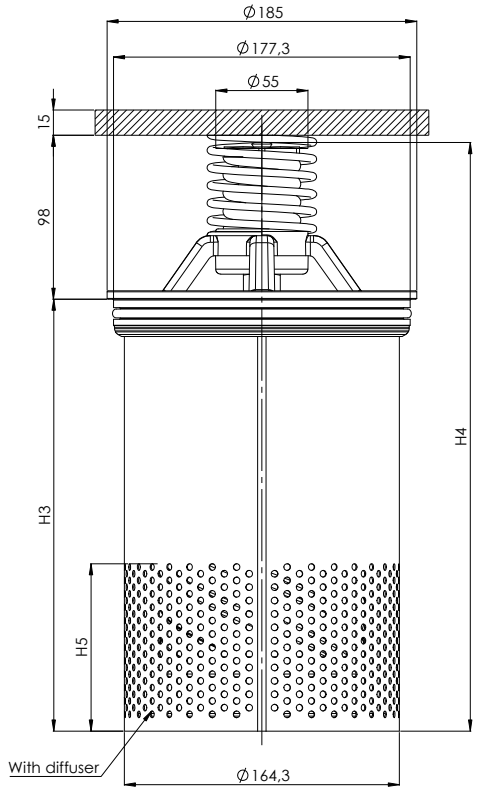
* Weight without element and magnets

## FV-R7F-3

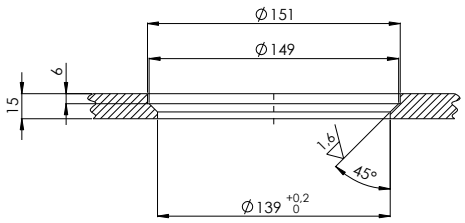
VERSION 0



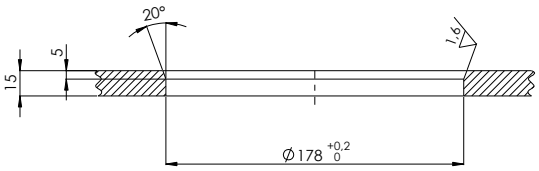

VERSION S




Without diffuser




With diffuser



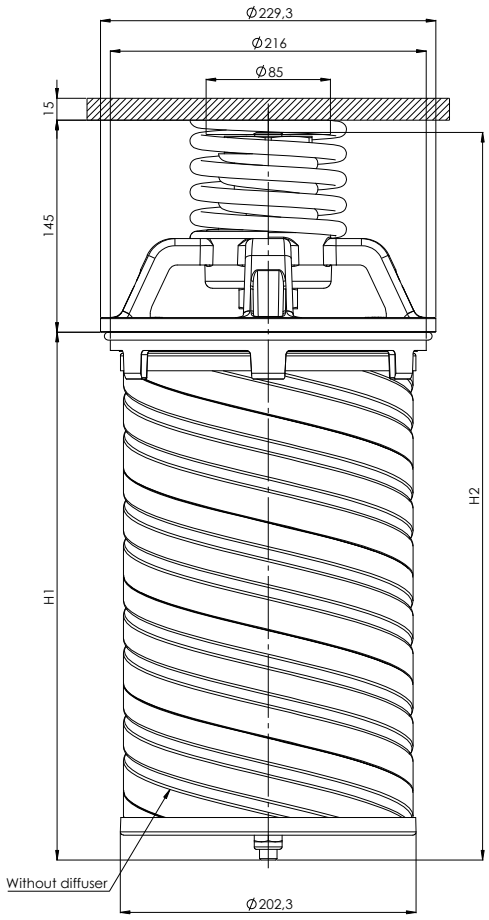

## NOMINAL SIZE

| MODEL | H1 | H2 | H3 | H4 | H5 | WEIGHT* Vers. 0 | WEIGHT* Vers. S |
|---|---|---|---|---|---|---|---|
| FVR7F-30 | 230,5 | 325,5 | 258 | 351,5 | 100 | 1,5 Kg | 2,4 Kg |
| FVR7F-31 | 310,5 | 405,5 | 338 | 431,5 | 100 | 1,5 Kg | 2,7 Kg |
| FVR7F-33 | 410,5 | 505,5 | 438 | 531,5 | 100 | 1,6 Kg | 3,1 Kg |
| FVR7F-32 | 500,5 | 595,5 | 528 | 621,5 | 150 | 1,6 Kg | 3,3 Kg |
| FVR7F-37 | 800,5 | 895,5 | 828 | 921,5 | 150 | 1,8 Kg | 4,5 Kg |

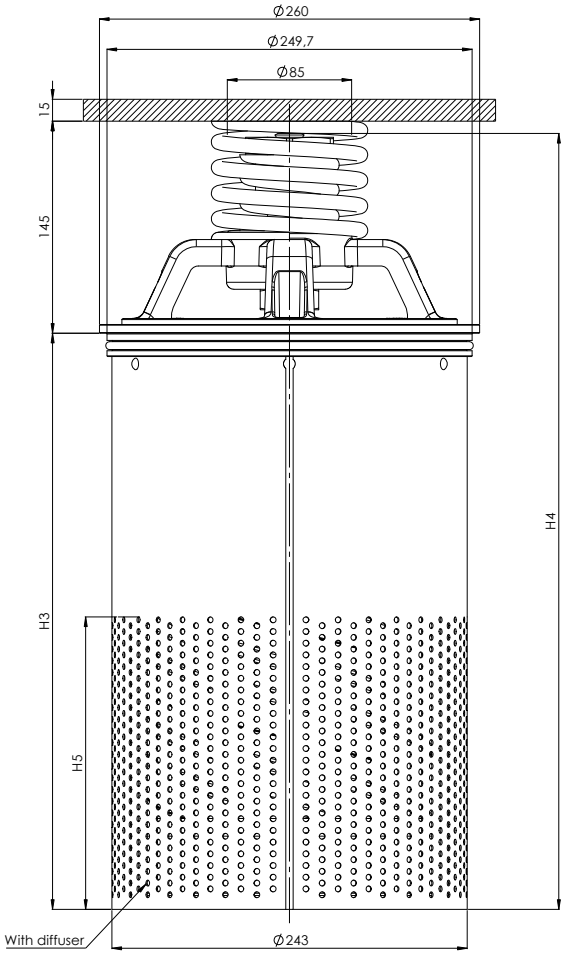
* Weight without element and magnets

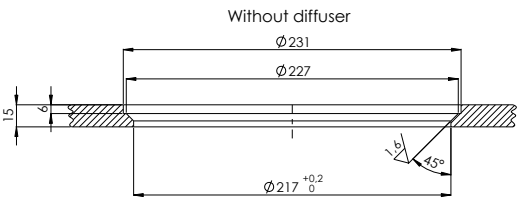
## FV-R7F-4

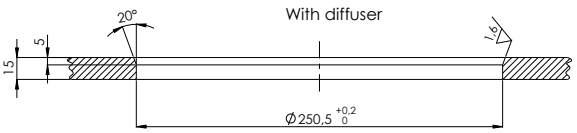
VERSION 0




VERSION S




## NOMINAL SIZE

| MODEL | H1 | H2 | H3 | H4 | H5 | WEIGHT* Vers. 0 | WEIGHT* Vers. S |
|---|---|---|---|---|---|---|---|
| FVR7F-40 | 361 | 497,5 | 394 | 530,5 | 150 | 5,3 Kg | 7,8 Kg |
| FVR7F-41 | 471 | 607,5 | 504 | 640,5 | 200 | 5,5 Kg | 8,7 Kg |
| FVR7F-42 | 576 | 712,5 | 609 | 745,5 | 200 | 5,6 Kg | 9,5 Kg |
| FVR7F-43 | 856 | 992,5 | 889 | 1025,5 | 200 | 6,1 Kg | 11,7 Kg |
| FVR7F-44 | 1121 | 1257,5 | 1154 | 1290,5 | 200 | 6,5 Kg | 13,8 Kg |

* Weight without element and magnets

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|---|
| | **FV** | **R7F** | **32** | **G10** | **B** | **B** | **0** | **0** |
| SPARE ELEMENT | | **R7F** | **32** | **G10** | **B** | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | FV | | |
| 2. FILTER ELEMENT SERIES | R7F | | |
| 3. FILTER SIZE | 11-12-13-14 | | |
| | 20-21-22-26 | | |
| | 30-31-33-32-37 | | |
| | 40-41-42-43-44 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ | |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ | |
| | C10 | paper $ß_{10\mu m(c)} > 2$ | |
| | C25 | paper $ß_{25\mu m(c)} > 2$ | |
| | T60 | wire mesh 60 $\mu$m | |
| | M05 | synthetic $ß_{10\mu m(c)} > 1.000$ | |
| | M10 | synthetic $ß_{15\mu m(c)} > 1.000$ | |
| | M15 | synthetic $ß_{20\mu m(c)} > 1.000$ | |
| 5. SEALS | B | NBR | |
| | V | FKM (on request) | |
| 6. BYPASS VALVE | B | 1,7 bar | |
| | C | 3 bar | not available for FVR7F4x |
| 7. MAGNETS | 0 | no magnets | |
| | M | with magnets | |
| 8. DIFFUSER | 0 | no diffuser - no ring | |
| | S | with diffuser - with diffuser ring | |
| | D | with diffuser - no diffuser ring | available for FVR7F1x only |
| | W | no diffuser - with ring | |

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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

## ELEMENT PRESSURE DROP

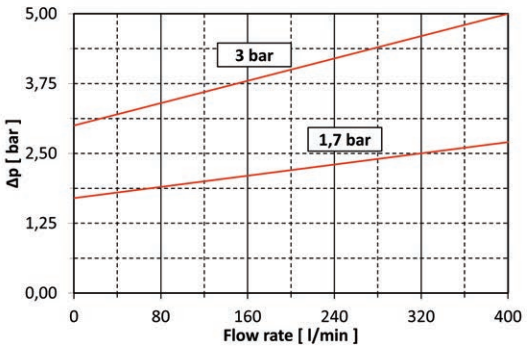
The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000.
If the oil has a viscosity $V_1$different than 32 cSt a corrective factor $V_1/32$ must be applied.
Example: 600 l/min with R7F32G10B and oil viscosity 46 cSt: 600x0,56/1000 x 46/32 = 0,48 bar

| | G03 | G06 | G10 | G15 | G25 | G40 | M05 | M10 | M15 | C10 | C25 | T60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **R7F11** | 17,12 | 15,19 | 6,24 | 4,77 | 4,15 | 2,53 | 4,70 | 3,51 | 2,60 | 2,95 | 2,47 | 0,30 |
| **R7F12** | 10,51 | 9,73 | 3,89 | 3,10 | 2,79 | 2,49 | 3,02 | 2,70 | 2,54 | 2,68 | 2,38 | 0,28 |
| **R7F13** | 6,98 | 6,17 | 3,35 | 2,70 | 2,46 | 1,93 | 2,60 | 2,20 | 1,97 | 2,10 | 1,85 | 0,22 |
| **R7F14** | 4,97 | 4,46 | 2,14 | 1,96 | 1,56 | 1,10 | 1,66 | 1,34 | 1,20 | 1,22 | 1,00 | 0,20 |
| **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 |
| **R7F40** | 0,57 | 0,42 | 0,30 | 0,25 | 0,20 | 0,14 | 0,23 | 0,19 | 0,15 | 0,17 | 0,12 | 0,05 |
| **R7F41** | 0,46 | 0,34 | 0,25 | 0,21 | 0,17 | 0,12 | 0,20 | 0,16 | 0,13 | 0,15 | 0,10 | 0,04 |
| **R7F42** | 0,33 | 0,26 | 0,19 | 0,17 | 0,13 | 0,07 | 0,15 | 0,10 | 0,08 | 0,09 | 0,06 | 0,03 |
| **R7F43** | 0,25 | 0,20 | 0,14 | 0,10 | 0,08 | 0,05 | 0,09 | 0,07 | 0,06 | 0,07 | 0,04 | 0,02 |
| **R7F44** | 0,21 | 0,15 | 0,11 | 0,08 | 0,06 | 0,02 | 0,07 | 0,05 | 0,03 | 0,04 | 0,02 | 0,01 |

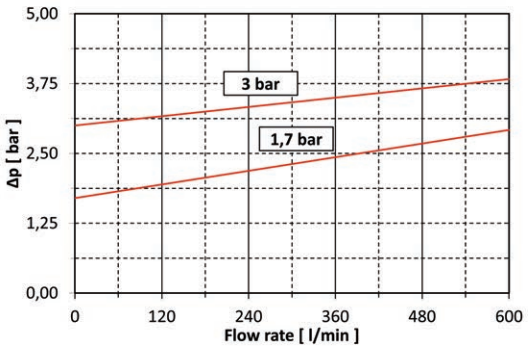
## BYPASS VALVE PRESSURE DROP

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

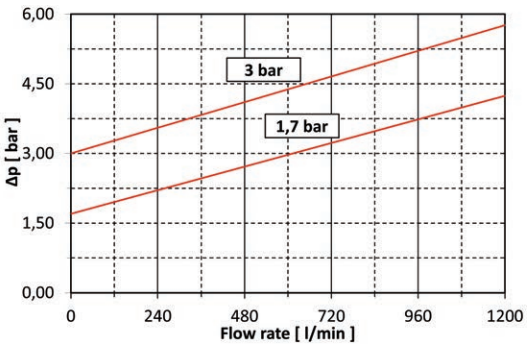
**FVR7F-1**



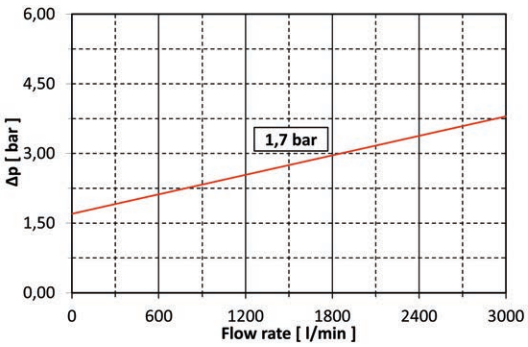

**FVR7F-2**




**FVR7F-3**




**FVR7F-4**




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$^3$.

## USER TIPS




1. SPRING
2. ELEMENT HOLDER
3. GASKETS
4. MAGNETS
5. FILTER ELEMENT
6. FIXING NUT
7. DIFFUSER

### SPARE SEALS KIT (3)

| | NBR | FKM (on request) |
|---|---|---|
| FVR7F-1X (version 0) | 06.021.00355 | 06.021.00359 |
| FVR7F-1X (version D) | 06.021.00356 | 06.021.00360 |
| FVR7F-1X (version W) | 06.021.00357 | 06.021.00361 |
| FVR7F-1X (version S) | 06.021.00358 | 06.021.00362 |
| FVR7F-2X | 06.021.00363 | 06.021.00364 |
| FVR7F-3X | 06.021.00365 | 06.021.00366 |
| FVR7F-4X | 06.021.00367 | 06.021.00368 |

## 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 erthed.

## 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, ensure that the system is switched off and there is no residual pressure in the filter.
2. Remove the access cover of the system.
3. Remove the spring (1) 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 (3) 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 (1) in its position over the element holder (2), then mount the access cover and secure it properly.
⚠ 9. The used filter elements cannot be cleaned and re-used.

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Technical information may change without notice

CT13-02/24

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# FA2 SERIES

Tank-top, spin-on type filters

Return line filters with spin-on cartridge for operating pressure up to 12 bar, flow rate up to 300 l/min.

Bypass valve inbuilt in the filter element, indicator port is a standard option to fit a visual or electrical indicator.




## HOUSING

tested according to NFPA T3.10.17, ISO12829, ISO3968

| | |
|---|---|
| PRESSURE: | Max operating: 12 bar<br>Burst: 20 bar |
| CONNECTIONS: | G 3/4"÷G 1 1/2" |
| MATERIALS: | Head: aluminium alloy<br>Bowl: painted steel<br>Seal: NBR |
| BYPASS VALVE: | 1,7 bar |

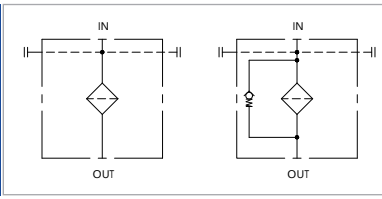
## ELEMENT

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

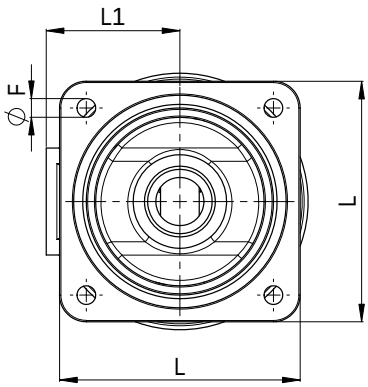
| | |
|---|---|
| FILTER MEDIA: | Paper:<br>C10 - C25<br>Inorganic microfiber:<br>G10 - G25<br>Wire mesh:<br>T60 |
| COLLAPSE PRESSURE: | 5 bar |

| | |
|---|---|
| TEMPERATURE RANGE: | from -30 °C to +100 °C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

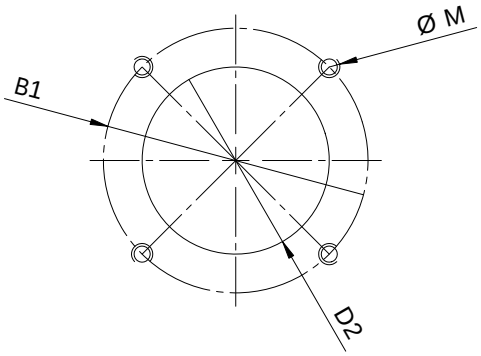
HYDRAULIC SYMBOL

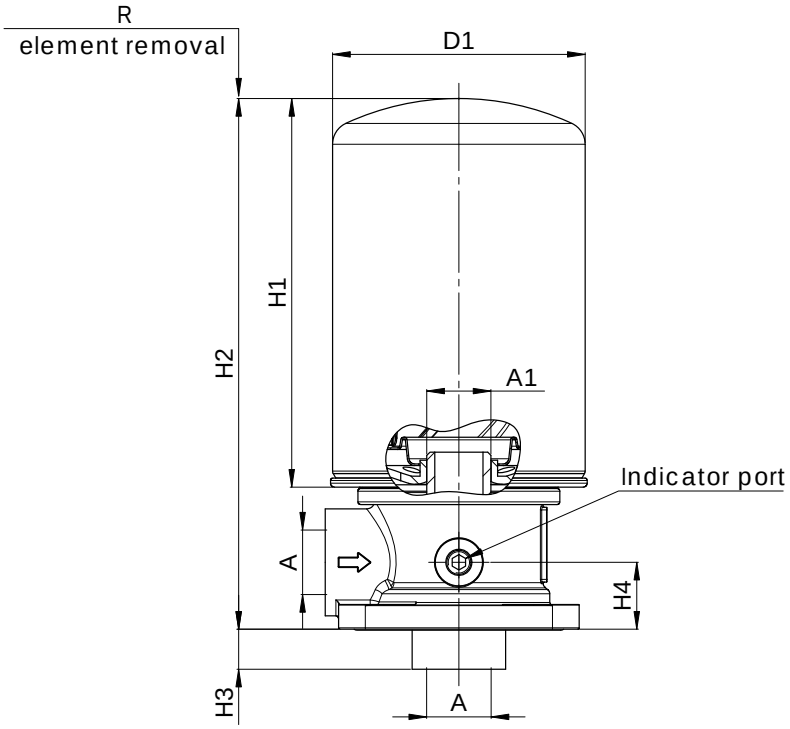


## OVERALL DIMENSIONS




TANK MOUNTING PATTER




## NOMINAL SIZE

| CODE | A | B1 | D1 | D2 | Ø F | H1 | H2 | H3 | H4 | L | L1 | Ø M | R | WEIGHT | ELEMENT | A1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FA2-10 | G 3/4" | 99 | 96 | 40÷45 | 7 | 148 | 200 | 15 | 25 | 90 | 50 | M6 | 20 | 1,3 Kg | A-2-10 | G 3/4" |
| FA2-11 | | | | | | 213 | 265 | | | | | | | 1,6 Kg | A-2-11 | |
| FA2-20 | G 1 1/2" | 141 | 128 | 65÷70 | 9 | 182 | 255 | 20 | 36 | 122 | 70 | M8 | 40 | 2,1 Kg | A-2-20 | G 1 1/4" |
| FA2-21 | | | | | | 228 | 300 | | | | | | | 2,3 Kg | A-2-21 | |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|---|
| | **F** | **A2** | **21** | **C10** | **BM** | **B** | **B7** | **000** |
| SPARE ELEMENT | | **A2** | **21** | **C10** | **BM** | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | F | | |
| 2. FILTER ELEMENT SERIES | A2 | | |
| 3. FILTER SIZE | 10-11 | | |
| | 20-21 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | C10 | paper $ß_{10\mu m(c)} > 2$ | |
| | C25 | paper $ß_{25\mu m(c)} > 2$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| | T60 | wire mesh 60 mm | |
| 5. ELEMENT FEATURES | 0 | no element | |
| | BM | bypass 1,7 bar and antidrain membrane | |
| 6. SEALS | B | NBR | |
| 7. CONNECTIONS | B4 | G 3/4" | for sizes 10-11 |
| | B7 | G 1 1/2" | for sizes 20-21 |
| 8. COMPULSORY FIELD | 000 | Filtrec standard | |

## ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| INDICATOR | MPB | pressure gauge 0÷10 bar |
| * **Available also with LC24**=Led connector (see clogging indicators catalogue) | *PDB | pressure switch 1,3 bar SPDT |
| | MPA | pressure / vacuum gauge -1÷5 bar |
| | LC24 | LED connector for pressure switch |

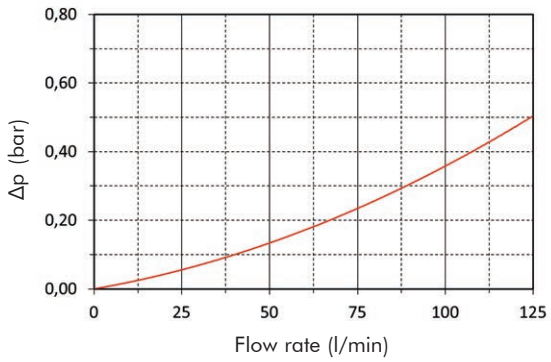
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.This ideally should not exceed 0,5 bar and should never exceed 1/3 of the set value of the by-pass valve. 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$^3$.

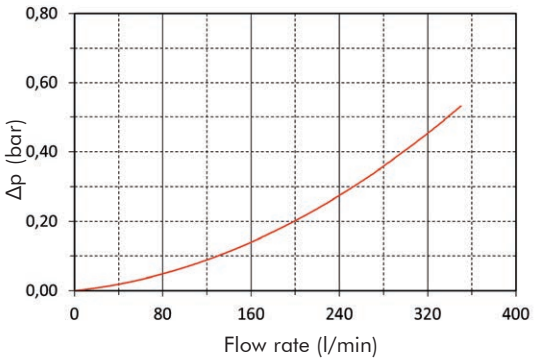
## HOUSING PRESSURE DROP

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

**FA2 1x**




**FA2 2x**




## 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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
Example: 125 l/min with A220C10BM and oil viscosity 46 cSt > 125 x 0,67/1000 x 46/32 = 0,12 bar

| | C10BM | C25BM | G10BM | G25BM | T60BM |
|---|---|---|---|---|---|
| **A210** | 1,90 | 1,70 | 3,60 | 2,80 | 0,90 |
| **A211** | 1,60 | 0,90 | 3,40 | 1,60 | 0,50 |
| **A220** | 0,67 | 0,57 | 2,33 | 1,23 | 0,27 |
| **A221** | 0,60 | 0,47 | 2,00 | 1,00 | 0,23 |

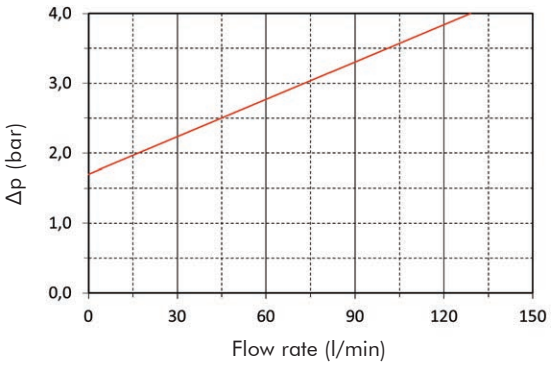
## EXAMPLE OF TOTAL Δp CALCULATION

FA220C10BMBB7000 with 125 l/min and oil 46 cSt:
Housing Δp 0,1 bar + element Δp 0,12 bar (125 x 0,67/1000 x 46/32) = total assembly Δp 0,22 bar

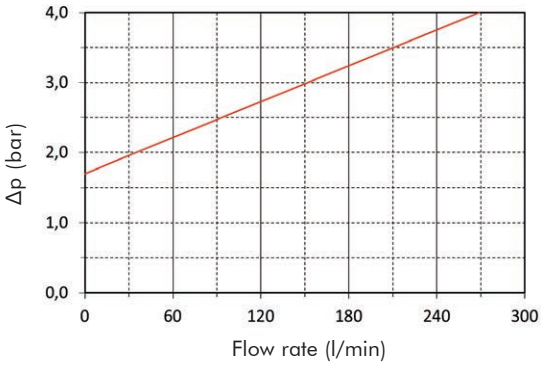
## BYPASS VALVE PRESSURE DROP

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

**FA2 1x**




**FA2 2x**




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$^3$.

## USER TIPS




1. FILTER HEAD
2. INDICATOR PORT
3. FIXING HOLES
4. FILTER ELEMENT




| CARTRIDGE TIGHTENING TORQUE | |
|---|---|
| All models | 3/4 turn |

| INDICATOR TIGHTENING TORQUE | |
|---|---|
| Pressure gauge/switch | 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. Secure the filter head (1) on the tank lid through the fixing holes (3).
2. Connect the hose to the IN port and verify that the OUT port is clear.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element cartridge replacement.
5. The visual clogging indicator must be in a easily viewable position.
6. When a electrical indicator is used, make sure that it is properly wired.

⚠ 7. Never run the system with no filter element fitted.
8. 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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer's recommendations.

## MAINTENANCE

⚠ 1. Make sure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the filter cartridge (4) by turning it anti-clockwise and remove it.
3. Fit a new FILTREC cartridge element (4), verifying the part number, particularly concerning the micron rating.
4. Ensure that the head mounting face is clean.

⚠ 5. Lubricate the gasket of the replacement cartridge and the thread prior to assembly.
7. Spin on the new cartridge until it reaches the mounting face and tighten for 3/4 turn.

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Technical information may change without notice

CT06-rev.01/24

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# FS7 SERIES

Side wall mounting suction filters

Suction filter for mounting on the tank side wall.
The shut-off valve allows filter element replacement without opening or emptying the reservoir.
Flow rates up to 200 l/min.

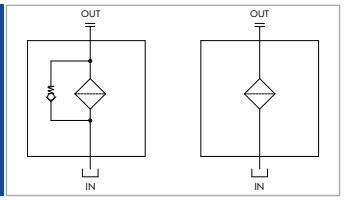


| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 |
|---|---|
| CONNECTIONS: | G 1 ¼" + 1 ½" SAE J 518-3000 |
| MATERIALS: | Head: aluminium alloy<br>Top cover: PA6 reinforced<br>Seal: NBR |
| BYPASS VALVE: | No by-pass or 0,3 bar setting |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Cellulose: C10 - C25<br>Wire mesh: T60 - T125 - T250<br>Inorganic microfiber: G40 |

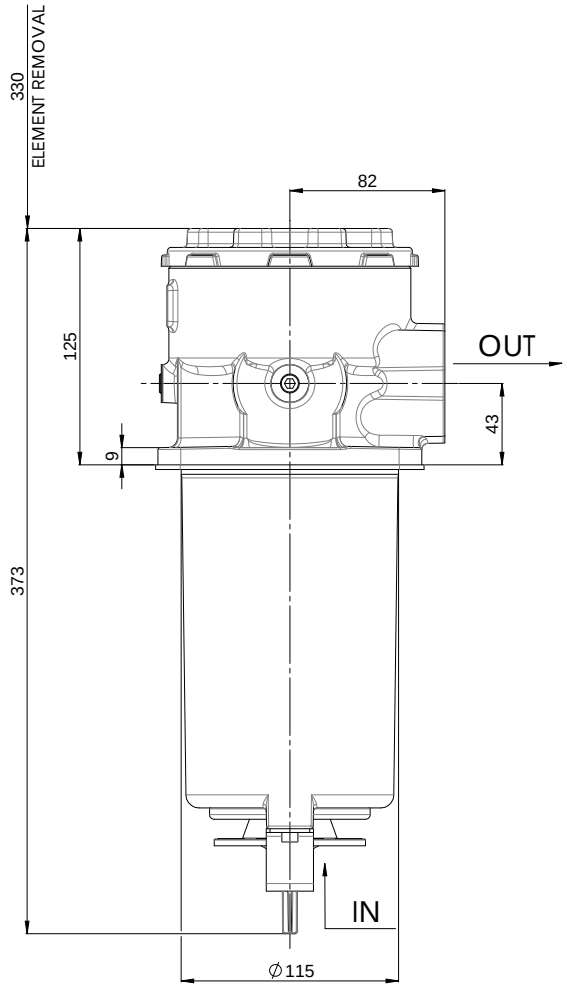
| | |
|---|---|
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

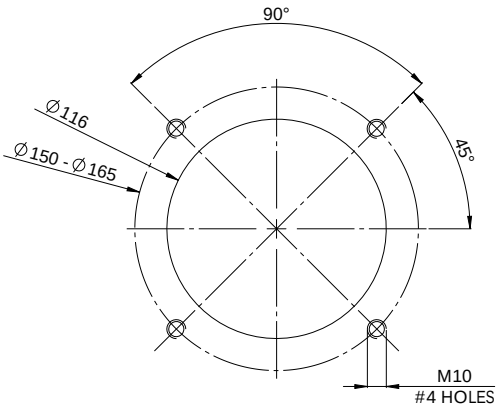
HYDRAULIC SYMBOL

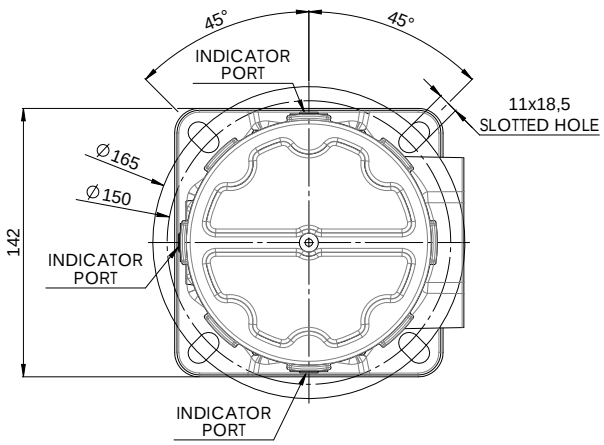



* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

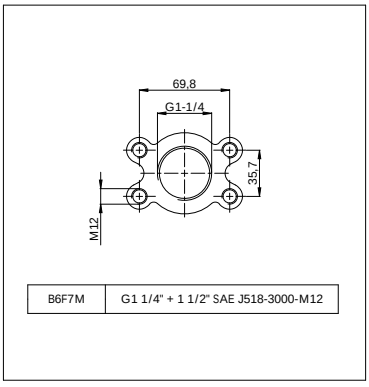
## OVERALL DIMENSIONS




MAIN PORT OPTIONS - D1




| | |
|---|---|
| B6F7M | G1 1/4" + 1 1/2" SAE J518-3000-M12 |

## ORDERING INFORMATION

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FS7** | | **31** | **C10** | **B** | **B6F7M** | **00** | **B** | **M** | **T** | **000** | **S** | **0** |
| SPARE ELEMENT | **S7** | | **31** | **C10** | | | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | F | | |
| 2. FILTER SIZE | S7 | | |
| 3. FILTER SIZE | 31 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | C10 | paper $ß_{10\mu m(c)} \geq 2$ | |
| | C25 | paper $ß_{25\mu m(c)} \geq 2$ | |
| | T60 | wire mesh 60 $\mu$m | |
| | T125 | wire mesh 125 $\mu$m | |
| | T250 | wire mesh 250 $\mu$m | |
| | G40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ | |
| 5. SEALS | *B | NBR | *omitted for spare element |
| 6. MAIN PORT | B6F7M | G 1 1/4"+1 1/2" SAE J518-3000 psi - M12 | |
| 7. ADDITIONAL PORTS | 00 | no additional ports | |
| 8. BYPASS VALVE | 0 | no bypass | |
| | B | 0,3 bar | |
| 9. MAGNET | 0 | no magnet | |
| | M | with magnet | |
| 10. INDICATOR PORT | T | right + rear + left | |
| 11. INDICATOR | 000 | no indicator | |
| | MPS | vacuum gauge scale 0÷-1 bar | |
| | PDS | vacuum switch -0,2 bar SPDT | |
| 12. CORROSION PROTECTION | S | standard | |
| 13. OPTIONS | 0 | no option | |

| | | |
|---|---|---|
| ACCESSORIES | LC24 | LED connector for vacuum switch |

The accessories must be ordered separately

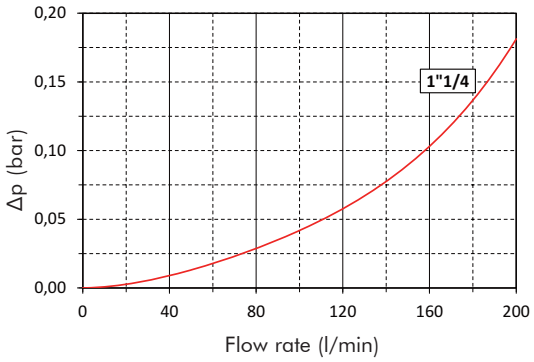
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp for suction filters is 0,15 bar with clean element.

## HOUSING PRESSURE DROP

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

**FS7 31**




## 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 V1different than 32 cSt a corrective factor V1/32 must be applied.
Example: 80 l/min with S731C10 and oil viscosity 46 cSt = (80 x 0,375)/1000 x (46/32)= 0,043 bar

| | C10 | C25 | T60 | T125 | T250 | G40 |
|---|---|---|---|---|---|---|
| **S731** | 0,375 | 0,100 | 0,075 | 0,050 | 0,003 | 0,110 |

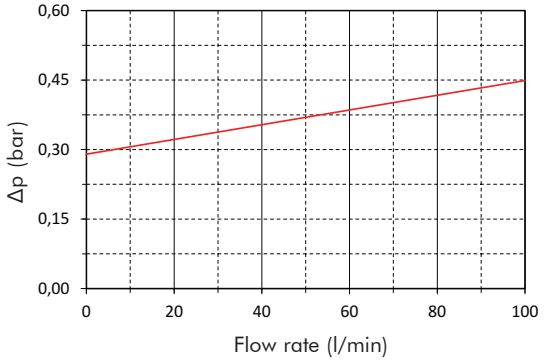
## EXAMPLE OF TOTAL Δp CALCULATION

FS731C10BB6F7M00BMT000S0 with 80 l/min and oil 46 cSt
Housing Δp 0,03 bar + element Dp 0,043 bar (80 x 0,375)/1000 x (46/32) = total assembly Δp 0,073 bar

## BYPASS VALVE PRESSURE DROP

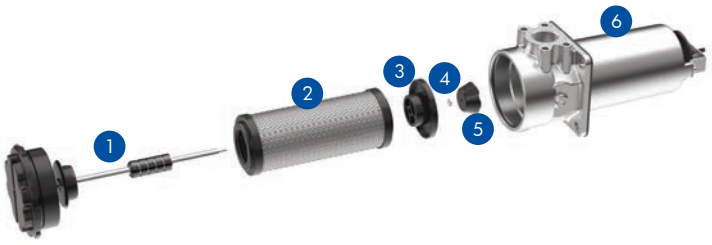
The bypass valve Δp is given by the curve of the considered model and setting, in correspondence of the flow rate value.

**FS7 31**




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$^3$.

## USER TIPS




1 COVER ASSEMBLY
2 ELEMENT
3 HOLDER
4 WASHER
5 STOPPER
6 HOUSING

| SPARE SEAL KIT PART NUMBER | |
|---|---|
| NBR | 06.021.00312 |

| 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 housing (2) must be properly positioned and well secured on the tank side wall through the fixing holes
⚠ 2. the OUT port must be properly connected to the suction line
3. verify that no tension is present on the filter after mounting
4. enough space must be available for filter element replacement
5. the visual clogging indicator must be in a easily viewable position
6. when a electrical indicator is used, make sure that it is properly wired
7. 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 top cover (1) from the housing (2), ensure that the system is switched off and there is no residual pressure in the filter
2. unscrew the cover (1) by turning it anticlockwise
⚠ 3. remove the dirty element (5) by pulling it carefully
4. fit a new FILTREC element(5), verifying the part number, particularly concerning the micron rating
6. check the seal (4) conditions and replace if necessary
7. lubricate the threads and screw completely the cover (1) in the filter housing by turning it clockwise
8. the used filter elements cannot be cleaned and re-used

Technical information may change without notice

CT35-rev.03/26

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# FS5 SERIES

Side wall mounting suction filters

Suction filter for mounting on the tank side wall.
The shut-off valve allows filter element replacement without opening or emptying the reservoir.
Flow rates up to 100 l/min.

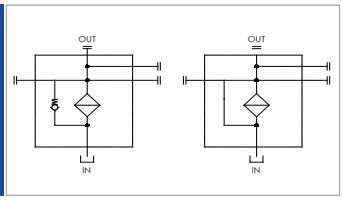


| HOUSING | tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968 |
|---|---|
| CONNECTIONS: | G 1 1/4" |
| MATERIALS: | Head: aluminium alloy<br>Top cover: PA6 reinforced<br>Seal: NBR |
| BYPASS VALVE: | No bypass or 0,3 bar setting |

| ELEMENT | tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181 |
|---|---|
| FILTER MEDIA: | Cellulose: C10 - C25<br>Wire mesh: T60 - T125 - T250<br>Inorganic microfiber: G40 |

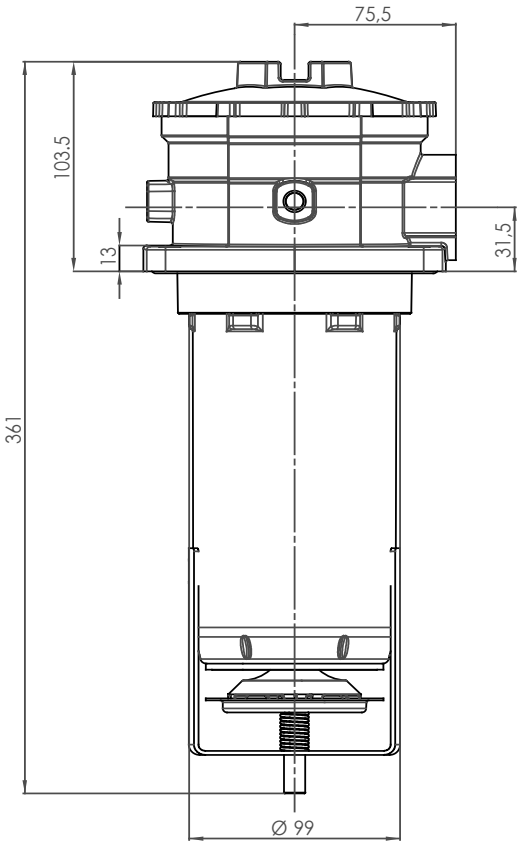
| | |
|---|---|
| TEMPERATURE RANGE: | -30°C +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

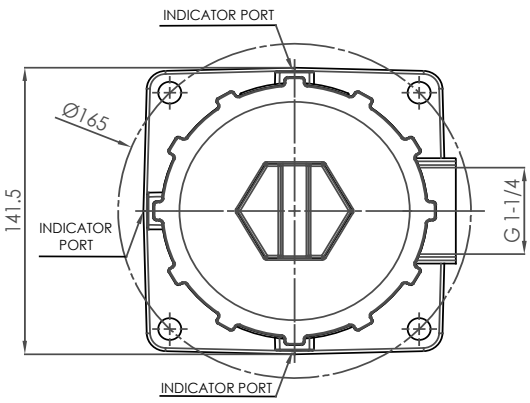
HYDRAULIC SYMBOL

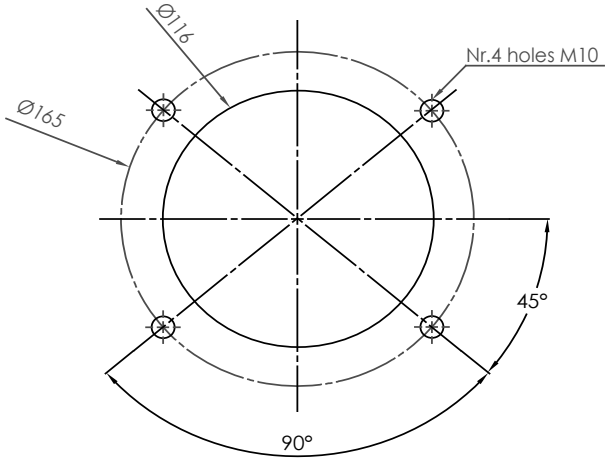



* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

## OVERALL DIMENSIONS




| EMPTY FILTER WEIGHT |
| --- |
| 2,7 Kg |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FS5** | | **31** | **C25** | **B** | **B6** | **00** | **B** | **0** | **T** | **000** | **S** | **0** |
| SPARE ELEMENT | **S5** | **31** | **C25** | | | | | | | | | |

| | | | |
|---|---|---|---|
| 1. FILTER SERIES | F | | |
| 2. FILTER SIZE | S5 | | |
| 3. FILTER SIZE | 31 | | |
| 4. FILTER MEDIA | 000 | no element | |
| | C10 | paper $ß_{10\mu m(c)} > 2$ | |
| | C25 | paper $ß_{25\mu m(c)} > 2$ | |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ | |
| | T60 | wire mesh 60 $\mu$m | |
| | T125 | wire mesh 125 $\mu$m | |
| | T250 | wire mesh 250 $\mu$m | |
| 5. SEALS | *B | NBR | *omitted for spare element |
| 6. MAIN PORT | B6 | G 1 1/4" | |
| 7. ADDITIONAL PORTS | 00 | no additional ports | |
| 8. BYPASS VALVE | 0 | no bypass | |
| | B | 0,3 bar | |
| 9. MAGNET | 0 | no magnet | |
| | M | with magnet (on request) | |
| 10. INDICATOR PORT OPTION | T | right + rear + left | |
| 11. COMPULSORY FIELD | 000 | filtrec standard | |
| 12. CORROSION PROTECTION | S | standard | |
| 13. OPTIONS | 0 | no option | |

### ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| INDICATOR | MPS | vacuum gauge scale 0÷-1 bar |
| | PDS | vacuum switch -0,2 bar SPDT |
| | LC24 | LED connector for vacuum switch |

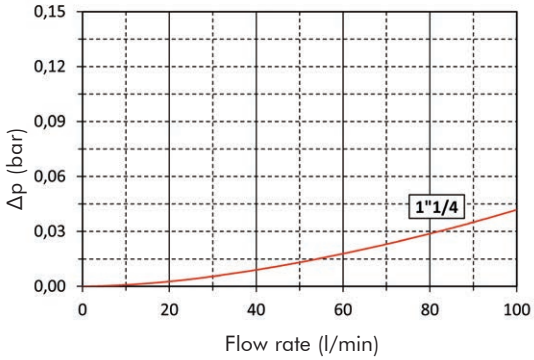
## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp.
The max recommended total Δp for suction filters is 0,15 bar with clean element.

## HOUSING PRESSURE DROP

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

**FS5 31**




## 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 V1 different than 32 cSt a corrective factor V1/32 must be applied.
Example: 50 l/min with S531C25 and oil viscosity 46 cSt > 50 x 0,11/1000 x 46/32 = 0,008 bar

| | C10 | C25 | T60 | T125 | T250 | G40 |
|---|---|---|---|---|---|---|
| **S531** | 0,38 | 0,11 | 0,08 | 0,06 | 0,04 | 0,13 |

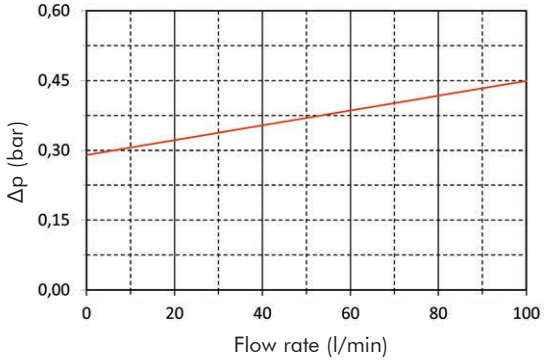
## EXAMPLE OF TOTAL Δp CALCULATION

FS531C25BB600B0T000S0 with 50 l/min and oil 46 cSt
Housing Δp 0,014 bar + element Dp 0,008 bar (50 x 0,11/1000 x 46/32) = total assembly Δp 0,022 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.

**FS5 31**




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$^3$.

## USER TIPS




1 COVER ASSEMBLY
2 GASKETS
3 ELEMENT
4 HOLDER
5 STOPPER
6 HOUSING

| SPARE SEAL KIT (2) | |
|---|---|
| NBR | 06.021.00420 |

| INDICATOR TIGHTENING TORQUE |
|---|
| 10 Nm |

| COVER TIGHTENING TORQUE |
|---|
| 20 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 housing (6) must be properly positioned and well secured on the tank side wall through the fixing holes.
⚠ 2. The OUT port must be properly connected to the suction line.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in a easily viewable position.
6. When a electrical indicator is used, make sure that it is properly wired.
7. Keep in stock a spare FILTREC filter element for timely replacement when required.
8. 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 (1) from the housing (6), ensure that the system is switched off and there is no residual pressure in the filter.
⚠ 2. Unscrew the cover (1) by turning it anticlockwise.
3. Remove the dirty element (3) by pulling it carefully.
4. Fit a new FILTREC element (3), verifying the part number, particularly concerning the micron rating.
5. Check the seals (2) conditions and replace if necessary.
6. Lubricate the threads and screw completely the cover (1) in the filter housing by turning it clock wise.
7. The used filter elements cannot be cleaned and re-used.

Technical information may change without notice

CT116-rev.02/24

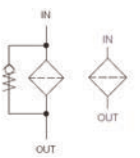
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## FS1 SERIES
SUCTION STRAINERS

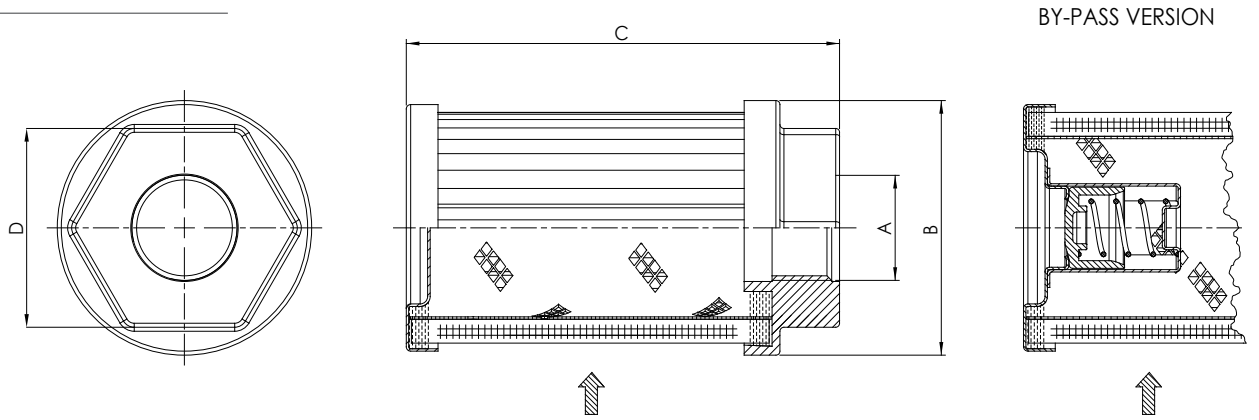
FS1 suction strainers are designed for direct mounting on the suction line, immersed in the oil tank, to protect the pump from coarse contamination.

## TECHNICAL INFORMATION

| | |
|---|---|
| HYDRAULIC SYMBOL |   |
| CONNECTION PORTS | from G 3/8" to G 4" |
| MATERIALS: | Threaded connector: Polyammide reinforced<br>End cap: Zinc plated steel<br>Internal core: Zinc plated steel<br>Bypass valve: Polyammide reinforced |
| FILTER MEDIA: | Stainless steel wire mesh (125 $\mu$m and 60 $\mu$m)<br>Zinc plated steel wire mesh (250 $\mu$m) |
| BYPASS VALVE: | setting 0,25 bar |
| DIFFERENTIAL COLLAPSE PRESSURE: | 1 bar (ISO 2941) |
| OPERATING TEMPERATURE RANGE: | -20°C to 100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV (acc. to ISO 2943).<br>For use with other fluid applications please contact Filtrec Customer Service (info@filtrec.it). |

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## SIZES 10 to 40




| MODEL | A | B | C | D | FLOW RATE l/min (*) | WEIGHT Kg |
|---|---|---|---|---|---|---|
| FS110B2T125--- | G 3/8" | 46 | 91 | 36 | 16 | 0,10 |
| FS111B3T125--- | G 1/2" | 46 | 106 | 36 | 26 | 0,12 |
| FS120B4T125--- | G 3/4" | 64 | 109 | 50 | 45 | 0,20 |
| FS121B5T125--- | G 1" | 64 | 139 | 50 | 65 | 0,22 |
| FS130B6T125--- | G 1 1/4" | 86 | 139 | 65 | 110 | 0,36 |
| FS133B7T125--- | G 1 1/2" | 86 | 200 | 65 | 150 | 0,40 |
| FS134B8T125--- | G 2" | 86 | 260 | 75 | 240 | 0,50 |
| FS140B8T125--- | G 2" | 150 | 151 | 110 | 240 | 0,80 |
| FS142B9T125--- | G 2 1/2" | 150 | 212 | 110 | 380 | 0,98 |
| FS143B10T125--- | G 3" | 150 | 272 | 110 | 500 | 1,10 |

| | |
|---|---|
| --- | no by-pass |
| B | with by-pass (subject to MOQ) |

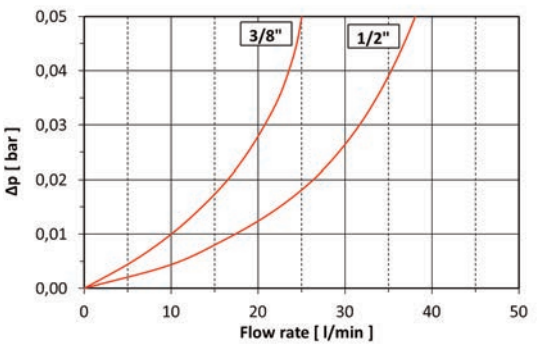
| | |
|---|---|
| T60 | 60 $\mu$m (subject to MOQ) |
| T125 | 125 $\mu$m |
| T250 | 250 $\mu$m (subject to MOQ) |

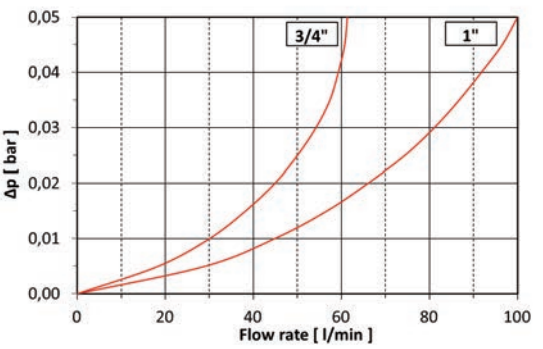
N.B. The Flow Rate values given in the table refer to $\Delta$p 0,02 bar bar with clean element and oil having viscosity 32 cSt and density 0,875 Kg/dm$^3$.
For different flow rates verify the pressure drop on the diagrams at page 3.

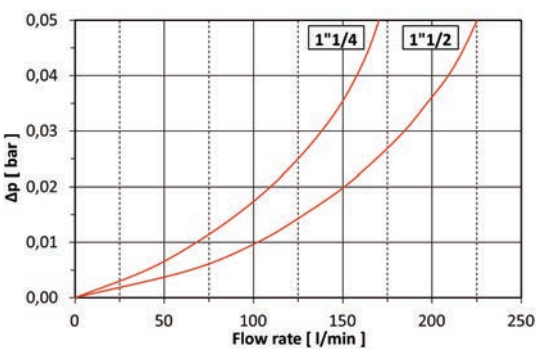
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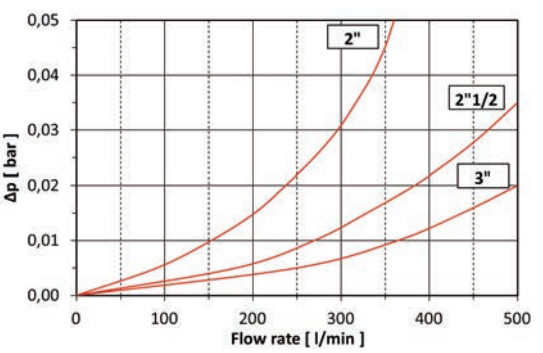
## PRESSURE DROP DIAGRAMS

The pressure drop of these strainers is related to the connection size, indicated in the box.
The maximum recommended pressure drop is 0,02 bar.



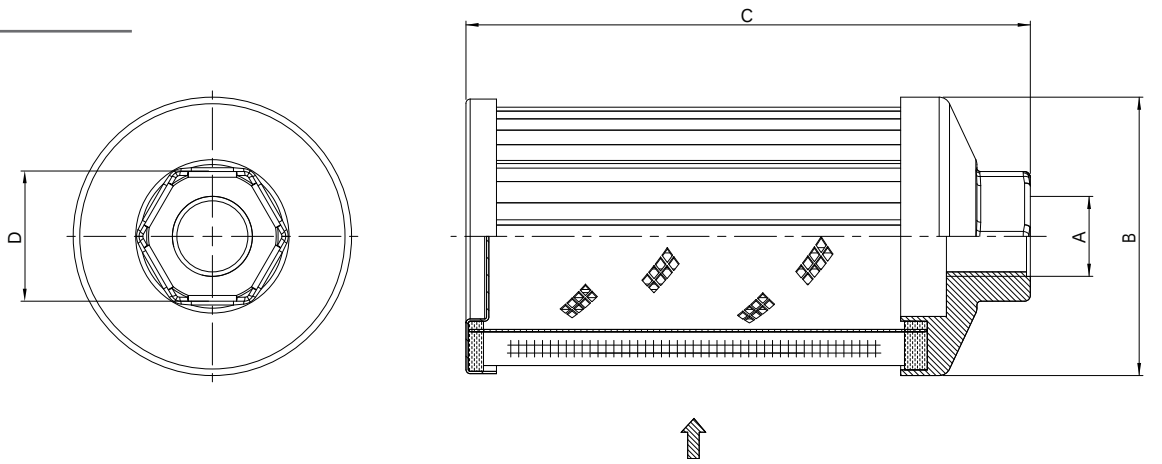

N.B. The above diagrams have been obtained at the FILTREC laboratory, according to the ISO 3968 specification, with oil having viscosity 32 cSt and density 0,875 Kg/dm$^3$.



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## SIZES 50 to 91




| MODEL | A | B | C | D | FLOW RATE l/min (*) | WEIGHT Kg |
|---|---|---|---|---|---|---|
| FS150B2T125 | G 3/8" | 54 | 83 | 27 | 16 | 0,12 |
| FS150B3T125 | G 1/2" | 54 | 83 | 27 | 26 | 0,12 |
| FS160B3T125 | G 1/2" | 73 | 104 | 34 | 26 | 0,24 |
| FS160B4T125 | G 3/4" | 73 | 104 | 34 | 45 | 0,24 |
| FS162B5T125 | G 1" | 73 | 148 | 50 | 65 | 0,28 |
| FS179B5T125 | G 1" | 102 | 110 | 60 | 65 | 0,35 |
| FS170B6T125 | G 1 1/4" | 102 | 155 | 60 | 110 | 0,44 |
| FS170B7T125 | G 1 1/2" | 102 | 155 | 60 | 150 | 0,50 |
| FS173B7T125 | G 1 1/2" | 102 | 195 | 60 | 150 | 0,50 |
| FS176B7T125 | G 1 1/2" | 102 | 228 | 60 | 240 | 0,60 |
| FS176B8T125 | G 2" | 102 | 228 | 70 | 240 | 0,60 |
| FS180B8T125 | G 2" | 130 | 202 | 98 | 250 | 0,80 |
| FS180B9T125 | G 2 1/2" | 130 | 202 | 98 | 380 | 0,8 |
| FS183B9T125 | G 2 1/2" | 130 | 235 | 98 | 380 | 1,00 |
| FS186B10T125 | G 3" | 130 | 279 | 98 | 500 | 1,20 |
| FS190B11T125 | G 3 1/2"" | 178 | 390 | 140 | 600 | 2,60 |
| FS191B12T125 | G 4" | 178 | 440 | 140 | 600 | 3,00 |

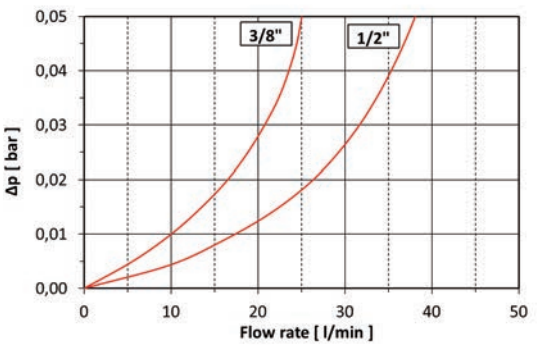
| | |
|---|---|
| T60 | 60 $\mu$m (subject to MOQ) |
| T125 | 125 $\mu$m |
| T250 | 250 $\mu$m (subject to MOQ) |

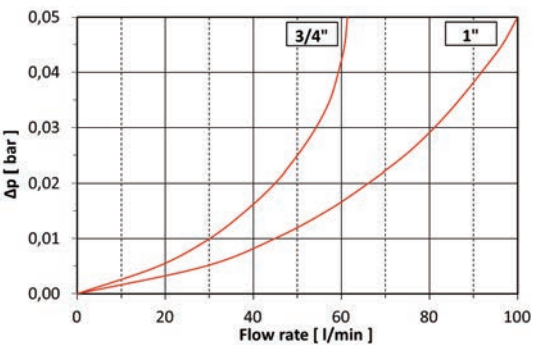
N.B. The Flow Rate values given in the table refer to $\Delta$p 0,02 bar with clean element and oil having viscosity 32 cSt and density 0,875 Kg/dm$^3$.
For different flow rates verify the pressure drop on the diagrams at page 5.

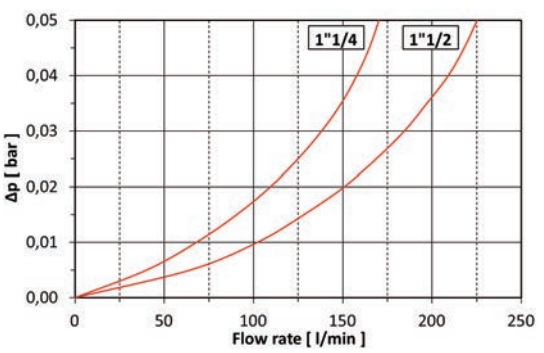
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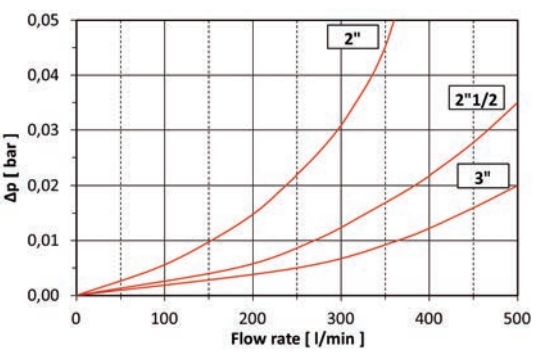
## PRESSURE DROP DIAGRAMS

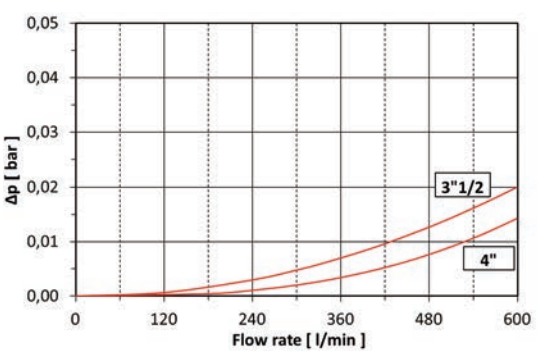
The pressure drop of these strainers is related to the connection size, indicated in the box.
The maximum recommended pressure drop is 0,02 bar.




N.B. The above diagrams have been obtained at the FILTREC laboratory, according to the ISO 3968 specification, with oil having viscosity 32 cSt and density 0,875 Kg/dm$^3$.



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## USER TIPS

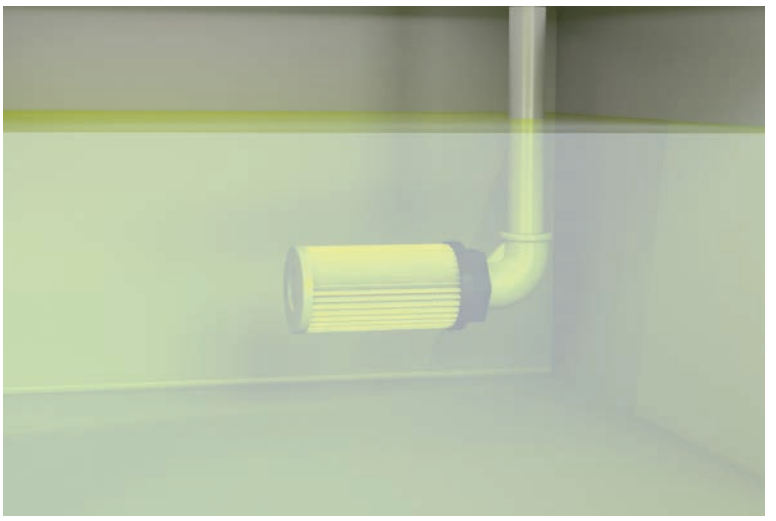
The suction strainer must be always largely sized to avoid any possible cavitation of the pump and port size equal or larger than the pump port.

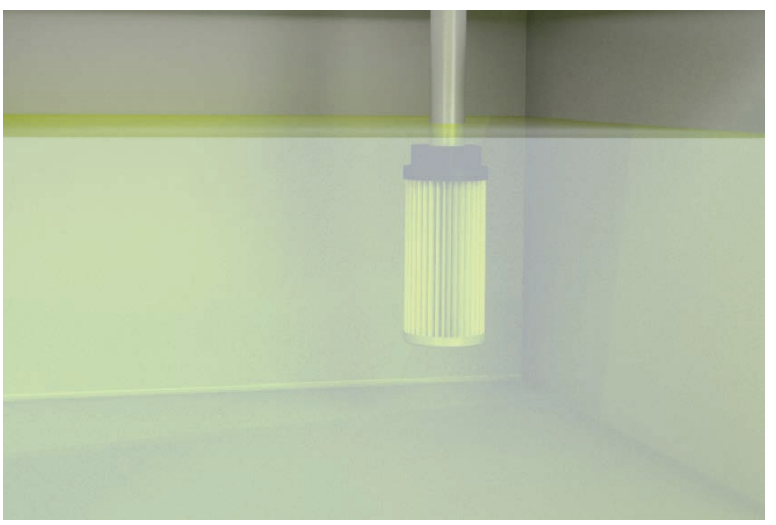
The strainer must remain under the oil level in any operating condition.

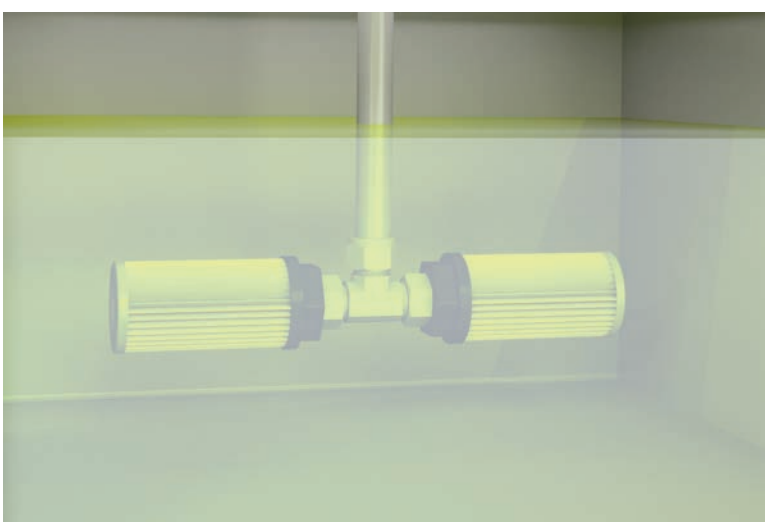
The lower side of the strainer must be at a proper distance from the tank bottom, to avoid any risk of sucking deposited contamination or sludge.

The strainer must be located the most possible far away of the return filter's outlet; if not possible we recommend that a baffle keeps separate the return area from the suction area.

Here aside some mounting examples.







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# FMSC SERIES

Particles counter monitor

The FMSC particles counter monitor is a compact and accurate device for continuous monitoring of solid particles in hydraulic and lubricant fluids.

Designed to react quickly to any change in contamination of the system. Suitable for high pressure, it can be directly mounted to a pressure line.

The FMSC is an optical particle monitor that works with "light extinction principle". This method classifies the size and quantity of particles within a measuring cell and a laser beam. It has the classifications according to common cleanliness classes.

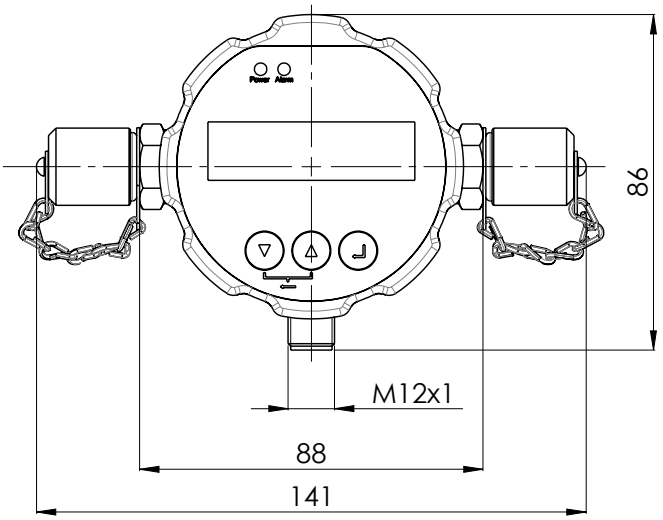
The calibration of the device follows the ISO 11943.
It calculates and displays results according to ISO 4406, SAE AS4059, NAS 1638 and GOST 17216.

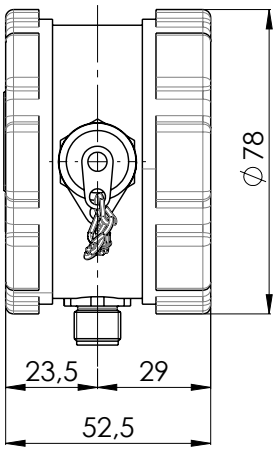


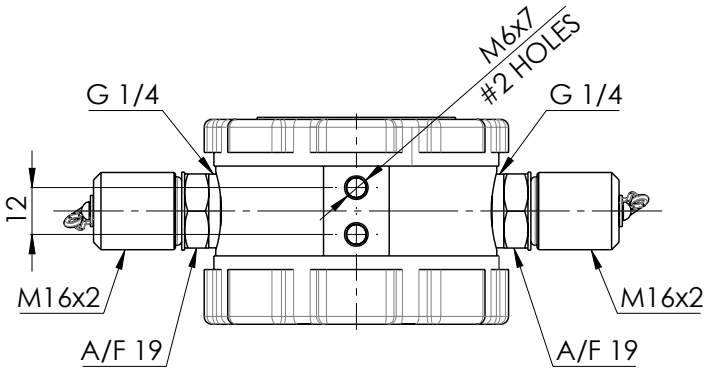

| | |
|---|---|
| MAX OPERATING PRESSURE: | max operating 420 bar |
| FLOW RATE: | 50... 400 ml/min |
| FLUID CONNECTIONS: | G 1/4" Minimess M16x2 |
| ELETTRICAL CONNECTION: | M12x1 - 8 pole |
| MATERIALS: | Stainless steel, sapphire, chrome, FFKM, NBR<br>Minimess coupling: zinc/nickel |
| PROTECTION CLASS: | IP67 |
| ANALOG OUTPUT: | 4...20 mA |
| TEMPERATURE RANGE: | -20 °C +85 °C |
| FLUID COMPATIBILITY: | mineral oils (H, HH, HM, HL, HV, HLP, HLPD, HVLP), synthetic esters (HETG, HEPG, HEES, HEPR), polyalkylenglycols (PAG), zinc and ash-free oils (ZAF), polyalphaolefins (PAO), phosphate ester |

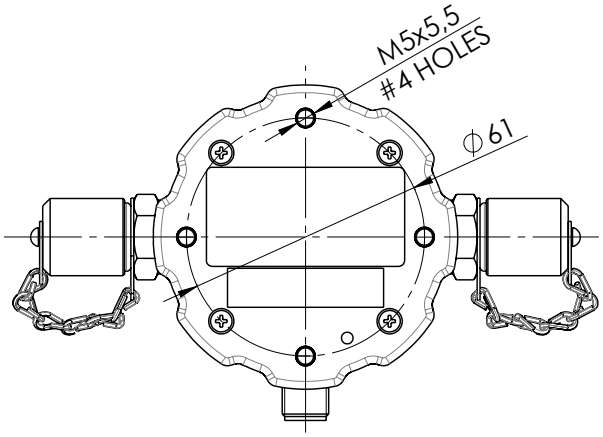
The sensor is supplied complete with an Operating Manual and can only be used by authorized operators who have read and understood all of its contents.
The FMSC Particles counter monitor is certified CE

## OVERALL DIMENSIONS



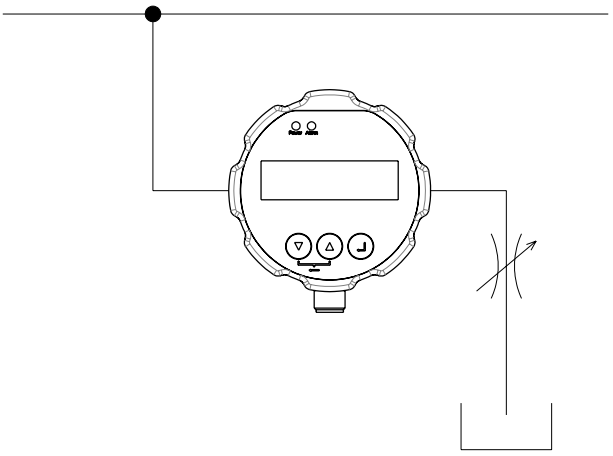




## CONNECTING SCHEME

For further information on installation and electrical connection, please refer to the manual.

MAIN HYDRAULIC LINE

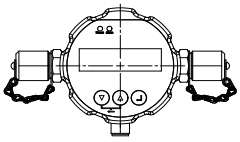


## TECHNICAL INFORMATION

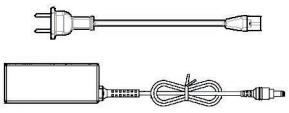
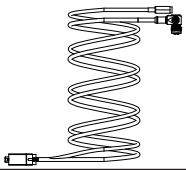
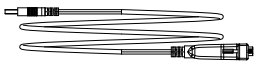
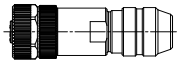
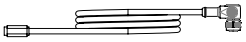
| Sensor Data | Size | Unit |
|---|---|---|
| Max Operating Pressure<br>dynamic<br>static | <br>420<br>600 | <br>bar<br>bar |
| **Permissible flow rate** | 50...400 | ml/min |
| **Operating conditions** | | |
| Temperature | -20 ... +85 | °C |
| Relative humidity | 0 ... 100 | % r H. (non-condensing) |
| **Display readable up to** | 60 | °C |
| **Compatible liquids** | mineral oils (H, HH, HL, HM, HV, HLP, HLPD, HVLP) | |
| | synthetic esters (HETG, HEPG, HEES, HEPR) | |
| | polyalkyleneglycols (PAG) | |
| | zinc and ash-free oils (ZAF) | |
| | polyalphaolefins (PAO) | |
| **Wetted Materials** | Stainless steel, sapphire, chrome, NBR, minimess coupling: Zinc/nickel | |
| **Protection class** [1)] | IP67 | |
| **Power supply** | 9 ... 33 | V |
| **Current consumption** | Max. 0,2 | A |
| **Max. power consumption** | 2 | W |
| **Output** | | |
| Power output [2)] | 4...20 | mA |
| Accuracy power output [3)] | ±2 | % |
| Interfaces | RS232/CAN | - |
| Alarm contact | Open collector | - |
| **Digital input for start and stop** | | |
| Power supply | 9...33 | V |
| **Data memory** | 3000 | data records |
| **Connecting dimensions** | | |
| Fluid connections | G1/4" minimess M16x2 | inch |
| Electrical connections | M12x1, 8-pole | - |
| Tightening torque M12-connection | 0,1 | Nm |
| **Measuring range according to ISO 4406** | | |
| Cleanliness level (measuring range) | 0...24 | Ordinal number (OZ) |
| Cleanliness level (calibrated range) | 10...22 | Ordinal number (OZ) |
| Measuring accuracy (calibrated range) | ±1 | Ordinal number (OZ) |
| **Weight** | ~720 | g |

1) With screwed-on connector
2) Output IOut is freely configurable (see operating manual)
3) In relation to the analogue current signal (4 ... 20 mA)

## ORDERING INFORMATION

| DESCRIPTION | CODE | ORDER PART NUMBER | DRAWING |
|---|---|---|---|
| Particles counter monitor | **FMSC01S0** | **04.006.00187** |  |

## ACCESSORIES

| DESCRIPTION | CODE | ORDER PART NUMBER | DRAWING |
|---|---|---|---|
| **Universal power supply**<br>Input range: 100...240VAC 50/60Hz<br>Output voltage: 24VDC / max. 0,63A / 15W<br>Temperature range in operation: 0...40°C<br>Compatible with cable FMSA04S0 and FMSA07S0<br>Supply line: Euro power cord 2-pole, 1.5m | **FMSA01S0** | **04.006.00190** |  |
| **Data cable for computer connection**<br>Side 1: M12 8-pole, 90° angled, IP67<br>Side 2: D-Sub connector 9-pole with separate DC Plug for power supply<br>Length: 5m, shielded<br>Temperature range -25°C...90°C<br>Oil-resistant | **FMSA04S0** | **04.006.00191** |  |
| **Adapter USB - RS232 serial**<br>Side 1 (PC): USB A plug<br>Side 2 (periphery): D-Sub connector 9-pole<br>Length: 1.8m | **FMSA05S0** | **04.006.00194** |  |
| **Data cable with open ends**<br>Side 1: M12 8-pole, 90° angled, IP67<br>Side 2: open<br>Length: 5m, shielded<br>Temperature range -25°C...90°C<br>Oil-resistant | **FMSA03S0** | **04.006.00192** |  |
| **Sensor connector**<br>M12 8-pole, straight, IP67<br>Suitable for cable diameter 6...8 mm<br>Temperature range -20°C ... 85°C<br>Oil-resistant | **FMSA02S0** | **04.006.00193** |  |
| **Cable for power supply connection**<br>Side 1: M12 8-pole, 90° angled, IP67<br>Side 2: DC Plug for power supply<br>Length: 5m, shielded<br>Temperature range -25°C...90°C<br>Oil-resistant | **FMSA07S0** | **04.006.00533** |  |

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# FMSS SERIES

Moisture and temperature sensor

Excessive water content in hydraulic fluids and lubricants can negatively impact their properties, leading to system malfunctions, operational disruptions, and damage.

The FMSS Moisture Sensor provides precise measurements of oil temperature and relative humidity, allowing for direct assessment of water saturation level.
A reading of 0% indicates completely dry oil, while a reading of 100% indicates that the oil is fully saturated with water. Any additional water will appear as free water.

The FMSS is designed to respond rapidly to changes in temperature and relative humidity. It can be mounted either on the pressure line or on the reservoir .

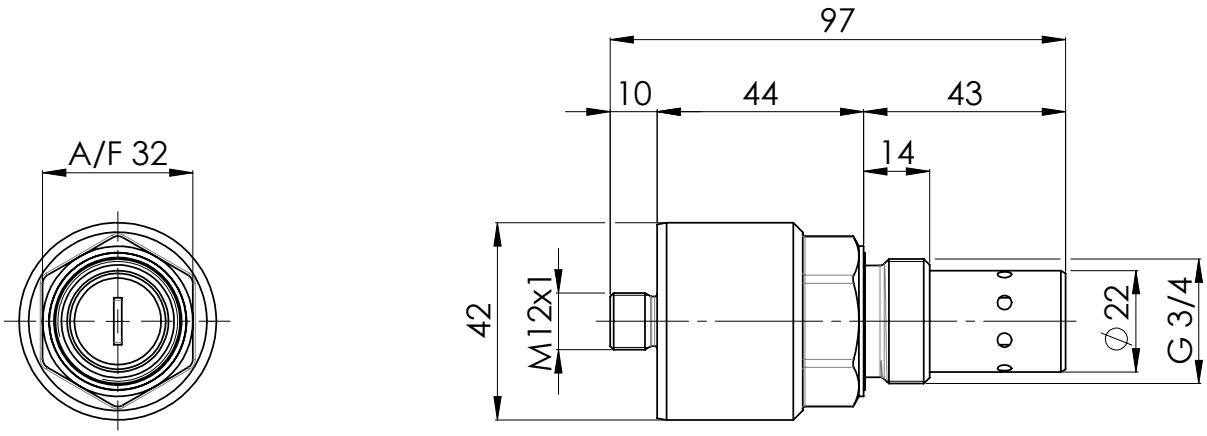
The measured values can be continuously recorded and retrieved through a serial interface or two 4...20 mA current outputs. To facilitate data recording, setting and analysis, a software is available for download on our website at www.filtrec.com.



| | |
|---|---|
| MAX OPERATING PRESSURE: | 50 bar |
| FLUID CONNECTIONS: | G 3/4" |
| ELETTRICAL CONNECTION: | M12x1 - 8 pole |
| MATERIALS: | aluminum, HNBR, polyurethane and epoxy resin, chemical nickel / gold, soldering tin, aluminum oxide, glass |
| PROTECTION CLASS: | IP67 |
| ANALOG OUTPUT: | 4...20 mA |
| TEMPERATURE RANGE: | -20 °C +120 °C |
| FLUID COMPATIBILITY: | mineral oils (H, HH, HM, HL, HV, HLP, HLPD, HVLP), synthetic esters (HETG, HEPG, HEES, HEPR), polyalkylenglycols (PAG), zinc and ash-free oils (ZAF), polyalphaolefins (PAO) |

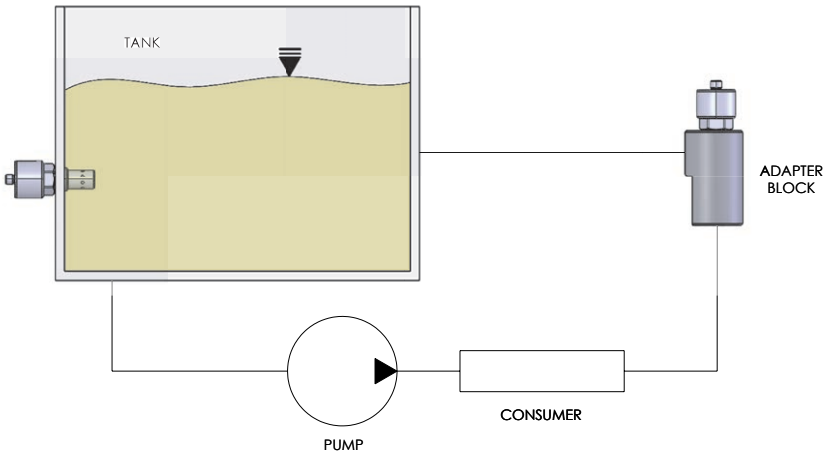
The sensor is supplied complete with an Operating Manual and can only be used by authorized operators who have read and understood all of its contents.
The FMSS moisture and temperature sensor is certified CE

## OVERALL DIMENSIONS

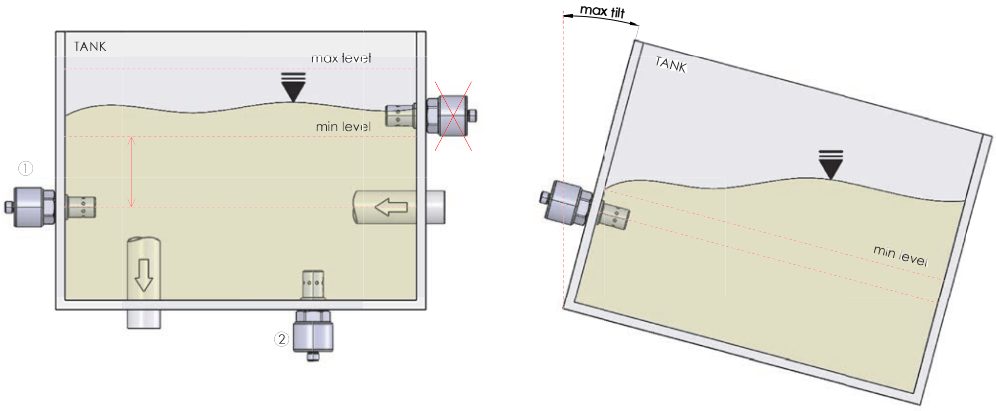



## CONNECTING SCHEME

For further information on installation and electrical connection, please refer to the manual.




Mounting of a sensor in a oil tank or using the adapter block



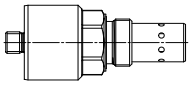

Installation example of correct and incorrect mounting of the sensor in an oil tank

## TECHNICAL INFORMATION

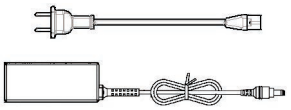
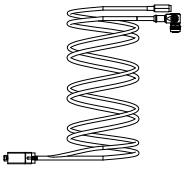
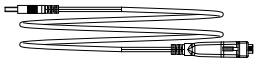
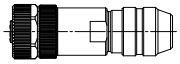
| Sensor Data | Size | Unit |
|---|---|---|
| Max Operating Pressure | 50 | bar |
| **Operating conditions** | | |
| Temperature [1] | -20 ... 120 | °C |
| Relative humidity [1] | 0 ... 100 | % r H. (non-condensing) |
| **Compatible liquids** | mineral oils (H, HH, HL, HM, HV, HLP, HLPD, HVLP) | |
| | synthetic esters (HETG, HEPG, HEES, HEPR) | |
| | polyalkyleneglycols (PAG) | |
| | zinc and ash-free oils (ZAF) | |
| | polyalphaolefins (PAO) | |
| **Wetted Materials** | aluminum, HNBR, polyurethane resin, epoxy resin, chemical nickel / gold (ENIG), soldering tin (Sn60Pb40, Sn96,5Ag3Cu0,5NiGe), aluminum oxide, glass (DuPont QQ550) | |
| **Protection class** [2] | IP67 | |
| **Power supply** [3] | 9 ... 33 | V |
| **Current consumption** | Max. 60 | mA |
| **Output** | | |
| Current output (2x) [4] | 4...20 | mA |
| Accuracy current output [5] | ±2 | % |
| Interfaces | RS232 | - |
| **Connecting dimensions** | | |
| Threaded connection | G¾" | Inch |
| Tightening torque connection thread | 45 ±4,5 | Nm |
| Electrical connection | M12x1, 8-pole | - |
| Tightening torque M12 connector | 0,1 | Nm |
| **Measuring range** | | |
| Rel. humidity | 0...100 | % r.H. |
| Temperature | -20...120 | °C |
| **Measuring resolution** | | |
| Rel. humidity | 1 | % r.H |
| Temperature | 0,1 | K |
| **Measuring accuracy** [6] | | |
| Rel. humidity (10...90 %) [7] | ±3 | % r.H. |
| Rel. humidity (<10 %, >90 %) [7] | ±5 | % r.H. |
| Temperature | ±2 | K |
| **Response time humidity measurement** | | |
| (0 to 100 %) | <1 | min |
| **Weight** | 115 | g |

1) Outside the specified measuring range, there are possibly no plausible measuring values to be expected
2) With screwed on connector
3) Automatic switch off at U <8 V and U >36 V, with load-dump impulses over 50V an external protection must be provided
4) Outputs IOut1 and IOut2 are freely configurable (see operating manual)
5) In relation to the analogue current signal (4 ... 20 mA)
6) Works calibration
7) Calibrated to air at room temperature

## ORDERING INFORMATION

| DESCRIPTION | CODE | ORDER PART NUMBER | DRAWING |
|---|---|---|---|
| Moisture and temperature sensor | **FMSS01S0** | **04.006.00188** |  |

## ACCESSORIES

| DESCRIPTION | CODE | ORDER PART NUMBER | DRAWING |
|---|---|---|---|
| **Universal power supply**<br>Input range: 100…240VAC 50/60Hz<br>Output voltage: 24VDC / max. 0,63A / 15W<br>Temperature range in operation: 0…40°C<br>Compatible with data cable FMSA04S0<br>Supply line: Euro power cord 2-pole, 1.5m | **FMSA01S0** | **04.006.00190** |  |
| **Data cable for computer connection**<br>Side 1: M12 8-pole, 90° angled, IP67<br>Side 2: D-Sub connector 9-pole with separate DC Plug for power supply<br>Length: 5m, shielded<br>Temperature range -25°C…90°C<br>Oil-resistant | **FMSA04S0** | **04.006.00191** |  |
| **Adapter USB - RS232 serial**<br>Side 1 (PC): USB A plug<br>Side 2 (periphery): D-Sub connector 9-pole<br>Length: 1.8m | **FMSA05S0** | **04.006.00194** |  |
| **Data cable with open ends**<br>Side 1: M12 8-pole, 90° angled, IP67<br>Side 2: open<br>Length: 5m, shielded<br>Temperature range -25°C…90°C<br>Oil-resistant | **FMSA03S0** | **04.006.00192** |  |
| **Sensor connector**<br>M12 8-pole, straight, IP67<br>Suitable for cable diameter 6…8 mm<br>Temperature range -20°C … 85°C<br>Oil-resistant | **FMSA02S0** | **04.006.00193** |  |
| **Sensor adapter block for pipe installation**<br>Line connectors ¾"<br>Material: Aluminum<br>Pressure range: up to 50bar<br>Oil-resistant | **FMSA06S0** | **04.006.00375** |  |

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# FUH015 SERIES

Transfer and filtration portable unit




## TECHNICAL SPECIFICATION

| | |
|---|---|
| MAIN: | Flow Rate: 15 l/min<br>Operating temperature: from 0 °C to +80 °C<br>Fluid viscosity range: 10-220 cSt |
| ELECTRIC: | Voltage: 230 V<br>Frequency: 50 - 60 Hz<br>Power consumption: 0.25 kW |
| FRAME: | Dimensions L, W, H [mm]:<br>290 x 368 x 533 mm<br>Dry Weight: 16 kg |
| MATERIALS: | Base frame: Painted steel |

## ELEMENT

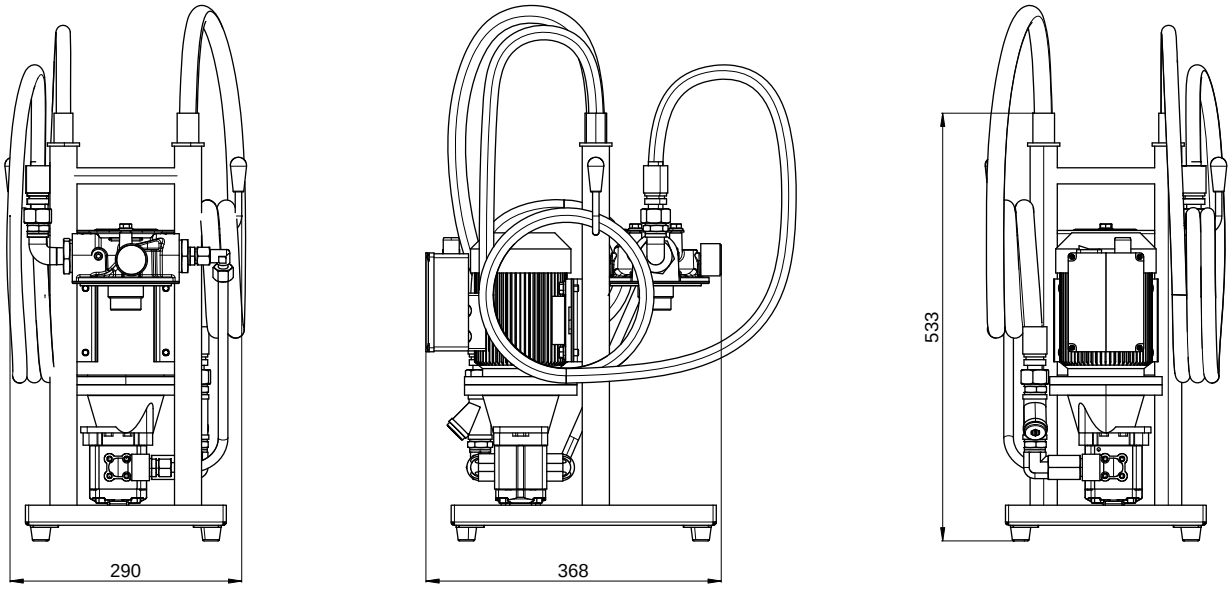
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181

| | |
|---|---|
| FILTER MEDIA: | Fiberglass: G03 - G06 - G10 - G25<br>Fiberglass with water removal:<br>GW03 - GW06 -<br>GW10 - GW25<br>Paper: C25<br>Paper with water removal: CW25 |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrec.com in the "Hydraulic Filter" section. The unit can be used by authorized operators who have read and understood all of its contents.

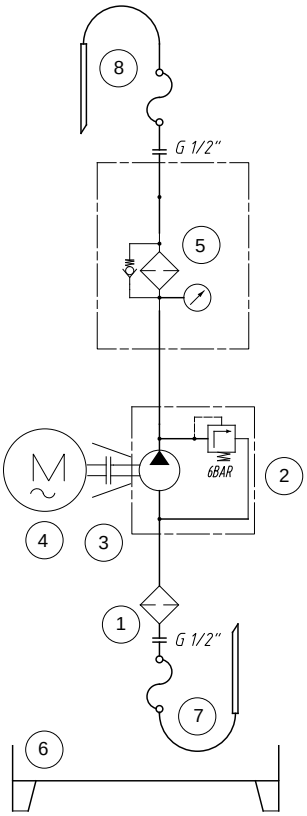
**The FUH015 filtration unit is certified** CE

## OVERALL DIMENSIONS




The filter unit comes with filter head installed. The spin-on elements should be ordered separately.
You can install either 1 x A120 - or - 1 x A121 - or- 1 x A150.

## HYDRAULIC DIAGRAM




1 - Suction filter "Y" 500 $\mu$m
2 - Gear pump with + pressure relief valve 6bar
3 - Motor - pump coupling
4 - Motor
5 - Filter
6 - Base frame
7 - Suction pipes in armorvin + lance L=2m
8 - Delivery pipes in armorvin + lance L=2m

## ORDERING INFORMATION
## FUH015

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **FUH** | **015** | **M** | **G** | **0** | **B** | **S** | **0** |

| | | |
|---|---|---|
| 1. FILTER UNIT | FUH | |
| 2. MODEL | 015 | flow rate 15 l/min |
| 3. ELECTRIC MOTOR | M | single phase electric motor, 230V 50-60Hz 0,25 KW |
| 4. PUMP SIZE | G | gear pump with + pressure relief valve 6bar |
| 5. FILTER / ELEMENT SIZE | 0 | 1 x A120 - or - 1 x A121 - or- 1 x A150 |
| 6. SEAL | B | NBR |
| 7. VERSION | S | standard version |
| 8. OPTION | 0 | standard option * |

(*)
- With cloggin indicator, pressure gauge model MPB
- Support frame with drip tray
- Suction filter "Y" 500 µm
- Suction and delivery pipes in armorvin + lance L=2m
- 2P+T industrial plug, L=2m

## ORDERING INFORMATION
## SPARE ELEMENTS

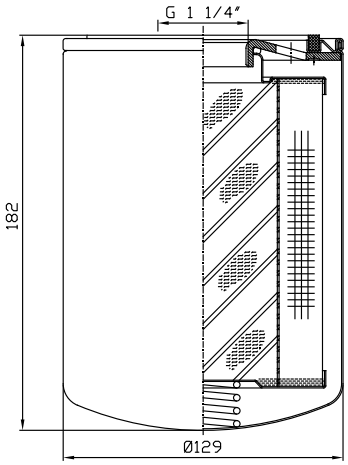
| 1. | 2. | 3. |
|---|---|---|
| **A1** | **20** | **G10** |

| | | | |
|---|---|---|---|
| 1. FILTER ELEMENT SERIES | A1 | | |
| 2. FILTER SIZE | 20-21 | connection threads G 1 1/4" | |
| | 50 | connection threads 1 1/2"-16 UN | |
| 3. FILTER MEDIA | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | AVAILABLE FILTER MEDIA FOR A120-A121 |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| | C25 | paper $ß_{25\mu m(c)} > 2$ | |
| | CW25 | paper $ß_{25\mu m(c)} > 2$ + water absorbent | |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ | AVAILABLE FILTER MEDIA FOR A150 |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ | |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ | |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ | |
| | GW03 | glassfiber $ß_{5\mu m(c)} > 1.000$ + water absorbent | |
| | GW06 | glassfiber $ß_{7\mu m(c)} > 1.000$ + water absorbent | |
| | GW10 | glassfiber $ß_{12\mu m(c)} > 1.000$ + water absorbent | |
| | GW25 | glassfiber $ß_{22\mu m(c)} > 1.000$ + water absorbent | |
| | C25 | paper $ß_{25\mu m(c)} > 2$ | |
| | CW25 | paper $ß_{25\mu m(c)} > 2$ + water absorbent | |

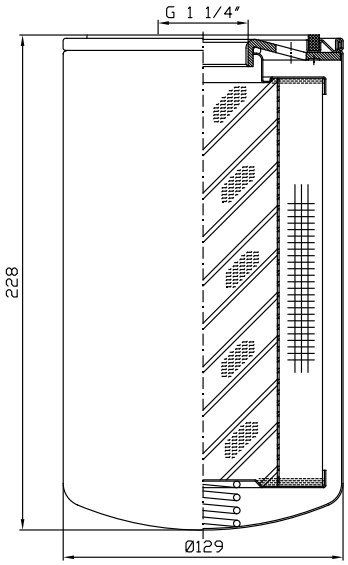
FILTER ELEMENT - Preferred models - For the complete range of elements available, refer to the FA1 series catalog for size 20 and 21, and catalog FAH-A150 for size 50.

## OVERALL DIMENSIONS FILTER ELEMENT

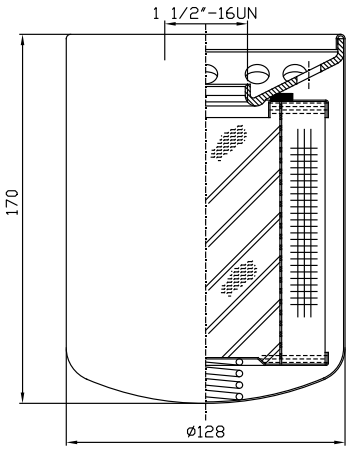
**A120xxx**




**A121xxx**




**A150xxx**




## USER TIPS

The filter element must be replaced when:

1. the oil transfer is completed (if used as oil transfer unit).
2. the target cleanliness class is reached (when used as off line filtration unit); more filter elements could be necessary to reach it, depending on the oil volume to be cleaned and from the initial contamination level.
3. the clogging indicator shows.
4. a different filter media is required.We recommend a fine filtration; filter elements for water removal available when needed.

The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrec.com in the "Hydraulic Filter" section. The unit can be used by authorized operators who have read and understood all of its contents.

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# FUHF50 SERIES

Transfer and Filtration Portable Unit for Diesel and Oil.

Designed for superior performance, it offers dual filtration to remove water and solid contaminants, ensuring your oil and diesel remains clean and efficient.




## TECHNICAL SPECIFICATION

| | |
|---|---|
| MAIN: | Flow Rate: 50 l/min<br>Operating temperature:<br>from -10 °C to +50°C<br>Fluid viscosity:<br>Diesel from 2 to 5,35 cSt<br>Oil from 4,5 to 300 cSt (500 cSt short term) |
| ELECTRIC: | Voltage: 220 V<br>Frequency: 50 - 60 Hz<br>Power consumption: 1,6 kW |
| FRAME: | Dimensions L, W, H[mm]:<br>581X546X1160 |
| MATERIALS: | Base frame: Painted |

## ELEMENT

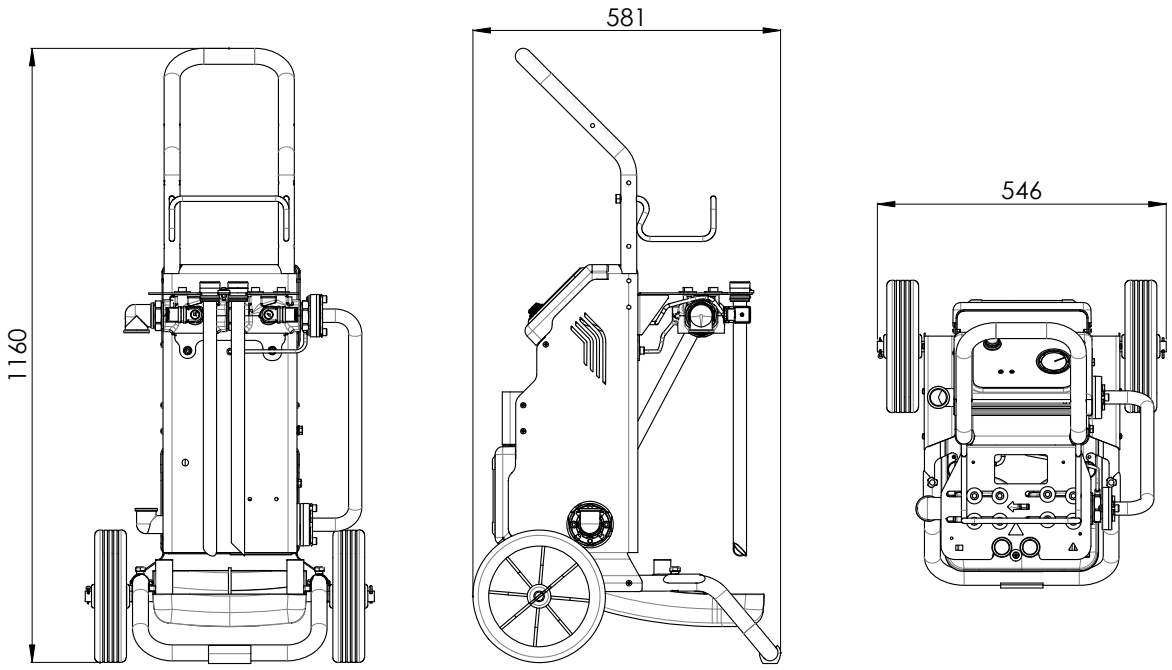
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181

| | |
|---|---|
| FILTER MEDIA: | Fiberglass:<br>G01 - G03 - G06 - G10 - G25<br>Water absorbent: GW40 - AW40 |
| FLUID COMPATIBILITY: | Full With HH-HL-HM-HV-HETG-HEES<br>(acc. to ISO 6743/4).<br>Diesel EN590. ASTMD975<br>Biodiesel B0 to B100 EN14214<br>Fuel oil EN51603-1<br>For use with other fluid please contact Filtrec Costumer Service (info@filtrec.it). |

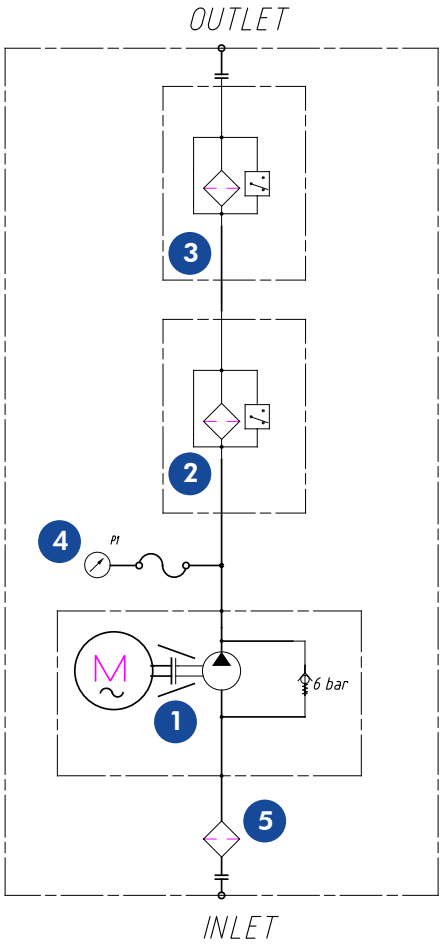
The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrec.com in the "Hydraulic Filter" section. The unit can be used by authorized operators who have read and understood all of its contents.

**The FUHF50 filtration unit is certified CE**

## OVERALL DIMENSIONS




## HYDRAULIC DIAGRAM




| | |
|---|---|
| **1** | Vane Pump 1,6 kW + pressure relief valve 6 bar |
| **2** | Particle removal filter |
| **3** | Water absorbent filter |
| **4** | Pressure Gauge |
| **5** | Foot Valve |

## ORDERING INFORMATION
## FUHF50

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **FUHF** | **50** | **M** | **G** | **2** | **V** | **S** | **0** |

| | | |
|---|---|---|
| 1. FILTER UNIT SERIES | FUHF | |
| 2. MODEL | 50 | flow rate 50 l/min |
| 3. ELECTRIC MOTOR | M | Single phase electric motor, 230V 50-60Hz 1,6 kW |
| 4. PUMP SIZE | G | Vane pump suitable for Oil and diesel fuel (internal pressure relief valve @6 bar) |
| 5. FILTER / ELEMENT SIZE | 2 | 2 x A522.../AB2 series |
| 6. SEAL | V | FKM |
| 7. VERSION | S | standard version |
| 8. OPTION | 0 | - with n.2 clogging indicator model VEXF2 differential visual electric 2,7 bar for filter<br>- support frame with removal drip tray<br>- foot valve ( ON /OFF ) with suction strainer<br>- suction and delivery pipes + lances L=3<br>- 2P+T type "F" plug ( Schuko ),L= 5m<br>- control panel with ON/OFF switch<br>- control panel with indicator lights for: SYSTEM ON CLOGGED FILTER #1* & #2*<br>*= it does not turn off the system, filter #1 for solid contaminants, filter #2 water absorbent |

ACCESSORIES

The accessories must be ordered separately

| | | |
|---|---|---|
| 06.022.00003 | Nozzle |  |

ORDERING INFORMATION
SPARE PARTS FOR MAINTENANCE

| | |
|---|---|
| 06.022.00001 | Replacement vane kit for vane pump |
| 06.022.00002 | Foot valve (manual ON/OFF) with suction strainer |

## ORDERING INFORMATION
## SPARE ELEMENTS

| 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|
| **A5** | **22** | **G01** | **V** | **0** | **/AB2** |

| | | | |
|---|---|---|---|
| 1. FILTER ELEMENT SERIES | A5 | | |
| 2. FILTER SIZE | 22 | | |
| 3. FILTER MEDIA | G01 | glassfiber $ß_{4\mu m(c)} \geq 10.000$ Anti ESD -AbsoluteBeta Sparkbuster technology included | Filter #1 specific for Diesel Fuel |
| | G03 | glassfiber $ß_{5\mu m(c)} \geq 5.000$ Anti ESD -AbsoluteBeta Sparkbuster technology included | |
| | G06 | glassfiber $ß_{7\mu m(c)} \geq 2.000$ | Filter #1 specific for Hydraulic Oil |
| | G10 | glassfiber $ß_{10\mu m(c)} \geq 2.000$ | |
| | G25 | glassfiber $ß_{25\mu m(c)} \geq 2.000$ | |
| | GW40 | glassfiber $ß_{35\mu m(c)} \geq 1.000$ + water absorbent | only for Filter #2 |
| | AW40 | water aborbent only (higher water retention capacity) | |
| 4. SEAL | V | FKM | |
| 5. BYPASS VALVE | 0 | no bypass | |
| 6. ELEMENT SUFFIX | /AB2 | AbsoluteBeta 2 - very high capacity / efficiency filter element | |

FILTER ELEMENT - Preferred filter media - For the complete range of elements available, refer to the FA5 series catalog.

## USER TIPS

The filter element must be replaced when:

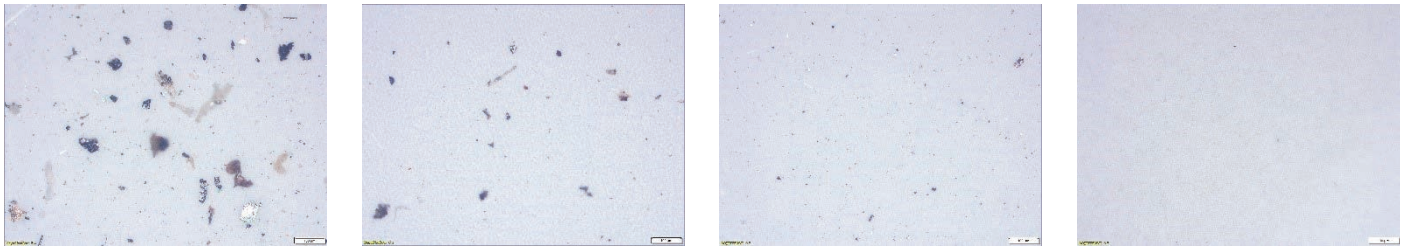
1. Either the clogging indicator of the particle removal filter or the water absorbent filter shows a clog, or if both clogging indicators show a clog, or if the pressure gauge reaches 5 bar.
2. A different filter medium is required. We recommend using a fine filtration medium for the particle removal filter and a water absorbent filter for water removal.

The unit is supplied complete with an Operating Manual available on our website www.filtrec.com in the “Hydraulic Filter” section. The unit can be used by authorized operators who have read and understood all of its contents.

## WHY A CLEAN AND FREE OF WATER FUEL IS IMPORTANT

In the last 20 years the requirements of emissions regulations for internal combustion engines became every year more stringent.
To achieve the emissions target, manufacturers use high pressure injection systems on their diesel engines. Today, almost all the diesel engines use a High Pressure Common Rail (HPCR) system to inject the fuel, with pressure up to 2500 bar.
Due to the high pressure and the tight tolerances of these systems, the cleanliness of the fuel and its water content is very important.
In fact, solid contamination leads to wear and erosion of the different components of the injection system, while water leads to corrosion, reduced fuel efficiency and injector damage.
For the above reasons, it is vital to use clean and dry fuel in your diesel engines.

Examples of solid contamination in diesel fuel – ISO 4406 cleanliness level



Cleanliness target for diesel fuel in last generation engine: between 16/14/12 and 13/11/9 according to ISO 4406

## FILTREC FUHF50 DIESEL FILTRATION UNIT

With Filtrec FUHF50 Series Diesel Filtration Unit you can remove solid contamination and water from the fuel during the filling of the tank of your machines.
This unit features a 50 l/min vane pump and 2 different filters: one to stop the solid particle contamination and the other to absorb the water present in the fuel.
The particle removal filter has a high efficiency, glass fiber media, with a ß ratio at 4 $\mu$m(c) up to 10000 (G01 media).
This filter is able to remove the particle contamination in a single-pass filtration.
The water removal filter element is specifically designed for the absorption of water from diesel fuel.
This water absorption technology configuration is an efficient method to remove water contamination.
The water absorbing filter media, embedded in the filter material, removes water by a physical-chemical reaction.
When absorbed, the water particles are locked physically by the gel formed and are not able to return to the fluid.
This reaction is not reversible also with increased pressure.
However, diesel fuel passes through this media without interference.
When the gel formation is complete, the media stops the water removal reaction.
In this way you are sure to avoid any problems related to the solid contamination and water in the fuel.

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# FUVR050 SERIES

Portable off-line filtration unit specific for reducing or eliminating the presence of varnish in hydraulic and lubrication systems.
Without chiller



## TECHNICAL SPECIFICATION

| | |
|---|---|
| MAIN: | Flow Rate: 50 l/min<br>Operating temperature: from 0 °C to + 80°C<br>Fluid viscosity range: 10-800cSt |
| ELECTRIC: | Voltage: 380/400 Vac<br>220/230 Vac (on request)<br>Frequency: 50 - 60 Hz<br>Power consumption:1,5Kw |
| FRAME: | Dimensions L, W, H[mm]:<br>730X950X1320 |
| DRY WEIGHT: | 155 Kg |
| MATERIALS: | Base frame: Painted steel |

## ELEMENT

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

| | |
|---|---|
| VARNISH REMOVAL: | U564G01/VRE<br>U564GW01/VRE |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrec.com in the "Hydraulic Filter" section. The unit can be used by authorized operators who have read and understood all of its contents.

**The FUVR050 filtration units are certified CE**

## WHAT IS VARNISH



During the normal use of a hydraulic system, the lubricating or the hydraulic fluid can separate insoluble substances due to thermo-oxidative degradation of the fluid itself.

Different phenomena can lead to the separation of these substances:

- thermal degradation due to the presence of hot spots (T > 100°C) and electrostatic discharge
- hydrolysis and oxidation due to the presence of air, water and solid contamination that works as catalyst
- micro-dieseling due to cavitation

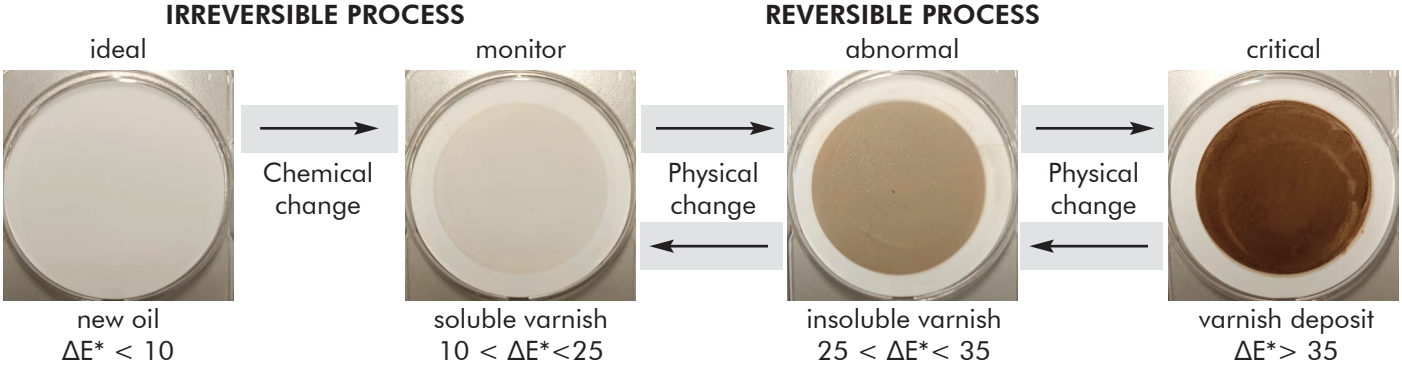
These substances are called “varnish precursors”.
When they settle down on the surfaces of hydraulic system components, they form a thin, insoluble and sticky layer called “varnish”.
Varnish has detrimental effects on the operating properties of the hydraulic components like bearings, servo-valves, pumps etc.
For example, on servo-valves, varnish can lead to incorrect and unstable response, jamming of the spool and burnout of the solenoid.

## CAN WE CHECK THE PRESENCE OF VARNISH PRECURSORS IN THE FLUID?

Using the colorimetric analysis described in ASTM D7843-21 standard, it is possible to measure the varnish potential of the fluid.
According to the analysis procedure, 50 ml of sample mixed with 50 ml of petroleum ether are filtered under vacuum on a 0.45 $\mu$m, mixed esters of cellulose, analysis membrane.
The analysis membrane is then analyzed using a spectrophotometer and compared with a brand-new membrane.
Results are reported according to CIE Lab scale and ΔE* value, which represents the varnish potential of the fluid is calculated.
ΔE* values lower than 25 are considered acceptable, however it is suggested to monitor the varnish potential with periodical analysis.
If ΔE* value increases, it is necessary to remove the varnish precursor from the oil to avoid any future problem.

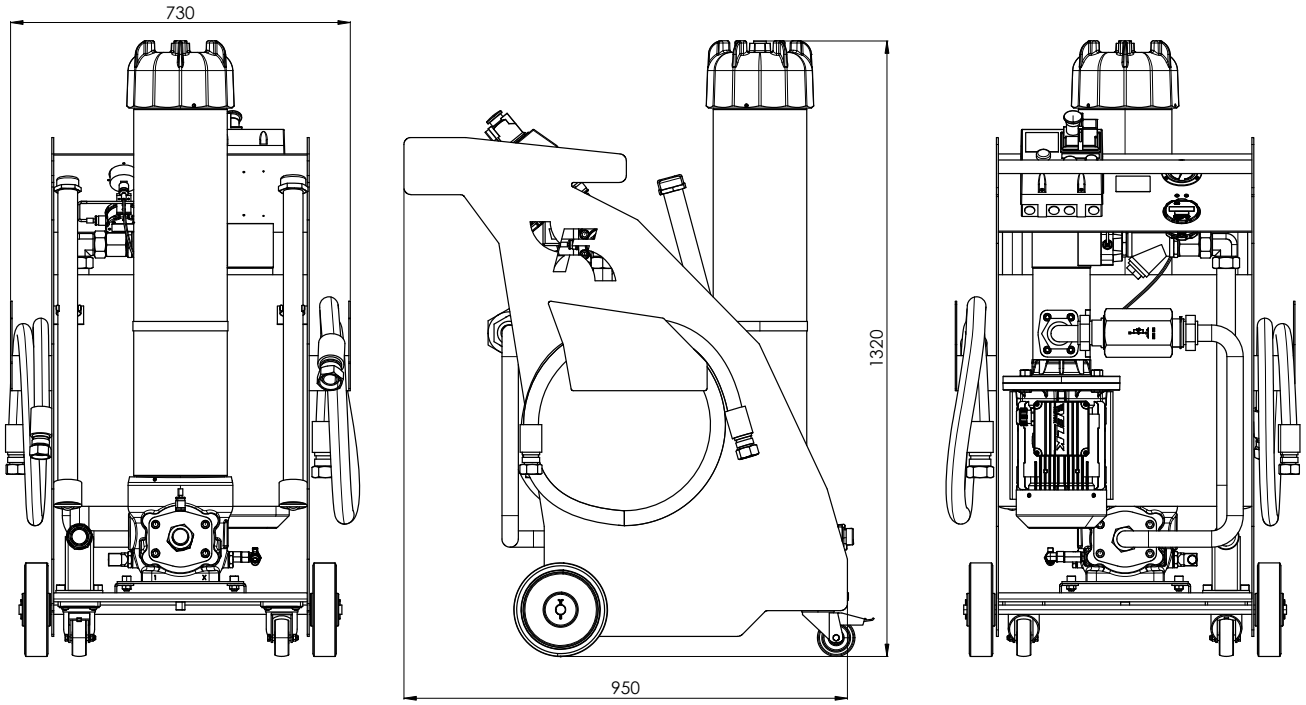
## CAN WE REMOVE VARNISH PRECURSORS FROM THE FLUID?

Using dedicated filtration media and a low flow rate it is possible to remove varnish precursors from hydraulic and lubricating fluid.
Filtrec filter elements with “/VRE” option are able to efficiently remove non-solid substances like varnish precursors as well as solid particle contamination.
These filter elements combine a high efficiency glass fiber media (ß4(c) ≥ 2000) and a dedicated cellulose fibers media to reach high filtration performance for solid and non-solid contaminants.



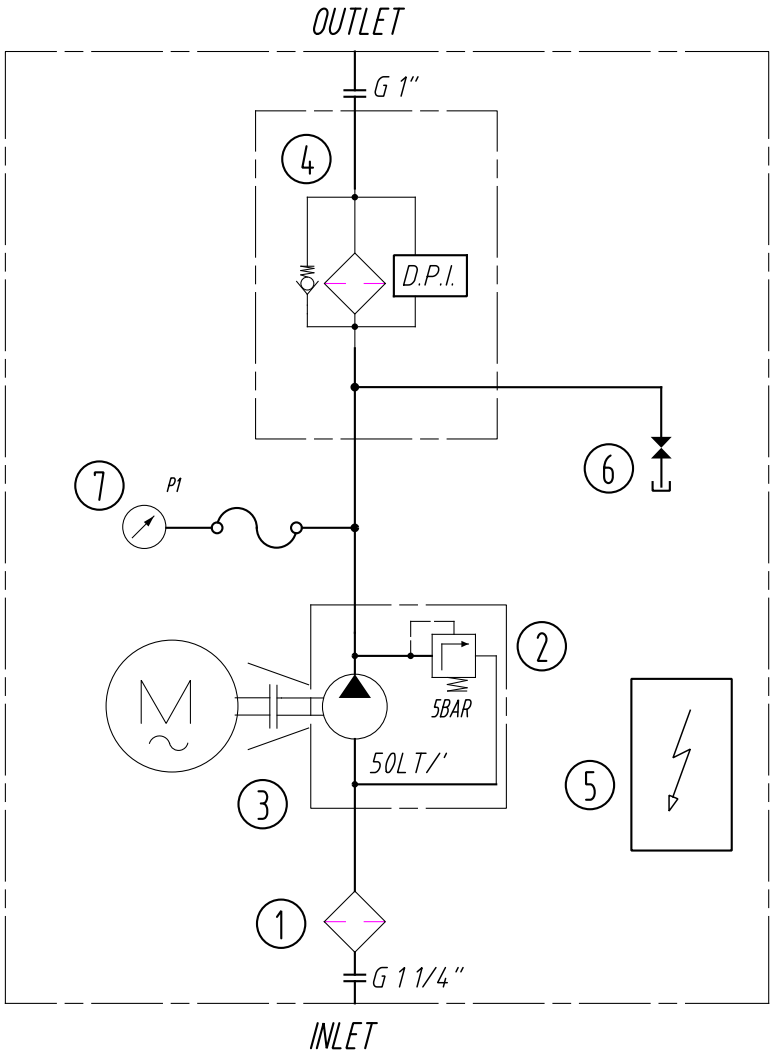
## OVERALL DIMENSIONS

### FUVR050



## HYDRAULIC DIAGRAM

### FUVR050




1- Suction filter "Y" 500 $\mu$m

2- Gear pump + pressure relief valve 5 bar

3- Motor with pump coupling

4- Filter with visual clogging indicator

5- Control Panel

6- Sampling drain valve

7- Pressure gauge

Suction and delivery hoses are included but not connected

## ORDERING INFORMATION
## FUVR050

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **FUVR** | **050** | **T** | **G** | **4** | **B** | **S** | **0** |

| | | |
|---|---|---|
| 1. FILTER UNIT | FUVR | |
| 2. MODEL | 050 | flow rate 50 l/min |
| 3. ELECTRIC MOTOR | T | three phase electric motor, 380/400 Vac 50-60 Hz, 1,5 Kw |
| | M | single phase electric motor, 220/230 Vac 50-60 Hz, 1,5 Kw (on request) |
| 4. PUMP SIZE | G | gear pump with + pressure relief valve 5 bar |
| 5. FILTER / ELEMENT SIZE | 4 | 1 x U564 series |
| 6. SEAL | B | NBR |
| 7. VERSION | S | standard version |
| 8. OPTION | 0 | With visual clogging indicator, differential indicator model VX2<br>Support frame with drip tray<br>Suction filter “Y” 500 µm<br>Suction and delivery hoses + lance L=3m<br>3P+N+PE (N=not connected)+ industrial plug, L=2m<br>Control panel with ON/OFF switch with safety release coil and emergency interlock push button |

## ORDERING INFORMATION
## SPARE ELEMENTS

| 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|
| **U5** | **64** | **G01** | **B** | **0** | **/VRE** |

| | | |
|---|---|---|
| 1. FILTER ELEMENT SERIES | U5 | |
| 2. FILTER SIZE | 64 | |
| 3. FILTER MEDIA | G01 | glassfiber $ß_{4\mu m(c)} > 2.000$ |
| | GW01 | glassfiber $ß_{4\mu m(c)} > 2.000$ + water absorbent |
| 4. SEALS | B | NBR |
| 5. BYPASS VALVE | 0 | no bypass |
| 6. OPTION | /VRE | varnish removal element |

## USER TIPS

The filter element must be replaced when:

1. the clogging indicator shows ; more filter elements could be necessary to reach accepatble ΔE value <25, depending on the oil volume to be cleaned and from the initial contamination level.

The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrec.com in the “Hydraulic Filter” section. The unit can be used by authorized operators who have read and understood all of its contents.

www.filtrec.com
Technical information may change without notice

CT136-07/24

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# FUH050-FUH100 SERIES

Transfer and filtration portable unit



## TECHNICAL SPECIFICATION

| | |
|---|---|
| MAIN: | Flow Rate:<br>FUH050: 50 l/min<br>FUH100: 100 l/min<br>Operating temperature: from 0 °C to +80°C<br>Fluid viscosity range: 10-800cSt |
| ELECTRIC: | Voltage: 380/400 Vac<br>220/230 Vac (on request)<br>Frequency: 50 - 60 Hz<br>Power consumption:<br>FUH050:1,5Kw<br>FUH100: 2,2Kw |
| FRAME: | Dimensions L, W, H[mm]:<br>FUH050:730X950X1110<br>FUH100:730X950X1320 |
| DRY WEIGHT: | FUH050: 148 Kg<br>FUH100: 188 Kg |
| MATERIALS: | Base frame: Painted steel |

## ELEMENT

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

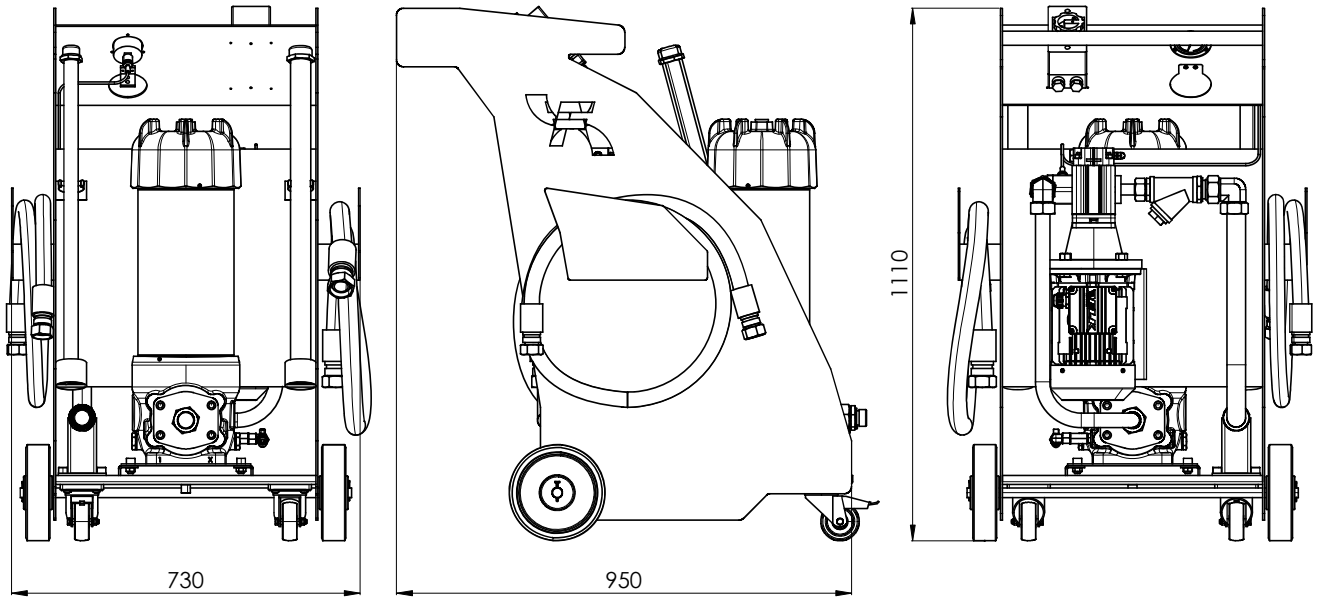
| | |
|---|---|
| FILTER MEDIA: | Fiberglass: G01 - G03 - G06 -G10<br>G15 - G25 - G40<br>Water absorbent: GW03 - GW10<br>AW40 |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrec.com in the "Hydraulic Filter" section. The unit can be used by authorized operators who have read and understood all of its contents.

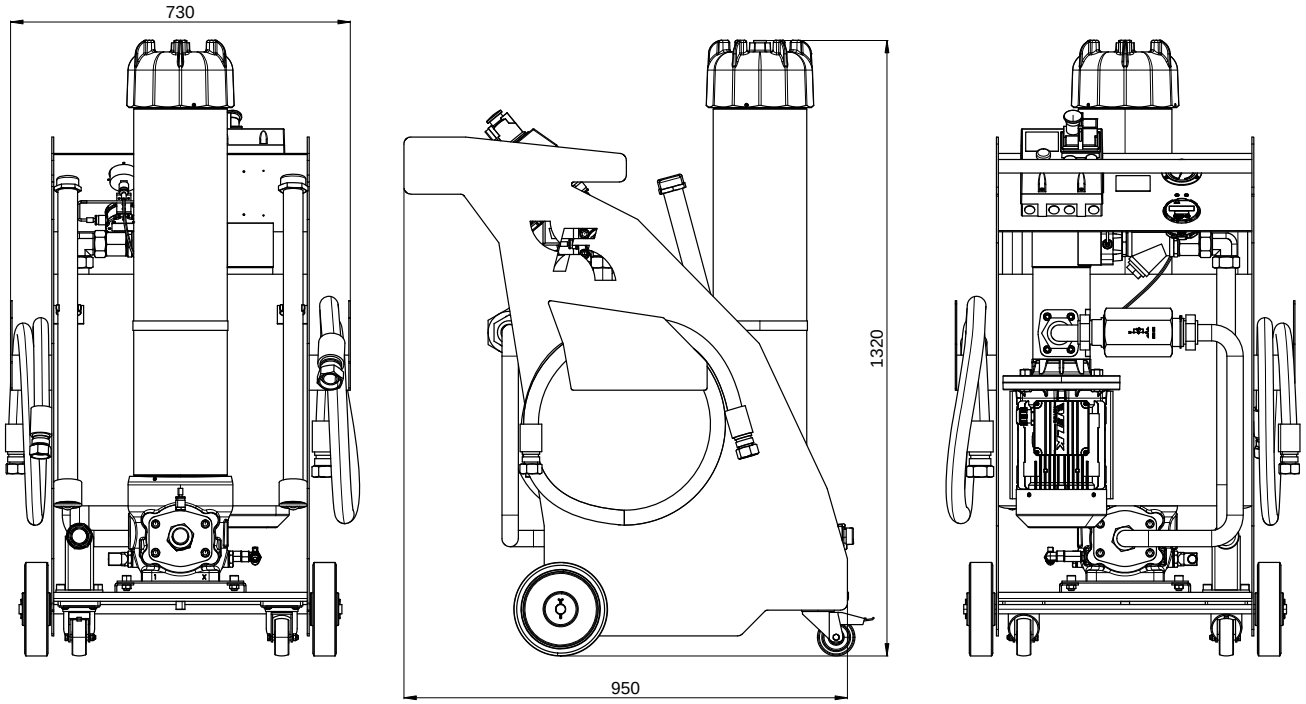
**The FUH050 and FUH100 filtration units are certified** CE

## OVERALL DIMENSIONS

### FUH050

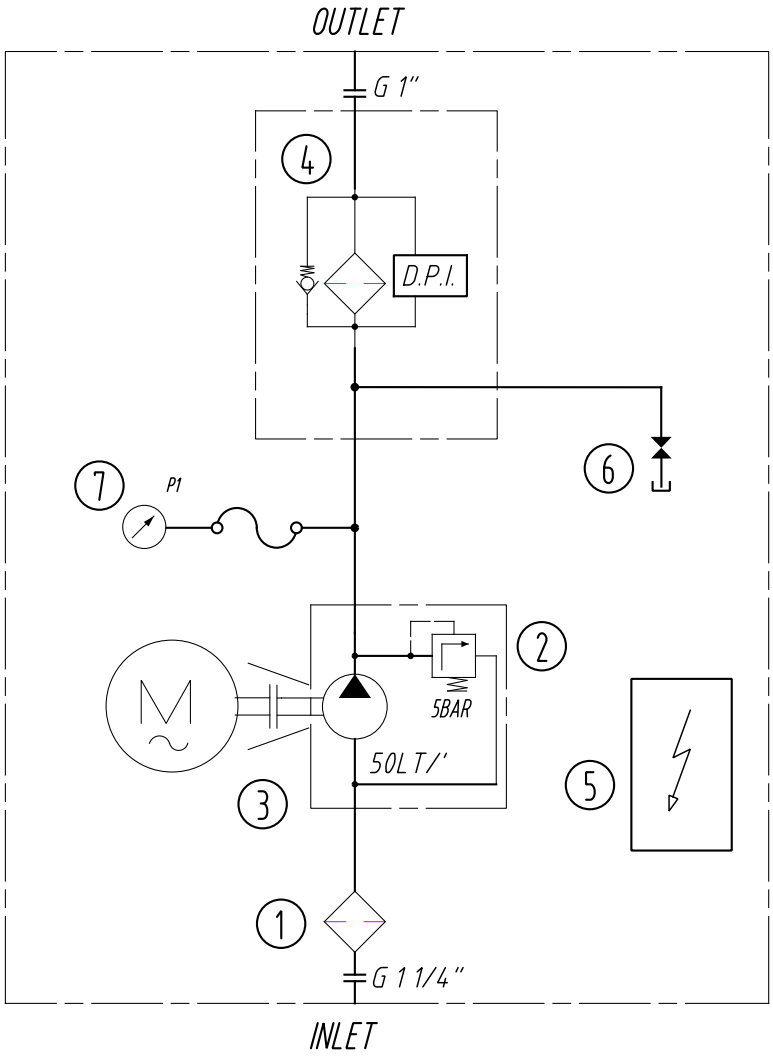



### FUH100



## HYDRAULIC DIAGRAM

### FUH050




1- Suction filter "Y" 500 $\mu$m

2- Gear pump + pressure relief valve 5 bar

3- Motor with pump coupling

4- Filter with visual clogging indicator

5- Control Panel

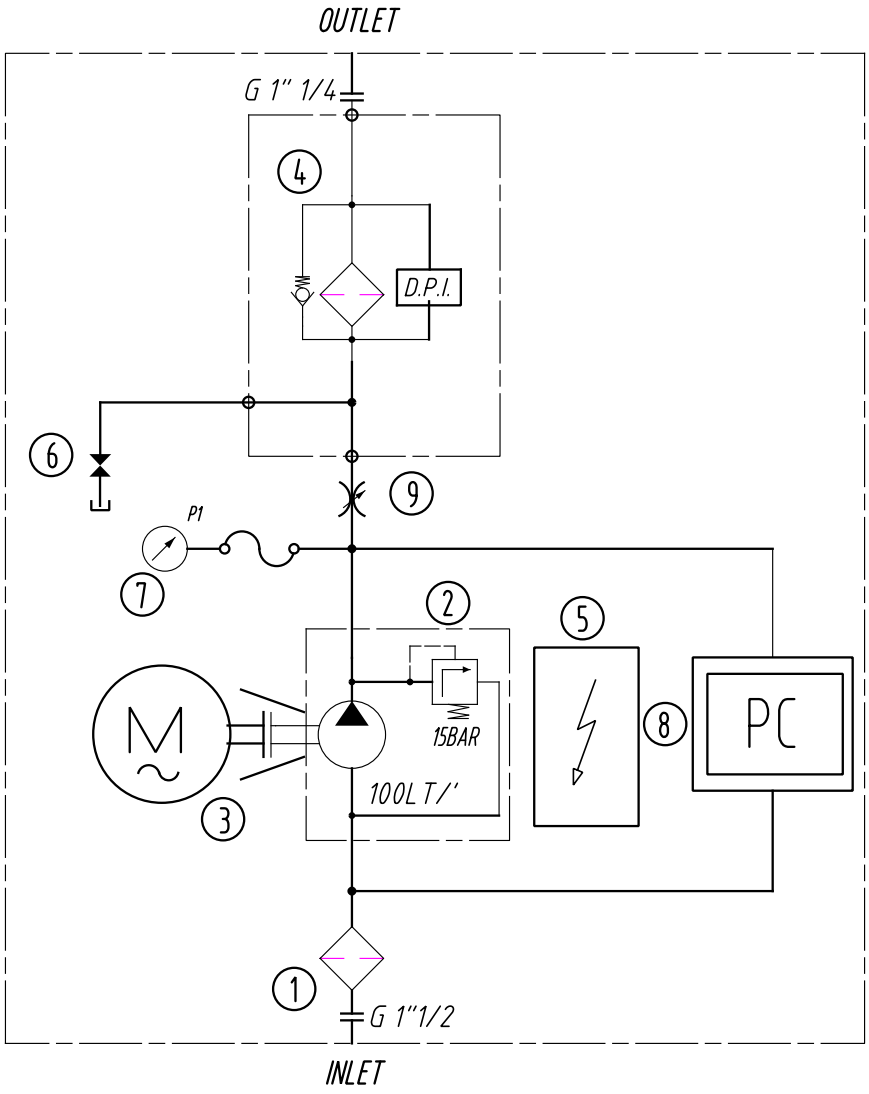
6- Sampling drain valve

7- Pressure gauge

Suction and delivery hoses are included but not connected

## HYDRAULIC DIAGRAM

### FUH100




1- Suction filter "Y" 500 $\mu$m

2- Screw pump + pressure relief valve 15 bar

3- Motor with pump coupling

4- Filter with visual-electric clogging indicator

5- Control Panel

6- Sampling drain valve

7- Pressure gauge

8- Particles Counter FMSC01S0

9- Flow restrictor valve for particles counter line

Suction and delivery hoses are included but not connected

## ORDERING INFORMATION
## FUH050

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **FUH** | **050** | **T** | **G** | **2** | **B** | **S** | **0** |

| | | |
|---|---|---|
| 1. FILTER UNIT | FUH | |
| 2. MODEL | 050 | flow rate 50 l/min |
| 3. ELECTRIC MOTOR | T | three phase electric motor, 380/400 Vac 50-60 Hz, 1,5 Kw |
| | M | single phase electric motor, 220/230 Vac 50-60 Hz, 1,5 Kw (on request) |
| 4. PUMP SIZE | G | gear pump with + pressure relief valve 5 bar |
| 5. FILTER / ELEMENT SIZE | 2 | 1 x U562 series |
| 6. SEAL | B | NBR |
| 7. VERSION | S | standard version |
| 8. OPTION | 0 | With visual clogging indicator, differential indicator model VX2<br>Support frame with drip tray<br>Suction filter "Y" 500 µm<br>Suction and delivery hoses + lance L=3m<br>3P+N+PE (N=not connected)+ industrial plug, L=2m<br>Control panel with ON/OFF switch with safety release coil and emergency interlock push button |

## ORDERING INFORMATION
## FUH100

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **FUH** | **100** | **T** | **S** | **4** | **B** | **C** | **1** |

| | | |
|---|---|---|
| 1. FILTER UNIT | FUH | |
| 2. MODEL | 100 | flow rate 100 l/min |
| 3. ELECTRIC MOTOR | T | three phase electric motor, 380/400 Vac 50-60 Hz, 2,2 Kw |
| | M | single phase electric motor, 220/230 Vac 50-60 Hz, 2,2 Kw (on request) |
| 4. PUMP SIZE | S | screw pump + pressure relief valve 15 bar |
| 5. FILTER / ELEMENT SIZE | 4 | 1 x U564 series |
| 6. SEAL | B | NBR |
| 7. VERSION | C | with contamination monitor FMSC01S0 - particles counter |
| 8. OPTION | 1 | With visual/electric clogging indicator, differential indicator model VEXF2<br>Support frame with drip tray<br>Suction filter "Y" 500 µm<br>Suction and delivery hoses + lance L=3m<br>3P+N+PE (N=not connected)+industrial plug, L=2m<br>Control panel with ON/OFF switch with safety release coil and emergency interlock push button<br>Control panel with indicator lights for:<br>System ON – System OFF – Clogged Filter |

## ORDERING INFORMATION
## SPARE ELEMENTS

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| **U5** | **64** | **G03** | **B** | **3** |

| | | |
|---|---|---|
| 1. FILTER ELEMENT SERIES | U5 | |
| 2. FILTER SIZE | 62 | |
| | 64 | |
| 3. FILTER MEDIA | G01 | glassfiber $ß_{4\mu m(c)} > 1.000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ |
| | GW03 | glassfiber $ß_{5\mu m(c)} > 1.000$ + water absorbent |
| | GW10 | glassfiber $ß_{12\mu m(c)} > 1.000$ + water absorbent |
| | AW40 | water aborbent only (higher water retention capacity) |
| 4. SEALS | B | NBR |
| 5. BYPASS VALVE | 0 | no bypass |
| inbuilt into the filter element | 3 | 3 bar |

FILTER ELEMENT - Preferred filter media - For the complete range of elements available, refer to the U56x series catalog.

## USER TIPS

The filter element must be replaced when:
1. the oil transfer is completed (if used as oil transfer unit).
2. the target cleanliness class is reached (when used as off line filtration unit); more filter elements could be necessary to reach it, depending on the oil volume to be cleaned and from the initial contamination level.
3. the clogging indicator shows.
4. a different filter media is required.We recommend a fine filtration; filter elements for water removal available when needed.

The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrec.com in the “Hydraulic Filter” section. The unit can be used by authorized operators who have read and understood all of its contents.

www.filtrec.com
Technical information may change without notice

CT119-05/24

WWW.SUMY.IR

# FUVD040 SERIES

Oil vacuum dehydrator and filtration unit

Remove free, emulsified, dissolved water and particulate from hydraulic and high viscosity lubricating oils




## TECHNICAL SPECIFICATION

| | |
|---|---|
| MAIN: | Flow Rate: 40 l/min<br>Oil tank capacity: 150 l<br>Water tank capacity: 25 l<br>Operating temperature: 50-60 °C<br>Fluid viscosity range: 32-460 cSt<br>Final water content: <100 ppm<br>Dehydration speed: 3.75 l/h (oil ISO VG 46) |
| ELECTRIC: | Voltage: 400 V<br>Frequency: 50 Hz<br>Power consumption:14.5 kW<br>Heater capacity:7 kW |
| FRAME: | Dimensions L, W, H [mm]:<br>1411x916x1882<br>Dry Weight: 650 kg<br>Inlet connections: 1"1/2<br>Outlet connections: ¾"<br>Op. vacuum pressure:<br>-0.65 bar / -0.85 bar |
| MATERIALS: | Base frame: Painted steel<br>Vacuum chamber: Stainless steel<br>Hydraulic seals: NBR |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrec.com in the "Hydraulic Filter" section. The unit can be used by authorized operators who have read and understood all of its contents.

**The FUVD040 filtration unit is certified CE**

## IMPORTANCE OF MEASUREMENT

Water is a common contaminant in hydraulic systems. It can originate from several sources, such as: worn gaskets, reservoir covers, access panels, tank openings, breathers, condensation on inner surfaces, leaky heat exchangers or coolers, or other process issues. It can exist in hydraulic fluids and lubricants as dissolved or free water (emulsified). Each fluid has its own saturation point, beyond which the excess water can be present as a separate bulk water phase or as an emulsion.

The presence of water in hydraulic systems has significant implications. It promotes corrosion and wear of system components, leading to reduced component life and increased service costs. Water also affects the properties of the fluid, causing oxidation, acid formation, additive precipitation, and viscosity alteration. Consequently, the lubrication quality, load-carrying characteristics, and power transfer characteristics (compressibility) of the fluid are compromised. These effects can result in system malfunctions and increased costs for fluid disposal and procurement.

An effective way to mitigate water-related issues is through vacuum dehydration. By removing water from the system at minimum cost, vacuum dehydration ensures optimal performance. The amount of water a fluid can hold tightly depends on the fluid type, the temperature, and the pressure. A saturation curve illustrates the relationship between the saturation point and temperature (see Figure 1).

For instance, consider a system operating at temperature T1 with an initial water content above the saturation curve (point A in Figure 1). Devices such as coalescers and centrifuges can only remove free water, reducing the water content to point B on the saturation curve. However, during system shutdown and a drop to ambient temperature T2, free water reappears (point C in Figure 1), nullifying the prior water removal efforts. With Filtrec's Vacuum Dehydration, the water content achieved is very low (point D in Figure 1), remaining below the saturation curve even after a temperature drop (point E in Figure 1). This prevents the formation of free water, which can cause serious damage to the system.

## OPERATING PRINCIPLE

Contaminated oil is introduced into a mobile Vacuum Dehydration System. It then undergoes a filtration cycle using the suction line filter. The oil enters the vacuum chamber (shown as 1 in Figure 2) and passes through specially designed dispersal nozzles that increase the surface area of the oil exposed to the vacuum. Simultaneously, a secondary circuit (shown as 2 in Figure 2) continuously heats the oil until it reaches the dehydration temperature of 60 °C. This allows the water in the oil to evaporate easily and be conveyed into the condenser. The steam condenses back into water and drains into the condensation tank (shown as 3 in Figure 2). The dehydrated oil then flows to the bottom of the vacuum chamber and is discharged by the draining pump.

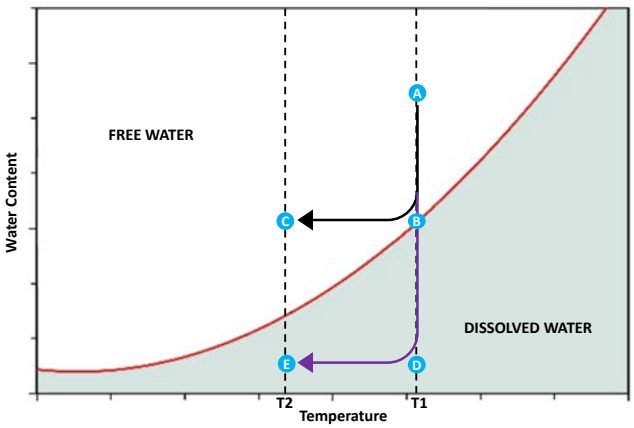



Figure 1

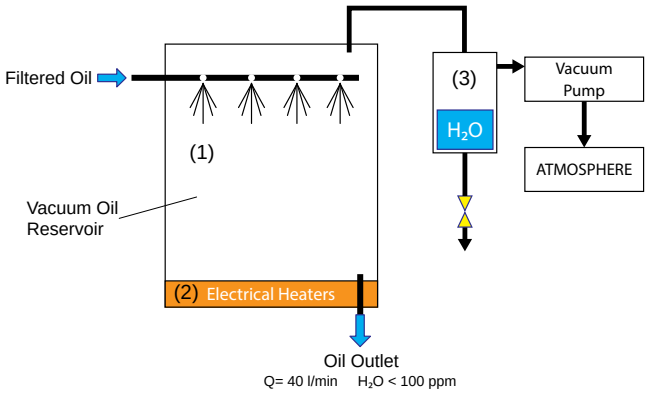
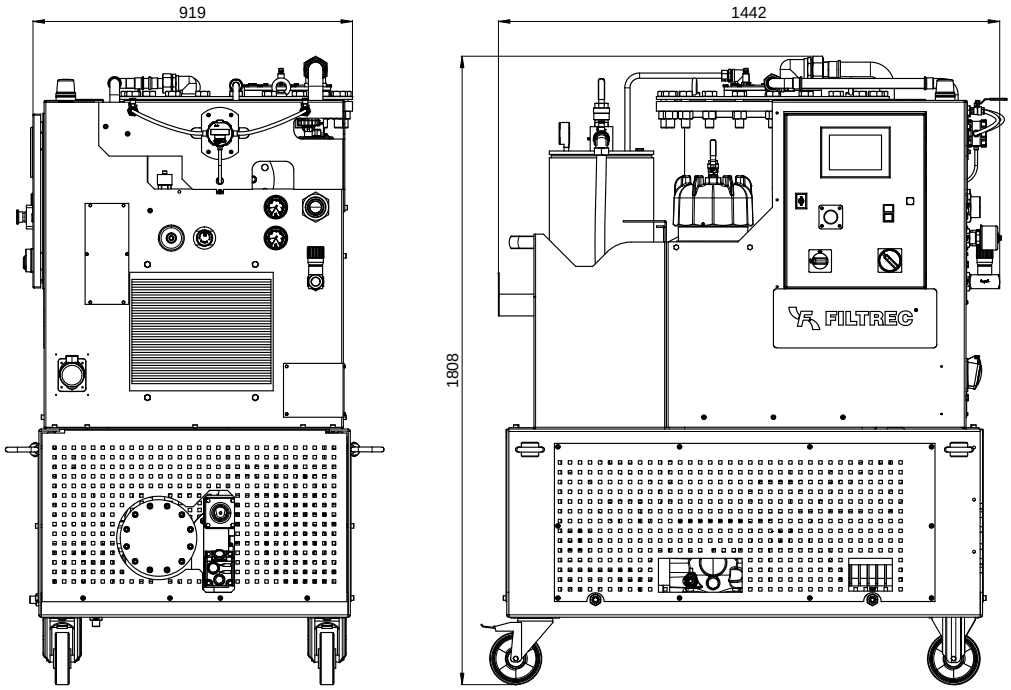



Figure 2

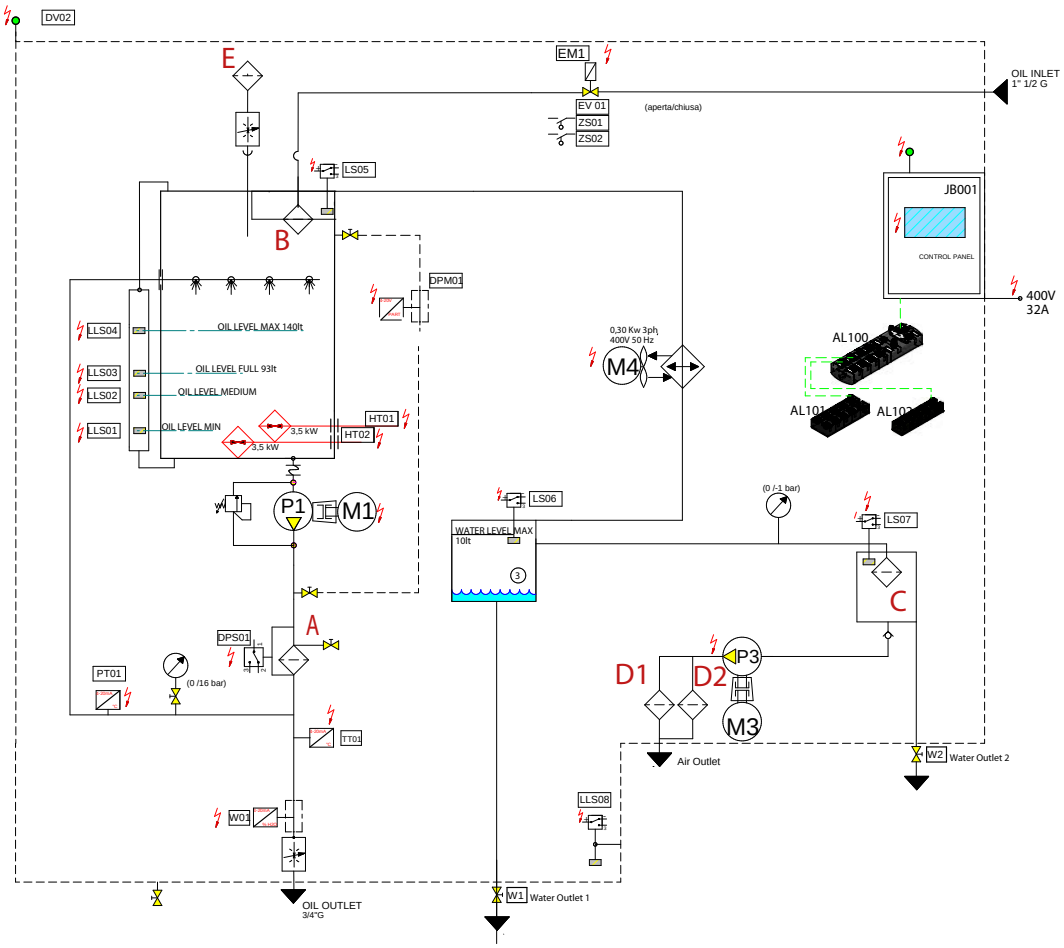
## CAUTION

The air expelled by the vacuum pump may contain not only water but also elements from the operating fluid and any gases it contained. Make sure to connect the air outlet of the vacuum pump to a flexible hose for proper discharge in an open-air environment.

## OVERALL DIMENSIONS




## HYDRAULIC DIAGRAM



## ORDERING INFORMATION
## FUVD40

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **FUVD** | **040** | **T** | **0** | **4** | **B** | **S** | **C** |

| | | |
|---|---|---|
| 1. FILTER UNIT SERIES | FUVD | |
| 2. MODEL | 040 | flow rate 40 l/min |
| 3. ELECTRIC MOTOR + SUPPLY SPECS | T | three phase electric motor, 230/400V 50-60Hz, 14.5 kW |
| 4. PUMP TYPE | 0 | standard system |
| 5. FILTER / ELEMENT SIZE | 4 | standard filter/element set U564T25B3 |
| 6. SEALS | B | NBR |
| 7. VERSION | S | standard frame version |
| 8. OPTION | C | with contamination monitor FMSC01S0 (standard option) |
| | 0 | without contamination monitor FMSC01S0 |

## ORDERING INFORMATION
## MAIN FILTER ELEMENT

| 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|
| **U5** | **64** | **G03** | **B** | **0** | **/007** |

| | | |
|---|---|---|
| 1. FILTER ELEMENT SERIES | U5 | |
| 2. FILTER SIZE | 64 | |
| 3. FILTER MEDIA | G01 | glassfiber $ß_{4\mu m(c)} > 1.000$ |
| | G03 | glassfiber $ß_{5\mu m(c)} > 1.000$ |
| | G06 | glassfiber $ß_{7\mu m(c)} > 1.000$ |
| | G10 | glassfiber $ß_{12\mu m(c)} > 1.000$ |
| | G15 | glassfiber $ß_{17\mu m(c)} > 1.000$ |
| | G25 | glassfiber $ß_{22\mu m(c)} > 1.000$ |
| | G40 | glassfiber $ß_{35\mu m(c)} > 1.000$ |
| | T25 | wire mesh 25 $\mu$m |
| 4. SEALS | B | NBR |
| 5. BYPASS VALVE | 0 | no bypass |
| inbuilt into the filter element | 3 | 3 bar |
| 6. ELEMENT SUFFIX | /007 | Improved compatibility for high water content fluid<br>Not applicable to T25 media option |

## ORDERING INFORMATION
## SPARE FILTER ELEMENTS FOR MAINTENANCE

The elements must be changed as specified in the Operating Manual.

| FILTER ELEMENT | REFERENCE* | DESCRIPTION |
|---|---|---|
| U564... | A | MAIN FLTER ELEMENT |
| WT1628 | B | SUCTION ELEMENT |
| WT2249 | C | DEMISTER |
| WX663 | D1, D2 | OIL SEPARATOR |
| B120C10 | E | AIR BREATHER ELEMENT |

* See the reference numbers in the hydraulic diagram

## KEY FEATURES

1. **Compact and Portable**
The Filtrec's Vacuum Dehydrator is designed to be compact and portable, making it easy to load and unload from a commercial cargo van.

2. **Low Power Consumption**
The Filtrec's Vacuum Dehydrator consumes less than 16kW, making it suitable for use in any industrial application.

3. **Status Indicator Light**
The Filtrec's Vacuum Dehydrator is equipped with a status indicator light that shows the unit's operating status. The light is green when the unit is operating normally, yellow when there is a warning, and red when there is an alarm.

4. **LED Strips**
The Filtrec's Vacuum Dehydrator also features colored LED strips that provide visibility in any environment.

## USER TIPS

By default, the filtration unit series FUVD040 comes with a U564T25B3 filter element already installed. For higher filtration efficiencies, other filter elements can be selected from the table “ORDERING INFORMATION MAIN FILTER ELEMENT”.

It is important to note that filtration unit series FUVD040 should always be used with a filter element to protect the dispersal nozzles. Without a filter element, the nozzles can be damaged by contaminants in the oil.

The filter element must be replaced when:
1. the target cleanliness class is reached; more filter elements could be necessary to reach it, depending on the oil volume to be cleaned and from the initial contamination level
2. the clogging indicator shows
3. a different filter media is required. We recommend a fine filtration

WWW.SUMY.IR

# PW SERIES

Clogging indicators for suction line and return line with cable and connector



**PW PWS..J**



**PW PWS..D**

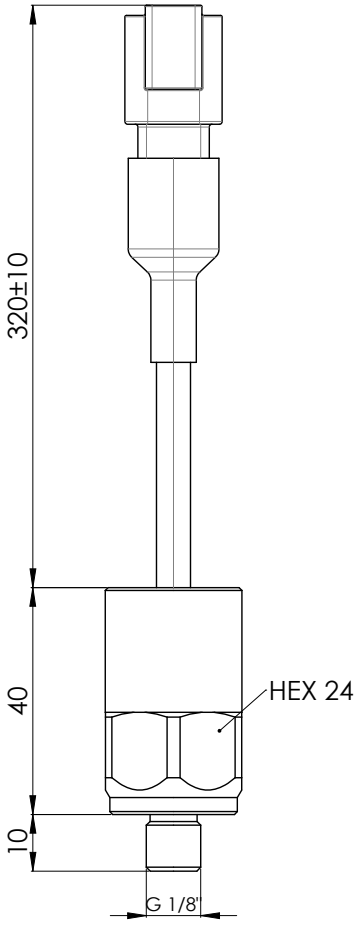


**PW PWS..S**

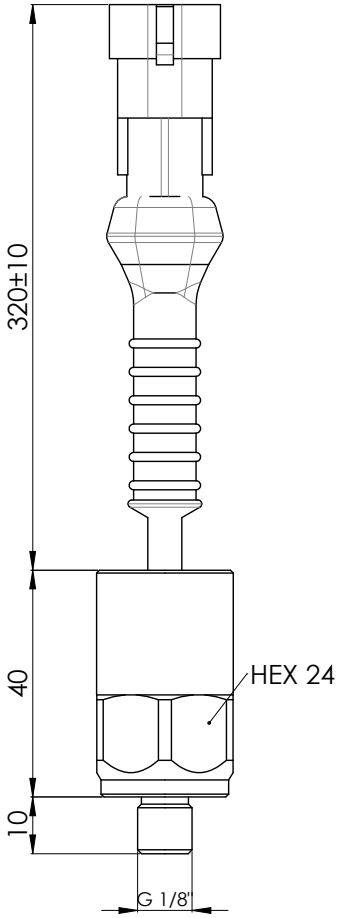
| | |
|---|---|
| PRESSURE: | Max operating up to 25 bar |
| CONNECTION: | G 1/8" |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: HNBR standard |
| SETTINGS ΔP: | **For suction application:**<br>PWSxx -0,2 ±10% bar<br>**For return line application:**<br>PWBxx 1,3 ± 10% bar<br>PWCxx 2,0 ± 10% bar |
| ELECTRICAL SPECS.: | Contact configuration N.O./N.C. |
| CONNECTOR TYPE: | Deutsch DT04-2P<br>SUPERSEAL 1.5 2 WAY<br>JUNIOR POWER TIMER 2 WAY |
| DEGREE OF PROTECTION: | IP67 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

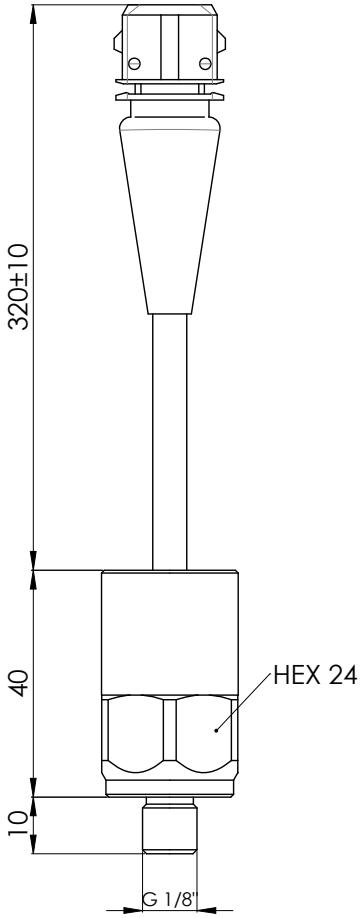
**PW/PWS..D**




**PW/PWS..S**

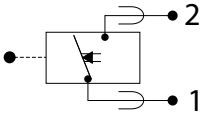
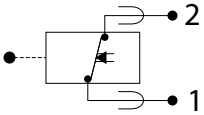
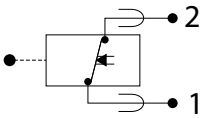
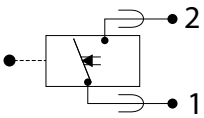



**PW/PWS..J**




Weight: ~210g

## MECHANICAL CONDITION

| ΔP CONDITION | ELECTRIC SYMBOL N.O. | ELECTRIC SYMBOL N.C. |
|---|---|---|
| P < Pset |   |   |
| P ≥ Pset |   |   |

## ORDERING INFORMATION / DETAILS

### INDICATOR FOR APPLICATION ON SUCTION LINE

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00552 | **PWSCD** | **HNBR** | **Deutsch DT04-2P**  | -0,2 bar | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00553 | **PWSAD** | | | | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |

| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00554 | **PWSCS** | **HNBR** | **Superseal 1.5 2 Way**  | -0,2 bar | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00555 | **PCSAS** | | | | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |

| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00556 | **PWSCJ** | **HNBR** | **Junior Timer 2 Way**  | -0,2 bar | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00557 | **PWSAJ** | | | | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |

10 Nm - See hydraulic filter catalogues

## ORDERING INFORMATION / DETAILS

### INDICATOR FOR APPLICATION ON RETUR LINE

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00261 | **PWBCD** | **HNBR** | **Deutsch DT04-2P**  | 1,3 | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00262 | **PWCCD** | | | 2,0 | |
| 04.006.00460 | **PWBAD** | | | 1,3 | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00492 | **PWCAD** | | | 2,0 | |

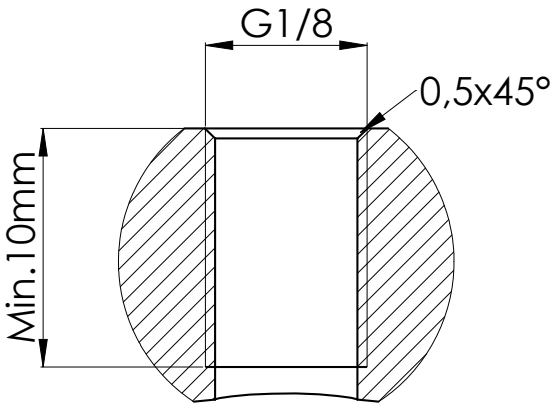
| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00495 | **PWBCS** | **HNBR** | **Superseal 1.5 2 Way**  | 1,3 | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00498 | **PWCCS** | | | 2,0 | |
| 04.006.00501 | **PWBAS** | | | 1,3 | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00504 | **PWCAS** | | | 2,0 | |

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00507 | **PWBCJ** | **HNBR** | **Junior Timer 2 Way**  | 1,3 | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00510 | **PWCCJ** | | | 2,0 | |
| 04.006.00513 | **PWBAJ** | | | 1,3 | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 0,5A resistive 0,2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00516 | **PWCAJ** | | | 2,0 | |

10 Nm - See hydraulic filter catalogues

## INDICATOR SEAT

**PW...**




Dimensions and tolerances available on request

## USER INFORMATION

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## OPTIONAL VERSION

Subject to MOQ our differential indicators type PW... can be supplied in special versions like ATEX or with different connectors.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | |
|---|---|---|---|
| | | PWS | PWB/PWC |
| RETURN | **FR6** | | **X** |
| | **FRM** | | **X** |
| | **FRP** | | **X** |
| | **FRT** | | **X** |
| | **FA1** | | **X** |
| | **FA2** | | **X** |
| | **FCR7F1X** | | **X** |
| | **FCR7F2X** | | **X** |
| | **FCR7F3X** | | **X** |
| | **FAH** | | **X** |
| | **FA5** | | **X** |
| SUCTION | **FS1** | **X** | |
| | **FS7** | **X** | |
| | **FS5** | **X** | |
| | **FA1** | **X** | |

WWW.SUMY.IR

# PC SERIES

Clogging indicators for suction line and return line with integrated connector

**PC/PCS..D**



**PC/PCS..S**



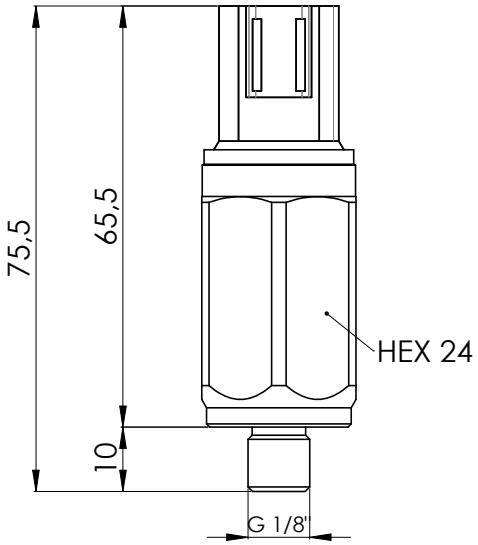
**PC/PCS..J**



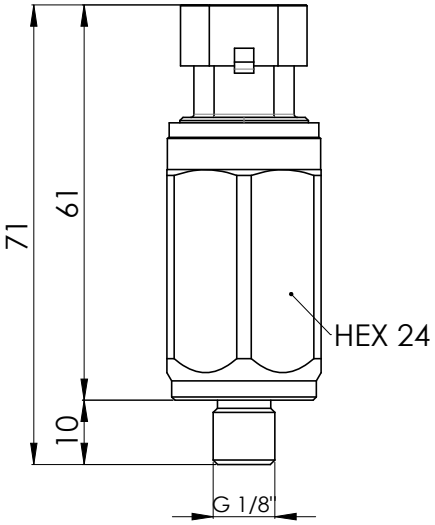
| | |
|---|---|
| PRESSURE: | Max operating up to 25 bar |
| CONNECTION: | G1/8" |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: HNBR standard |
| SETTINGS ΔP: | **For suction application:**<br>PCSxx -0,2 ±10% bar<br>**For return line application:**<br>PCBxx 1,3 ± 10% bar<br>PCCxx 2,0 ± 10% bar |
| ELECTRICAL SPECS.: | Contact configuration N.O./N.C. |
| CONNECTOR TYPE: | Deutsch DT04-2P<br>SUPERSEAL 1.5 2 WAY<br>JUNIOR POWER TIMER 2 WAY |
| DEGREE OF PROTECTION: | IP67 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC<br>(acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

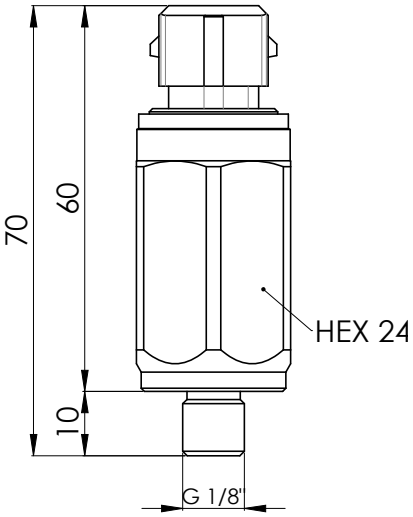
**PC/PCS..D**




**PC/PCS..S**

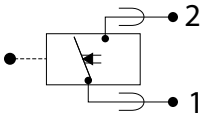
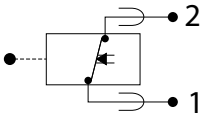
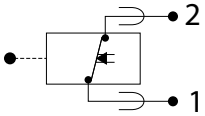
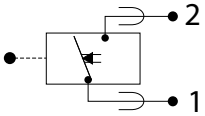



**PC/PCS..J**




Weight: ~150g

## MECHANICAL CONDITION

| ΔP CONDITION | ELECTRIC SYMBOL N.O. | ELECTRIC SYMBOL N.C. |
|---|---|---|
| P < Pset |   |   |
| P ≥ Pset |   |   |

## ORDERING INFORMATION / DETAILS

### INDICATOR FOR APPLICATION ON SUCTION LINE

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00406 | **PCSCD** | **HNBR** | **Deutsch DT04-2P**  | -0,2 bar | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00410 | **PCSAD** | | | | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |

| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00414 | **PCSCS** | **HNBR** | **Superseal 1.5 2 Way**  | -0,2 bar | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00418 | **PCSAS** | | | | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |

| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00422 | **PCSCJ** | **HNBR** | **Junior Timer 2 Way**  | -0,2 bar | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00426 | **PCSAJ** | | | | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |

10 Nm - See hydraulic filter catalogues

## ORDERING INFORMATION / DETAILS

### INDICATOR FOR APPLICATION ON RETUR LINE

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00179 | **PCBCD** | **HNBR** | **Deutsch DT04-2P**  | 1,3 | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00181 | **PCCCD** | | | 2,0 | |
| 04.006.00180 | **PCBAD** | | | 1,3 | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00182 | **PCCAD** | | | 2,0 | |

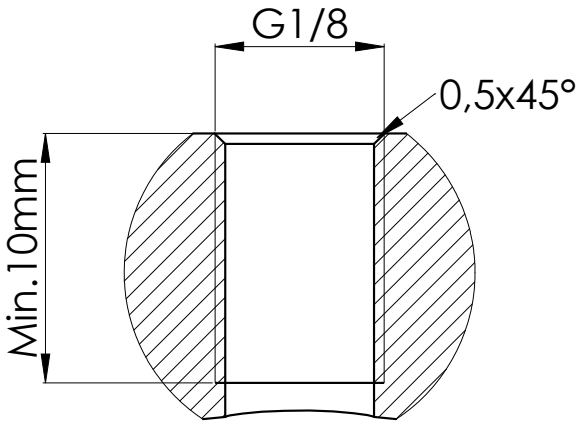
| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00436 | **PCBCS** | **HNBR** | **Superseal 1.5 2 Way**  | 1,3 | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00439 | **PCCCS** | | | 2,0 | |
| 04.006.00442 | **PCBAS** | | | 1,3 | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00445 | **PCCAS** | | | 2,0 | |

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00448 | **PCBCJ** | **HNBR** | **Junior Timer 2 Way**  | 1,3 | • Connector N.C.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00451 | **PCCCJ** | | | 2,0 | |
| 04.006.00454 | **PCBAJ** | | | 1,3 | • Connector N.O.<br>• Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00457 | **PCCAJ** | | | 2,0 | |

10 Nm - See hydraulic filter catalogues

## INDICATOR SEAT

**PC...**




Dimensions and tolerances available on request

## USER INFORMATION

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## OPTIONAL VERSION

Subject to MOQ our differential indicators type PC... can be supplied in special versions like ATEX or with different connectors.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | |
|---|---|---|---|
| | | PCS.. | PCB../PCC.. |
| RETURN | **FR6** | | **X** |
| | **FRM** | | **X** |
| | **FRP** | | **X** |
| | **FRT** | | **X** |
| | **FA1** | | **X** |
| | **FA2** | | **X** |
| | **FCR7F1X** | | **X** |
| | **FCR7F2X** | | **X** |
| | **FCR7F3X** | | **X** |
| | **FAH** | | **X** |
| | **FA5** | | **X** |
| SUCTION | **FS1** | **X** | |
| | **FS7** | **X** | |
| | **FS5** | **X** | |
| | **FA1** | **X** | |

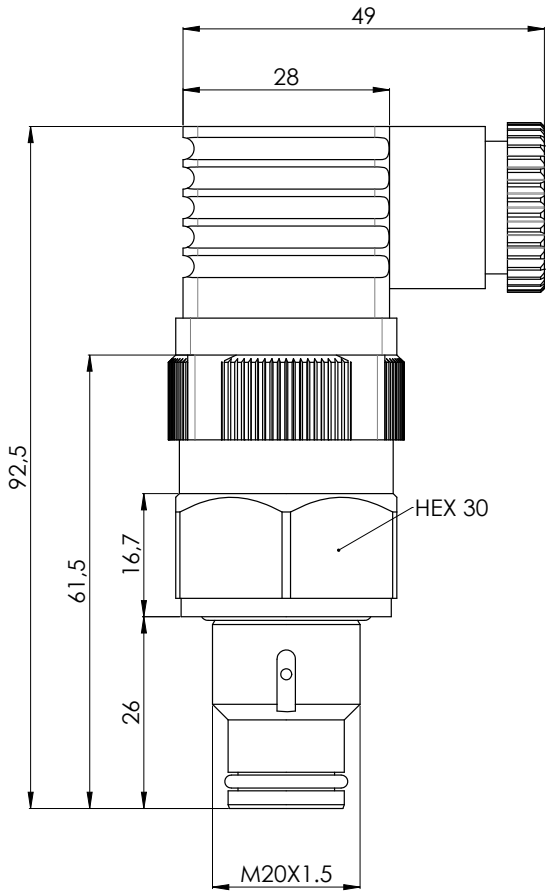
# E SERIES

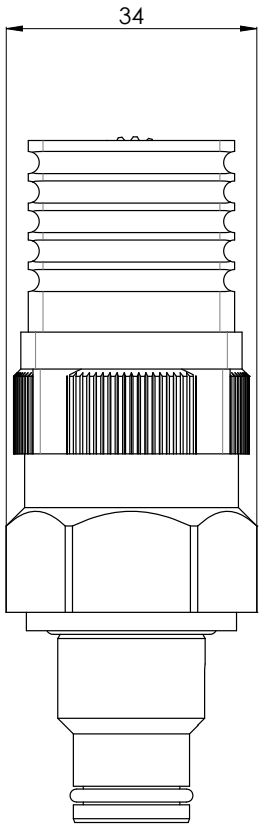
Electrical differential clogging indicators



| | |
|---|---|
| PRESSURE: | Max operating up to 420 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: NBR standard<br>FKM on request |
| SETTINGS ΔP: | 1,3 bar ± 10%<br>2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| ELECTRICAL SPECS.: | Contact configuration SPDT |
| CONNECTOR TYPE: | according to DIN 43650<br>with cable gland PG09/PG11 |
| DEGREE OF PROTECTION: | IP65 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC<br>(acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

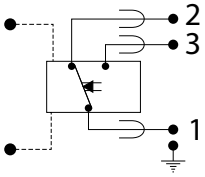
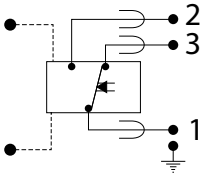
## OVERALL DIMENSIONS



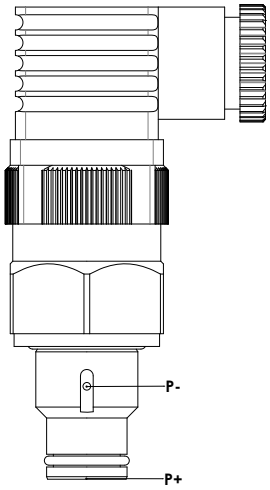




Weight: 173,6 gr

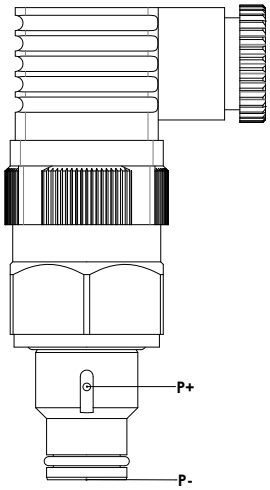
## MECHANICAL CONDITION

| ΔP CONDITION | ELECTRIC SYMBOL |
|---|---|
| P+ - P- < ΔPset |  |
| P+ - P- ≥ ΔPset |  |

## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00129<br>04.006.00130 | **E02**<br>**EF2** | **NBR**<br>**FKM** |  | 2,7 bar | • Connector DIN 43650<br>• Max AC voltage: 250Vac<br>• Max current: 5A resistive 1A inductive<br>• Max DC voltage: 30Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00131<br>04.006.00132 | **E05**<br>**EF5** | **NBR**<br>**FKM** | | 5,0 bar | |
| 04.006.00136<br>04.006.00137 | **E08**<br>**EF8** | **NBR**<br>**FKM** | | 8,0 bar | |

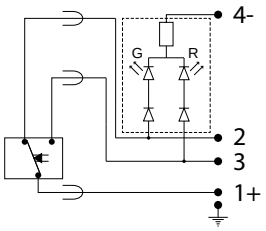
50 / 90 Nm - See hydraulic filter catalogues

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00664<br>04.006.00665 | **EX1**<br>**EY1** | **NBR**<br>**FKM** |  | 1,3 bar | • Connector DIN 43650<br>• Max AC voltage: 250Vac<br>• Max current: 5A resistive 1A inductive<br>• Max DC voltage: 30Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00520<br>04.006.00521 | **EX2**<br>**EY2** | **NBR**<br>**FKM** | | 2,7 bar | |
| 04.006.00133<br>04.006.00134 | **EX5**<br>**EY5** | **NBR**<br>**FKM** | | 5,0 bar | |
| 04.006.00138<br>04.006.00139 | **EX8**<br>**EY8** | **NBR**<br>**FKM** | | 8,0 bar | |

50 / 90 Nm - See hydraulic filter catalogues

## OPTIONAL VERSION

The LC24 connector, supplied separately, can replace the standard black connector of the "E" indicator. Powered with 24Vdc, it gives a visual indication of the filter element conditions: normally the GREEN LED is on, the RED LED switch on when the element is clogged.

| ORDER CODE | MODEL | VIEW | ELECTRICAL SPECS. |
|---|---|---|---|
| 04.006.00146 | **LC24** |  |   |

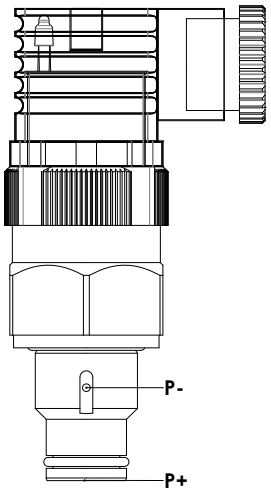
## INSTRUCTIONS FOR REPLACING THE std CONNECTOR WITH THE LC24 CONNECTOR

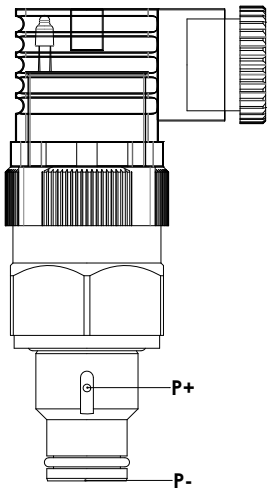
| 1. UNSCREW THE SCREW | 2. DISCONNECT THE STANDARD CONNECTOR |
|---|---|
|  |  |
| **3. ATTACH THE LC24 CONNECTOR** | **4. TIGHTEN THE SCREW** |
|  |  |

## VERSION WITH INTEGRATED LED CONNECTOR

**Subject to MOQ our differential indicators type E... can be supplied in special versions with INTEGRATED LC24 connector.**

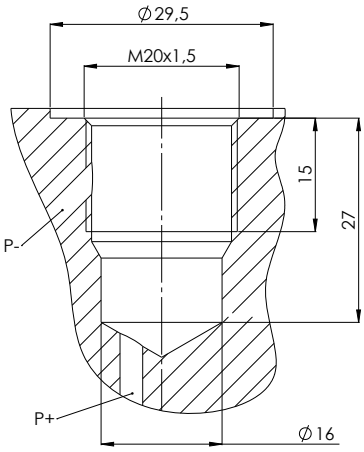
## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00522<br>04.006.00523 | **E02L**<br>**EF2L** | **NBR**<br>**FKM** |  | 2,7 bar | • Connector DIN 43650<br>• Max DC voltage: 24Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00169<br>04.006.00524 | **E05L**<br>**EF5L** | **NBR**<br>**FKM** | | 5,0 bar | |
| 04.006.00177<br>04.006.00525 | **E08L**<br>**EF8L** | **NBR**<br>**FKM** | | 8,0 bar | |
| 50 / 90 Nm - See hydraulic filter catalogues | | | | | |

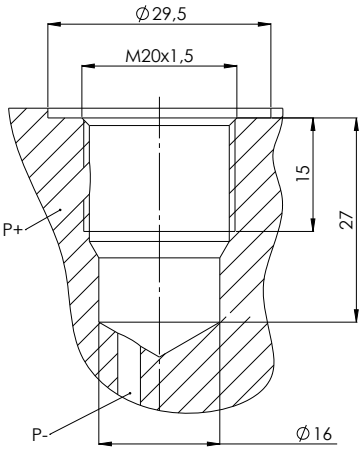
| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00526<br>04.006.00527 | **EX2L**<br>**EY2L** | **NBR**<br>**FKM** |  | 2,7 bar | • Connector DIN 43650<br>• Max DC voltage: 24Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00528<br>04.006.00529 | **EX5L**<br>**EY5L** | **NBR**<br>**FKM** | | 5,0 bar | |
| 04.006.00530<br>04.006.00531 | **EX8L**<br>**EY8L** | **NBR**<br>**FKM** | | 8,0 bar | |
| 50 / 90 Nm - See hydraulic filter catalogues | | | | | |

## INDICATOR SEAT

**E0.../EF.../E0...L/EF...L**



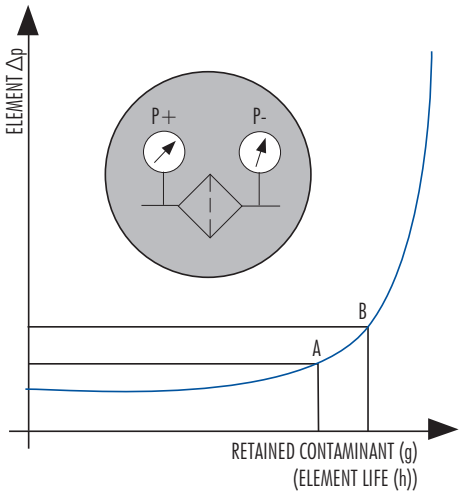

**EX.../EY.../EX...L/EY...L**




Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## OPTIONAL VERSION

Subject to MOQ our differential indicators type E... can be supplied in special versions like ATEX or with different connectors.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | E02/EF2 E02L/EF2L | E05/EF5 E05L/EF5L | E08/EF8 E08L/EF8L | EX1/EY1 | EX2/EY2 EX2L/EY2L | EX5/EY5 EX5L/EY5L | EX8/EY8 EX8L/EY8L |
| IN LINE HIGH PRESSURE | **F100** | X | X | X | | | | |
| | **F280** | | X | X | | | | |
| | **F420** | | X | X | | | | |
| | **FD3** | | | | | | X | X |
| | **FDM** | | | | | | X | X |
| | **FH100** | X | X | X | | | | |
| | **FH250** | | X | X | | | | |
| | **FH320** | | X | X | | | | |
| | **FH420** | | X | X | | | | |
| | **FML320** | | X | X | | | | |
| IN LINE MEDIUM PRESSURE | **FLR** | | | | X | X | X | X |
| | **FLRD** | | | | X | X | X | X |
| | **F040** | X | X | X | | | | |
| RETURN | **FCR7F2x** | X | | | | | | |
| | **FCR7F3x** | X | | | | | | |
| SPIN-ON | **FAH-A14x** | X | | | | | | |
| | **FA5** | | | | | X | | |
| | **FA4** | | | | | X | | |

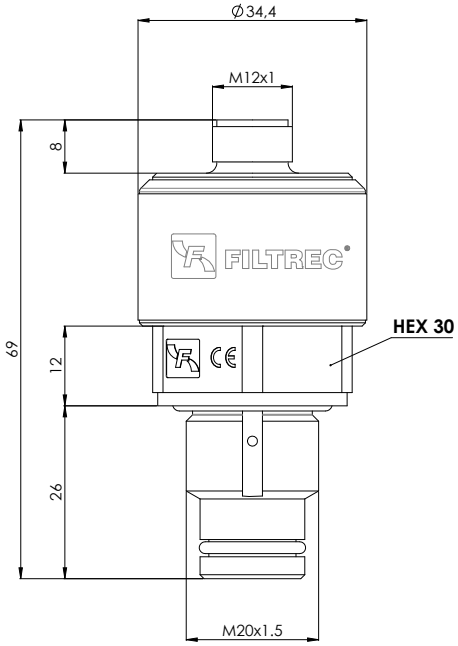
# EA SERIES

4-20 mA Electronical differential pressure transmitter

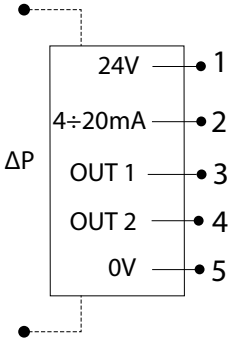



| | |
|---|---|
| PRESSURE: | Max operating up to 420 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: FKM |
| RANGE ΔP: | 2,0 ÷ 8,0 bar |
| ELECTRICAL SPECS.: | Analog output 4÷20 mA<br>N°2 digital output PNP - N.O. |
| CONNECTOR TYPE: | M12x1 - 5 PIN |
| DEGREE OF PROTECTION: | IP67 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES, HFA-HFB-HFC (acc. to ISO 6743/4)<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

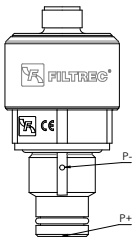
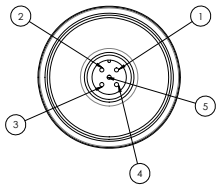
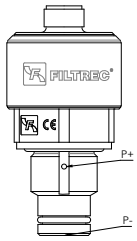
## OVERALL DIMENSIONS AND ELECTRICAL SCHEME




Weight: : ~140g



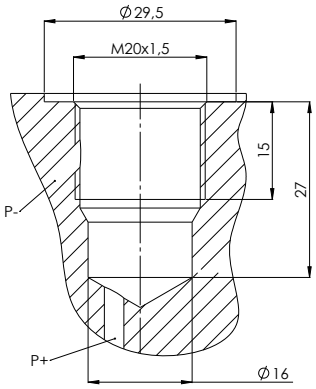
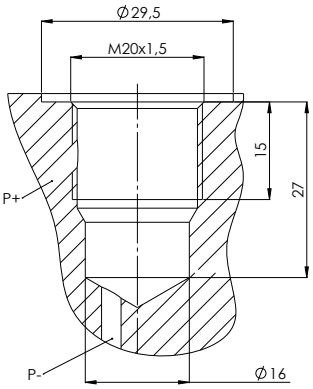

## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | VIEW | RANGE | ELECTRICAL CONNECTION |
|---|---|---|---|---|
| 04.006.00629 | **EAF8** |  | 2,0 ÷ 8,0 bar |  1. 24Vdc ± 10%<br>2. Analog output 4÷20mA<br>4mA = 2 bar<br>20mA= 8 bar<br>3. Digital output 1 calibrated at 6 bar – PNP - Max Load 0,2A – N.O.<br>4. Digital output 2 calibrated at 8 bar – PNP - Max Load 0,2A – N.O.<br>5. 0V - GND |
| 04.006.00630 | **EAXF8** |  | | |

Note: Accuracy at 25°C max±5% FS; Thermal drift (range T*÷70°C) max ±6% FS
Time: Activation time =3s
Response time = Analog out ~ 0.2s
Digital out ~ 0.1s
Thermal Lock Out: T*=20°C±2°
If T<T*: digital Out 1 N.O., digital Out 2 N.O., Analogue Out 3mA

50 / 90 Nm - See hydraulic filter catalogues

## INDICATOR SEAT

| EA... | EAX... |
|---|---|
|  |  |

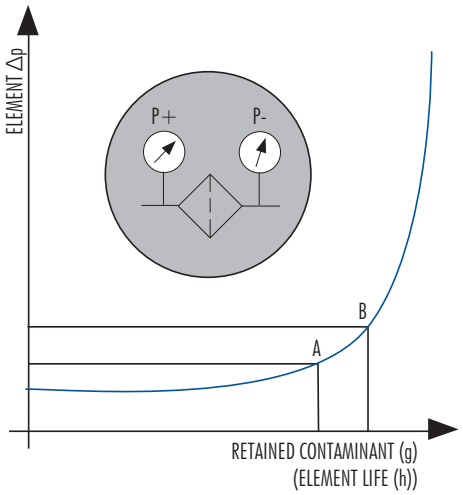




Dimensions and tolerances available on request

## USER INFORMATION

The **Differential indicator** measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

## OPTIONAL VERSION

Subject to MOQ our differential indicators type EA... different ranges and special certifications can be supplied.
**Contact our Customer Service for further information.**

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | |
|---|---|---|---|
| | | EAF8 | EAXF8 |
| IN LINE HIGH PRESSURE | **F100** | **X** | |
| | **F280** | **X** | |
| | **F420** | **X** | |
| | **FD3** | | **X** |
| | **FDM** | | **X** |
| | **FH100** | **X** | |
| | **FH250** | **X** | |
| | **FH320** | **X** | |
| | **FH323-324** | **X** | |
| | **FH420** | **X** | |
| | **FML320** | **X** | |
| IN LINE MEDIUM PRESSURE | **FLR** | | **X** |
| | **FLRD** | | **X** |
| | **F040** | **X** | |

WWW.SUMY.IR

# EC SERIES

Electrical differential indicators with integrated connector

**EC/ECX..D**



**EC/ECX..S**



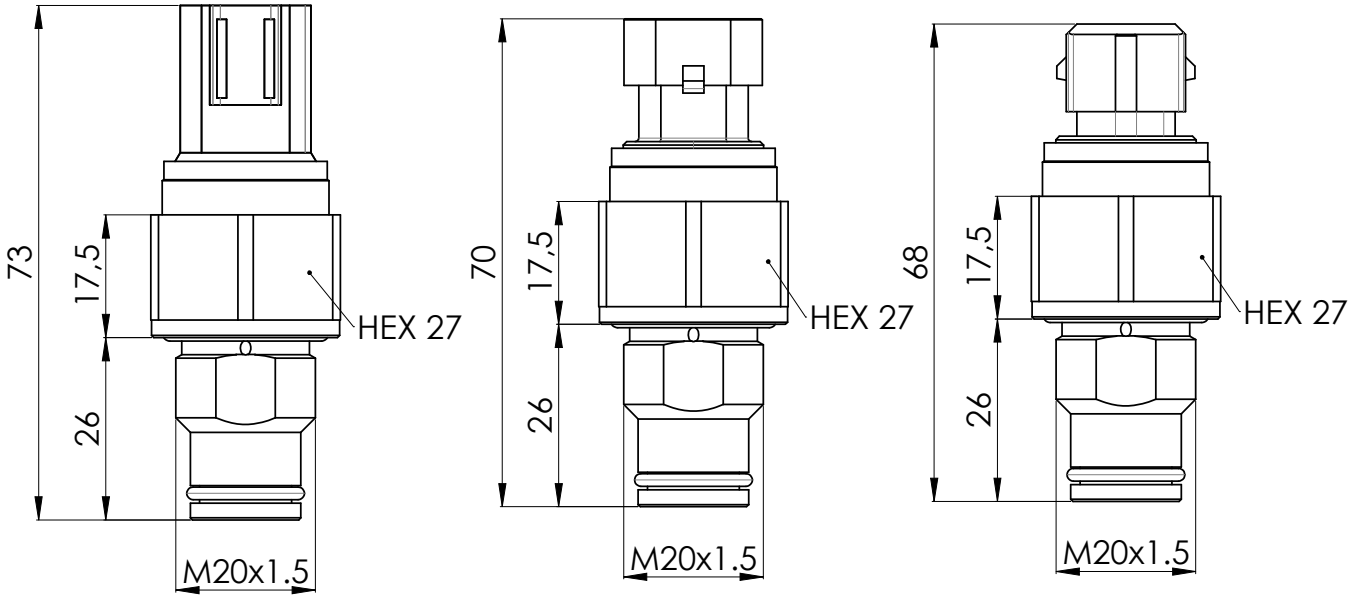
**EC/ECX..J**



| | |
|---|---|
| PRESSURE: | Max operating up to 420 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: HNBR standard |
| SETTINGS ΔP: | 2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| ELECTRICAL SPECS.: | Contact configuration N.O./N.C. |
| CONNECTOR TYPE: | Deutsch DT04-2P<br>SUPERSEAL 1.5 2 WAY<br>JUNIOR POWER TIMER 2 WAY |
| DEGREE OF PROTECTION: | IP67 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - + 80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

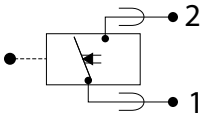
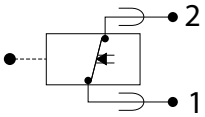
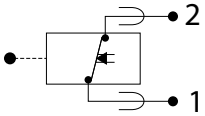
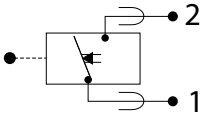
## OVERALL DIMENSIONS

| EC/ECX..D | EC/ECX..S | EC/ECX..J |
|---|---|---|

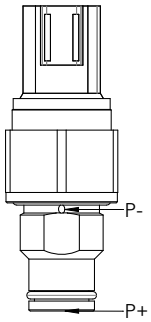


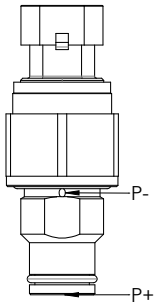

Weight: ~150g

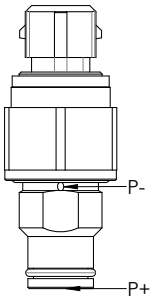
## MECHANICAL CONDITION

| ΔP CONDITION | ELECTRIC SYMBOL N.O. | ELECTRIC SYMBOL N.C. |
|---|---|---|
| P+ - P- < ΔPset |   |   |
| P+ - P- ≥ ΔPset |   |   |

## ORDERING INFORMATION / DETAILS

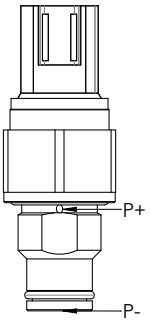
| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00444 | **EC02DA0** | **N.O.** | **Deutsch DT04-2P**   | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00446 | **EC02DC0** | **N.C.** | | | |
| 04.006.00447 | **EC05DA0** | **N.O.** | | 5,0 bar | |
| 04.006.00449 | **EC05DC0** | **N.C.** | | | |
| 04.006.00450 | **EC08DA0** | **N.O.** | | 8,0 bar | |
| 04.006.00452 | **EC08DC0** | **N.C.** | | | |

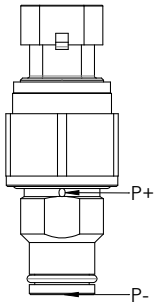
| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00435 | **EC02SA0** | **N.O.** | **Superseal 1.5 2 Way**   | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00437 | **EC02SC0** | **N.C.** | | | |
| 04.006.00438 | **EC05SA0** | **N.O.** | | 5,0 bar | |
| 04.006.00440 | **EC05SC0** | **N.C.** | | | |
| 04.006.00441 | **EC08SA0** | **N.O.** | | 8,0 bar | |
| 04.006.00443 | **EC08SC0** | **N.C.** | | | |

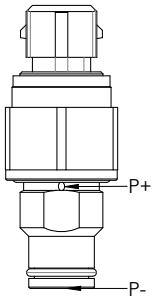
| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00453 | **EC02JA0** | **N.O.** | **Junior Timer 2 Way**   | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00455 | **EC02JC0** | **N.C.** | | | |
| 04.006.00456 | **EC05JA0** | **N.O.** | | 5,0 bar | |
| 04.006.00458 | **EC05JC0** | **N.C.** | | | |
| 04.006.00459 | **EC08JA0** | **N.O.** | | 8,0 bar | |
| 04.006.00461 | **EC08JC0** | **N.C.** | | | |

50 / 90 Nm - See hydraulic filter catalogues

## ORDERING INFORMATION / DETAILS

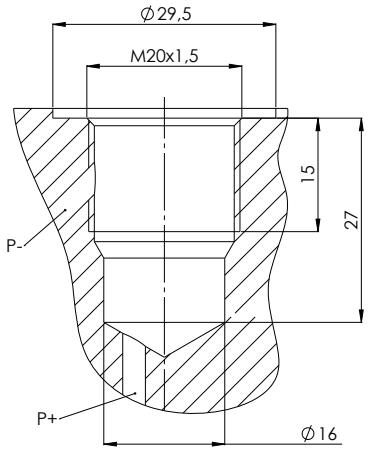
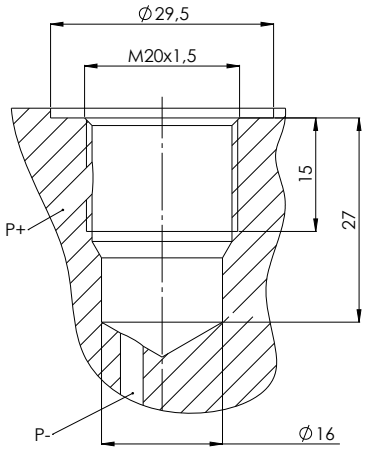
| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00500 | **ECX2DA0** | **N.O.** | **Deutsch DT04-2P**   | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00502 | **ECX2DC0** | **N.C.** | | | |
| 04.006.00503 | **ECX5DA0** | **N.O.** | | 5,0 bar | |
| 04.006.00505 | **ECX5DC0** | **N.C.** | | | |
| 04.006.00506 | **ECX8DA0** | **N.O.** | | 8,0 bar | |
| 04.006.00508 | **ECX8DC0** | **N.C.** | | | |

| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00491 | **ECX2SA0** | **N.O.** | **Superseal 1.5 2 Way**   | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00493 | **ECX2SC0** | **N.C.** | | | |
| 04.006.00494 | **ECX5SA0** | **N.O.** | | 5,0 bar | |
| 04.006.00496 | **ECX5SC0** | **N.C.** | | | |
| 04.006.00497 | **ECX8SA0** | **N.O.** | | 8,0 bar | |
| 04.006.00499 | **ECX8SC0** | **N.C.** | | | |

| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00509 | **ECX2JA0** | **N.O.** | **Junior Timer 2 Way**   | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00511 | **ECX2JC0** | **N.C.** | | | |
| 04.006.00512 | **ECX5JA0** | **N.O.** | | 5,0 bar | |
| 04.006.00514 | **ECX5JC0** | **N.C.** | | | |
| 04.006.00515 | **ECX8JA0** | **N.O.** | | 8,0 bar | |
| 04.006.00517 | **ECX8JC0** | **N.C.** | | | |

50 / 90 Nm - See hydraulic filter catalogues

## INDICATOR SEAT

| EC... | ECX... |
|---|---|
|  |  |

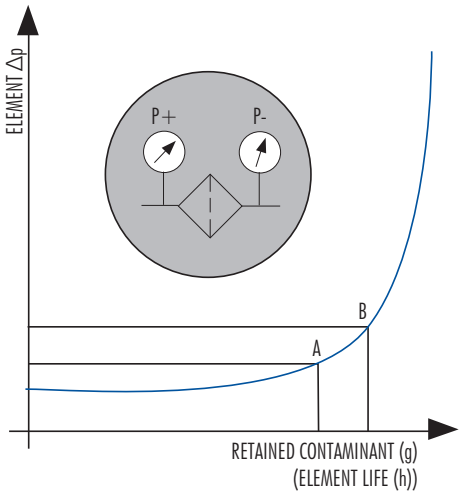




Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## OPTIONAL VERSION

Subject to MOQ our differential indicators type EC... can be supplied in special versions like ATEX or with different connectors.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | | |
|---|---|---|---|---|---|---|---|
| | | EC02.. | EC05.. | EC08.. | ECX2.. | ECX5.. | ECX8.. |
| IN LINE HIGH PRESSURE | **F100** | X | X | X | | | |
| | **F280** | | X | X | | | |
| | **F420** | | X | X | | | |
| | **FD3** | | | | | X | X |
| | **FDM** | | | | | X | X |
| | **FH100** | X | X | X | | | |
| | **FH250** | | X | X | | | |
| | **FH320** | | X | X | | | |
| | **FH420-D1** | | X | X | | | |
| | **FML320** | | X | X | | | |
| IN LINE MEDIUM PRESSURE | **FLR** | | | | X | X | X |
| | **FLRD** | | | | X | X | X |
| | **F040** | X | X | X | | | |
| RETURN | **FCR7F2x** | X | | | | | |
| | **FCR7F3x** | X | | | | | |
| SPIN-ON | **FAH-A14x** | X | | | | | |
| | **FA5** | | | | X | | |
| | **FA4** | | | | X | | |

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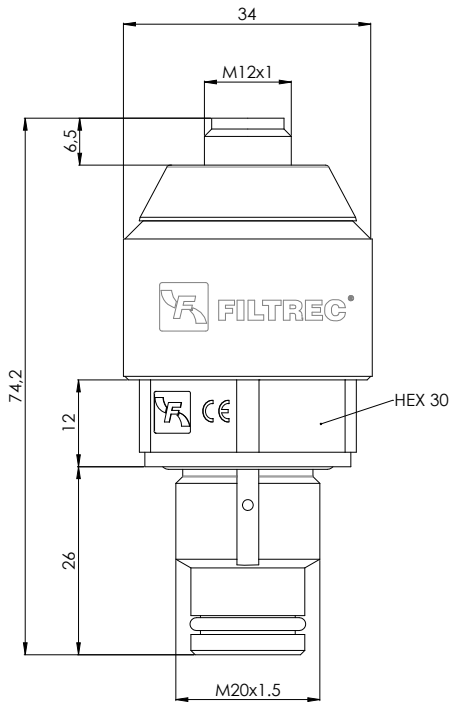
# ED SERIES

Visual electrical differential pressure indicators with differential pressure thresholds, with detection of cold starts
and with the indication of the possible opening of the by-pass.



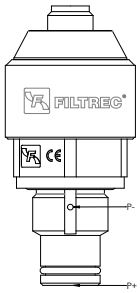
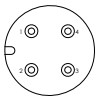

| | |
|---|---|
| PRESSURE: | Max operating up to 420 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: FKM |
| SETTINGS ΔP: | 2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| ELECTRICAL SPECS.: | Contact configuration PNP - N.O. |
| CONNECTOR TYPE: | M12x1 - 4 PIN |
| DEGREE OF PROTECTION: | IP67 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

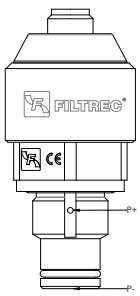
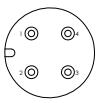



Weight: ~140g

## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | VIEW | SETTING | VISUAL OUTPUT SPECS. |
|---|---|---|---|---|
| 04.006.00543 | **EDF2** |  | 2,7 bar |  |
| 04.006.00544 | **EDF5** | | 5,0 bar | 1. 24Vdc ± 10%<br>2. Output 75%<br>PNP - Max load 0,2 N.O.<br>3. 0V<br>4. Output 100%<br>PNP - Max load 0,2 N.O. |
| 04.006.00545 | **EDF8** | | 8,0 bar | |

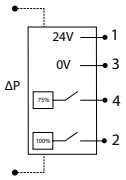
50 / 90 Nm - See hydraulic filter catalogues

| ORDER CODE | MODEL | VIEW | SETTING | VISUAL OUTPUT SPECS. |
|---|---|---|---|---|
| 04.006.00577 | **EDXF2** |  | 2,7 bar |  |
| 04.006.00578 | **EDXF5** | | 5,0 bar | 1. 24Vdc ± 10%<br>2. Output 75%<br>PNP - Max load 0,2 N.O.<br>3. 0V<br>4. Output 100%<br>PNP - Max load 0,2 N.O. |
| 04.006.00579 | **EDXF8** | | 8,0 bar | |

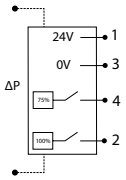
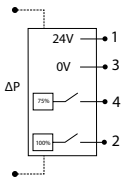
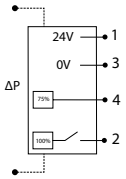
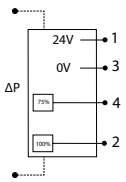
50 / 90 Nm - See hydraulic filter catalogues

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## If T<Thermal lock-out (20°C)

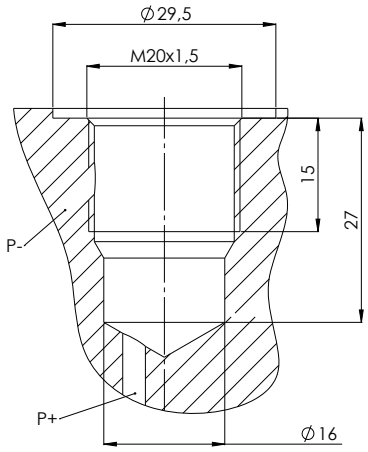
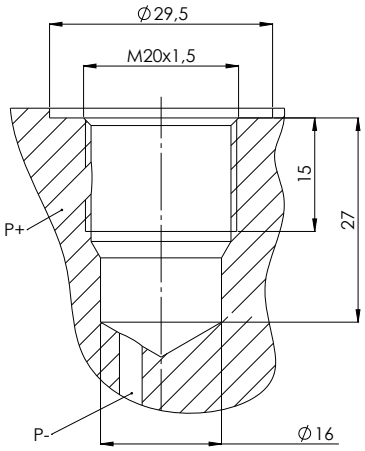
| ΔP CONDITION | MODEL | RANGE | VISUAL | ELECTRICAL SYMBOL |
|---|---|---|---|---|
| Any ΔP within measuring range | **EDF2 EDXF2** | 0÷2,7 bar |  |  |
| | **EDF5 EDXF5** | 0÷5,0 bar | | |
| | **EDF8 EDXF8** | 0÷8,0 bar | | |

## If T>Thermal lock-out (20°C)

| ΔP CONDITION | MODEL | RANGE | VISUAL | ELECTRICAL SYMBOL |
|---|---|---|---|---|
| 0<ΔP<50 | **EDF2 EDXF2** | 0÷1,3 bar |  |  |
| | **EDF5 EDXF5** | 0÷2,5 bar | | |
| | **EDF8 EDXF8** | 0÷4,0 bar | | |
| 50≤ΔP<75 | **EDF2 EDXF2** | 1,3÷2,0 bar |  |  |
| | **EDF5 EDXF5** | 2,5÷3,7 bar | | |
| | **EDF8 EDXF8** | 4,0÷6,0 bar | | |
| 75≤ΔP<100 | **EDF2 EDXF2** | 2,0÷2,7 bar |  |  |
| | **EDF5 EDXF5** | 3,7÷5,0 bar | | |
| | **EDF8 EDXF8** | 6,0÷8,0 bar | | |
| ΔP≥100 | **EDF2 EDXF2** | ≥2,7 bar |  |  |
| | **EDF5 EDXF5** | ≥5,0 bar | | |
| | **EDF8 EDXF8** | ≥8,0 bar | | |

**BLINKING**

## INDICATOR SEAT

| ED... | EDX... |
|---|---|
|  |  |

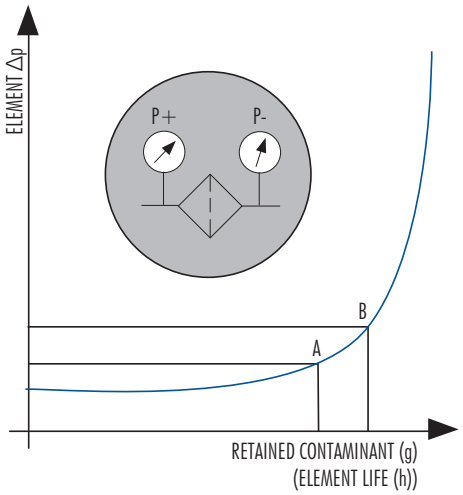




Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

## OPTIONAL VERSION

Subject to MOQ our differential indicators type ED... can be supplied in special versions with UL and CSA certification.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | | |
|---|---|---|---|---|---|---|---|
| | | EDF2.. | EDF5.. | EDF8.. | EDXF2.. | EDXF5.. | EDXF8.. |
| IN LINE HIGH PRESSURE | **F100** | X | X | X | | | |
| | **F280** | | X | X | | | |
| | **F420** | | X | X | | | |
| | **FD3** | | | | | X | X |
| | **FDM** | | | | | X | X |
| | **FH100** | X | X | X | | | |
| | **FH250** | | X | X | | | |
| | **FH320** | | X | X | | | |
| | **FH420-D1** | | X | X | | | |
| | **FML320** | | X | X | | | |
| IN LINE MEDIUM PRESSURE | **FLR** | | | | X | X | X |
| | **FLRD** | | | | X | X | X |
| | **F040** | X | X | X | | | |
| RETURN | **FCR7F2x** | X | | | | | |
| | **FCR7F3x** | X | | | | | |
| SPIN-ON | **FAH-A14x** | X | | | | | |
| | **FA5** | | | | X | | |
| | **FA4** | | | | X | | |

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# EW SERIES

Electrical differential indicators with cable and connector with and without thermostatic switch set at 30°C

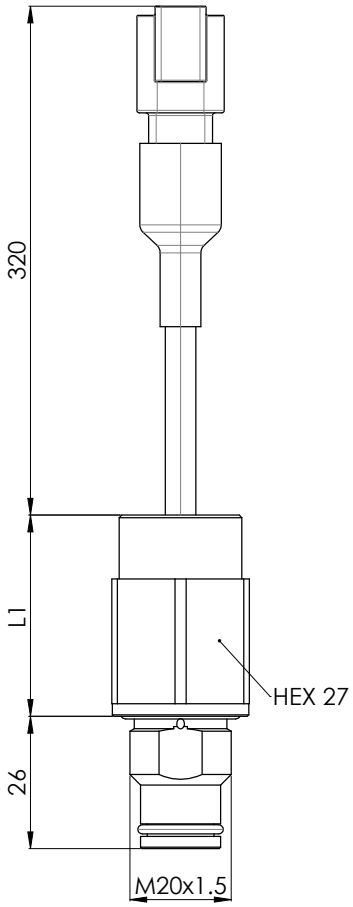


**EW EWX..D** | **EW EWX..S** | **EW EWX..J**

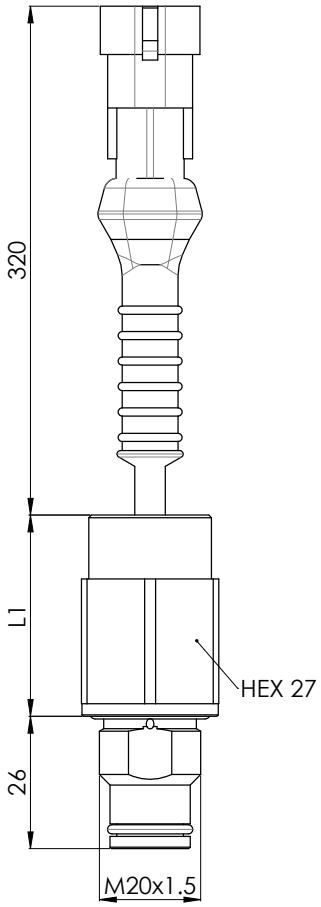
| | |
|---|---|
| PRESSURE: | Max operating up to 420 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: HNBR standard |
| SETTINGS ΔP: | 2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| ELECTRICAL SPECS.: | Contact configuration N.O./N.C. |
| CONNECTOR TYPE: | Deutsch DT04-2P<br>SUPERSEAL 1.5 2 WAY<br>JUNIOR POWER TIMER 2 WAY |
| DEGREE OF PROTECTION: | IP67 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - + 80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

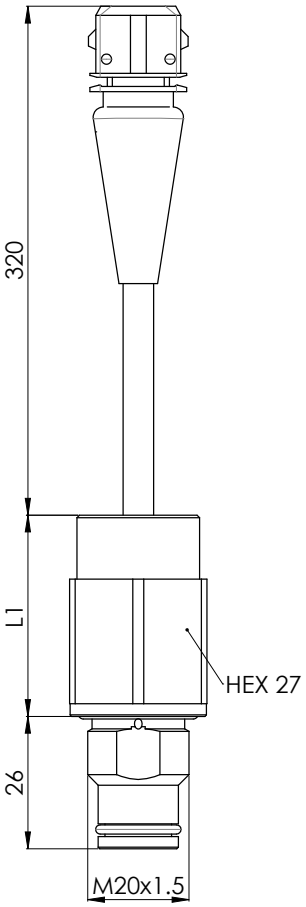
**EW/EWX..D**




**EW/EWX..S**



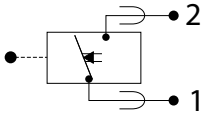
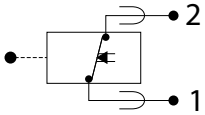
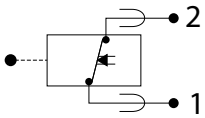
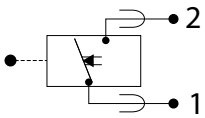

**EW/EWX..J**



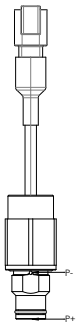

**L1: 49 WITH THERMOSTAT**
**40 WITHOUT THERMOSTAT**

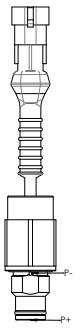
Weight: ~240g

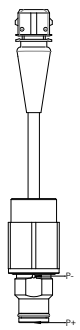
## MECHANICAL CONDITION

| ΔP CONDITION | ELECTRIC SYMBOL N.O. | ELECTRIC SYMBOL N.C. |
|---|---|---|
| P+ - P- < ΔPset |   |   |
| P+ - P- ≥ ΔPset |   |   |

## ORDERING INFORMATION / DETAILS

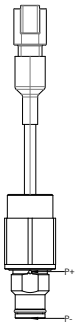
| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00411 | **EW02DA0** | **N.O.** | **Deutsch DT04-2P** | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00412 | **EW02DAT** | | | | |
| 04.006.00413 | **EW02DC0** | **N.C.** |  | | |
| 04.006.00564 | **EW05DA0** | **N.O** | | 5,0 bar | |
| 04.006.00416 | **EW05DAT** | | | | |
| 04.006.00417 | **EW05DC0** | **N.C.** | | | |
| 04.006.00419 | **EW08DA0** | **N.O.** | | 8,0 bar | |
| 04.006.00420 | **EW08DAT** | | | | |
| 04.006.00421 | **EW08DC0** | **N.C.** | | | |

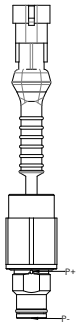
| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00399 | **EW02SA0** | **N.O.** | **Superseal 1.5 2 Way** | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00400 | **EW02SAT** | | | | |
| 04.006.00401 | **EW02SC0** | **N.C.** |  | | |
| 04.006.00403 | **EW05SA0** | **N.O** | | 5,0 bar | |
| 04.006.00404 | **EW05SAT** | | | | |
| 04.006.00405 | **EW05SC0** | **N.C.** | | | |
| 04.006.00407 | **EW08SA0** | **N.O.** | | 8,0 bar | |
| 04.006.00408 | **EW08SAT** | | | | |
| 04.006.00409 | **EW08SC0** | **N.C.** | | | |

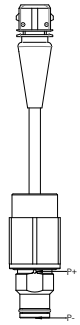
| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00423 | **EW02JA0** | **N.O.** | **Junior Timer 2 Way** | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00424 | **EW02JAT** | | | | |
| 04.006.00425 | **EW02JC0** | **N.C.** |  | | |
| 04.006.00427 | **EW05JA0** | **N.O** | | 5,0 bar | |
| 04.006.00428 | **EW05JAT** | | | | |
| 04.006.00429 | **EW05JC0** | **N.C.** | | | |
| 04.006.00431 | **EW08JA0** | **N.O.** | | 8,0 bar | |
| 04.006.00432 | **EW08JAT** | | | | |
| 04.006.00433 | **EW08JC0** | **N.C.** | | | |

50 / 90 Nm - See hydraulic filter catalogues

## ORDERING INFORMATION / DETAILS

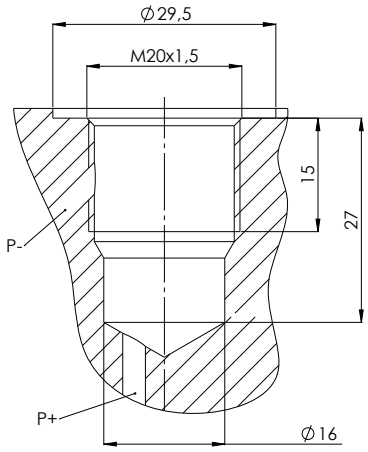
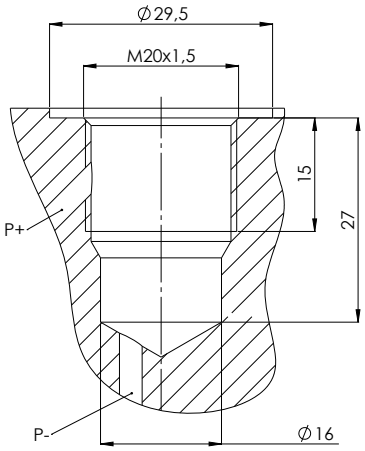
| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00472 | **EWX2DA0** | **N.O.** | **Deutsch DT04-2P** | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00473 | **EWX2DAT** | | | | |
| 04.006.00474 | **EWX2DC0** | **N.C.** |  | | |
| 04.006.00475 | **EWX5DA0** | **N.O** | | 5,0 bar | |
| 04.006.00476 | **EWX5DAT** | | | | |
| 04.006.00477 | **EWX5DC0** | **N.C.** | | | |
| 04.006.00478 | **EWX8DA0** | **N.O.** | | 8,0 bar | |
| 04.006.00479 | **EWX8DAT** | | | | |
| 04.006.00480 | **EWX8DC0** | **N.C.** | | | |

| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00463 | **EWX2SA0** | **N.O.** | **Superseal 1.5 2 Way** | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00464 | **EWX2SAT** | | | | |
| 04.006.00465 | **EWX2SC0** | **N.C.** |  | | |
| 04.006.00466 | **EWX5SA0** | **N.O** | | 5,0 bar | |
| 04.006.00467 | **EWX5SAT** | | | | |
| 04.006.00468 | **EWX5SC0** | **N.C.** | | | |
| 04.006.00469 | **EWX8SA0** | **N.O.** | | 8,0 bar | |
| 04.006.00470 | **EWX8SAT** | | | | |
| 04.006.00471 | **EWX8SC0** | **N.C.** | | | |

| ORDER CODE | MODEL | CONN | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00481 | **EWX2JA0** | **N.O.** | **Junior Timer 2 Way** | 2,7 bar | • Max switching voltage: 48VDC<br>• Max current: 5A resistive 2A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00482 | **EWX2JAT** | | | | |
| 04.006.00483 | **EWX2JC0** | **N.C.** |  | | |
| 04.006.00484 | **EWX5JA0** | **N.O** | | 5,0 bar | |
| 04.006.00485 | **EWX5JAT** | | | | |
| 04.006.00486 | **EWX5JC0** | **N.C.** | | | |
| 04.006.00487 | **EWX8JA0** | **N.O.** | | 8,0 bar | |
| 04.006.00488 | **EWX8JAT** | | | | |
| 04.006.00489 | **EWX8JC0** | **N.C.** | | | |

50 / 90 Nm - See hydraulic filter catalogues

## INDICATOR SEAT

| EW... | EWX... |
|---|---|
|  |  |

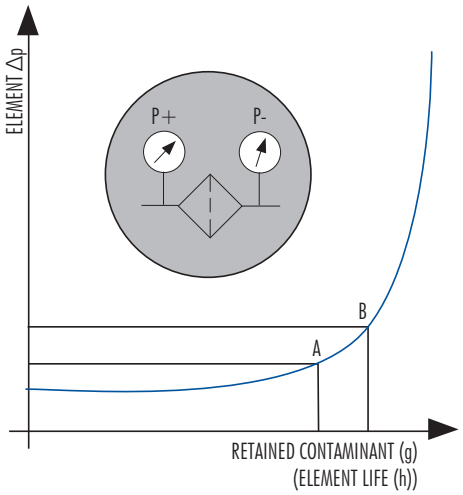




Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## OPTIONAL VERSION

Subject to MOQ our differential indicators type EW... can be supplied in special versions like ATEX or with different connectors.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | | |
|---|---|---|---|---|---|---|---|
| | | EW02.. | EW05.. | EW08.. | EWX2.. | EWX5.. | EWX8.. |
| IN LINE HIGH PRESSURE | **F100** | X | X | X | | | |
| | **F280** | | X | X | | | |
| | **F420** | | X | X | | | |
| | **FD3** | | | | | X | X |
| | **FDM** | | | | | X | X |
| | **FH100** | X | X | X | | | |
| | **FH250** | | X | X | | | |
| | **FH320** | | X | X | | | |
| | **FH420-D1** | | X | X | | | |
| | **FML320** | | X | X | | | |
| IN LINE MEDIUM PRESSURE | **FLR** | | | | X | X | X |
| | **FLRD** | | | | X | X | X |
| | **F040** | X | X | X | | | |
| RETURN | **FCR7F2x** | X | | | | | |
| | **FCR7F3x** | X | | | | | |
| SPIN-ON | **FAH-A14x** | X | | | | | |
| | **FA5** | | | | X | | |
| | **FA4** | | | | X | | |

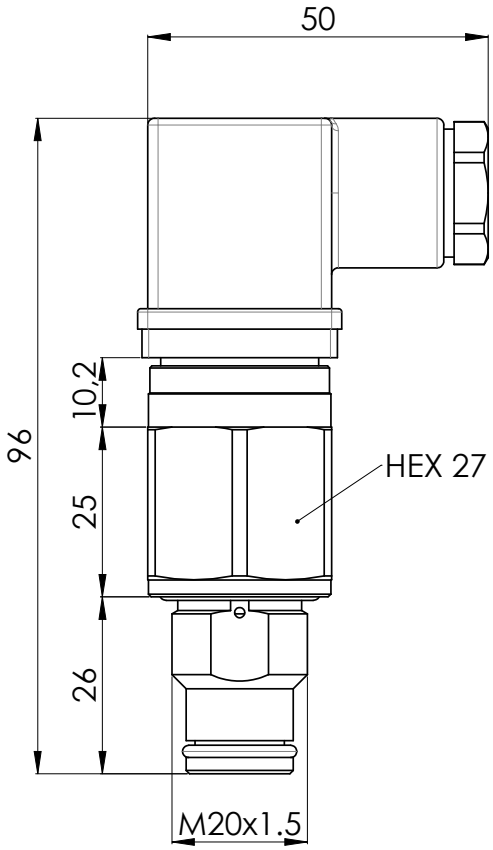
# ET SERIES

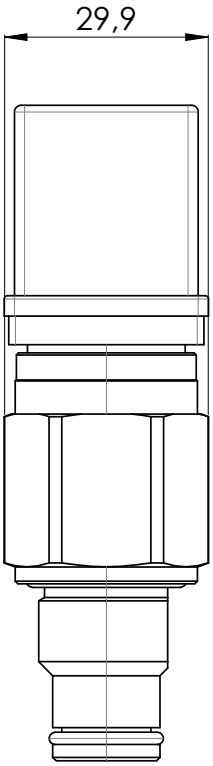
Electrical differential clogging indicators with thermostatic switch set at 30°C



| | |
|---|---|
| PRESSURE: | Max operating up to 420 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: NBR standard<br>FKM on request |
| SETTINGS ΔP: | 2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| ELECTRICAL SPECS.: | See electrical symbol |
| CONNECTOR TYPE: | according to DIN 43650<br>with cable gland PG09/PG11 |
| DEGREE OF PROTECTION: | IP65 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

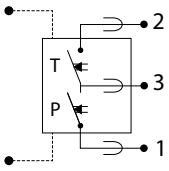
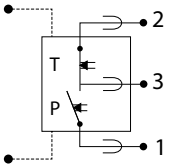
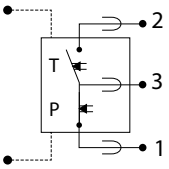
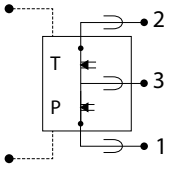
## OVERALL DIMENSIONS



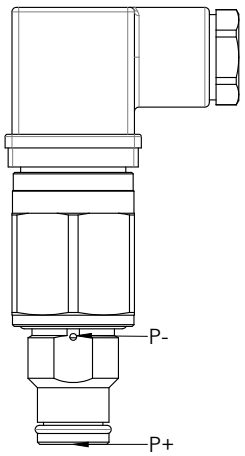




Weight: 180 gr

## MECHANICAL CONDITION

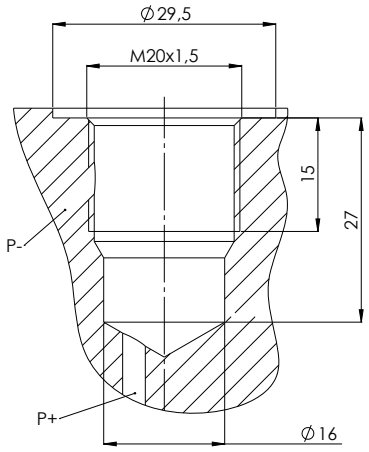
| ΔP CONDITION | ELECTRIC SYMBOL | |
|---|---|---|
| P+ - P- < ΔPset |  T<Tset |  T≥Tset |
| P+ - P- ≥ ΔPset |  T<Tset |  T≥Tset |

## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00547<br>04.006.00548 | **ET02**<br>**ETF2** | **NBR**<br>**FKM** |  | 2,7 bar | • Connector DIN 43650<br>• Max AC and DC voltage: 24V<br>Max current:<br>5A resistive<br>1A inductive<br>• Protection:<br>IP65 EN60529 |
| 04.006.00117<br>04.006.00135 | **ET05**<br>**ETF5** | **NBR**<br>**FKM** | | 5,0 bar | |
| 04.006.00549<br>04.006.00550 | **ET08**<br>**ETF8** | **NBR**<br>**FKM** | | 8,0 bar | |
| 50 / 90 Nm - See hydraulic filter catalogues | | | | | |

## INDICATOR SEAT

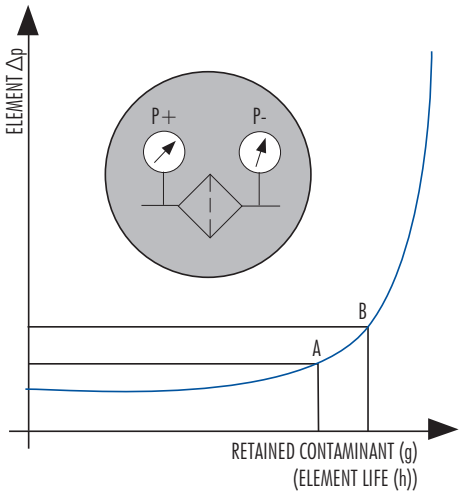
**ET.../ETF...**




Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

## OPTIONAL VERSION

Subject to MOQ our differential indicators type ET... can be supplied in special versions like ATEX or with different connectors.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | |
|---|---|---|---|---|
| | | ET02/ETF2 | ET05/ETF5 | ET08/ETF8 |
| IN LINE HIGH PRESSURE | **F100** | **X** | **X** | **X** |
| | **F280** | | **X** | **X** |
| | **F420** | | **X** | **X** |
| | **FH100** | **X** | **X** | **X** |
| | **FH250** | | **X** | **X** |
| | **FH320** | | **X** | **X** |
| | **FH420-D1** | | **X** | **X** |
| | **FML320** | | **X** | **X** |
| IN LINE MEDIUM PRESSURE | **F040** | **X** | **X** | **X** |
| RETURN | **FCR7F2x** | **X** | | |
| | **FCR7F3x** | **X** | | |
| SPIN-ON | **FAH-A14x** | **X** | | |

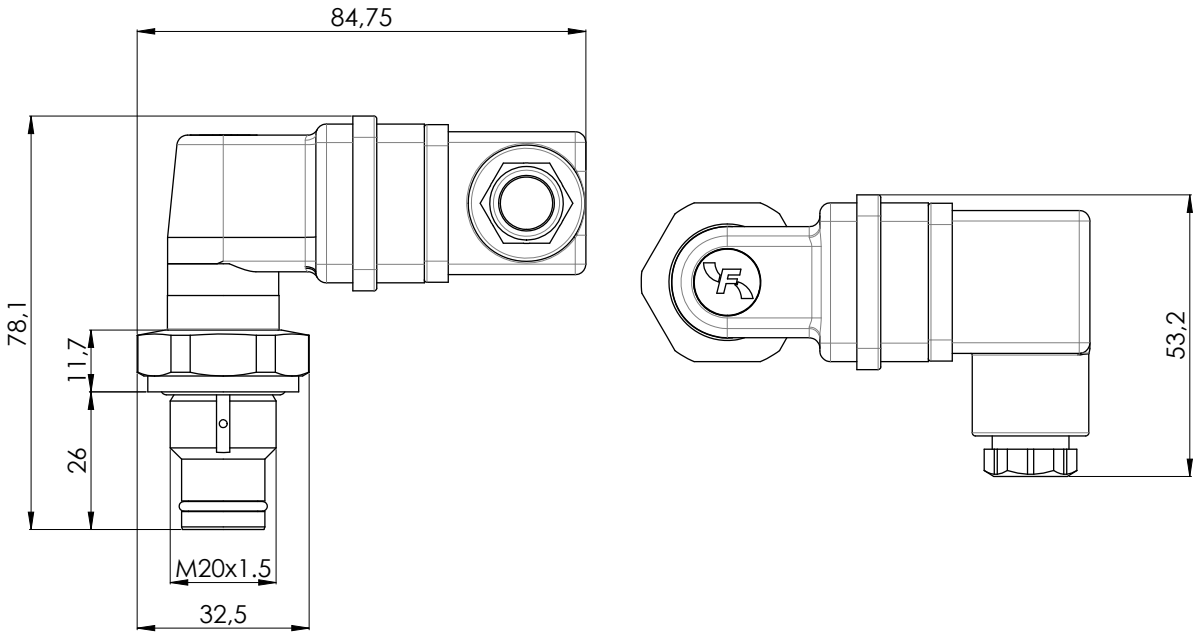
# ES SERIES

Electrical differential clogging indicators in stainless steel



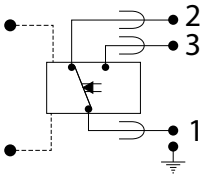
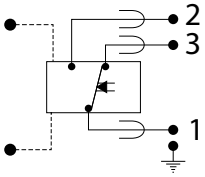
| | |
|---|---|
| PRESSURE: | Max operating up to 700 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: AISI 304 - 316L<br>Cover and connector: PA66 + G.F.<br>Seal: FKM standard |
| SETTINGS ΔP: | 2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| ELECTRICAL SPECS.: | Contact configuration SPDT |
| CONNECTOR TYPE: | according to DIN 43650<br>with cable gland PG09 |
| DEGREE OF PROTECTION: | IP65 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HG-HL-HM-HR-HV-HS-HE...-(HFB and HFC water <50%)-HFDU (acc. to ISO 6743/4)<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

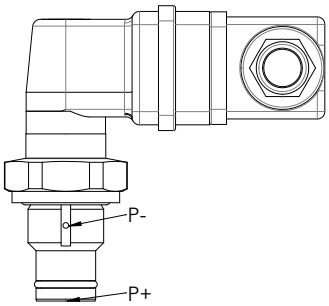



Weight: 181 gr

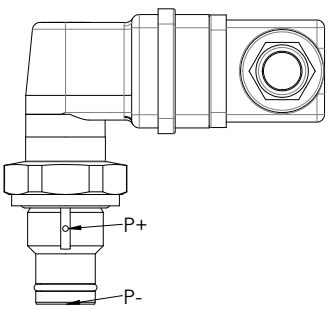
## MECHANICAL CONDITION

| ΔP CONDITION | ELECTRIC SYMBOL |
|---|---|
| P+ - P- < ΔPset |  |
| P+ - P- ≥ ΔPset |  |

## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | BODY MATERIAL | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00609<br>04.006.00651 | **ESF2**<br>**ESLF2** | **AISI 304**<br>**AISI 316L** |  | 2,7 bar | • Connector DIN 43650<br>• Max AC voltage: 250Vac<br>• Max current: 5A resistive 1A inductive<br>• Max DC voltage: 30Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00611<br>04.006.00653 | **ESF5**<br>**ESLF5** | **AISI 304**<br>**AISI 316L** | | 5,0 bar | |
| 04.006.00613<br>04.006.00655 | **ESF8**<br>**ESLF8** | **AISI 304**<br>**AISI 316L** | | 8,0 bar | |

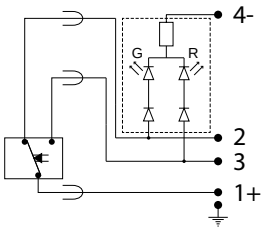
50 / 90 / 100 Nm - See hydraulic filter catalogues

| ORDER CODE | MODEL | BODY MATERIAL | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00616<br>04.006.00658 | **ESXF2**<br>**ESLXF2** | **AISI 304**<br>**AISI 316L** |  | 2,7 bar | • Connector DIN 43650<br>• Max AC voltage: 250Vac<br>• Max current: 5A resistive 1A inductive<br>• Max DC voltage: 30Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00618<br>04.006.00660 | **ESXF5**<br>**ESLXF5** | **AISI 304**<br>**AISI 316L** | | 5,0 bar | |
| 04.006.00620<br>04.006.00662 | **ESXF8**<br>**ESLXF8** | **AISI 304**<br>**AISI 316L** | | 8,0 bar | |

50 / 90 / 100 Nm - See hydraulic filter catalogues

## OPTIONAL VERSION

The LC24 connector, supplied separately, can replace the standard black connector of the “ES” indicator. Powered with 24Vdc, it gives a visual indication of the filter element conditions: normally the GREEN LED is on, the RED LED switch on when the element is clogged.

| ORDER CODE | MODEL | VIEW | ELECTRICAL SPECS. |
|---|---|---|---|
| 04.006.00146 | **LC24** |  |   |

## INSTRUCTIONS FOR REPLACING THE std CONNECTOR WITH THE LC24 CONNECTOR

1. UNSCREW THE SCREW



2. DISCONNECT THE STANDARD CONNECTOR



3. ATTACH THE LC04 CONNECTOR



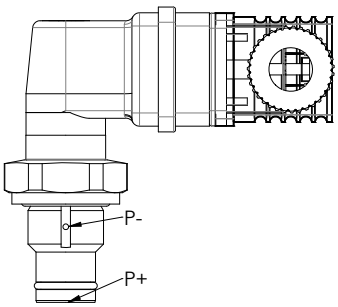
4. TIGHTEN THE SCREW

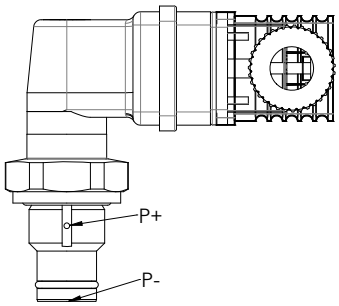


## VERSION WITH INTEGRATED LED CONNECTOR

**Subject to MOQ our differential indicators type ES... can be supplied in special versions with INTEGRATED LC24 connector.**

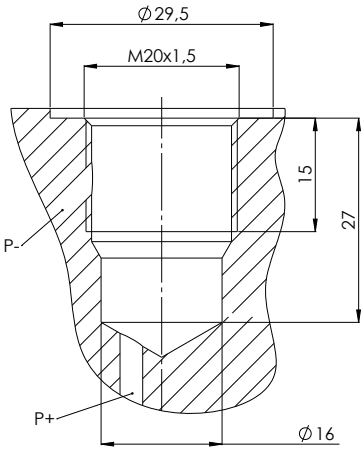
## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | BODY MATERIAL | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00610<br>04.006.00652 | **ESF2L**<br>**ESLF2L** | **AISI 304**<br>**AISI 316L** |  | 2,7 bar | • Connector DIN 43650<br>• Max DC voltage: 24Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00612<br>04.006.00654 | **ESF5L**<br>**ESLF5L** | **AISI 304**<br>**AISI 316L** | | 5,0 bar | |
| 04.006.00614<br>04.006.00656 | **ESF8L**<br>**ESLF8L** | **AISI 304**<br>**AISI 316L** | | 8,0 bar | |
| 50 / 90 / 100 Nm - See hydraulic filter catalogues | | | | | |

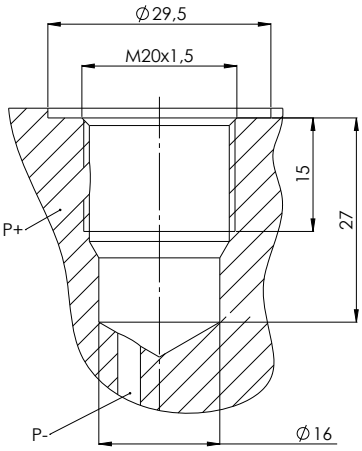
| ORDER CODE | MODEL | BODY MATERIAL | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00617<br>04.006.00659 | **ESXF2L**<br>**ESXLF2L** | **AISI 304**<br>**AISI 316L** |  | 2,7 bar | • Connector DIN 43650<br>• Max DC voltage: 24Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00619<br>04.006.00661 | **ESXF5L**<br>**ESXLF5L** | **AISI 304**<br>**AISI 316L** | | 5,0 bar | |
| 04.006.00621<br>04.006.00663 | **ESXF8L**<br>**ESXLF8L** | **AISI 304**<br>**AISI 316L** | | 8,0 bar | |
| 50 / 90 / 100 Nm - See hydraulic filter catalogues | | | | | |

## INDICATOR SEAT

**ES.../ES...L**



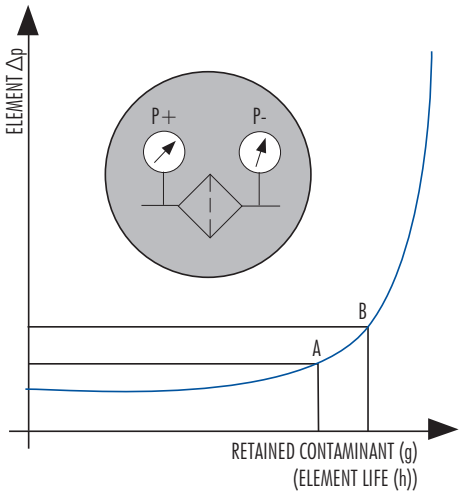

**ESX.../ESX...L**




Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## INDICATOR SEAT

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | | |
|---|---|---|---|---|---|---|---|
| | | ES(L)F2 ES(L)F2L | ES(L)F5 ES(L)F5L | ES(L)F8 ES(L)F8L | ES(L)XF2 ES(L)XF2L | ES(L)XF5 ES(L)XF5L | ES(L)XF8 ES(L)XF8L |
| IN LINE HIGH PRESSURE | **F100** | X | X | X | | | |
| | **F280** | | X | X | | | |
| | **F420** | | X | X | | | |
| | **FD3** | | | | | X | X |
| | **FDM** | | | | | X | X |
| | **FH100** | X | X | X | | | |
| | **FH250** | | X | X | | | |
| | **FH320** | | X | X | | | |
| | **FH323** | | X | X | | | |
| | **FH324** | | X | X | | | |
| | **FH420** | | X | X | | | |
| | **FH700** | | | | | X | X |
| | **FML320** | | X | X | | | |
| IN LINE MEDIUM PRESSURE | **FLR** | | | | X | X | X |
| | **FLRD** | | | | X | X | X |
| | **F040** | X | X | X | | | |
| RETURN | **FCR7F2x** | X | | | | | |
| | **FCR7F3x** | X | | | | | |
| SPIN-ON | **FAH** | X | | | | | |
| | **FA4** | | | | X | | |
| | **FAP A4** | | | | X | | |
| | **FA5** | | | | X | | |
| | **FAP A5** | | | | X | | |

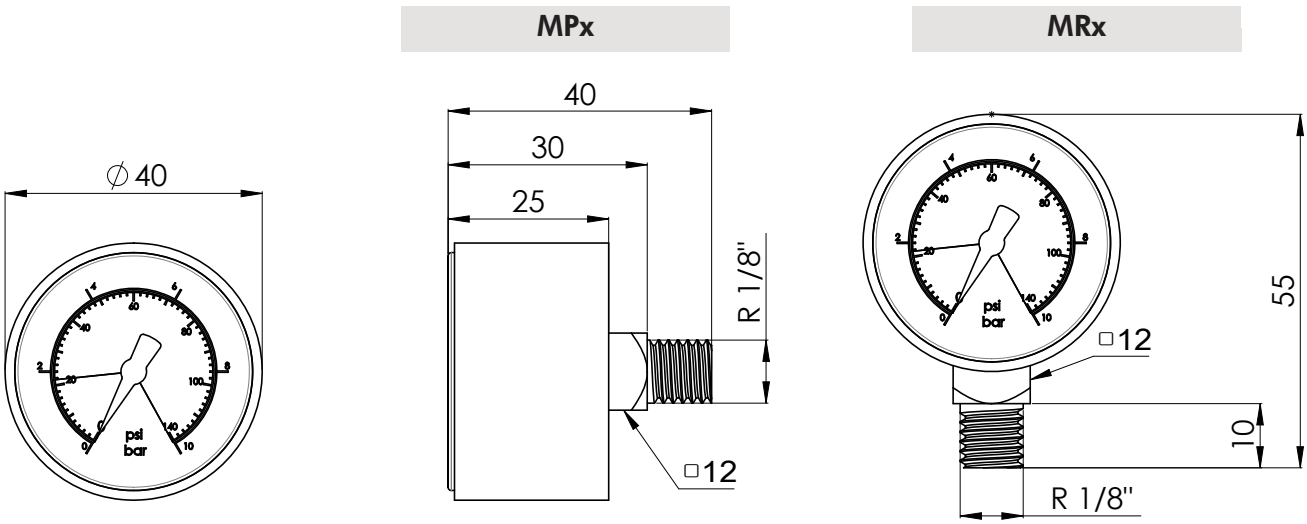
# M SERIES

Visual clogging indicators




| | |
|---|---|
| OPERATING PRESSURE: | **For return line application:**<br>MPB<br>MPC<br>MPD 0÷10 bar<br>MRB<br>MRC<br>MRD<br><br>**For suction or return line application:**<br>MPA -1÷5 bar<br><br>**For suction line application:**<br>MPS 0÷-1 bar<br><br>**For low pressure line application:**<br>MP0 0÷16 bar |
| CONNECTION: | R1/8" - tapered connection |
| MATERIALS: | Nozzle: Brass<br>Cover: ABS |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS




Weight: ~ 45g

## ORDERING INFORMATION / DETAILS

### INDICATOR FOR APPLICATION ON RETURN LINE

| ORDER CODE | MODEL | VIEW | SETTING |
|---|---|---|---|
| 04.006.00151 | **MPB** |  | 0÷1,7 bar<br>1,7 ÷10 bar |
| 04.006.00153 | **MPC** | | 0÷3 bar<br>3÷10 bar |
| 04.006.00632 | **MPD** | | 0÷2,5 bar<br>2,5÷10 bar |
| 04.006.00152 | **MRB** |  | 0÷1,7 bar<br>1,7 ÷10 bar |
| 04.006.00154 | **MRC** | | 0÷3 bar<br>3÷10 bar |
| 04.006.00633 | **MRD** | | 0÷2,5 bar<br>2,5÷10 bar |
| | | 10 Nm - See hydraulic filter catalogues | |

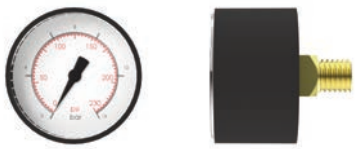
## INDICATOR MULTIPURPOSE FOR APPLICATION ON SUCTION or RETUR LINE

| ORDER CODE | MODEL | VIEW | SETTING |
|---|---|---|---|
| 04.006.00058 | **MPA** |  | -1÷-0,3 bar<br>-0,3÷1,4 bar<br>1,4÷5 bar |
| | | 10 Nm - See hydraulic filter catalogues | |

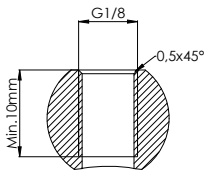
## INDICATOR FOR APPLICATION ON SUCTION LINE

| ORDER CODE | MODEL | VIEW | SETTING |
|---|---|---|---|
| 04.006.00015 | **MPS** |  | 0÷-0,15 bar<br>-0,15÷-0,25 bar<br>-0,25÷-1 bar |
| | | 10 Nm - See hydraulic filter catalogues | |

## INDICATOR FOR APPLICATION ON LOW PRESSURE LINE

| ORDER CODE | MODEL | VIEW | SETTING |
|---|---|---|---|
| 04.006.00101 | **MP0**<br>(ex R12) |  | 0÷16 bar |
| | | 10 Nm - See hydraulic filter catalogues | |

## INDICATOR FOR APPLICATION ON RETURN LINE

| M... |
|---|
|  |
| Dimensions and tolerances available on request |



## USER INFORMATION

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | |
|---|---|---|---|---|---|---|
| | | MPB/MPC/MPB | MRB/MRC/MRD | MPA | MPS | MP0 |
| RETURN | **FR6** | **X** | **X** | **X** | | |
| | **FRM** | **X** | **X** | **X** | | |
| | **FRP** | **X** | **X** | **X** | | |
| | **FRT** | **X** | **X** | **X** | | |
| | **FA1** | **X** | **X** | **X** | | |
| | **FA2** | **X** | **X** | **X** | | |
| | **FCR7F1X** | **X** | **X** | **X** | | |
| | **FCR7F2X** | **X** | **X** | **X** | | |
| | **FCR7F3X** | **X** | **X** | **X** | | |
| SUCTION / RETURN | **FHT** | **X** | **X** | | **X** | |
| SUCTION | **FS1** | | | **X** | **X** | |
| | **FS7** | | | **X** | **X** | |
| | **FS5** | | | **X** | **X** | |
| | **FA1** | | | **X** | **X** | |
| IN LINE | **FAH** | **X** | **X** | **X** | | **X** |
| | **FA5** | **X** | **X** | **X** | | **X** |
| | **FAPA5** | **X** | **X** | **X** | | **X** |

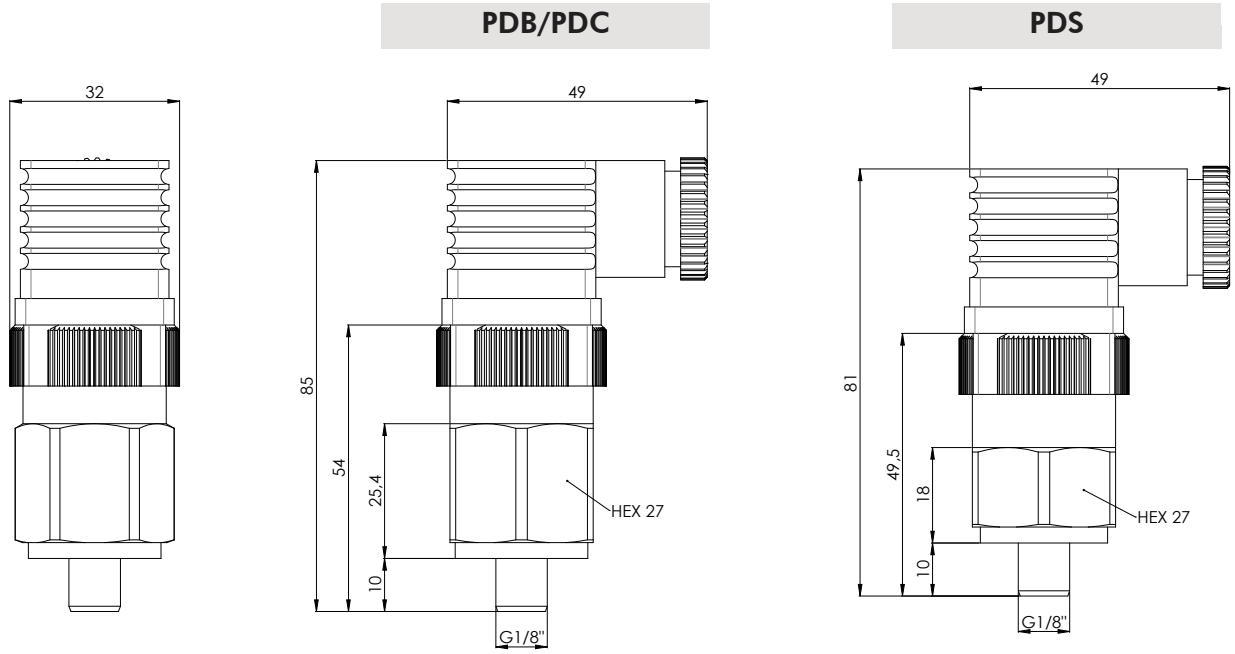
# P SERIES

Clogging indicators for suction line and return line



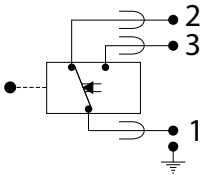
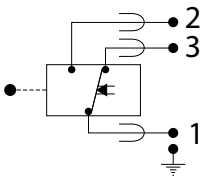
| | |
|---|---|
| PRESSURE: | Max operating up to 25 bar |
| CONNECTION: | G1/8" |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Internal seals: HNBR |
| SETTINGS: | **For suction application:**<br>PDS -0,2 bar±10%<br><br>**For return line application:**<br>PDB 1,3 bar±10%<br>PDC 2,0 bar±10% |
| ELECTRICAL SPECS.: | Contact configuration SPDT |
| CONNECTOR TYPE: | according to DIN 43650<br>with cable gland PG09/PG11 |
| DEGREE OF PROTECTION: | IP65 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC<br>(acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS




Weight: ~124 g

## MECHANICAL CONDITION

| ΔP CONDITION | ELECTRIC SYMBOL |
|---|---|
| P < Pset |  |
| P ≥ Pset |  |

## ORDERING INFORMATION / DETAILS

### INDICATOR FOR APPLICATION ON SUCTION LINE

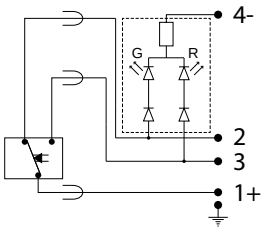
| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00141 | **PDS** | **HNBR** |  | -0,2 bar | • Connector DIN 43650<br>• Max AC voltage: 250Vac<br>• Max current: 3A resistive 2A inductive<br>• Max DC voltage: 30Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| | | | 10 Nm - See hydraulic filter catalogues | | |

### INDICATOR FOR APPLICATION ON RETUR LINE

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00108 | **PDB** | **HNBR** |  | 1,3 bar | • Connector DIN 43650<br>• Max AC voltage: 250Vac<br>• Max current: 3A resistive 2A inductive<br>• Max DC voltage: 30Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00118 | **PDC** | **HNBR** | | 2 bar | |
| | | | 10 Nm - See hydraulic filter catalogues | | |

## OPTIONAL VERSION

The LC24 connector, supplied separately, can replace the standard black connector of the "P" indicator. Powered with 24Vdc, it gives a visual indication of the filter element conditions: normally the GREEN LED is on, the RED LED switch on when the element is clogged.

| ORDER CODE | MODEL | VIEW | ELECTRICAL SPECS. |
|---|---|---|---|
| 04.006.00146 | **LC24** |  |   |

## INSTRUCTIONS FOR REPLACING THE std CONNECTOR WITH THE LC24 CONNECTOR

| 1. UNSCREW THE SCREW | 2. DISCONNECT THE STANDARD CONNECTOR |
|---|---|
|  |  |
| **3. ATTACH THE LC24 CONNECTOR** | **4. TIGHTEN THE SCREW** |
|  |  |

## VERSION WITH INTEGRATED LED CONNECTOR

**Subject to MOQ our differential indicators type P... can be supplied in special versions with INTEGRATED LC24 connector.**

## ORDERING INFORMATION / DETAILS

## INDICATOR FOR APPLICATION ON SUCTION LINE

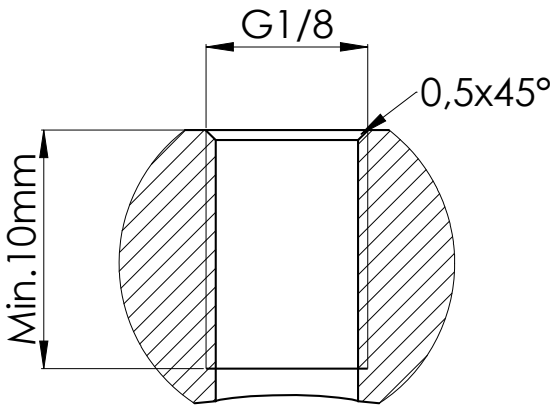
| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00540 | **PDSL** | **HNBR** |  | -0,2 bar | • Connector DIN 43650<br>• Max DC voltage: 30Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| | | | 10 Nm - See hydraulic filter catalogues | | |

## INDICATOR FOR APPLICATION ON RETUR LINE

| ORDER CODE | MODEL | SEALS | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|---|
| 04.006.00541 | **PDBL** | **HNBR** |  | 1,3 bar | • Connector DIN 43650<br>• Max DC voltage: 30Vdc<br>• Max current: 4A resistive 3A inductive<br>• Protection: IP65 EN60529 |
| 04.006.00542 | **PDCL** | **HNBR** | | 2 bar | |
| | | | 10 Nm - See hydraulic filter catalogues | | |

## INDICATOR SEAT

P...




Dimensions and tolerances available on request

## USER INFORMATION

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## OPTIONAL VERSION

Subject to MOQ our differential indicators type P... can be supplied in special versions like ATEX or with different connectors.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | |
|---|---|---|---|---|---|
| | | PDS | PDB/PDC | PSDL | PDBL/PDCL |
| RETURN | **FR6** | | **X** | | **X** |
| | **FRM** | | **X** | | **X** |
| | **FRP** | | **X** | | **X** |
| | **FRT** | | **X** | | **X** |
| | **FA1** | | **X** | | **X** |
| | **FA2** | | **X** | | **X** |
| | **FCR7F1X** | | **X** | | **X** |
| | **FCR7F2X** | | **X** | | **X** |
| | **FCR7F3X** | | **X** | | |
| | **FAH** | | **X** | | **X** |
| | **FA5** | | **X** | | **X** |
| SUCTION | **FS1** | **X** | | **X** | |
| | **FS7** | **X** | | **X** | |
| | **FS5** | **X** | | **X** | |
| | **FA1** | **X** | | **X** | |

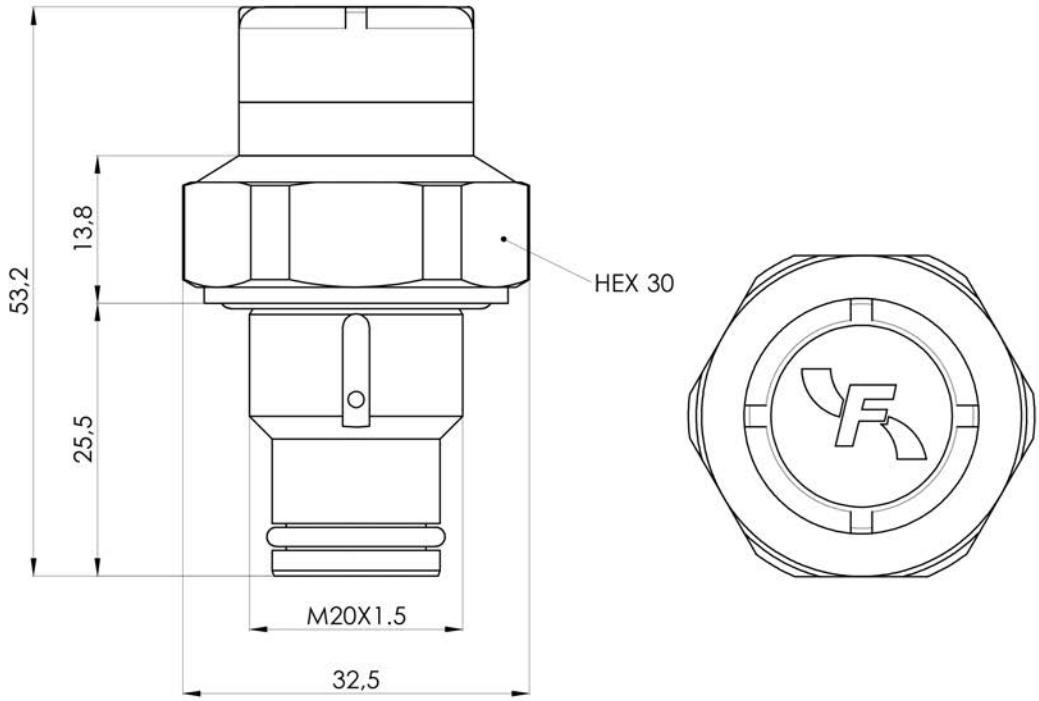
# V SERIES

Visual differential clogging indicators



| | |
|---|---|
| PRESSURE: | Max operating up to 420 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: Brass<br>Cap: PA66<br>Lens: PA12<br>Seal: NBR standard<br>FKM on request |
| SETTINGS ΔP: | 1,3 bar ± 10%<br>2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| DEGREE OF PROTECTION: | IP65 |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

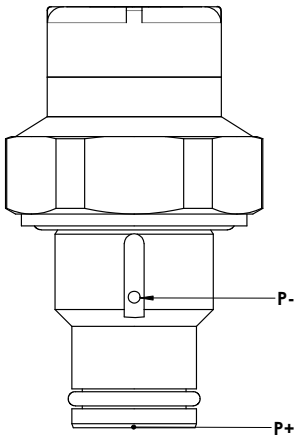


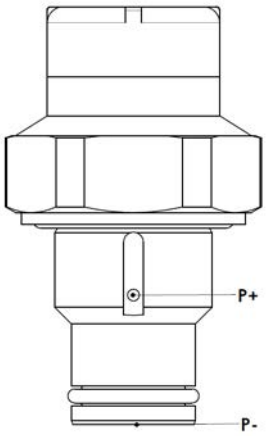

Weight: 107 gr

## MECHANICAL CONDITION

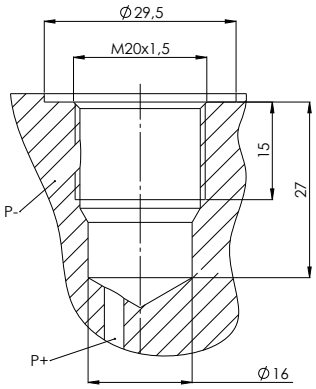
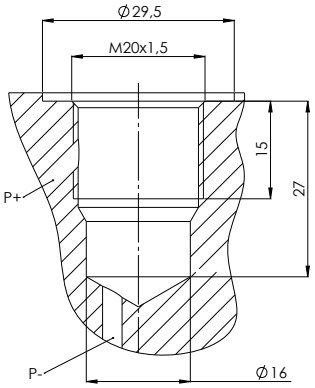
| ΔP CONDITION | VISUAL CONDITION |
|---|---|
| P+ - P- < ΔPset: GREEN |  |
| P+ - P- ≥ ΔPset: RED |  |

## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | SEALS | VIEW | SETTING |
|---|---|---|---|---|
| 04.006.00119<br>04.006.00120 | **V02**<br>**VF2** | NBR<br>FKM |  | 2,7 bar |
| 04.006.00121<br>04.006.00122 | **V05**<br>**VF5** | NBR<br>FKM | | 5,0 bar |
| 04.006.00125<br>04.006.00126 | **V08**<br>**VF8** | NBR<br>FKM | | 8,0 bar |
| 50 / 90 Nm - See hydraulic filter catalogues | | | | |

| ORDER CODE | MODEL | SEALS | VIEW | SETTING |
|---|---|---|---|---|
| 04.006.00666<br>04.006.00667 | **VX1**<br>**VY1** | NBR<br>FKM |  | 1,3 bar |
| 04.006.00518<br>04.006.00519 | **VX2**<br>**VY2** | NBR<br>FKM | | 2,7 bar |
| 04.006.00123<br>04.006.00124 | **VX5**<br>**VY5** | NBR<br>FKM | | 5,0 bar |
| 04.006.00127<br>04.006.00128 | **VX8**<br>**VY8** | NBR<br>FKM | | 8,0 bar |
| 50 / 90 Nm - See hydraulic filter catalogues | | | | |

## INDICATOR SEAT

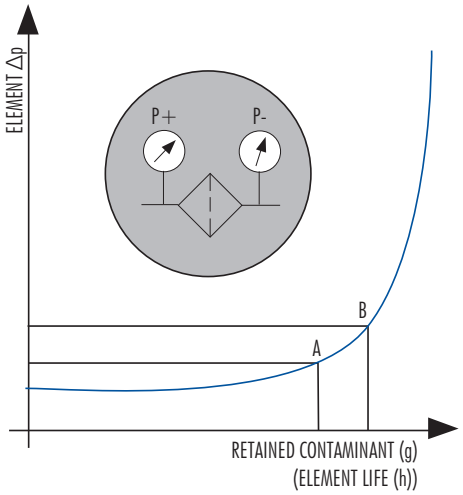
| V0.../VF... | VX.../VY... |
|---|---|
|  |  |



Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## OPTIONAL VERSION

Subject to MOQ our differential indicators type V... can be supplied in special versions with brass cap instead of plastic. **Contact our Customer Service for further information.**

| ORDER CODE | MODEL | SEALS | SETTING |
|---|---|---|---|
| 04.006.00172 | **VB5** | NBR | 5 bar |
| 04.006.00150 | **VB8** | | 8 bar |

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | V02/VF2 | V05/VF5 | V08/VF8 | VX1/VY1 | VX2/VY2 | VX5/VY5 | VX8/VY8 |
| IN LINE HIGH PRESSURE | **F100** | X | X | X | | | | |
| | **F280** | | X | X | | | | |
| | **F420** | | X | X | | | | |
| | **FD3** | | | | | | X | X |
| | **FDM** | | | | | | X | X |
| | **FH100** | X | X | X | | | | |
| | **FH250** | | X | X | | | | |
| | **FH320** | | X | X | | | | |
| | **FH420** | | X | X | | | | |
| | **FML320** | | X | X | | | | |
| IN LINE MEDIUM PRESSURE | **FLR** | | | | X | X | X | X |
| | **FLRD** | | | | X | X | X | X |
| | **F040** | X | X | X | | | | |
| RETURN | **FCR7F2x** | X | | | | | | |
| | **FCR7F3x** | X | | | | | | |
| SPIN-ON | **FAH-A14x** | X | | | | | | |
| | **FA5** | | | | | X | | |
| | **FA4** | | | | | X | | |

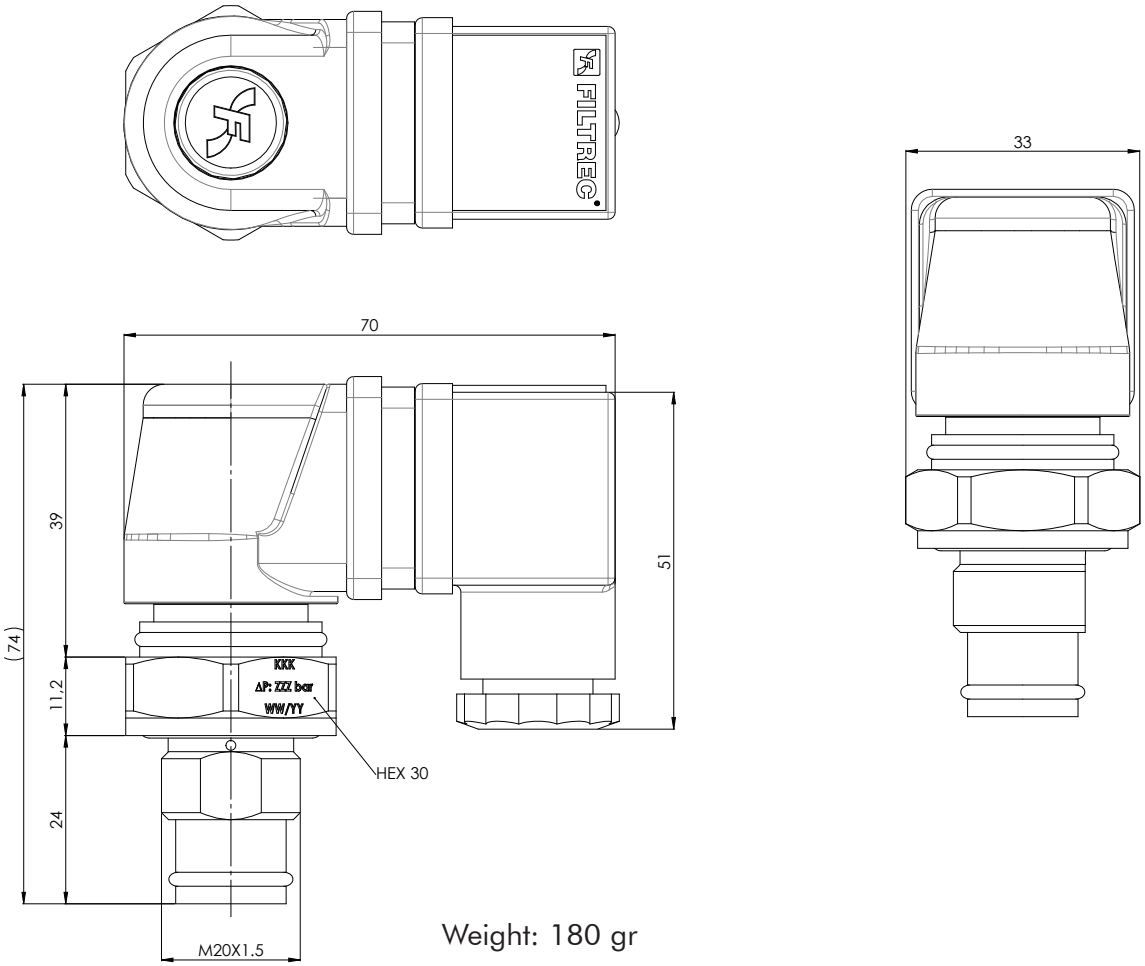
# VE SERIES

Visual and electrical differential clogging indicators



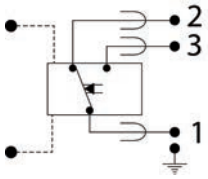
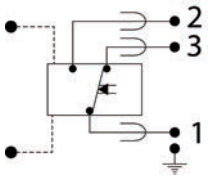

| | |
|---|---|
| PRESSURE: | Max operating up to 420 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: Brass<br>Cover and connector: PA66 + G.F.<br>Seal: FKM |
| SETTINGS ΔP: | 2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| ELECTRICAL SPECS.: | Contact configuration SPDT |
| CONNECTOR TYPE: | according to DIN 43650<br>with cable gland PG09/PG11 |
| DEGREE OF PROTECTION: | IP67 according to EN60529 |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES-HFA HFB-HFC (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

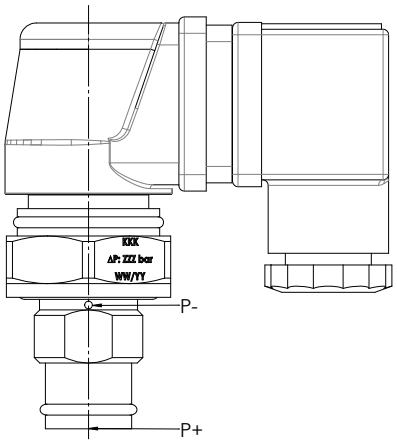



Weight: 180 gr

## MECHANICAL CONDITION

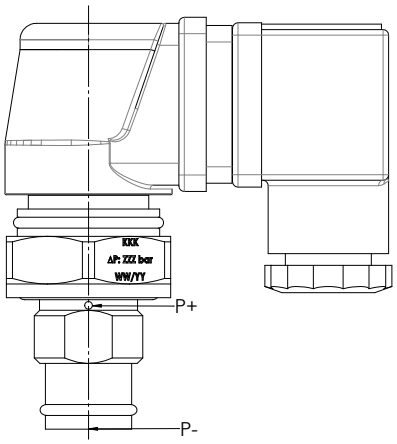
| ΔP CONDITION | VISUAL CONDITION | ELECTRIC SYMBOL |
|---|---|---|
| P+ - P- < ΔPset: GREEN |  |  |
| P+ - P- ≥ ΔPset: RED |  |  |

## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|
| 04.006.00388 | **VEF2** |  | 2,7 bar | • Connector DIN 43650<br>• Max AC voltage: 250Vac<br>• Max current:1A resistive<br>0.3A inductive<br>• Max DC voltage: 24Vdc<br>• Max current: 3A resistive<br>1A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00389 | **VEF5** | | 5,0 bar | |
| 04.006.00390 | **VEF8** | | 8,0 bar | |



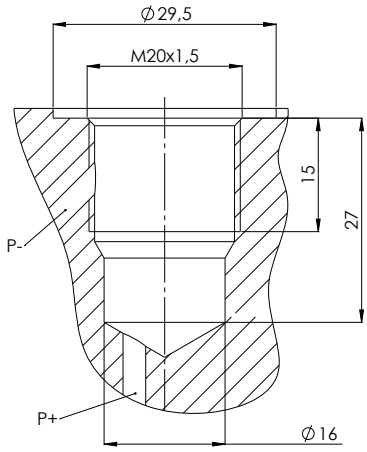
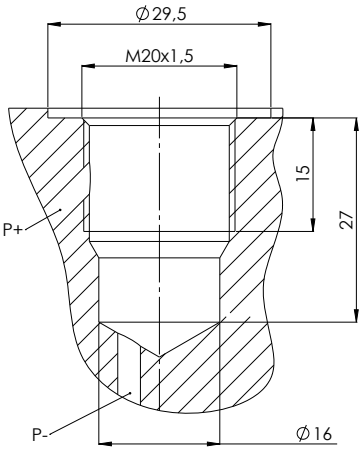
50 / 90 Nm - See hydraulic filter catalogues

| ORDER CODE | MODEL | VIEW | SETTING | ELECTRICAL SPECS. |
|---|---|---|---|---|
| 04.006.00394 | **VEXF2** |  | 2,7 bar | • Connector DIN 43650<br>• Max AC voltage: 250Vac<br>• Max current: 1A resistive<br>0.3A inductive<br>• Max DC voltage: 24Vdc<br>• Max current: 3A resistive<br>1A inductive<br>• Protection: IP67 EN60529 |
| 04.006.00395 | **VEXF5** | | 5,0 bar | |
| 04.006.00396 | **VEXF8** | | 8,0 bar | |



50 / 90 Nm - See hydraulic filter catalogues

## INDICATOR SEAT

| VE | VEX |
|---|---|
|  |  |

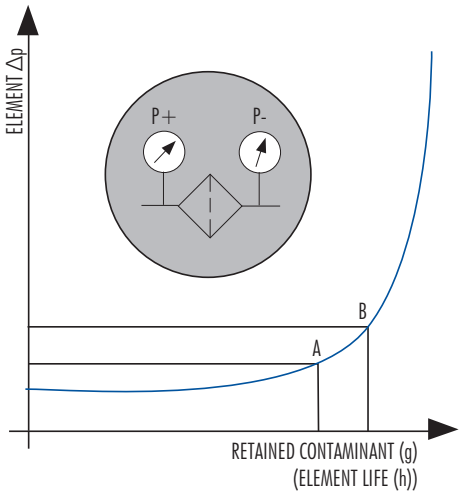




Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## OPTIONAL VERSION

Subject to MOQ our differential indicators type VE... can be supplied in special versions like ATEX or with different connectors.
Contact our Customer Service for further information.

## APPLICATION

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | | |
|---|---|---|---|---|---|---|---|
| | | VEF2 | VEF5 | VEF8 | VEXF2 | VEXF5 | VEXF8 |
| IN LINE HIGH PRESSURE | **F100** | X | X | X | | | |
| | **F280** | | X | X | | | |
| | **F420** | | X | X | | | |
| | **FD3** | | | | | X | X |
| | **FDM** | | | | | X | X |
| | **FH100** | X | X | X | | | |
| | **FH250** | | X | X | | | |
| | **FH320** | | X | X | | | |
| | **FH420-D1** | | X | X | | | |
| | **FML320** | | X | X | | | |
| IN LINE MEDIUM PRESSURE | **FLR** | | | | X | X | X |
| | **FLRD** | | | | X | X | X |
| | **F040** | X | X | X | | | |
| RETURN | **FCR7F2x** | X | | | | | |
| | **FCR7F3x** | X | | | | | |
| SPIN-ON | **FAH-A14x** | X | | | | | |
| | **FA5** | | | | X | | |
| | **FA4** | | | | X | | |

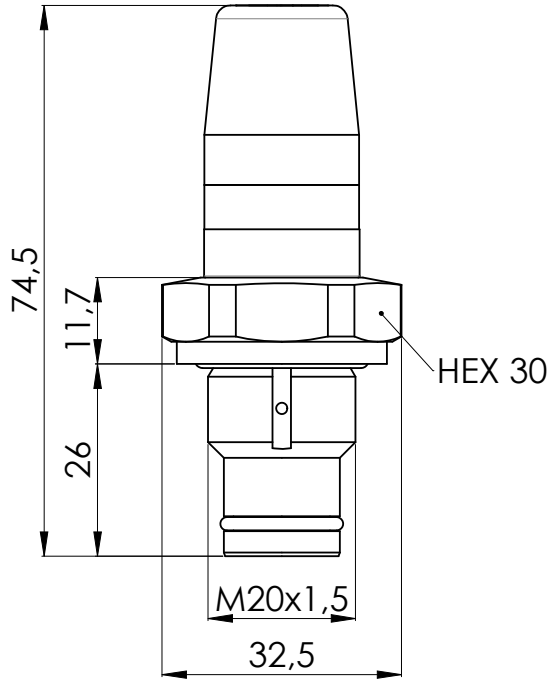
# VS SERIES

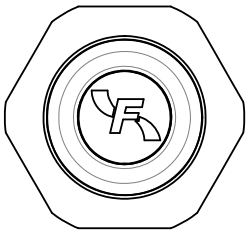
Visual differential clogging indicators in stainless steel



| | |
|---|---|
| PRESSURE: | Max operating up to 700 bar |
| CONNECTION: | M20x1,5 |
| MATERIALS: | Body: AISI 304 - 316L<br>Cap: PA66 + 30% GF<br>Lens: PA12<br>Seal: FKM standard |
| SETTINGS ΔP: | 2,7 bar ± 10%<br>5,0 bar ± 10%<br>8,0 bar ± 10% |
| DEGREE OF PROTECTION: | IP65 |
| OPERATING TEMPERATURE: | -30°C - +80°C |
| FLUID COMPATIBILITY: | Full with HH-HG-HL-HM-HR-HV-HS-HE...-(HFB and HFC water <50%)-HFDU (acc. to ISO 6743/4)<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS



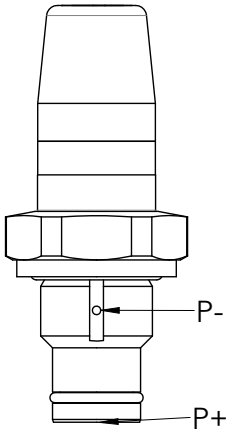



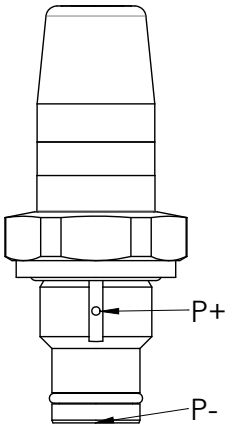
Weight: 124 gr

## MECHANICAL CONDITION

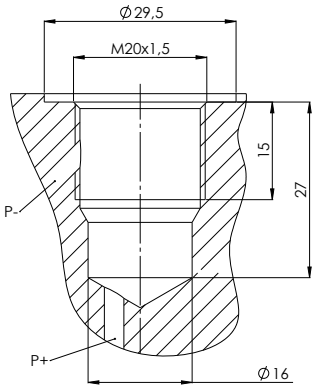
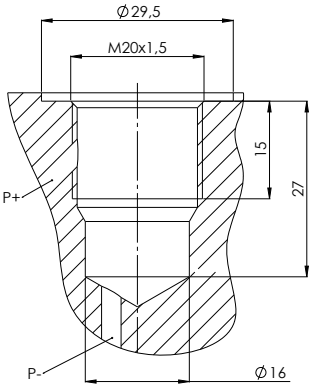
| ΔP CONDITION | VISUAL CONDITION |
|---|---|
| P+ - P- < ΔPset: GREEN |  |
| P+ - P- ≥ ΔPset: RED |  |

## ORDERING INFORMATION / DETAILS

| ORDER CODE | MODEL | BODY MATERIAL | VIEW | SETTING |
|---|---|---|---|---|
| 04.006.00601<br>04.006.00643 | **VSF2**<br>**VSLF2** | AISI 304<br>AISI 316L |  | 2,7 bar |
| 04.006.00602<br>04.006.00644 | **VSF5**<br>**VSLF5** | AISI 304<br>AISI 316L | | 5,0 bar |
| 04.006.00603<br>04.006.00645 | **VSF8**<br>**VSLF8** | AISI 304<br>AISI 316L | | 8,0 bar |
| 50 / 90 / 100 Nm - See hydraulic filter catalogues | | | | |

| ORDER CODE | MODEL | BODY MATERIAL | VIEW | SETTING |
|---|---|---|---|---|
| 04.006.00605<br>04.006.00647 | **VSXF2**<br>**VSLXF2** | AISI 304<br>AISI 316L |  | 2,7 bar |
| 04.006.00606<br>04.006.00648 | **VSXF5**<br>**VSLXF5** | AISI 304<br>AISI 316L | | 5,0 bar |
| 04.006.00607<br>04.006.00649 | **VSXF8**<br>**VSLXF8** | AISI 304<br>AISI 316L | | 8,0 bar |
| 50 / 90 / 100 Nm - See hydraulic filter catalogues | | | | |

## INDICATOR SEAT

| VS... | VSX... |
|---|---|
|  |  |

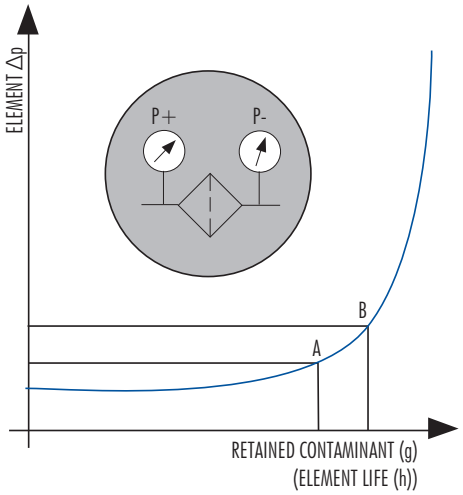




Dimensions and tolerances available on request

## USER INFORMATION

The Differential indicator measures the Δp between upstream and downstream of the filter element, i.e. it is the ideal indicator for the in line applications.




The **Pressure Drop** (Δp = differential pressure) through the filter increases during the system operation due to the contaminant retained by the filter element.
The filter element must be replaced when the indicator shows an alarm and before the Δp reaches the by-pass set value (i.e. the set value A of the clogging indicator must always be lower that the set value B of the by-pass value).

**WARNING**: in **cold start** conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

## INDICATOR SEAT

The following table shows the type of indicator available according to the filter used.

| APPLICATION | FILTER CODE | INDICATOR MODEL | | | | | |
|---|---|---|---|---|---|---|---|
| | | VSF2/VSLF2 | VSF5/VSLF5 | VSF8/VSLF8 | VSXF2/VSLXF2 | VSXF5/VSLXF5 | VSXF8/VSLXF8 |
| IN LINE HIGH PRESSURE | **F100** | X | X | X | | | |
| | **F280** | | X | X | | | |
| | **F420** | | X | X | | | |
| | **FD3** | | | | | X | X |
| | **FDM** | | | | | X | X |
| | **FH100** | X | X | X | | | |
| | **FH250** | | X | X | | | |
| | **FH320** | | X | X | | | |
| | **FH323** | | X | X | | | |
| | **FH324** | | X | X | | | |
| | **FH420** | | X | X | | | |
| | **FH700** | | | | | X | X |
| | **FML320** | | X | X | | | |
| IN LINE MEDIUM PRESSURE | **FLR** | | | | X | X | X |
| | **FLRD** | | | | X | X | X |
| | **F040** | X | X | X | | | |
| RETURN | **FCR7F2x** | X | | | | | |
| | **FCR7F3x** | X | | | | | |
| SPIN-ON | **FAH** | X | | | | | |
| | **FA4** | | | | X | | |
| | **FAP A4** | | | | X | | |
| | **FA5** | | | | X | | |
| | **FAP A5** | | | | X | | |

FILTREC®

# FB1 SERIES

Air breather filters, with replaceable filter element

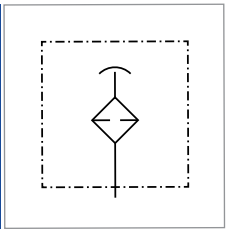




## TECHNICAL SPECFICATION

| | |
|---|---|
| MATERIALS: | Cover: painted steel<br>Connection thread: steel zinc plated |
| FILTER MEDIA: | Cellulose (air filtration 3 $\mu$m) |
| TEMPERATURE RANGE: | -30° C to +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). |

HYDRAULIC SYMBOL



## AIR BREATHER SIZING

Air Breathers play a crucial role as part of a hydraulic system's filtration mechanism. The amount of dust retained by an Air Breather depends on various factors, such as the average air dust concentration and the air flow passing through the breather in Nl/min. The following table illustrates the typical average air dust concentrations found in real-life environments. Notably, these concentrations can vary significantly, thus impacting the service life of the Air Breather.

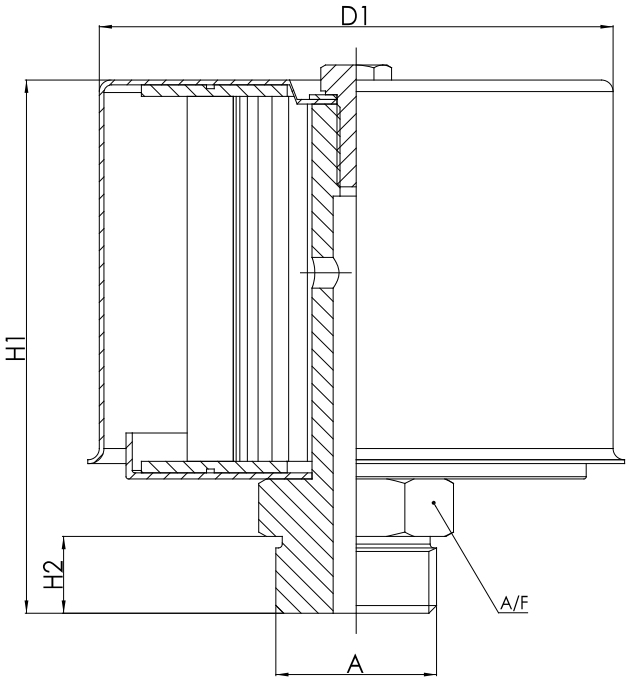
| DUST CONCENTRATION<br>(depends on application and environment) | $K_{op.cond}$ |
|---|---|
| High level | 7÷10 |
| Medium level | 3÷7 |
| Low level | 1÷3 |

Measuring the air flow poses a challenging task. Typically, this parameter can be estimated using the following equation:
$Q_{air\ flow} = K_{op.cond} \times Q$

Here, Q represents the flow rate of the hydraulic pump in l/min, and $K_{op.cond}$ is a multiplicative factor associated with the operating conditions. For instance, in ambient conditions with low dust concentration, $K_{op.cond}$ may range between 1 and 2, while in environments with high dust concentration, it could be in the range of 7 to 10. It is important to note that $K_{op.cond}$ is subject to substantial variability, which, in turn, introduces uncertainty in the service life of the Air Breather.

**Filtrec's Air Breathers serve as a fundamental element in every hydraulic system.**
It is essential to bear in mind that removing particles from a hydraulic system incurs significantly higher costs compared to excluding them in the first place.
Given this undeniable truth, it becomes evident that the advantages of utilizing our high-quality air breathers are substantial.
**We highly recommend replacing the air breather with each service interval** (or, at the very least, annually), matching the frequency of replacing the return fluid filters. Doing so ensures optimal performance and longevity of the hydraulic system.

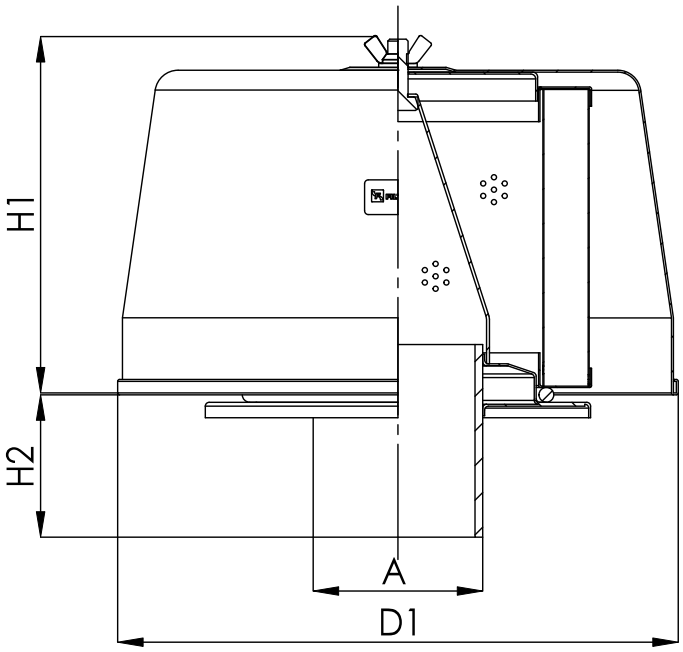
## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | A | D1 | H1 | H2 | A/F | AIR FLOW RATE Nl/min Dp 0,015 barg |
|---|---|---|---|---|---|---|
| FB110 | G 1/4″-3/8″ | 48 | 54 | 9 | 14/19 | 250 |
| FB120 | G 1/2″-3/4″ | 67 | 69 | 10 | 22 | 350 |
| FB130 | G 1″ | 108 | 91 | 15 | 34 | 800 |

## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | A | D1 | H1 | H2 | AIR FLOW RATE Nl/min Dp 0,015 barg |
|---|---|---|---|---|---|
| FB140 | G 1″<br>G 1 1/4″ | 130 | 100 | 40<br>60 | 1200<br>2000 |
| FB141 | G 1 1/2″<br>G 2″ | 130 | 130 | 45<br>60 | 2500<br>3300 |
| FB150 | G 2″ | 172 | 160 | 50 | 5000 |
| FB160 | G 2 1/2″ | 204 | | 60 | 9000 |
| FB170 | G 3″ | 290 | 190 | | 15000 |
| FB180 | G 4″ | 336 | 240 | | 25000 |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. |
|---|---|---|---|
| **FB1** | **10** | **B2** | **C10** |

| | | | |
|---|---|---|---|
| 1. SERIES | FB1 | | |
| 2. FILTER SIZE | 10 | cover Ø48 | |
| | 20 | cover Ø67 | |
| | 30 | cover Ø108 | |
| | 40 | cover Ø130 | |
| | 41 | cover Ø130 | |
| | 50 | cover Ø172 | |
| | 60 | cover Ø204 | |
| | 70 | cover Ø290 | |
| | 80 | cover Ø336 | |
| 3. CONNECTION | B1 | G 1/4" | size 10 |
| | B2 | G 3/8" | |
| | B3 | G 1/2" | size 20 |
| | B4 | G 3/4" | |
| | B5 | G 1" | size 30-40 |
| | B6 | G 1 1/4" | size 40 |
| | B7 | G 1 1/2" | size 41 |
| | B8 | G 2" | size 41-50 |
| | B9 | G 2 1/2" | size 60 |
| | B10 | G 3" | size 70 |
| | B12 | G 4" | size 80 |
| 4. FILTER MEDIA | C10 | cellulose (air filtration 3 $\mu$m) | |

## ORDERING INFORMATION

| 1. | 2. | 3. |
|---|---|---|
| **B1** | **10** | **C10** |

| | | |
|---|---|---|
| 1. SERIES | FB1 | |
| 2. FILTER SIZE | 10 | cover Ø48 |
| | 20 | cover Ø67 |
| | 30 | cover Ø108 |
| | 40 | cover Ø130 |
| | 41 | cover Ø130 |
| | 50 | cover Ø172 |
| | 60 | cover Ø204 |
| | 70 | cover Ø290 |
| | 80 | cover Ø336 |
| 3. FILTER MEDIA | C10 | cellulose (air filtration 3 $\mu$m) |

## USER TIPS for size 10-20-30




1 SCREWS
2 WASHER
3 COVER
4 FILTER ELEMENT
5 MALE THREAD

## 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 air breather filters are mounted on the tank in a threaded seat (no burrs, sharped edges or dirt is admitted on the seat).
2. Add some lubricant on the male thread (5) and tighten until stop.
3. Refer to the tank manufacturer specifications for tighten torque.

## MAINTENANCE

⚠
1. Before removing the top cover (3) from the hou sing, ensure that the system is switched off and there is no residual pressure in the system.
2. Unscrew the upper screw (1).
3. Remove the screw (1) and the washer (2).
4. Remove the cover (3).
5. Remove the clogged filter element (4).
6. Insert the new filter element.
7. Place the cover (3).
8. Fit the washer (2) and the screw (1) in the seat, applying a tightening torque of approx. 5Nm.

## USER TIPS for size 40-41-50-60-70-80




1 LOCK NUT
2 WASHER
3 SCREW
4 COVER
5 O-RING
6 FILTER ELEMENT
7 MALE THREAD

## 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 air breather filters are mounted on the tank in a threaded seat (no burrs, sharped edges or dirt is admitted on the seat).
2. Add some lubricant on the male thread (7) and tighten until stop.
3. Refer to the tank manufacturer specifications for tighten torque.

## MAINTENANCE

⚠
1. Before removing the top cover (4) from the hou sing, ensure that the system is switched off and there is no residual pressure in the system.
2. Unscrew the lock nut (1).
3. Remove the lock nut (1) and the washer (2).
4. Remove the screw (3) and the cover (4).
5. Remove the clogged filter element (6).
6. Check the O-rings (5) and replace them if necessary.
7. Insert the new filter element.
8. Place the cover (4).
9. Fit the lock nut (1), washer (2) and the screw (3) in the seat, tightening by hand (approx. 5Nm).

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# FB2 SERIES

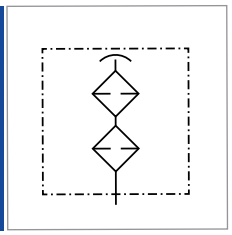
Air filters and filler breathers, with replaceable filter element



## TECHNICAL SPECFICATION

| | |
|---|---|
| MATERIALS: | Housing: polyammide PA6+GF<br>Basket : polyammide PA6+GF<br>Gaskets : NBR |
| FILTER MEDIA: | Cellulose (air filtration 3$\mu$m)<br>Glassfiber (air filtration 1$\mu$m) |
| TEMPERATURE RANGE: | -30°C to +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact<br>Filtrec Customer Service (info@filtrec.it). |

HYDRAULIC SYMBOL



## AIR BREATHER SIZING

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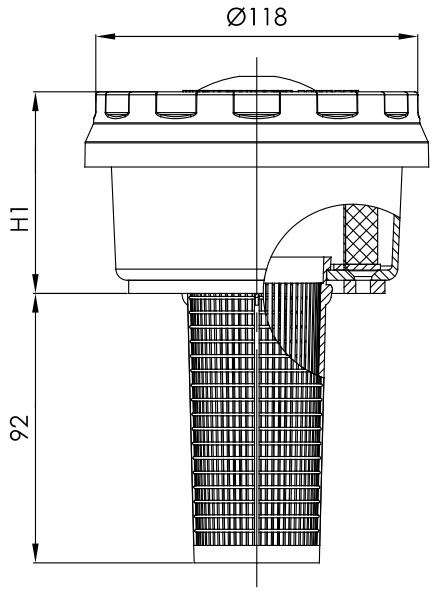
| DUST CONCENTRATION<br>(depends on application and environment) | $K_{op.cond}$ |
|---|---|
| High level | 7÷10 |
| Medium level | 3÷7 |
| Low level | 1÷3 |

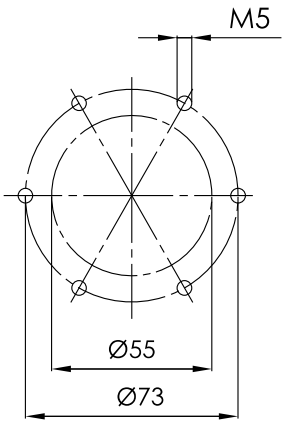
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Here, Q represents the flow rate of the hydraulic pump in l/min, and $K_{op.cond}$ is a multiplicative factor associated with the operating conditions. For instance, in ambient conditions with low dust concentration, $K_{op.cond}$ may range between 1 and 2, while in environments with high dust concentration, it could be in the range of 7 to 10. It is important to note that $K_{op.cond}$ is subject to substantial variability, which, in turn, introduces uncertainty in the service life of the Air Breather.

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It is essential to bear in mind that removing particles from a hydraulic system incurs significantly higher costs compared to excluding them in the first place.
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**We highly recommend replacing the air breather with each service interval** (or, at the very least, annually), matching the frequency of replacing the return fluid filters. Doing so ensures optimal performance and longevity of the hydraulic system.

## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | H1 | AIR FLOW RATE Nl/min Dp 0,015 barg | |
|---|---|---|---|
| | | C10 | G10 |
| FB250 | 46 | 1200 | 1400 |
| FB251 | 74 | 1600 | 1800 |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| **FB2** | **50** | **D2** | **C10** | **000** |

| | | |
|---|---|---|
| 1. SERIES | FB2 | |
| 2. FILTER SIZE | 50 | lenght 1 |
| | 51 | lenght 2 |
| 3. MOUNTING TYPE | D2 | flange, DIN 24557/2 |
| 4. FILTER MEDIA | 000 | without element |
| | C10 | cellulose (air filtration 3 $\mu$m) |
| | G10 | glassfiber (air filtration 1$\mu$m) |
| 5. OPTIONS | 000 | no option |

## ACCESSORIES

The accessories must be ordered separately

| | |
|---|---|
| 06.016.00283 | SG515 Antisplash device |
| 06.016.00548 | BS125 Spacer support |



ANTISPLASH DEVICE
SG515



SPACER SUPPORT
BS125

When the oil tank can be subjected to strong shocks or oscillations, the optional antisplash device (SG515) and the spacer support (BS125) prevents oil splashes from escaping and wetting the filter element.

## SPARE ELEMENT

| 1. | 2. | 3. |
|---|---|---|
| **B2** | **50** | **C10** |

| | | |
|---|---|---|
| 1. SERIES | B2 | |
| 2. FILTER SIZE | 50 | lenght 1 |
| | 51 | lenght 2 |
| 4. FILTER MEDIA | C10 | cellulose (air filtration 3 $\mu$m) |
| | G10 | glassfiber (air filtration 1$\mu$m) |

## USER TIPS




1. COVER
2. FILTER ELEMENT
3. BASKET
4. SCREWS
5. LOWER BODY
6. GASKET
7. ANTISPLASH

## 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. Unscrew the cover (1).
2. Remove the filter element (2).
3. Insert the basket (3) in the lower body (5).
4. Place the gasket (6) on the tank; pay attention to keep the holes aligned.
5. Place the lower body (5) with the basket (3) on the gasket (6); pay attention to keep the holes aligned.
6. Attach the lower body (5) on the tank with the six screws. Screw until contact between screws and housing, then tighten for 2 more turns.
7. Fill the tank up to the set level.
8. Clean the lower body (5) from oil waste.
9. If the antisplash device (7) is provided, fit it in the basket (3). Antisplash orientation depends from the size (see image).
10. Fit the filter element (2) in the lower body (5).
11. Tighten the cover (1) on the lower body (5) applying 1/4 turn after the contact between the filter element (2) and the cover (1).

## MAINTENANCE

⚠
1. Before removing the cover (1) from the lower body (5), ensure that the system is switched off and there is no residual pressure in the filter.
2. Unscrew the cover (1).
3. Clean the lower body (5) from oil waste.
4. Fit the new filter element (2) in the lower body (5).
5. Tighten the cover (1) on the lower body (5) applying 1/4 turn after the contact between the filter element (2) and the cover (1).

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# FT2 SERIES

Air breather filters

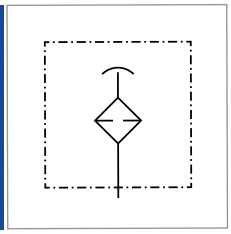


These air breather filters, manually tightened, are suggested for applications on hydraulic power unit or tanks subjected to rapid volume changes, where high air flows are involved.

## TECHNICAL SPECIFICATION

| | |
|---|---|
| MATERIALS: | Cover: polyammide PA6+GF<br>Threaded connection: polyammide PA6+GF<br>Gasket: NBR |
| FILTER MEDIA: | Cellulose (air filtration 3µm)<br>Glassfiber (air filtration 1µm) – on request |
| TEMPERATURE RANGE: | -30°C to +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

HYDRAULIC SYMBOL



## AIR BREATHER SIZING

Air Breathers play a crucial role as part of a hydraulic system's filtration mechanism. The amount of dust retained by an Air Breather depends on various factors, such as the average air dust concentration and the air flow passing through the breather in Nl/min. The following table illustrates the typical average air dust concentrations found in real-life environments. Notably, these concentrations can vary significantly, thus impacting the service life of the Air Breather.

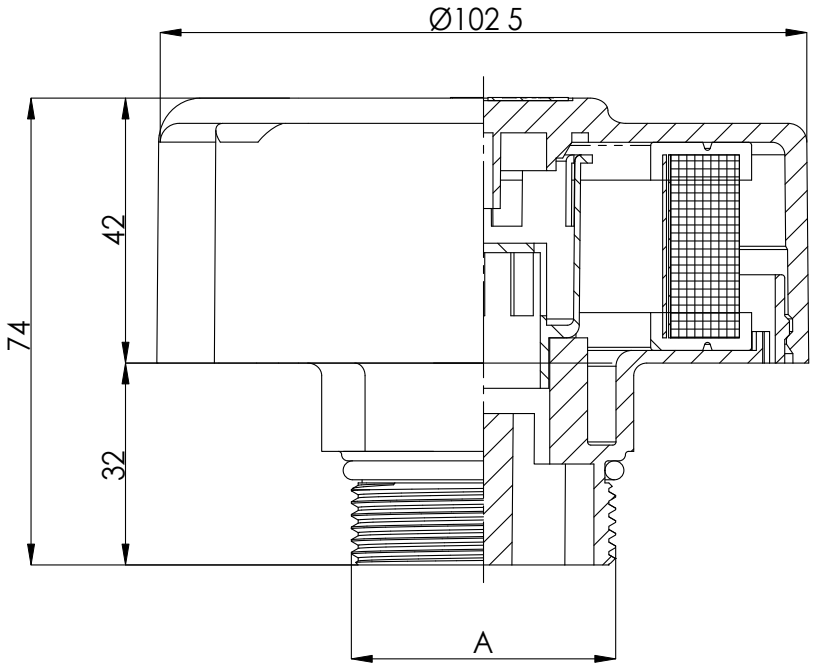
| DUST CONCENTRATION<br>(depends on application and environment) | $K_{op.cond}$ |
|---|---|
| High level | 7÷10 |
| Medium level | 3÷7 |
| Low level | 1÷3 |

Measuring the air flow poses a challenging task. Typically, this parameter can be estimated using the following equation:
$Q_{air\ flow} = K_{op.cond} \times Q$

Here, Q represents the flow rate of the hydraulic pump in l/min, and $K_{op.cond}$ is a multiplicative factor associated with the operating conditions. For instance, in ambient conditions with low dust concentration, $K_{op.cond}$ may range between 1 and 2, while in environments with high dust concentration, it could be in the range of 7 to 10. It is important to note that $K_{op.cond}$ is subject to substantial variability, which, in turn, introduces uncertainty in the service life of the Air Breather.

**Filtrec's Air Breathers serve as a fundamental element in every hydraulic system.**
It is essential to bear in mind that removing particles from a hydraulic system incurs significantly higher costs compared to excluding them in the first place.
Given this undeniable truth, it becomes evident that the advantages of utilizing our high-quality air breathers are substantial.
**We highly recommend replacing the air breather with each service interval** (or, at the very least, annually), matching the frequency of replacing the return fluid filters. Doing so ensures optimal performance and longevity of the hydraulic system.

## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | A | AIR FLOW RATE Nl/min Dp 0,015 barg |
|---|---|---|
| FT2…M42 | M42x2 | 1200 |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|
| **FT** | **2** | **C10** | **M42** | **0** | **SG** |

| | | |
|---|---|---|
| 1. SERIES | FT | |
| 2. FILTER SIZE | 2 | cover Ø102,5 |
| 3. MEDIA | C10 | cellulose (air filtration 3 $\mu$m) |
| | G10 | glassfiber (air filtration 1 $\mu$m) – on request |
| 4. CONECTIONS | M42 | M42x2 |
| 5. PRESSURIZATION VALVE | 0 | no valve |
| 6. OPTIONS | SG | antisplash device |

## USER TIPS




1 MALE THREAD

## 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 air breather filters are mounted on the tank in a threaded seat (no burrs, sharped edges or dirt is admitted on the seat).
2. Add some lubricant on the male thread (1) and tighten until stop.
3. Refer to the tank manufacturer specifications for tighten torque.

## MAINTENANCE

⚠
1. Before removing the FT2 air breather filter from the housing, ensure that the system is switched off and there is no residual pressure in the system
2. Remove the complete air breather filter
3. Fit a new air breather filter

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CT138-rev.05/25

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# FA3 SERIES

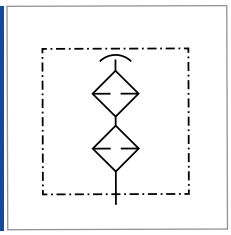
Flange mounted with spin-on element




## TECHNICAL SPECFICATION

| | |
|---|---|
| MATERIALS: | Canister: painted steel<br>Flange and basket: zinc plated steel<br>Gasket: NBR |
| FILTER MEDIA: | Cellulose (air filtration 3µm)<br>Glassfiber (air filtration 1µm) |
| TEMPERATURE RANGE: | -30°C to +100°C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact<br>Filtrec Customer Service (info@filtrec.it). |

HYDRAULIC SYMBOL



## AIR BREATHER SIZING

Air Breathers play a crucial role as part of a hydraulic system's filtration mechanism. The amount of dust retained by an Air Breather depends on various factors, such as the average air dust concentration and the air flow passing through the breather in Nl/min. The following table illustrates the typical average air dust concentrations found in real-life environments. Notably, these concentrations can vary significantly, thus impacting the service life of the Air Breather.

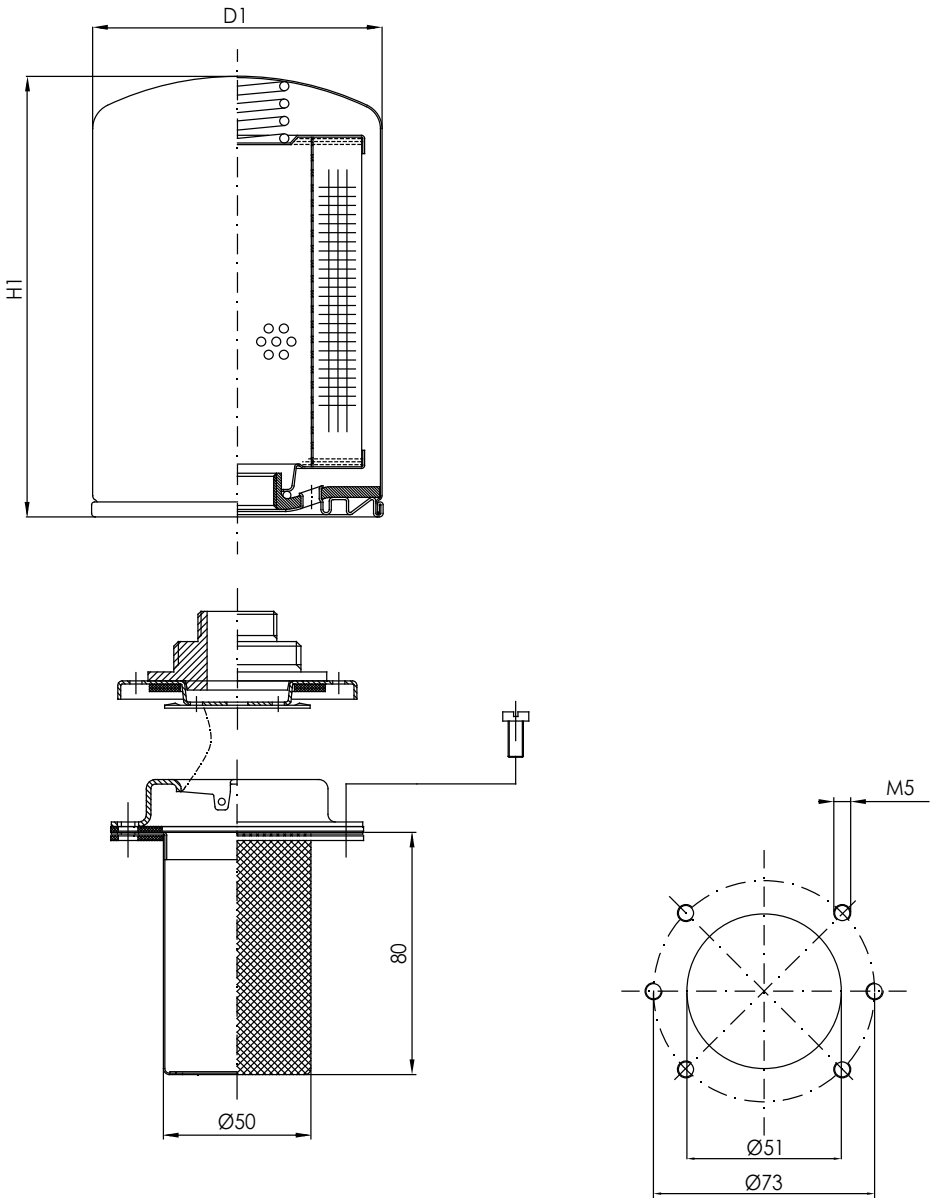
| DUST CONCENTRATION<br>(depends on application and environment) | $K_{op.cond}$ |
|---|---|
| High level | 7÷10 |
| Medium level | 3÷7 |
| Low level | 1÷3 |

Measuring the air flow poses a challenging task. Typically, this parameter can be estimated using the following equation:
$Q_{air\ flow} = K_{op.cond} \times Q$

Here, Q represents the flow rate of the hydraulic pump in l/min, and $K_{op.cond}$ is a multiplicative factor associated with the operating conditions. For instance, in ambient conditions with low dust concentration, $K_{op.cond}$ may range between 1 and 2, while in environments with high dust concentration, it could be in the range of 7 to 10. It is important to note that $K_{op.cond}$ is subject to substantial variability, which, in turn, introduces uncertainty in the service life of the Air Breather.

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Given this undeniable truth, it becomes evident that the advantages of utilizing our high-quality air breathers are substantial.
**We highly recommend replacing the air breather with each service interval** (or, at the very least, annually), matching the frequency of replacing the return fluid filters. Doing so ensures optimal performance and longevity of the hydraulic system.

## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | D1 | H1 | G | AIR FLOW RATE Nl/min Dp 0,015 barg | | SPIN-ON ELEMENT |
|---|---|---|---|---|---|---|
| | | | | C03 | G01 | |
| FA310 | 96 | 145 | G 3/4" | 550 | 530 | A310 |
| FA311 | | 213 | | | | A311 |
| FA320 | 129 | 180 | G 1 1/4" | 1415 | 1330 | A320 |
| FA321 | | 228 | | | | A321 |

## ORDERING INFORMATION

| | 1. | 2. | 3. |
|---|---|---|---|
| | **FA3** | **10** | **C03** |
| SPARE ELEMENT | **A3** | **10** | **C03** |

| | | |
|---|---|---|
| 1. SERIES | FA3 | |
| 2. FILTER SIZE | 10-11 | base assembly, with spin-on |
| | 20-21 | |
| 3. FILTER MEDIA | C03 | cellulose (air filtration 3 $\mu$m) |
| | G01 | glassfiber (air filtration 1 $\mu$m) |

## ORDERING INFORMATION without spin-on

| 1. | 2. |
|---|---|
| **FA3** | **WE** |

| | | |
|---|---|---|
| 1. SERIES | FA3 | |
| 2. FILTER SIZE | WE | base assembly, without spin-on |

## ACCESSORIES

The accessories must be ordered separately

| | |
|---|---|
| 06.016.00548 | BS125 Spacer support |



**SPACER SUPPORT BS125**

When the oil tank can be subjected to strong shocks or oscillations, the optional spacer support (BS125) prevents oil splashes from escaping and wetting the filter element.

## USER TIPS




1. SPIN-ON
2. SCREWS
3. FLANGE
4. GASKET
5. BASKET
6. GASKET

## 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 air breather filters are mounted on the tank in a threaded seat (no burrs, sharped edges or dirt is admitted on the seat).
2. Put the first gasket (6) on the tank keeping the holes aligned.
3. Insert the basket (5) in the tank hole keeping the holes aligned.
4. Put the second gasket (4) between the basket and the flange (3).
5. Place the flange (3) on the second gasket kee ping the holes aligned.
6. Secure the components to the tank with the screws (2).
7. Screw the spin-on (1) on the flange male thread (3) until it is locked.

## MAINTENANCE

⚠
1. Before removing the spin-on (1), ensure that the system is switched off and there is no residual pressure in the system.
2. Unscrew the spin-on (1).
3. Screw the new spin-on following installation instruction.

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CT125-rev.04/24

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# FT5 & FT8 SERIES

Filler breathers with flange or welding mounting

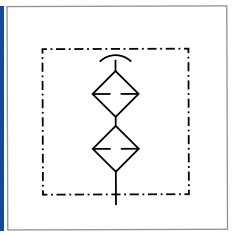
These filler breathers, manually tightened on the tank, are suggested for prevent from the solid contamination contained in the air applications and during the loading and the emptying of the tank.



## TECHNICAL SPECFICATION

| | |
|---|---|
| MATERIALS: | Cover: chrome plated steel<br>Basket: zinc plated steel<br>Flange: zinc plated steel<br>Gaskets: NBR |
| FILTER MEDIA: | Polyurethane (air filtration 3 $\mu$m e 10 $\mu$m) |
| PRESSURIZATION VALVE: | 0.35 or 0.75 bar (for FT8 only) |
| TEMPERATURE RANGE: | -30° C to +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). |

HYDRAULIC SYMBOL



## AIR BREATHER SIZING

Air Breathers play a crucial role as part of a hydraulic system's filtration mechanism. The amount of dust retained by an Air Breather depends on various factors, such as the average air dust concentration and the air flow passing through the breather in Nl/min. The following table illustrates the typical average air dust concentrations found in real-life environments. Notably, these concentrations can vary significantly, thus impacting the service life of the Air Breather.

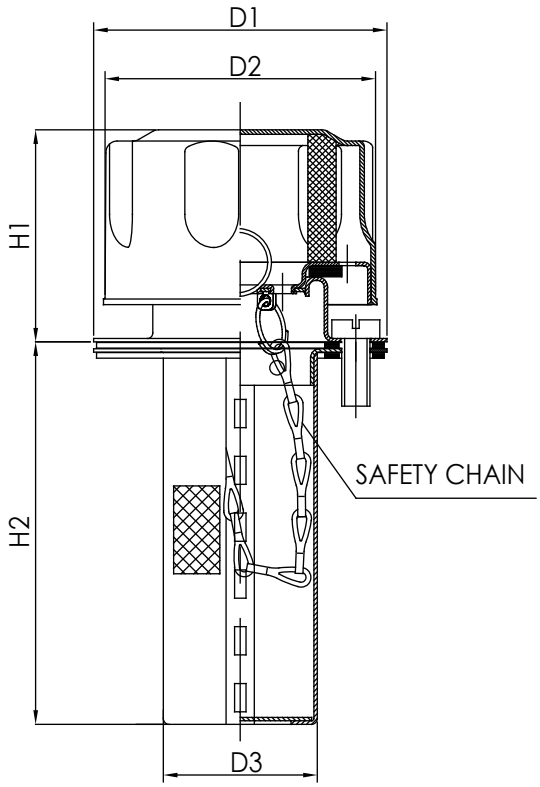
| DUST CONCENTRATION<br>(depends on application and environment) | $K_{op.cond}$ |
|---|---|
| High level | 7÷10 |
| Medium level | 3÷7 |
| Low level | 1÷3 |

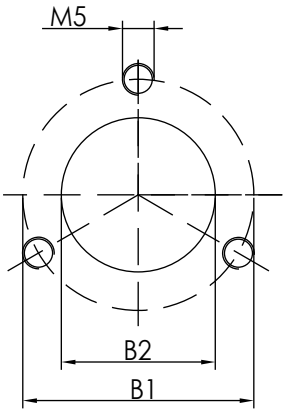
Measuring the air flow poses a challenging task. Typically, this parameter can be estimated using the following equation:
$Q_{air\ flow} = K_{op.cond} \times Q$

Here, Q represents the flow rate of the hydraulic pump in l/min, and $K_{op.cond}$ is a multiplicative factor associated with the operating conditions. For instance, in ambient conditions with low dust concentration, $K_{op.cond}$ may range between 1 and 2, while in environments with high dust concentration, it could be in the range of 7 to 10. It is important to note that $K_{op.cond}$ is subject to substantial variability, which, in turn, introduces uncertainty in the service life of the Air Breather.

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## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | B1 | B2 | H1 | H2 | D1 | D2 | D3 | AIR FLOW RATE Nl/min Dp 0,015 barg | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | F03 | F10 |
| FT5 | 41 | 31 | 37 | 67 | 52 | 48 | 27,5 | 200 | 250 |

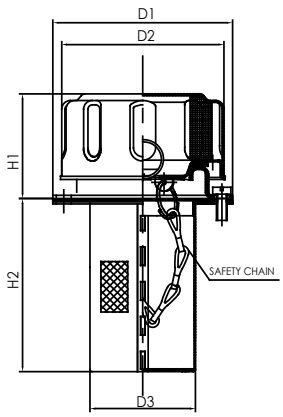
## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|
| **FT** | **5** | **F03** | **B** | **0** | **0** |

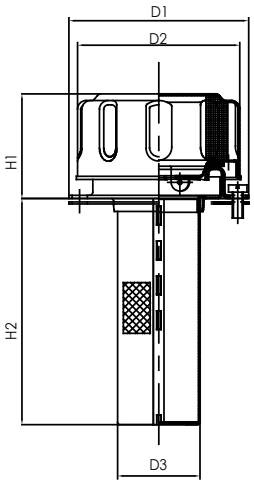
| | | |
|---|---|---|
| 1. SERIES | FT | |
| 2. FILTER SIZE | 5 | cover Ø48 |
| 3. FILTER MEDIA | F03 | polyurethane (air filtration 3 $\mu$m) |
| | F10 | polyurethane (air filtration 10 $\mu$m) |
| 4. GASKETS | B | NBR |
| 5. PRESSURIZATION VALVE | 0 | no valve |
| 6. PADLOCK HOLDER | 0 | without padlock holder |

## OVERALL DIMENSIONS FT8

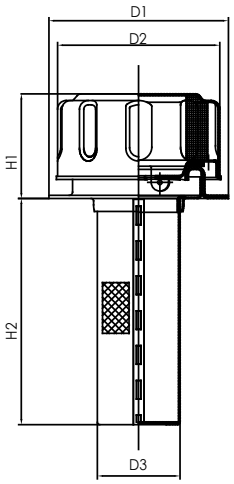
FT8 S08 - FT8 S15



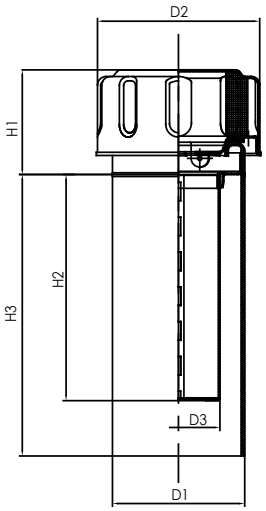

FT8 S10

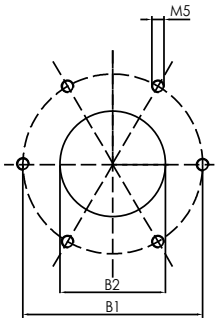



FT8 W10

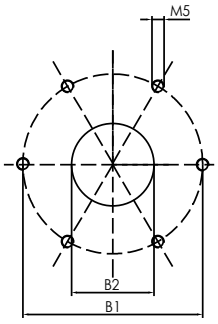



FT8 T13

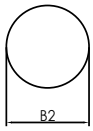


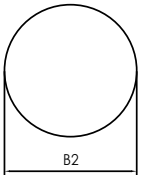

**TANK MOUNTING PATTERN**
(DIN 24557/2)




**TANK MOUNTING PATTERN**
(DIN 24557/2)




**HOLE ON THE TANK**




**HOLE ON THE TANK**

## NOMINAL SIZE

| CODE | B1 | B2 | H1 | H2 | D1 | D2 | D3 | AIR FLOW RATE Nl/min Dp 0,015 barg | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | F03 | F10 |
| FT8 S8 | 71 ÷73 | 52 | 50 | 80 | 83 | 75 | 50 | 450 | 550 |
| FT8 S15 | | | | 150 | | | | | |
| FT8 S10 | | 40 | | 105 | | | 38 | | |

| CODE | B1 | B2 | H1 | H2 | D1 | D2 | D3 | AIR FLOW RATE Nl/min Dp 0,015 barg | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | F03 | F10 |
| FT8 W10 | 40 | 50 | 105 | - | 83 | 75 | 38 | 200 | 250 |
| FT8 T13 | 62 | | | 130 | 60 | | | 450 | 550 |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|---|---|---|---|---|---|---|
| **FT** | **8** | **F03** | **B** | **S08** | **0** | **L** |

| | | |
|---|---|---|
| 1. SERIES | FT | |
| 2. FILTER SIZE | 8 | cover Ø75 |
| 3. FILTER MEDIA | F03 | polyurethane (air filtration 3 $\mu$m) |
| | F10 | polyurethane (air filtration 10 $\mu$m) |
| 4. GASKETS | B | NBR |
| 5. MOUNTING TYPE | S08 | flange, basket h = 80 mm |
| | S15 | flange, basket h = 150 mm |
| | S10 | flange, removable basket |
| | W10 | welding flange |
| | T13 | with antisplash tube |
| 6. PRESSURIZATION VALVE | 0 | no pressurizzation valve |
| | 1 | 0,35 bar |
| | 2 | 0,75 bar |
| 7. PADLOCK HOLDER | 0 | without padlock holder |
| | L | with padlock holder |

## ACCESSORIES

The accessories must be ordered separately

| | |
|---|---|
| 06.016.00548 | BS125 Spacer support |



**SPACER SUPPORT BS125**

When the oil tank can be subjected to strong shocks or oscillations, the optional spacer support (BS125) prevents oil splashes from escaping and wetting the filter element.

## USER TIPS




1. CAP
2. SCREWS
3. FLANGE
4. GASKET
5. BASKET

## 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. Place the gasket (4) between the flange (3) and the tank.
2. Connect gasket and fixing flange to the tank using the screws (2).
3. Fit the basket (5) and screw the cap (1) until it is locked.

## MAINTENANCE

⚠
1. Before removing the filler breather, ensure that the system is switched off and there is no residual pressure in the system.
2. Remove the filler breather.
3. Fit the new filler breather following installation instruction.

## USER TIPS




1. CAP
2. FLANGE
3. BASKET

## 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. Align the flange (2) with the hole on tank, paying attention to the axial alignment.
2. Weld the flange (2) to the tank.
3. Fit the basket (3) and screw the cap (1) until it is locked.

## MAINTENANCE

⚠
1. Before removing the filler breather, ensure that the system is switched off and there is no residual pressure in the system.
2. Remove the filler breather.
3. Fit the new filler breather following installation instruction.

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# FT6 & FT7 SERIES

Air breather filters

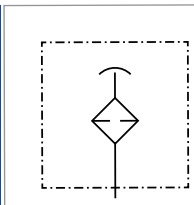
These air breather filters, manually tightened, are suggested for applications on hydraulic power unit or tanks subjected to rapid volume changes, where high air flows are involved.



## TECHNICAL SPECFICATION

| | |
|---|---|
| MATERIALS: | Cover: chrome plated steel<br>Threaded connection: zinc plated steel |
| FILTER MEDIA: | Polyurethane (air filtration 3 $\mu$m e 10 $\mu$m) |
| PRESSURIZATION VALVE: | 0.35 or 0.75 bar (for FT7 only) |
| TEMPERATURE RANGE: | -30° C to +100° C |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact<br>Filtrec Customer Service (info@filtrec.it). |

HYDRAULIC SYMBOL



## AIR BREATHER SIZING

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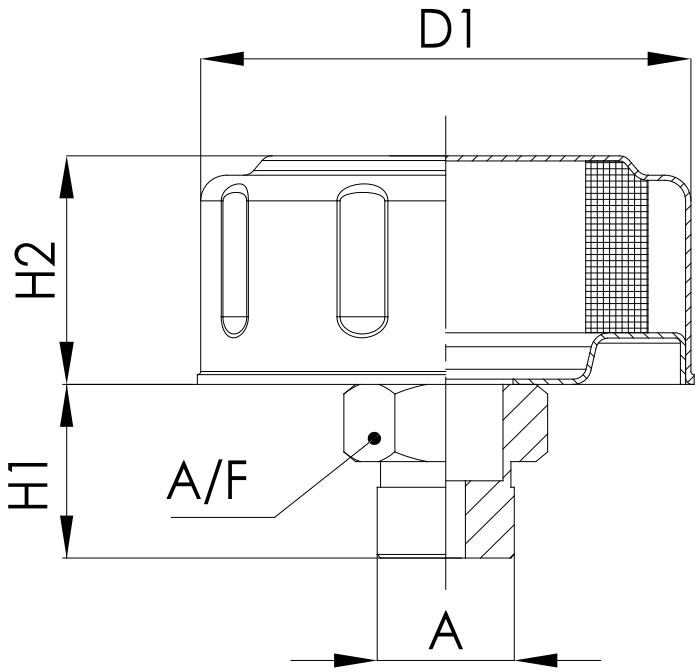
| DUST CONCENTRATION<br>(depends on application and environment) | $K_{op.cond}$ |
|---|---|
| High level | 7÷10 |
| Medium level | 3÷7 |
| Low level | 1÷3 |

Measuring the air flow poses a challenging task. Typically, this parameter can be estimated using the following equation:
$Q_{air\ flow} = K_{op.cond} \times Q$

Here, Q represents the flow rate of the hydraulic pump in l/min, and $K_{op.cond}$ is a multiplicative factor associated with the operating conditions. For instance, in ambient conditions with low dust concentration, $K_{op.cond}$ may range between 1 and 2, while in environments with high dust concentration, it could be in the range of 7 to 10. It is important to note that $K_{op.cond}$ is subject to substantial variability, which, in turn, introduces uncertainty in the service life of the Air Breather.

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## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | A | H1 | H2 | D1 | A/F | AIR FLOW RATE Nl/min Dp 0,015 barg | |
|---|---|---|---|---|---|---|---|
| | | | | | | F03 | F10 |
| FT6...B1 | G 1/4" | 27 | 31 | 48 | 22 | 200 | 250 |
| FT6...B2 | G 3/8" | | | | | | |
| FT6...B3 | G 1/2" | | | | 24 | | |
| FT7...B3 | G 1/2" | | 35,5 | 75 | 27 | 450 | 550 |
| FT7...B4 | G 3/4" | | | | 32 | | |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| **FT** | **7** | **F03** | **B4** | **1** |

| | | | |
|---|---|---|---|
| 1. SERIES | FT | | |
| 2. FILTER SIZE | 6 | cover Ø48 | |
| | 7 | cover Ø75 | |
| 3. FILTER MEDIA | F03 | polyurethane (air filtration 3 $\mu$m) | |
| | F10 | polyurethane (air filtration 10 $\mu$m) | |
| 4. CONNECTIONS | B1 | G 1/4" | FT6 |
| | B2 | G 3/8" | |
| | B3 | G 1/2" | FT6 - FT7 |
| | B4 | G 3/4" | |
| 5. PRESSURIZATION VALVE | 0 | no valve | |
| | 1 | 0,35 bar | FT7 only |
| | 2 | 0,75 bar | |

## USER TIPS

1 MALE THREAD




## 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 air breather filters are mounted on the tank in a threaded seat (no burrs, sharped edges or dirt is admitted on the seat).
2. Add some lubricant on the male thread (1) and tighten until stop.
3. Refer to the tank manufacturer specifications for tighten torque.

## MAINTENANCE

⚠
1. Before removing the filler breather, ensure that the system is switched off and there is no residual pressure in the system.
2. Remove the filler breather.
3. Fit the new filler breather following installation instruction.

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Technical information may change without notice

CT124-rev.11/24

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# FBM SERIES

Pressurized air breather filters, with replaceable filter element

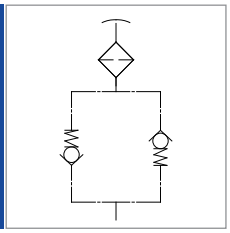
This product is suggested in all the applications demanding a precise fluid pressure management during the loading and the emptying of the tank.
Additionally, this product acts as an anti-splash measure minimizing the risk of spills, provided that the hydrostatic pressure remains within safe limits.



## TECHNICAL SPECFICATION

| | | |
|---|---|---|
| MATERIALS: | Breather body: | Aluminum with anodic oxidation |
| | Breather cover: | Zinc plated steel |
| | Gaskets: | NBR |
| FILTER MEDIA: | Polyester (air filtration 10 $\mu$m) on request<br>Cellulose (air filtration 3$\mu$m)<br>Glassfiber (air filtration 1$\mu$m) | |
| PRESSURIZATION VALVE: | 0,35 preferred option<br>0,50 or 0,75 bar on request | |
| TEMPERATURE RANGE: | -30° C to +100° C | |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact<br>Filtrec Customer Service (info@filtrec.it). | |

HYDRAULIC SYMBOL



## AIR BREATHER SIZING

Air Breathers play a crucial role as part of a hydraulic system's filtration mechanism. The amount of dust retained by an Air Breather depends on various factors, such as the average air dust concentration and the air flow passing through the breather in Nl/min. The following table illustrates the typical average air dust concentrations found in real-life environments. Notably, these concentrations can vary significantly, thus impacting the service life of the Air Breather.

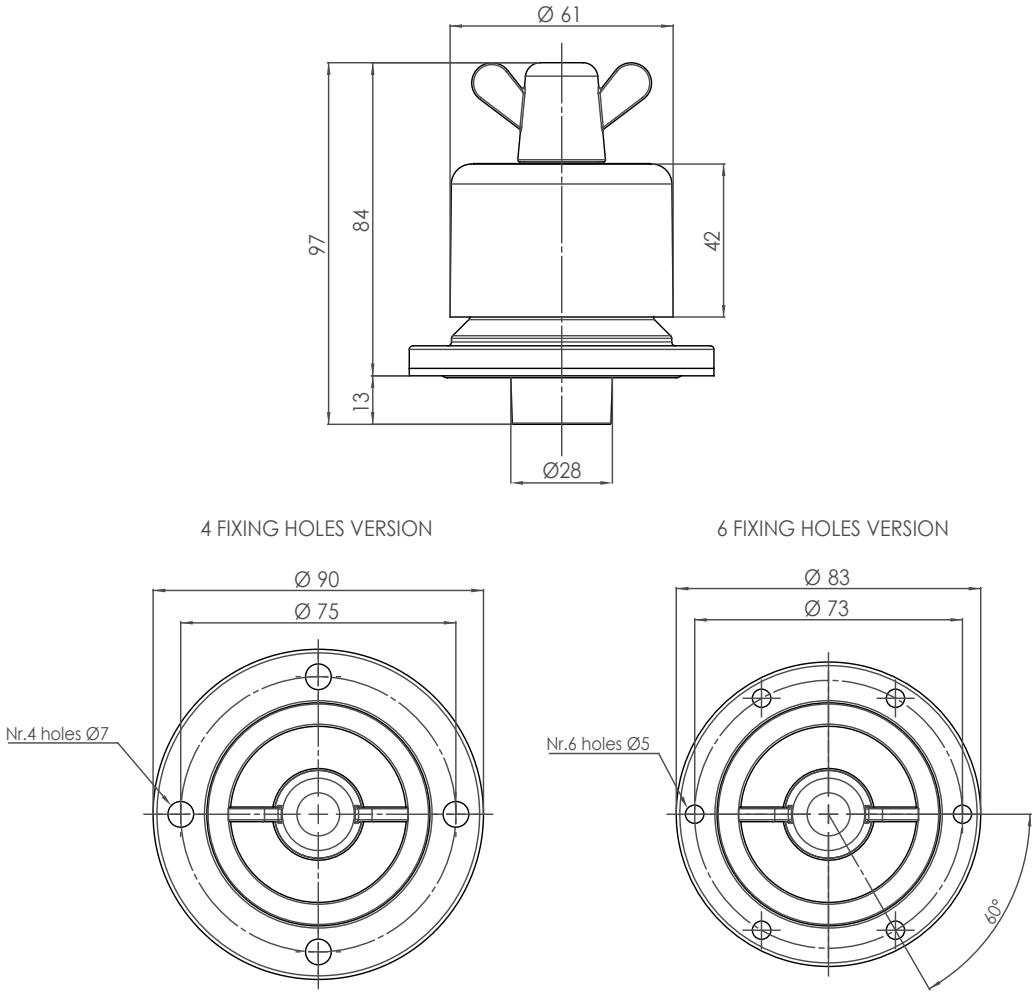
| DUST CONCENTRATION<br>(depends on application and environment) | $K_{op.cond}$ |
|---|---|
| High level | 7÷10 |
| Medium level | 3÷7 |
| Low level | 1÷3 |

Measuring the air flow poses a challenging task. Typically, this parameter can be estimated using the following equation:
$Q_{air\ flow} = K_{op.cond} \times Q$

Here, Q represents the flow rate of the hydraulic pump in l/min, and $K_{op.cond}$ is a multiplicative factor associated with the operating conditions. For instance, in ambient conditions with low dust concentration, $K_{op.cond}$ may range between 1 and 2, while in environments with high dust concentration, it could be in the range of 7 to 10. It is important to note that $K_{op.cond}$ is subject to substantial variability, which, in turn, introduces uncertainty in the service life of the Air Breather.

**Filtrec's Air Breathers serve as a fundamental element in every hydraulic system.**
It is essential to bear in mind that removing particles from a hydraulic system incurs significantly higher costs compared to excluding them in the first place.
Given this undeniable truth, it becomes evident that the advantages of utilizing our high-quality air breathers are substantial.
**We highly recommend replacing the air breather with each service interval** (or, at the very least, annually), matching the frequency of replacing the return fluid filters. Doing so ensures optimal performance and longevity of the hydraulic system.

## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | AIR FLOW RATE Nl/min Dp 0,015 bar | | |
|---|---|---|---|
| | P10 | C10 | G10 |
| FBMB4 | 350 | 300 | 250 |
| FBMB5 | 300 | 250 | 200 |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---|---|---|---|---|---|---|---|
| **FBM** | **B4** | **10** | **C10** | **1** | **4** | **S** | **0** |
| SPARE ELEMENT | **B4** | **10** | **C10** | | | | |

| | | | |
|---|---|---|---|
| 1. SERIES | FBM | | |
| 2. FILTER ELEMENT SERIES | B4 | | |
| | B5 | | |
| 3. FILTER SIZE | 10 | | |
| 4. FILTER MEDIA | P10 | polyester (air filtration 10 $\mu$m) on request | For B4 and B5 |
| | C10 | cellulose (air filtration 3 $\mu$m) | For B4 and B5 |
| | G10 | glassfiber (air filtration 1$\mu$m) | Only B5 |
| 5. PRESSURIZATION VALVE | 1 | 0,35 bar | |
| | 2 | 0,50 bar (only on request) | |
| | 3 | 0,75 bar (only on request) | |
| 6. FIXING HOLES | 4 | 4 fixing holes | |
| | 6 | 6 fixing holes | |
| 7. CORROSION PROTECTION | S | standard | |
| 8. OPTIONS | 0 | no option | |

## SPARE ELEMENT B4 AND B5



**REFERENCE IMAGE OF B4**



**REFERENCE IMAGE OF B5**

## USER TIPS




1. LOCK NUT
2. NUT SEAL
3. COVER
4. STEM
5. SCREWS AND WASHERS
6. FILTER ELEMENT
7. MAIN BODY
8. GASKET

**SPARE SEALS KIT (2-5-8)**

| | |
|---|---|
| 4 FIXING HOLES | 06.021.00421 |
| 6 FIXING HOLES | 06.021.00422 |

## 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. Place the gasket (8) on the tank; pay attention to keep the holes aligned.
2. Place the main body (7) on the gasket (8); pay attention to keep the holes aligned.
3. Fix the main body (7) on the tank with the four or six screws and washers (5).
4. Fit the filter element (6) in the main body (7).
5. Put the cover (3) on the main body (7) and the filter element (6) by screwing clockwise by hand.
6. Place the lock seal (2) and screw the lock nut (1) by turning it clockwise by hand.

## MAINTENANCE

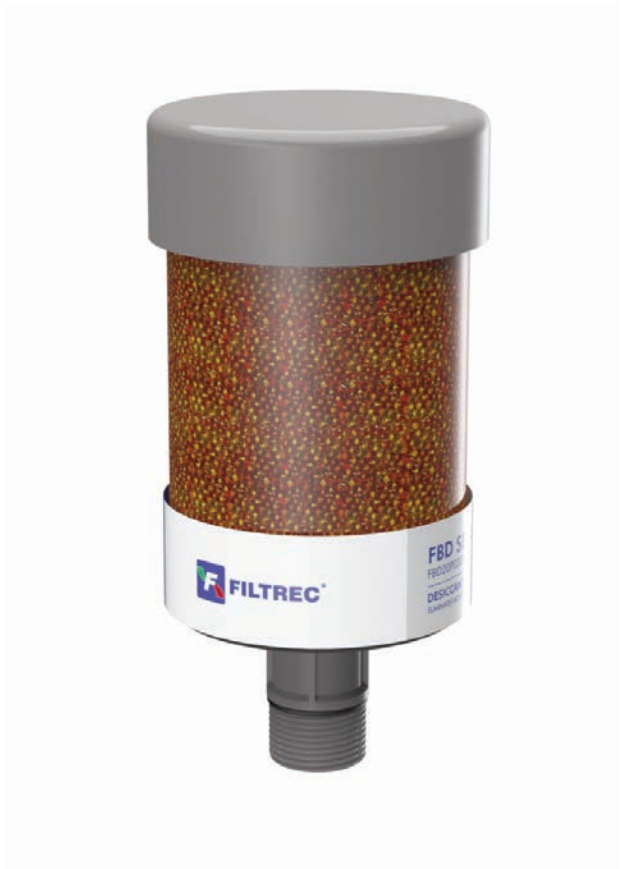
1. Unscrew the lock nut (1) by turning it anti-clockwise and remove it along with lock nut seal (2).
2. ⚠ Before removing the element cover (3), ensure that the system is switched off.
3. ⚠ Press the stem (4) to release the air pressure and ensure there is no residual pressure in the oil tank.
4. Unscrew the element cover (3) by turning it anti-clockwise and remove it.
5. Remove the dirty filter element (6).
6. Insert the new FILTREC element (6) by verifying the part number.
7. Screw the element cover (3) by turning it clockwise and tighten it by hand.
8. Check the seals (2+8) conditions and replace if necessary.
9. Screw the lock nut (1) by turning it clockwise, tighten it by hand.

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# FBD SERIES

Desiccant Breathers

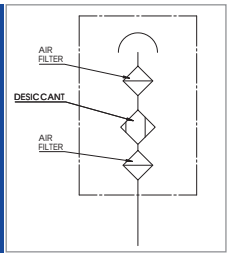
FBD desiccant breathers are an alternative to standard breathers and dust caps. They are the perfect way to protect your equipment from dirt, dust, and moisture. Our breathers combine the filtration of solid particles and the absorption of humidity in a single unit, providing complete protection for your equipment. The layered filter media prevents solid contamination from entering the equipment reservoir, while the desiccant agent, composed of silica gel beads, absorbs and retains moisture from the air. The equipment is kept dry by the same desiccant agent, regardless of whether it is in operation or shut down, ensuring maximum efficiency and durability. Our breathers are designed to be easy to install directly on the reservoir. FBD desiccant breathers extend the life of the equipment, resulting in lower operating costs.



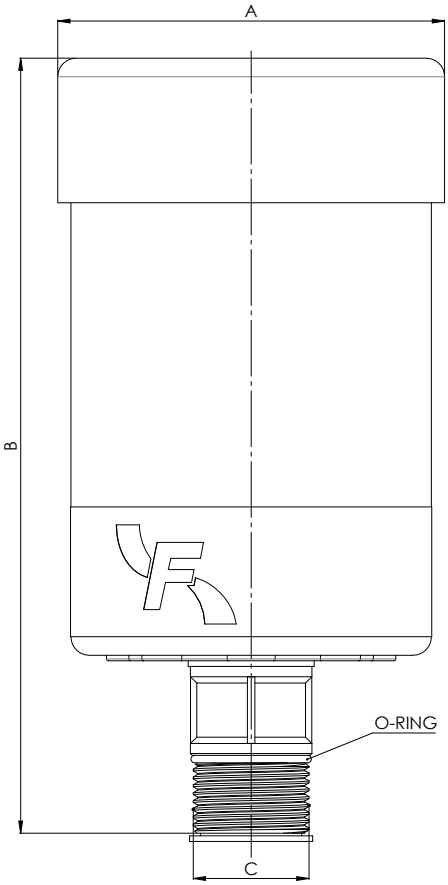

## TECHNICAL SPECFICATION

| | | |
|---|---|---|
| MATERIALS: | Cover: | Polycarbonate |
| | Shell: | Polycarbonate |
| | Center Tube: | Nylon |
| | Humidity Absorbent: | Silica gel |
| | Oil Mist Collector: | Polyurethane |
| | Filter media: | Polyester |
| FILTER EFFICIENCY: | Air filtration 3$\mu$m absolute | |
| TEMPERATURE RANGE: | -30°C to +90°C | |
| CONNECTION THREAT: | G 3/8"<br>G 1"<br>(Multi-fits NPT, BSP or BSPP threads) | |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV<br>HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact<br>Filtrec Customer Service (info@filtrec.it). | |

HYDRAULIC SYMBOL



## OVERALL DIMENSIONS




## NOMINAL SIZE

| MODEL | A | B | C* |
|---|---|---|---|
| FBD 11 | Ø64 | 147 | G 3/8" |
| FBD 20 | Ø104 | 155 | G 1" |
| FBD 21 | | 210 | |
| FBD 22 | | 264 | |

*Multi-fit BSPP, BSP, NPT threads

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|
| **FBD** | **20** | **P03** | **B5** | **S** | **0** |

| | | |
|---|---|---|
| 1. SERIES | FBD | |
| 2. SIZE | 11 | |
| | 20-21-22 | |
| 3. FILTER MEDIA | P03 | synthetic media (air filtration 3$\mu$m absolute) |
| 4. CONNECTION | B2 | G 3/8" (only for size 11) |
| fits BSPP, BSP, NPT threads | B5 | G 1" (only for size 20-21-22) |
| 5. CONFIGURATION | S | standard |
| 6. OPTION | 0 | no option |

## ACCESSORIES

The accessories must be ordered separately

| | |
|---|---|
| 06.021.00519 | Flange adapter kit |
| 06.021.00520 | Flange adapter + metal basket kit |

**FLANGE ADAPTER KIT**



**METAL BASKET + FLANGE ADAPTER KIT**



## IMPORTANT INFORMATION FOR INSTALLATION

Desiccant breathers are shipped with all holes plugged to protect them from atmospheric agents during storage and shipping. Remove the protective caps as indicated in the table below:

| CODE | Max Air flow* [l/min] |
|---|---|
| FBD11 | 150 |

* at 69 mbar/1PSID

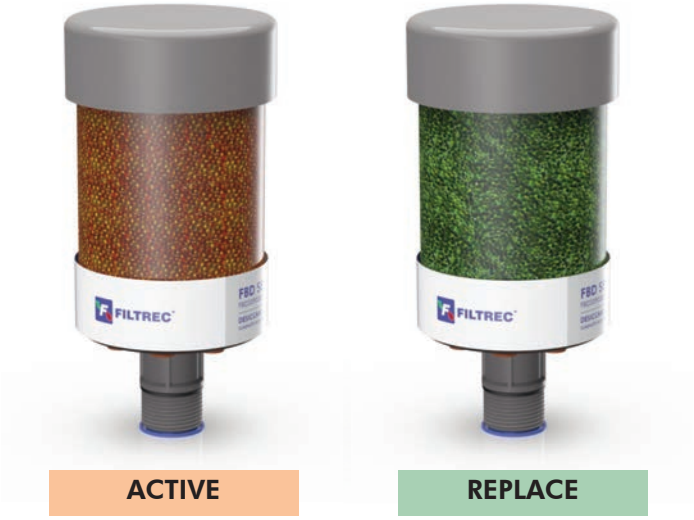



| CODE | Max Air flow* [l/min] | | | |
|---|---|---|---|---|
| | with 8 holes open | with 6 holes open | with 4 holes open | with 2 holes open |
| FBD20<br>FBD21<br>FBD22 | 500 | 375 | 250 | 125 |

* at 69 mbar/1PSID



## MAINTENANCE AND DISPOSAL




Green breathers are a sign that your unit has done its job. When the color changes from orange to green, it's time to replace it with a new one. All desiccant breathers should be replaced at least once a year.
**Dispose of according to local regulations.**

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# FL SERIES

Visual oil level indicators

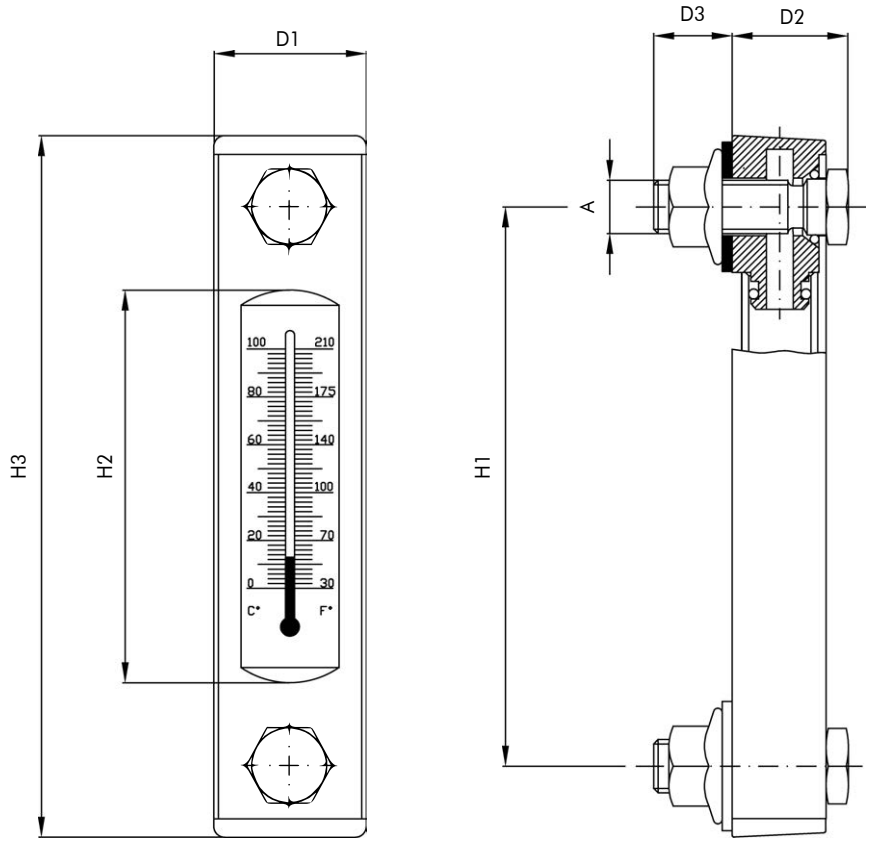
The FL is a vertical level indicators series available with or without a thermometer for level and temperature indication of the fluid.
Several sizes and configurations are available to meet every tank requirement.



| | |
|---|---|
| PRESSURE: | Max operating: up to 1 bar |
| FIXING SCREWS: | Metric – tightening torque 10 Nm |
| TEMPERATURE RANGE: | - 30° C+ 80° C |
| THERMOMETER: | Option:<br>Capillary on size 1-2-3<br>Analog on size 4-5-6 |
| MATERIALS: | End caps: polyamide<br>Protection: aluminium<br>Screws: zinc plated<br>Seals: NBR 70 ShA<br>Body: transparent polyamide |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

### SIZE 1-2-3

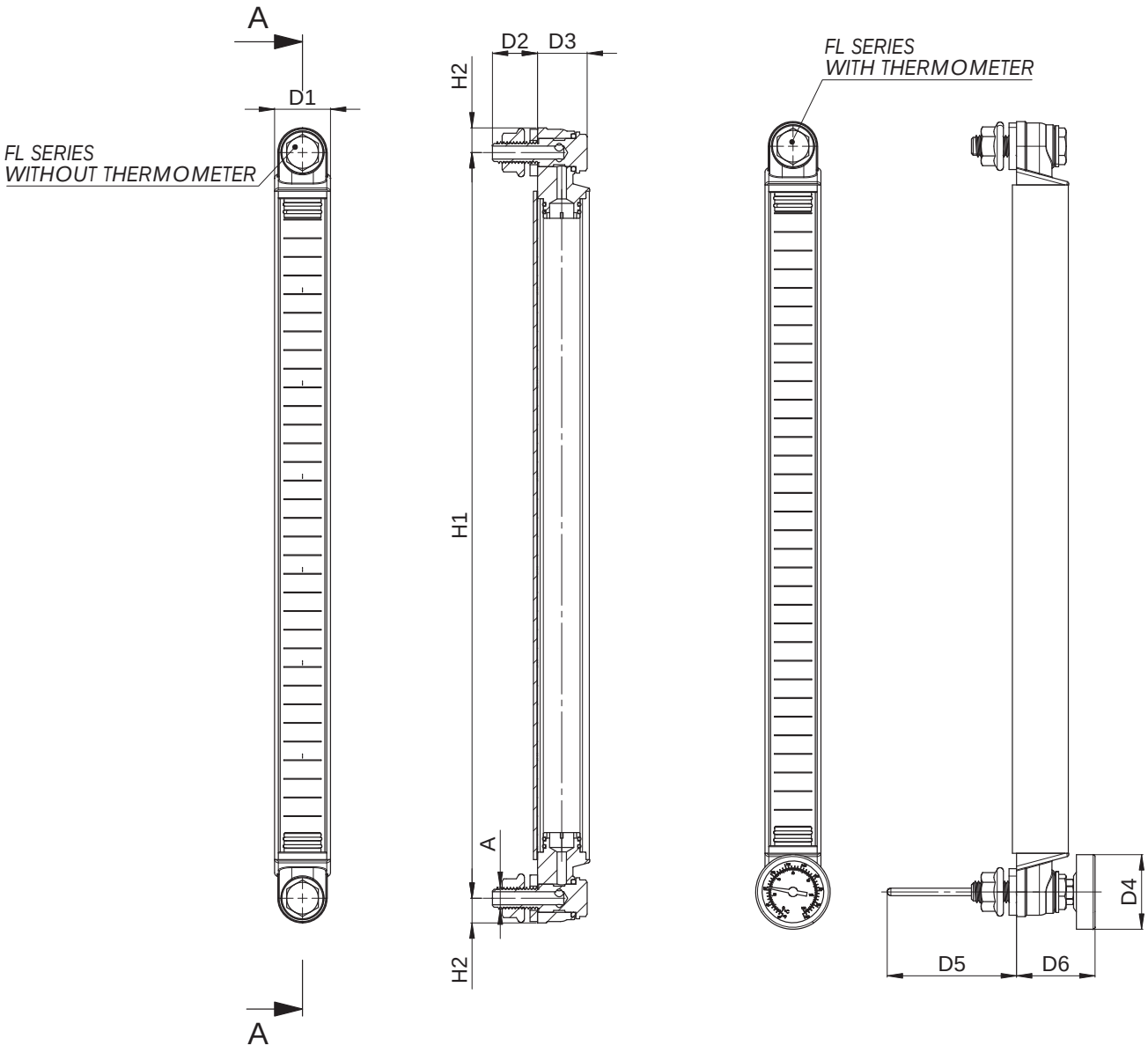



## NOMINAL SIZE

| CODE | H1 | H2 | H3 | D1 | D2 | D3 | A | WEIGHT |
|---|---|---|---|---|---|---|---|---|
| FL1 | 76 | 40 | 106 | 36 | 30 | 16 | M10 M12 | 150 gr. |
| FL2 | 127 | 86 | 157 | | | | | 200 gr. |
| FL3 | 254 | 213 | 284 | | | | | 250 gr. |

## OVERALL DIMENSIONS

### SIZE 4-5-6




## NOMINAL SIZE

| CODE | H1 | H2 | D1 | D2 | D3 | D4 | D5 | D6 | A | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|
| FL4 | 300 | 13,25 | 30 | 24,2 | 26,6 | 40 | 68 | 42,5 | M12 | 330 gr. |
| FL5 | 400 | | | | | | | | | 400 gr. |
| FL6 | 500 | | | | | | | | | 470 gr. |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. |
|---|---|---|---|
| **FL** | **2** | **T** | **M12** |

| | | | |
|---|---|---|---|
| 1. SERIES | FL | | |
| 2. SIZE<br>*custom lenght available on request with MOQ | 1 | holes distance 76 mm | |
| | 2 | holes distance 127 mm | |
| | 3 | holes distance 254 mm | |
| | 4 | holes distance 300 mm | |
| | 5 | holes distance 400 mm | |
| | 6 | holes distance 500 mm | |
| 3. THERMOMETER | 0 | no thermometer | |
| | T | with thermometer | |
| 4. FIXING SCREWS | M10 | fixing screws M10 | |
| | M12 | fixing screws M12 | size 4-5-6 available with M12 only |

| ORDERING INFORMATION | ORDERING CODE |
|---|---|
| FL10M10 | 04.006.00240 |
| FL10M12 | 04.006.00241 |
| FL1TM10 | 04.006.00242 |
| FL1TM12 | 04.006.00243 |
| FL20M10 | 04.006.00244 |
| FL20M12 | 04.006.00245 |
| FL2TM10 | 04.006.00246 |
| FL2TM12 | 04.006.00247 |
| FL30M12 | 04.006.00248 |
| FL3TM12 | 04.006.00249 |
| FL30M10 | 04.006.00255 |
| FL3TM10 | 04.006.00256 |
| FL40M12 | 04.006.00208 |
| FL4TM12 | 04.006.00209 |
| FL50M12 | 04.006.00210 |
| FL5TM12 | 04.006.00211 |
| FL60M12 | 04.006.00212 |
| FL6TM12 | 04.006.00213 |

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# FLV SERIES

Visual electrical oil level indicators

The FLV is a visual and electric indicators series, available with or without the thermometer. The FLV range monitors the level and temperature of the fluid. Several sizes and configurations are available to meet every tank requirement.

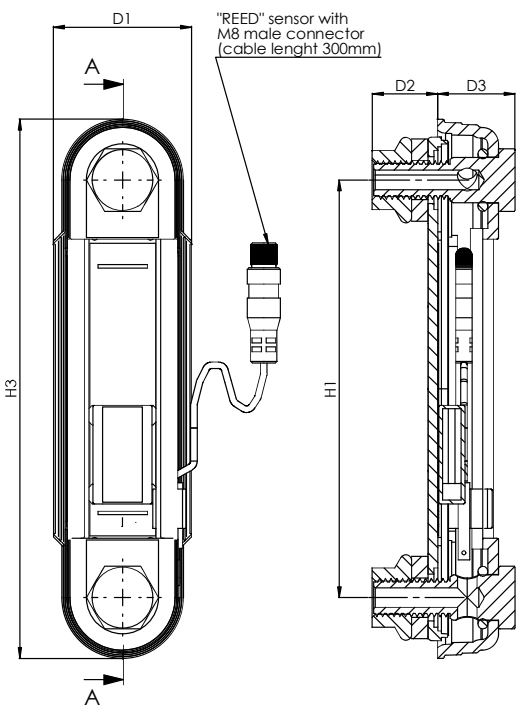


| | |
|---|---|
| PRESSURE: | Max operating: up to 1 bar |
| FIXING SCREWS: | Metric – tightening torque 10 Nm |
| MAX WORKING TEMPERATURE : | - 30° C + 90° C |
| THERMOMETER: | 60°C N.O. or N.C.<br>70°C N.O. or N.C. |
| MATERIALS: | **SIZE 2**<br>Outer protection: polyamide<br>Body: polyamide<br>Screws: zinc plated<br>Seals: NBR 70 ShA<br><br>**SIZE 3-4-5-6**<br>Outer protection: polyamide<br>Body: polyamide<br>Screws: zinc plated<br>Seals: NBR 70 ShA |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

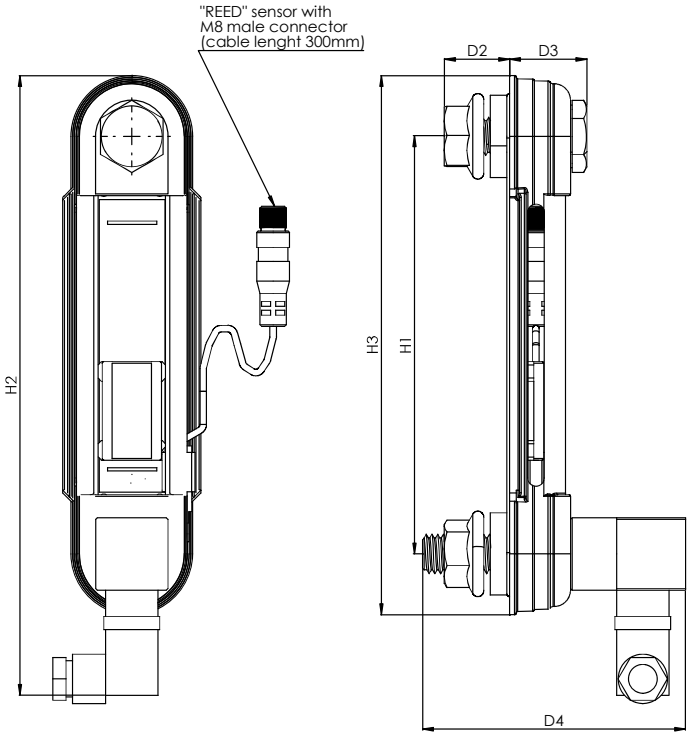
## OVERALL DIMENSIONS

### SIZE 2

*FLV SERIES WITHOUT THERMOMETER*




*FLV SERIES WITH THERMOMETER*



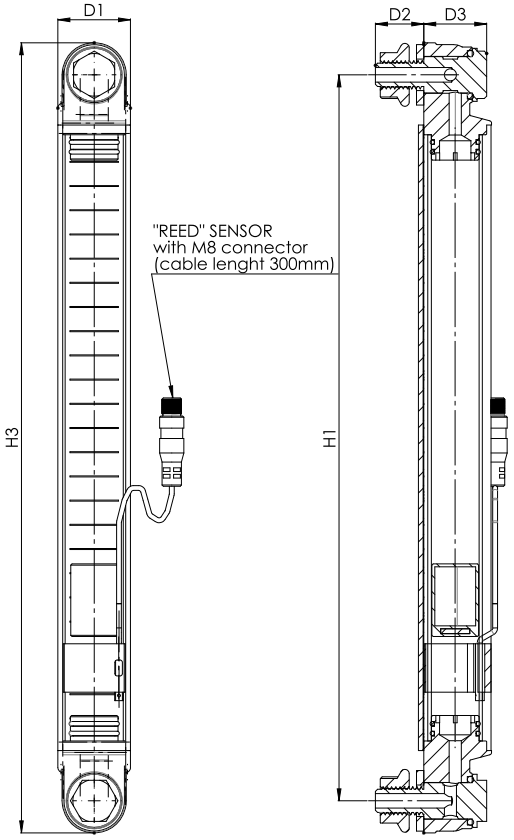

## NOMINAL SIZE

| CODE | H1 | H2 | H3 | D1 | D2 | D3 | D4 | A | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|
| FLV2 | 127 | - | 164 | 127 | 42 | 19 | - | M12 | 185 |
| FLV2T | | 188,5 | | | | 19,5 | 80 | | 250 |

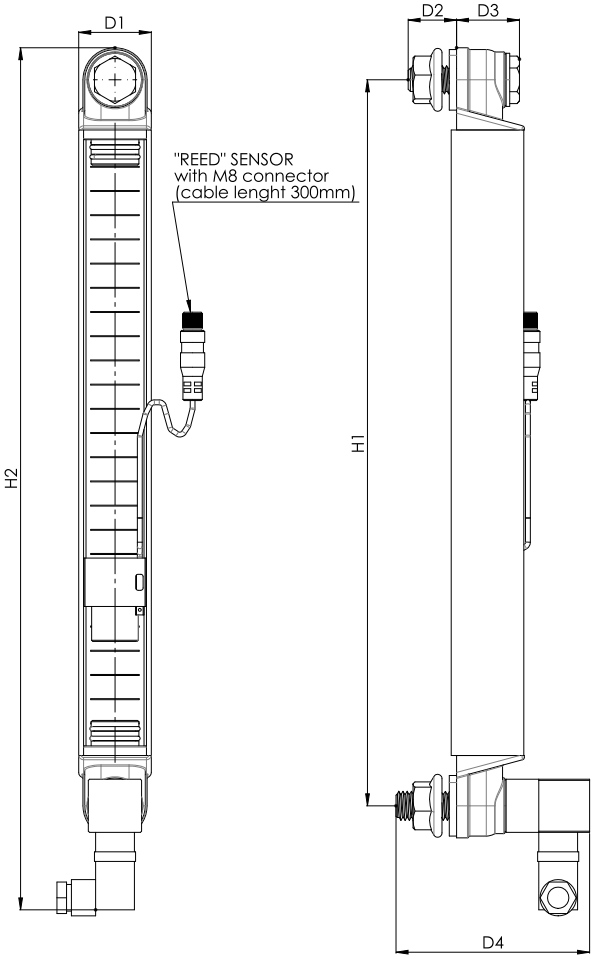
## OVERALL DIMENSIONS

### SIZE 3-4-5-6

*FLV SERIES WITHOUT THERMOMETER*




*FLV SERIES WITH THERMOMETER*




## NOMINAL SIZE

| CODE | H1 | H2 | H3 | D1 | D2 | D3 | D4 | A | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|
| FLV3 | 254 | - | 284 | 30 | 25 | 26 | - | M12 | 285 |
| FLV3T | | 314 | - | | | | 80 | | 385 |
| FLV4 | 300 | - | 327 | | | | - | | 300 |
| FLV4T | | 357 | - | | | | 80 | | 400 |
| FLV5 | 400 | - | 427 | | | | - | | 400 |
| FLV5T | | 457 | - | | | | 80 | | 500 |
| FLV6 | 500 | - | 527 | | | | - | | 470 |
| FLV6T | | 557 | - | | | | 80 | | 570 |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| **FLV** | **3** | **T60A** | **A** | **M12** |

| | | |
|---|---|---|
| 1. SERIES | FLV | |
| 2. SIZE | 2 | holes distance 127 mm |
| | 3 | holes distance 254 mm |
| | 4 | holes distance 300 mm |
| | 5 | holes distance 400 mm |
| | 6 | holes distance 500 mm |
| 3. THERMOMETER | 0 | no thermometer |
| | T60A | with thermometer 60° C N.O. |
| | T70A | with thermometer 70° C N.O. |
| | T60B | with thermometer 60° C N.C. |
| | T70B | with thermometer 70° C N.C. |
| 4. LEVEL SWITCH | A | N.O. - Normally open |
| 5. FIXING SCREWS | M12 | fixing screws M12 |

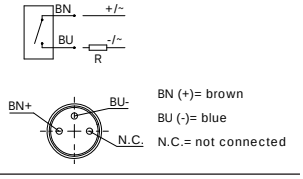
## ACCESSORIES

| | | |
|---|---|---|
| ADDITIONAL REED | REED-NO | FLVR1 |

ONLY FOR SIZE 3-4-5-6

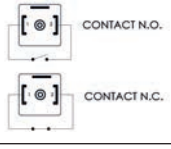
## ELECTRICAL SPECIFICATIONS

### LEVEL SWITCH

| | |
|---|---|
| Sensor type | REED 2 wires |
| Supply voltage | 3/30 Vac/dc |
| Electrical contact | N.O. Normally open |
| Switching current | 0.2 A |
| Power rating | 6W |
| Working temperature | -10°C / 70°C |
| Protection degree | IP67 |
| REED SWITCH ELECTRICAL DIAGRAM |  |



### MAX TEMPERATURE SWITCH

| | |
|---|---|
| Sensor type | Bimetal contact |
| Power supply | AC/DC |
| Electrical contact | N.O. Normally open<br>N.C. Normally closed |
| Max applicable voltage | 250 Vac 10 A |
| Connector | DIN 43650 |
| Protection degree | IP67 |
| Calibration | 60°C/140°F - 70°C /158°F |
| Accuracy | ±5°C |
| THERMOMETER ELECTRICAL DIAGRAM |  |

| ORDERING INFORMATION | ORDERING CODE |
|---|---|
| FLV20AM12 | 04.006.00214 |
| FLV2T60AAM12 | 04.006.00215 |
| FLV2T70AAM12 | 04.006.00216 |
| FLV2T60BAM12 | 04.006.00217 |
| FLV2T70BAM12 | 04.006.00218 |
| FLV30AM12 | 04.006.00219 |
| FLV3T60AAM12 | 04.006.00220 |
| FLV3T70AAM12 | 04.006.00221 |
| FLV3T60BAM12 | 04.006.00222 |
| FLV3T70BAM12 | 04.006.00223 |
| FLV40AM12 | 04.006.00224 |
| FLV4T60AAM12 | 04.006.00225 |
| FLV4T70AAM12 | 04.006.00226 |
| FLV4T60BAM12 | 04.006.00227 |
| FLV4T70BAM12 | 04.006.00228 |
| FLV50AM12 | 04.006.00229 |
| FLV5T60AAM12 | 04.006.00230 |
| FLV5T70AAM12 | 04.006.00231 |
| FLV5T60BAM12 | 04.006.00232 |
| FLV5T70BAM12 | 04.006.00233 |
| FLV60AM12 | 04.006.00234 |
| FLV6T60AAM12 | 04.006.00235 |
| FLV6T70AAM12 | 04.006.00236 |
| FLV6T60BAM12 | 04.006.00237 |
| FLV6T70BAM12 | 04.006.00238 |

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# FLA SERIES

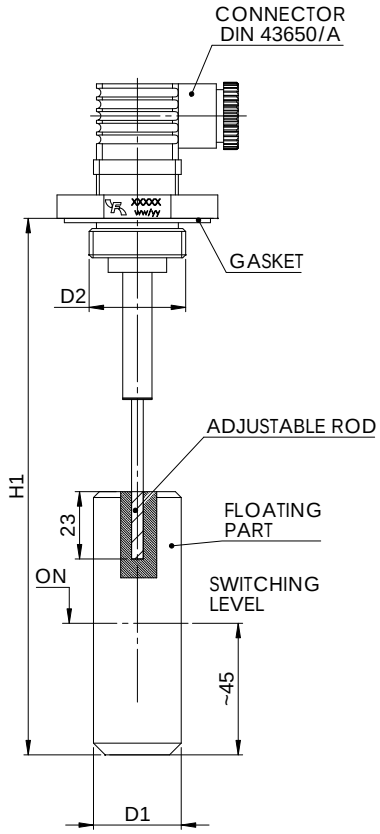
Electromagnetic level switch - spdt

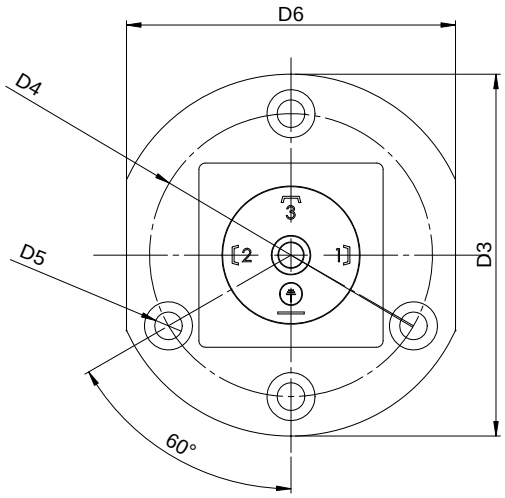
The FLA is a series of electromagnetic level switches SPDT with an adjustable rod. The FLA range, directly fitted in the tank, monitors the level of the fluid. Several sizes and configurations are available to meet every tank requirement.



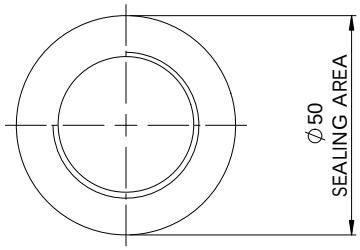
| | |
|---|---|
| PRESSURE: | Max operating: up to 5 bar |
| MAX WORKING TEMPERATURE : | - 10° C + 90° C |
| MAX FLUID VISCOSITY | 150 cSt |
| CONNECTIONS: | Three holes flange - 120° M4<br>Two holes flange - 180° M4<br>G1" |
| MATERIALS: | Rod: Stainless Steel<br>Floating part: PA66<br>Housing: Anodized Aluminum<br>Gasket: NBR |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

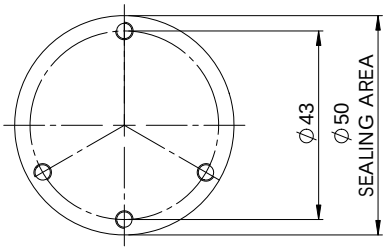



TANK MOUNTING PATTERN
THREADED VERSION G1"




TANK MOUNTING PATTERN
FLANGED VERSION WITH 2 OR 3 SCREW M4




## NOMINAL SIZE

| CODE | H1 | D1 | D2 | D3 | D4 | D5 | D6 | WEIGHT gr. |
|---|---|---|---|---|---|---|---|---|
| FLA0500 | 500 | 30 | G 1" | 55 | 43 | 4,2 | 50 | 150 |
| FLA1000 | 1000 | | | | | | | 160 |

## ORDERING INFORMATION

| 1. | 2. |
|---|---|
| **FLA** | **0500** |

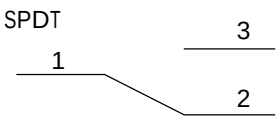
| | | |
|---|---|---|
| 1. SERIES | FLA | |
| 2. SIZE | 0500 | Rod length 500mm |
| | 1000 | Rod length 1000mm |

| ORDERING INFORMATION | ORDERING CODE |
|---|---|
| FLA0500 | 04.006.00297 |
| FLA1000 | 04.006.00298 |

## ELECTRICAL SPECIFICATIONS

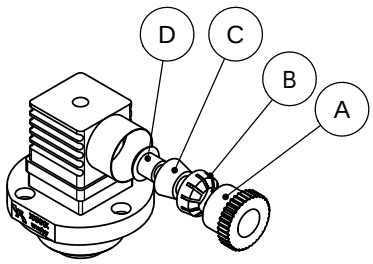
- Electrical connection in accordance with DIN 43650/A
- Electrical protection in accordance with DIN 40050-IP65
- Maximum electrical load N.O./N.C. 30V AC/DC - 0,25A
- Other electrical features on request

ELECTRICAL DIAGRAM




CONNECTION PG9 CABLE Ø 6-8 Ⓐ + Ⓑ + Ⓒ + Ⓓ

CONNECTION PG11 CABLE Ø 8-10 Ⓐ + Ⓑ + Ⓒ



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CT103-rev.01/24

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# FLT SERIES

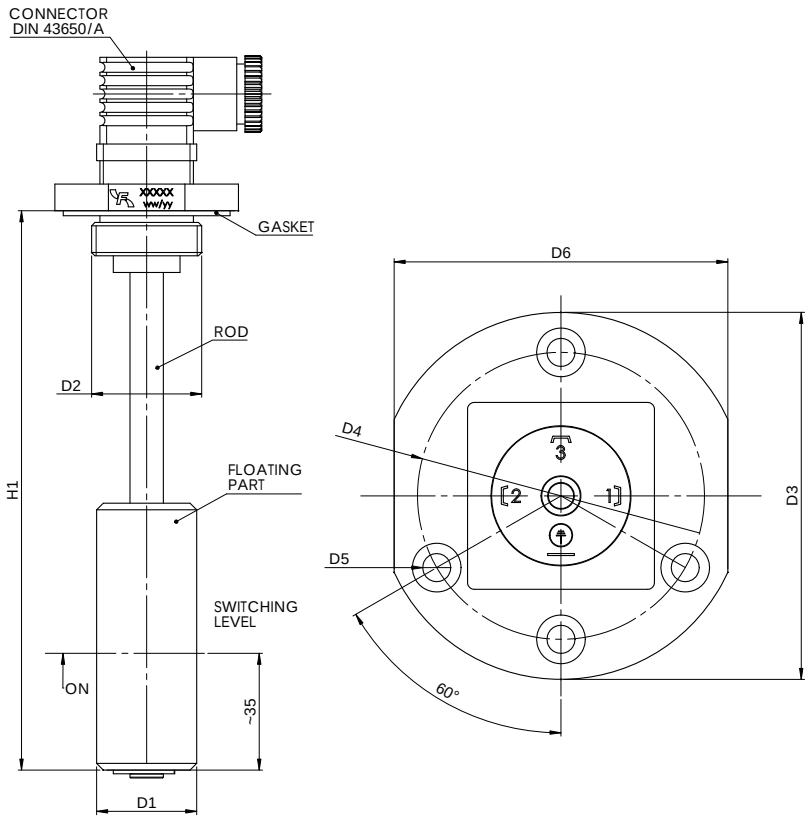
Electromagnetic level and temperature switch

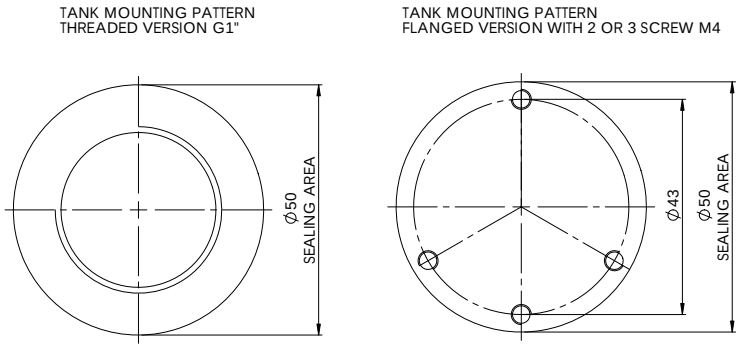
The FLT is a series of electromagnetic level switches with a thermometer. The FLT range, directly fitted in the tank, monitors the level and temperature of the fluid. Several sizes and configurations are available to meet every tank requirement.



| | |
|---|---|
| PRESSURE: | Max operating: up to 5 bar |
| MAX WORKING TEMPERATURE : | - 10° C + 90° C |
| MAX FLUID VISCOSITY | 150 cSt |
| CONNECTIONS: | Three holes flange - 120° M4<br>Two holes flange - 180° M4<br>G1" |
| MATERIALS: | Rod: Stainless Steel<br>Floating part: PA66<br>Housing: Anodized Aluminum<br>Gasket: NBR |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS




## NOMINAL SIZE

| CODE | H1 | D1 | D2 | D3 | D4 | D5 | D6 | WEIGHT gr. |
|---|---|---|---|---|---|---|---|---|
| FLT150 | 150 | 30 | G 1" | 55 | 43 | 4,2 | 50 | 160 |
| FLT200 | 200 | | | | | | | 175 |
| FLT250 | 250 | | | | | | | 190 |
| FLT350 | 350 | | | | | | | 220 |
| FLT400 | 400 | | | | | | | 235 |
| FLT500 | 500 | | | | | | | 265 |

## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|
| **FLT** | **250** | **A** | **50** | **A** |

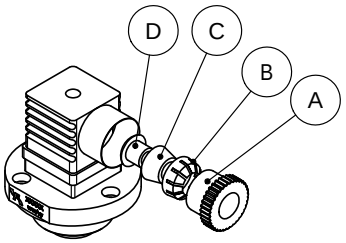
| | | |
|---|---|---|
| 1. SERIES | FLT | |
| 2. SIZE | 150 | Rod length 150 mm |
| | 200 | Rod length 200 mm |
| | 250 | Rod length 250 mm |
| | 350 | Rod length 350 mm |
| | 400 | Rod length 400 mm |
| | 500 | Rod length 500 mm |
| 3. LEVEL SWITCH | A | Open without oil / closed with oil |
| | B | Closed without oil / open with oil |
| 4. SWITCHING TEMPERATURE (C°) | 50 | with thermometer 50°C |
| | 60 | with thermometer 60°C |
| | 70 | with thermometer 70°C |
| 5. THERMOMETER SWITCH | A | Open with T<Tset / Closed with T≥Tset |
| | B | Closed with T<Tset / Open with T≥Tset |

## ELECTRICAL SPECIFICATIONS

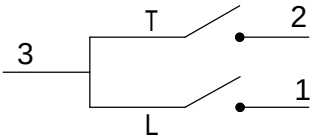
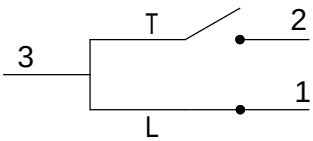
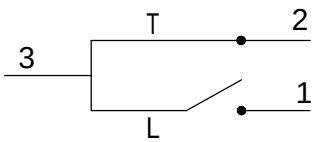
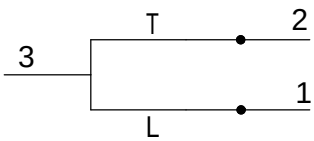
- Electrical connection in accordance with DIN 43650/A
- Electrical protection in accordance with DIN 40050-IP65
- Maximum electrical load 30V AC/DC - 0,25A
- Other electrical features on request

CONNECTION PG9 CABLE Ø 6-8 Ⓐ + Ⓑ + Ⓒ + Ⓓ

CONNECTION PG11 CABLE Ø 8-10 Ⓐ + Ⓑ + Ⓒ




ELECTRICAL CONTACT EXAMPLE WITHOUT LIQUID AND T<Tset

| | LEVEL (L) A | LEVEL (L) B |
|---|---|---|
| TEMPERATURE (T) A |  |  |
| TEMPERATURE (T) B |  |  |

| ORDERING INFORMATION | ORDERING CODE |
|---|---|
| FLT150A50A | 04.006.00299 |
| FLT150A50B | 04.006.00300 |
| FLT150A60A | 04.006.00301 |
| FLT150A60B | 04.006.00302 |
| FLT150A70A | 04.006.00303 |
| FLT150A70B | 04.006.00304 |
| FLT150B50A | 04.006.00305 |
| FLT150B50B | 04.006.00306 |
| FLT150B60A | 04.006.00307 |
| FLT150B60B | 04.006.00308 |
| FLT150B70A | 04.006.00309 |
| FLT150B70B | 04.006.00310 |
| FLT200A50A | 04.006.00311 |
| FLT200A50B | 04.006.00312 |
| FLT200A60A | 04.006.00313 |
| FLT200A60B | 04.006.00314 |
| FLT200A70A | 04.006.00315 |
| FLT200A70B | 04.006.00316 |
| FLT200B50A | 04.006.00317 |
| FLT200B50B | 04.006.00318 |
| FLT200B60A | 04.006.00319 |
| FLT200B60B | 04.006.00320 |
| FLT200B70A | 04.006.00321 |
| FLT200B70B | 04.006.00322 |
| FLT250A50A | 04.006.00323 |
| FLT250A50B | 04.006.00324 |
| FLT250A60A | 04.006.00325 |
| FLT250A60B | 04.006.00326 |
| FLT250A70A | 04.006.00327 |
| FLT250A70B | 04.006.00328 |
| FLT250B50A | 04.006.00329 |
| FLT250B50B | 04.006.00330 |
| FLT250B60A | 04.006.00331 |
| FLT250B60B | 04.006.00332 |
| FLT250B70A | 04.006.00333 |
| FLT250B70B | 04.006.00334 |

| ORDERING INFORMATION | ORDERING CODE |
|---|---|
| FLT350A50A | 04.006.00335 |
| FLT350A50B | 04.006.00336 |
| FLT350A60A | 04.006.00337 |
| FLT350A60B | 04.006.00338 |
| FLT350A70A | 04.006.00339 |
| FLT350A70B | 04.006.00340 |
| FLT350B50A | 04.006.00341 |
| FLT350B50B | 04.006.00342 |
| FLT350B60A | 04.006.00343 |
| FLT350B60B | 04.006.00344 |
| FLT350B70A | 04.006.00345 |
| FLT350B70B | 04.006.00346 |
| FLT400A50A | 04.006.00347 |
| FLT400A50B | 04.006.00348 |
| FLT400A60A | 04.006.00349 |
| FLT400A60B | 04.006.00350 |
| FLT400A70A | 04.006.00351 |
| FLT400A70B | 04.006.00352 |
| FLT400B50A | 04.006.00353 |
| FLT400B50B | 04.006.00354 |
| FLT400B60A | 04.006.00355 |
| FLT400B60B | 04.006.00356 |
| FLT400B70A | 04.006.00357 |
| FLT400B70B | 04.006.00358 |
| FLT500A50A | 04.006.00359 |
| FLT500A50B | 04.006.00360 |
| FLT500A60A | 04.006.00361 |
| FLT500A60B | 04.006.00362 |
| FLT500A70A | 04.006.00363 |
| FLT500A70B | 04.006.00364 |
| FLT500B50A | 04.006.00365 |
| FLT500B50B | 04.006.00366 |
| FLT500B60A | 04.006.00367 |
| FLT500B60B | 04.006.00368 |
| FLT500B70A | 04.006.00369 |
| FLT500B70B | 04.006.00370 |

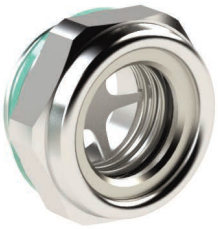
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# FLS SERIES

Oil sight gauges

FLS is a range of compact oil sight gauges for monitoring the fluid level in the tank. They are directly fitted on the tank side. Several configurations can be selected to meet every condition: sizes, body, and lens materials.



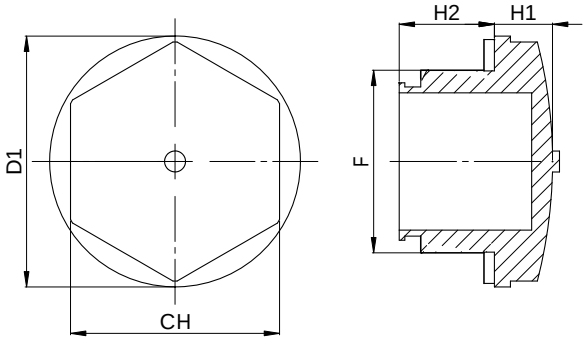




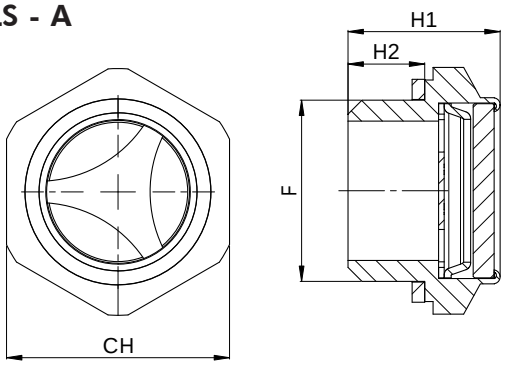
| | |
|---|---|
| PRESSURE: | Max operating: up to 5 bar<br>(20 bar for FLSV) |
| FIXING SCREWS: | Metric – tightening torque 10 Nm |
| MAX WORKING TEMPERATURE : | - 10° C + 100° C (+ 130° C for FLSV) |
| MATERIALS: | **for FLSP version**<br>Body: Polyamide<br>Lens: Polyamide<br>Seals: Flat fiber gasket<br>**for FLSA version**<br>Body: Aluminium alloy<br>Lens: Polyamide<br>Seals: Flat fiber gasket<br>**for FLSV version**<br>Body: Aluminium alloy<br>Lens: Glass<br>Seals: Flat fiber gasket |
| FLUID COMPATIBILITY: | Full with HH-HL-HM-HV-HETG-HEES (acc. to ISO 6743/4).<br>For use with other fluid please contact Filtrec Customer Service (info@filtrec.it). |

## OVERALL DIMENSIONS

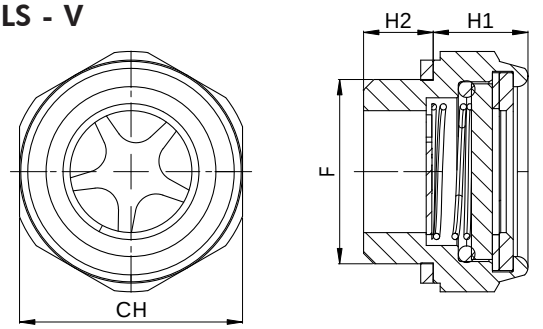
### FLS - P




### FLS - A




### FLS - V




## NOMINAL SIZE

| CODE | F | CH | D1 | H1 | H2 | CONN. CODE | WEIGHT GR. |
|---|---|---|---|---|---|---|---|
| FLSPB1 | G1/4 | 17 | 20,5 | 8,5 | 8,5 | B1 | 2,9 |
| FLSPB2 | G3/8 | 18 | 22 | 7 | 12 | B2 | 3,7 |
| FLSPB3 | G1/2 | 24 | 28 | 8 | 12,5 | B3 | 6,25 |
| FLSPB4 | G3/4 | 30 | 36 | 9 | 14 | B4 | 9 |
| FLSPB5 | G1 | 36 | 42 | 10 | 14 | B5 | 14,9 |
| FLSPB6 | G1 1/4 | 42 | 51 | 10 | 17,5 | B6 | 19 |
| FLSPB7 | G1 1/2 | 50 | 58 | 9,5 | 22 | B7 | 25 |
| FLSPB8 | G2 | 64 | 74 | 12,2 | 20,5 | B8 | 46 |
| FLSPM14 | M14X1,5 | 17 | 20 | 8,5 | 9,5 | M14 | 2 |
| FLSPM16 | M16X1,5 | 18 | 22 | 7 | 13 | M16 | 3 |
| FLSPM18 | M18X1,5 | 21 | 25,5 | 6 | 12,5 | M18 | 3 |
| FLSPM20 | M20X1,5 | 24 | 28 | 7,5 | 12 | M20 | 5 |
| FLSPM22 | M22X1,5 | 24 | 28 | 7,5 | 12 | M22 | 5,1 |
| FLSPM26 | M26X1,5 | 30 | 36 | 9 | 13,5 | M26 | 9,1 |
| FLSPM27 | M27X1,5 | 30 | 36 | 9 | 13,5 | M27 | 10 |
| FLSPM40 | M40X1,5 | 42 | 51 | 10 | 17,5 | M40 | 20 |
| FLSAB1 | G1/4 | 17 | - | 18,8 | 8 | B1 | 5 |
| FLSAB2 | G3/8 | 22 | | 18 | 9 | B2 | 9 |
| FLSAB3 | G1/2 | 27 | | 20 | 9 | B3 | 15 |
| FLSAB4 | G3/4 | 32 | | 22 | 11 | B4 | 22,5 |
| FLSAB5 | G1 | 40 | | 22 | 10 | B5 | 35 |
| FLSAB6 | G1 1/4 | 50 | | 27 | 12 | B6 | 60 |
| FLSAB7 | G1 1/2 | 55 | | 26 | 13 | B7 | 80 |
| FLSAM14 | M14X1,5 | 17 | | 17 | 8 | M14 | 5 |
| FLSAM16 | M16X1,5 | 22 | | 18 | 9 | M16 | 8,5 |
| FLSAM18 | M18X1,5 | 22 | | 18 | 9 | M18 | 14 |
| FLSAM20 | M20X1,5 | 24 | | 21 | 10 | M20 | 12 |
| FLSAM22 | M22X1,5 | 27 | | 20 | 9 | M22 | 15 |
| FLSAM24 | M24X1,5 | 30 | | 24 | 11 | M24 | 22,5 |
| FLSVB3 | G1/2 | 30 | | 10 | 9 | B3 | 16 |
| FLSVB4 | G3/4 | 35 | | 12,5 | 10 | B4 | 29 |
| FLSVB5 | G1 | 42,5 | | 13 | 10 | B5 | 50 |
| FLSVM20 | M10X1,5 | 30 | | 10 | 9 | M20 | 16 |
| FLSVM33 | M33X1,5 | 42,5 | | 13 | 10 | M33 | 50 |

## ORDERING INFORMATION

| 1. | 2. | 3. |
|---|---|---|
| **FLS** | **P** | **B2** |

1. SERIES

| |
|---|
| FLS |

2. SIZE

| | BODY | LENS |
|---|---|---|
| P | Polyamide | |
| A | Aluminium | Polyamide |
| V | Aluminium | Natural glass |

3. CONNECTIONS

| FOR FLSP | |
|---|---|
| B1 | G 1/4″ |
| B2 | G 3/8″ |
| B3 | G 1/2″ |
| B4 | G 3/4″ |
| B5 | G 1″ |
| B6 | G 1 1/4″ |
| B7 | G 1 1/2″ |
| B8 | G 2″ |
| M14 | M14x1,5 |
| M16 | M16X1,5 |
| M18 | M18X1,5 |
| M20 | M20X1,5 |
| M22 | M22X1,5 |
| M26 | M26X1,5 |
| M27 | M27X1,5 |
| M40 | M40X1,5 |

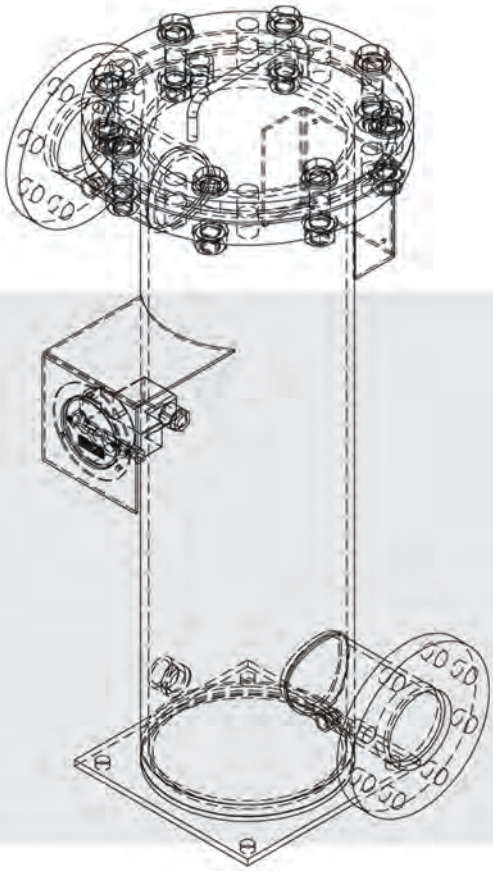
| FOR FLSA | |
|---|---|
| B1 | G 1/4″ |
| B2 | G 3/8″ |
| B3 | G 1/2″ |
| B4 | G 3/4″ |
| B5 | G 1″ |
| B6 | G 1 1/4″ |
| B7 | G 1 1/2″ |
| M14 | M14x1,5 |
| M16 | M16X1,5 |
| M18 | M18X1,5 |
| M20 | M20X1,5 |
| M22 | M22X1,5 |
| M24 | M24X1,5 |

| FOR FLSV | |
|---|---|
| B3 | G 1/2″ |
| B4 | G 3/4″ |
| B5 | G 1″ |
| M20 | M20X1,5 |
| M33 | M33X1,5 |

| ORDERING INFORMATION | ORDERING CODE |
|---|---|
| FLSPB1 | 04.006.00263 |
| FLSPB2 | 04.006.00264 |
| FLSPB3 | 04.006.00265 |
| FLSPB4 | 04.006.00266 |
| FLSPB5 | 04.006.00267 |
| FLSPB6 | 04.006.00268 |
| FLSPB7 | 04.006.00269 |
| FLSPB8 | 04.006.00270 |
| FLSPM14 | 04.006.00271 |
| FLSPM16 | 04.006.00272 |
| FLSPM18 | 04.006.00273 |
| FLSPM20 | 04.006.00274 |
| FLSPM22 | 04.006.00275 |
| FLSPM26 | 04.006.00276 |
| FLSPM27 | 04.006.00277 |
| FLSPM40 | 04.006.00278 |
| FLSAB1 | 04.006.00279 |
| FLSAB2 | 04.006.00280 |
| FLSAB3 | 04.006.00281 |
| FLSAB4 | 04.006.00282 |
| FLSAB5 | 04.006.00283 |
| FLSAB6 | 04.006.00284 |
| FLSAB7 | 04.006.00285 |
| FLSAM14 | 04.006.00286 |
| FLSAM16 | 04.006.00287 |
| FLSAM18 | 04.006.00288 |
| FLSAM20 | 04.006.00289 |
| FLSAM22 | 04.006.00290 |
| FLSAM24 | 04.006.00291 |
| FLSVB3 | 04.006.00292 |
| FLSVB4 | 04.006.00293 |
| FLSVB5 | 04.006.00294 |
| FLSVM20 | 04.006.00295 |
| FLSVM33 | 04.006.00296 |

# PROCESS

## PROCESS FILTERS



# SX series

**Single body, static filter**

For depth filtration and adsorption.
The filter system can be used with great flexibility.

It is suitable for liquid as well as for gaseous media in the oil & gas, petrochemical, chemical industry, pharmacy, food and beverage industry and in power stations.

Due to the customized construction of the filter housings, filters can be optimized for existing installation.

FILTREC®

# SX Series

**Features of the filter system**

- Suitable for filter rating from 3 $\mu$m to 1000 $\mu$m
- Flow rates max 4500 Lt/min
- Working temperature -10 °C + 90 °C

**Materials**

- Housing: Carbon steel, Stainless steel 304, 304L, 316, 316L, Duplex, Super Duplex, GRP, etc.
- Seals: Buna-N, Viton, Teflon, Asbestos free, EPDM
- Filter element media: Fiberglass, Cellulose, Wire mesh

**Benefits of the Filter System**

- ANSI flanges
- Flexibility in nozzle orientation
- Wetted parts material compatible with filtered media
- Customized solutions
- Programmable maintenance

**Filter Elements**

- Cartridge type
- Basket type

**Accessories**

- Differential visual / electrical pressure gauge
- Safety valve
- Shut-off valves
- Others upon request

FILTREC®

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# Application






## Certification

- ASME Section VIII with U-Stamp
- NB Certificate of Authorization
- ATEX
- PED
- Others upon request

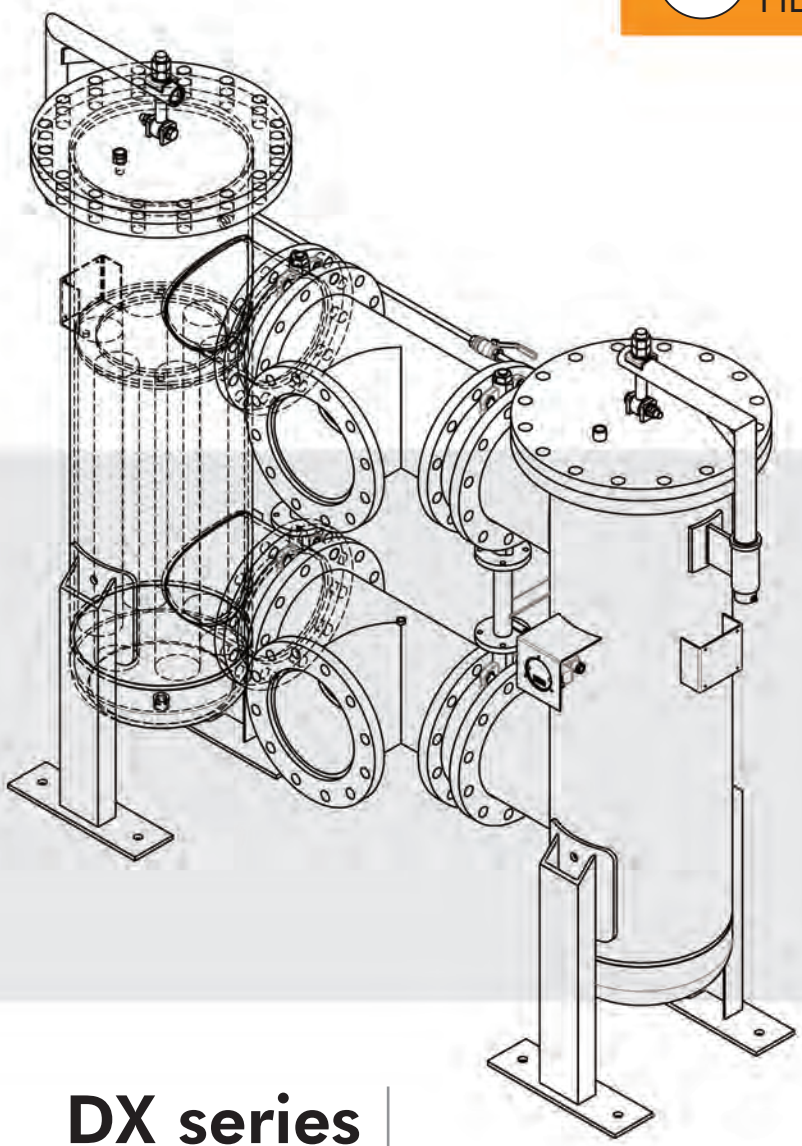
FILTREC®

**info & contact:** www.filtrec.com
info@filtrec.it

CT58-rev.02-07/17

FILTREC®

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FILTRAT
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# DX series

**Double body, static filter**

For depth filtration and adsorption.
The filter system can be used with great flexibility.

It is suitable for liquid as well as for gaseous media in the oil & gas, petrochemical, chemical industry, pharmacy, food and beverage industry and in power stations.

Due to the customized construction of the filter housings, filters can be optimized for existing installation.

FILTREC®

# DX Series

**Features of the filter system**

- Suitable for filter rating from 3 $\mu$m to 1000 $\mu$m
- Flow rates max 4500 Lt/min
- Working temperature -10 °C + 90 °C

**Materials**

- Housing: Carbon steel, Stainless steel 304, 304L, 316, 316L, Duplex, Super Duplex
- Seals: Buna-N, Viton, Teflon, Asbestos free, EPDM
- Filter element media: Fiberglass, Cellulose, Wire mesh

**Benefits of the Filter System**

- ANSI flanges
- Flexibility in nozzle orientation
- Wetted parts material compatible with filtered media
- Customized solutions
- 1filter working + 1filter stand-by
- Programmable maintenance

**Filter Elements**

- Cartridge type
- Basket type

**Accessories**

- Differential visual / electrical pressure gauge
- Safety valve
- Balancing line valves
- Shut-off valves
- Others upon request

FILTREC®

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# Application






## Certification

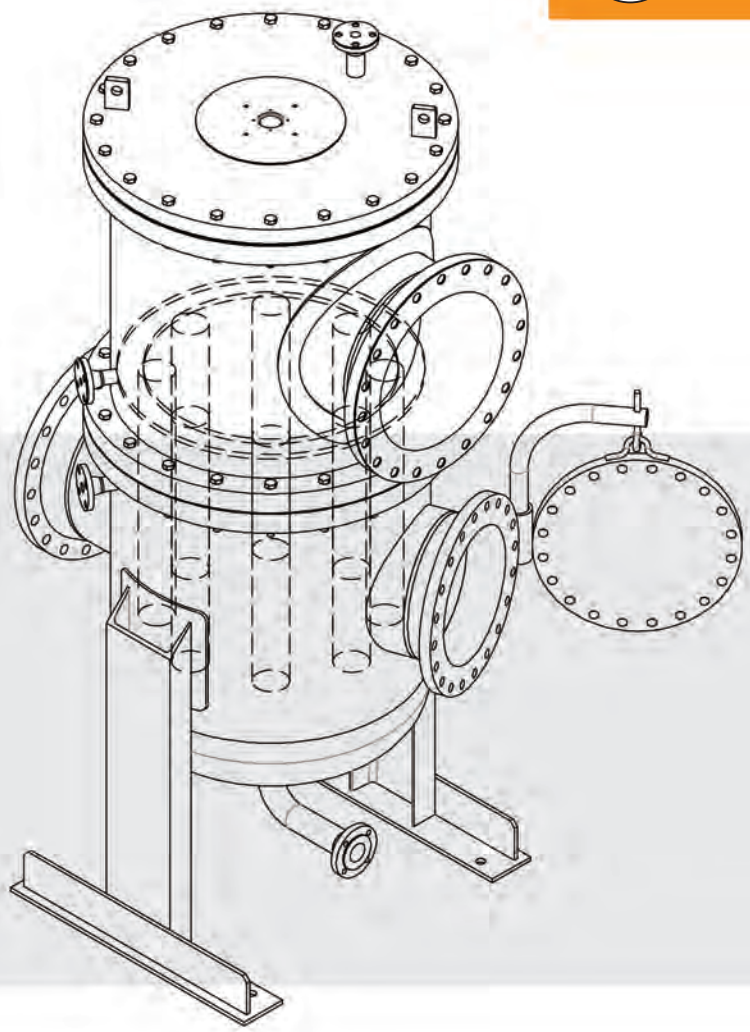
- ASME Section VIII with U-Stamp
- NB Certificate of Authorization
- ATEX
- PED
- Others upon request

FILTREC®

**info & contact:** www.filtrec.com
info@filtrec.it

CT59-rev.02-07/17

FILTREC®



# SCS series

**Single body with automatic cleaning device**

Our automatic backwashing filter is a self-contained automatic filtration equipment designed for continuous operation.

Typical application includes industrial and sea water filtration, as well as many machine tool lubricants and coolants.

This filtration system utilizes wedge-wire screen filter elements, in conjunction with a programmable control system (control box).

FILTREC®

# SCS Series

**Features of the filter system**

- Suitable for filter rating from 50 $\mu$m to 2000 $\mu$m
- Flow rates max 6500 $m^3/h$
- Working temperature -10 °C + 90 °C

**Materials**

- Housing: Carbon steel, GRP, Stainless steel 304, 304L, 316, 316L, Duplex, Super Duplex.
- Seals: Buna-N, Viton, Teflon, Asbestos free, EPDM
- Filter elements: wedge-wire made by Stainless steel 304, 304L, 316, 316L Duplex, Super Duplex.

**Benefits of the Filter System**

- ANSI flanges
- Flexibility in nozzle orientation
- Wetted parts material compatible with filtered media.
- Customized solutions
- Low and programmable maintenance
- Automatic system

**Filter Elements**

- Slotted tubes

**Accessories**

- Differential visual / electrical pressuge gauge
- Electrical control box
- Backwashing electropneumatic valve
- Safety valve
- Shut-off valves
- Others upon request

FILTREC®

# Application






## Certification

- ASME Section VIII with U-Stamp
- NB Certificate of Authorization
- ATEX
- PED
- Others upon request

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info@filtrec.it

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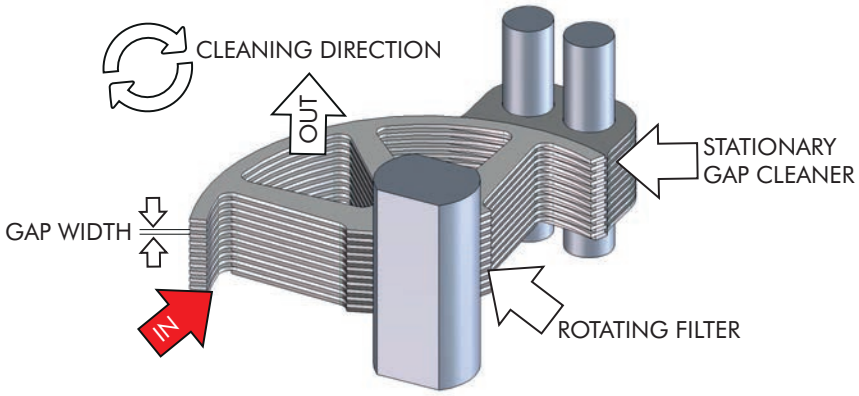
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# KM Series

## GAP TYPE FILTERS

# GAP-TYPE FILTER DESIGN





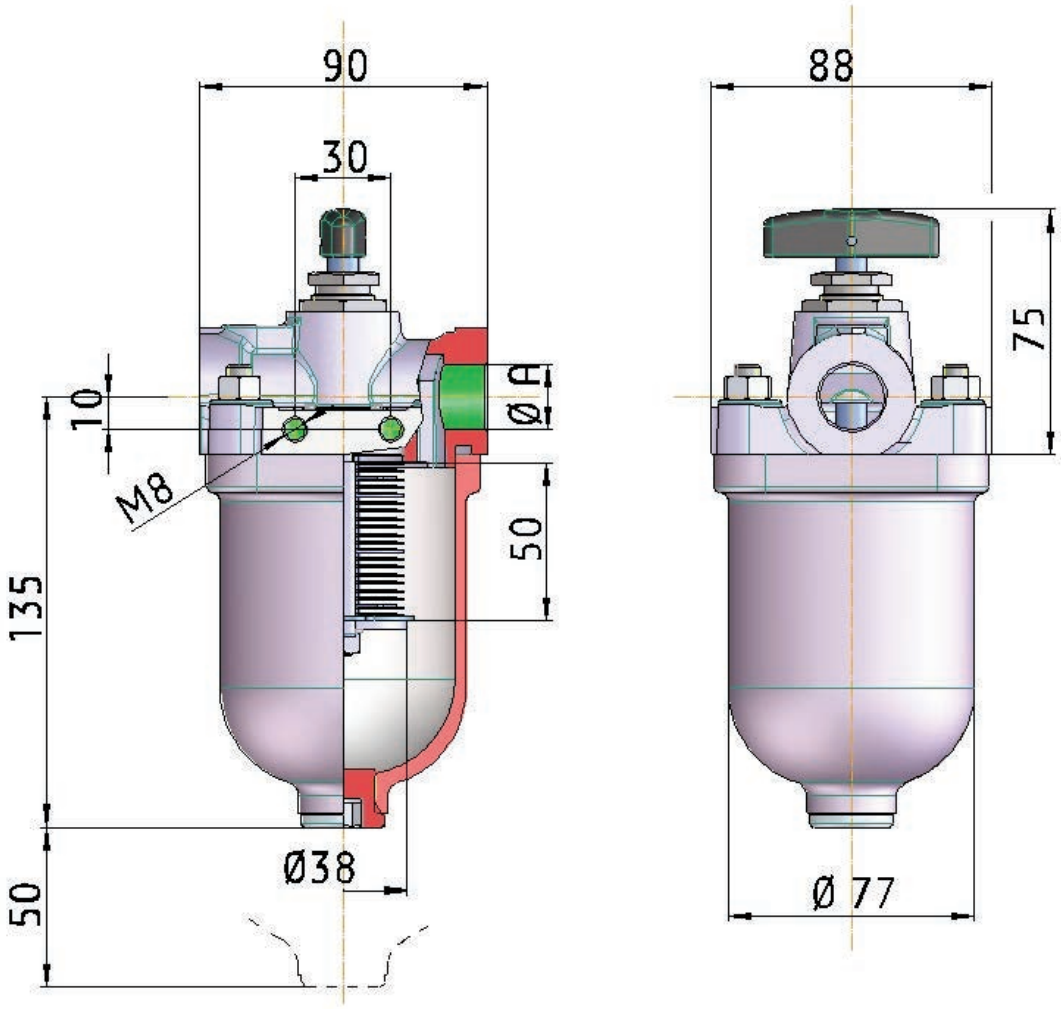

**KMGP - Plate gap-type filters (gap widths ≥ 0.1 mm)**
Highly viscous fluids

The plate gap-type filter insert consists of ring-shaped steel discs stacked up on a central pin. The gap width between the discs is determined by calibrated spacers.

A stationary gap cleaner runs through each gap. As the liquid flows between the discs, dirt particles in the liquid are deposited on the insert surface. When turning the handle of the filter insert, the dirt particles gather on the row of gap cleaners and sink to the sludge collection chamber.

The sludge is then discharged by opening a ball valve, installed by the customer according to their specific needs.

## OVERALL DIMENSIONS

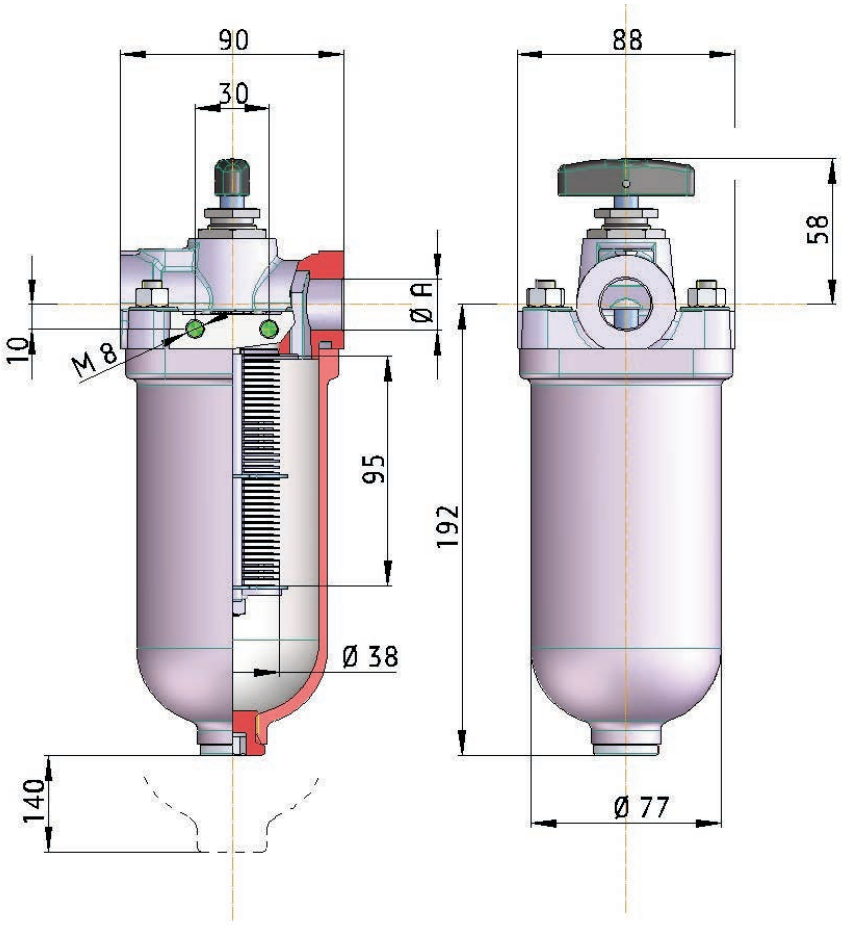



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGP00002 | 25.001.00002 | 100 | 1400 | 40 | 120 | M22x1.5 | gray cast iron | steel | steel | 0,3 | 2,4 | painted |
| KMGP00016 | 25.001.00028 | 100 | 1400 | 50 | 120 | G 1/2 | gray cast iron | steel | steel | 0,3 | 2,4 | painted |
| KMGP00026 | 25.001.00055 | 100 | 1400 | 50 | 120 | G 3/4 | gray cast iron | steel | stainless steel | 0,3 | 2,4 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

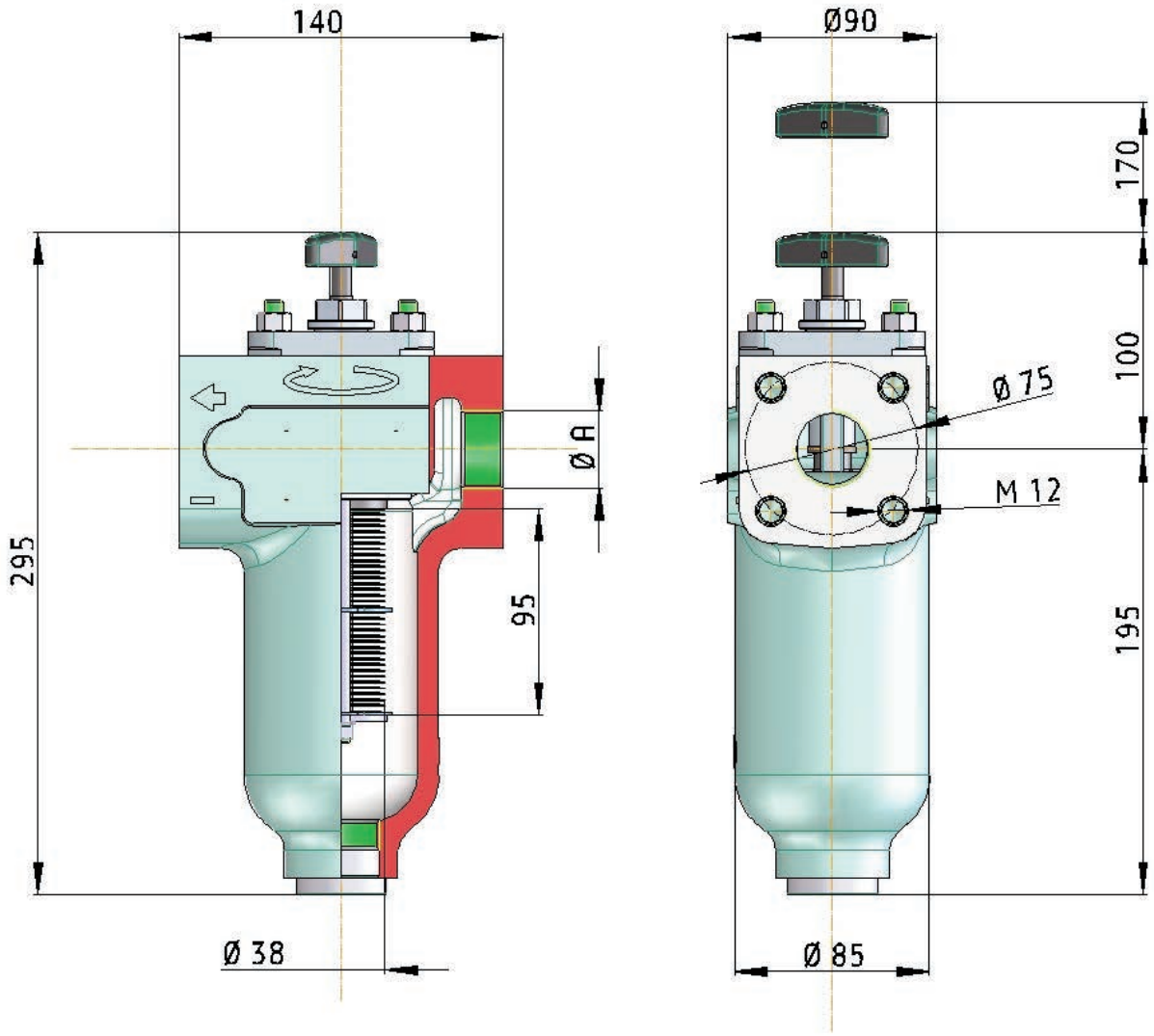



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGP00014 | 25.001.00027 | 100 | 2600 | 50 | 120 | G 1/2 | gray cast iron | steel | steel | 0,5 | 2,8 | painted |
| KMGP00024 | 25.001.00056 | 200 | 3500 | 50 | 120 | G 1/2 | gray cast iron | steel | steel | 0,5 | 2,8 | painted |
| KMGP00010 | 25.001.00018 | 100 | 2600 | 50 | 120 | G 3/4 | gray cast iron | steel | steel | 0,5 | 2,8 | painted |
| KMGP00013 | 25.001.00011 | 200 | 4500 | 50 | 120 | G 3/4 | gray cast iron | steel | stainless steel | 0,5 | 2,8 | painted |
| KMGP00001 | 25.001.00001 | 100 | 2600 | 50 | 120 | M22x1,5 | gray cast iron | steel | steel | 0,5 | 2,8 | painted |
| KMGP00015 | 25.001.00030 | 100 | 2600 | 10 | 120 | M22x1,5 | gray cast iron | steel | stainless steel | 0,5 | 2,8 | Not painted |
| KMGP00034 | 25.001.00053 | 200 | 4500 | 50 | 120 | M22x1,5 | gray cast iron | steel | steel | 0,5 | 2,8 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

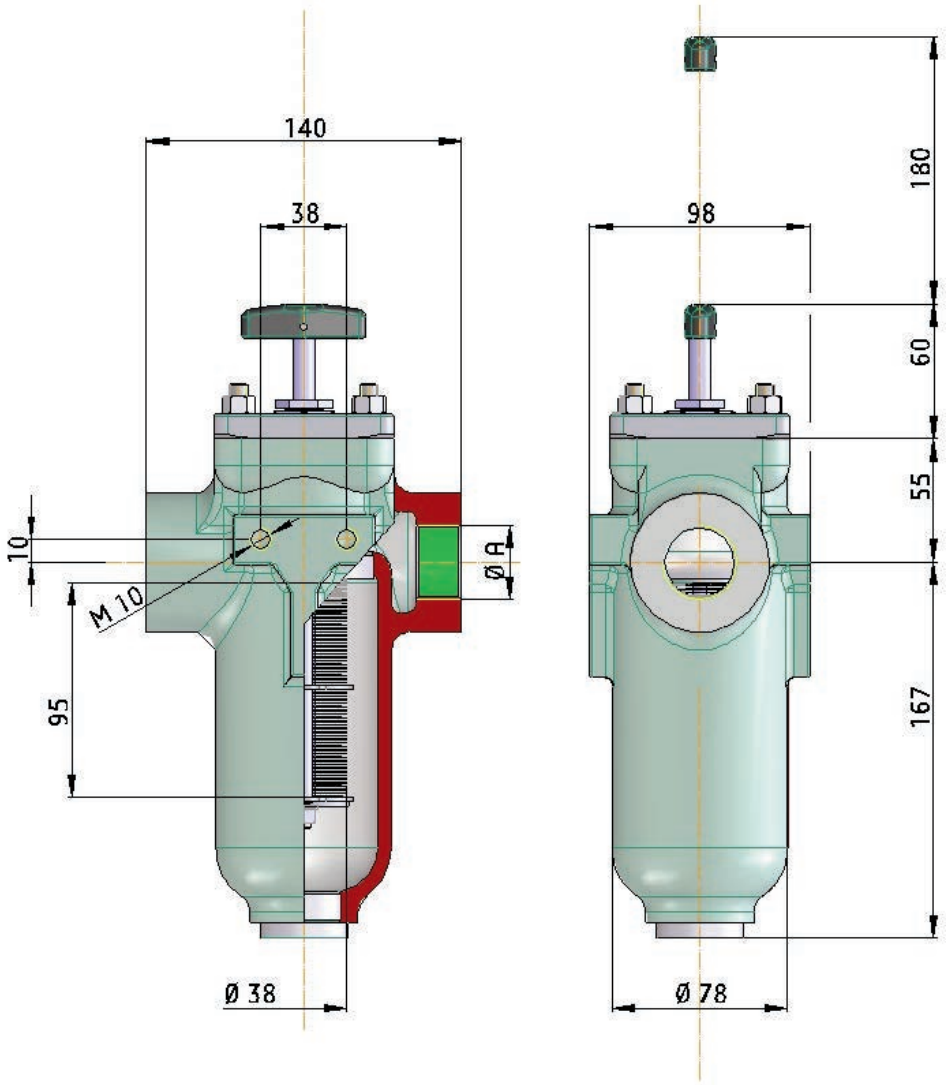



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) |
|---|---|---|---|---|---|---|---|---|---|---|
| KMGP00031 | 25.001.00032 | 100 | 2600 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 |
| KMGP00012 | 25.001.00005 | 200 | 2600 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 |
| KMGP00009 | 25.001.00017 | 400 | 5000 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 |
| KMGP00008 | 25.001.00003 | 800 | 5000 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

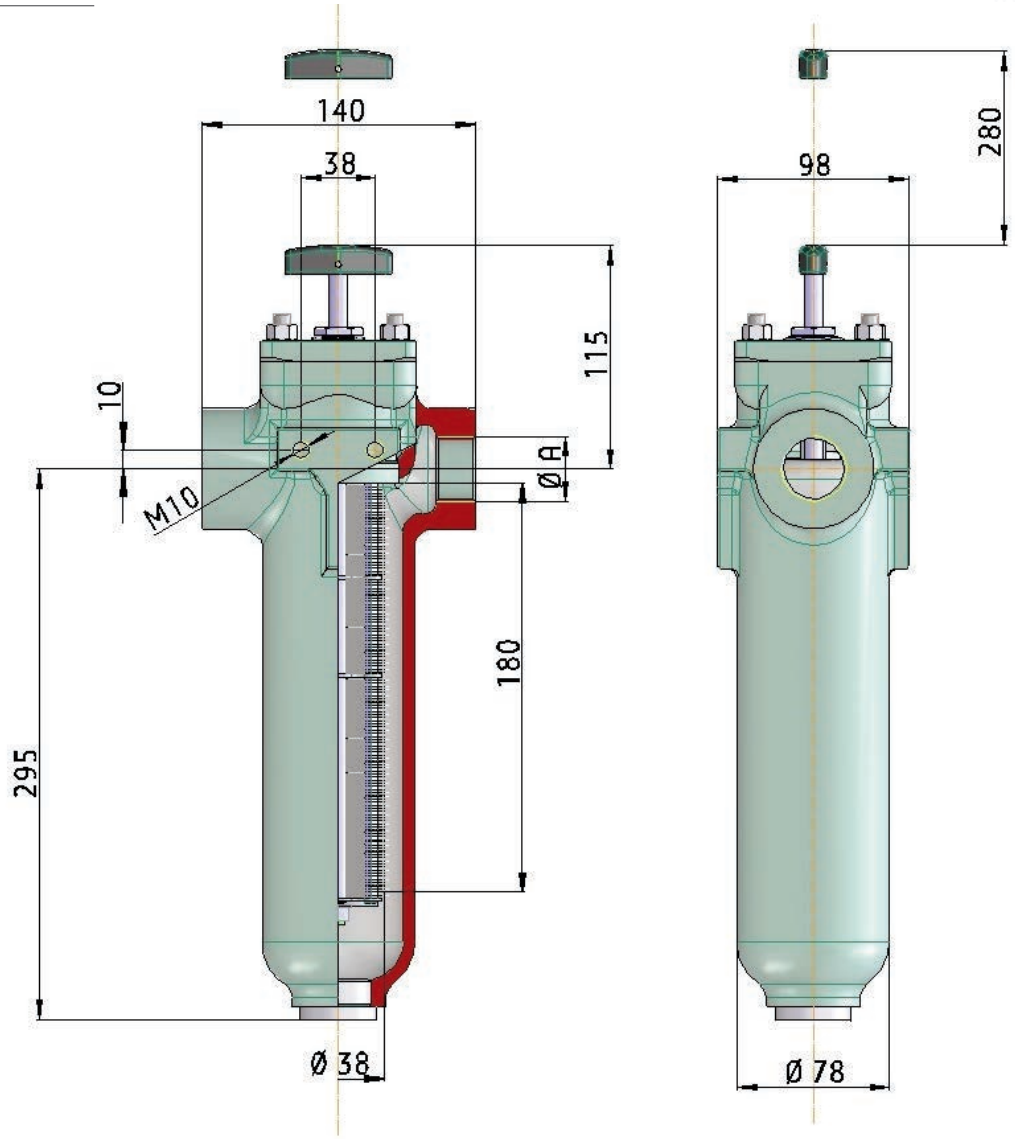



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGP00027 | 25.001.00036 | 100 | 2600 | 10 | 120 | G 1 | gray cast iron | gray cast iron | steel | 0,5 | 6,2 | painted |
| KMGP00003 | 25.001.00012 | 200 | 5000 | 10 | 120 | G 1 | gray cast iron | gray cast iron | steel | 0,5 | 6,2 | painted |
| KMGP00006 | 25.001.00006 | 400 | 5000 | 10 | 120 | G 1 | gray cast iron | gray cast iron | steel | 0,5 | 6,2 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

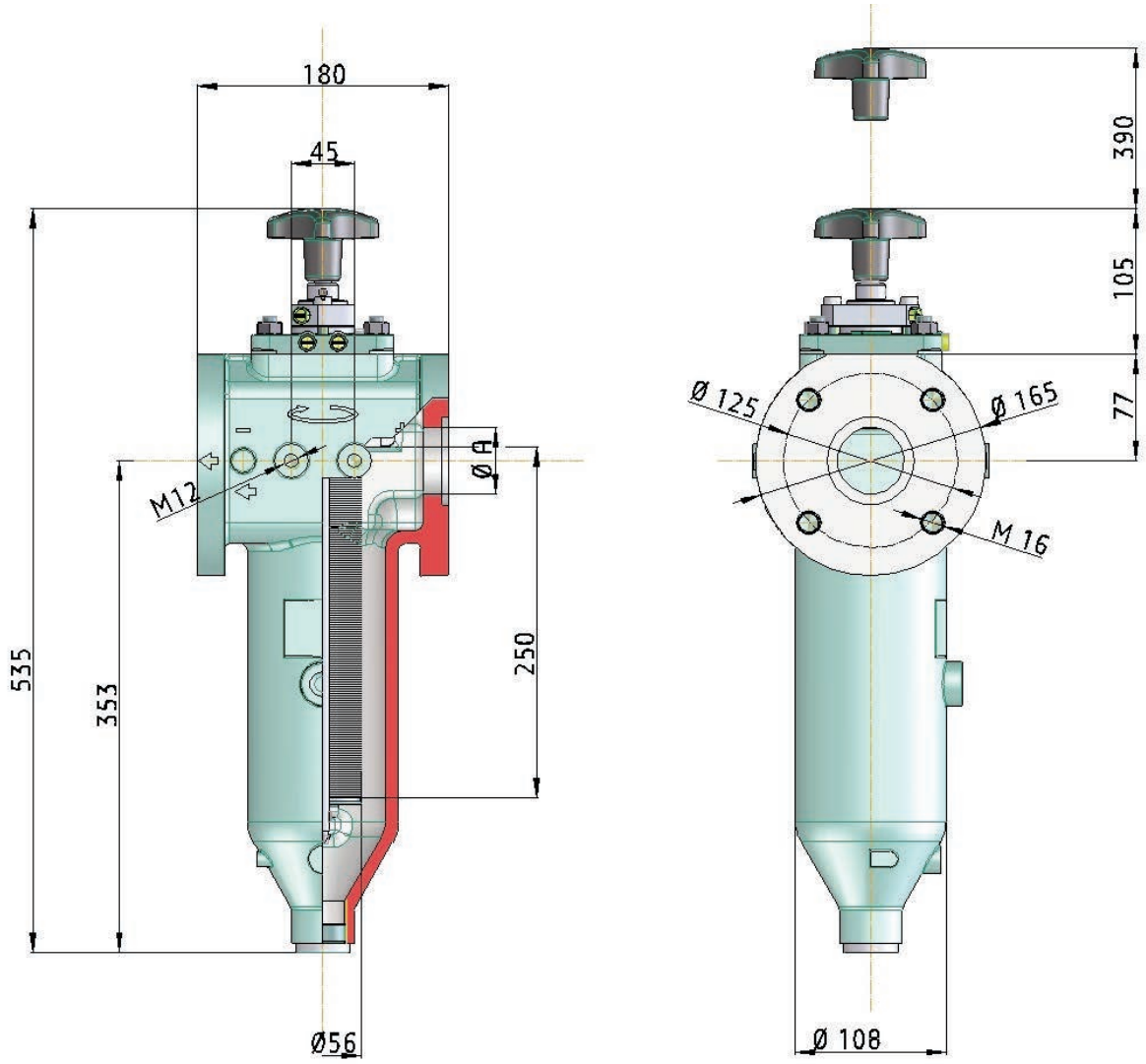



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGP00017 | 25.001.00024 | 100 | 3000 | 10 | 120 | G 1 | gray cast iron | gray cast iron | steel | 1 | 8 | painted |
| KMGP00019 | 25.001.00037 | 200 | 5000 | 10 | 120 | G 1 | gray cast iron | gray cast iron | steel | 1 | 8 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS



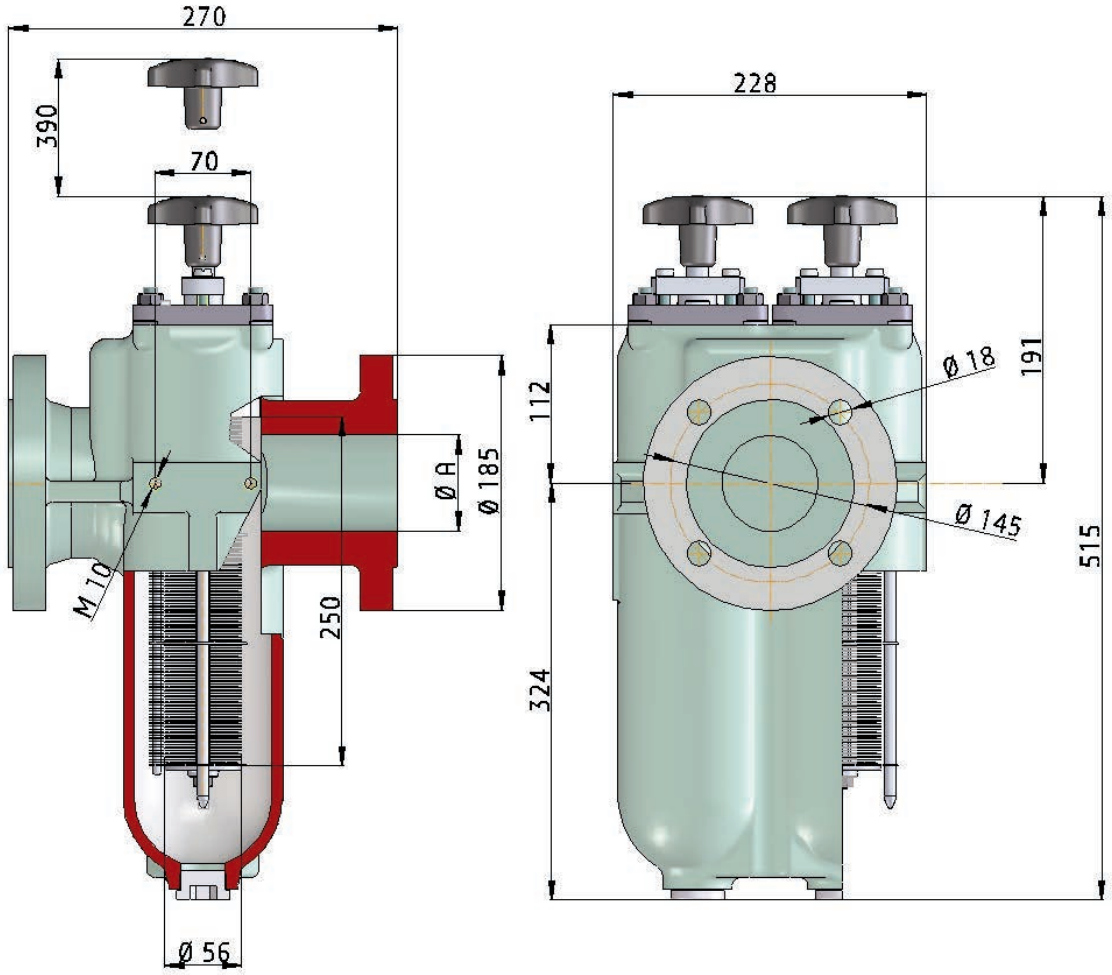

## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGP00029 | 25.001.00050 | 100 | 15000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 19,5 |
| KMGP00011 | 25.001.00022 | 200 | 15000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 19,5 |
| KMGP00030 | 25.001.00051 | 800 | 15000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 19,5 |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

**Multiple element filter assembly**

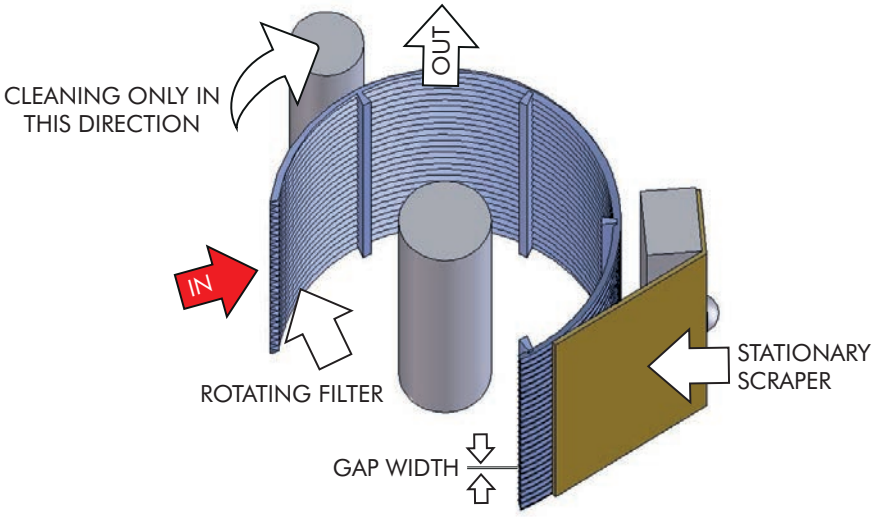


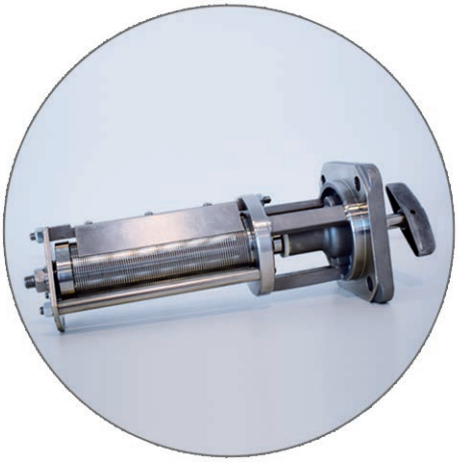

## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGP00022 | 25.001.00014 | 200 | 20000 | 15 | 120 | DN 65 PN 16 | gray cast iron | gray cast iron | steel | 4 | 42 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

# GAP-TYPE FILTER DESIGN



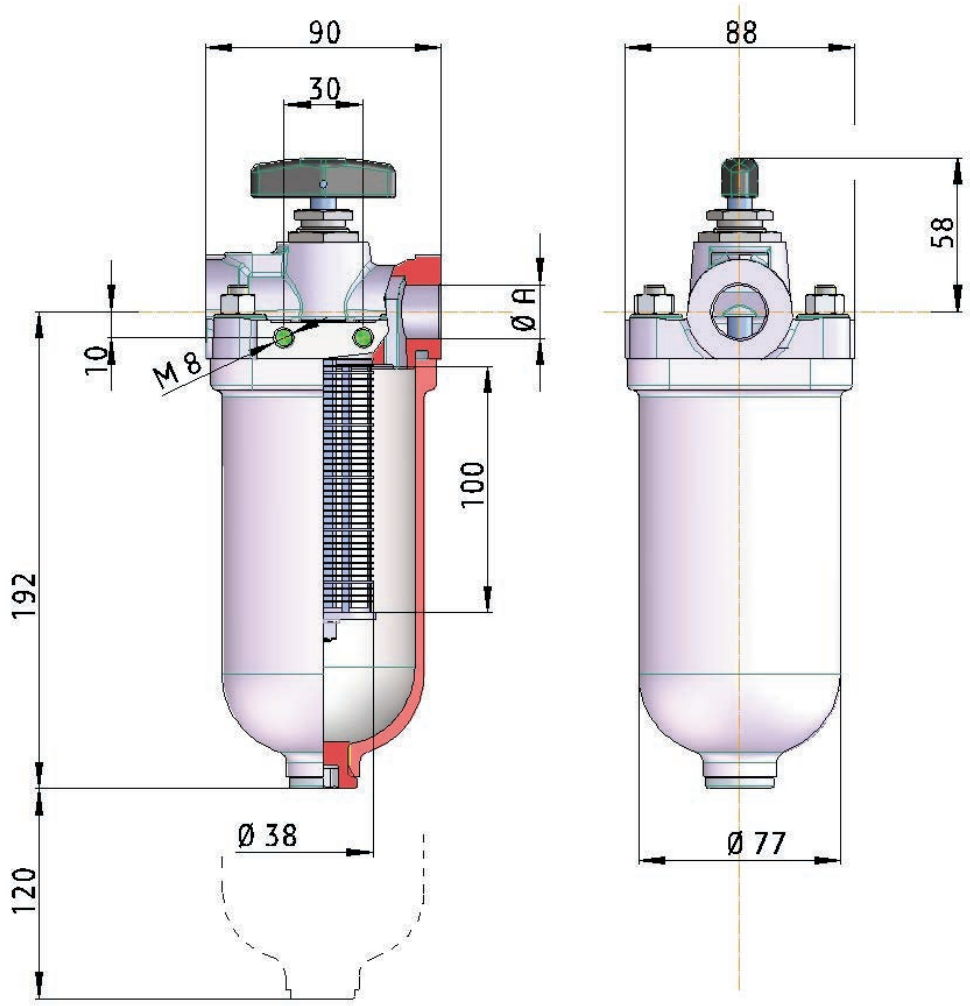
**KMGT - Tube gap-type filters (gap widths ≥ 0.05 mm)**
Watery and/or aggressive fluids

The tube gap-type filter insert consists of a wire wound around longitudinal rods, welded together at every crossing point.

The longitudinal rods and wire are made of non-rusting, high-tensile steel. The exact position of the steel wire on the longitudinal rods ensures equal gaps. As the liquid flows through the filter insert, the dirt particles are deposited on its surface. When turning the handle of the filter insert, the dirt particles gather on the row of gap cleaners and sink to the sludge collection chamber.

The sludge is then discharged by opening a ball valve, installed by the customer according to their specific needs.

## OVERALL DIMENSIONS

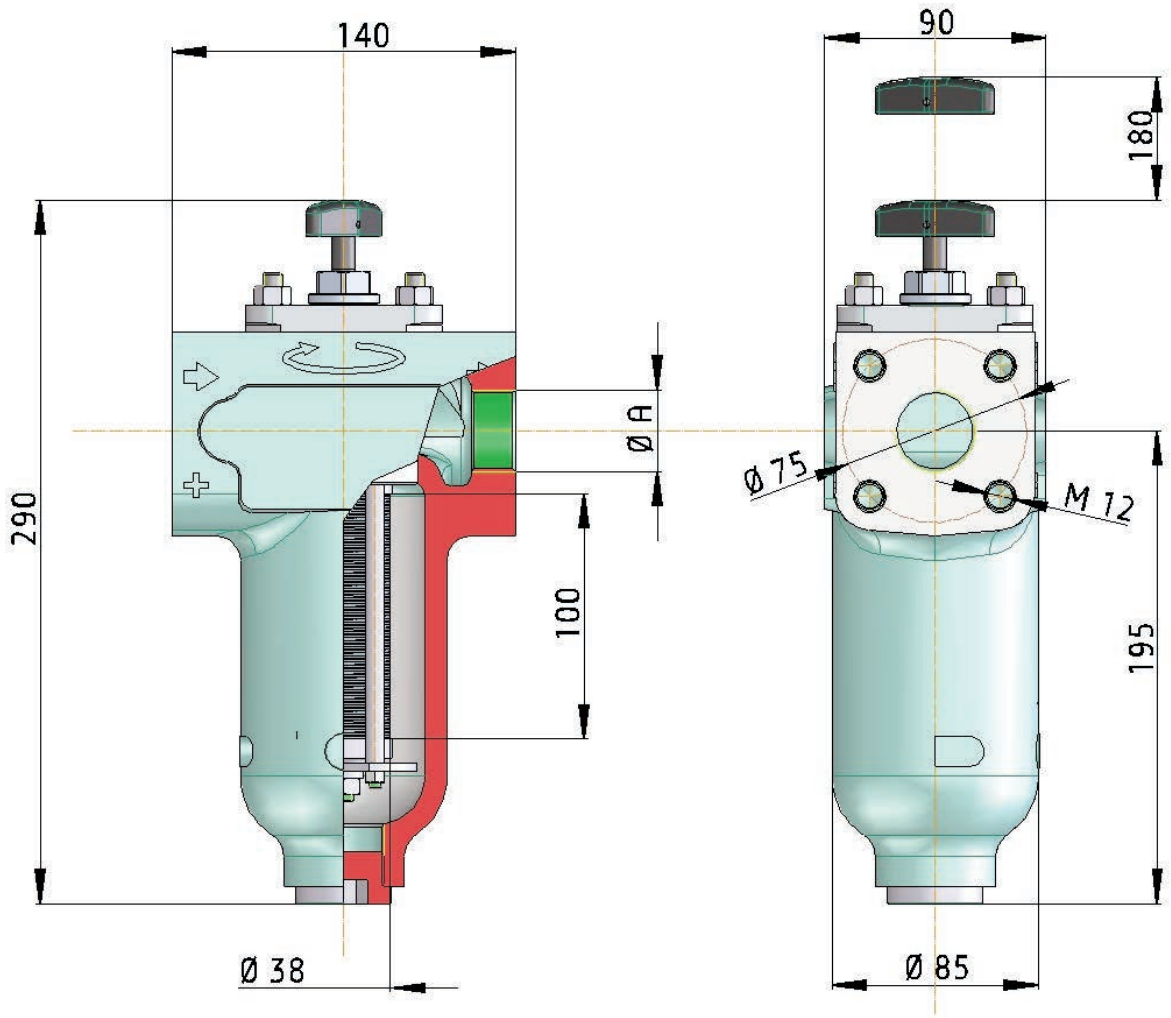



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGT00018 | 25.003.00031 | 50 | 1100 | 40 | 120 | G 3/4 | gray cast iron | steel | stainless steel | 0,5 | 2,2 | painted |
| KMGT00013 | 25.003.00026 | 200 | 3000 | 40 | 120 | G 3/4 | gray cast iron | steel | stainless steel | 0,5 | 2,2 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

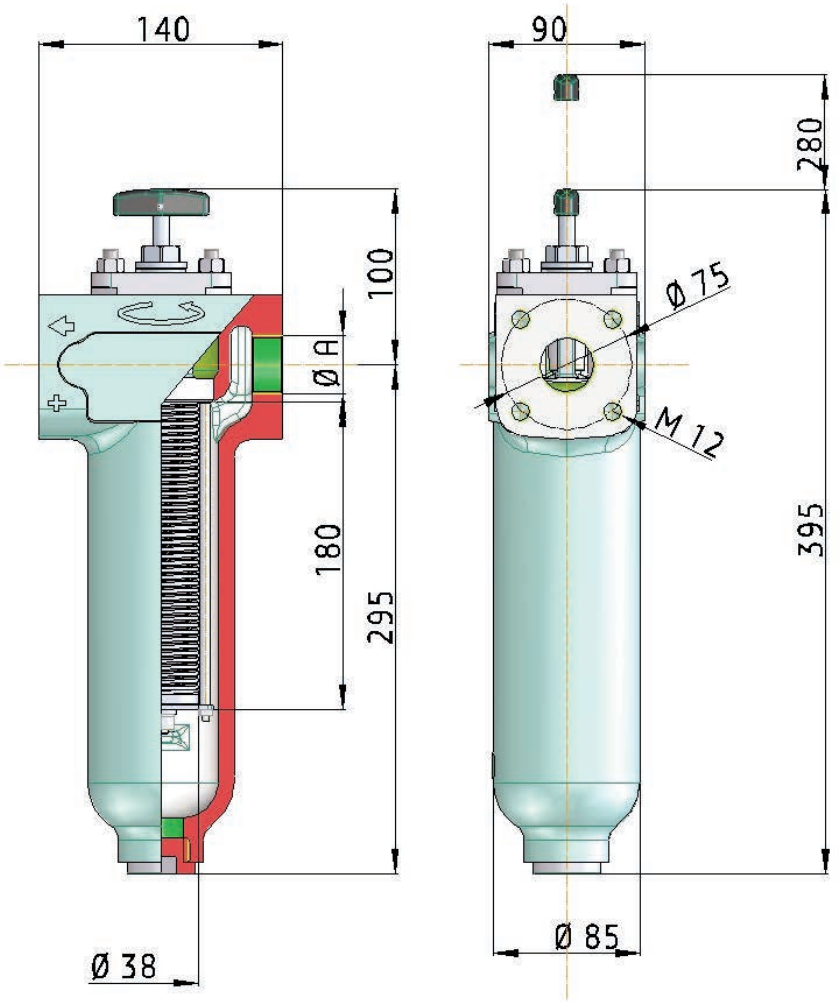



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGT00012 | 25.003.00024 | 50 | 1100 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 | 6,2 |
| KMGT00001 | 25.003.00006 | 100 | 3500 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 | 6,2 |
| KMGT00017 | 25.003.00020 | 200 | 5000 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 | 6,2 |
| KMGT00004 | 25.003.00011 | 500 | 5000 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 | 6,2 |
| KMGT00006 | 25.003.00013 | 1000 | 5000 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 0,5 | 6,2 |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

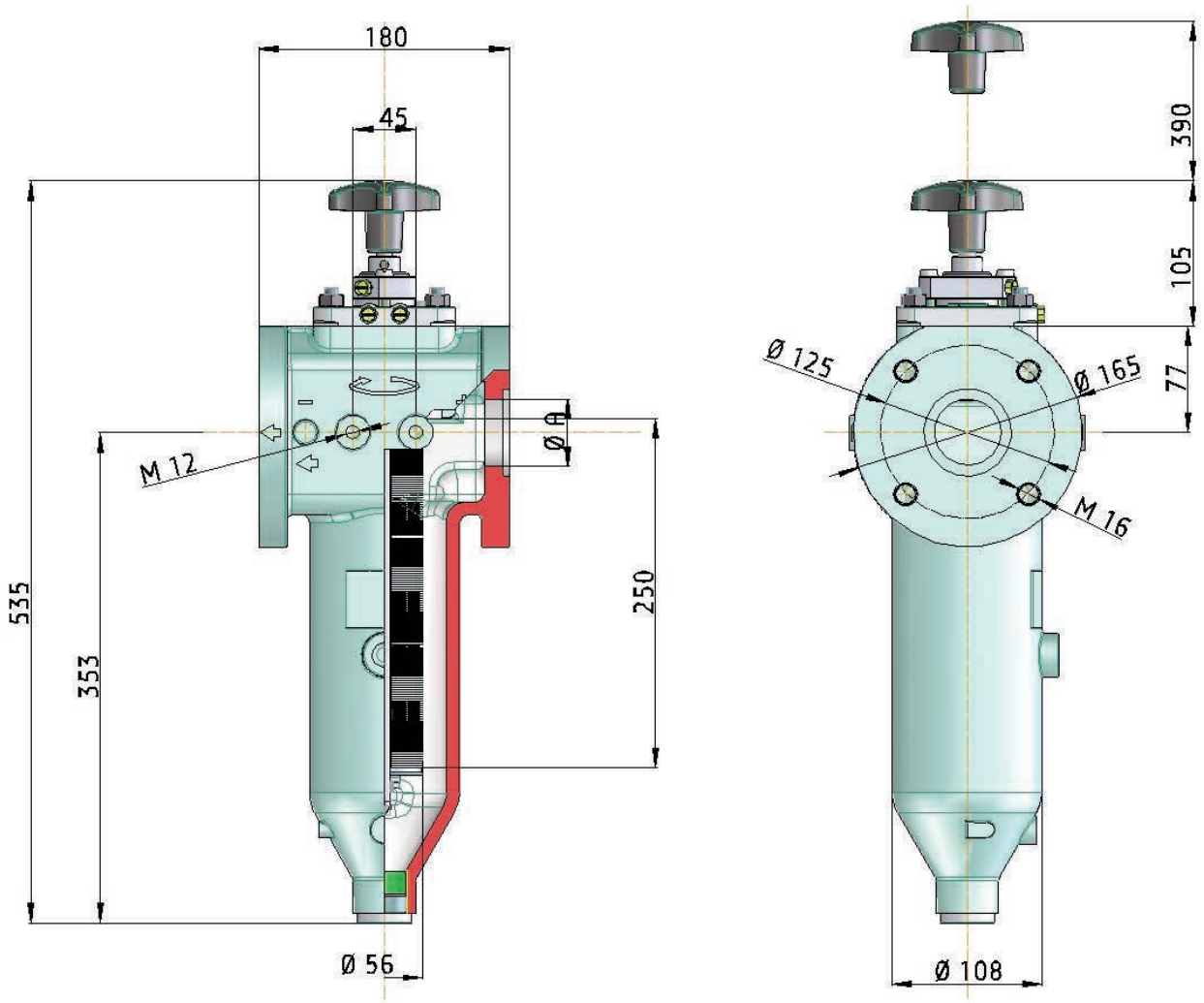



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGT00015 | 25.003.00027 | 200 | 5000 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 1 | 8 |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

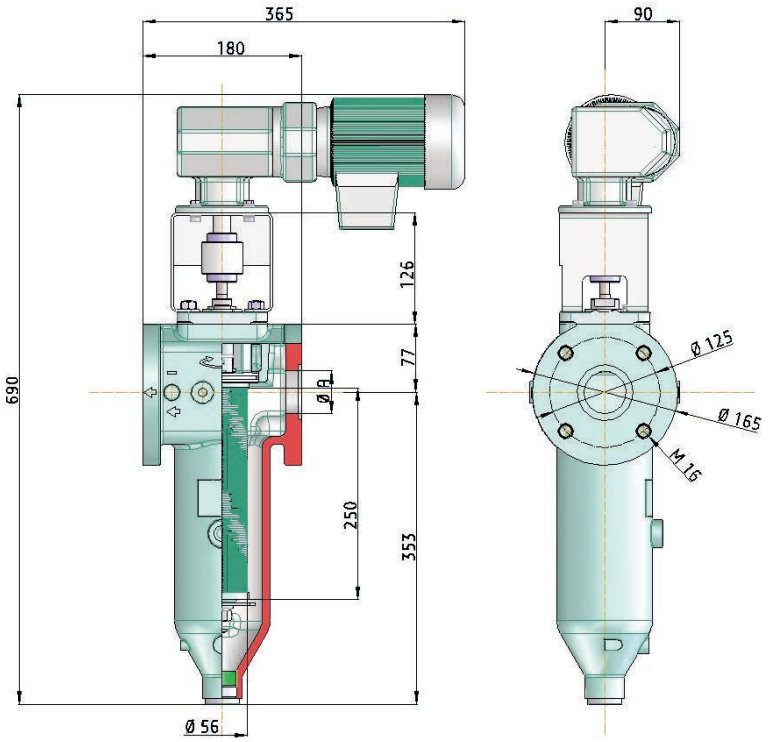



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGT00011 | 25.003.00021 | 50 | 4000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |
| KMGT00014 | 25.003.00007 | 100 | 10000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |
| KMGT00021 | 25.003.00004 | 150 | 10000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |
| KMGT00005 | 25.003.00008 | 200 | 15000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS




| GEARMOTOR | | |
|---|---|---|
| STANDARD EXECUTION | | |
| Voltage | 50 Hz | 60 Hz |
| Rated Voltage | 230/400 V | 266/460V |
| Rotation | rpm 1,84 | rpm 2,21 |
| Power Kw | 0,06 | |
| Current absorption | 0,55 A | 0,33 A |
| Protection | IP 55 | |
| Insulation class | F | |
| Painting | RAL 7031 | |

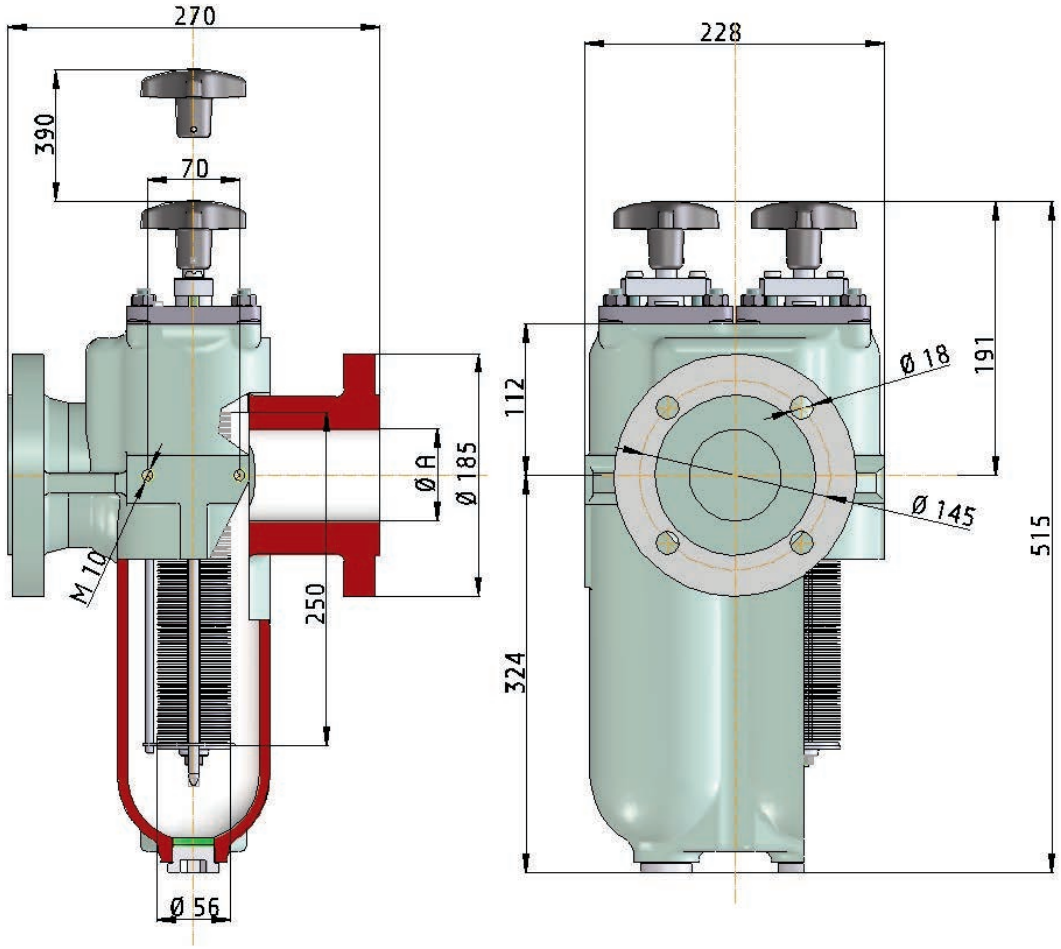
## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGT00007 | 25.003.00016 | 50 | 4000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |
| KMGT00009 | 25.003.00014 | 100 | 13000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |
| KMGT00002 | 25.003.00010 | 200 | 15000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |
| KMGT00022 | 25.003.00017 | 500 | 20000 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

**Multiple element filter assembly**

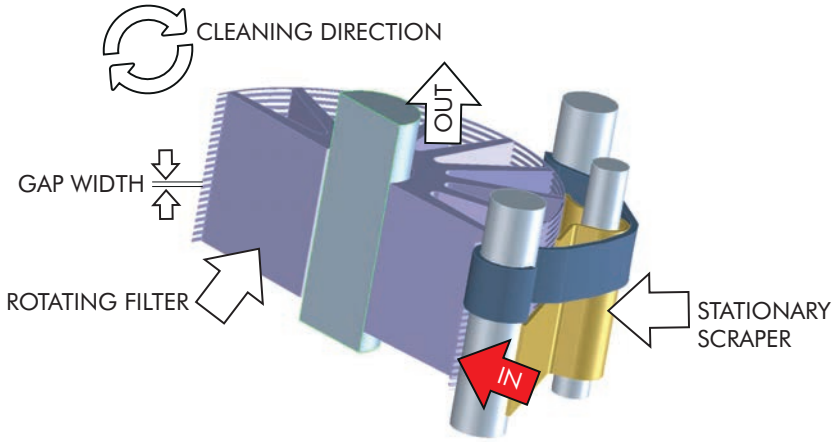



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGT00023 | 25.003.00007 | 100 | 12000 | 10 | 120 | DN 50 PN16 | gray cast iron | gray cast iron | stainless steel | 4 | 42 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

# GAP-TYPE FILTER DESIGN





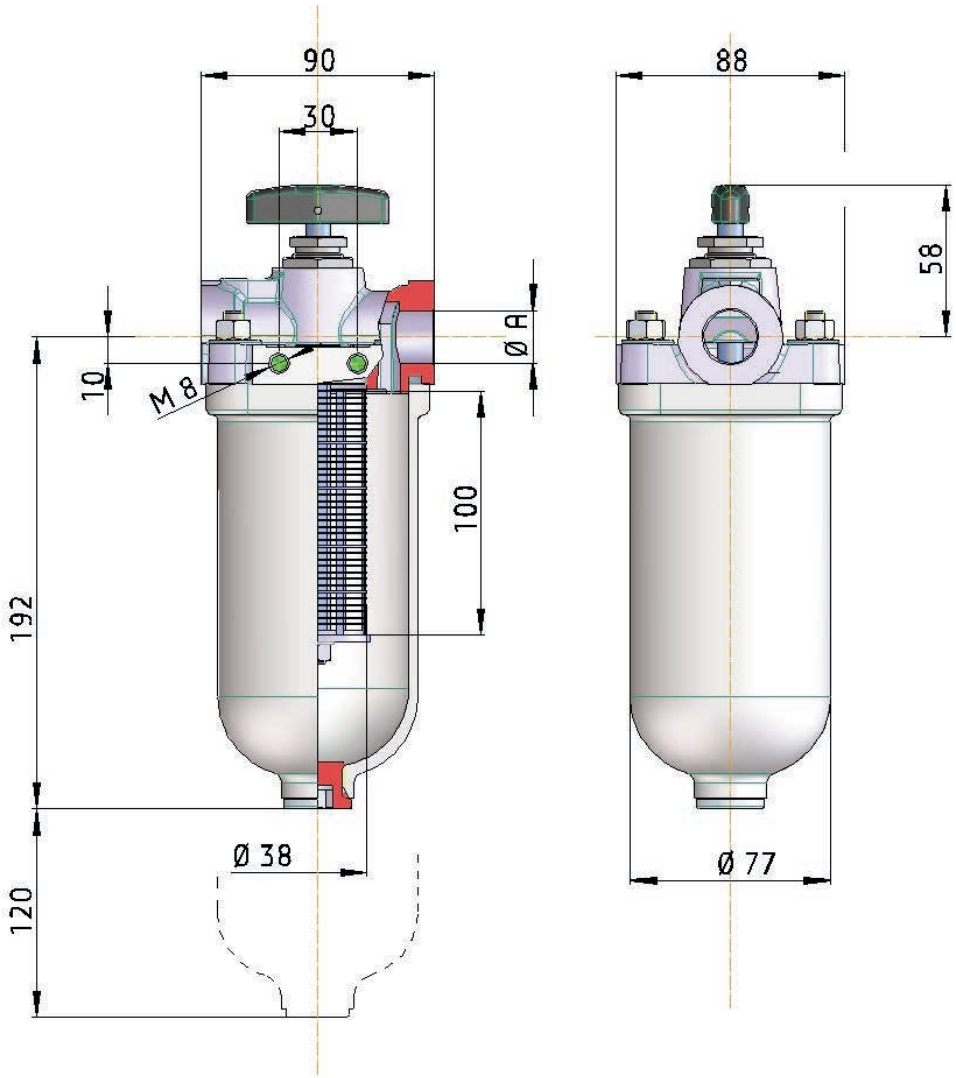

**KMGW - Wire gap-type filters (gap widths ≥ 0.03 mm)**
Fuels and lubricants

The wire gap-type insert consists of a non-rusting, high-tensile steel wire spiral wound around an aluminium frame. Equal gaps are guaranteed by the exact position of the steel wire on the frame.

As the liquid flows through the insert, dirt particles are deposited on the insert surface. When turning the handle of the filter insert, the dirt particles gather on the row of gap cleaners and sink to the sludge collection chamber.

The sludge is then discharged by opening a ball valve, installed by the customer according to their specific needs.

## OVERALL DIMENSIONS

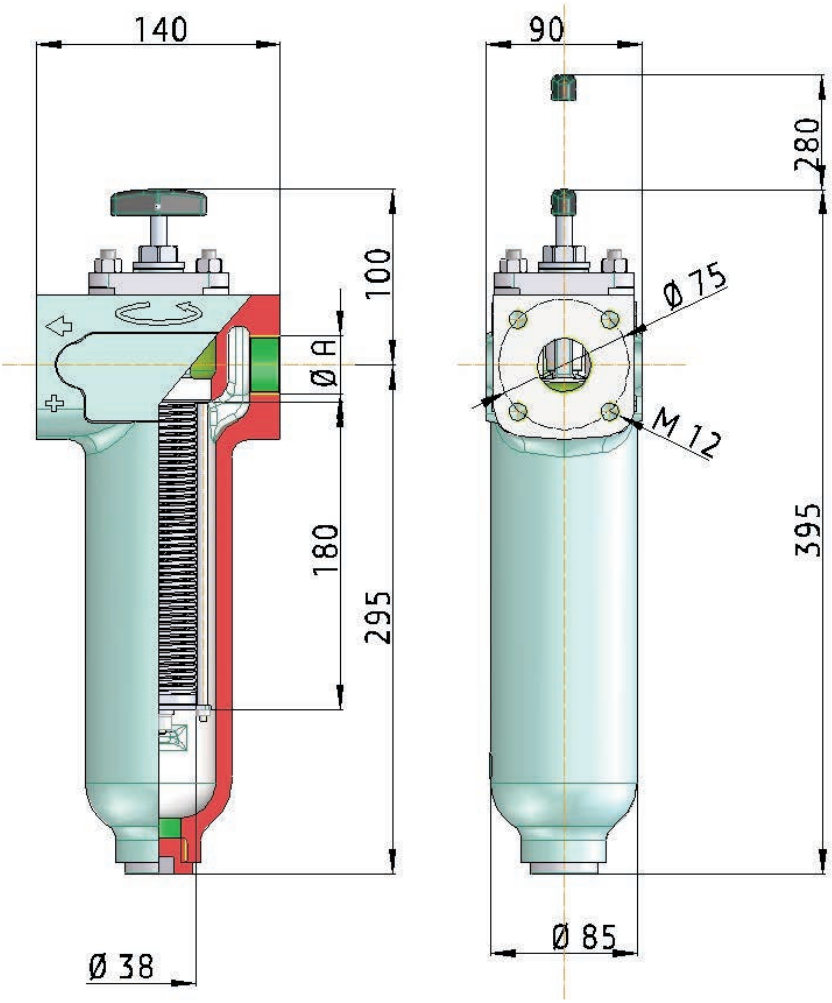



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGW00007 | 25.002.00026 | 30 | 2100 | 40 Bar | 120° | G 3/4 | gray cast iron | steel | stainless steel | 0,5 | 2,2 | painted |
| KMGW00003 | 25.002.00012 | 50 | 3000 | 40 Bar | 120° | G 3/4 | gray cast iron | steel | stainless steel | 0,5 | 2,2 | painted |
| KMGW00006 | 25.002.00024 | 100 | 3900 | 40 Bar | 120° | G 3/4 | gray cast iron | steel | stainless steel | 0,5 | 2,2 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

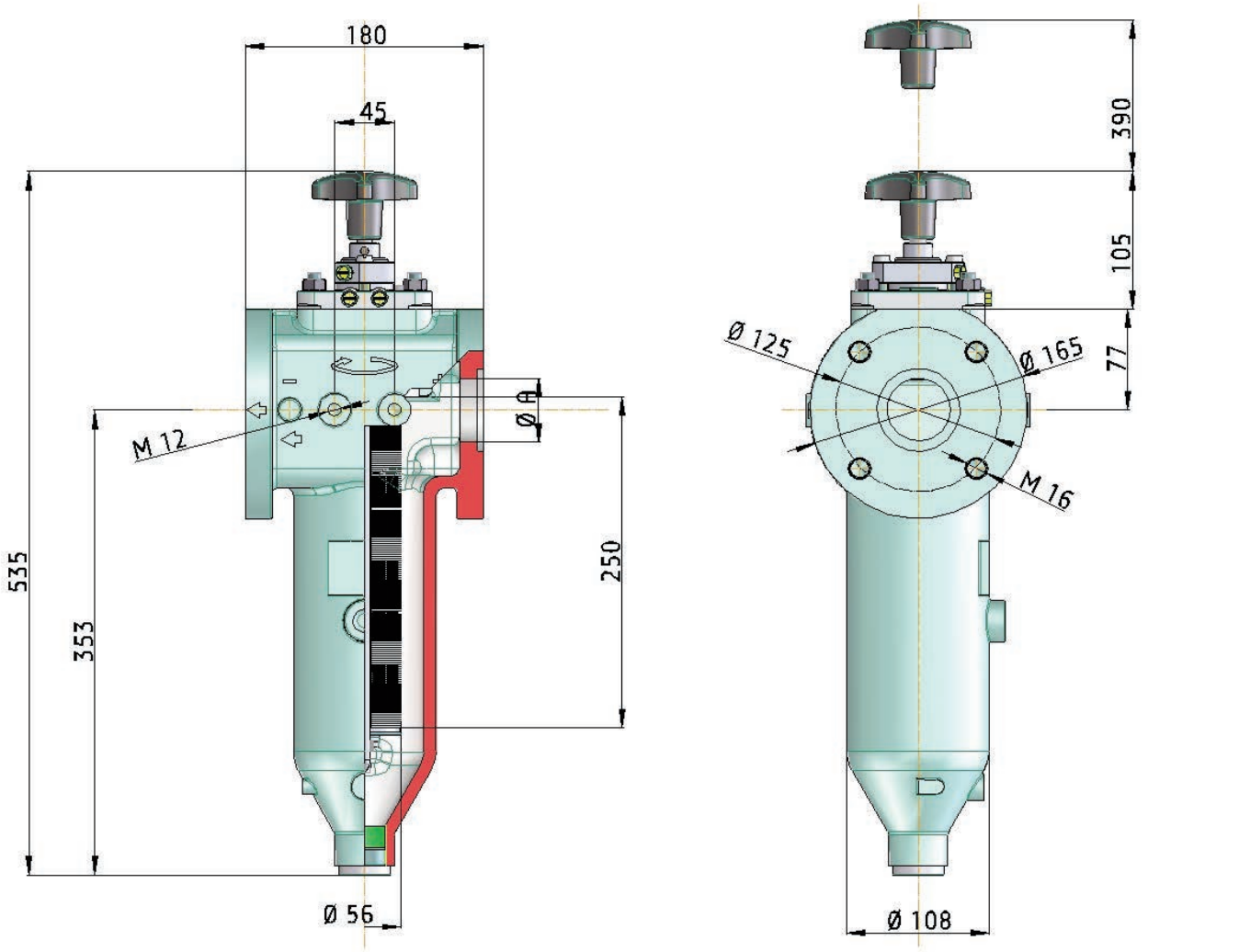



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGW00008 | 25.002.00027 | 30 | 2100 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 1 | 2,2 |
| KMGW00001 | 25.002.00018 | 50 | 3000 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 1 | 2,2 |
| KMGW00009 | 25.002.00032 | 100 | 3900 | 40 | 120 | G 1 | aluminium | aluminium | stainless steel | 1 | 2,2 |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS



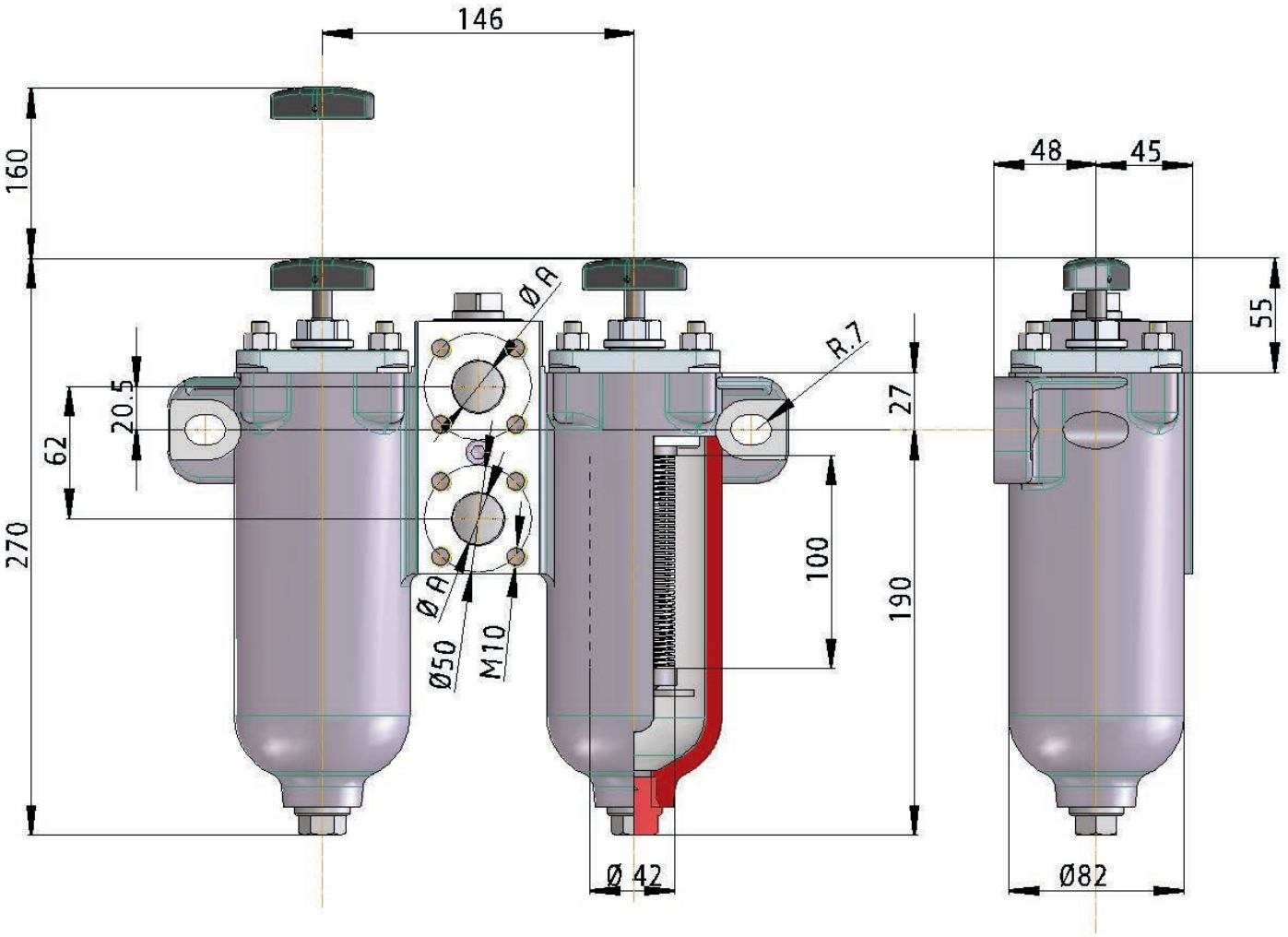

## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGW00012 | 25.002.00036 | 30 | 2800 | 50 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |
| KMGW00014 | 25.002.00029 | 50 | 3200 | 40 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |
| KMGW00010 | 25.002.00033 | 100 | 3900 | 50 | 120 | DN 50 PN 16/40 | aluminium | aluminium | stainless steel | 2 | 16 |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## OVERALL DIMENSIONS

**Duplex filter assembly**

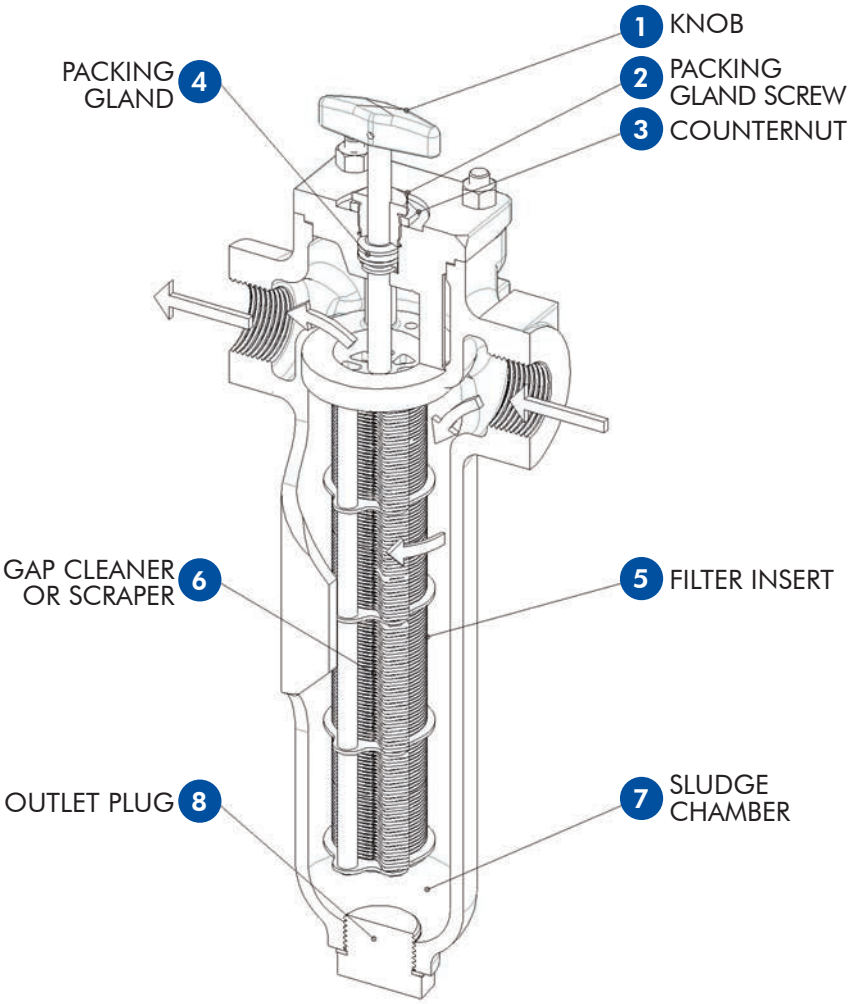



## ORDERING INFORMATION

| Filtrec filter assembly | Filter insert | Gap width (µm) | Nominal flow rate (l/h) * | Max. operating pressure (bar) | Max. operating temp. (°C ) | Port size -A- | Material head | Material Housing | Media pack material | Volume (l) | Weight approx. (kg) | External treatment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMGW00004 | 25.002.00019 | 50 | 2000 | 20 | 120 | Ø24 | gray cast iron | gray cast iron | stainless steel | 2 x 0,5 | 6,5 | painted |
| KMGW00002 | 25.002.00014 | 100 | 3000 | 20 | 120 | Ø 24 | gray cast iron | gray cast iron | stainless steel | 2 x 0,5 | 6,5 | painted |

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

## USER TIPS




To service the filter insert (5), turn it by using the knob (1) one or two times. The gap cleaner or scraper (6) removes the contaminant that drops down into the housing's sludge chamber (7).

The contaminant can then be discharged by unscrewing the plug (8).

Cleaning is most effective when servicing is done immediately after the end of operation, so that the scraped contaminant drops down easily into the housing's sludge chamber.

If leaks occur from the packing gland (4), loosen its counternut (3) and gently tighten the packing gland screw (2).

Take care that the knob can rotate easily, as too much tightening can damage the packing gland.

After that, tighten the counternut again Should the filter insert be heavily contaminated, remove it, immerse it in detergent, and wash it out.

If the knob does not rotate, never use excessive force to turn it.

Damaged filter inserts or those that can no longer be turned must be replaced.

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Technical information may change without notice

CT84-rev.03/25

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# DOX1012 SERIES

Duplex Pressure Filter according to API614 latest edition.

In line filters for operating pressure up to 40 bar flow rate up to 70 l/min.



## HOUSING

| | |
|---|---|
| PRESSURE: | Max operating: 40 bar |
| TEMPERATURE: | Max operating: 100°C |
| CONNECTIONS: | 1" SAE 3000<br>1" Ansi 150 RF<br>1" Ansi 300 RF<br>DN25 PN16<br>DN25 PN40 |
| MATERIALS: | Head: St.Steel 316/316L<br>Body: St.Steel 316/316L<br>Seal: NBR (FKM option)<br>3-Way valve: Steel 316/316L |

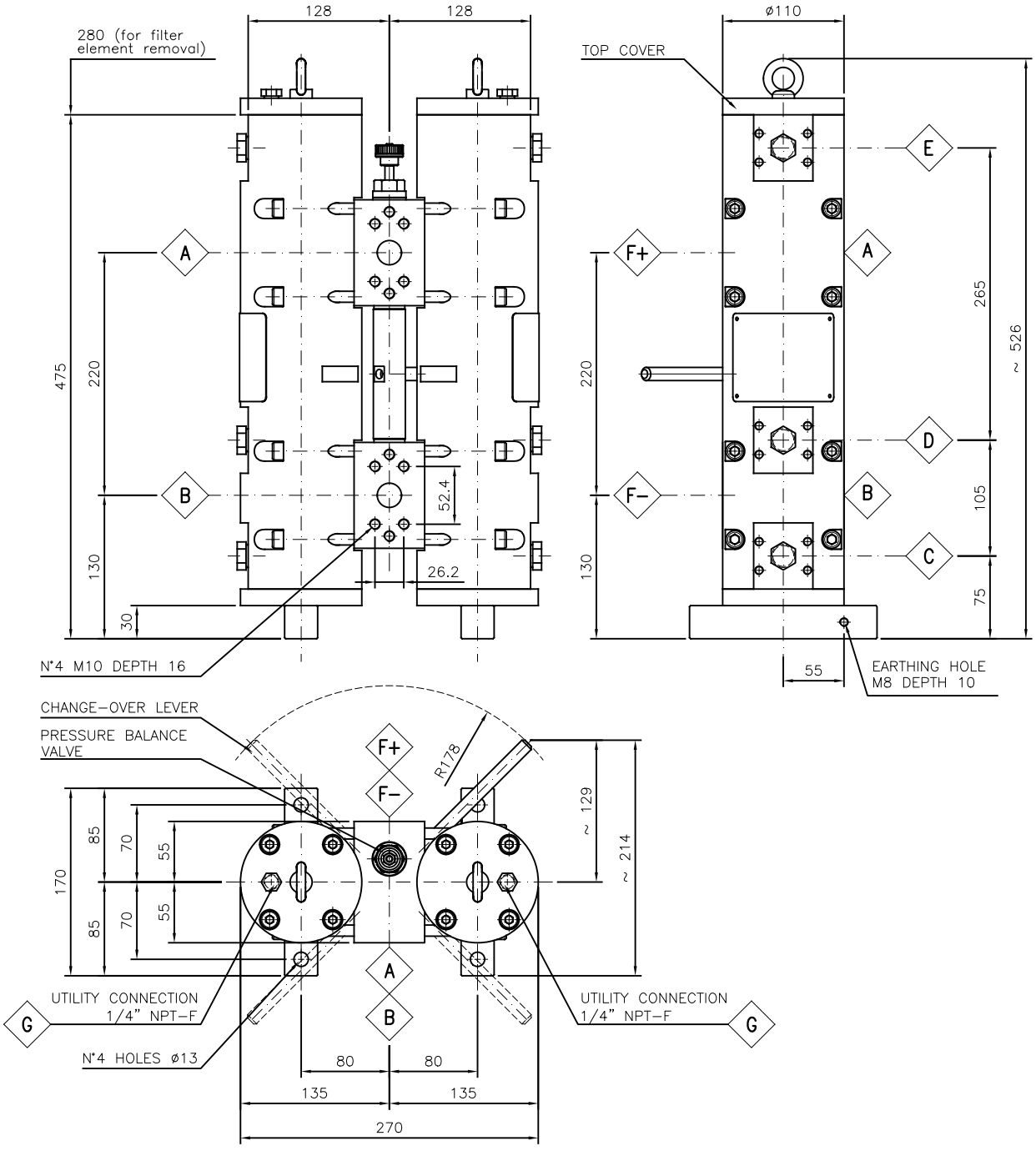
## ELEMENT

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

| | |
|---|---|
| FILTER MEDIA: | Fibreglass: G03 - G05 - G10<br>G15 – G20 – G40<br>Synthetic Media:<br>M05 – M08 – M10 – M15<br>Wire Mesh:<br>T25 – T40 – T80 – T125 |
| COLLAPSE PRESSURE: | 20 bar |
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C<br><br>with EPDM seal (ON REQUEST)<br>from -57 °C to +150 °C<br><br>with HNBR seal (ON REQUEST)<br>from -48 °C to +150 °C |

## OVERALL DIMENSIONS

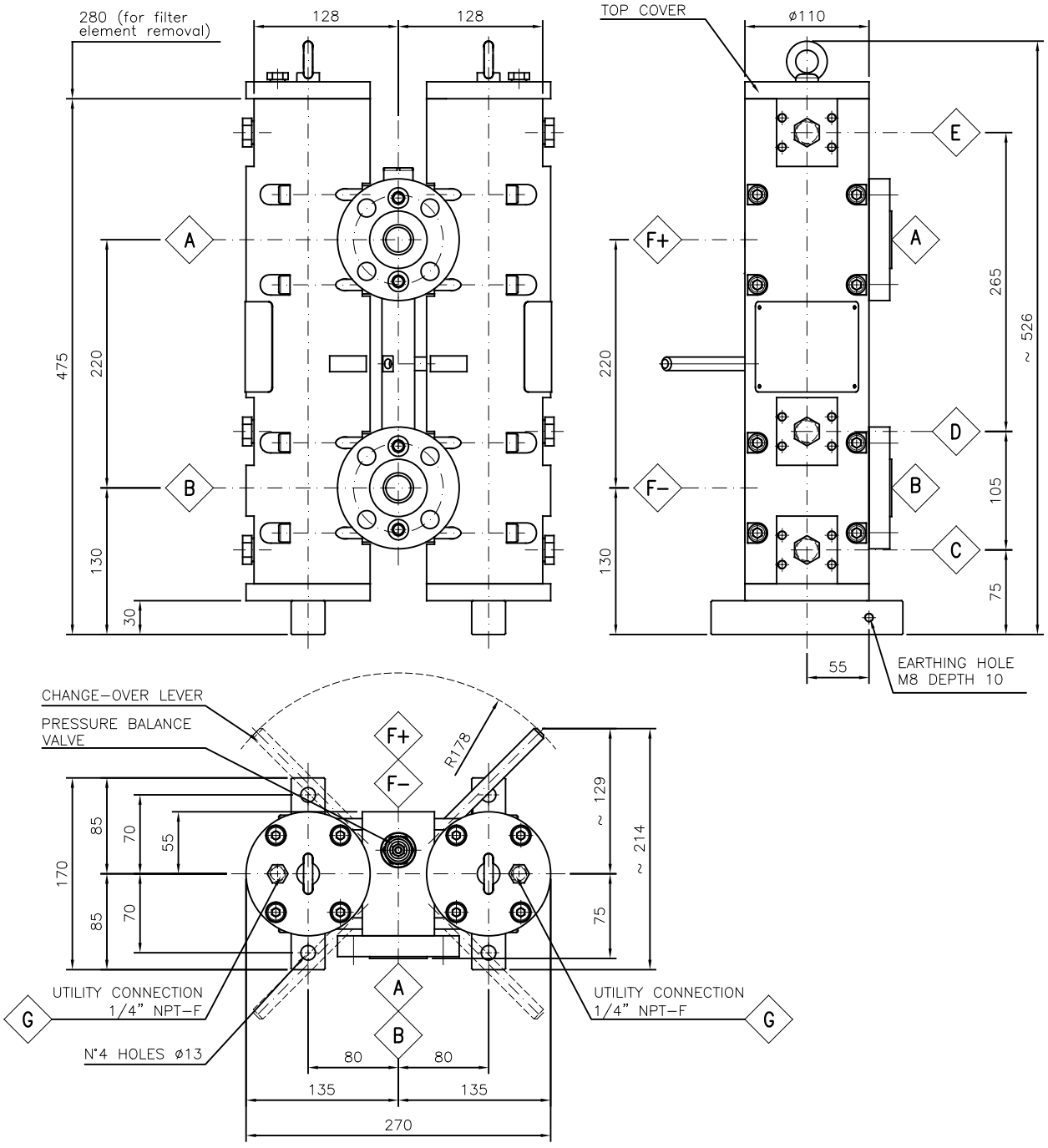
### IN/OUT 1" SAE 3000
### VENT/DRAIN 1/2" NPT-F



## OVERALL DIMENSIONS

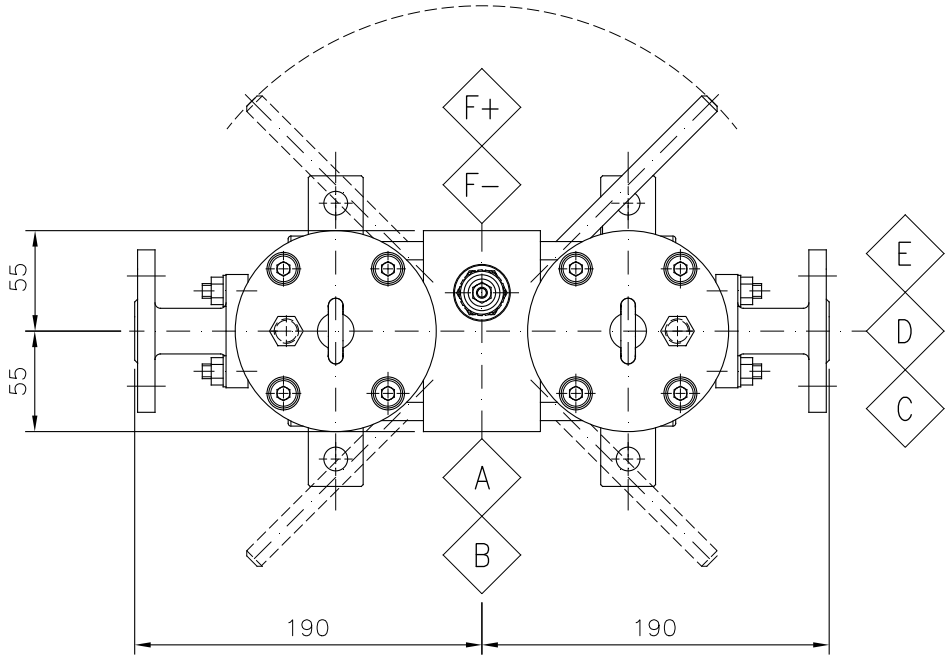
### IN/OUT 1" ANSI150/300 PN16/PN40

### VENT/DRAIN 1/2" NPT-F

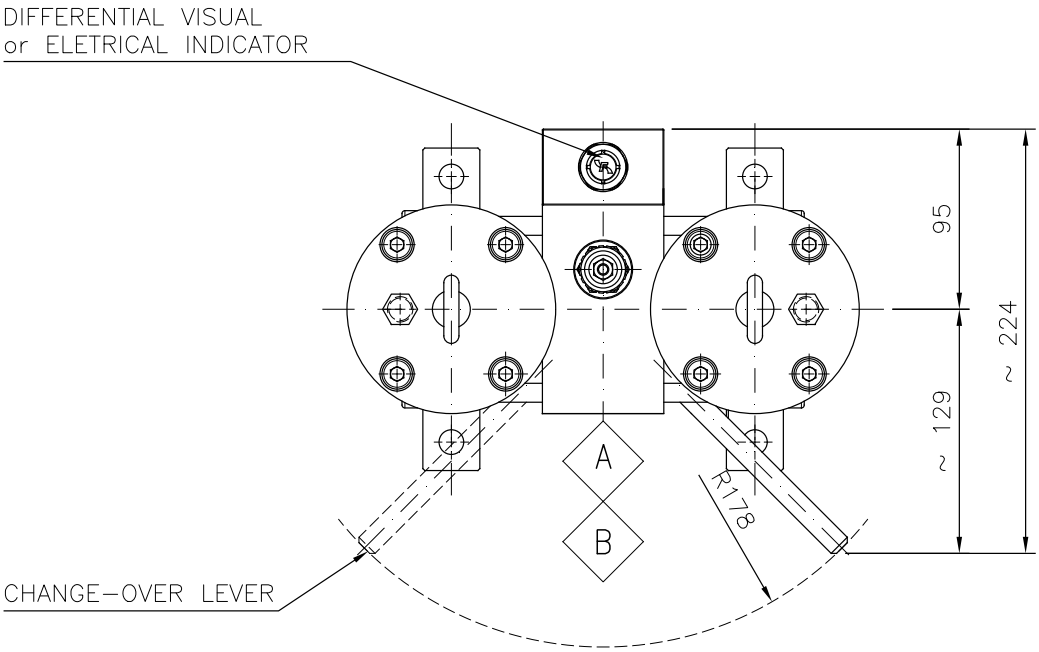


## OVERALL DIMENSIONS

### DUPLEX FILTER WITH VENT AND DRAIN FLANGED CONNESSION




### LEVER POSITION FOR DUPLEX FILTER WITH DIFFERENTIAL INDICATOR



## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12 | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DOX** | **S** | **B** | **1012** | **S** | **025** | **A** | **A** | **0** | **G15** | **ESD** | **000** | **-0000** |

| | | |
|---|---|---|
| 1. FILTER SERIES | DOX | |
| 2. MATERIAL | S | Stainless Steel 316/316L |
| 3. SEALS | B | NBR |
| | V | FKM (option) |
| | E | EPDM (on request) |
| | H | HNBR (on request) |
| 4. HOUSING SIZE | 1012 | |
| 5. PORT TYPE | A | Ansi 150 flange |
| | B | Ansi 300 flange |
| | P | PN16 flange |
| | R | PN40 flange |
| | S | SAE 3000 (max working pressure 16 bar) |
| | T | SAE 3000 (max working pressure 40 bar) |
| 6. PORT SIZE | 025 | 1" DN25 |
| 7. VENT and DRAIN | A | ½" NPT-F |
| | B | ½" Ansi 150 flange |
| | C | DN15 PN16 flange |
| | D | ½" Ansi 300 flange |
| | E | DN15 PN40 flange |
| 8. DESIGN CODE | A | ASME VIII div.1 |
| | B | ASME VIII div.1, U-STAMP |
| | C | ASME VIII div.1, U-STAMP, NBR |
| | D | EN13445-3 |
| 9. AREA CLASSIFICATIONS | 0 | Safe Area |
| (*) Ambient temperature -40°C ÷ +50°C Max operating temperature fluid +85°C | 1 | ATEX II 2G Ex h IIC T4 Gb (*) |
| 10. FILTER MEDIA | G03 | Glassfiber $ß_{5µm(c)} \geq 1.000$ |
| | G05 | Glassfiber $ß_{7µm(c)} \geq 1.000$ |
| | G10 | Glassfiber $ß_{12µm(c)} \geq 1.000$ |
| | G15 | Glassfiber $ß_{17µm(c)} \geq 1.000$ |
| | G20 | Glassfiber $ß_{22µm(c)} \geq 1.000$ |
| | G40 | Glassfiber $ß_{35µm(c)} \geq 1.000$ |
| | M05 | Synthetic $ß_{10µm(c)} \geq 1.000$ |
| | M08 | Synthetic $ß_{12µm(c)} \geq 1.000$ |
| | M10 | Synthetic $ß_{15µm(c)} \geq 1.000$ |
| | M15 | Synthetic $ß_{20µm(c)} \geq 1.000$ |
| | T25 | Wire mesh 25 $\mu$m |
| | T40 | Wire mesh 40 $\mu$m |
| | T80 | Wire mesh 80 $\mu$m |
| | T125 | Wire mesh 125 $\mu$m |

## ORDERING INFORMATION

| | | |
|---|---|---|
| 11. ELEMENT VERSION | ESD | Anti-static technology |
| | 002 | Stainless Steel end caps and metal parts |
| 12. CLOGGING INDICATOR | 000 | No indicator |
| Differential pressure indicatorblock and fittings are included.<br>**(Y)** digit for FKM seal option<br>(**) Available only for safe area | VX1 **(VY1)** | Differential visual set 1,3 bar |
| | VX2 **(VY2)** | Differential visual set 2,7 bar |
| | VX5 **(VY5)** | Differential visual set 5 bar |
| | EX1 **(EY1)** | Differential electrical set 1,3 bar (**) |
| | EX2 **(EY2)** | Differential electrical set 2,7 bar (**) |
| | EX5 **(EY5)** | Differential electrical set 5 bar (**) |
| 13. VERSION | -0000 | Identification numbers assigned by FILTREC after order |

## DOX1012 SERIES MAIN FEATURES

Stainless steel weld-free construction.
Continuous-flow transfer valve: double 3 ways ball valve, full bore type, zero leak with anti-static device.
Filter element made with anti-static technology, to prevent electrostatic discharge.
Beta rated elements according to ISO 16889 multipass test.
Certification of materials EN10204 type 3.1

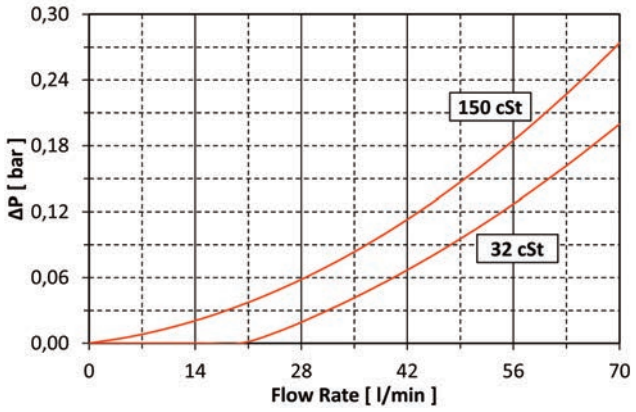
For different seal materials, filtration degree, media and certification please contact Filtrec Customer Service.

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Δp through a filter assembly is given from Housing Δp + Element Δp.
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$^3$.

## 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 (filter elements 20 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
50 l/min with OX1012G15B0/ESD and oil viscosity 46 cSt: (50 x 2,23 / 1000) x (46 / 32) = 0.16 bar

| | G03 | G05 | G10 | G15 | G20 | G40 | M05 | M08 | M10 | M15 | T25 | T40 | T80 | T125 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OX1012....0/...** | 6.84 | 4.05 | 2.89 | 2.23 | 2.00 | 0.74 | 1.70 | 1.53 | 1.35 | 1.08 | 0.28 | 0.26 | 0.25 | 0.21 |

## EXAMPLE OF TOTAL Δp CALCULATION

DOXSB1012S025AA0G150-0000 with 50 l/min and oil 46 cSt:
Housing Δp + element Δp = 0.1 bar + (50 x 2.23 / 1000) x (46 / 32) bar = 0.26 bar

## USER TIPS




1. SCREW
2. TOP COVER
3. SEAL
4. FILTER ELEMENT

### SPARE SEAL KIT PART NUMBER

| | NBR | FKM |
|---|---|---|
| TOP COVER SEAL KIT | 10.011.00066 (Kit of 2 cover gaskets) | 10.011.00067 (Kit of 2 cover gaskets) |

## 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. Secure the frame of the filter using the fixing holes.
2. The IN and OUT ports must be connected to the hoses in the correct flow direction.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in a easily viewable position.
6. When a electrical indicator is used, make sure that it is properly wired.

⚠ 7. Never run the system with no filter element fitted.
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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

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# DOX2026 SERIES

Duplex Pressure Filter according to API614 latest edition.

In line filters for operating pressure up to 16 bar flow rate up to 300 l/min.



## HOUSING

| | |
|---|---|
| PRESSURE: | Max operating: 16 bar |
| TEMPERATURE: | Max operating: 100°C |
| CONNECTIONS: | 2" SAE 3000<br>2" Ansi 150 RF<br>DN50 PN16 |
| MATERIALS: | Head: St. Steel 316/316L / Carbon Steel<br>Body: St. Steel 316/316L / Carbon Steel<br>Seal: NBR (FKM option)<br>3-Way valve: Steel 316/316L / Carbon Steel |

## ELEMENT

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

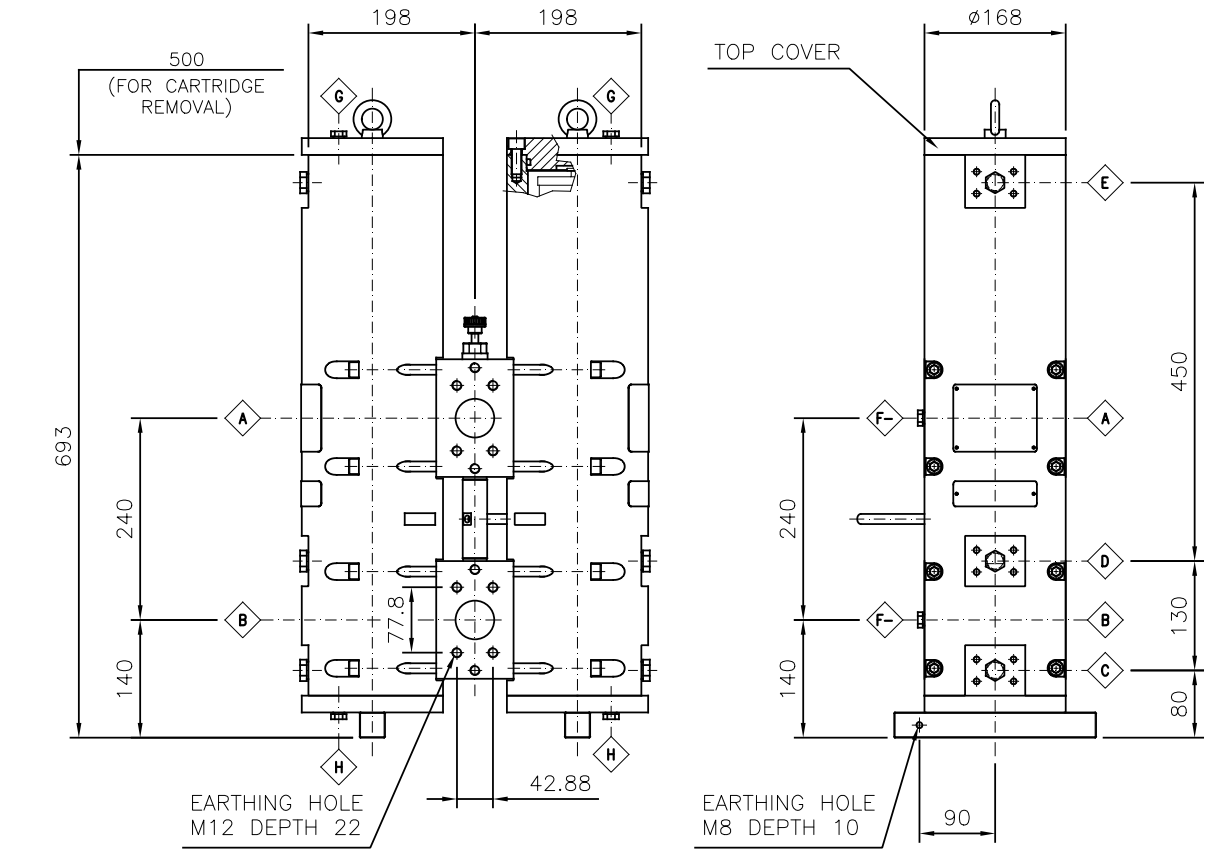
| | |
|---|---|
| FILTER MEDIA: | Fibreglass: G03 - G05 - G10<br>G15 – G20 – G40<br>Synthetic Media:<br>M05 – M08 – M10 – M15<br>Wire Mesh:<br>T25 – T40 – T80 – T125 |
| COLLAPSE PRESSURE: | 20 bar |

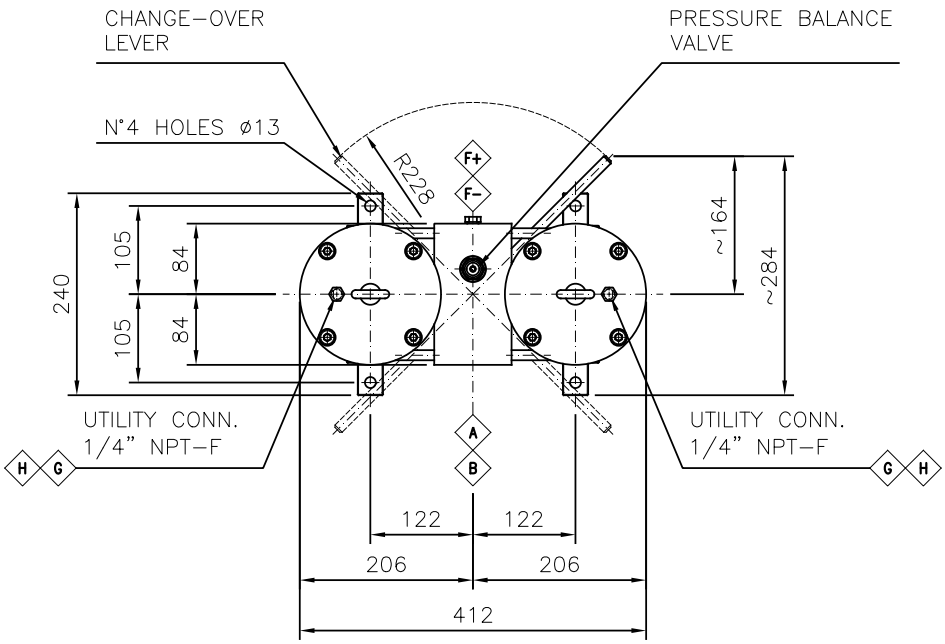
| | |
|---|---|
| TEMPERATURE RANGE: | with NBR seal<br>from -30 °C to +100 °C<br><br>with FKM seal (OPTION)<br>from -25 °C to +120 °C<br><br>with EPDM seal (ON REQUEST)<br>from -57 °C to +150 °C<br><br>with HNBR seal (ON REQUEST)<br>from -48 °C to +150 °C |

## OVERALL DIMENSIONS

### IN/OUT 2" SAE 3000

### VENT/DRAIN 1/2" NPT-F

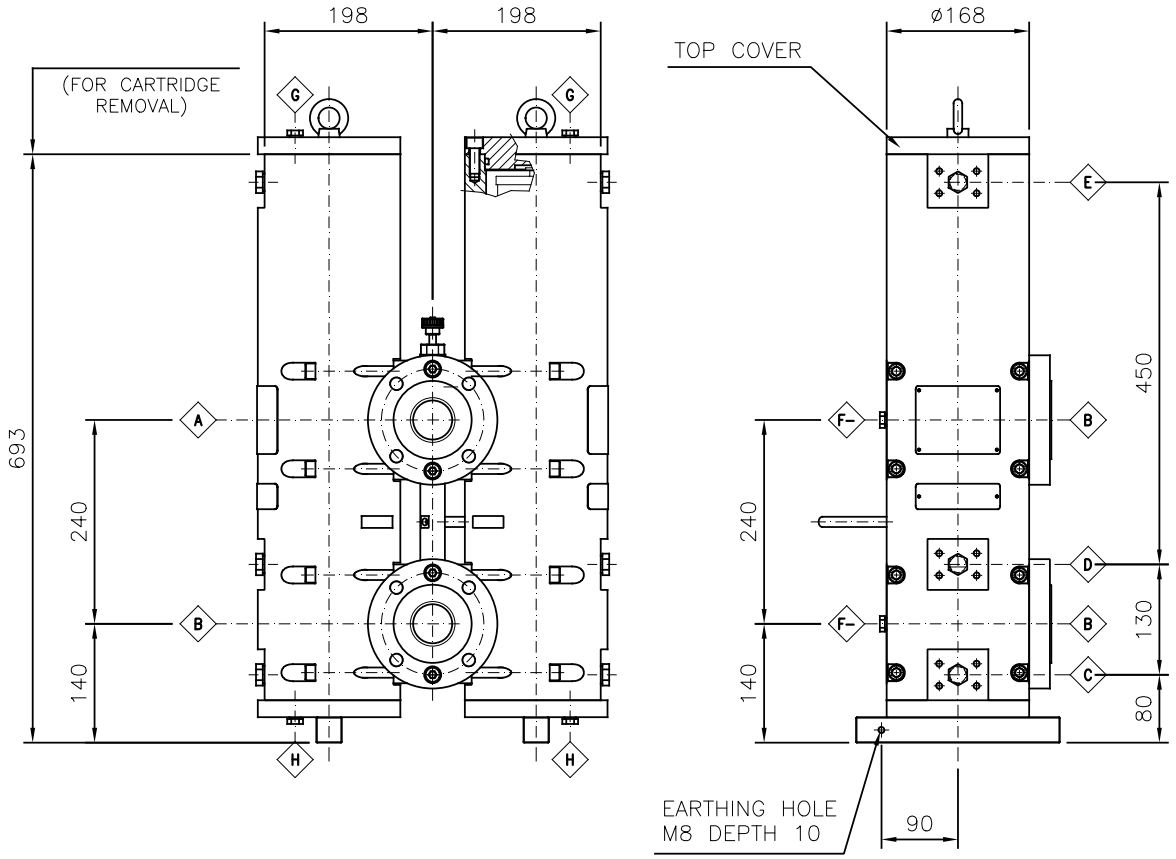


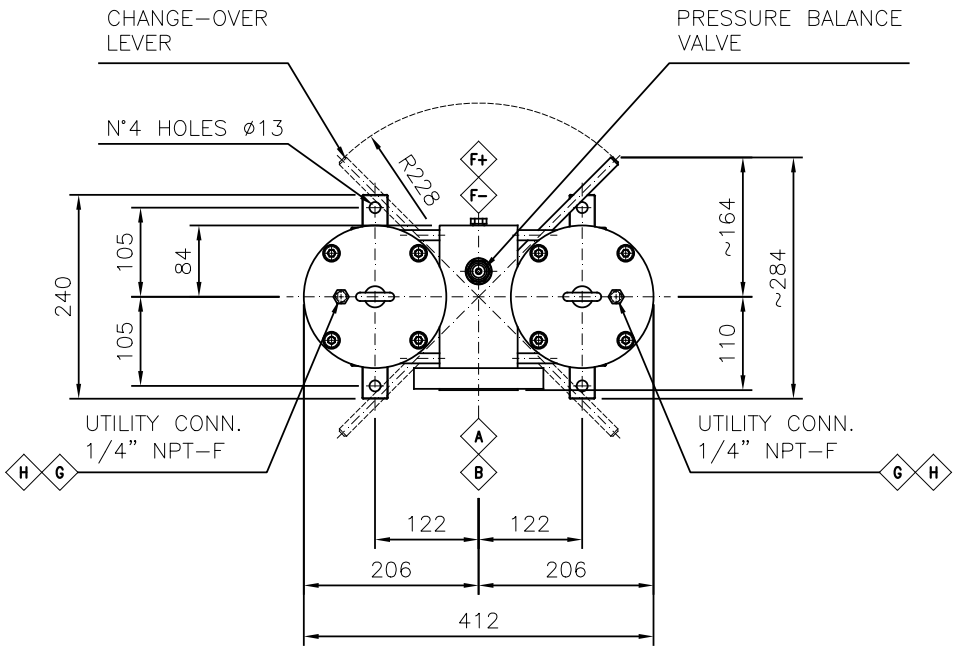



## OVERALL DIMENSIONS

### IN/OUT 2" ANSI150 / PN16

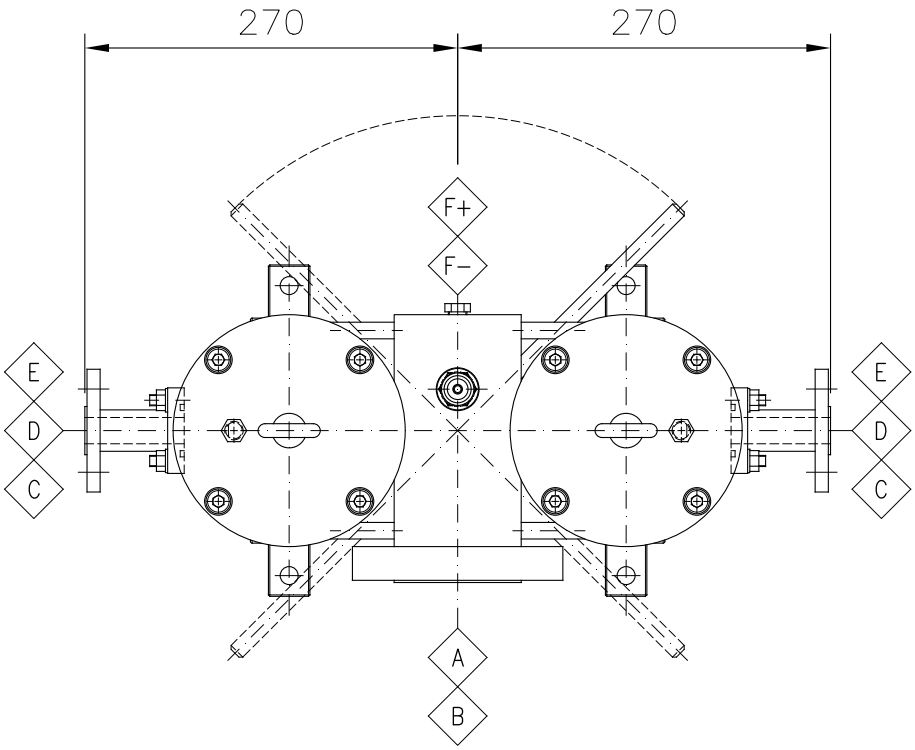
### VENT/DRAIN 1/2" NPT-F



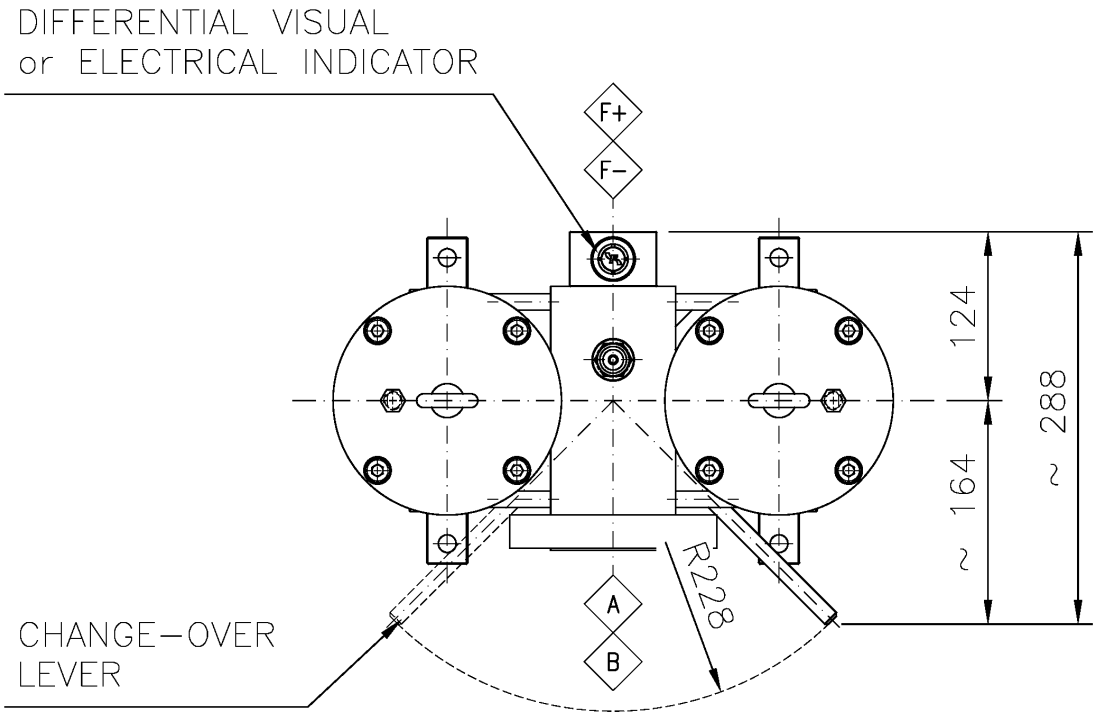



## OVERALL DIMENSIONS

### DUPLEX FILTER WITH VENT AND DRAIN FLANGED CONNESSION




### LEVER POSITION FOR DUPLEX FILTER WITH DIFFERENTIAL INDICATOR



## ORDERING INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12 | 13. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DOX** | **S** | **B** | **2026** | **S** | **050** | **A** | **A** | **0** | **G15** | **ESD** | **000** | **-0000** |

| | | |
|---|---|---|
| 1. FILTER SERIES | DOX | |
| 2. MATERIAL | S | Stainless Steel 316/316L |
| | C | Carbon Steel |
| 3. SEALS | B | NBR |
| | V | FKM (option) |
| | E | EPDM (on request) |
| | H | HNBR (on request) |
| 4. HOUSING SIZE | 2026 | |
| 5. PORT TYPE | A | Ansi 150 flange |
| | P | PN16 flange |
| | S | SAE 3000 (max working pressure 16 bar) |
| 6. PORT SIZE | 050 | 2" DN50 |
| 7. VENT and DRAIN | A | ½" NPT-F |
| | B | ½" Ansi 150 flange |
| | C | DN15 PN16 flange |
| 8. DESIGN CODE | A | ASME VIII div.1 |
| | B | ASME VIII div.1, U-STAMP |
| | C | ASME VIII div.1, U-STAMP, NBR |
| | D | EN13445-3 |
| 9. AREA CLASSIFICATIONS | 0 | Safe Area |
| (*) Ambient temperature -40°C ÷ +50°C Max operating temperature fluid +85°C | 1 | ATEX II 2G Ex h IIC T4 Gb (*) |
| 10. FILTER MEDIA | G03 | Glassfiber $ß_{5\mu m(c)} \geq 1.000$ |
| | G05 | Glassfiber $ß_{7\mu m(c)} \geq 1.000$ |
| | G10 | Glassfiber $ß_{12\mu m(c)} \geq 1.000$ |
| | G15 | Glassfiber $ß_{17\mu m(c)} \geq 1.000$ |
| | G20 | Glassfiber $ß_{22\mu m(c)} \geq 1.000$ |
| | G40 | Glassfiber $ß_{35\mu m(c)} \geq 1.000$ |
| | M05 | Synthetic $ß_{10\mu m(c)} \geq 1.000$ |
| | M08 | Synthetic $ß_{12\mu m(c)} \geq 1.000$ |
| | M10 | Synthetic $ß_{15\mu m(c)} \geq 1.000$ |
| | M15 | Synthetic $ß_{20\mu m(c)} \geq 1.000$ |
| | T25 | Wire mesh 25 $\mu$m |
| | T40 | Wire mesh 40 $\mu$m |
| | T80 | Wire mesh 80 $\mu$m |
| | T125 | Wire mesh 125 $\mu$m |
| 11. ELEMENT VERSION | ESD | Anti-static technology |
| | 002 | Stainless Steel end caps and metal parts |

## ORDERING INFORMATION

### 12. CLOGGING INDICATOR

Differential pressure indicatorblock and fittings are included.
**(Y)** digit for FKM seal option
(**) Available only for safe area

| | |
|---|---|
| 000 | No indicator |
| VX1 **(VY1)** | Differential visual set 1,3 bar |
| VX2 **(VY2)** | Differential visual set 2,7 bar |
| VX5 **(VY5)** | Differential visual set 5 bar |
| EX1 **(EY1)** | Differential electrical set 1,3 bar (**) |
| EX2 **(EY2)** | Differential electrical set 2,7 bar (**) |
| EX5 **(EY5)** | Differential electrical set 5 bar (**) |

### 13. VERSION

| | |
|---|---|
| -0000 | Identification numbers assigned by FILTREC after order |

## DOX2026 SERIES MAIN FEATURES

Stainless steel weld-free construction.
Continuous-flow transfer valve: double 3 ways ball valve, full bore type, zero leak with anti-static device.
Filter element made with anti-static technology, to prevent electrostatic discharge.
Beta rated elements according to ISO 16889 multipass test.
Certification of materials EN10204 type 3.1

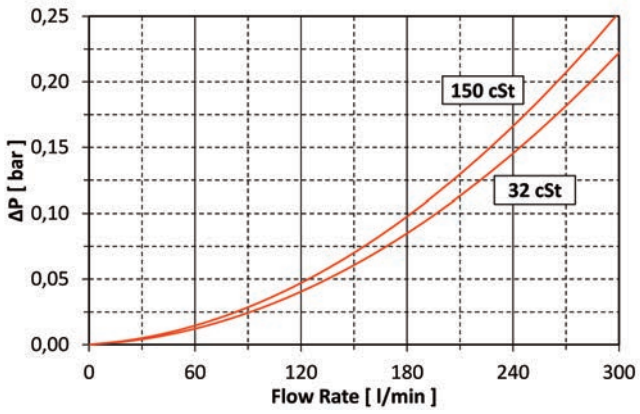
For different seal materials, filtration degree, media and certification please contact Filtrec Customer Service.

## PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Δp through a filter assembly is given from Housing Δp + Element Δp.
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$^3$.

## 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 (filter elements 20 bar collapse)

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 Vx different than 32 cSt a corrective factor Vx/32 must be applied.
240 l/min with OX2026G15B0/ESD and oil viscosity 46 cSt: (240 x 0.43 / 1000) x (46 / 32) = 0.15 bar

| | G03 | G05 | G10 | G15 | G20 | G40 | M05 | M08 | M10 | M15 | T25 | T40 | T80 | T125 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OX2026....0/...** | 1.63 | 1.32 | 0.59 | 0.43 | 0.40 | 0.15 | 0.38 | 0.35 | 0.30 | 0.21 | 0.18 | 0.15 | 0.12 | 0.10 |

## EXAMPLE OF TOTAL Δp CALCULATION

DOXSB2026S050AA0G150-0000 with 240 l/min and oil 46 cSt:
Housing Δp + element Δp = 0.15 bar + (240 x 0.43 / 1000) x (46 / 32) bar = 0.3 bar

## USER TIPS




1. SCREW
2. TOP COVER
3. SEAL
4. FILTER ELEMENT

### SPARE SEAL KIT PART NUMBER

| | NBR | FKM |
|---|---|---|
| TOP COVER SEAL KIT | 10.011.00074 (Kit of 2 cover gaskets) | 10.011.00076 (Kit of 2 cover gaskets) |

## 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. Secure the frame of the filter using the fixing holes.
2. The IN and OUT ports must be connected to the hoses in the correct flow direction.
3. Verify that no tension is present on the filter after mounting.
4. Enough space must be available for filter element replacement.
5. The visual clogging indicator must be in a easily viewable position.
6. When a electrical indicator is used, make sure that it is properly wired.

⚠ 7. Never run the system with no filter element fitted.
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 (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).
3. If no clogging indicator is mounted, replace the element according to the system manufacturer’s recommendations.

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# WX SERIES

Filter elements for GAS

As a filtration specialist, Filtrec manufactures and supplies one of the most wide range of filter elements on the market today. Designed to fit original OEM equipments, our elements are manufactured using only the highest quality components, guaranteeing high efficiency filtration and the best performances.

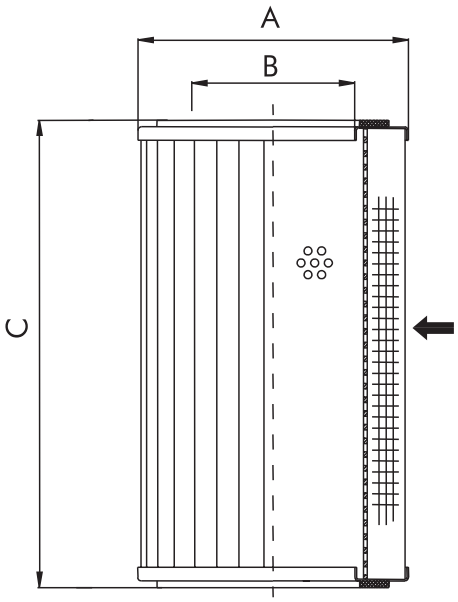
Filter elements designed for special filtrations are also part of the Filtrec range. The WX Series includes interchangeable codes for filtration of natural gas, manufactured gas, air, propane and other non-aggressive gases.

Made by needle-punched polyester felt wih reinforcement mesh. Filtration degree 5 and 50 $\mu$m (nominal at 99%).

## TECHNICAL INFORMATION

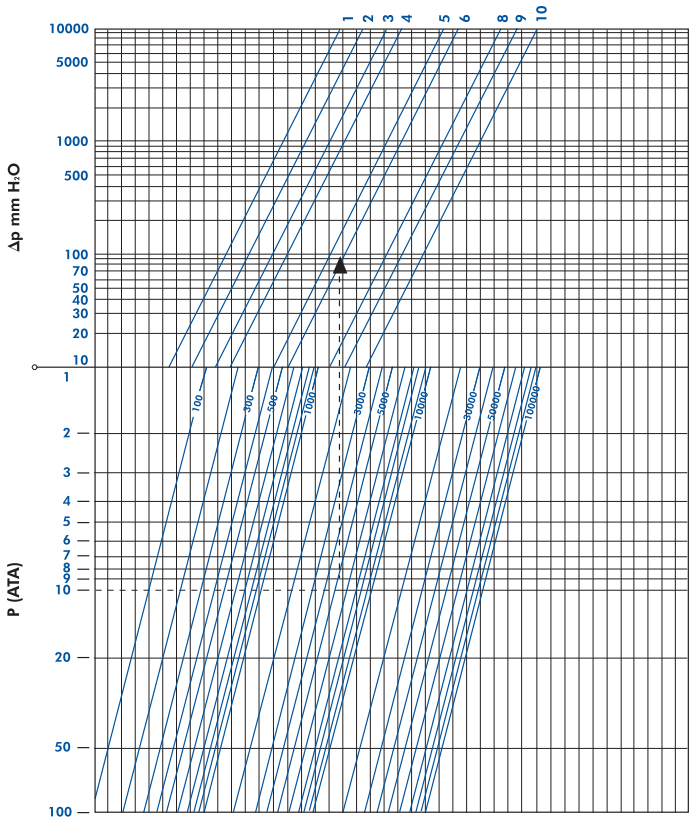
| | |
|---|---|
| FILTER MEDIA: | Polyester needlefelt |
| MICRON RATING: | • 5 $\mu$m (nominal rating of 99% at 5 $\mu$m and 98% at 3 $\mu$m)<br>• 50 $\mu$m (nominal rating of 99% at 50 $\mu$m) |
| GLUE: | Polyurethane |
| SEAL: | Needlefelt |
| MAX. TEMPERATURE: | 120°C |
| END CAPS: | Zinc steel |
| CORE: | High strength expanded galvanized steel |
| MESH SUPPORT: | Epoxy wire mesh |

## OVERALL DIMENSIONS



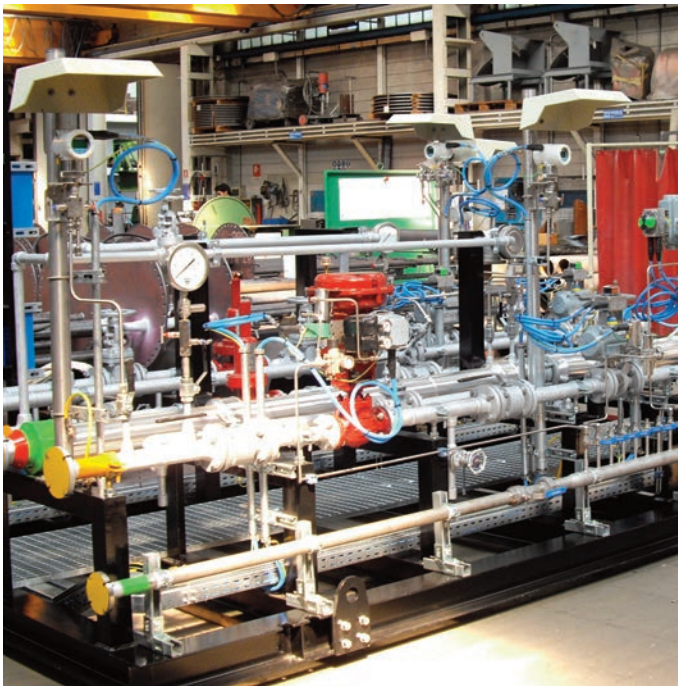

| DIMENSIONS | | | WEIGHT | CODE | | INT COD. |
|---|---|---|---|---|---|---|
| A | B | C | kg | 5 µm | 50 µm | |
| 80 | 35 | 120 | 0,200 | WX145 | WX248 | G 0.5 |
| 95 | 50 | 165 | 0,325 | WX146 | WX249 | G 1.0 |
| 120 | 68 | 210 | 0,565 | WX147 | WX250 | G 1.5 |
| 165 | 86 | 270 | 1,260 | WX148 | WX251 | G 2.0 |
| 200 | 110 | 283 | 1,550 | WX149 | WX252 | G 2.5 |
| 252 | 138 | 320 | 2,310 | WX150 | WX253 | G 3.0 |
| 299 | 186 | 250 | 3,010 | WX151 | WX254 | G 3.5 |
| 299 | 186 | 415 | 3,600 | WX152 | WX255 | G 4.0 |
| 390 | 246 | 470 | 5,470 | WX153 | WX256 | G 5.0 |
| 475 | 320 | 625 | 7,540 | WX154 | WX257 | G 6.0 |
| 600 | 370 | 650 | 10,240 | WX155 | WX258 | G 8.0 |
| 598 | 480 | 650 | 9,8 | WX597 | WX598 | G 8 BIS |

## PRESSURE FLOW RATE CHART




Ex. P=10 ATA Q=5000 Nm3/h dP required 100 mm H2O = Cartridge type 6





## BUSINESS AREA

Gas pressure reduction and measurement plants.

National and international gas distribution Companies.

## APPLICATION

Gas pressure reduction and measurement plants, filtration of solid particles to protect pressure regulators, reduction valves, measurement systems.

The gas flows from the outside to the inside of the filter element. The micro particles of contaminants are retained and the clean gas is conveyed towards the outlet of the filter housing.



## KINDNESS AS A VALUE

To ensure a top quality solution: for any enquiries there is a Filtrec specialist that will assist you, from choosing the right size to configuring your system

**FILTREC**
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# BROCHURES

## TECHNOLOGY BROCHURES

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FILTREC®

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# ABSOLUTEßETA®

## THE ULTIMATE
## FILTRATION TECHNOLOGY

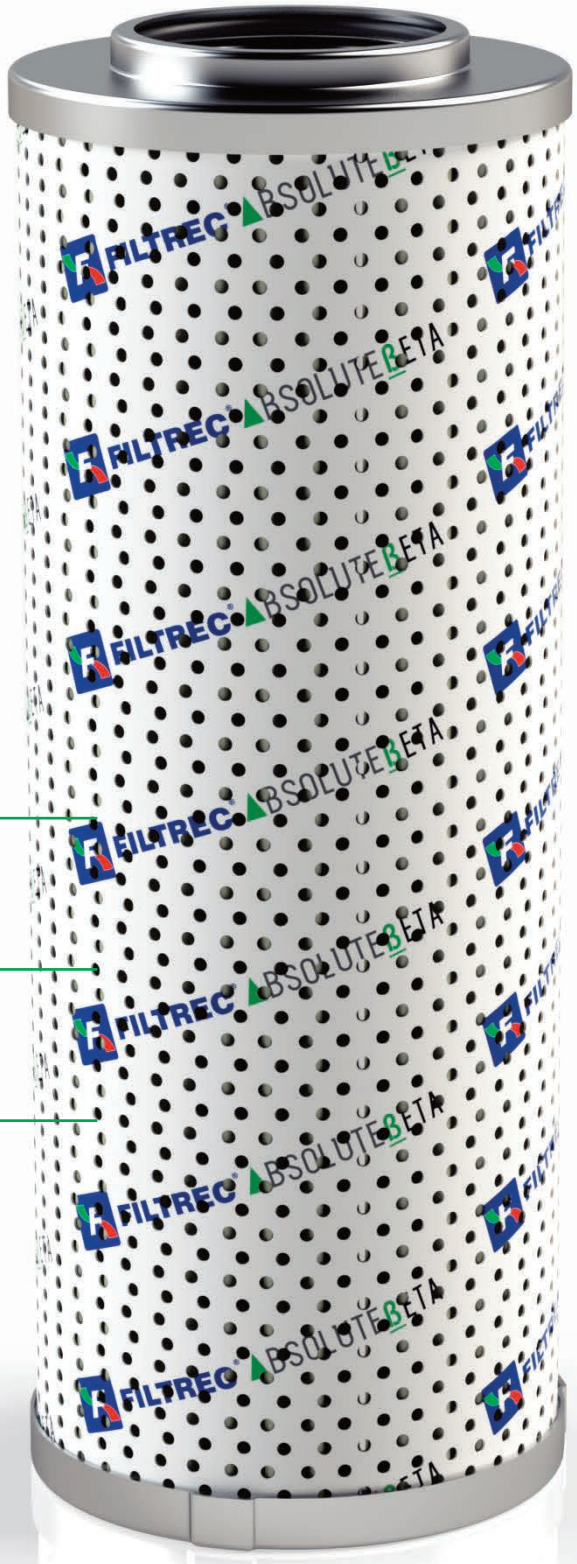
The **New FILTREC Technology** for filter elements, comes from three decades of experience within filter element construction.
Steady, enthusiastic R&D activity, paying close attention to customers requirements & feedback.

A tailored **combination of materials** have been custom designed for each filter element family, to perform at the highest possible level.

**LOWER** PRESSURE DROP

**HIGHER** DHC

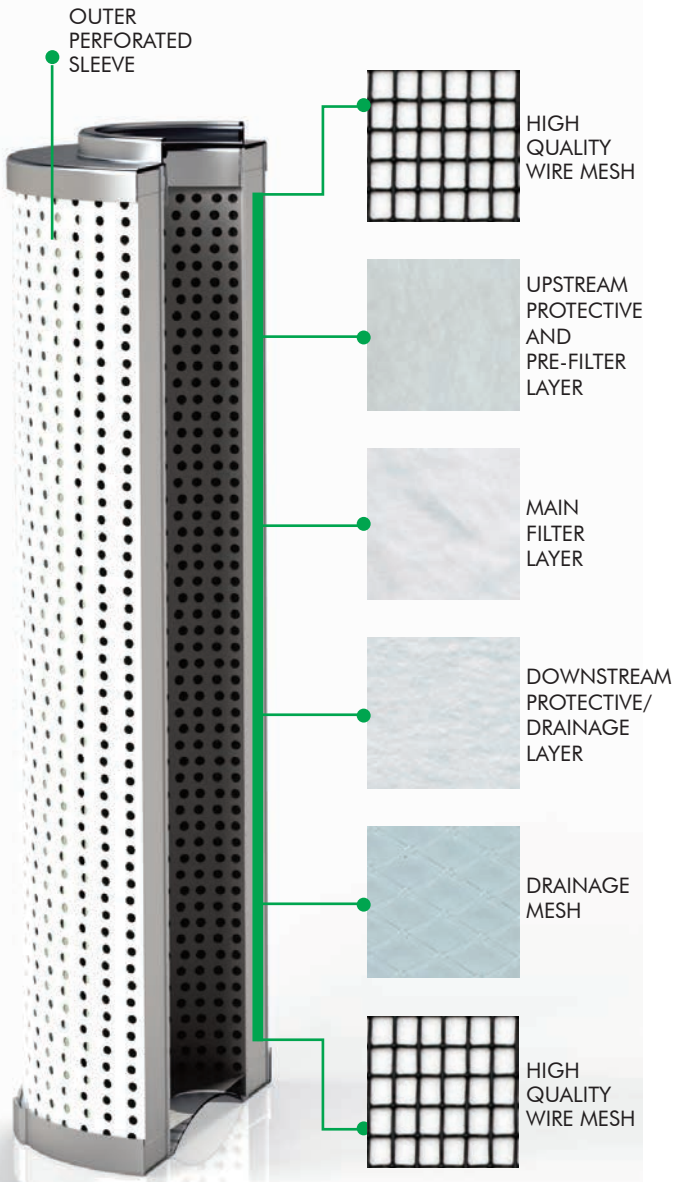
**LONG LASTING** PERFORMANCE



This new media Pack configuration gives extraordinary performance, in terms of life cycle but mainly in terms of filtration efficiency.
All of the performed tests with Δbsolute-βeta media pack, conformed to a very low pressure drop, which now enables us with the possibility to select a smaller filter for the same application.

Research, Development & Innovation allow us to use several media layer combinations, which result in a pleat shape that gives the element maximum performance.

## MEDIA PACK STRUCTURE




Absolute Beta media pack example configuration

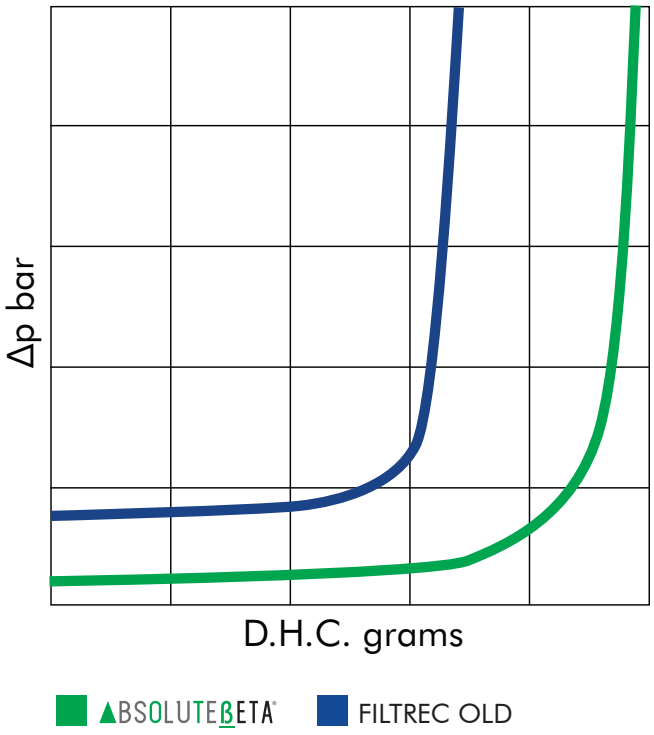
Therefore, pressure drop decreases but also D.H.C. (Dirt Holding Capacity) improves significantly. This research and data, give the possibility to reduce costs.
Cost of power consumption is a direct effect of less pressure drop, every hundred bar gives you a saving of money and energy (fuel or electricity). This means FILTREC have a more ECO-friendly product.

Higher Dirt Holding Capacity (D.H.C.) together with a lower pressure drop, increase filter element life dramatically.
Other benefits include inventory and maintenance cost reductions, which lead to overall ownership cost savings.

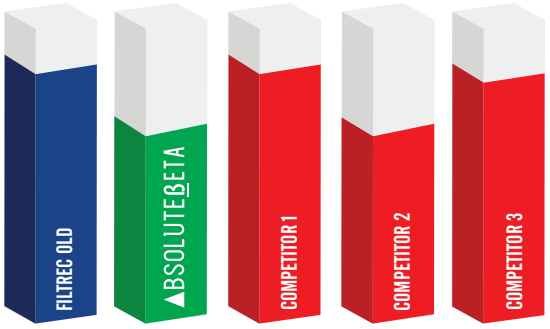
We offer several different micron ratings in Fibreglass media, which are 1 - 3 - 5 - 10 - 15 - 20 micron.

Major benefits are visible on the 3 - 5 and 10 micron media pack, where we found a D.H.C. increase of over 40% , compared with our previous media pack, which in most cases is greater than our major competitor.

With Absolute Beta Media pack configuration, it is possible to achieve a 20% reduction in energy or fuel consumption.

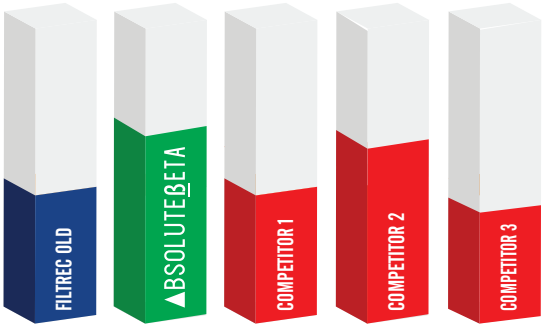


## **LOWER** PRESSURE DROP

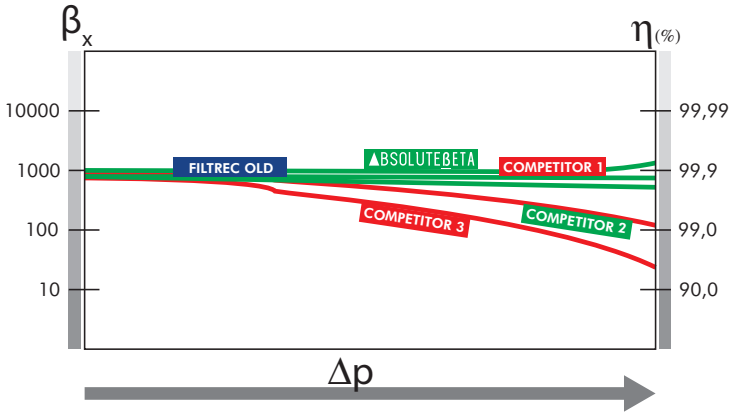



**30% Decrease in pressure drop compared to previous media.**
This achievement has a large impact on the application and filter selection which gives us the possibility to choose a smaller filter for the same application or to have a long lasting filter element. This allows for less maintenance and service along with cost savings on product inventory.

## **HIGHER** D.H.C.




**More than 40% D.H.C. Increase.**
Together with less pressure drop, this gives a huge life time expectancy, with other benefits in terms of money saving.




## **LONG LASTING** PERFORMANCE

A very high performance in terms of efficiency (βeta Ratio > 1.000) and stability Vs. pressure drop increase. This means **stable performance of fluid cleaning for the life period of the element before it needs replacing.**
Consequently fluid cleanliness will be better for the element life, which means good component protection.

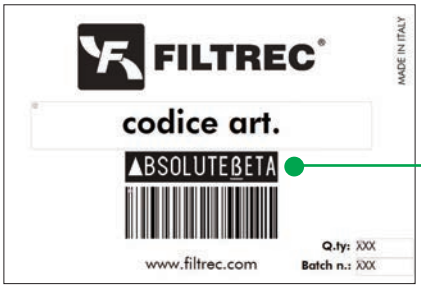
The "New" Absolute Beta Media Pack along with better performance allows the possibility to save energy which is important within every application.

**LESS PRESSURE DROP** ▶ **LESS POWER** ▶ **MORE ECO FRIENDLY**

## HALLMARK




You will find ABETA hallmark on the endcap of the new filter element generation.




New label on the box

ABSOLUTEBETA




rev.05/21

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# ABSOLUTE ß ETA® | SYN MEDIA

The vehicle and mobile equipment industries have long been developing solutions to face the challenge of dealing with extreme temperatures including those in very cold environments. The cold start can be determinable to a machine's operability.

This has led Filtrec to the creation of **ABSOLUTE BETA | SYN MEDIA** a synthetic fibre media, designed especially for our return filter range, that ensure a lower pressure drop, which makes it suitable for high-viscosity oil and/or in presence of high temperature variations, it guarantee reliable operability of your mobile machine.

Used also in standard conditions, the key features of very low pressure drop and high efficiency stability, allow also the users to use a small filter compared to standard filter elements made with glass fibre media or gives the possibility to cover higher flow rate and better withstanding to return flow peaks.

Due to the particular structure of the media made with very thin synthetic fibres, **ABSOLUTE BETA | SYN MEDIA** has a low pressure drop. Replacing an equivalent size paper filter element will, in many cases, result in improved filtration efficiency, higher flow rates, longer service life, and significant cost savings. This gives to the customers the possibility to use our filters in standard and also in very compact systems with high return flow.

Especially for compact systems, with a small tank and low fluid volume – but with a high return flow rate, the reliability of the overall system is assured by our synthetic media for removing solid contaminants.




## VISCOSITY AND TEMPERATURE

Viscosity is a measure of the resistance offered by a fluid to flow and could be considered as the integral of all the interaction forces between oil's molecules. When temperature of the fluid increase, molecules have greater thermal energy and are able to overcome the attractive forces binding them together and they can slide over each other more easily making the liquid to become less viscous. When temperature of the fluid decrease, molecules have less thermal energy and overcome the attractive forces with difficulty and they can slide over each other less easily making the liquid to become more viscous. Generally the viscosity of lubricants means the kinematic viscosity with units of centistokes (cSt) or, less frequently, in other units as mm2/s or SSU. If high viscosity fluid are employed, low temperatures increase further fluid viscosity producing cold start behaviours. In these conditions we recommended the use of ABSOLUTE ß ETA® | SYN MEDIA

## WHICH PROBLEMS CAN OCCUR?

**The problems caused by cold start can be for example:**

- Exceeding the differential pressure of the filter element due to the higher viscosity of the oil.
- Damages of the components of systems and equipment.
- Unfiltered oil passage due to the bypass valve opening.
- Increases in service costs because of unnecessary and frequent filter element replacements.
- Higher pressure drop due to the thicker oil that has a tougher time passing through the layer of media fibres.
- Increase of solid contamination.
- Long waiting times until the system is warmed up.

## WHAT ARE THE BENEFITS OF ABSOLUTEßETA | SYN MEDIA ?

Our new technology ABSOLUTE BETA | SYN MEDIA can guarantee:

- **Suitable for high viscosity fluids**
- **Excellent for cold start**
- **Low pressure drop**
- **High efficiency**
- **Competitive price**
- **Low energy required**
- **Longer service life**

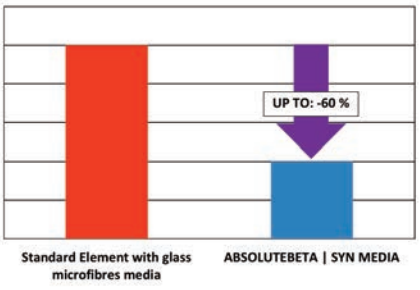



Fig.1 ABSOLUTE BETA| SYN MEDIA pressure drop performance

ABSOLUTEßETA | SYN MEDIA

| | |
|---|---|
| M05 | $\beta_{10\mu m(c)} > 1000$ |
| M10 | $\beta_{15\mu m(c)} > 1000$ |
| M15 | $\beta_{20\mu m(c)} > 1000$ |

Fig.2 Beta ratio efficiency values (β) for ABSOLUTE BETA| SYN MEDIA

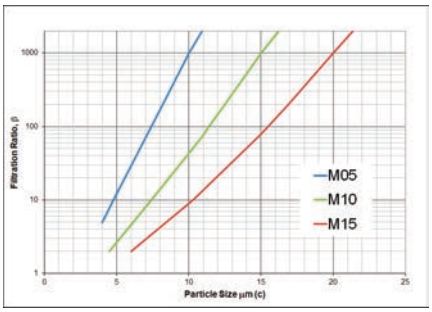
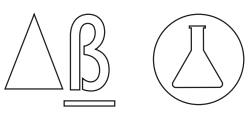



Fig.3 Beta ratio efficiency values (β) for ABSOLUTE BETA| SYN MEDIA

## HOW TO RECOGNIZE IT?

You will find



hallmark on the endcap of the new **ABSOLUTE BETA| SYN MEDIA** and a new label on the box.




### KINDNESS AS A VALUE

To ensure a top quality solution: for any enquiries there is a Filtrec specialist that will assist you, from choosing the right size to configuring your system.

**www.filtrec.com**
**info@filtrec.it**



WWW.SUMY.IR

# ABSOLUTE ßETA® | SPARK BUSTER

To preserve the environment oil producers are supplying a new generation of eco-friendly hydraulic and lubrication oils to OEM and system operators. These new products, unlike the previous ones (group I base oils) have the risk to generate electrostatic discharge.

In the past, conventional hydraulic oils often contained ashes and zinc dithiophosphate (ZDDP) as anti-wear and anti-corrosion additives. They therefore no longer comply with the current international environment standards as they have now been classified as harmful.

However, without the presence of metal, these oils have low conductivity (less than 500 pS/m). When the oil flows through the filter element in the hydraulic system an ESD can occur. This can result in sparking in the system causing oil aging and damage to hydraulic components.

For several years Filtrec has anti ESD products in its range but now customers can also rely on our new **ABSOLUTE BETA | SPARK BUSTER** technology, which provides an anti-static protection that not only reduces the electrostatic discharge but also enables excellent filtration in extremely critical systems.




## WHAT IS ESD?



Fig.1 Electrostatic discharges in the filter element

Flowing through a non-conductive filtering material (as a standard fiberglass material or synthetic materials) hydraulic fluids promote the formation of charge accumulations due to triboelectric effect. These charges , if not dissipated, create a difference in potential. If the voltage generated exceeds a specific value (dielectric strength of the oil), it will be a "dielectric breakdown" with an electric discharge. The charge generating process increases with an increasing flow velocity or viscosity of a hydraulic fluid.

When ESD is occurring there can be some clear indicators:

- You can hear the sound: cracking noises similar to cavitation.
- You can see that the filter media display signs of burning damage.

To ensure that the whole system operates without risk it is essential to use filter systems that are capable of preventing dangerous electrostatic discharges from occurring, and this can be avoided by using:

ABSOLUTE ßETA® | SPARK BUSTER

## WHICH PROBLEMS CAN OCCUR?

**The problems caused by electrostatic discharges can be serious, for example:**

- The sparks can burn and make holes in the filtration media layers. As a consequence, the dirt particles can pass unfiltered through the holes.
- Sparks can migrate from the filter to other areas such as the reservoir where there is the risk of deflagrations.
- It contributes to accelerated oil aging and a deterioration of oil properties shortening the life service. These changes in the chemical composition of the fluids might contribute to an earlier contamination of the filter elements.
- ESD waves disrupt and damage sensitive sensors and electronic components in the hydraulic system.
- When the standard element is affected by ESD, may show anomalous Δp values up to two times higher than in normal conditions, this can reduce the overall efficiency of the system and increase the power losses.

## WHAT ARE THE BENEFITS OF ABSOLUTEßETA | SPARK BUSTER ?

Our new technology **SPARK BUSTER** not only ensures against electrostatic discharge but can also guarantee:

- **Maximum safety for machines and systems(especially under cold start conditions).**
- **Higher operational safety.**
- **Reduction of oil degradation and longer oil service.**
- **Safe operation in explosive atmosphere.**
- **Reduction of unplanned downtimes.**
- **Reduction of the cost of ownership.**
- **Maximize the lifetime of systems.**
- **Safety for employees.**

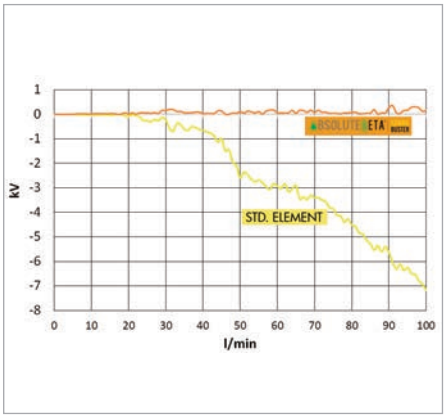



Fig.2 Static Charge Vs Flow Rate
(using low conductivity oil)

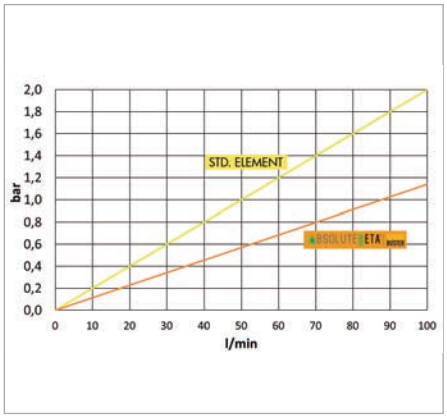



Fig.3 Δp Vs Flow Rate
(using low conductivity oil)

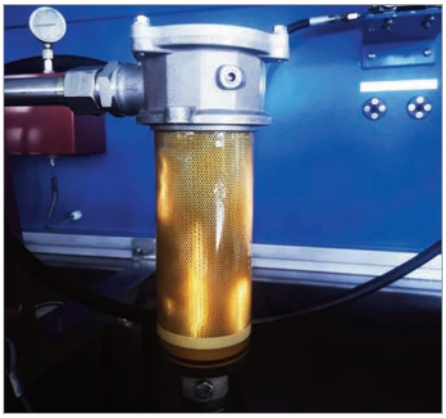


Fig.4 Electrostatic discharges tested in our R&D Department

## HOW TO RECOGNIZE IT?

You will find



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### KINDNESS AS A VALUE

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**info@filtrec.it**



FILTREC®

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# ABSOLUTE ß ETA® | $H_2O$ $H_2O$ PLUS

Failures and unplanned downtime in a hydraulic system are often imputed to excessive levels of solid contamination but also water can be a serious contaminant as it can cause breakdowns but also affects the performance of the fluid.

The presence of water damages the components of the system increases service costs and, in the oil, induces oxidation and rust formation. It decreases the quality of lubrication, additives action and viscosity.

**ABSOLUTE BETA | H2O** technology filter elements are specifically designed for the absorption of water from hydraulic fluids.

This configuration is an efficient method to remove water contamination. The absorbing media, embedded in the filter material, removes water by a physical-chemical reaction. When absorbed, the water particles are locked physically by the gel formed and are not able to return to the fluid. This reaction is not reversible also with increased pressure.
However hydraulic oil passes through this media without interference. When the gel formation is complete, the media stops the water removal reaction. Water removal results can extended oil life, decreased system downtime, and increase the life of the equipment.

A wide range of Filtrec filter elements can be manufactured with **ABSOLUTE BETA |H2O**, in addition, **ABSOLUTE BETA |H2O PLUS** can be an effective water absorption configuration of separating water from hydraulic fluids and at the same time an optimal filtration of solid particles.



## HOW TO CALCULATE THE NUMBER OF FILTER ELEMENTS NEEDED?

It is important to know the number of filter elements necessary to drop the rate of water down to the target value, this can be calculated with the formula below.This formula provides only a rough estimate of the number of elements. Depending on the viscosity of the oil and the flow rate, the value obtained from this formula could deviate from the number of elements actually needed.
The amount of water in the fluid is expressed in ppm (parts per million).

$$N = \frac{V_{oil} \times C_w}{1000 \times (k_{H_2O} \times A)}$$

| | | |
|---|---|---|
| N | = | number of filter elements needed |
| $V_{oil}$ | = | oil volume in the system (l) |
| $C_w$ | = | water concentration in the system (ppm - Karl Fisher method) |
| $K_{H2O}$ | = | 0.078 ml/cm² for $H_2O$ Plus 0.082 ml/cm² for $H_2O$ |
| A | = | filtering surface of filter element (cm²) |



Fidar Industrial Group | WWW.SUMY.IR

## WHICH PROBLEMS CAN CAUSE WATER?

**The problems caused by water contamination can be serious, for example:**

- Water damages the components of systems and machines.
- It increases the service costs.
- Water particles can cause corrosion, early wear, and oxidation of the fluid.
- It increases solid contamination.
- Ice creation at low temperature.
- Acidification of the fluid.

## WHAT ARE THE BENEFITS OF ABSOLUTEßETA® | H2O | H2O PLUS ?

Our new technology **ABSOLUTE BETA | H2O** can guarantee:

- **Water and solid particles removal especially with ABSOLUTEßETA® | H2O PLUS**
- **Reduction of oil degradation and longer oil service.**
- **Better efficiency and reliability of the system.**
- **Reduction of unplanned downtimes.**
- **Reduction of the cost of ownership.**
- **Maximize the lifetime of hydraulic components.**

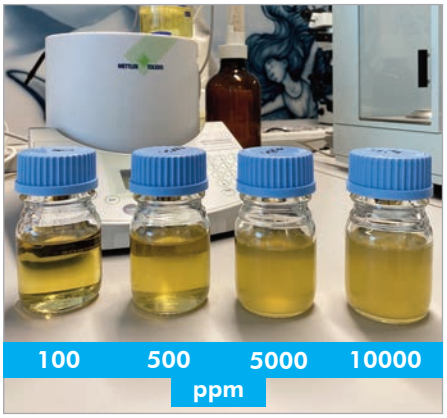



Fig.1 Water content determination according to Karl Fischer titration method ISO 12937

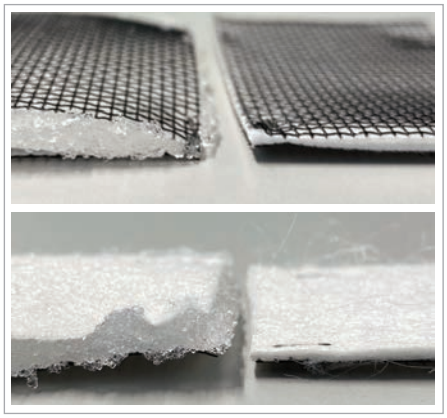


Fig.2 Absolute Beta H2O and H2O| plus media with and with and without absorbed water

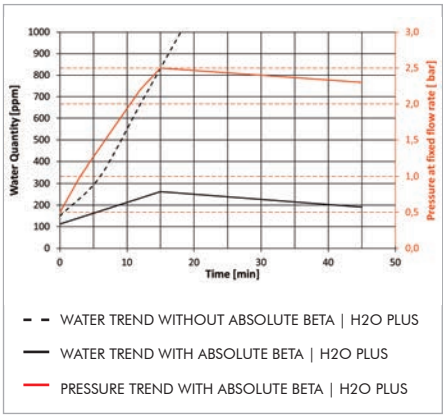



Fig.3 Example of water and pressure trend on an Absolute Beta H2O | PLUS element.

## HOW TO RECOGNIZE IT?

You will find

hallmark on the endcap of the new **ABSOLUTE BETA| H2O - H2O PLUS** and a new label on the box.




### KINDNESS AS A VALUE

To ensure a top quality solution: for any enquiries there is a Filtrec specialist that will assist you, from choosing the right size to configuring your system.

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