

FILTREC



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PRODUCT CATALOGUE 2026

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Fidar Industrial Group

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HYDRAULIC

HYDRAULIC FILTERS



FH700 SERIES

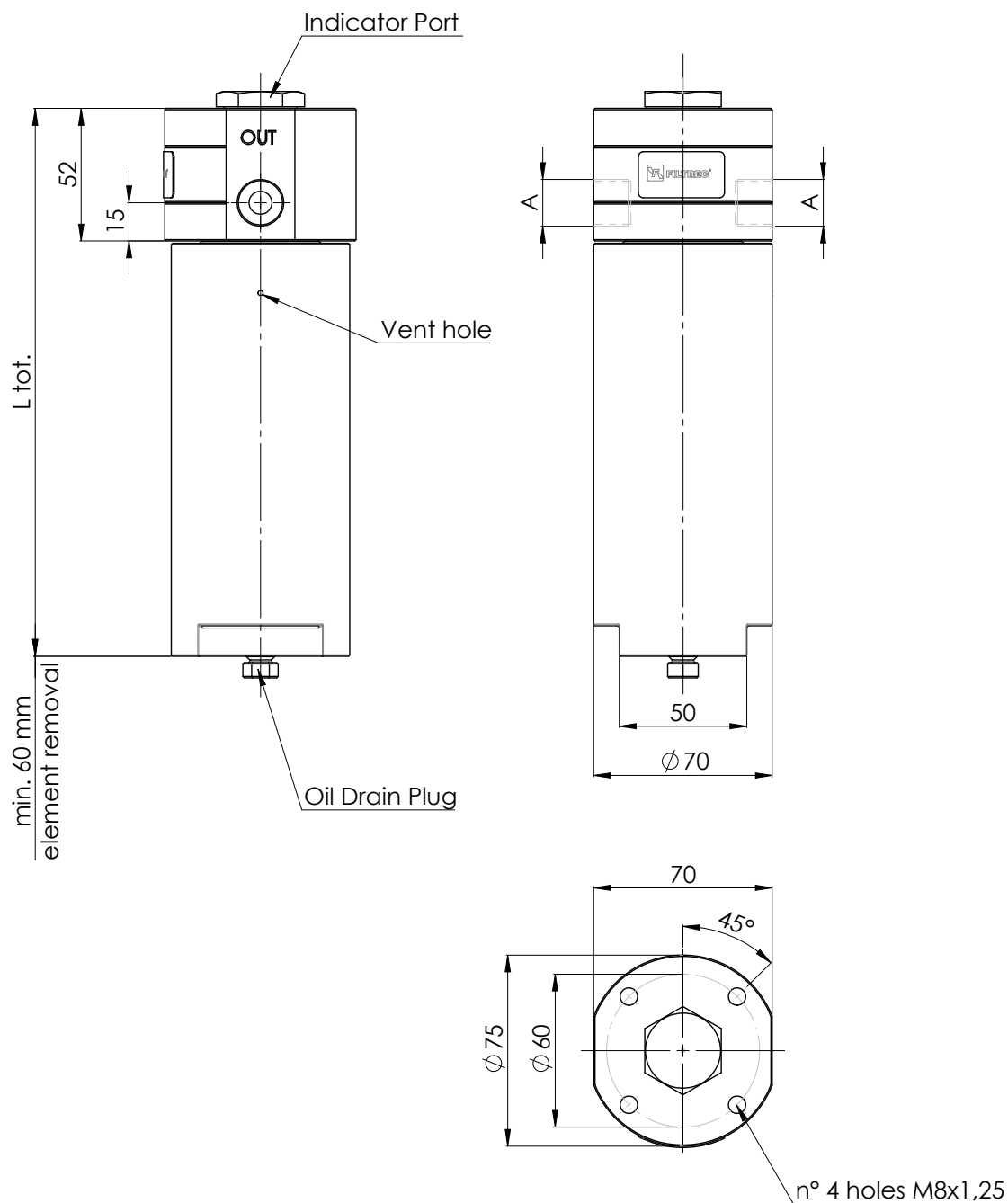
In line high pressure filters

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 Fatigue rating: 10 ⁶ cycles 0÷700 bar Burst: 2100 bar	
CONNECTION PORTS:	1/4", 3/8", 1/2" NPTF	
MATERIALS:	Head: SS 316L Bowl: SS 316L 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 G10 - G15 - G25	
COLLAPSE PRESSURE:	21 bar 210 bar	
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal from -25 °C to +120 °C	
FLUID COMPATIBILITY:	HH, HG, HL, HM, HR, HV, HS, HE... HFDU, (HFB, HFC water < 50%) - ISO 6743/4 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

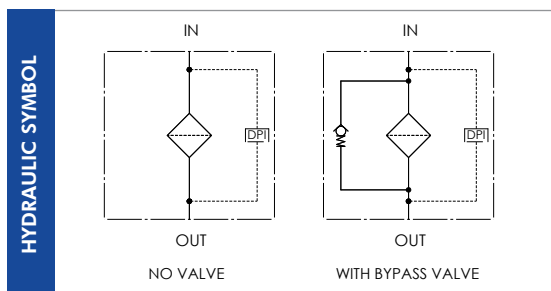
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
FH700	D1	02	G10	X	B0	NF2	D	W	000	S	0
SPARE ELEMENT	D1	02	G10	X	B0						

1. FILTER SERIES	FH700	
2. FILTER ELEMENT SERIES	D1	
3. FILTER SIZE	01	
	02	
4. FILTER MEDIA	000	no element
	G01	glassfiber $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
5. ELEMENT COLLAPSE	Y	21 bar
	X	210 bar
6. SEALS & COMPATIBILITY	B0	NBR
*= All metal parts in SS 316L Only for spare element "/" before digit suffix is needed	V0	FKM
	*B0/7	NBR Improved compatibility for high water content fluid
	*V0/7	FKM Improved compatibility for high water content fluid
		Only for high collapse filter element
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 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	
	ESLXF8	differential electrical 8 bar FKM reversed sockets	recommended for no by-pass option
	ESLXF8L	differential electric 8 bar FKM reversed sockets + *LC24	



PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

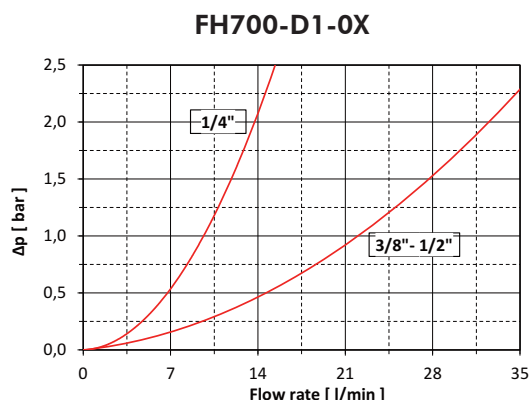
The total Δp through a filter assembly is given from Housing Δp + Element Δp .

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.

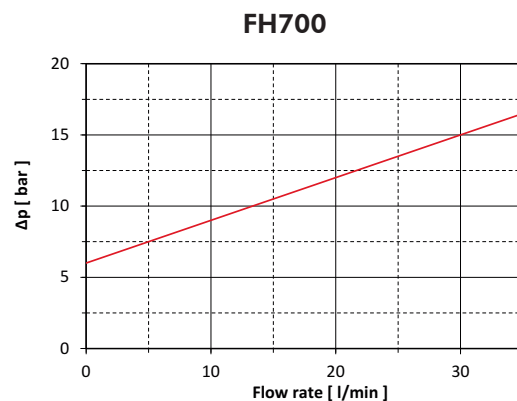
HOUSING PRESSURE DROP

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



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 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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 10 l/min with D102G10XB0 and oil viscosity 46 cSt: $(10 \times 36)/1000 \times (46/32) = 0,52$ 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 $(10 \times 36)/1000 \times (46/32) =$ total assembly Δp 0,77 bar

USER TIPS



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

-  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).
- The filter housing should be preferably mounted with the bowl (6) downward.
- Secure to the frame the filter head (1) using the threaded fixing holes (3).
- Verify that no tension is present on the filter after mounting.
- Enough space must be available for filter element replacement.
- The visual clogging indicator must be in an easily viewable position.
- When an electrical indicator is used, make sure that it is properly wired.
-  Never run the system with no filter element fitted.
- Keep in stock a spare FILTREC filter element for timely replacement when required.
- Filter housing should be earthed.

OPERATION

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

MAINTENANCE

-  Make sure that the system is switched off and there is no residual pressure in the filter.
- Unscrew the oil drain plug (8) by turning it anti clockwise, then make the same with the bowl (6) and remove it.
- Remove the dirty element (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.
- Clean carefully the bowl; check the O-rings (5) conditions and replace them if necessary.
- Lubricate the bowl's thread and seal cone (6) and screw it by hand in the filter head (1) by turning it clockwise.
- Screw in the bowl with 120 Nm tightening torque.
- Lubricate the oil drain plug's thread and seal cone (8) and screw by turning it clockwise.
-  The used filter elements cannot be cleaned and re-used.





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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
	Burst:	55 bar
CONNECTION:	G 1 1/4" and 1 1/2" SAE 3000	
MATERIALS:	Head:	aluminium alloy
	Bowl:	painted steel
	Seal:	NBR (FKM on request)
BYPASS VALVE:	No bypass 3,5 bar setting	

ELEMENT

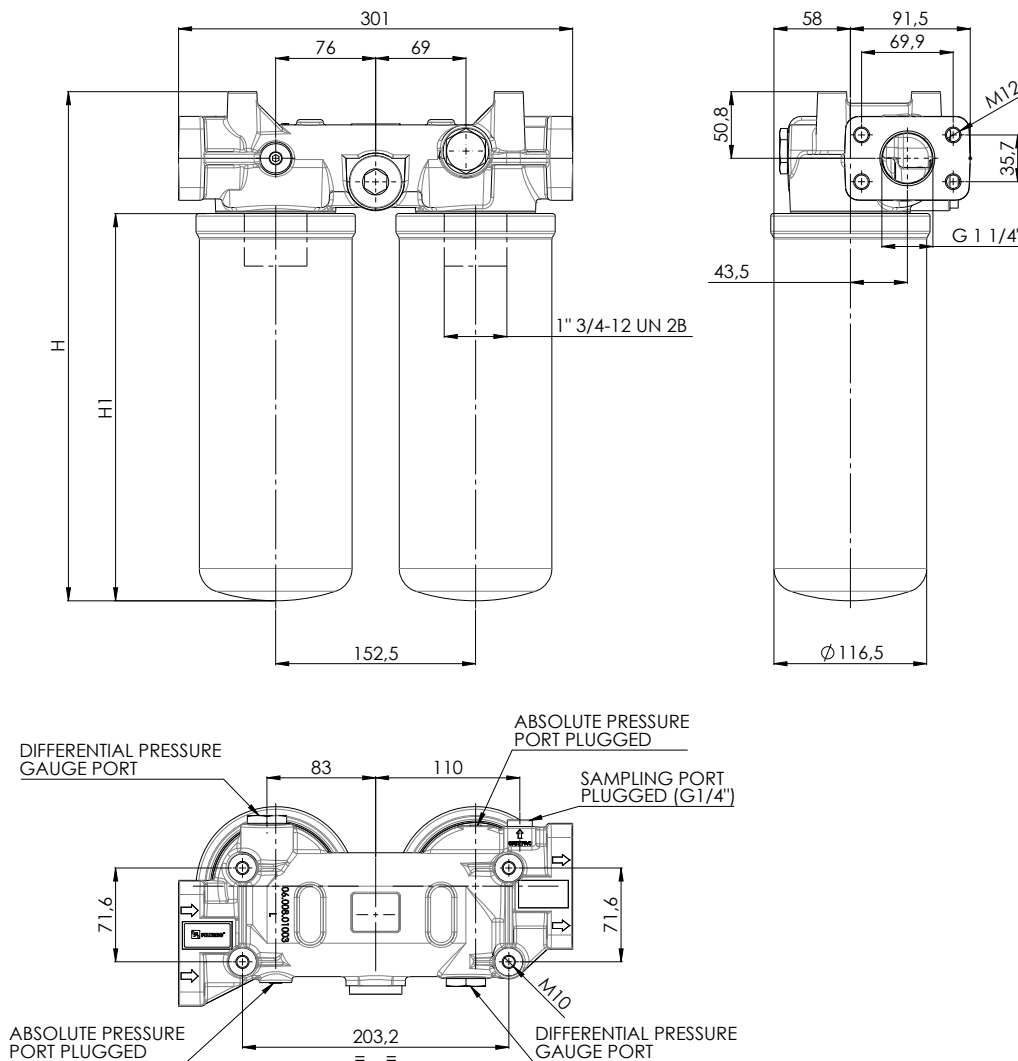
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181

FILTER MEDIA:	Inorganic microfiber:	G03 - G06 - G10 - G15 G25 - G40
	Paper:	C10 - C25
COLLAPSE PRESSURE:	12 bar	

TEMPERATURE RANGE:	with NBR seal is	from -30 °C to +100 °C
	with FKM seal (OPTION) is	from -25 °C to +120 °C

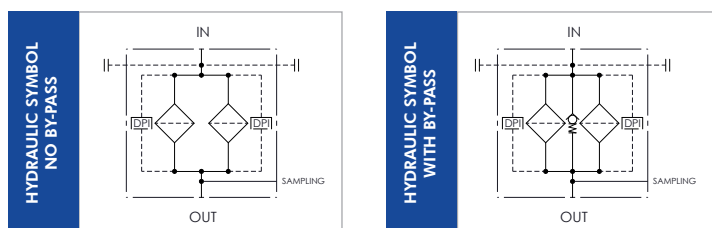
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV	
	HETG-HEES (acc. to ISO 6743/4).	
	For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).	

OVERALL DIMENSIONS



NOMINAL SIZE

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



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 $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	C10	cellulose $\beta_{10\mu m(c)} \geq 2$
	C25	cellulose $\beta_{25\mu m(c)} \geq 2$
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

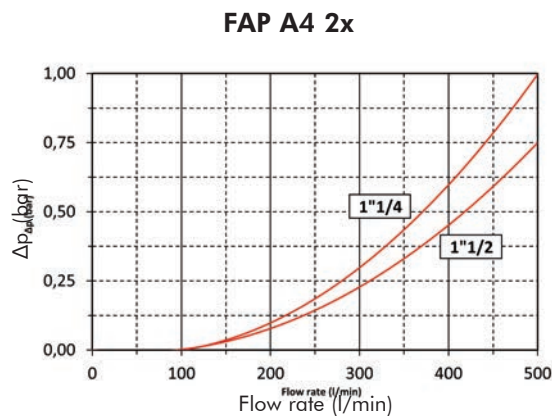
INDICATOR	MP0	pressure gauge rear connection, scale 0-16 bar
(Y and F) digit for FKM seal option	MPC	pressure gauge rear connection, setting 3 bar, scale 0-10 bar
For other options see clogging indicators catalogue	MRC	pressure gauge radial connection, setting 3 bar, scale 0-10 bar
	EX2 (EY2)	differential 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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000. If the oil has a viscosity V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 200 l/min with A421G10 and oil viscosity 46 cSt: $200 \times (0,88/1000) \times (46/32) = 0,25 \text{ bar}$

	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 1/4" threaded port)

Housing Δp 0,12 bar + element Δp 0,25 bar ($200 \times 0,88/1000 \times 46/32$) = total assembly Δp 0,37 bar

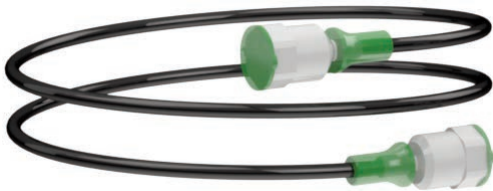
ACCESSORIES

These accessories must be ordered separately.



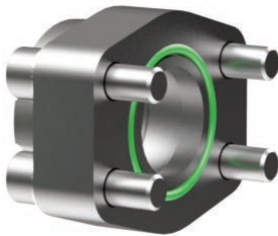
04.006.00539	FMSA08S0	sampling point - check coupling M16x2 with G 1/4 connection thread
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Allows you to control the pressure safely while the system is at full capacity and can be used to obtain fluid samples.



04.006.00538	FMSA09S0	microhose for check coupling M16x2 – length 1m
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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
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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
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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 threaded 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

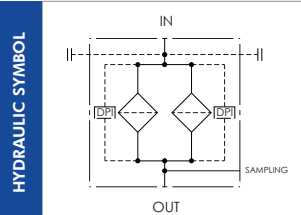
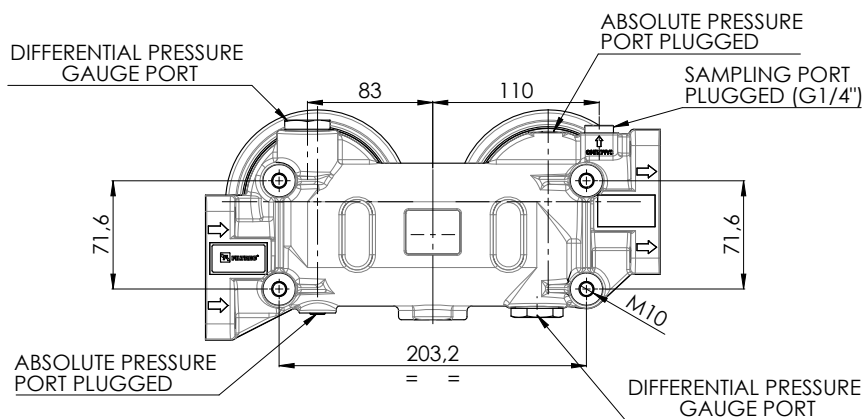
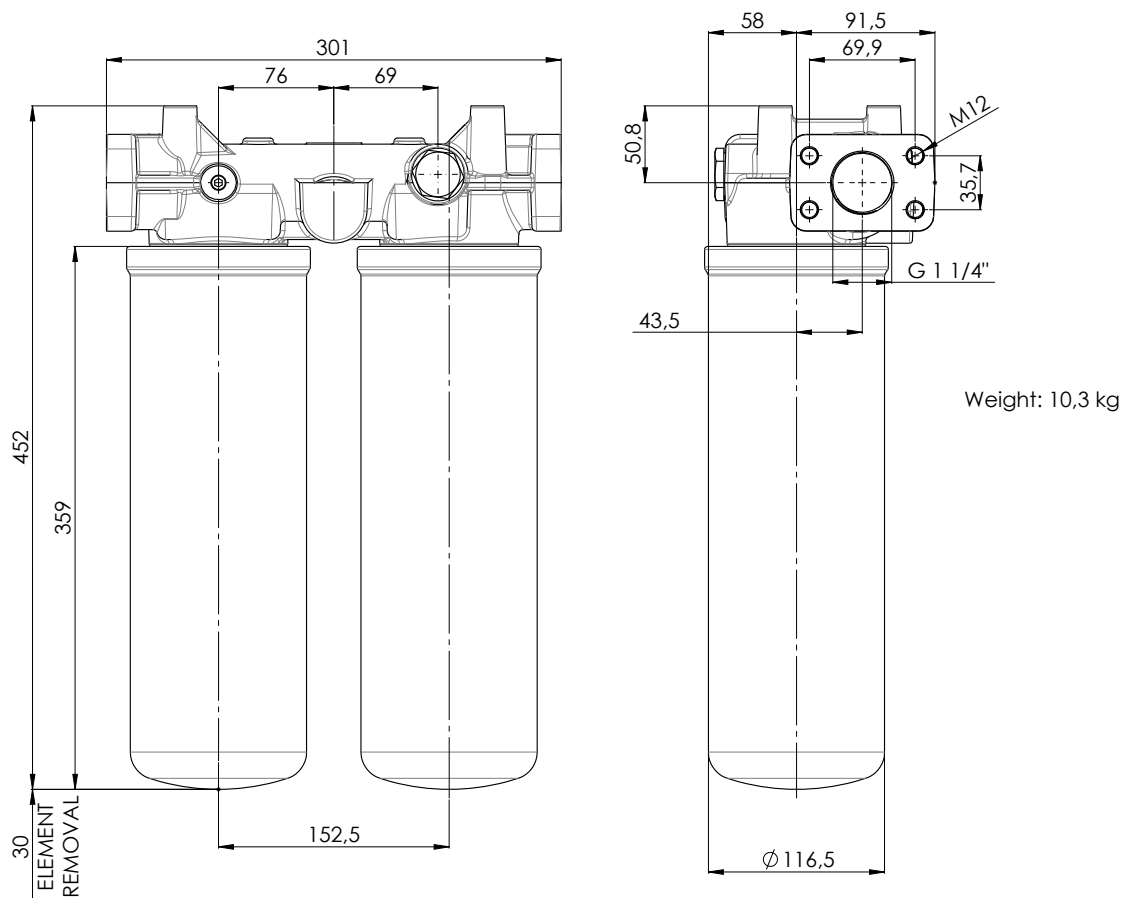
PRESSURE:	Max operating:	24 bar
	Burst:	55 bar
CONNECTION:	G 1 1/4" and 1 1/2" SAE 3000	
MATERIALS:	Head:	aluminium alloy
	Bowl:	painted steel
	Seal:	FKM
BYPASS VALVE:	No bypass	

ELEMENT

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

FILTER MEDIA:	Inorganic microfiber:	G01 - G03 - G06 - G10 G25
	Inorganic microfiber + water absorbent:	GW40
COLLAPSE PRESSURE:	12 bar	
TEMPERATURE RANGE:	from -25 °C to +120 °C	
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV	
	HETG-HEES (acc. to ISO 6743/4).	
	Diesel EN590, ASTM D975	
	Biodiesel B0 to B100 EN14214	
	Fuel oil EN51603-1	
	For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).	

OVERALL DIMENSIONS



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 $\beta_{4\mu m(c)} \geq 10.000$ glassfiber $\beta_{4\mu m(c)} \geq 2.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 5.000$ glassfiber $\beta_{4\mu m(c)} \geq 2.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 2.000$
	G10	glassfiber $\beta_{10\mu m(c)} \geq 2.000$ glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{25\mu m(c)} \geq 2.000$
	GW40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$ + 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
ACCESSORIES	2	AB1 thread

ACCESSORIES

The accessories must be ordered separately

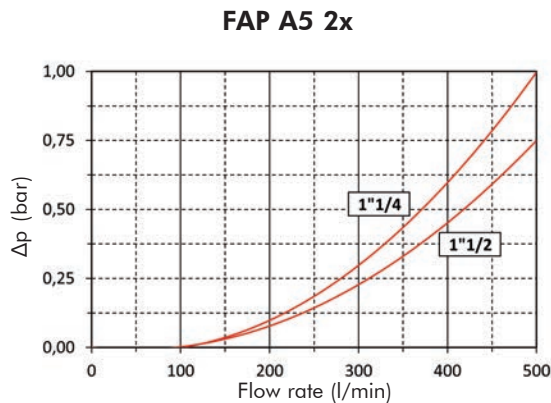
INDICATOR	MP0	pressure gauge rear connection, scale 0-16 bar
(Y and F) digit for FKM seal option For other options see clogging indicators catalogue	MPC	pressure gauge rear connection, setting 3 bar, scale 0-10 bar
	MRC	pressure gauge radial connection, setting 3 bar, scale 0-10 bar
	EY2	differential 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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000. If the oil has a viscosity V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 200 l/min with A522G01V0/AB2 and oil viscosity 4 cSt: $200 \times (2,9/1000) \times (4/32) = 0,073\text{bar}$

		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 1/4" threaded port)

Housing Δp 0,12 bar + element Δp 0,073 bar ($200 \times 2,9/1000 \times 4/32$) = total assembly Δp 0,193 bar

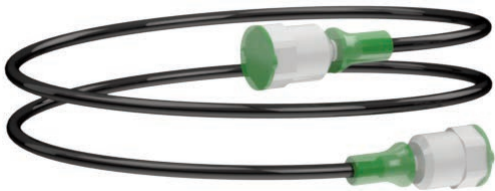
ACCESSORIES

These accessories must be ordered separately.



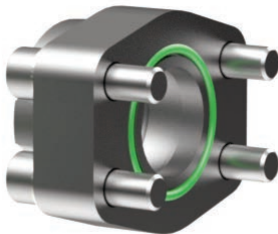
04.006.00539	FMSA08S0	sampling point - check coupling M16x2 with G 1/4 connection thread
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Allows you to control the pressure safely while the system is at full capacity and can be used to obtain fluid samples.



04.006.00538	FMSA09S0	microhose for check coupling M16x2 – length 1m
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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" NPTE. 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
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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 threaded 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.





WWW.SUMY.IR

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

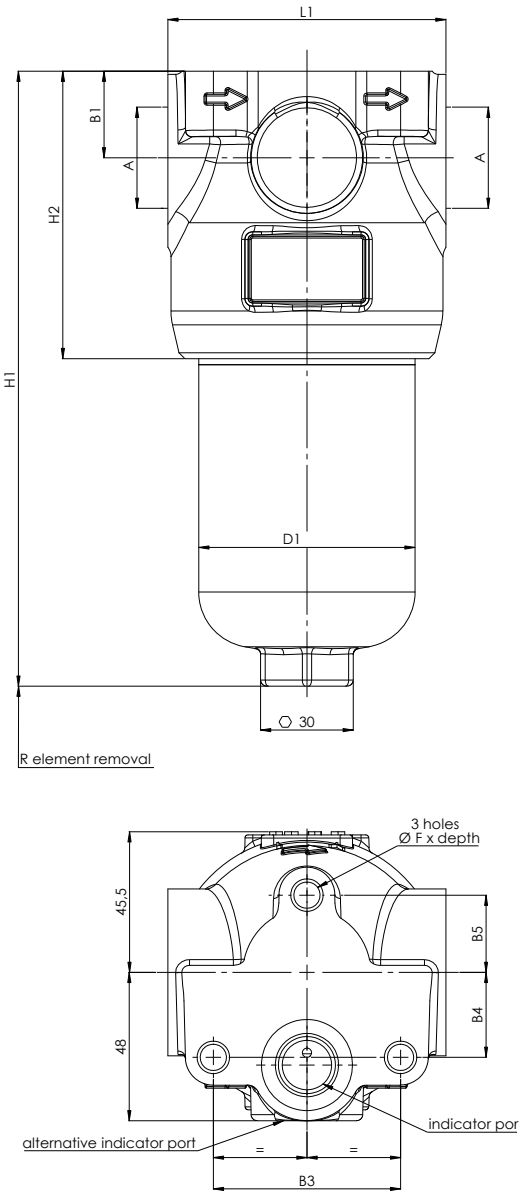


HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: up to 420 bar Fatigue rating: 10 ⁶ cycles 0 ÷ 420 bar Burst: 1260 bar
CONNECTIONS:	THREADED: G 1/2" ÷ G 1 1/2" FLANGED: 1 1/4" ÷ 1 1/2" SAE J 518-6000 FLANGE METRIC SCREWS
MATERIALS:	Head: cast iron Bowl: carbon steel Seal: NBR (FKM on request)
BYPASS VALVE:	6 bar ABF valve (on request) 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 G15 - G25
COLLAPSE PRESSURE:	21 bar 210 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

THREADED

OVERALL DIMENSIONS

FH420-XD-040-063-100



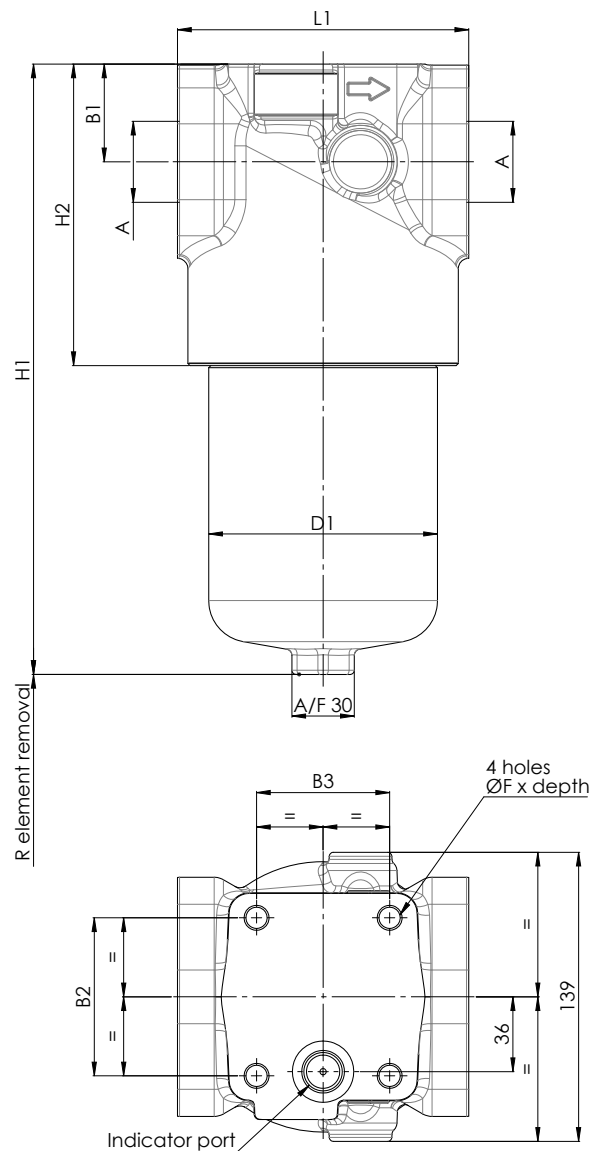
NOMINAL SIZE

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

THREADED

OVERALL DIMENSIONS

FH420-XD-160-250-400



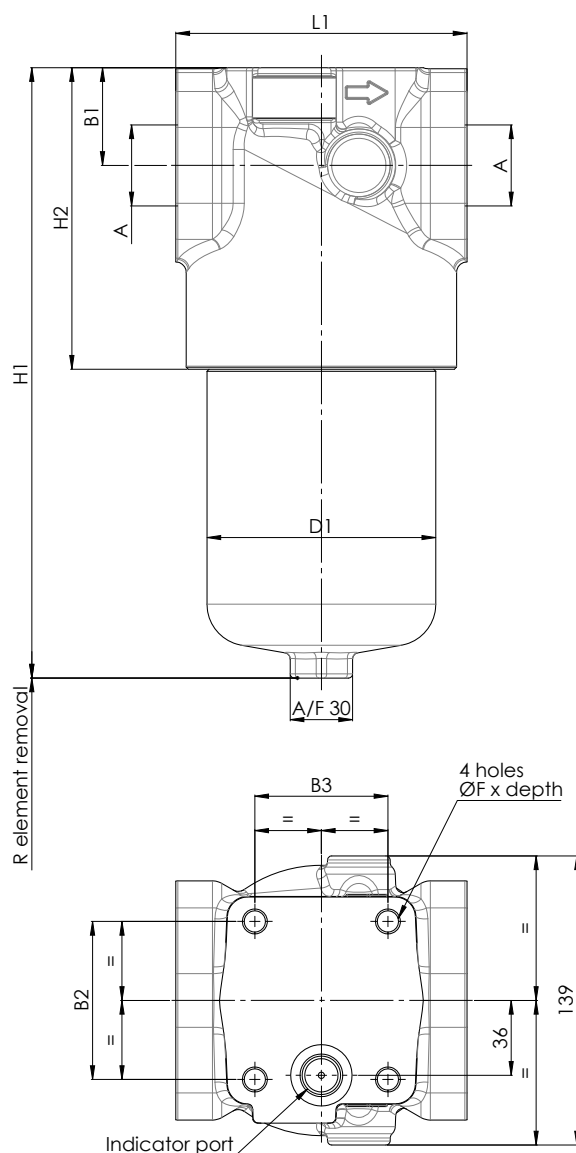
NOMINAL SIZE

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

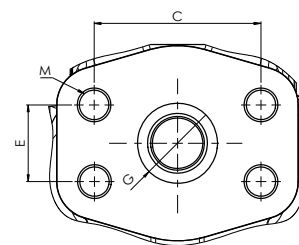
FLANGED

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						293,5				12,6 Kg
FH420-XD250	47	76	64	110	M12x22	384,5	145	140	130	13,7 Kg
FH420-XD400						533,5				18,1 Kg

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 $\beta_{4\mu m(c)} \geq 1.000$ G03 glassfiber $\beta_{5\mu m(c)} \geq 1.000$ G06 glassfiber $\beta_{7\mu m(c)} \geq 1.000$ G10 glassfiber $\beta_{12\mu m(c)} \geq 1.000$ G15 glassfiber $\beta_{17\mu m(c)} \geq 1.000$ G25 glassfiber $\beta_{22\mu m(c)} \geq 1.000$
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 B4 G 3/4" B5 G 1" for size 040 to 400 B6 G 1 1/4" B7 G 1 1/2" for size 160 to 400 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 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

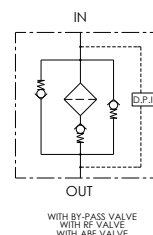
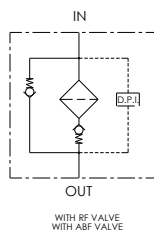
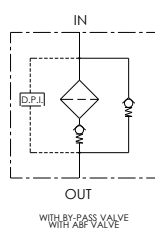
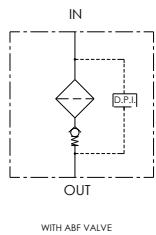
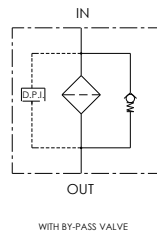
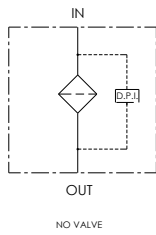
(F) digit for FKM seal option

*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



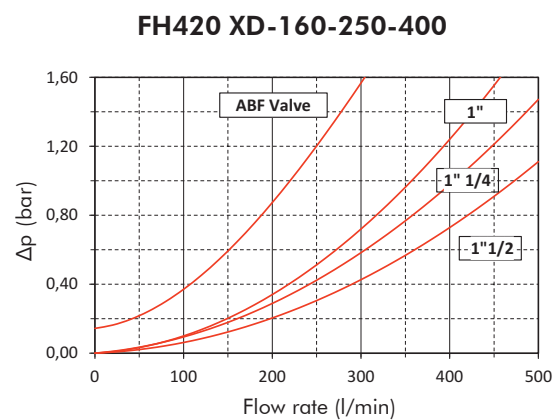
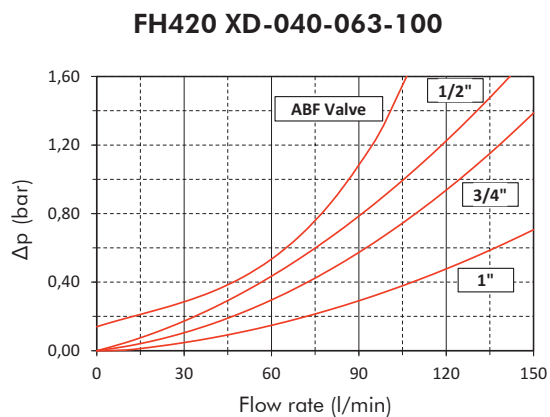
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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.



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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 100 l/min with XD160G10B and oil viscosity 46 cSt = $(100 \times 3,37)/1000 \times (46/32) = 0,48$ 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

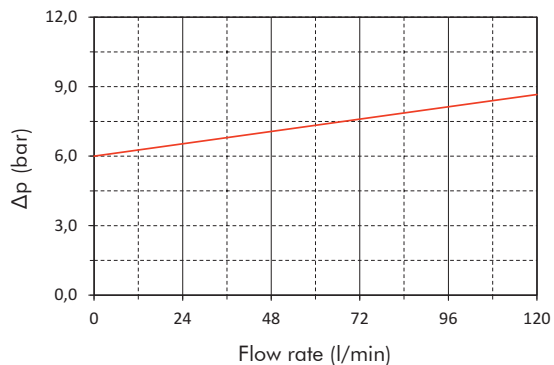
FH420XD160G10BBB5DCW000S0 with 100 l/min and oil 46 cSt :

Housing Δp 0,1 bar + element Δp 0,48 bar $(100 \times 3,37)/1000 \times (46/32) =$ total assembly Δp 0,58 bar

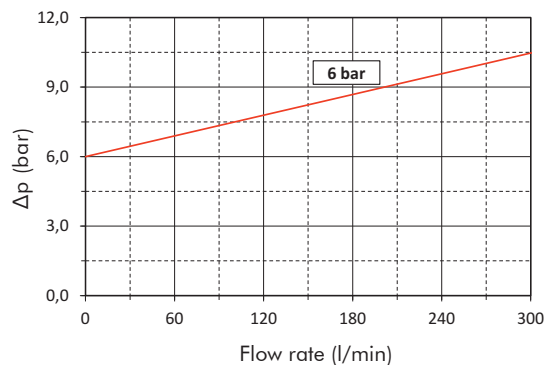
BYPASS VALVE PRESSURE DROP

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

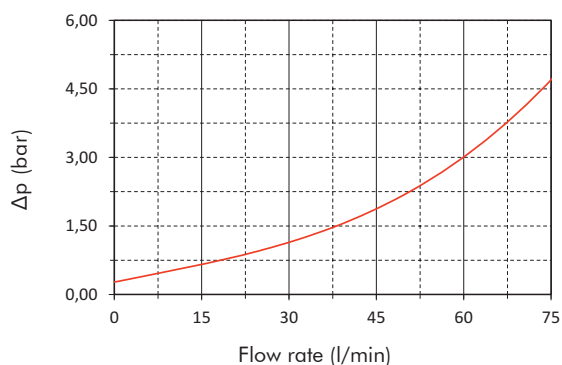


FH420 – XD160-250-400

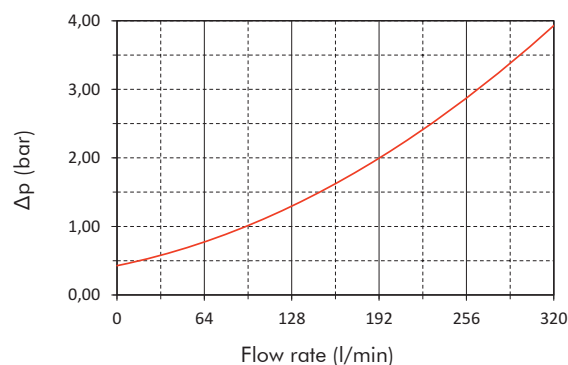


RF VALVE PRESSURE DROP

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/dm³.

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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FH420 SERIES

In line high pressure filters

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

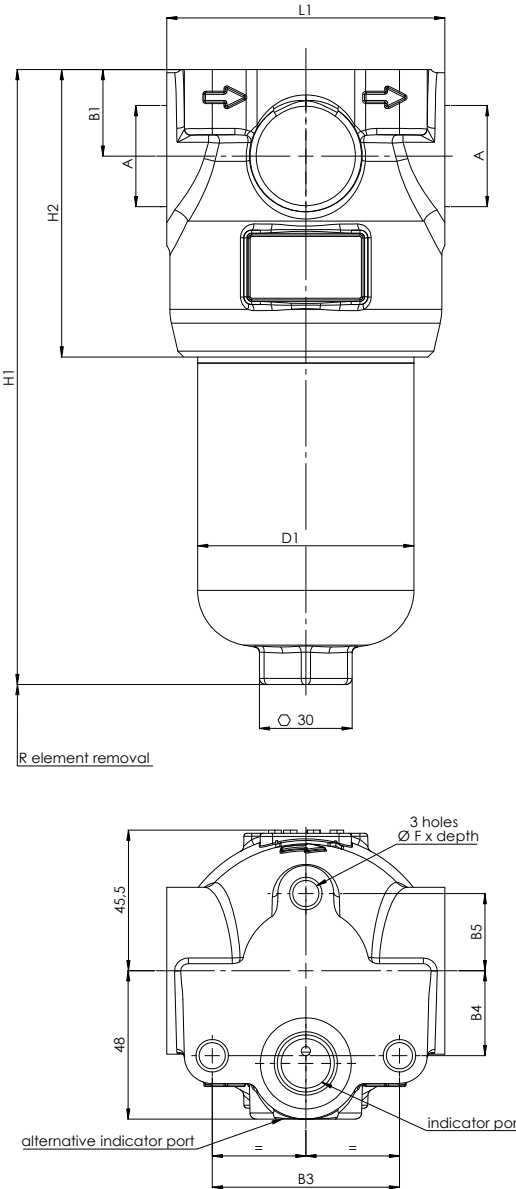


HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: up to 420 bar Fatigue rating: 10 ⁶ cycles 0 ÷ 420 bar Burst: 1260 bar
CONNECTIONS:	THREADED: G 1/2" ÷ G 1 1/2" FLANGED: 3/4" ÷ 1 1/2" SAE J 518-6000 FLANGE METRIC SCREWS
MATERIALS:	Head: cast iron Bowl: carbon steel Seal: NBR (FKM on request)
BYPASS VALVE:	6 bar ABF valve ABF valve+ RF valve
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber: G01 - G03 G06 - G10 - G15 - G25
COLLAPSE PRESSURE:	21 bar 210 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

THREADED

OVERALL DIMENSIONS

FH420-D1-2x



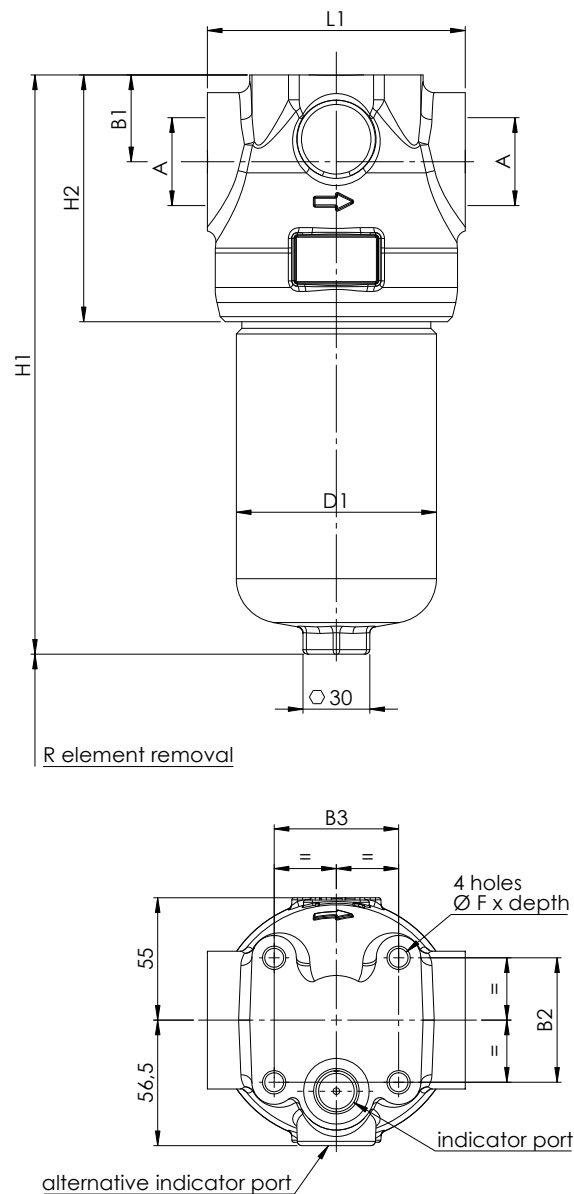
NOMINAL SIZE

MODEL	A	B1	B3	B4	B5	D1	F	H1	H2	L1	R	WEIGHT
FH420-D125	G 1/2" G 3/4" 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

THREADED

OVERALL DIMENSIONS

FH420-D1-3x



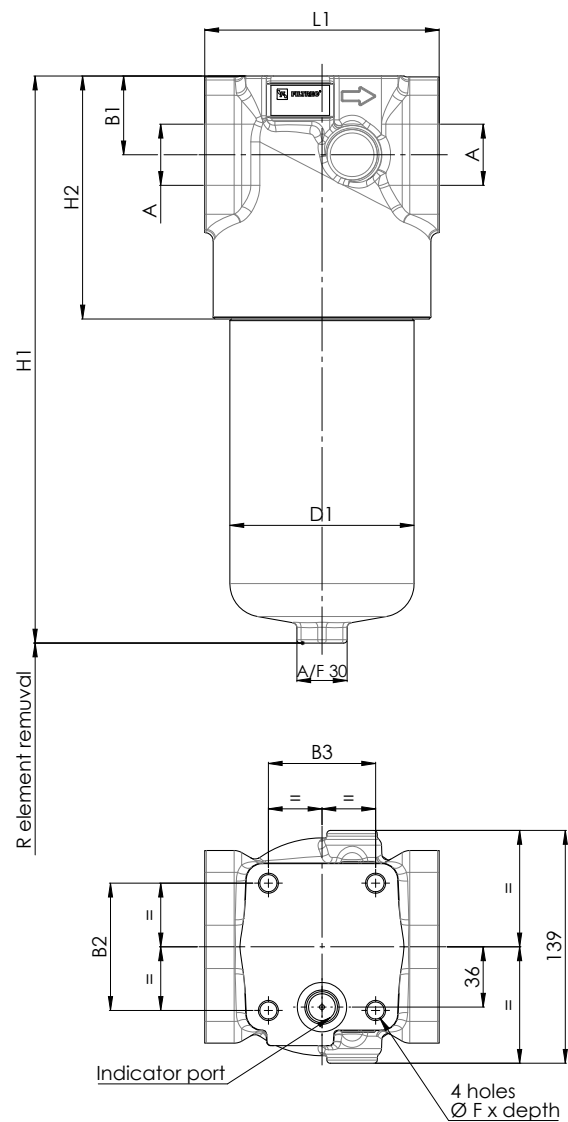
NOMINAL SIZE

MODEL	A	B1	B2	B3	D1	F	H1	H2	L1	R	WEIGHT
FH420-D135	G 1" 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

THREADED

OVERALL DIMENSIONS

FH420-D1-4x



NOMINAL SIZE

MODEL	A	B1	B2	B3	D1	F	H1	H2	L1	R	WEIGHT
FH420-D140	G 1" G 1 1/4" 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

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 $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
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
	V	FKM (on request)
*omitted for spare element		
7. CONNECTIONS	B3	G 1/2"
	B4	G 3/4"
	B5	G 1"
	B6	G 1 1/4"
	B7	G 1 1/2"
For different thread options please check availability with Filtrec Customer Service.		
8. BYPASS VALVE		for size 2x
		for size 2x - 3x - 4x
9. ABF VALVE / RF VALVE		for size 3x - 4x
		for size 4x
10. INDICATOR PORT OPTION		
11. COMPULSORY FIELD		
12. CORROSION PROTECTION		
13. OPTION		

ORDERING INFORMATION

ACCESSORIES

The accessories must be ordered separately

INDICATOR

(F) digit for FKM seal option

*LC24=Led connector

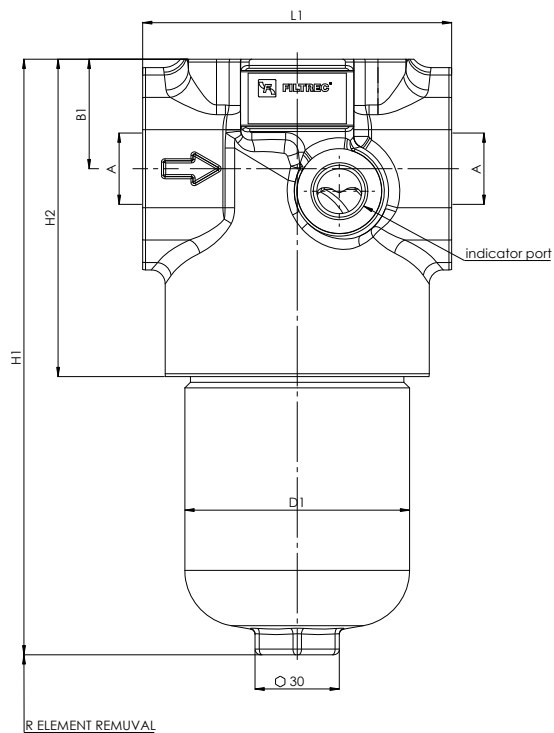
For other options see clogging indicators catalogue

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	

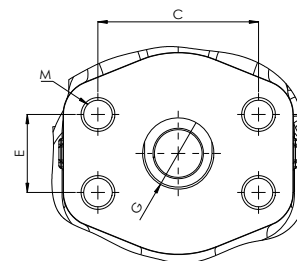
FLANGED

OVERALL DIMENSIONS

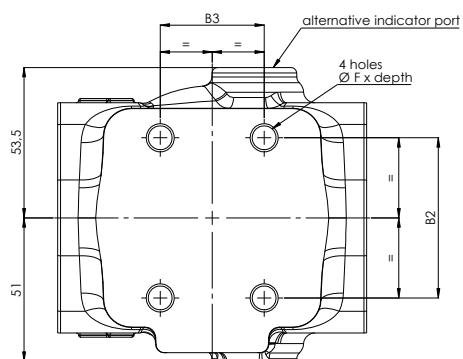
FH420-D1-2x



-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	



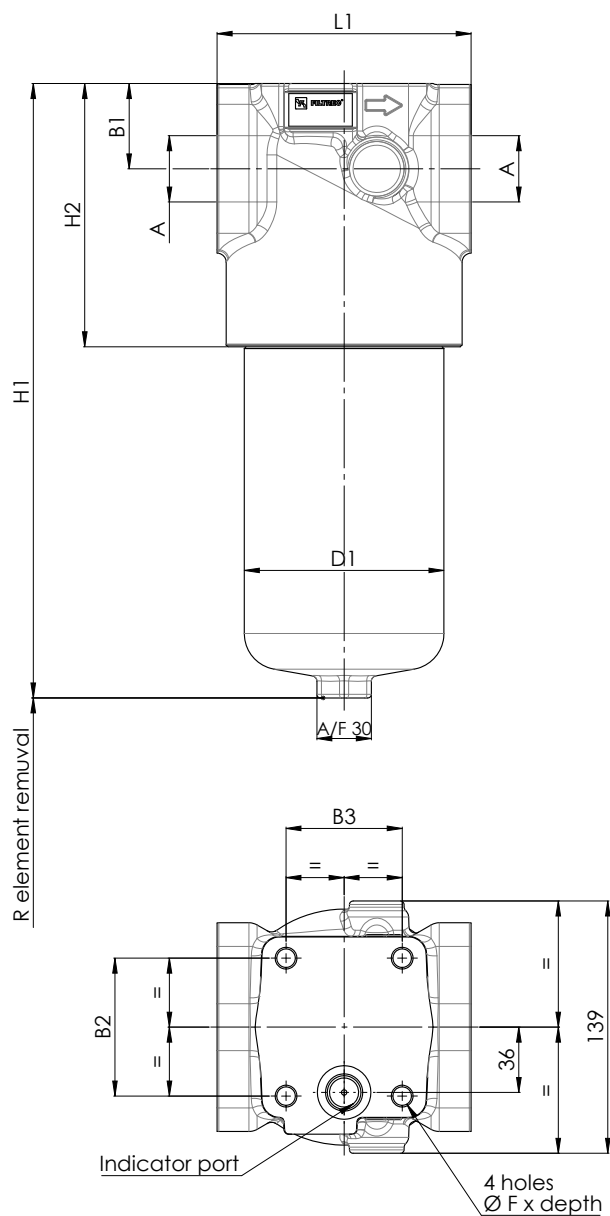
NOMINAL SIZE

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

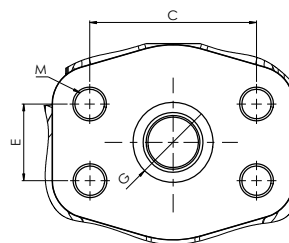
FLANGED

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						245,5				13,5 Kg
FH420-D141	47	76	64	110	M12x22	338,5	145	140	130	16,2 Kg
FH420-D142						458,5				19,5 Kg
FH420-D143						557,5				22,5 Kg

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 $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
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
	H5M	1" SAE J518-6000 Psi-M
	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 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
	T	with metal plug
	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

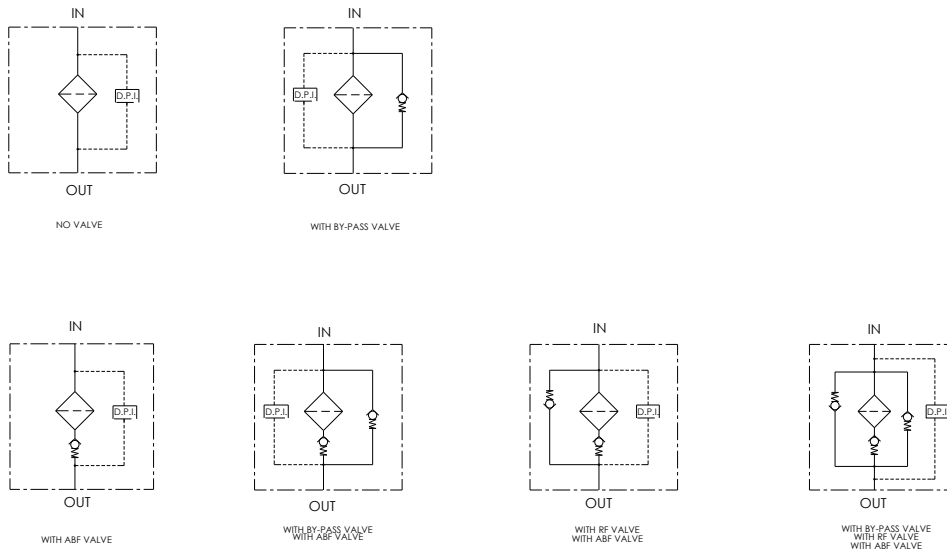
(F) digit for FKM seal option

*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

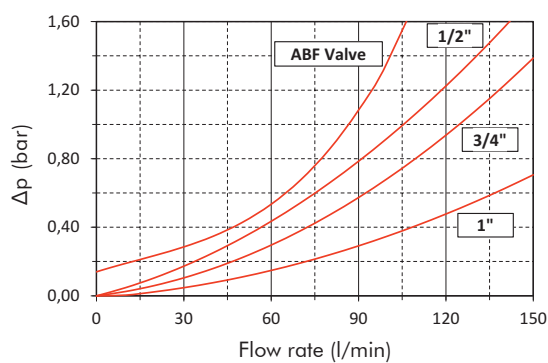
The total Delta P through a filter assembly is given from Housing Δp + Element Δp .

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.

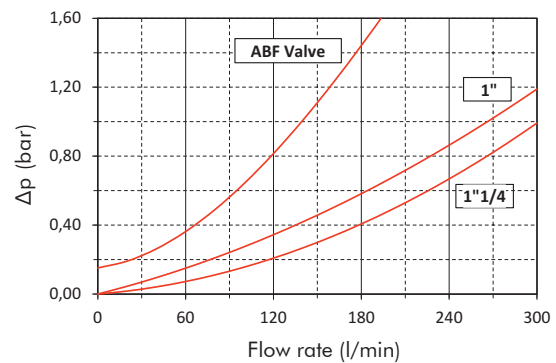
HOUSING PRESSURE DROP

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

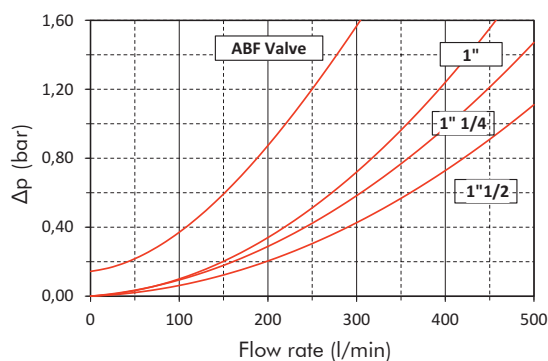
FH420 D1-2x



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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 80 l/min with D121G10B and oil viscosity 46 cSt = $(80 \times 5,25)/1000 \times (46/32) = 0,60$ 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

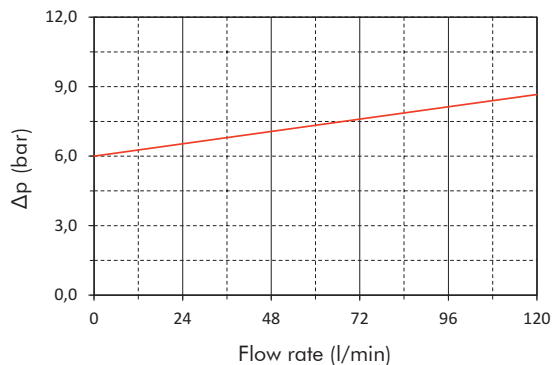
FH420D121G10BBB5DCW000S0 with 80 l/min and oil 46 cSt :

Housing Δp 0,25 bar + element Δp 0,60 bar $(80 \times 5,25)/1000 \times (46/32)$ = total assembly Δp 0,85 bar

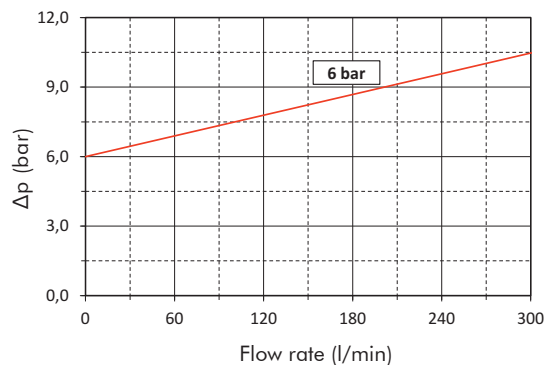
BYPASS VALVE PRESSURE DROP

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

FH420 D12x

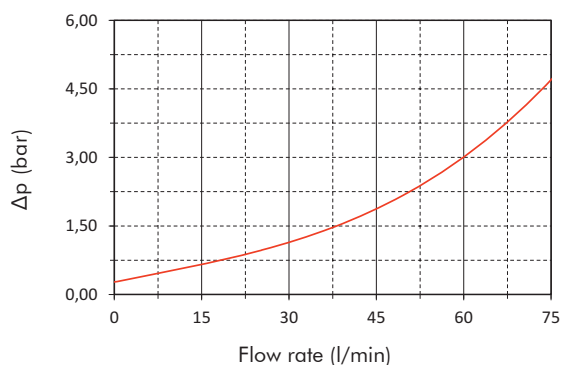


FH420 D13x - D14x

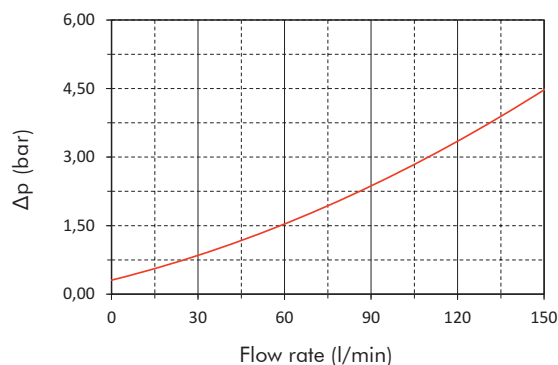


RF VALVE PRESSURE DROP

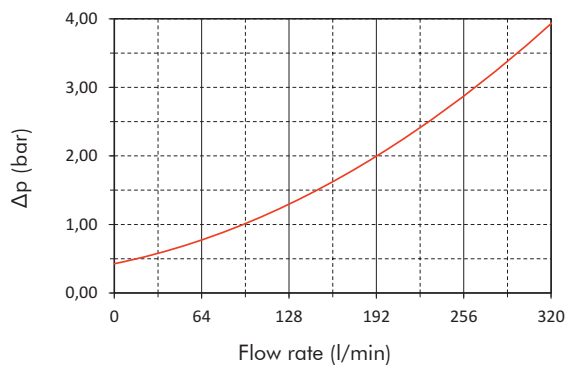
FH420 D12x



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/dm³.

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

-  The IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
- The filter housing should be preferably mounted with the bowl (6) downward.
- Secure to the frame the filter head (1) using the threaded fixing holes (3).
- Verify that no tension is present on the filter after mounting.
- Enough space must be available for filter element replacement.
- The visual clogging indicator must be in a easily viewable position.
- When a electrical indicator is used, make sure that it is properly wired.
-  Never run the system with no filter element fitted.
- Keep in stock a spare FILTREC filter element for timely replacement when required.
- Filter housing should be earthed.

OPERATION

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

MAINTENANCE

-  Make sure that the system is switched off and there is no residual pressure in the filter.
- Unscrew the bowl (6) by turning it anti-clockwise and remove it.
- Remove the dirty element (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.
- Clean carefully the bowl; check the O-rings (5) conditions and replace if necessary.
- Lubricate the bowl's thread (6) and screw it by hand in the filter head (1) by turning it clockwise.
- Screw in the bowl to stop.
-  The used filter elements cannot be cleaned and re-used.





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.

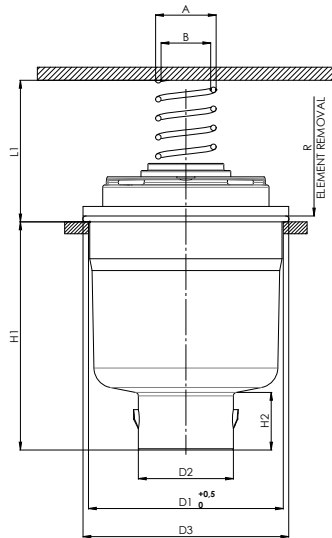


HOUSING	tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968
PRESSURE:	Max operating: 8 bar Burst: 16 bar
MATERIALS:	Cover and head: aluminium alloy Bowl: PA6 reinforced Seal: NBR (FKM on request)
BYPASS VALVE:	Inbuilt in the filter element B version 1,7 bar C version 3 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber G06 - G10 - G15 - G25 - G40 Paper: C10 - C25 Synthetic: M05 - M10 - M15 Metal wire mesh: T60
COLLAPSE PRESSURE:	10 bar
TEMPERATURE RANGE:	-30°C +100°C
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

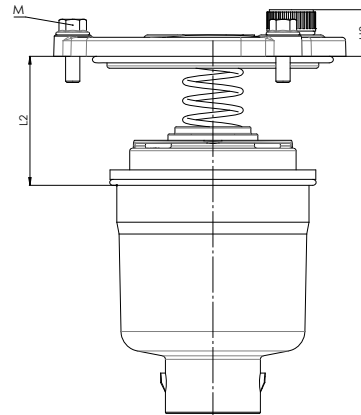
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

OVERALL DIMENSIONS

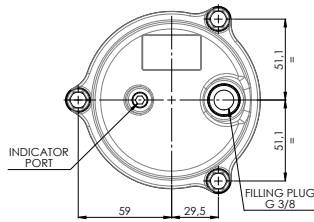
CONFIGURATION 0 - NO COVER



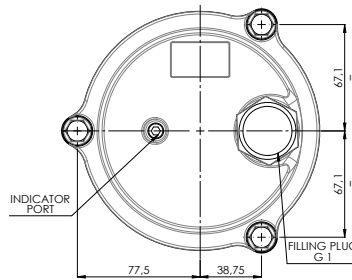
CONFIGURATION 1 & 2 - WITH COVER



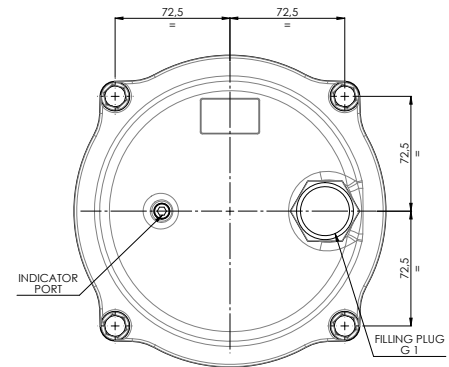
COVER OPTIONS



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

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	<table> <tr><td>000</td><td>no element</td></tr> <tr><td>G06</td><td>glassfiber $\beta_{7\mu m(c)} \geq 1.000$</td></tr> <tr><td>G10</td><td>glassfiber $\beta_{12\mu m(c)} \geq 1.000$</td></tr> <tr><td>G15</td><td>glassfiber $\beta_{17\mu m(c)} \geq 1.000$</td></tr> <tr><td>G25</td><td>glassfiber $\beta_{22\mu m(c)} \geq 1.000$</td></tr> <tr><td>G40</td><td>glassfiber $\beta_{35\mu m(c)} \geq 1.000$</td></tr> <tr><td>C10</td><td>paper $\beta_{10\mu m(c)} \geq 2$</td></tr> <tr><td>C25</td><td>paper $\beta_{25\mu m(c)} \geq 2$</td></tr> <tr><td>T60</td><td>wire mesh 60 μm</td></tr> <tr><td>M05</td><td>synthetic $\beta_{10\mu m(c)} \geq 1.000$</td></tr> <tr><td>M10</td><td>synthetic $\beta_{15\mu m(c)} \geq 1.000$</td></tr> <tr><td>M15</td><td>synthetic $\beta_{20\mu m(c)} \geq 1.000$</td></tr> </table>	000	no element	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$	C10	paper $\beta_{10\mu m(c)} \geq 2$	C25	paper $\beta_{25\mu m(c)} \geq 2$	T60	wire mesh 60 μm	M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$	M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$	M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$
000	no element																								
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G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$																								
G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$																								
C10	paper $\beta_{10\mu m(c)} \geq 2$																								
C25	paper $\beta_{25\mu m(c)} \geq 2$																								
T60	wire mesh 60 μm																								
M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$																								
M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$																								
M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$																								
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	<table> <tr><td>0</td><td>no cover</td></tr> <tr><td>1</td><td>with cover without filing plug</td></tr> <tr><td>2</td><td>with cover with filing plug</td></tr> </table>	0	no cover	1	with cover without filing plug	2	with cover with filing plug																		
0	no cover																								
1	with cover without filing plug																								
2	with cover with filing plug																								

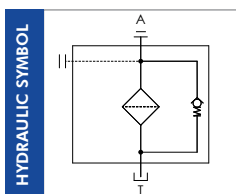
Continued on the next page

ORDERING INFORMATION

ACCESSORIES

The accessories must be ordered separately

INDICATOR	MPB	press. gauge rear connection	
	MRB	press. gauge radial connection	for "B" bypass
	PDB	pressure switch	
	MPC	press. gauge rear connection	
	MRC	press. gauge radial connection	for "C" bypass
	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)



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.

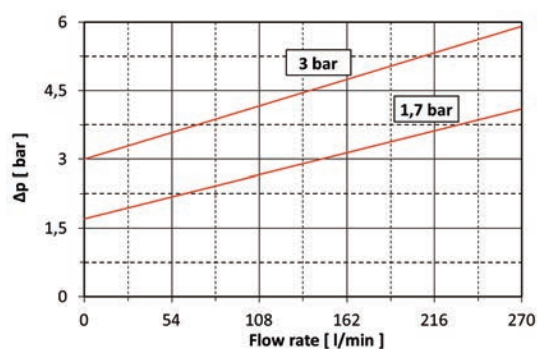
Example: 80 l/min with R130G10B and oil viscosity 46 cSt: $(80 \times 3,19)/1000 \times (46/32) = 0,36$ bar

	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

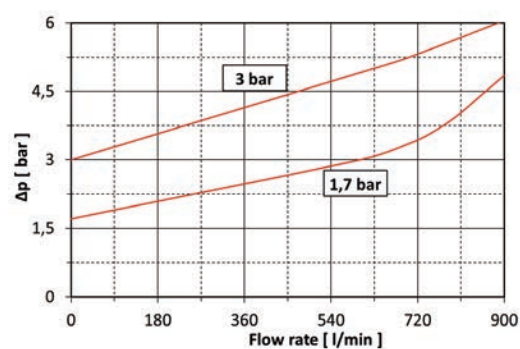
BYPASS VALVE PRESSURE DROP

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



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
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for size 50 to 66

06.016.00488	CT4200	connection tube 200 mm long
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C DIFFUSER

Diffuser is an effective way to reduce foaming and turbulence normally caused by return lines. Plug and play option to be directly installed on the filter bowl or to connection tube (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
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for size 50 to 66

06.016.00493	DF065	diffuser Ø 65 mm
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USER TIPS



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



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.

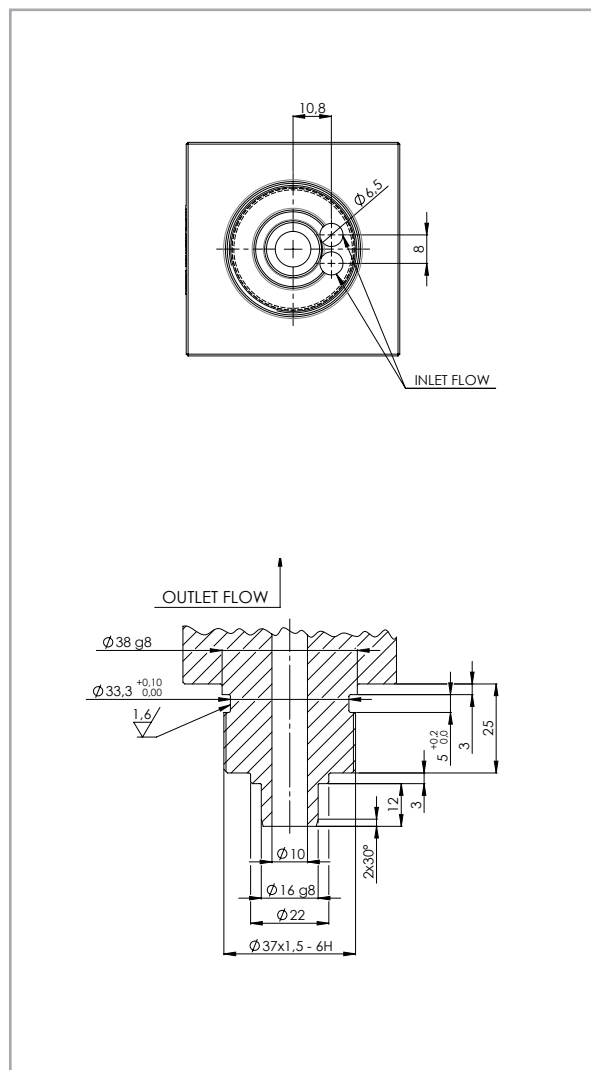
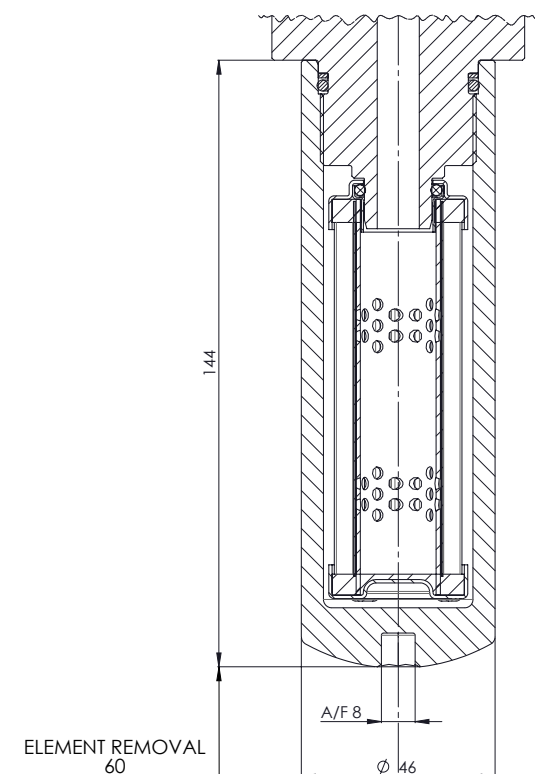


HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: up to 420 bar Fatigue pressure test, over 10 ⁶ cycles from zero to max working pressure. Burst: over 1260 bar
MATERIALS:	Bowl: carbon steel Seal: NBR (FKM on request)
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G01 - G03 - G06 - G10 G15 - G25
COLLAPSE PRESSURE:	21 bar With bypass 210 bar Without bypass
TEMPERATURE RANGE:	-30°C +100°C
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS

KH420 **D1 08**

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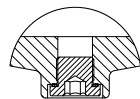
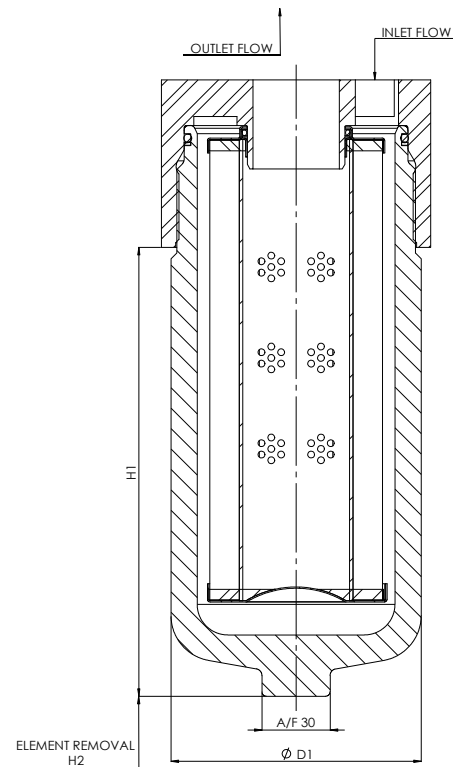


D1 08 WEIGHT: 1 Kg

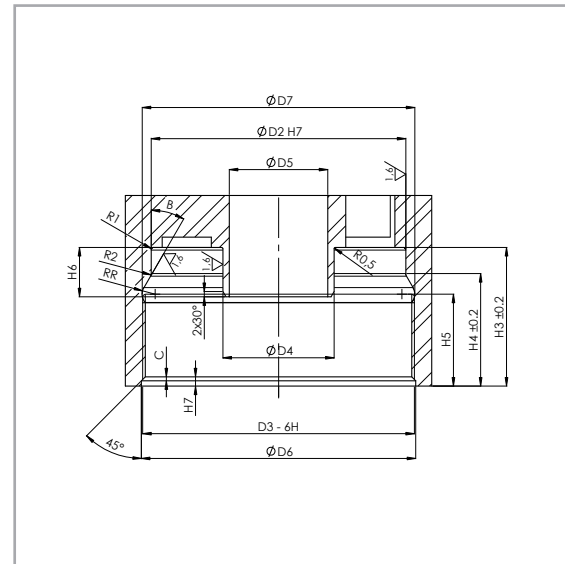
CONTROL BLOCK MACHINING
REFERENCE DRAWING

OVERALL DIMENSIONS

KH420 D1 2xx / 3xx / 4xx
 WWW.SUMY.IR



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

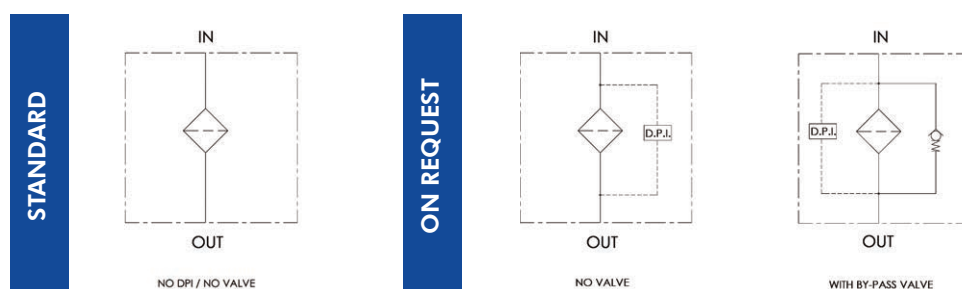
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	1.	2.	3.	4.	5.	6.	7.	8.
	KH420	D1	20	G10	A	B	S	0
SPARE ELEMENT		D1	20	G10	A			

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 $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
5. ELEMENT COLLAPSE	A	21 bar
	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)

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

HYDRAULIC SYMBOLS



ELEMENT PRESSURE DROP (filter elements 21 bar collapse)

WWW.SUMY.IR

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_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 80 l/min with D121G10B and oil viscosity 46 cSt $> (80 \times 5,25)/1000 \times (46/32) = 0,60$ 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

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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

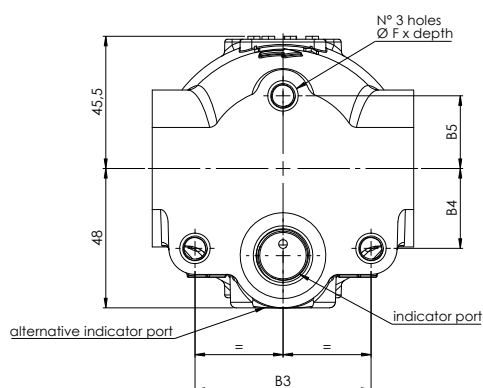
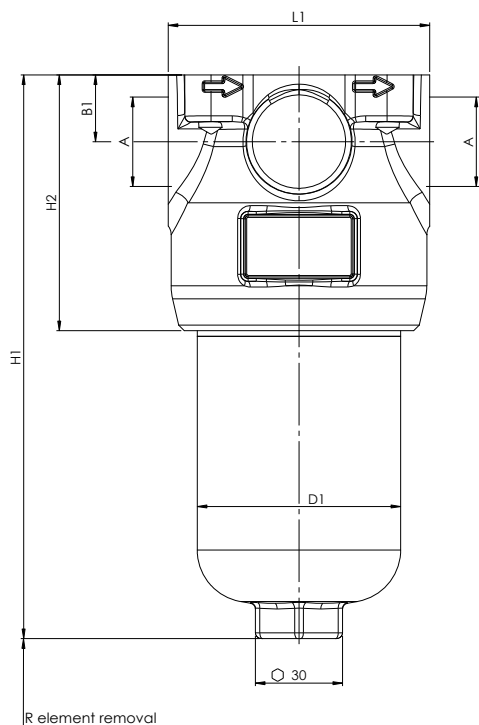
PRESSURE:	Max operating: 320 bar Fatigue rating: 10 ⁶ cycles 0÷320 bar
CONNECTIONS:	G 1/2"÷1" - M22x1,5 on request
MATERIALS:	Head: cast iron Bowl: extruded steel Seal: NBR (FKM on request)
BYPASS VALVE:	No by-pass or 6 bar setting

ELEMENT

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

FILTER MEDIA:	Inorganic microfiber: G01 - G03 - G06 - G10 G15 - G25
COLLAPSE PRESSURE:	21 bar 210 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

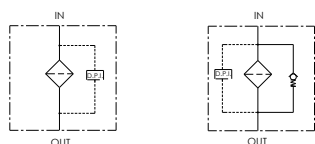
OVERALL DIMENSIONS



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 $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{18\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
5. ELEMENT COLLAPSE	A	21 bar
	B	210 bar
		recommended with no by-pass option
6. SEALS	B	*NBR
*omitted for spare element	V	FKM
7. CONNECTIONS	B3	G 1/2"
For different thread options please check availability with Filtrec Customer Service.	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	000	no indicator
(F) digit for FKM seal option	V05 (VF5)	differential visual 5 bar
*LC24=Led connector (see clogging indicators catalogue)	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
	E08L (EF8L)	differential electric 8 bar + *LC24
		recommended for no by-pass option
11. CORROSION PROTECTION	S	phosphated - standard
12. OPTIONS	0	standard

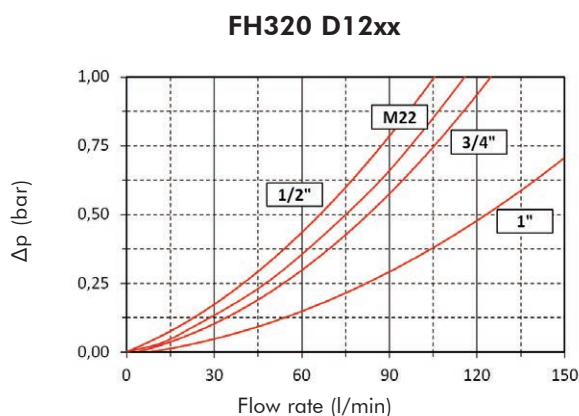
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP (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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 80 l/min with D121G10B and oil viscosity 46 cSt $> (80 \times 5,25)/1000 \times (46/32) = 0,60$ 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

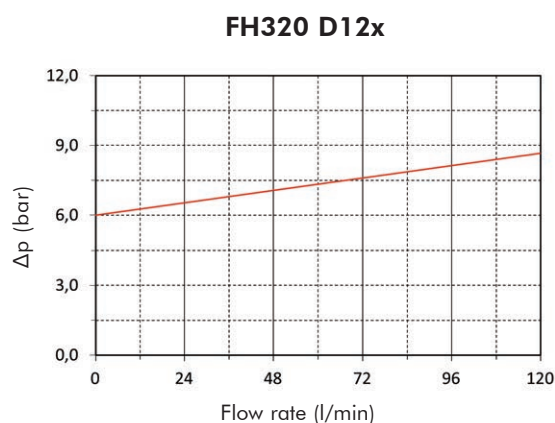
EXAMPLE OF TOTAL Δp CALCULATION

FH320D121G10BBB5DWV08 with **80** l/min and oil **46** cSt :

Housing Δp 0,25 bar + element Δp 0,60 bar $(80 \times 5,25)/1000 \times (46/32) =$ 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.



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



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.





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.

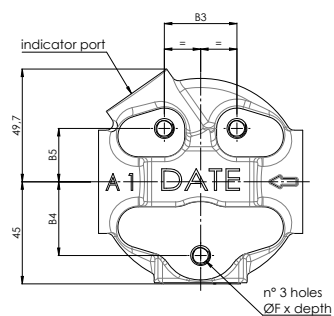
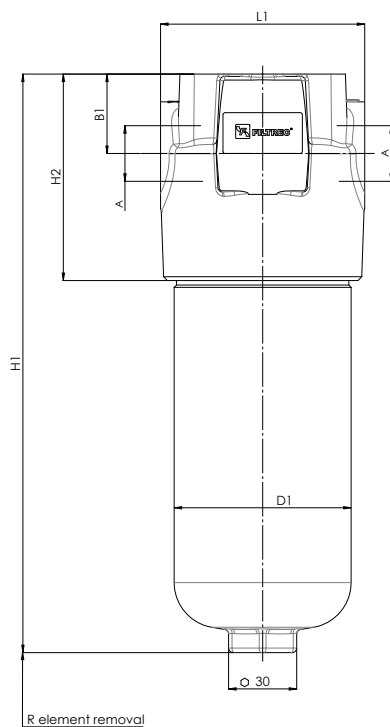
HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: up to 320 bar Fatigue rating: 10 ⁶ cycles 0÷320 bar Burst: 960 bar
CONNECTIONS:	G 1/2" ÷ G 3/4" - M22 M18 (on request)
MATERIALS:	Head: cast iron Bowl: carbon steel Seal: NBR (FKM on request)
BYPASS VALVE:	7 bar

ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber: G01 - G03 - G05 - G10 - G15 - G20
COLLAPSE PRESSURE:	20 bar

TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

OVERALL DIMENSIONS

FH323

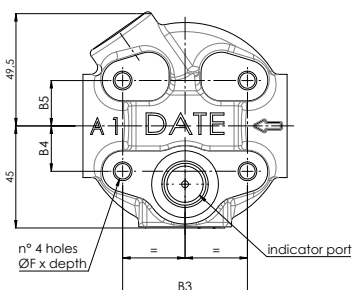
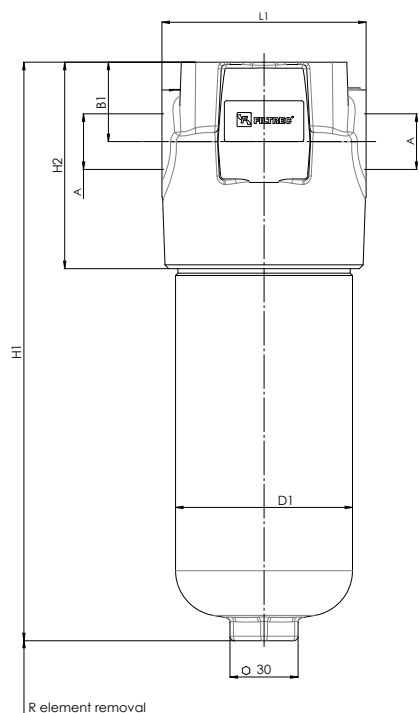


NOMINAL SIZE

MODEL	A	B1	B3	B4	B5	D1	F	H1	H2	L1	R	WEIGHT
FH323-DHD55	G 1/2"							204				4,2 Kg
FH323-DHD75	G 3/4"	35	32	32,5	23,5	78	M8x13	255	91	90	110	4,9 Kg
FH323-DHD95	M18x1,5 M22x1,5							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"							204				4,2 Kg
FH324-DHD75	G 3/4"	35	55	20	20	78	M8x13	255	91	90	110	4,9 Kg
FH324-DHD95	M18x1,5 M22x1,5							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 $\beta_{4\mu m(c)} \geq 1.000$	
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$	
	G05	glassfiber $\beta_{7\mu m(c)} \geq 1.000$	
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$	
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$	
	G20	glassfiber $\beta_{22\mu m(c)} \geq 1.000$	
5. SEALS	B	NBR	
	V	FKM (on request)	
6. ELEMENT SUFFIX	0*	for element with std. connection	
	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	

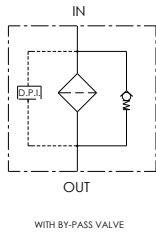
* Omitted for spare element
 ** Only for spare element "/>

ACCESSORIES

The accessories must be ordered separately

INDICATOR (F) digit for FKM seal option 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



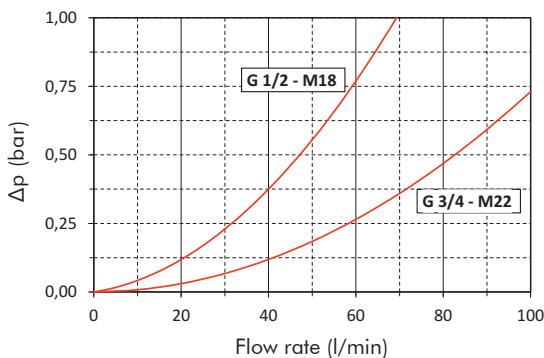
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 80 l/min with DHD95G10B and oil viscosity 46 cSt = $(80 \times 4,12)/1000 \times (46/32) = 0,474$ 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

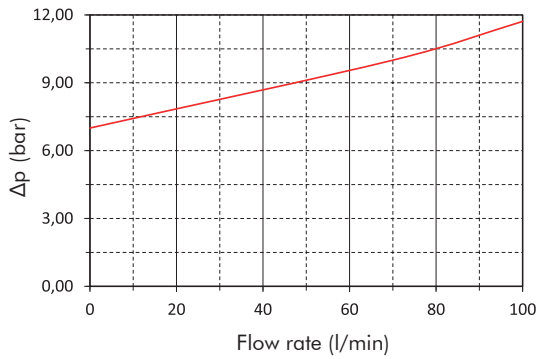
FH323DHD95G10B0B4HW000S0 with 80 l/min and oil 46 cSt:

Housing Δp 0,47 bar + element Δp 0,47 bar $(80 \times 4,12)/1000 \times (46/32)$ = 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



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-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.



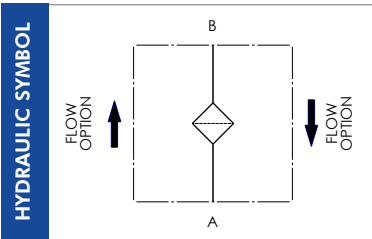
FLC SERIES

Pressure filters

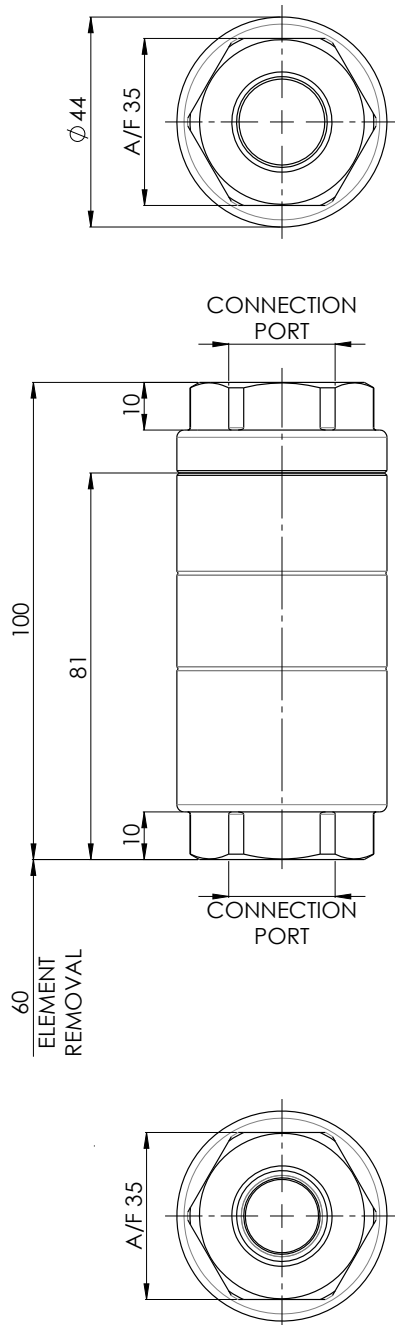
“Last Chance” type filters for protection of the tractor’s hydraulic system from the contaminant coming from the auxiliary devices.



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).	



OVERALL DIMENSIONS



ORDERING INFORMATION

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

1. FILTER SERIES	FLC	
2. FILTER SIZE	1	
3. FILTER MEDIA	S25	syntered bronze 25 μ m
	S40	syntered bronze 40 μ 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			WEIGHT
	at 10 l/min	at 20 l/min	at 40 l/min	
FLC1S25BB3	0,75	1,5	3	0,3 Kg
FLC1S40BB3	0,25	0,5	1	

USER TIPS



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 clockwise.
- 7. Screw in the bowl to stop.
-  8. The used filter elements cannot be cleaned and re-used.



WWW.SUMY.IR



FML320 SERIES

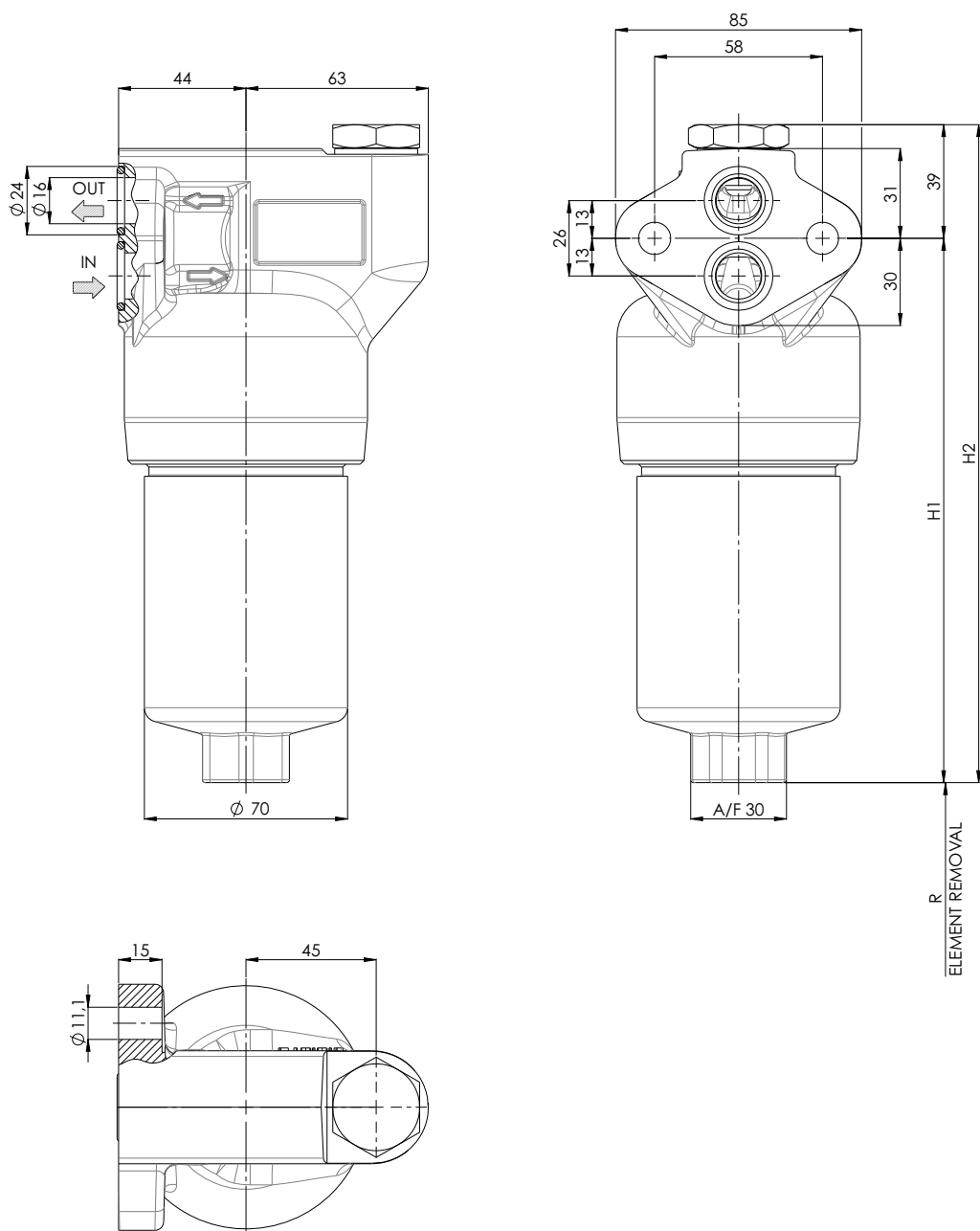
In line pressure filters

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 Fatigue rating: 10 ⁶ cycles 0÷320 bar Burst: 750 bar	
CONNECTIONS:	Manifold block mounting	
MATERIALS:	Head: cast iron Bowl: carbon steel Seal: NBR (FKM on request)	
BYPASS VALVE:	6 bar ABF valve	
ELEMENT		tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber: G01 - G03 - G06 - G10 G15 - G25	
COLLAPSE PRESSURE:	21 bar 210 bar	
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).	

OVERALL DIMENSIONS

FML320 - D1 - 2x FLANGE SIZE 1

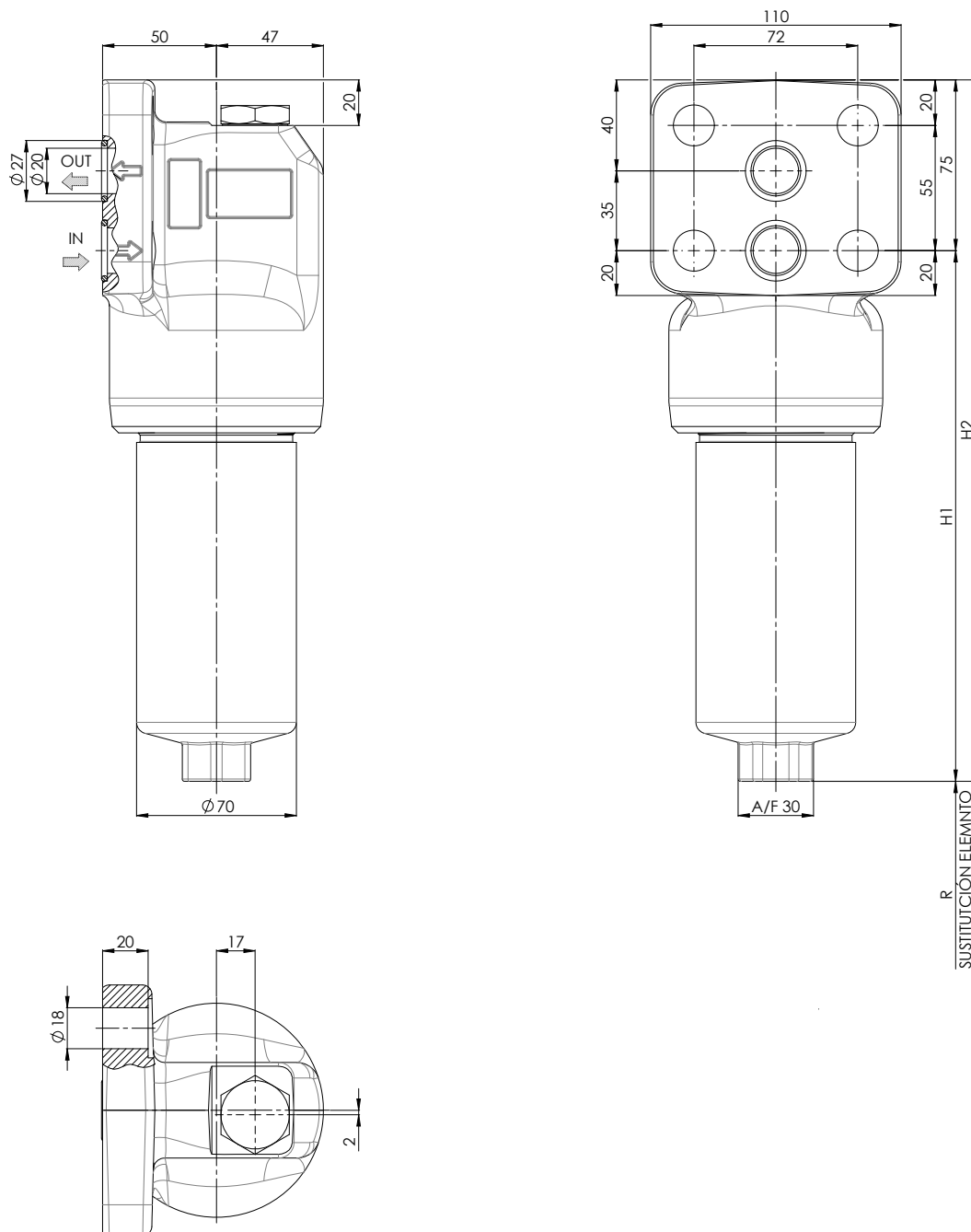


NOMINAL SIZE

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

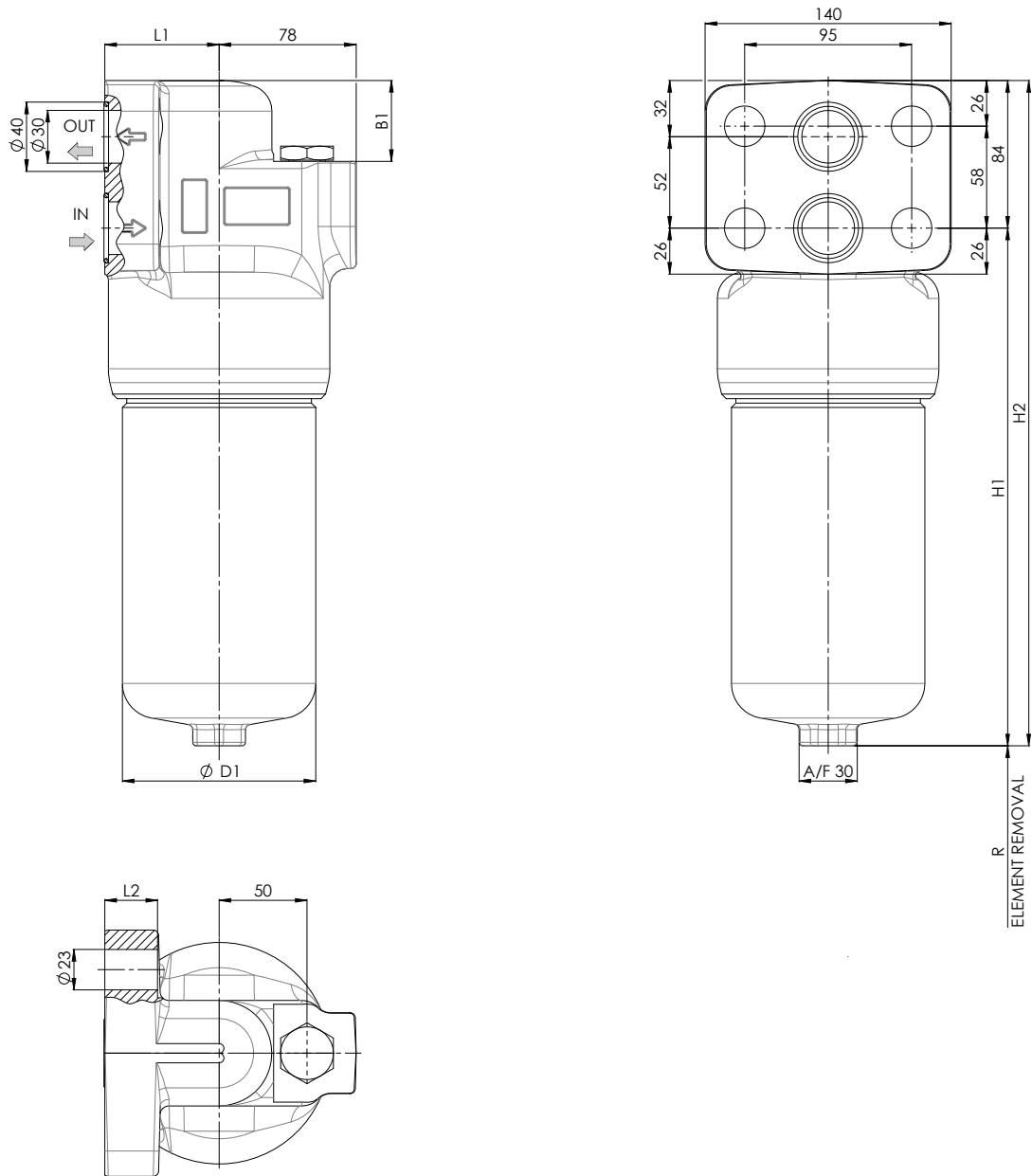


NOMINAL SIZE

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	000	no element	
For different media options please check availability with Filtrec Customer Service.	G01	glassfiber $\beta_{4\mu m(c)} \geq 1.000$	
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$	
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$	
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$	
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$	
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$	
	5. ELEMENT COLLAPSE	A	21 bar
	Y	21 bar - with ABF	
	B	210 bar	
	X	210 bar - with ABF	
6. SEALS / COMPATIBILITY	*B	NBR	
*omitted for spare element	V	FKM	
7. CONNECTIONS	1	size 1 flange 2 fixing bolts	available for D1 25/20/24/21/26
For different thread options please check availability with Filtrec Customer Service.	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	0	no valve	
ABF=anti back flow 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

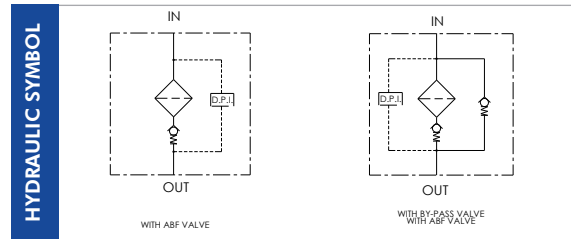
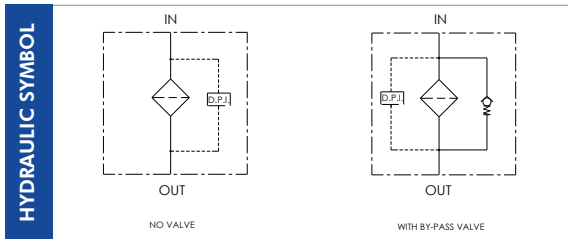
ACCESSORIES

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	recommended for no by-pass option
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	
E08L (EF8L)	differential electric 8 bar + *LC24	
VEF8	differential visual and electric 8 bar	



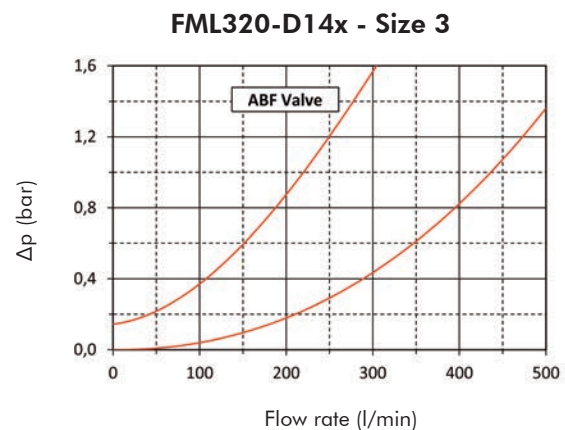
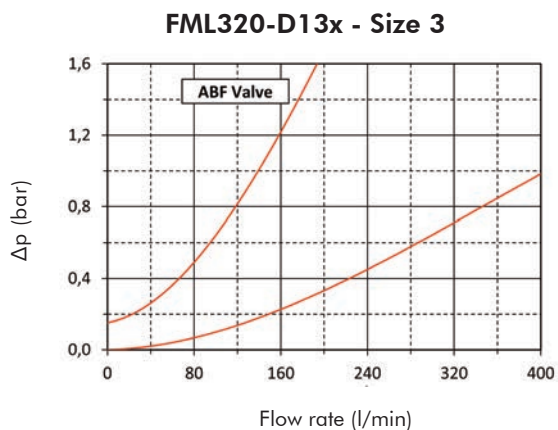
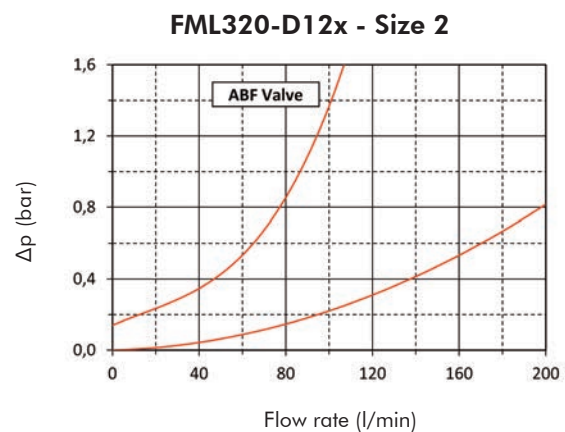
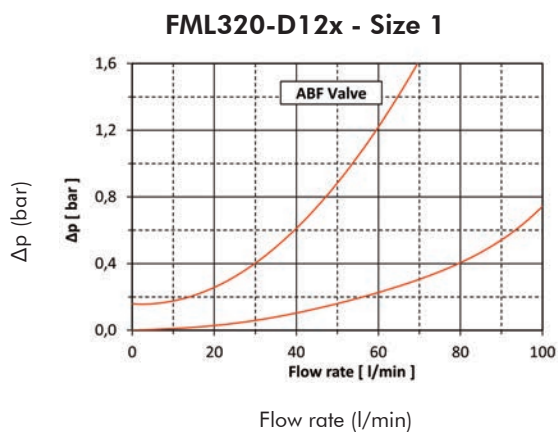
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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.



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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 90 l/min with D121G10B and oil viscosity 46 cSt: $(90 \times 5,25)/1000 \times (46/32) = 0,68$ 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

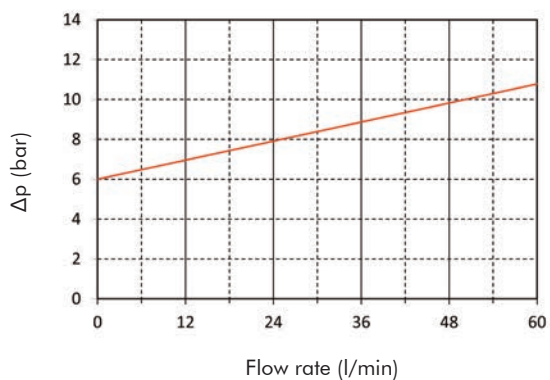
FML320D121G10BB2DCWE05S0 with **90** l/min and oil **46** cSt :

Housing Δp 0,18 bar + element Δp 0,68 bar: $(90 \times 5,25)/1000 \times (46/32) =$ total assembly Δp 0,86 bar

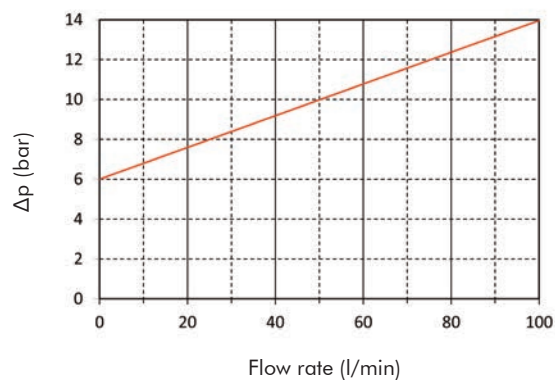
BYPASS VALVE PRESSURE DROP

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

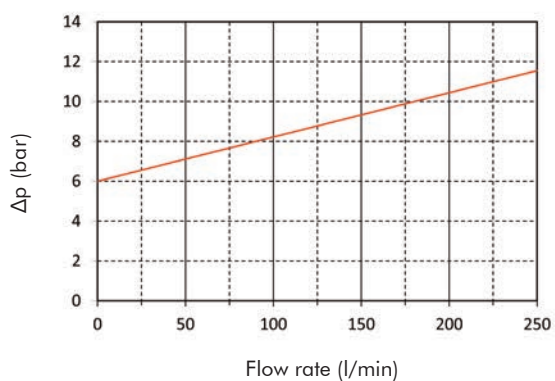
FML320 Size 1



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



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.





FDM SERIES

Modular in-line high pressure filters

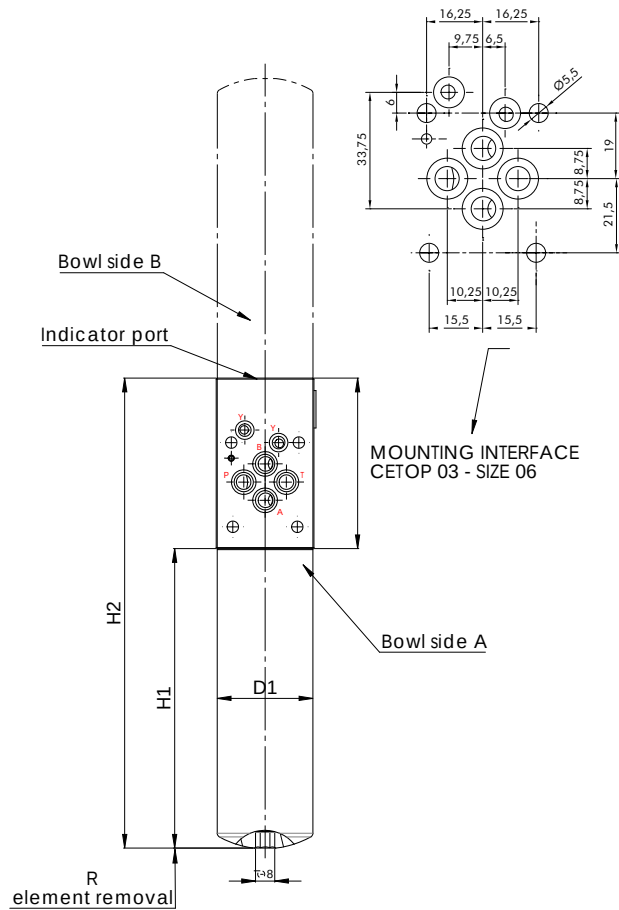
Modular in-line filters with CETOP interface for operating pressure up to 315 bar. Flow rate up to 60 l/min.



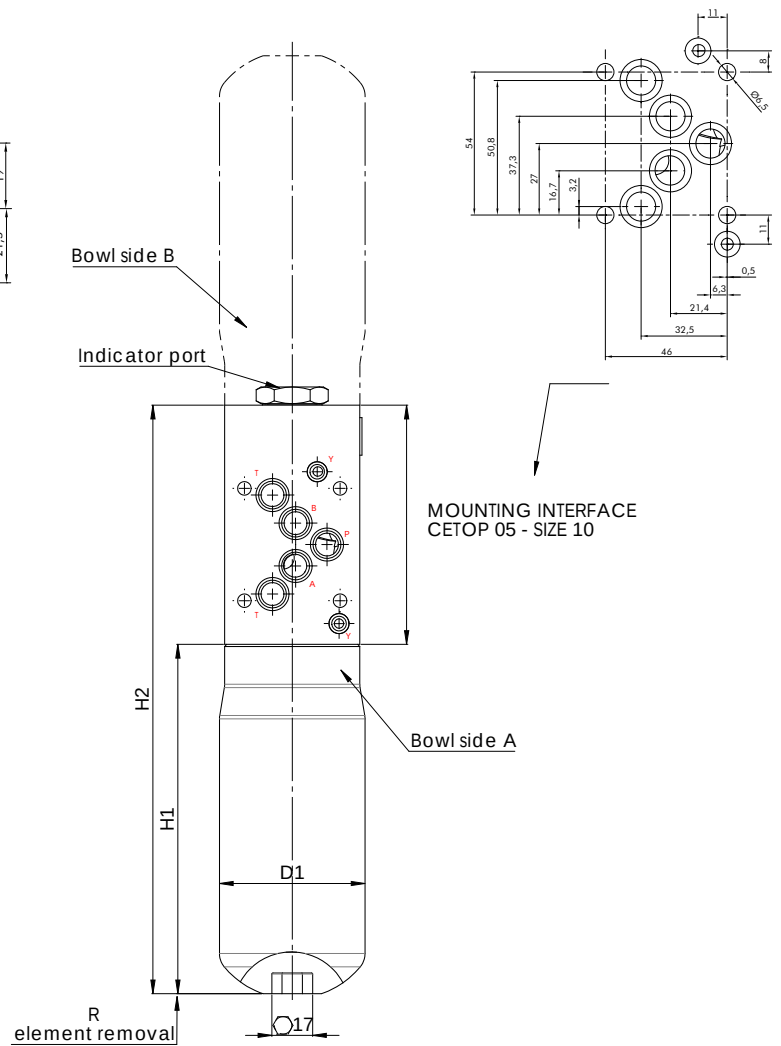
HOUSING		tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating:	315 bar
	Fatigue rating:	10 ⁶ cycles 0÷315 bar
	Burst:	945 bar
CONNECTIONS:	CETOP 03	
	CETOP 05	
MATERIALS:	Head: steel	
	Bowl: steel	
	Seal: NBR (FKM on request)	
BYPASS VALVE:	no by-pass	
ELEMENT		tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181
FILTER MEDIA:	Fiberglass: G01- G03 - G06	
	G10 - G15 - G25	
COLLAPSE PRESSURE:	210 bar	
TEMPERATURE RANGE:	with NBR seal	from -30 °C to +100 °C
	with FKM seal (OPTION)	from -25 °C to +120 °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).	

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

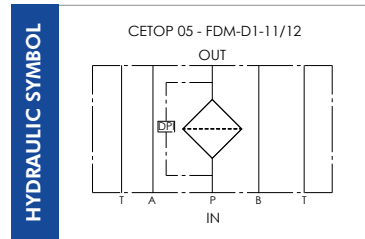
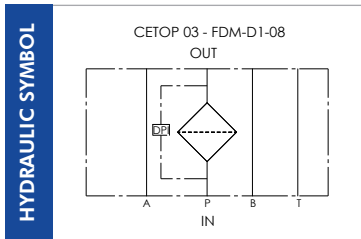
1.	2.	3.	4.	5.	6.	7.	8.	9.
FDM	D1	12	G10	B	B	D	W	000
SPARE ELEMENT	D1	12	G10	B				

1. FILTER SERIES	FDM
2. FILTER ELEMENT SERIES	D1
3. FILTER SIZE	08
	11-12
4. FILTER MEDIA	000 no element
	G01 glassfiber $\beta_{4\mu m(c)} \geq 1000$
	G03 glassfiber $\beta_{5\mu m(c)} \geq 1000$
	G06 glassfiber $\beta_{7\mu m(c)} \geq 1000$
	G10 glassfiber $\beta_{12\mu m(c)} \geq 1000$
	G15 glassfiber $\beta_{17\mu m(c)} \geq 1000$
	G25 glassfiber $\beta_{22\mu m(c)} \geq 1000$
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	VX5 (VY5)	differential visual 5 bar
(Y) digit for FKM seal option	EX5 (EY5)	differential electric 5 bar
For other indicators, see the "Clogging Indicator" catalogue in the download section	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



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PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

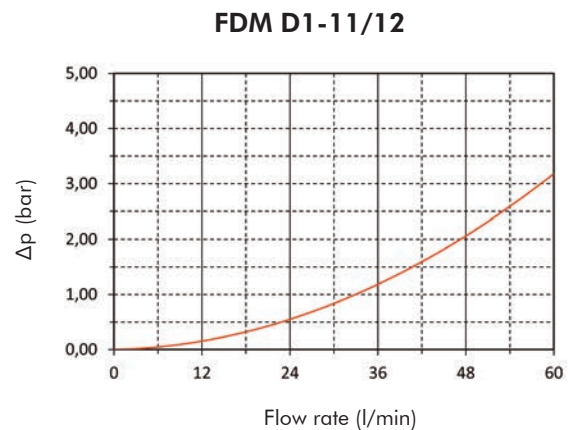
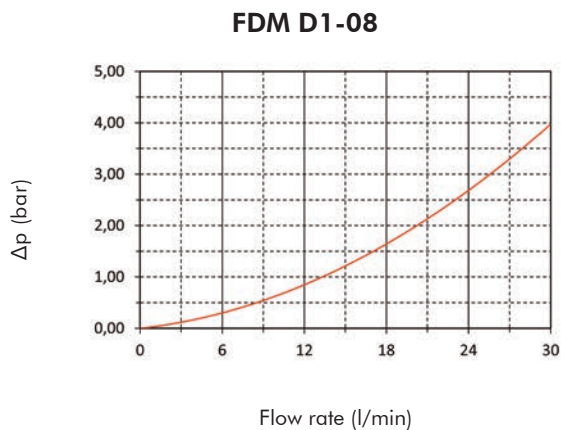
The total Δp through a filter assembly is given from Housing Δp + Element Δp .

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP (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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

example: 24 l/min with D112G10B and oil viscosity 46 cSt: $(24 \times 8,33 / 1000) \times (46/32) = 0,29$ 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 $0,55 + (24 \times 8,33 / 1000) \times (46/32) = \text{total assembly } \Delta p$ 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

FDM D111-12

70 Nm

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 easily 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 clockwise.
- 7. Screw in the bowl to stop.
- ⚠ 8. The used filter elements cannot be cleaned and re-used.





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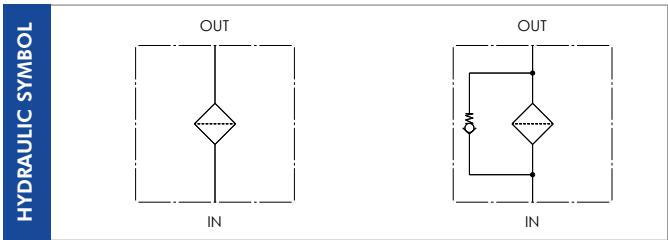
FHLC SERIES

Pressure filters

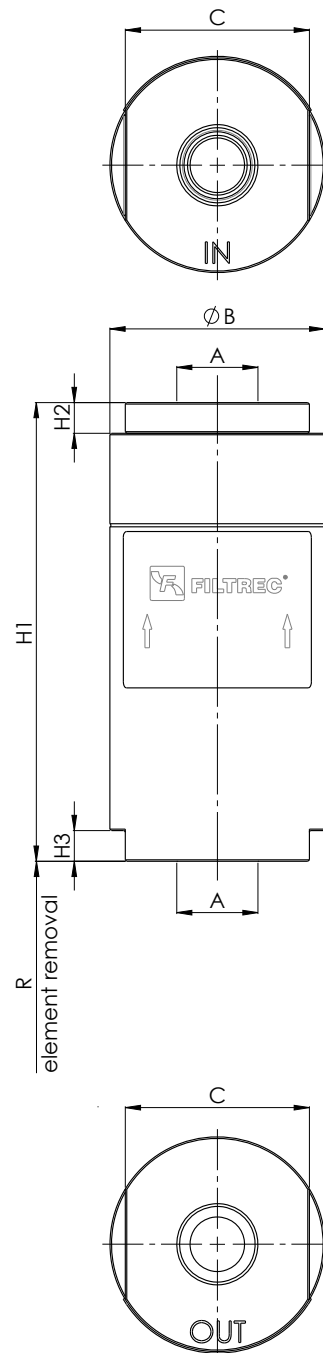
FHLC filters help prevention of sudden, critical failure in fluid systems by providing protection to point-of-use components. Designed to supplement the main filtration systems, they are mounted upstream of critical components such as valves and nozzles.



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 from -30 °C to +100 °C	
	with FKM seal from -25 °C to +120 °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).	



OVERALL DIMENSIONS



NOMINAL SIZE

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

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	000	no element	
For different media options please check availability with Filtrec Customer Service.	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

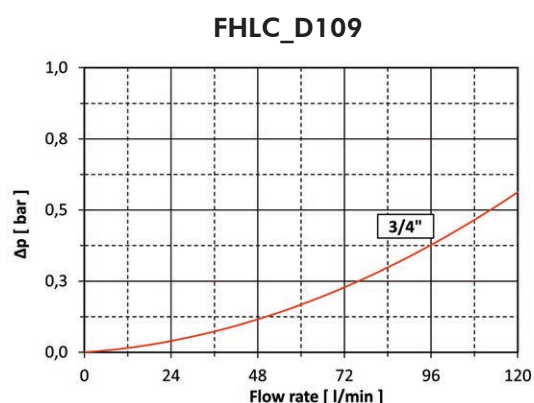
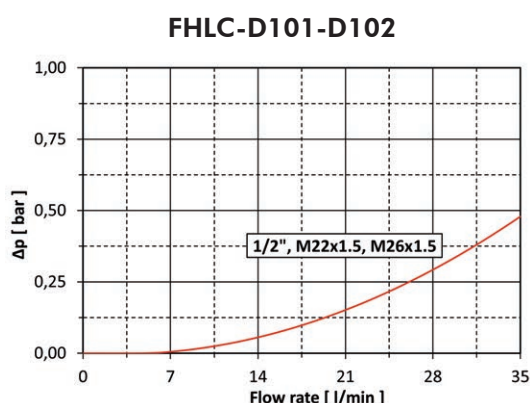
The total Δp through a filter assembly is given from Housing Δp + Element Δp .

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP (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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 20 l/min with D102G10YB6 and oil viscosity 45 cSt $(20 \times 22)/1000 \times (46/32) = 0,63$ 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

FHLC102G10YB6B3S0 with 20 l/min and oil 46 cSt

Housing Δp 0,15 bar + element Δp 0,63 bar $(20 \times 22)/1000 \times (46/32) =$ 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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 20 l/min with D102G10XB0 and oil viscosity 45 cSt $(20 \times 36)/1000 \times (46/32) = 1,04$ bar

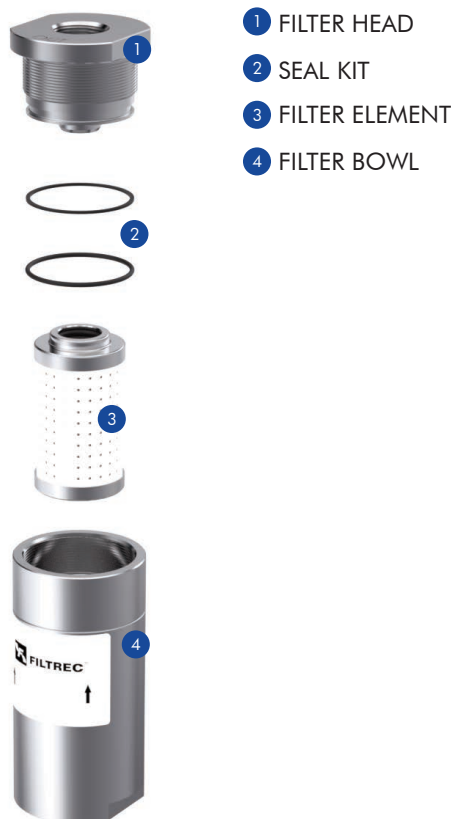
	G10	G25	T60	T125
D101	53,33	30	4	3,5
D102	36	20	3,05	2,35
D109	17,5	12,5	1,25	1

EXAMPLE OF TOTAL Δp CALCULATION

FHLC102G10XB0B3S0 with 20 l/min and oil 46 cSt

Housing Δp 0,15 bar + element Δp 1,04 bar $(20 \times 36)/1000 \times (46/32) =$ total assembly Δp 1,19 bar

USER TIPS



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 clockwise.
- 7. Screw in the bowl to stop.
- ⚠ 8. The used filter elements cannot be cleaned and re-used.





FH250 SERIES

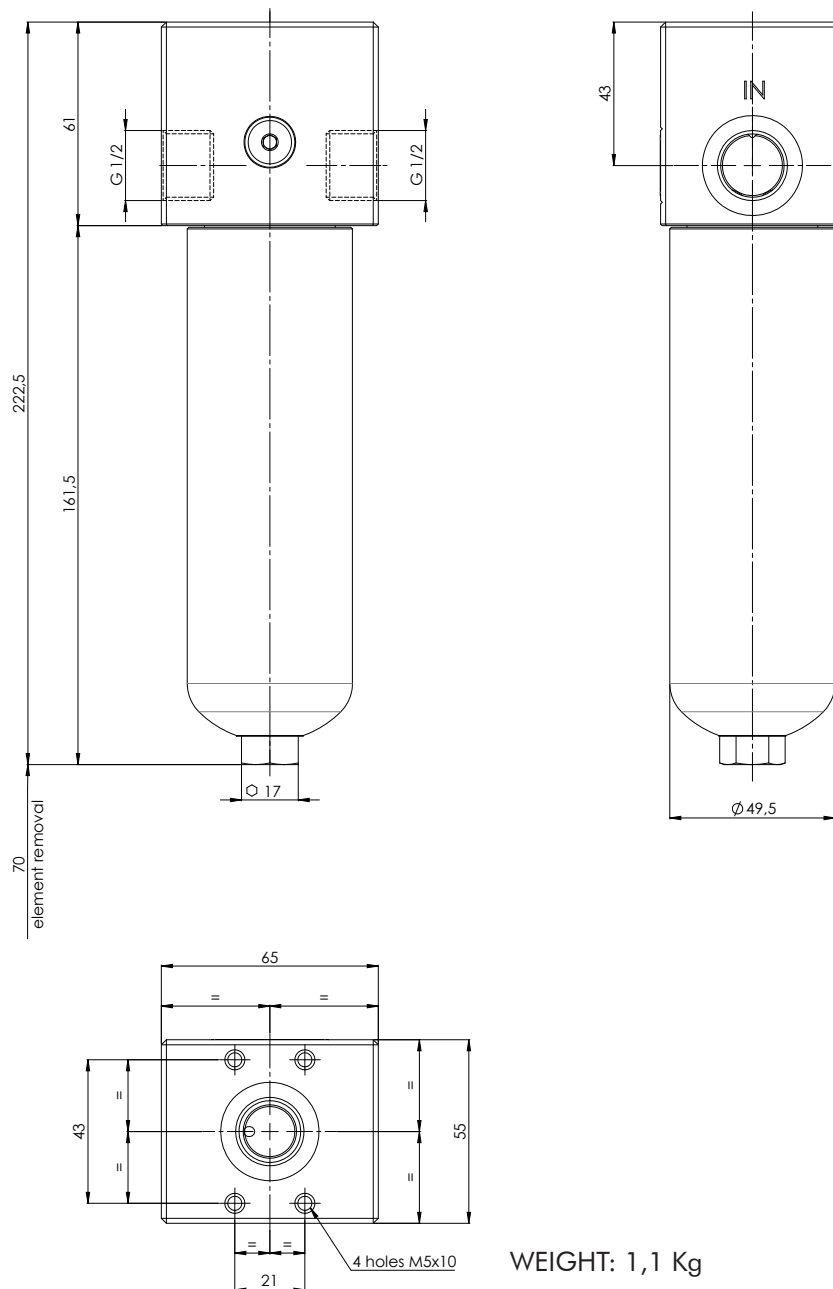
In line high pressure filters

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



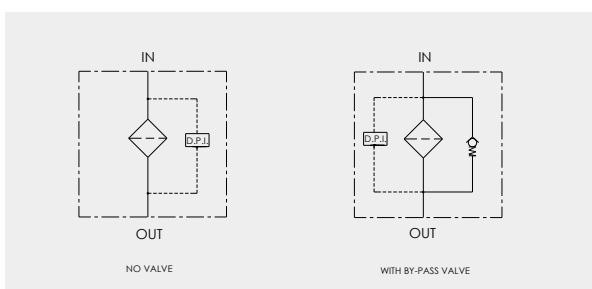
HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: up to 250 bar Fatigue pressure test, over 10 ⁶ cycles from zero to max working pressure. Burst: over 500 bar
CONNECTIONS:	G 1/2"
MATERIALS:	Head: anodized aluminium alloy Bowl: anodized aluminium alloy Seal: NBR (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: G01-G03-G06-G10-G15-G25
COLLAPSE PRESSURE:	210 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

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 $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
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	V05 (VF5)	differential visual 5 bar
*LC24=Led connector (see clogging indicators catalogue)	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
	E08L (EF8L)	differential electric 8 bar + *LC24
11. CORROSION PROTECTION	A	anodized (standard)
12. OPTION	0	standard

recommended for no by-pass option

PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

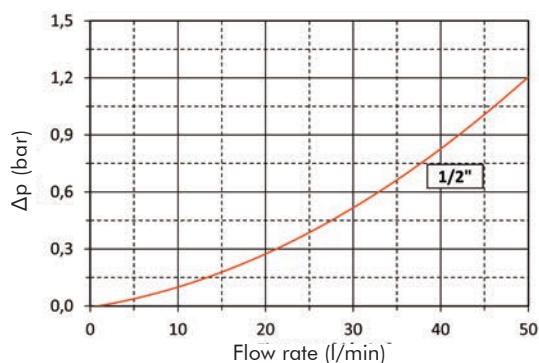
The total Delta P through a filter assembly is given from Housing Δp + Element Δp .

This ideally should 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.

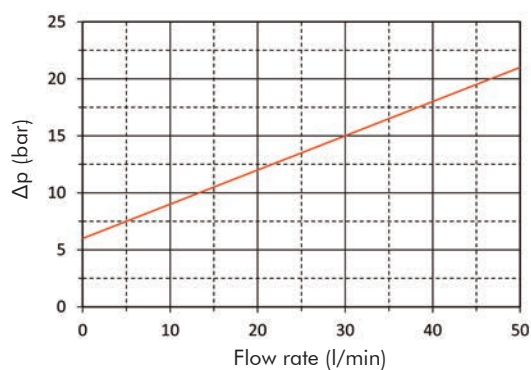
HOUSING PRESSURE DROP

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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 25 l/min with D108G10B and oil viscosity 46 cSt: $(25 \times 34,76)/1000 \times (46/32) = 1,25$ bar

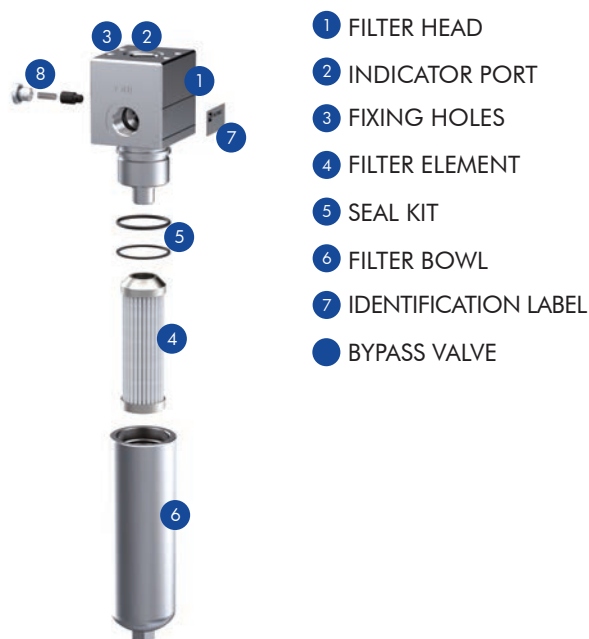
	G01B	G03B	G06B	G10B	G15B	G25B
D108	120,86	83,59	57,25	34,76	24,65	15,93

EXAMPLE OF TOTAL Δp CALCULATION

FH250D108G10BBB3DWE05A0 with **25** l/min and oil **46** cSt :

Housing Δp 0,4 bar + element Δp 1,25 bar $(25 \times 34,76)/1000 \times (46/32) =$ total assembly Δp 1,65 bar

USER TIPS



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.





FD3 SERIES

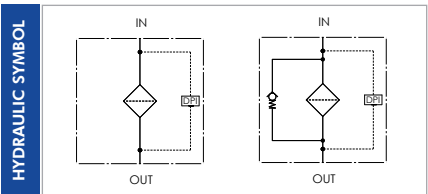
In line high pressure filters

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.

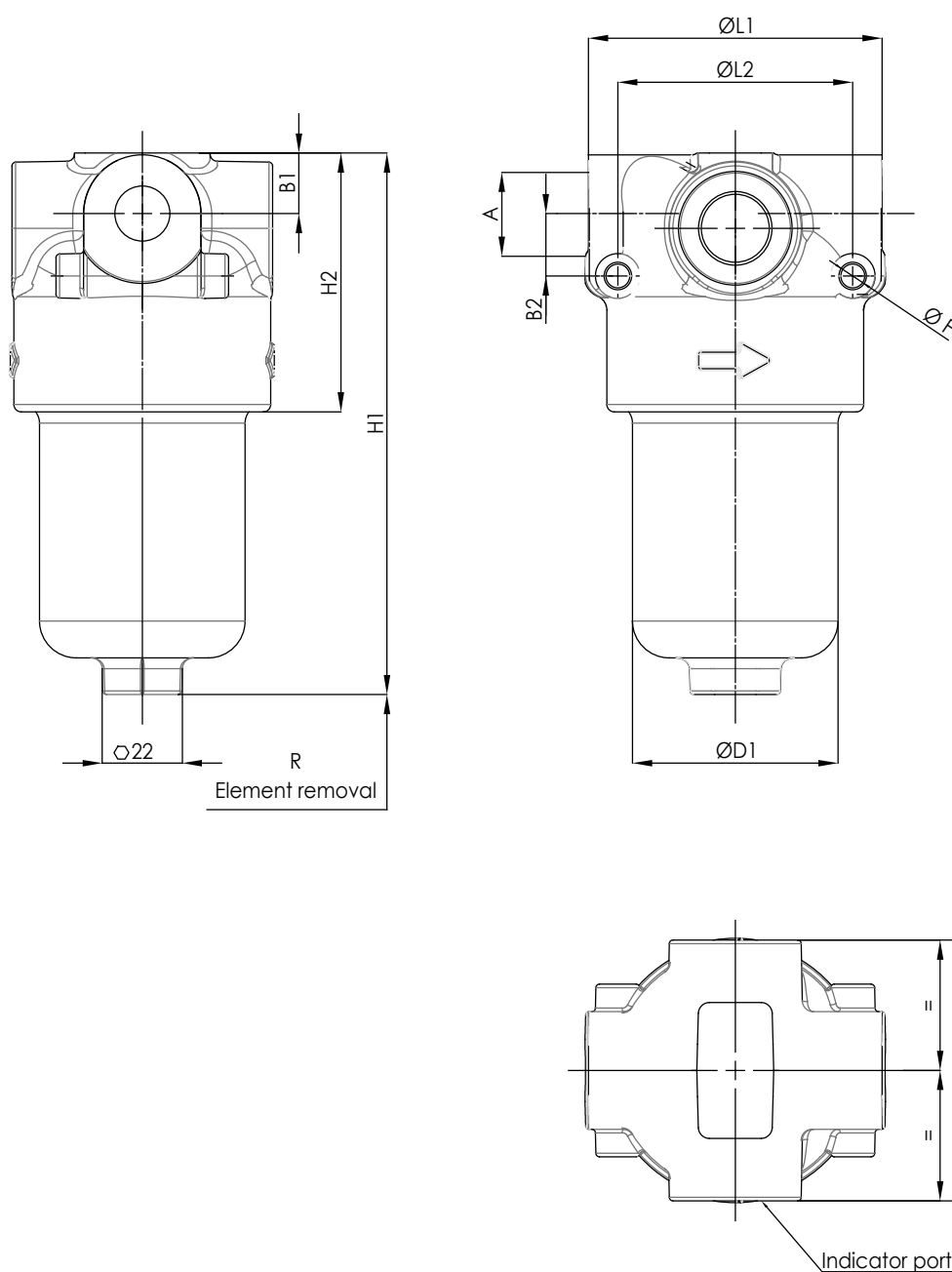


HOUSING	tested according to NFPA T3.10.5.1,ISO 10771, ISO3968	
PRESSURE:	Max operating:	110 bar
	Burst:	330 bar
CONNECTION:	G 1/2"	
MATERIALS:	Head:	anodized aluminium alloy
	Bowl:	anodized aluminium alloy
	Seal:	NBR (FKM on request)
BYPASS VALVE:	No bypass or 6 bar setting	
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181	
FILTER MEDIA:	Inorganic microfiber:	
	G01 - G03 - G06 - G10 - G15 - G25	
	Paper: C10	
COLLAPSE PRESSURE:	21 bar	
TEMPERATURE RANGE:	with NBR seal is from -30 °C to +100 °C	
	with FKM seal (OPTION) is from -25 °C to +120 °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).	



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 $\beta_{4\mu m(c)} > 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
	C10	paper $\beta_{10\mu m(c)} > 2$
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
	VEXF8	differential visual-electric 8 bar
		recommended for no bypass option

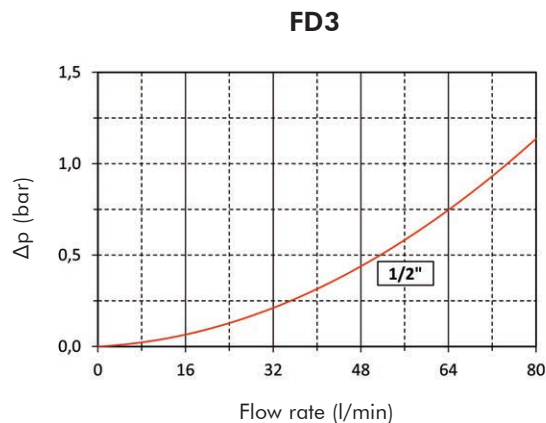
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

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

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

Example: 20 l/min with D310G10A and oil viscosity 46 cSt: $(20 \times 19,29) / 1000 \times (46/32) = 0,55$ 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

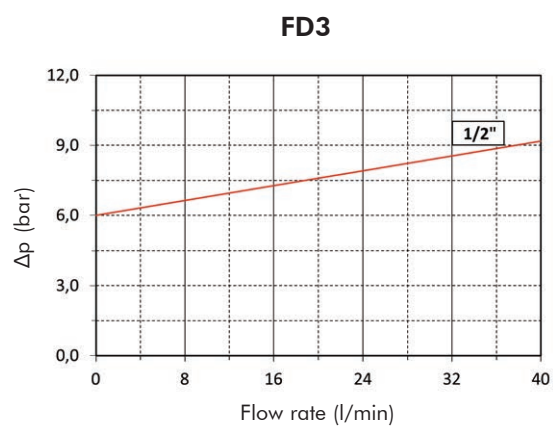
EXAMPLE OF TOTAL Δp CALCULATION

FD3G10ABB3DWV05 with **20** l/min and oil **46** cSt:

Housing Δp 0,1 bar + element Δp 0,55 bar $(20 \times 19,29/1000 \times 46/32) =$ total assembly Δp 0,65 bar

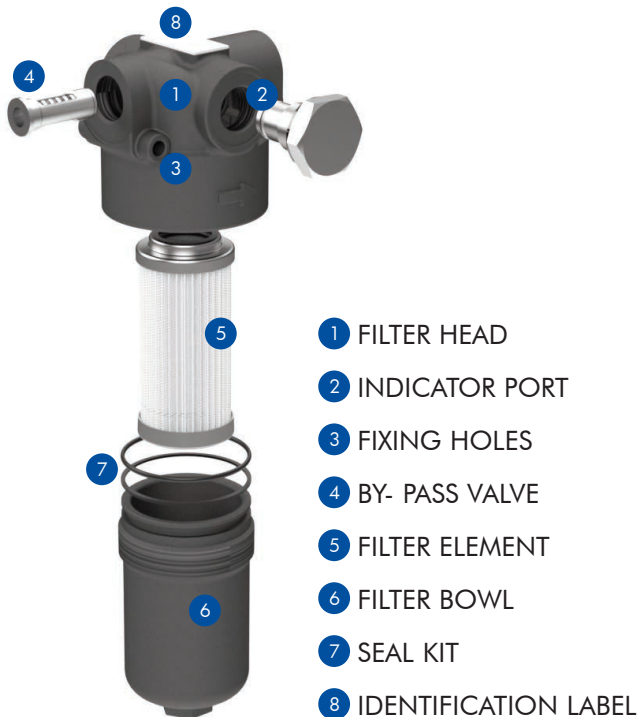
BYPASS VALVE PRESSURE DROP

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



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



INDICATOR TIGHTENING TORQUE

VX5/EX5	50 Nm
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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 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 (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



WWW.SUMY.IR

FH100 SERIES

In line pressure filters

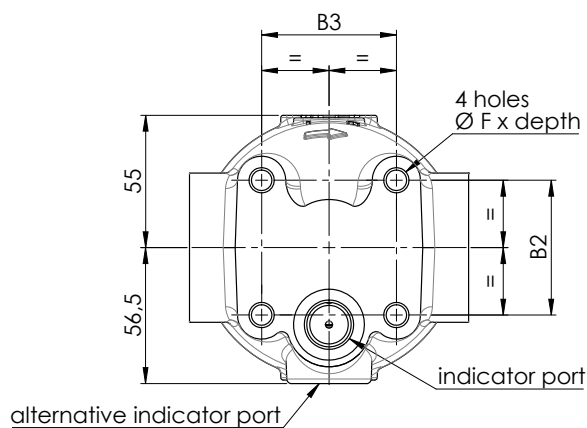
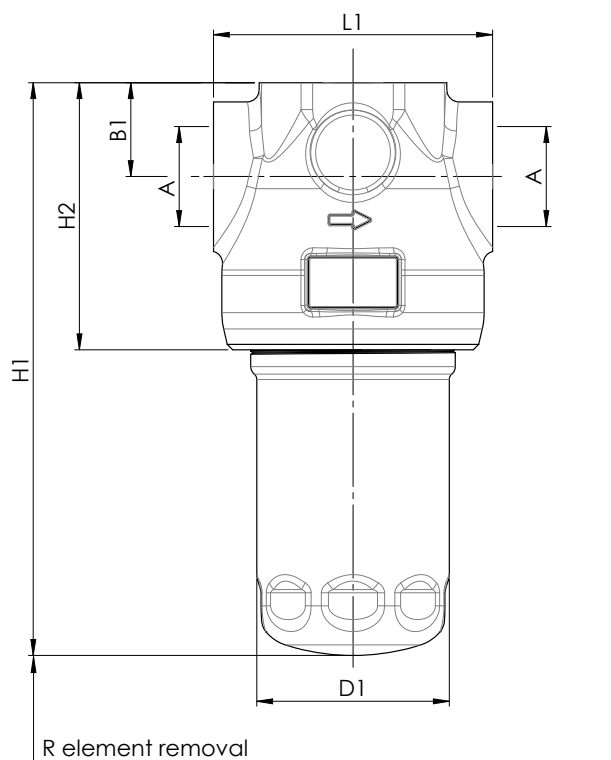
Inline filters for operating pressure up to 100 bar.
Flow rate up to 300 l/min



HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: 100 bar Fatigue rating: 10 ⁶ cycles 0÷100 bar Burst: 300 bar
CONNECTIONS:	G 1" ÷ G 1 1/4"
MATERIALS:	Head: cast iron Bowl: carbon steel Seal: NBR (FKM on request)
BYPASS VALVE:	6 bar 3,5 bar (on request) ABF valve ABF valve+ RF valve
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber: G01 - G03 - G06 - G10 G15 - G25 Synthetic: M05 - M10 - M15
COLLAPSE PRESSURE:	21 bar 210 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

OVERALL DIMENSIONS

FH100-D1-3x



NOMINAL SIZE

MODEL	A	B1	B2	B3	D1	F	H1	H2	L1	R	WEIGHT
FH100-D135	G 1" 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	000	no element
For different media options please check availability with Filtrec Customer Service.	G01	glassfiber $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$
	M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$
	M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$
5. ELEMENT COLLAPSE	A	21 bar
	Y	21 bar - with ABF / RF valve
	B	210 bar
	X	210 bar - with ABF / RF valve
	not available for "M" media	
6. SEALS	*B	NBR
*omitted for spare element	V	FKM (option)
7. CONNECTIONS	B5	G 1"
For different thread options please check availability with Filtrec Customer Service.	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	0	no valve
ABF=anti back flow valve	C	ABF valve
RF= reverse flow 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

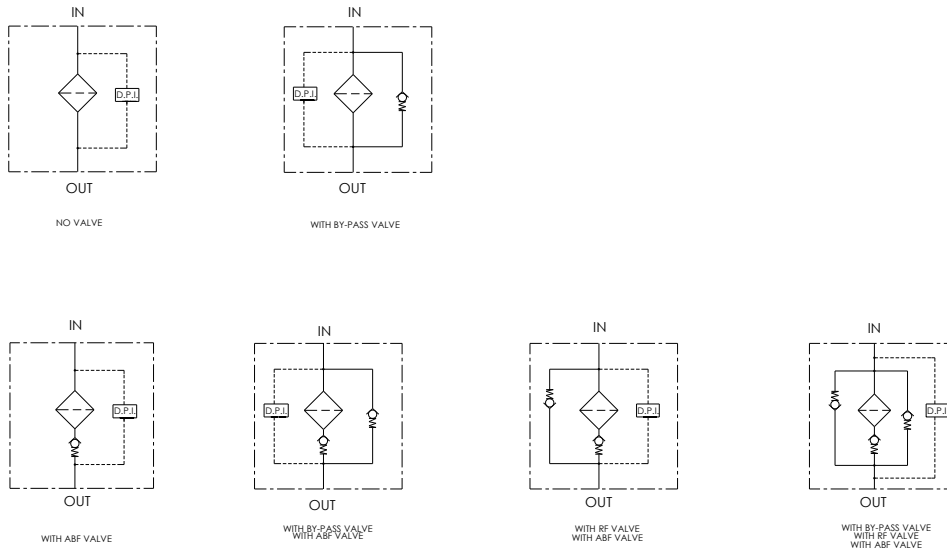
(F) digit for FKM seal option

*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

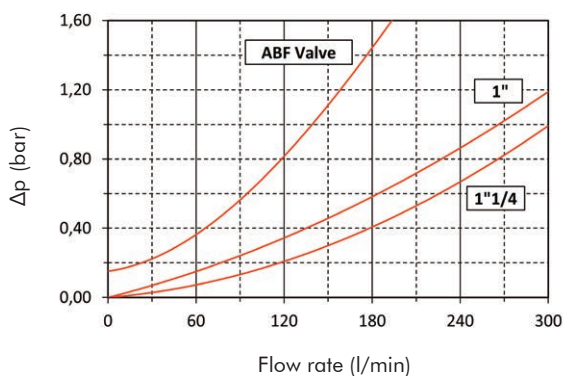
The total Delta P through a filter assembly is given from Housing Δp + Element Δp .

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.

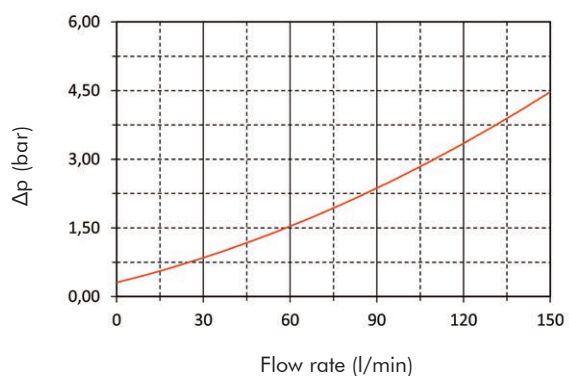
HOUSING PRESSURE DROP

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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 90 l/min with D136G10B and oil viscosity 46 cSt: $(90 \times 4,72)/1000 \times (46/32) = 0,61$ 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

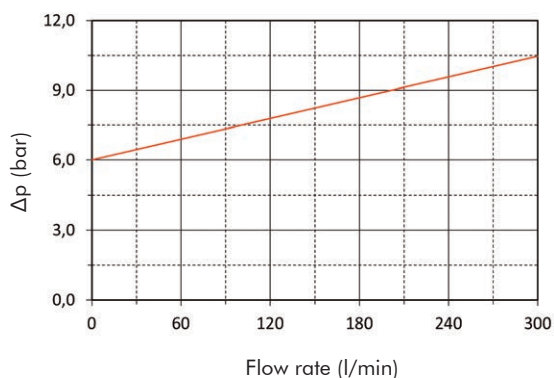
FH100D136G10ABB5D0S000S0 with **90** l/min and oil **46** cSt :

Housing Δp 0,25 bar + element Δp 0,61 bar: $(90 \times 4,72)/1000 \times (46/32) =$ 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.





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F100 SERIES

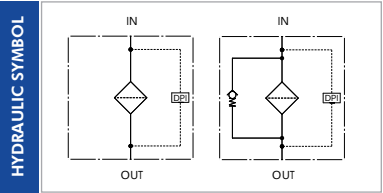
In line high pressure filters (elements according to DIN 24550)

Inline filters for operating pressure up to 100 bar, flow rate up to 400 l/min.

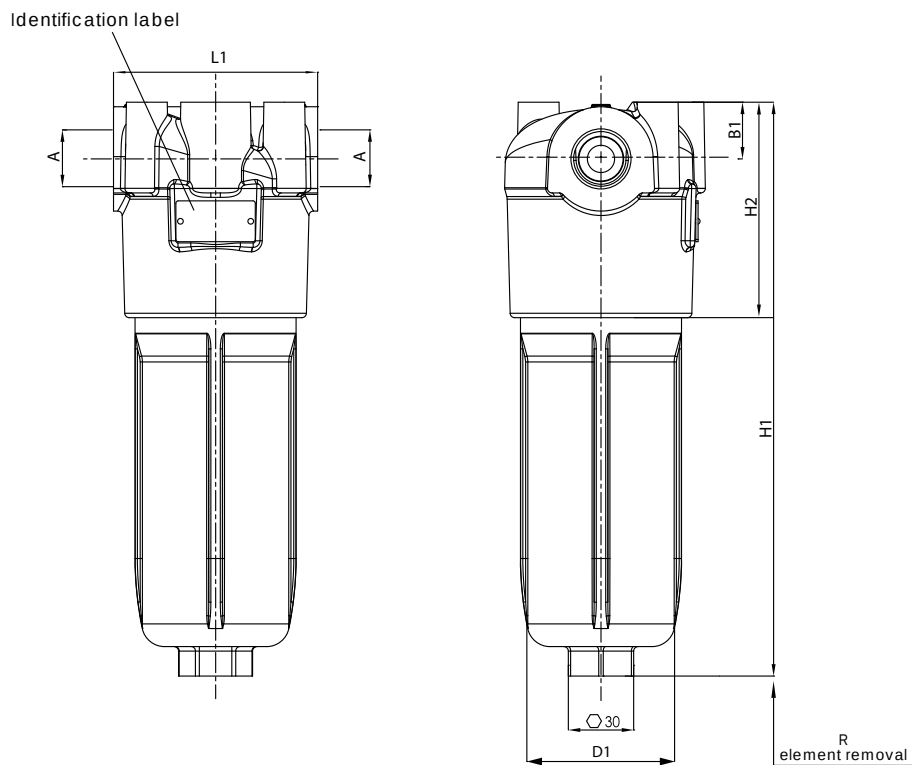
Available with or without bypass, indicator port is a standard option to fit a visual or electrical differential indicator.



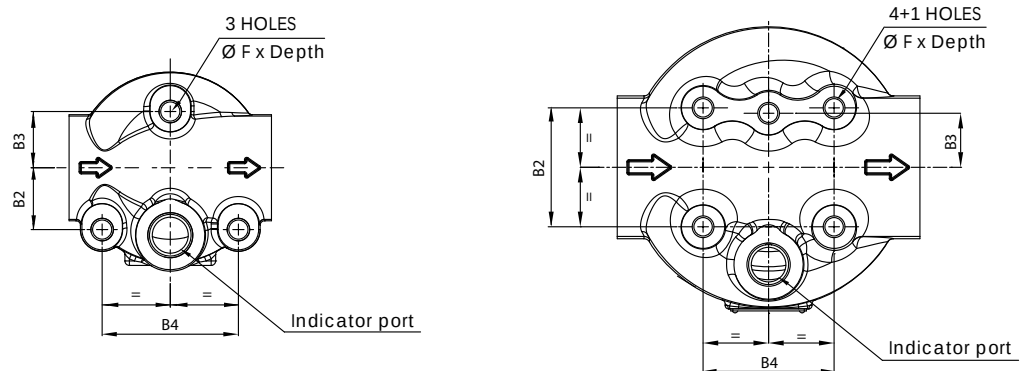
HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: F100 XD040-063-100: 100 bar F100 XD160-250-400. 80 bar Burst: F100 XD040-063-100: 300 bar F100 XD160-250-400: 200 bar
CONNECTIONS:	G 1/2" ÷ 1 1/2"
MATERIALS:	Head: aluminium alloy Bowl: aluminium alloy Seal: NBR (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: G03 - G06 - G10 - G15 - G25 Paper: C10
COLLAPSE PRESSURE:	21 bar 210 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).



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"							183				1,45 Kg
F100-XD063	G 3/4"	25	27,5			65		253	95	90	110	1,55 Kg
F100-XD100	G 1"							332				1,8 Kg
F100-XD160				25	60,6		M10x15	289				3,7 Kg
F100-XD250	G 1 1/4"	40	55			110		361	129	140	130	4,4 Kg
F100-XD400	G 1 1/2"							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	000	no element
For different media options please check availability with Filtrec Customer Service.	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	C10	paper $\beta_{10\mu m(c)} \geq 2$ 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	B3	G 1/2"
For different thread options please check availability with Filtrec Customer Service.	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	000	no indicator
(Y and F) digit for FKM seal option For other options see clogging indicators catalogue	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

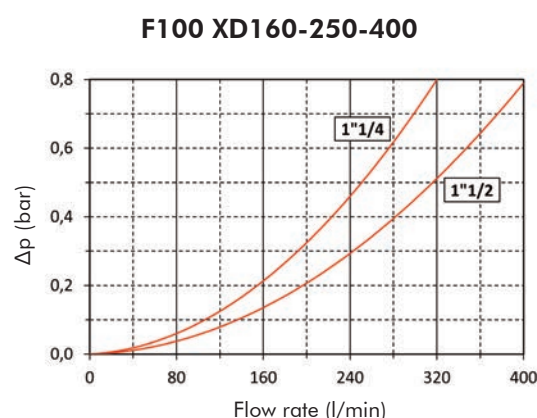
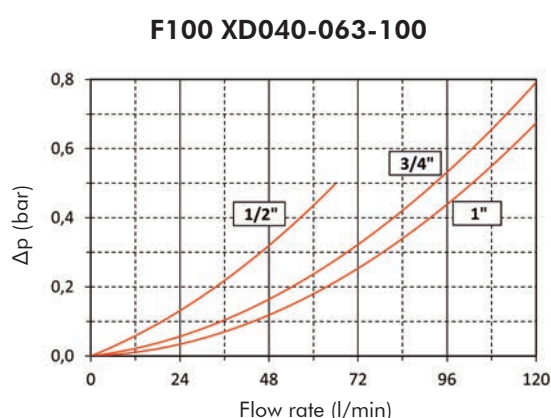
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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.



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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 80 l/min with XD100G25B and oil viscosity 46 cSt: $(80 \times 4,95)/1000 \times 46/32 = 0,57$ 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

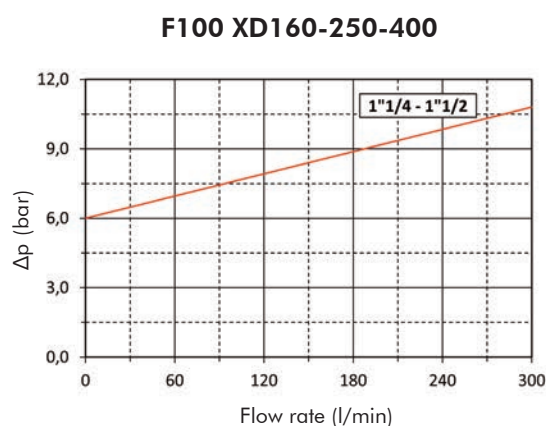
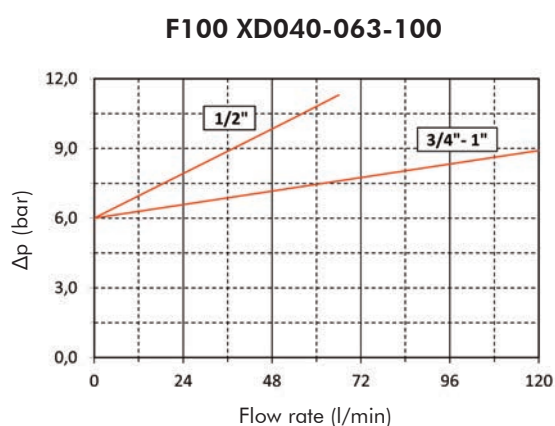
EXAMPLE OF TOTAL Δp CALCULATION

F100XD100G25BBB5DW000 with **80** l/min and oil **46** cSt :

Housing Δp 0,3 bar + element Δp 0,57 bar $(80 \times 4,95/1000 \times 46/32)$ = total assembly Δp 0,87 bar

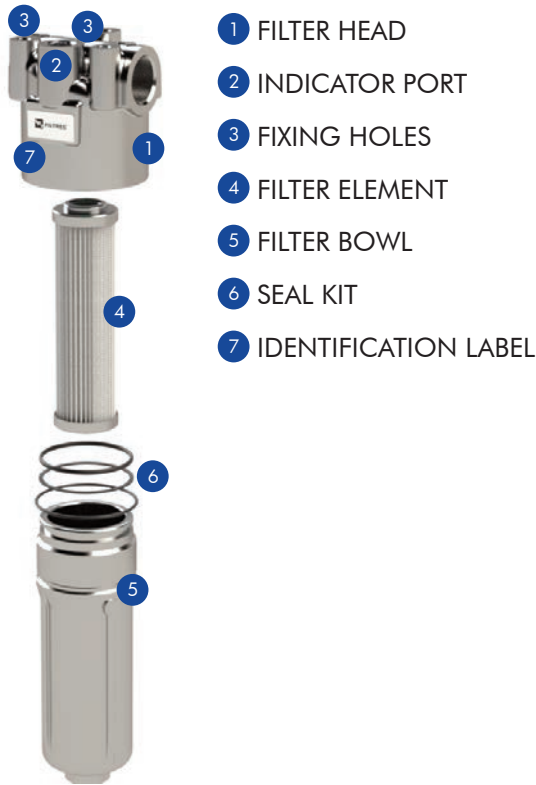
BYPASS VALVE PRESSURE DROP

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



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



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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F035 SERIES

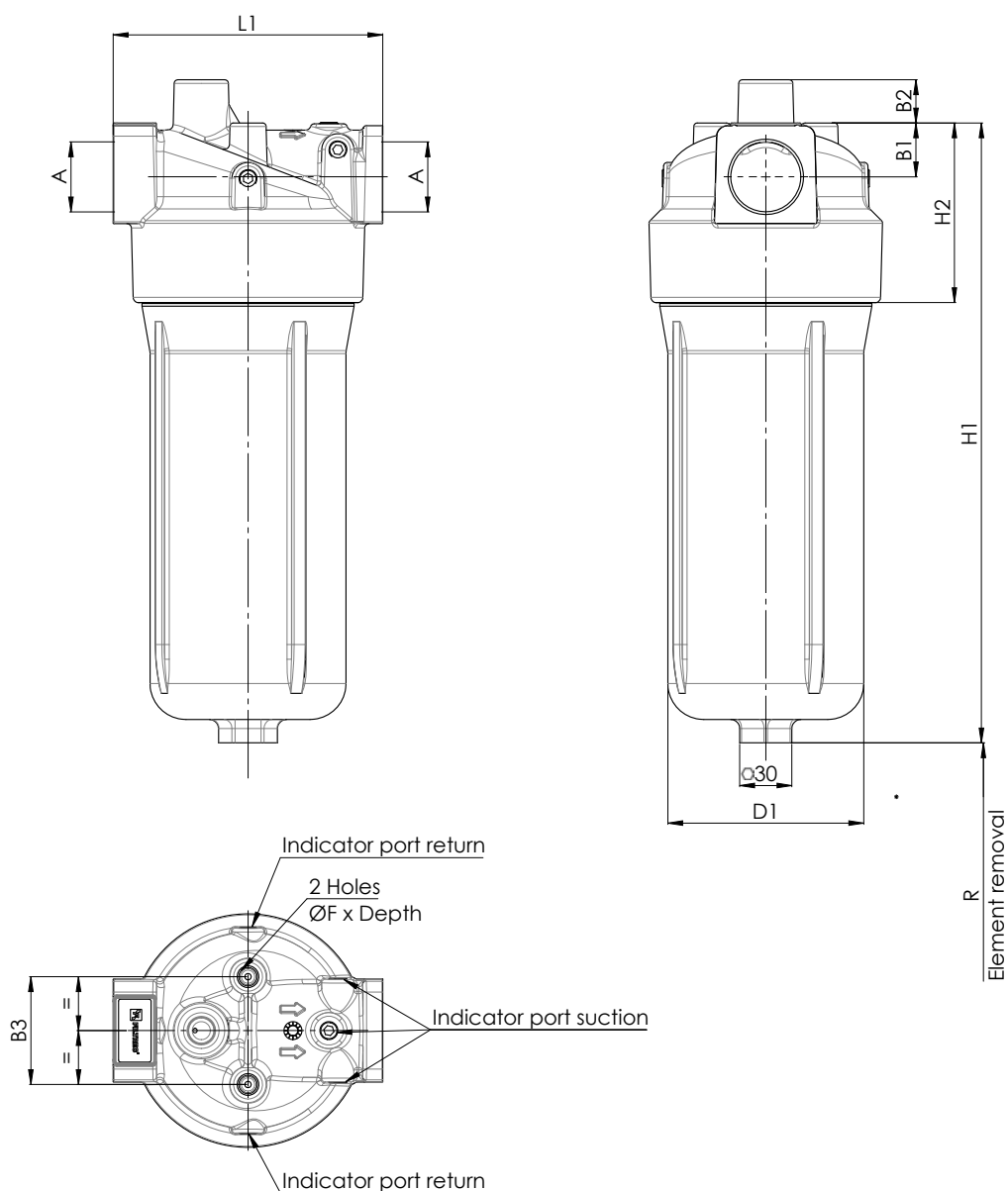
In line medium pressure filters

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.



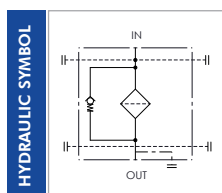
HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: 30 bar Burst: 120 bar
CONNECTIONS:	G 1 1/4"
MATERIALS:	Head: aluminium alloy Bowl: aluminium alloy Seal: NBR (FKM on request)
BYPASS VALVE:	Inbuilt in the filter element S version 0,25 bar 3 version 3 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber: G01 - G03 - G06 - G10 G15 - G25 - G40 Paper: C10 - C25 Wire mesh: T60 - T125 - T250 Synthetic: M05 - M10 - M15
COLLAPSE PRESSURE:	10 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

OVERALL DIMENSIONS

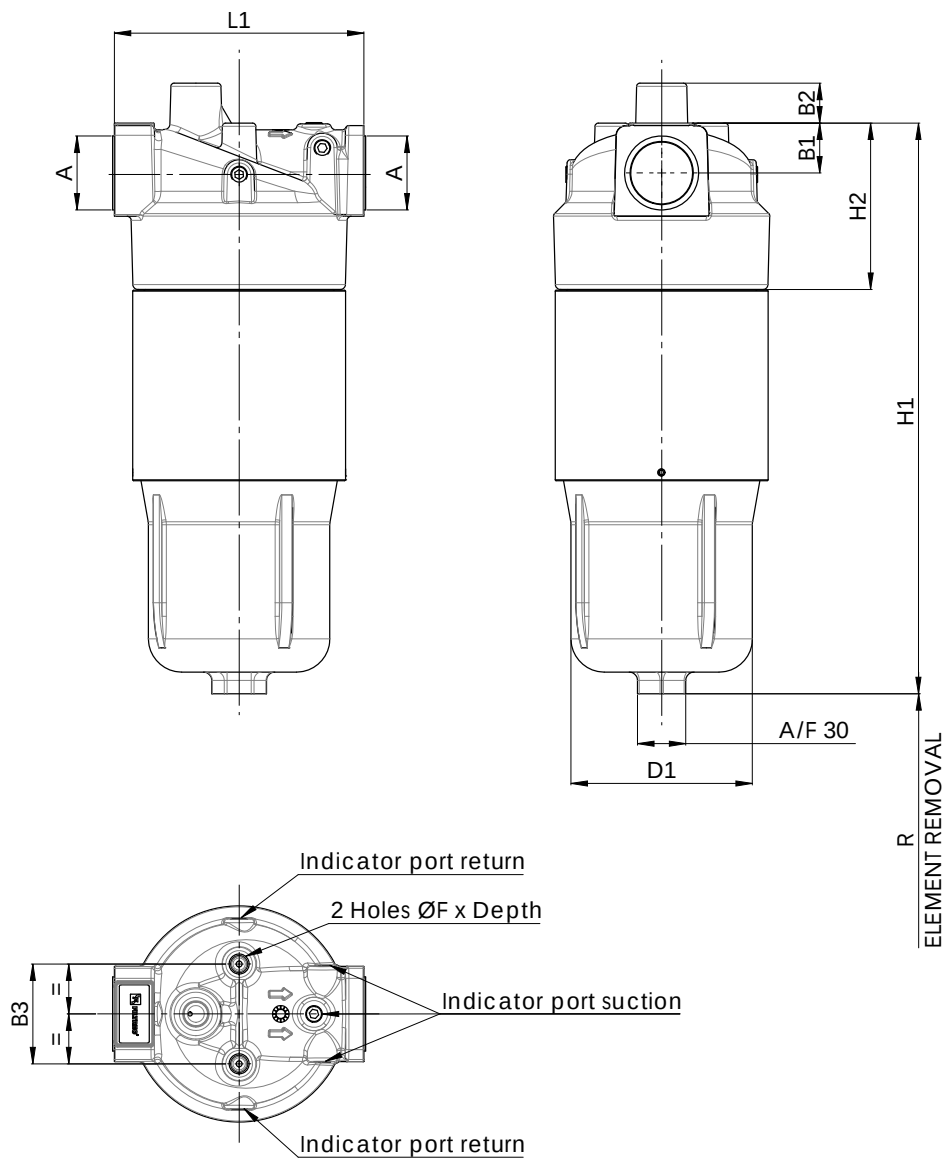


NOMINAL SIZE

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

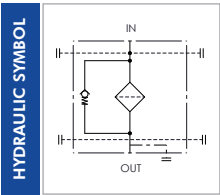


OVERALL DIMENSIONS



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



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 $\beta_{4\mu m(c)} \geq 1.000$									
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$									
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$ for line/return									
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$									
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$									
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$									
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$ for line/return/suction									
	C10	cellulose $\beta_{10\mu m(c)} \geq 2$									
	C25	cellulose $\beta_{25\mu m(c)} \geq 2$									
	T60	wire mesh for suction									
	T125	wire mesh									
	T250	wire mesh									
	M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$									
	M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$ for line/return									
	M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$									
5. BYPASS VALVE	B0	no by-pass (empty housing)									
inbuilt in the element	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

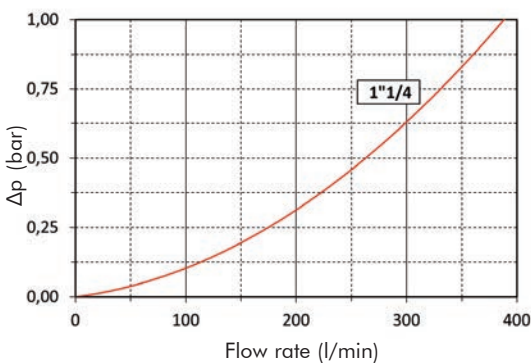
The total Delta P through a filter assembly is given from Housing Δp + Element Δp .

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/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.

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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 175 l/min with DMD0029G10B3 and oil viscosity 46 cSt: $(175 \times 1,40)/1000 \times (46/32) = 0,35$ 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

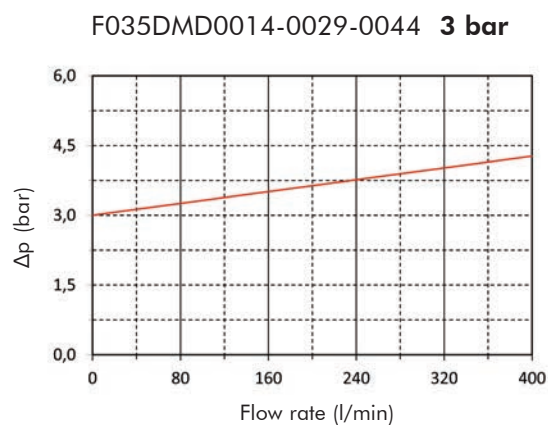
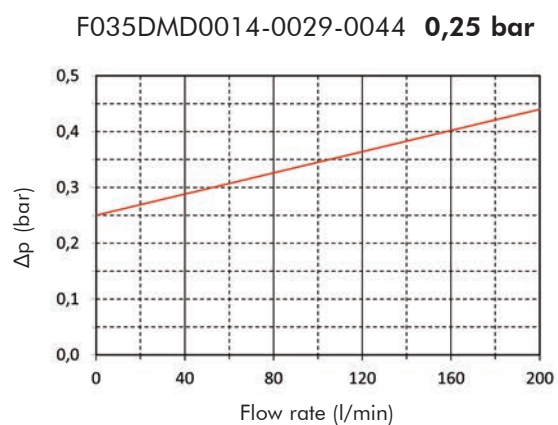
EXAMPLE OF TOTAL Δp CALCULATION

F035DMD0014G10B3B60000S0 with 60 l/min and oil 46 cSt:

Housing Δp 0,25 bar + element Δp 0,35 bar $(175 \times 1,40/1000 \times 46/32)$ = 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.



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



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.





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:
F040 DMD0005-8-11: 70 bar
F040 DMD0015-30-45: 40 bar
Burst:
F040 DMD0005-8-11: 210 bar
F040 DMD0015-30-45: 120 bar

CONNECTIONS:

G 3/4" ÷ 1 1/4"

MATERIALS:

Head: aluminium alloy
Bowl: aluminium alloy 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:

Inorganic microfiber:
E01B- E03B - E05B - E10B - E15B - E20B
Paper: D10B
Wire mesh: B60B

For 210 bar differential collapse pressure:

Inorganic microfiber:
F01B- F03B - F05B - F10B - F15B - F20B
Wire mesh: W60B

TEMPERATURE RANGE:

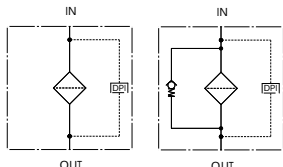
with NBR seal
from -30 °C to +100 °C

with FKM seal (OPTION)
from -25 °C to +120 °C

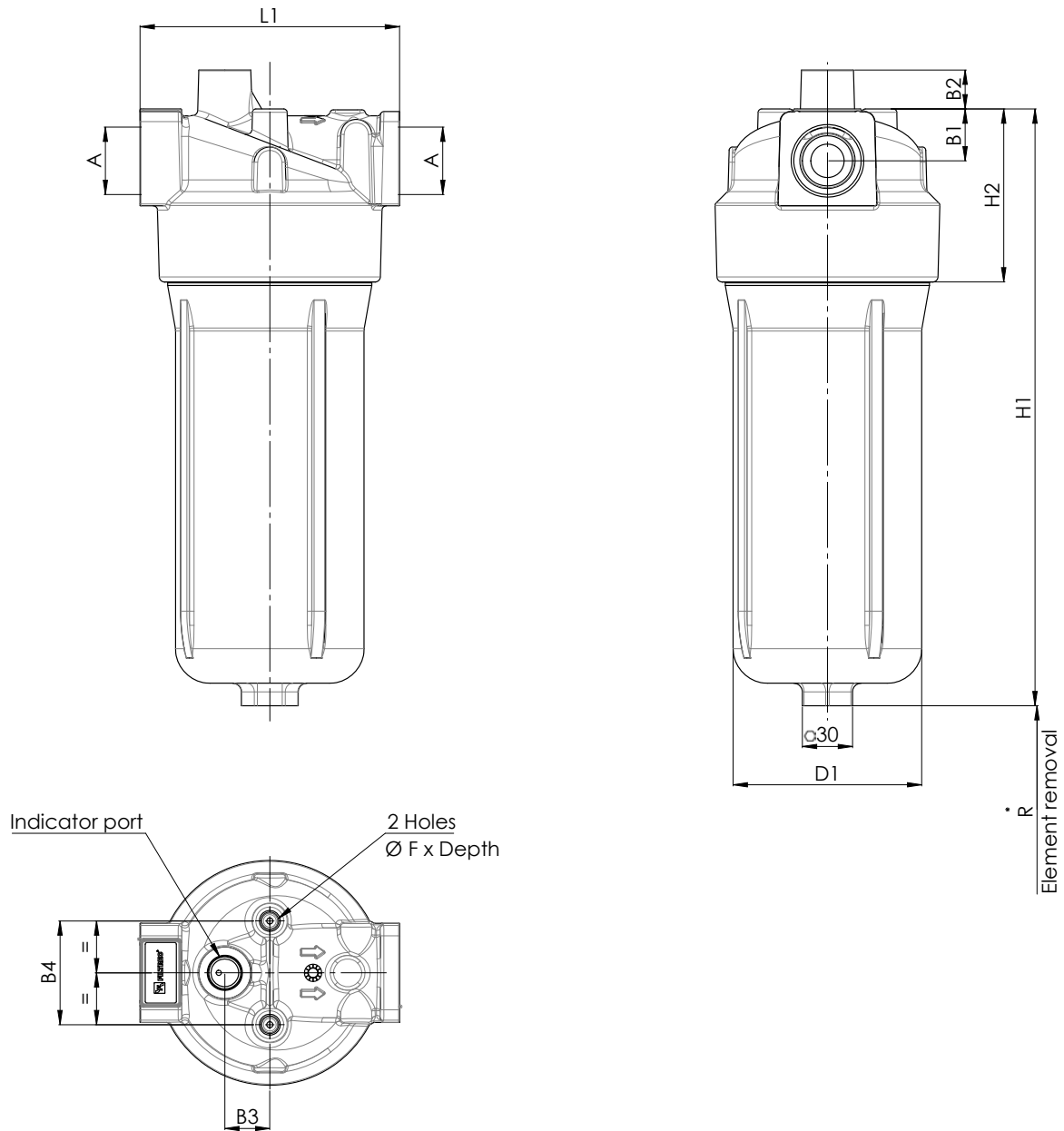
FLUID COMPATIBILITY:

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



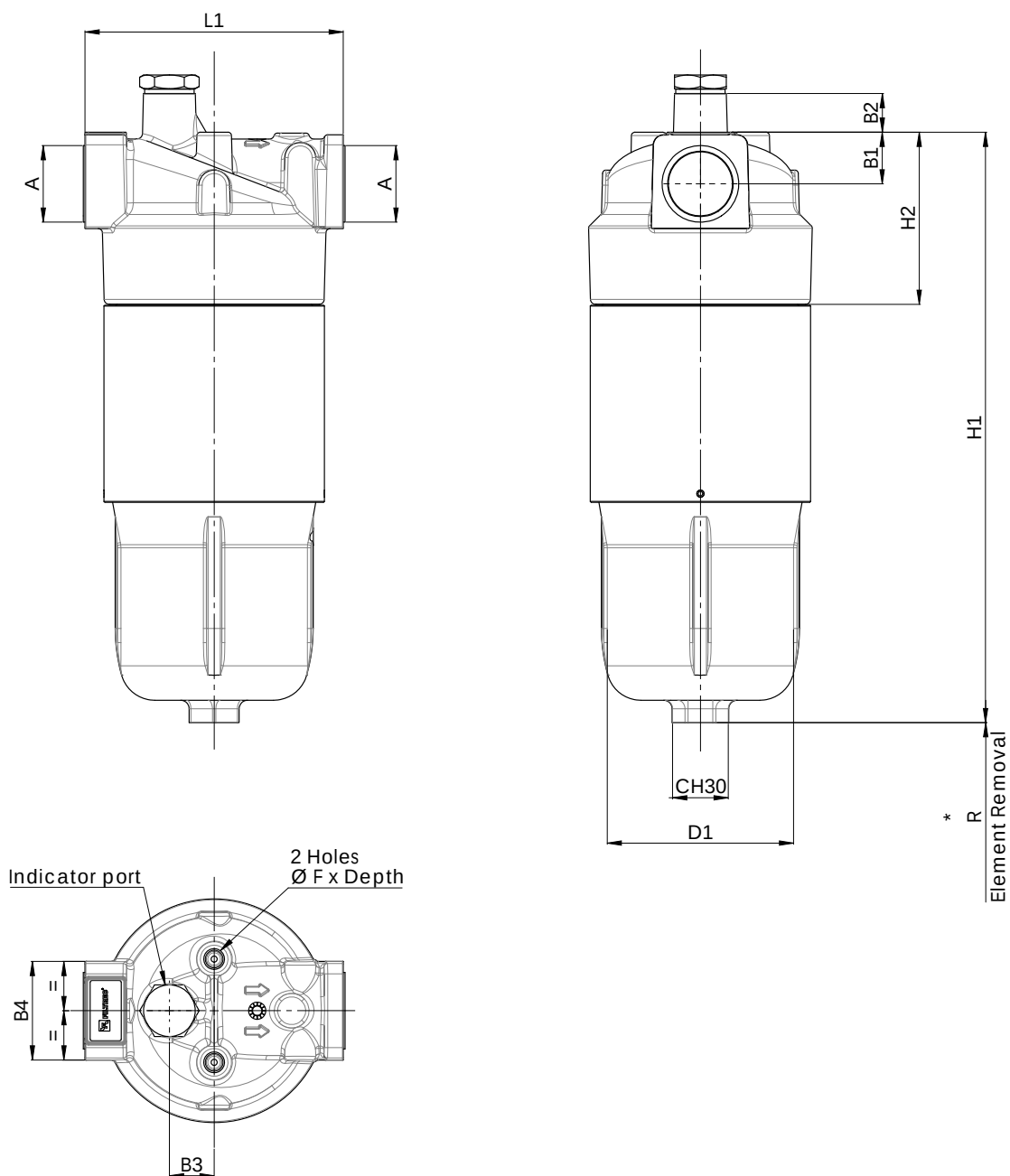
OVERALL DIMENSIONS



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	000	no element
For different media options please check availability with Filtrec Customer Service.	E01B	glassfiber $\beta_{4\mu m(c)} \geq 1.000$
	E03B	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	E05B	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	E10B	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	E15B	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	E20B	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	D10B	cellulose $\beta_{10\mu m(c)} \geq 2$
	B60B	wire mesh 60 μm
	F01B	glassfiber $\beta_{4\mu m(c)} \geq 1.000$
	F03B	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	F05B	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	F10B	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	F15B	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	F20B	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	W60B	wire mesh 60 μm
5. SEALS	B	NBR
*complete filter seals	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 (YY2)	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 (YY5)	differential visual 5 bar	
E05 (EF5)	differential electrical 5 bar	recommended for no by-pass option
E05L (EF5L)	differential electric 5 bar + *LC24	
VEF5	differential visual and electric 5 bar	
LC24	LED connector	

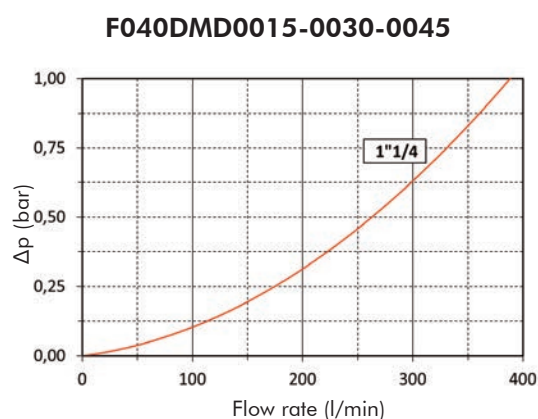
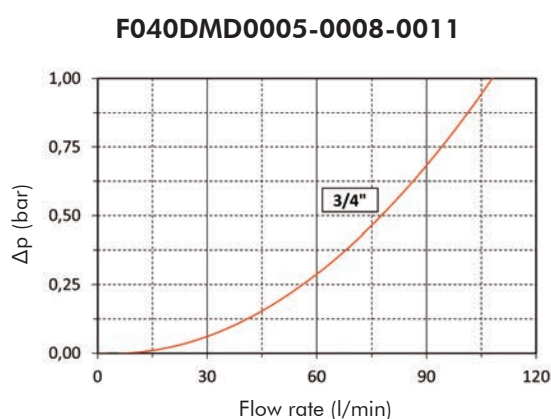
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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.



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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

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

Example: 60 l/min with DMD0011F10B and oil viscosity 46 cSt: $(60 \times 6,63)/1000 \times (46/32) = 0,57$ 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

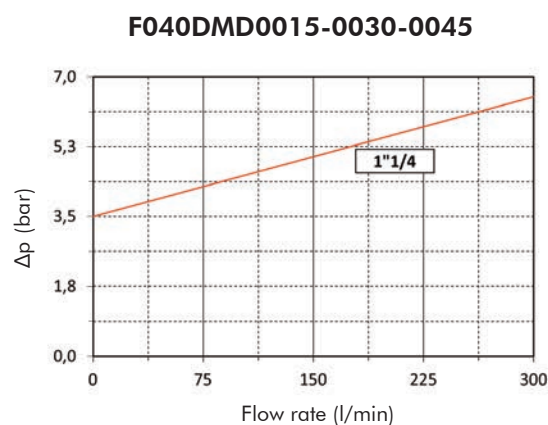
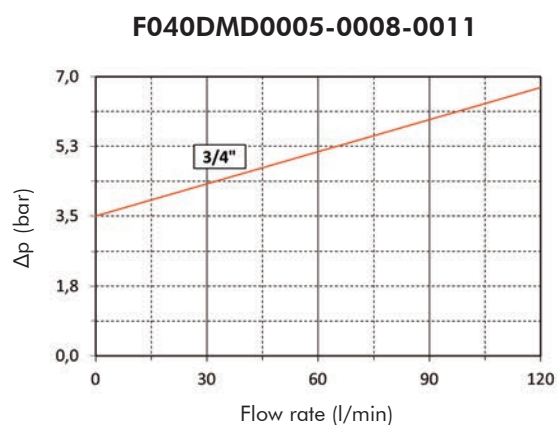
EXAMPLE OF TOTAL Δp CALCULATION

F040DMD0011F10BBB4DW000S0 with 60 l/min and oil 46 cSt:

Housing Δp 0,27 bar + element Δp 0,57 bar $(60 \times 6,63)/1000 \times (46/32) =$ 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.



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



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.





FLR-U5 SERIES

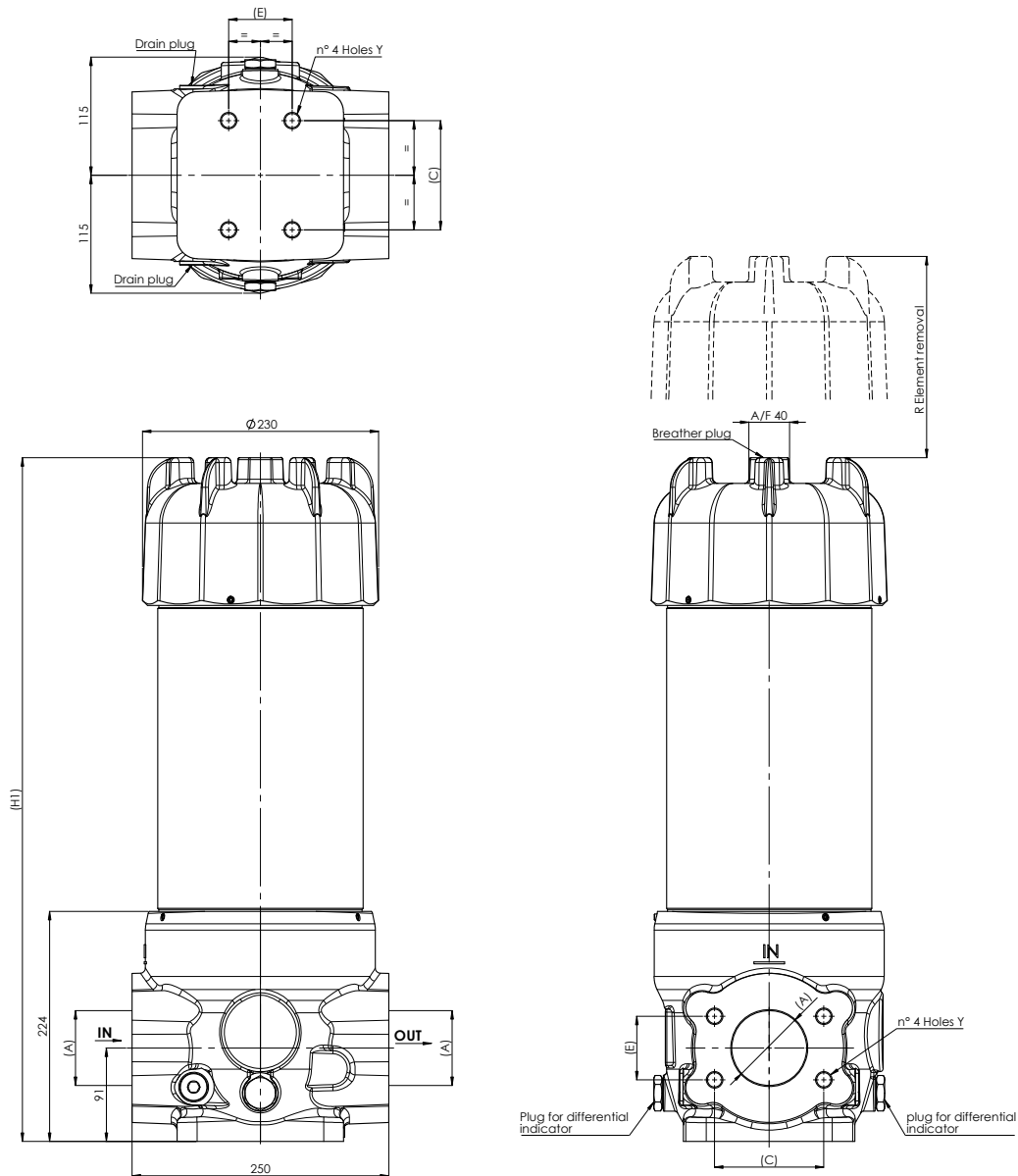
In line medium pressure filters

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 Fatigue rating: 10 ⁶ cycles 0÷30 bar
CONNECTIONS:	3" - 4" SAE 3000 FLANGE
MATERIALS:	Head: anodized aluminium Bowl: anodized aluminium Body: anticorodal aluminium Seal: NBR (FKM on request)
BYPASS VALVE:	inbuilt in the filter element no bypass 1 bar 3 bar 4 bar 6 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G01 - G03 - G06 - G10 G15 - G25 - G40 - GW03 - GW10 AW40
COLLAPSE PRESSURE:	10 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

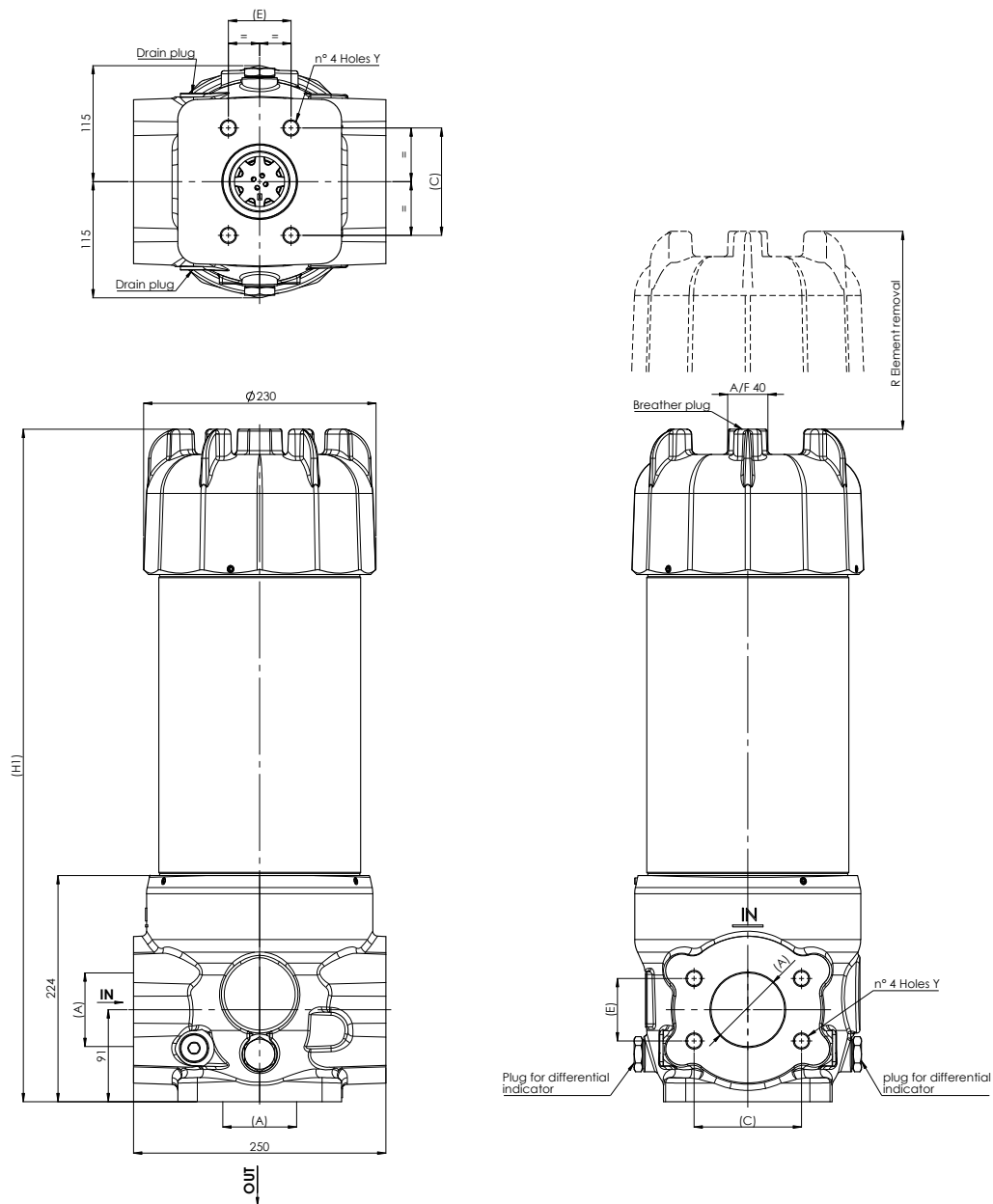
OVERALL DIMENSIONS

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	G01	glassfiber $\beta_{4\mu m(c)} \geq 1.000$
ULTRA HIGH CAPACITY	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
FILTER ELEMENT	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	GW03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$ + water absorbent
	GW10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$ + 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

(Y and F) digit for FKM seal option

*LC24=Led connector

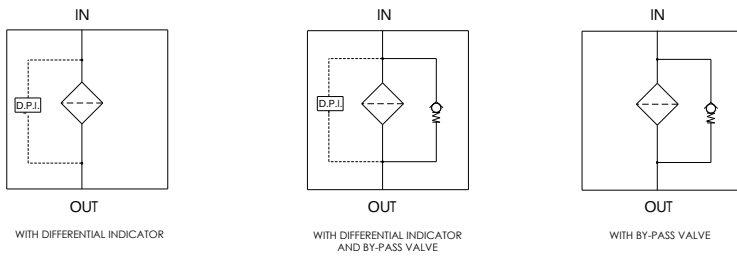
For other options see clogging indicators catalogue

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

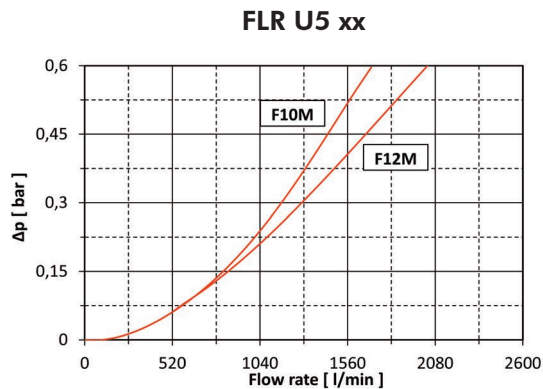


PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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.



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_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

1000 l/min with U564G10B and oil viscosity 46 cSt: $(1000 \times 0.09) / 1000 \times (46 / 32) = 0,13$ 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 + $(1000 \times 0.09 / 1000 \times (46 / 32))$ bar = 0,35 bar

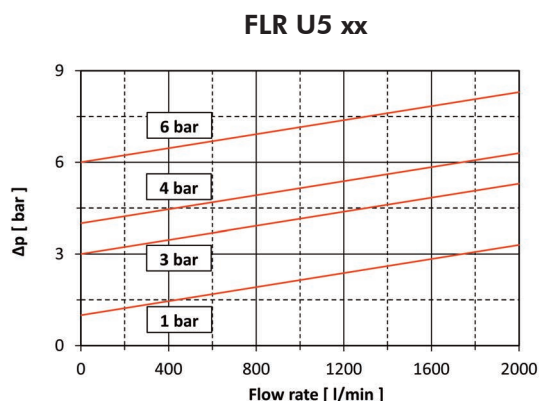
GW03, GW10 AND AW40 QUICK SIZE TABLE

	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

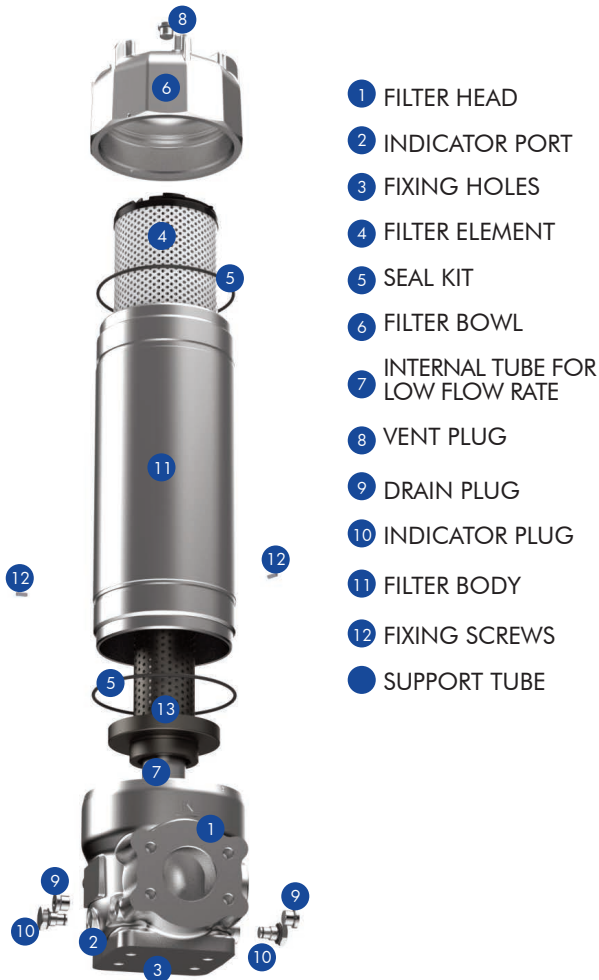
BYPASS VALVE PRESSURE DROP

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



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



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.
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.SUMY.IR

FLR-RHR SERIES

In line medium pressure filters

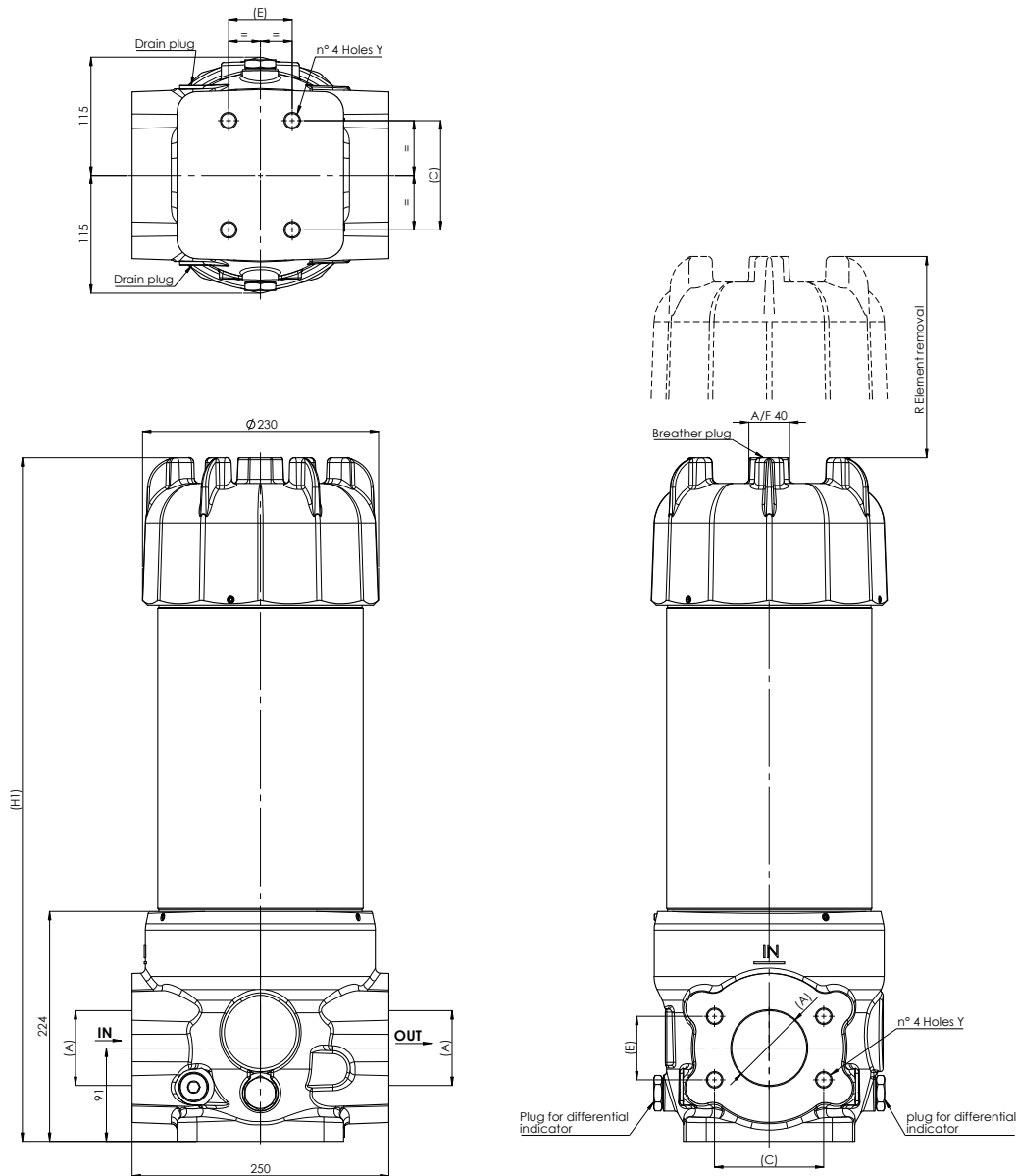
In line filters for operating pressure up to 30 bar.
Flow rate up to 2600 l/min.



HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: 30 bar Fatigue rating: 10 ⁶ cycles 0÷30 bar Burst: 90 bar
CONNECTIONS:	3" - 4" SAE 3000 FLANGE
MATERIALS:	Head: anodized aluminium Bowl: anodized aluminium Body: anticorodal aluminium Seal: NBR (FKM on request)
BYPASS VALVE:	inbuilt in the filter element no bypass 1 bar 3 bar 4 bar 6 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G01 - G03 - G05 - G10 G15 - G20 - G40 - GW03 - GW10 AW40
COLLAPSE PRESSURE:	20 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

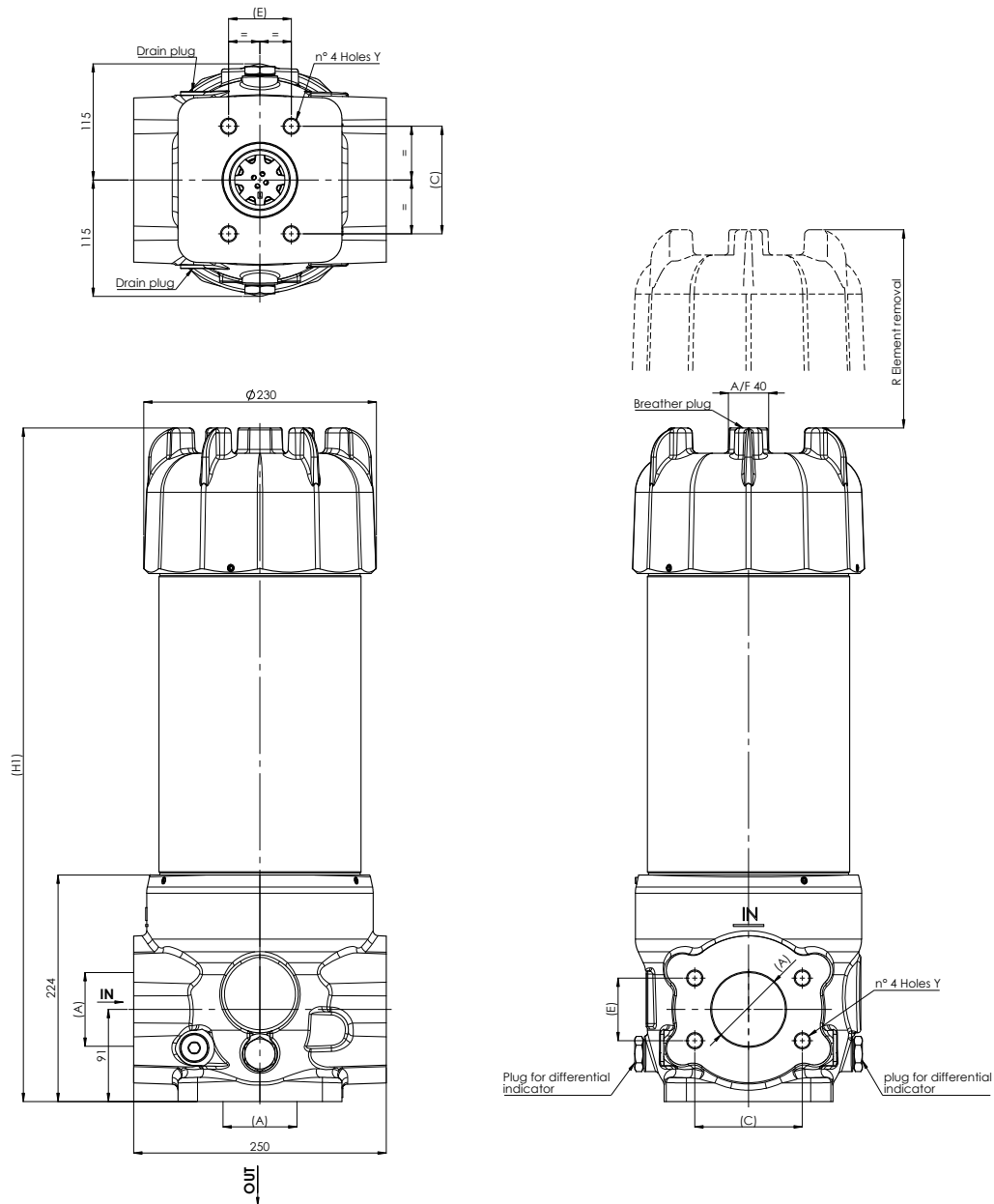
OVERALL DIMENSIONS

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 $\beta_{4\mu m(c)} \geq 1.000$
	G03 glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G05 glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10 glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15 glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G20 glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40 glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	GW03 glassfiber $\beta_{5\mu m(c)} \geq 1.000$ + water absorbent
	GW10 glassfiber $\beta_{12\mu m(c)} \geq 1.000$ + 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. ELEMENT SUFFIX	0 no element (empty housing config)
Only for spare element "/" before the three digit suffix is needed	AB1 AbsoluteBeta - HIGH CAPACITY FILTER ELEMENT $\varnothing_{ext} = 143mm$
	012 AbsoluteBeta - ULTRA HIGH CAPACITY FILTER ELEMENT $\varnothing_{ext} = 153mm$
	005 AbsoluteBeta - HIGH CAPACITY FILTER ELEMENT $\varnothing_{ext} = 143mm$ + safety element 50mic for bypass valve
	014 AbsoluteBeta - ULTRA HIGH CAPACITY FILTER ELEMENT $\varnothing_{ext} = 153mm$ + 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: 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 150-200 LPM (not suitable with elements suffix "/005" and "/014")	

ACCESSORIES

The accessories must be ordered separately

INDICATOR

(Y and F) digit for FKM seal option

*LC24=Led connector

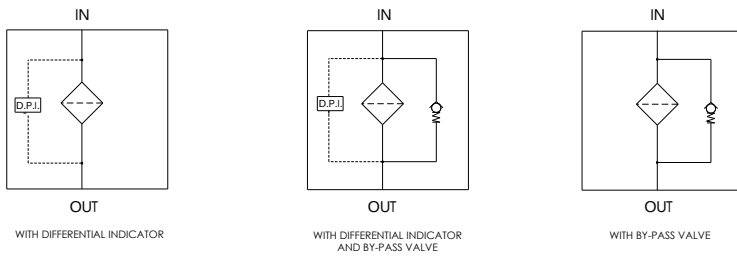
For other options see clogging indicators catalogue

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

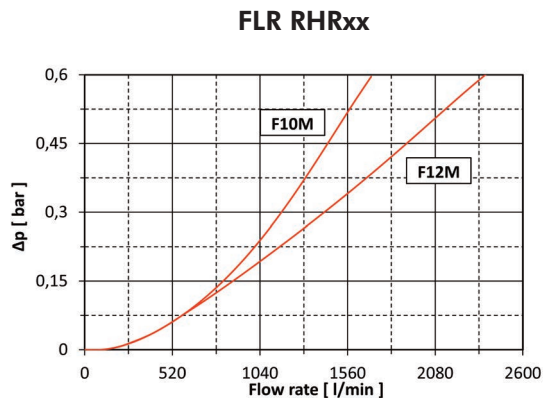


PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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.



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_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

1000 l/min with RHR1300G10B0/AB1 and oil viscosity 46 cSt: $(1000 \times 0.33) / 1000 \times (46 / 32) = 0,47$ 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 Filtrac Customer Service

EXAMPLE OF TOTAL Δp CALCULATION

FLRRHR1300G10B0AB1F10MA00A0 with 1000 l/min and oil 46 cSt:

Housing Δp + element Δp = 0,22 bar + $(1000 \times 0.33) / 1000 \times (46 / 32)$ bar = 0,69 bar

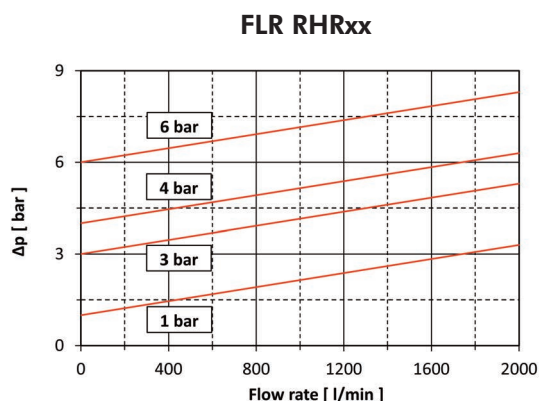
GW03, GW10 AND AW40 QUICK SIZE TABLE

	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.



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



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



- The IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
- The filter housing should be preferably mounted with the bowl (6) upward.
- Secure to the frame the filter head (1) using the fixing holes (3).
- Verify that no tension is present on the filter after mounting.
- Enough space must be available for filter element replacement.
- The visual clogging indicator must be in a easily viewable position.
- When a electrical indicator is used, make sure that it is properly wired.
- Never run the system with no filter element fitted.
- Keep in stock a spare FILTREC filter element for timely replacement when required.
- Filter housing should be earthed.

OPERATION



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

MAINTENANCE



- Make sure that the system is switched off and there is no residual pressure in the filter.
- Loosen vent screw (8).
- Remove drain plug (9) in housing bottom and drain oil.
- Unscrew filter bowl counter-clockwise.
- Lift out filter element (4).
- Check seal on filter bowl (5). We recommend replacement in any case.
- 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.
- Push the element carefully over the spigot and tighten the 3 grub screws (12) of the filter bowl (6).
- Tighten drain plug (9) in housing bottom.
- Tight vent screw (8).
- The used filter elements can not be cleaned and re-use.



WWW.SUMY.IR

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.

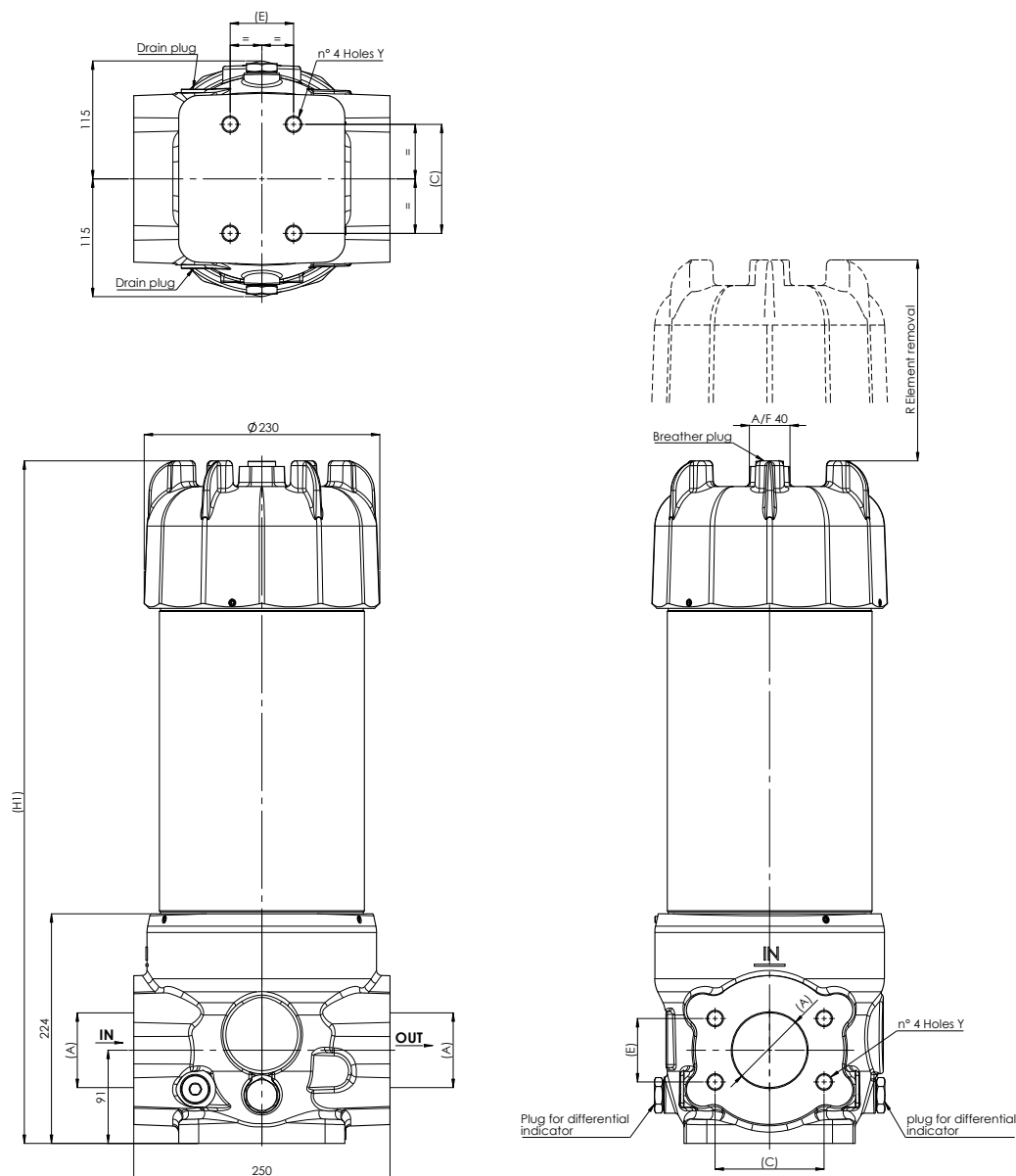


HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: 30 bar Fatigue rating: 10 ⁶ cycles 0÷30 bar Burst: 90 bar
CONNECTIONS:	3" - 4" SAE 3000 FLANGE
MATERIALS:	Head: anodized aluminium Bowl: anodized aluminium Body: anticorodal aluminium Seal: NBR (FKM on request)
BYPASS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

ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G01 - G03 - G06 - G10 G15 - G25 - G40 - GW03 - GW10 AW40
COLLAPSE PRESSURE:	10 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

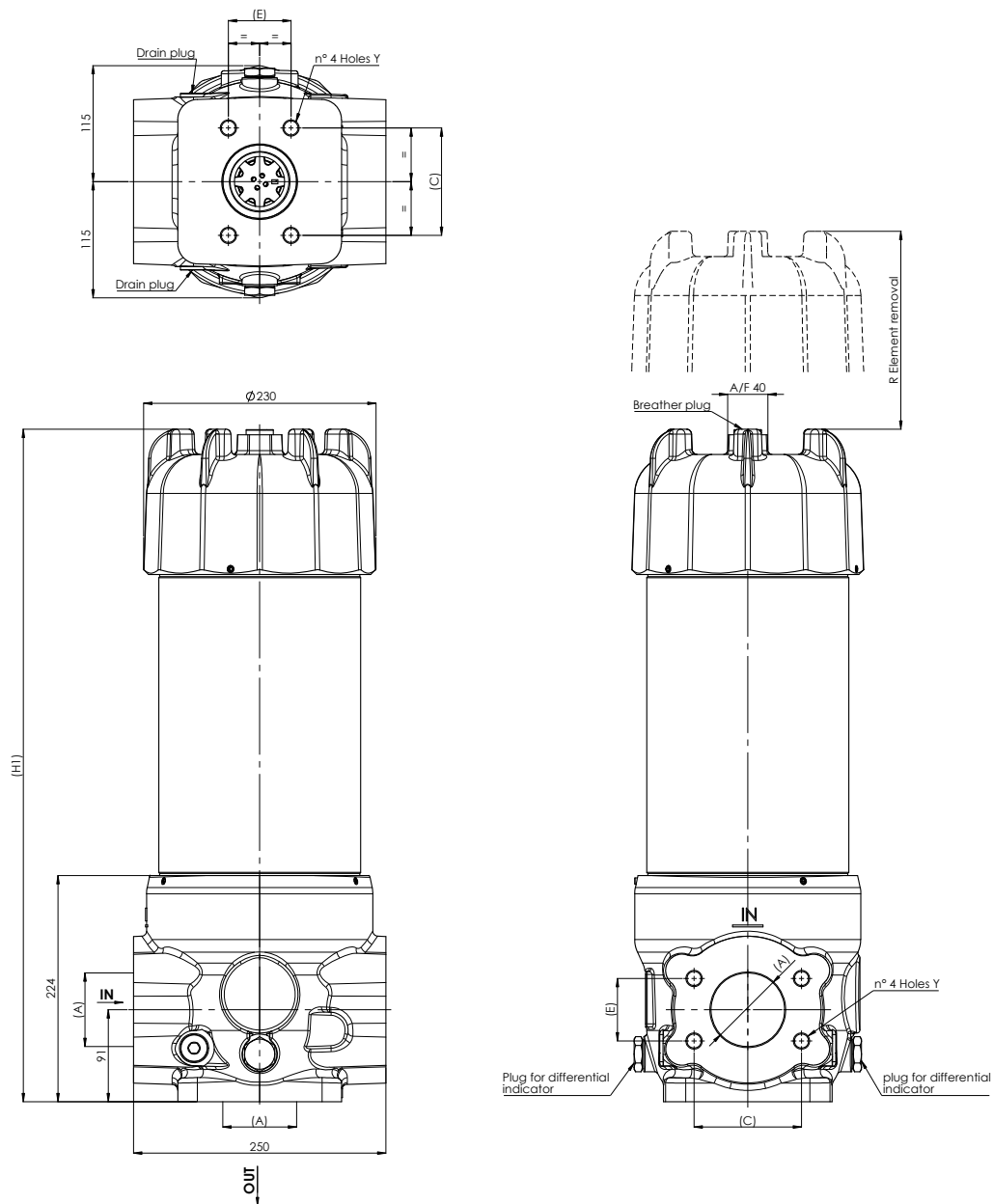
OVERALL DIMENSIONS

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 $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	GW03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$ + water absorbent
	GW10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$ + 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: 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

(Y and F) digit for FKM seal option

*LC24=Led connector

For other options see clogging indicators catalogue

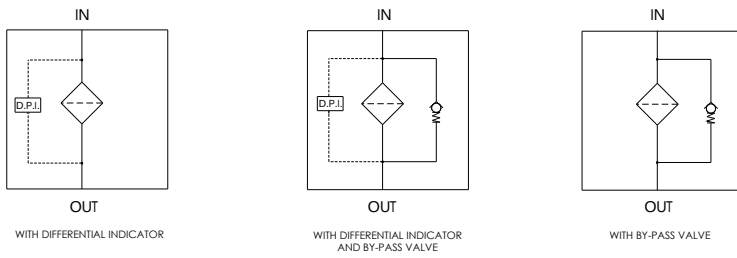
VX2 (VY2)	differential visual 2,7bar
EX2 (EY2)	differential electric 2,7bar
EX2L (EY2L)	differential electric 2,7bar + LC24*
VEXF2	differential visual and electric 2,7 bar
VX5 (VY5)	differential visual 5bar
EX5 (EY5)	differential electric 5bar
EX5L (EY5L)	differential electric 5bar + LC24*
VEXF5	differential visual and electric 5bar
VX8 (VY8)	differential visual 8bar
EX8 (EY8)	differential electric 8bar
EX8L (EY8L)	differential electric 8bar + LC24*
VEXF8	differential visual and electric 8 bar
LC24	LED connector for pressure switch

recommended for
no by-pass option

PLUG

P01	metal plug for indicator port - NBR
PF1	metal plug for indicator port - FKM

HYDRAULIC SYMBOLS

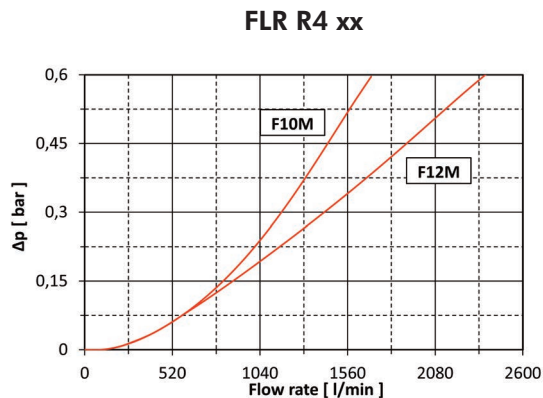


PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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.



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_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

1000 l/min with R434G10 and oil viscosity 46 cSt: $(1000 \times 0.16) / 1000 \times (46 / 32) = 0,23$ 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 + $(1000 \times 0.16 / 1000 \times (46 / 32))$ bar = 0,45 bar

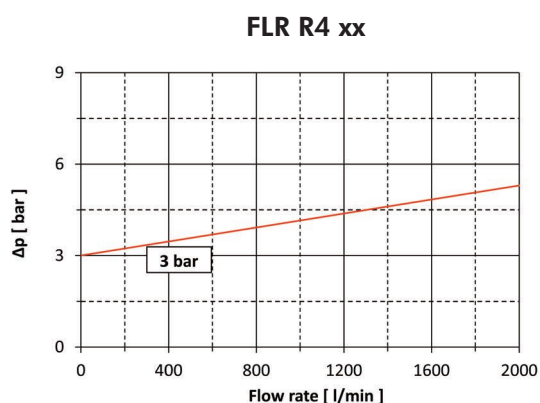
GW03, GW10 AND AW40 QUICK SIZE TABLE

	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

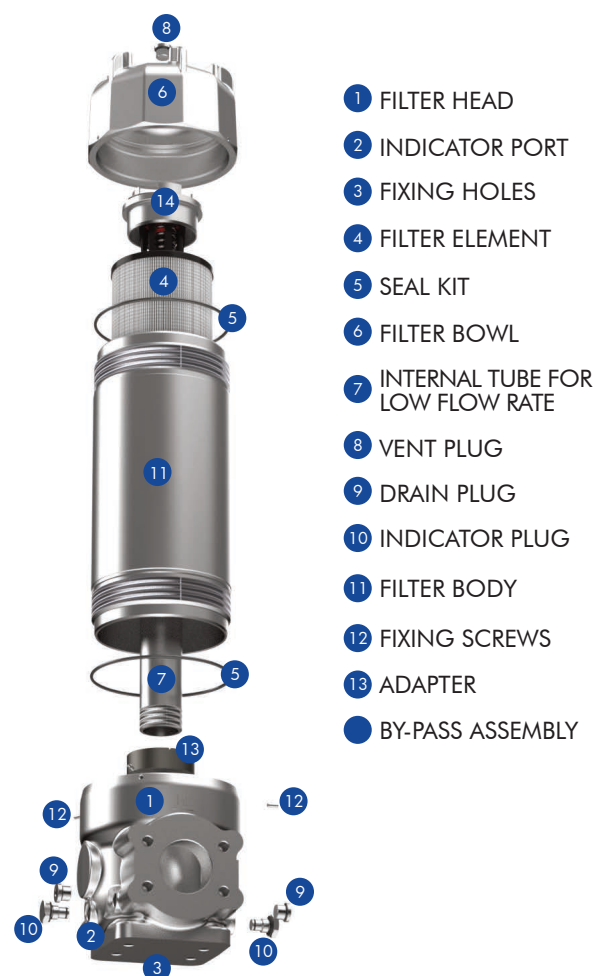
BYPASS VALVE PRESSURE DROP

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



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



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.



FLRD-U5 SERIES

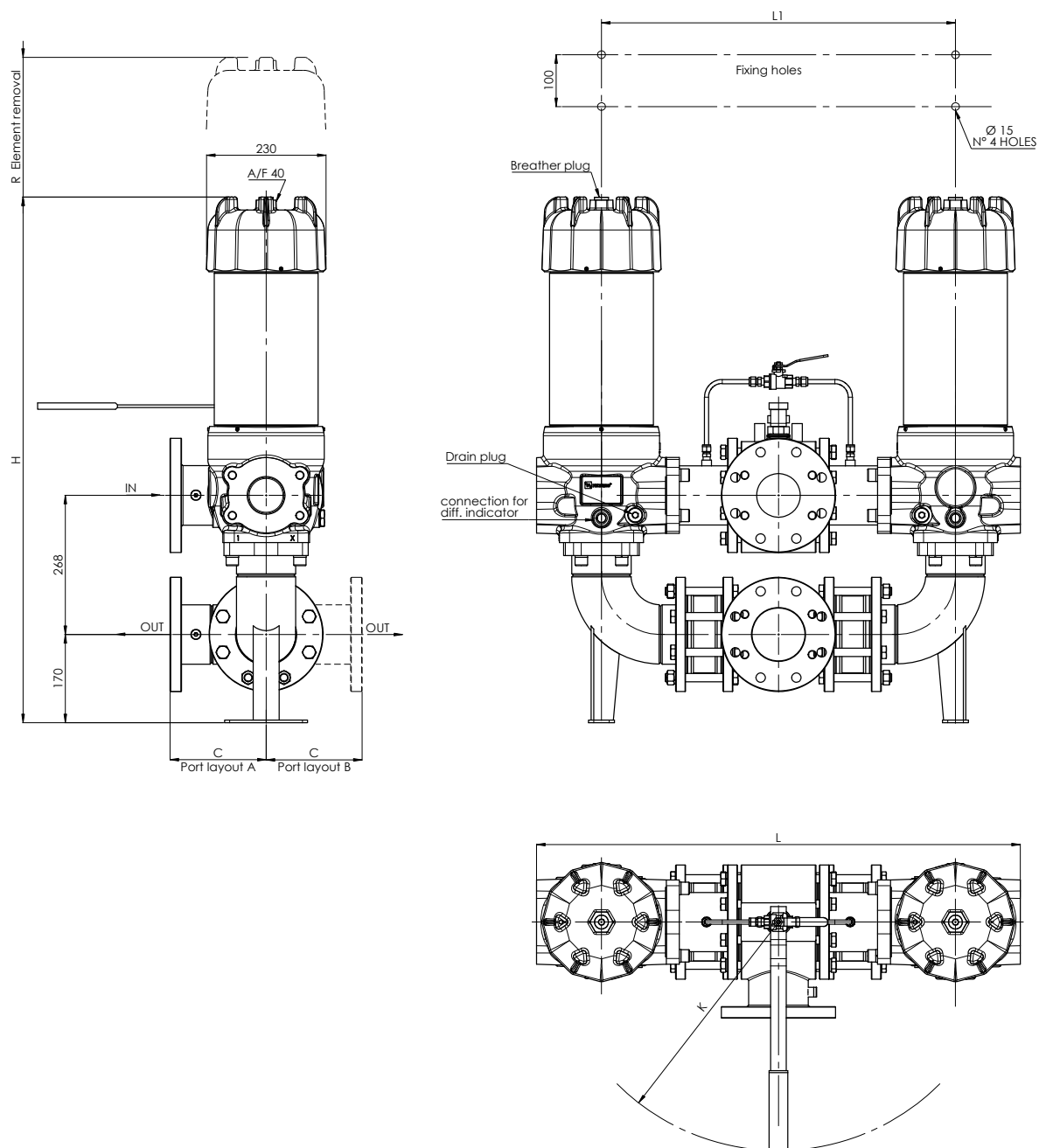
In line medium pressure filters

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 DN100 + 4" SAE 3000 FLANGE-M
MATERIALS:	Head: anodized aluminium Bowl: anodized aluminium Body: anticorodal aluminium Seal: NBR (FKM on request) Manifold Welded: Carbon steel 3-Way valve: Steel Check valve: Cast steel
BYPASS VALVE:	no bypass 1 bar 3 bar 4 bar 6 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G01 - G03 - G06 - G10 G15 - G25 - G40 - GW03 - GW10 AW40
COLLAPSE PRESSURE:	10 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

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	460	1065	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	900	1503	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 $\beta_{4\mu m(c)} \geq 1.000$
	G03 glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06 glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10 glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15 glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25 glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40 glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	GW03 glassfiber $\beta_{5\mu m(c)} \geq 1.000$ + water absorbent
	GW10 glassfiber $\beta_{12\mu m(c)} \geq 1.000$ + water absorbent
	AW40 water absorbent only
5. SEALS	B NBR
	V FKM
6. BYPASS VALVE	0 no bypass
Inbuilt into the filter element	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: 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

(Y and F) digit for FKM seal option

*LC24=Led connector

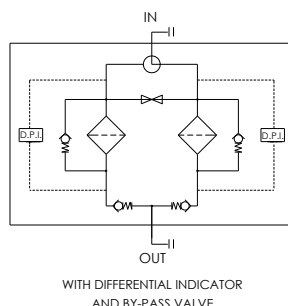
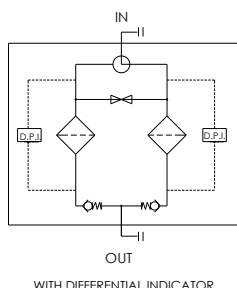
For other options see clogging indicators catalogue

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



PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

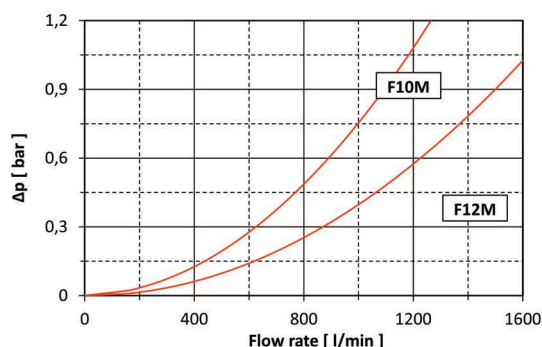
The total Delta P through a filter assembly is given from Housing Δp + Element Δp .

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 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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

1000 l/min with U564G10B0 and oil viscosity 46 cSt: $(1000 \times 0.09 / 1000) \times (46 / 32) = 0.13$ 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 + $(1000 \times 0.09 / 1000) \times (46 / 32)$ bar = 0.53 bar

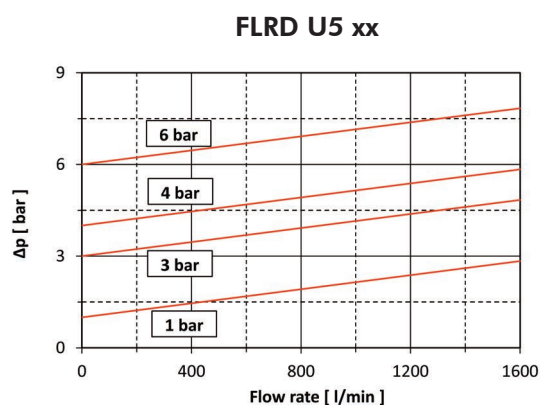
GW03, GW10 AND AW40 QUICK SIZE TABLE

	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 $\Delta p = 3$ bar

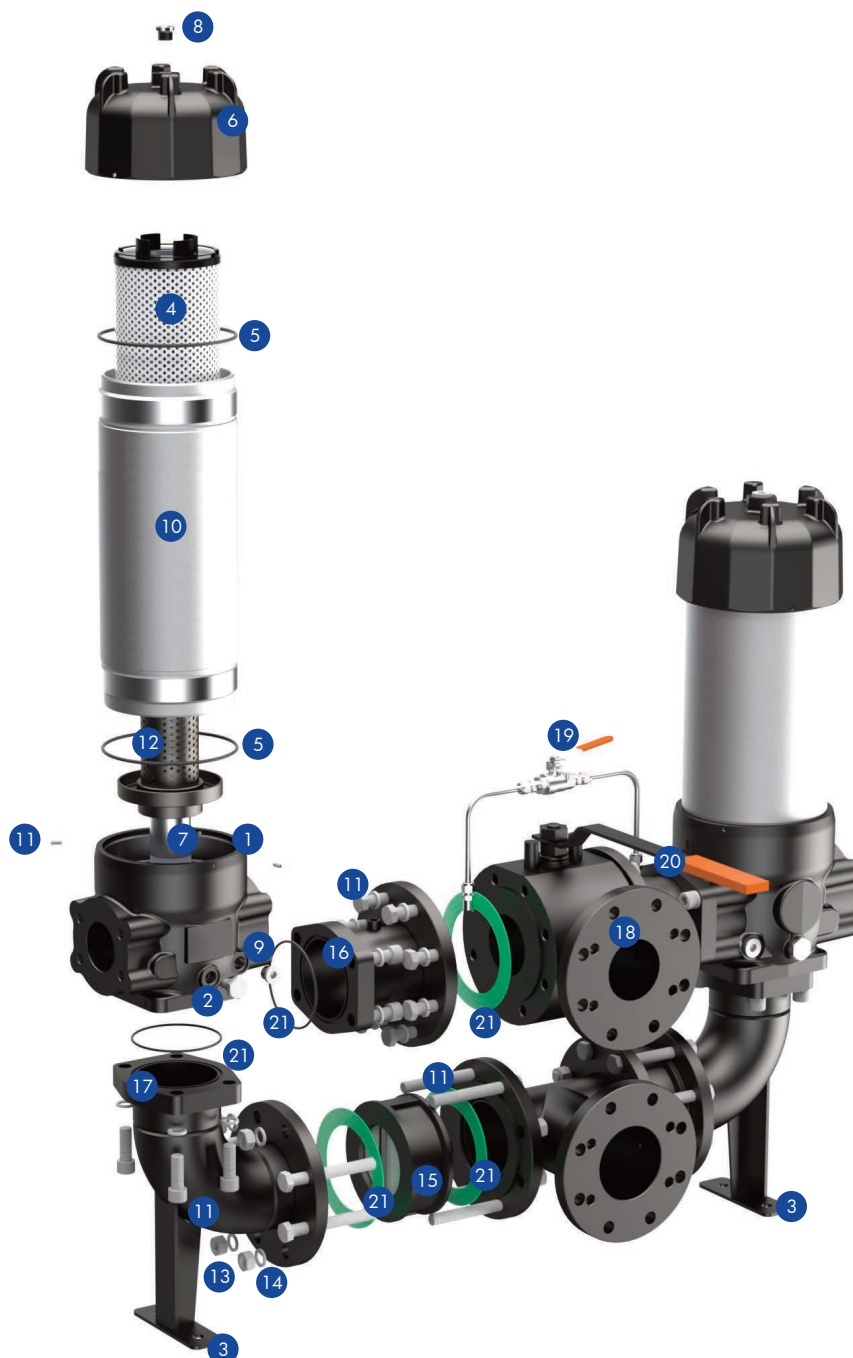
BYPASS VALVE PRESSURE DROP

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



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 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 leakage by actuating the equalizing lever again.
- 12. The used filter elements can not be cleaned and re-use.



FLRD-RHR SERIES

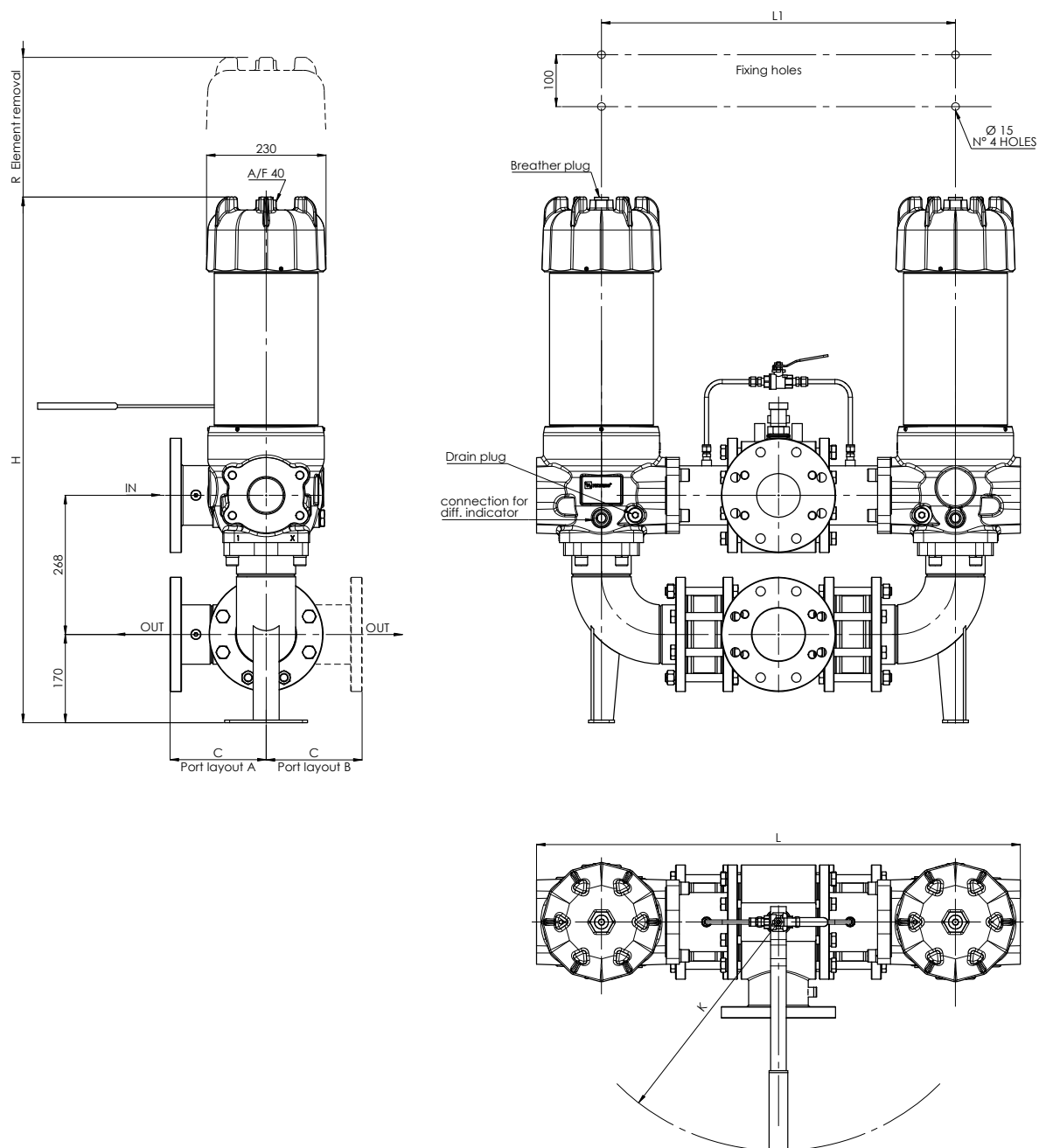
In line medium pressure filters

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 DN100 + 4" SAE 3000 FLANGE-M
MATERIALS:	Head: anodized aluminium Bowl: anodized aluminium Body: anticorodal aluminium Seal: NBR (FKM on request) Manifold Welded: Carbon steel 3-Way valve: Steel Check valve: Cast steel
BYPASS VALVE:	no bypass 1 bar 3 bar 4 bar 6 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G01 - G03 - G05 - G10 G15 - G20 - G40 - GW03 - GW10 AW40
COLLAPSE PRESSURE:	20 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

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	460	1065	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	900	1503	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 $\beta_{4\mu m(c)} \geq 1.000$ G03 glassfiber $\beta_{5\mu m(c)} \geq 1.000$ G05 glassfiber $\beta_{7\mu m(c)} \geq 1.000$ G10 glassfiber $\beta_{12\mu m(c)} \geq 1.000$ G15 glassfiber $\beta_{17\mu m(c)} \geq 1.000$ G20 glassfiber $\beta_{22\mu m(c)} \geq 1.000$ G40 glassfiber $\beta_{35\mu m(c)} \geq 1.000$ GW03 glassfiber $\beta_{5\mu m(c)} \geq 1.000$ + water absorbent GW10 glassfiber $\beta_{12\mu m(c)} \geq 1.000$ + water absorbent AW40 water absorbent only
5. SEALS	B NBR V FKM
6. BYPASS VALVE	0 no bypass
Inbuilt into the filter element	1 1 bar 3 3 bar 4 4 bar 6 6 bar
7. ELEMENT SUFFIX	0 no element (empty housing config)
only for spare element "/" before the three digit suffix is needed	AB1 AbsoluteBeta filter element $\varnothing_{ext} = 143mm$ 012 AbsoluteBeta high capacity filter element $\varnothing_{ext} = 153mm$ 005 AbsoluteBeta filter element $\varnothing_{ext} = 143mm$ + safety element 50 mic for bvp 014 AbsoluteBeta filter element $\varnothing_{ext} = 153mm$ + 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: 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

(Y and F) digit for FKM seal option

*LC24=Led connector

For other options see clogging indicators catalogue

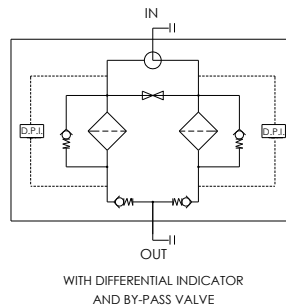
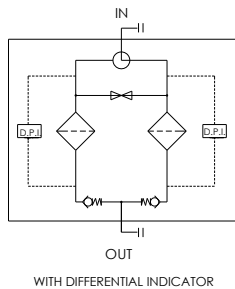
VX2 (VY2)	differential visual 2,7bar	
EX2 (EY2)	differential electric 2,7bar	
EX2L (EY2L)	differential electric 2,7bar + LC24*	
VEXF2	differential visual and electric 2,7 bar	
VX5 (VY5)	differential visual 5bar	
EX5 (EY5)	differential electric 5bar	
EX5L (EY5L)	differential electric 5bar + LC24*	
VEXF5	differential visual and electric 5bar	
VX8 (VY8)	differential visual 8bar	
EX8 (EY8)	differential electric 8bar	
EX8L (EY8L)	differential electric 8bar + LC24*	
VEXF8	differential visual and electric 8 bar	
LC24	LED connector for pressure switch	

recommended for
no by-pass option

PLUG

P01	metal plug for indicator port - NBR
PF1	metal plug for indicator port - FKM

HYDRAULIC SYMBOLS



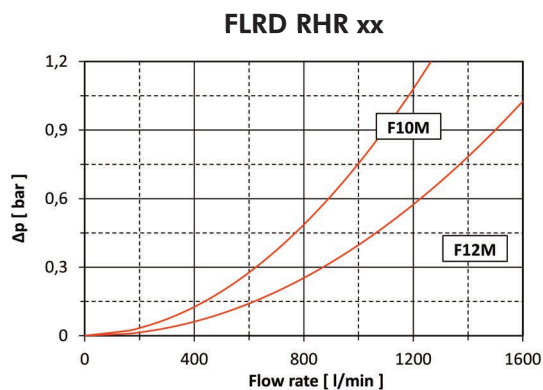
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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.



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_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

1000 l/min with RHR1300G10B0/AB1 and oil viscosity 46 cSt: $(1000 \times 0.33 / 1000) \times (46 / 32) = 0.47$ 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 + $(1000 \times 0.33 / 1000) \times (46 / 32)$ bar = 0.87 bar

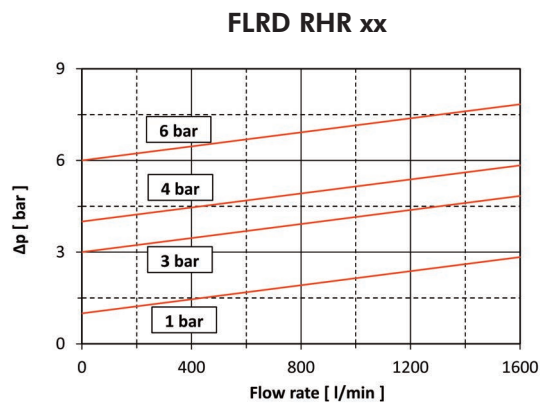
GW03, GW10 AND AW40 QUICK SIZE TABLE

	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 $\Delta p = 3$ bar

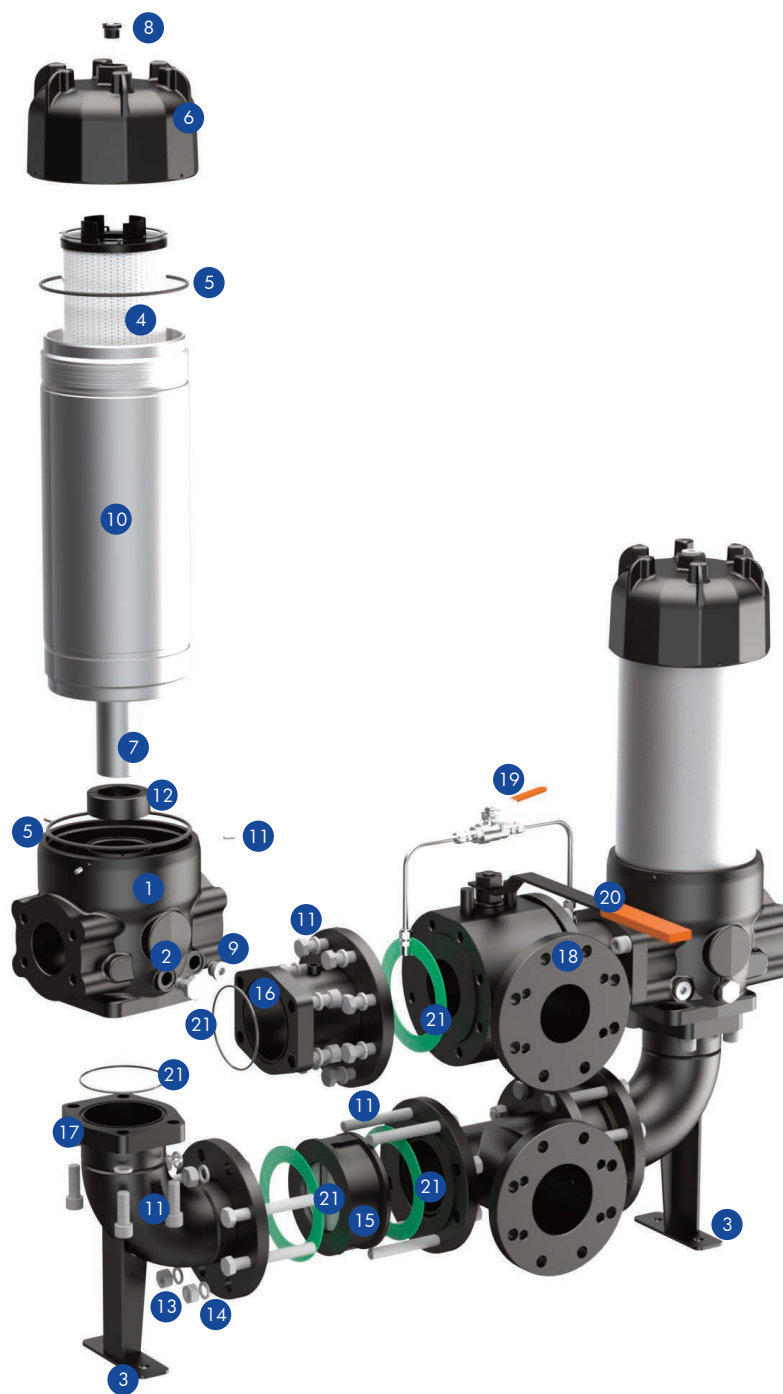
BYPASS VALVE PRESSURE DROP

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



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 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 leakage by actuating the equalizing lever again.
- 12. The used filter elements can not be cleaned and re-use.



FLRD-R4 SERIES

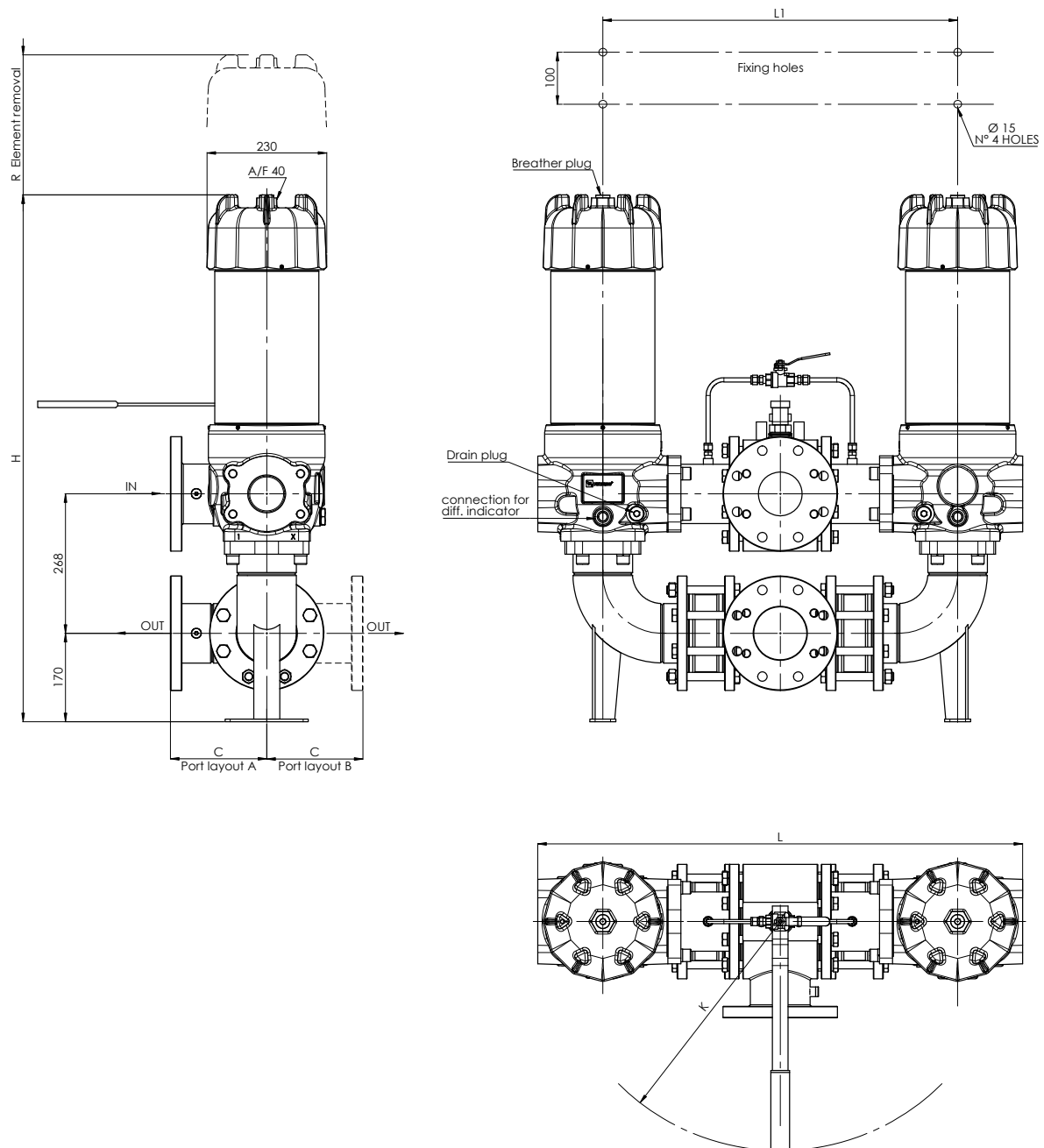
In line medium pressure filters

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 DN100 + 4" SAE 3000 FLANGE-M
MATERIALS:	Head: anodized aluminium Bowl: anodized aluminium Body: anticorodal aluminium Seal: NBR (FKM on request) Manifold Welded: Carbon steel 3-Way valve: Steel Check valve: Cast steel
BYPASS VALVE:	no bypass 3 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G01 - G03 - G06 - G10 G15 - G25 - G40 - GW03 - GW10 AW40
COLLAPSE PRESSURE:	10 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °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).

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 $\beta_{4\mu m(c)} \geq 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	GW03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$ + water absorbent
	GW10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$ + water absorbent
	AW40	water absorbent only
5. SEALS	B*	NBR
*omitted for filter elements	V	FKM
6. BYPASS VALVE	0	no bypass
as separate part into the filter housing	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: 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

(Y and F) digit for FKM seal option

*LC24=Led connector

For other options see clogging indicators catalogue

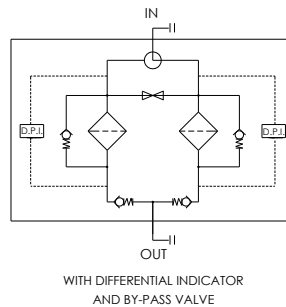
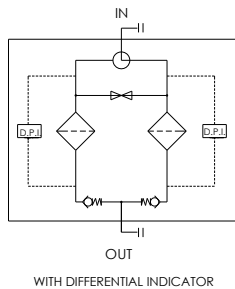
VX2 (YY2)	differential visual 2,7bar
EX2 (EY2)	differential electric 2,7bar
EX2L (EY2L)	differential electric 2,7bar + LC24*
VEXF2	differential visual and electric 2,7 bar
VX5 (YY5)	differential visual 5bar
EX5 (EY5)	differential electric 5bar
EX5L (EY5L)	differential electric 5bar + LC24*
VEXF5	differential visual and electric 5bar
VX8 (YY8)	differential visual 8bar
EX8 (EY8)	differential electric 8bar
EX8L (EY8L)	differential electric 8bar + LC24*
VEXF8	differential visual and electric 8 bar
LC24	LED connector for pressure switch

recommended for
no by-pass option

PLUG

P01	metal plug for indicator port - NBR
PF1	metal plug for indicator port - FKM

HYDRAULIC SYMBOLS



PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

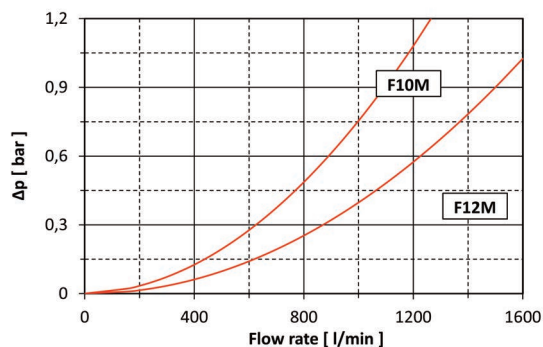
The total Delta P through a filter assembly is given from Housing Δp + Element Δp .

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.

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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

1000 l/min with R434G10 and oil viscosity 46 cSt: $(1000 \times 0.16 / 1000) \times (46 / 32) = 0.23$ 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 + $(1000 \times 0.16 / 1000) \times (46 / 32)$ bar = 0.63 bar

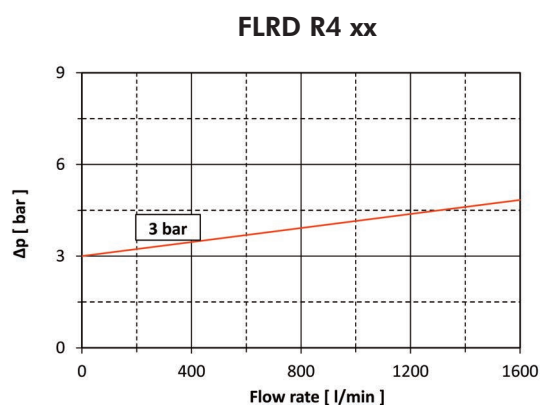
GW03, GW10 AND AW40 QUICK SIZE TABLE

	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 $\Delta p = 3 \text{ bar}$

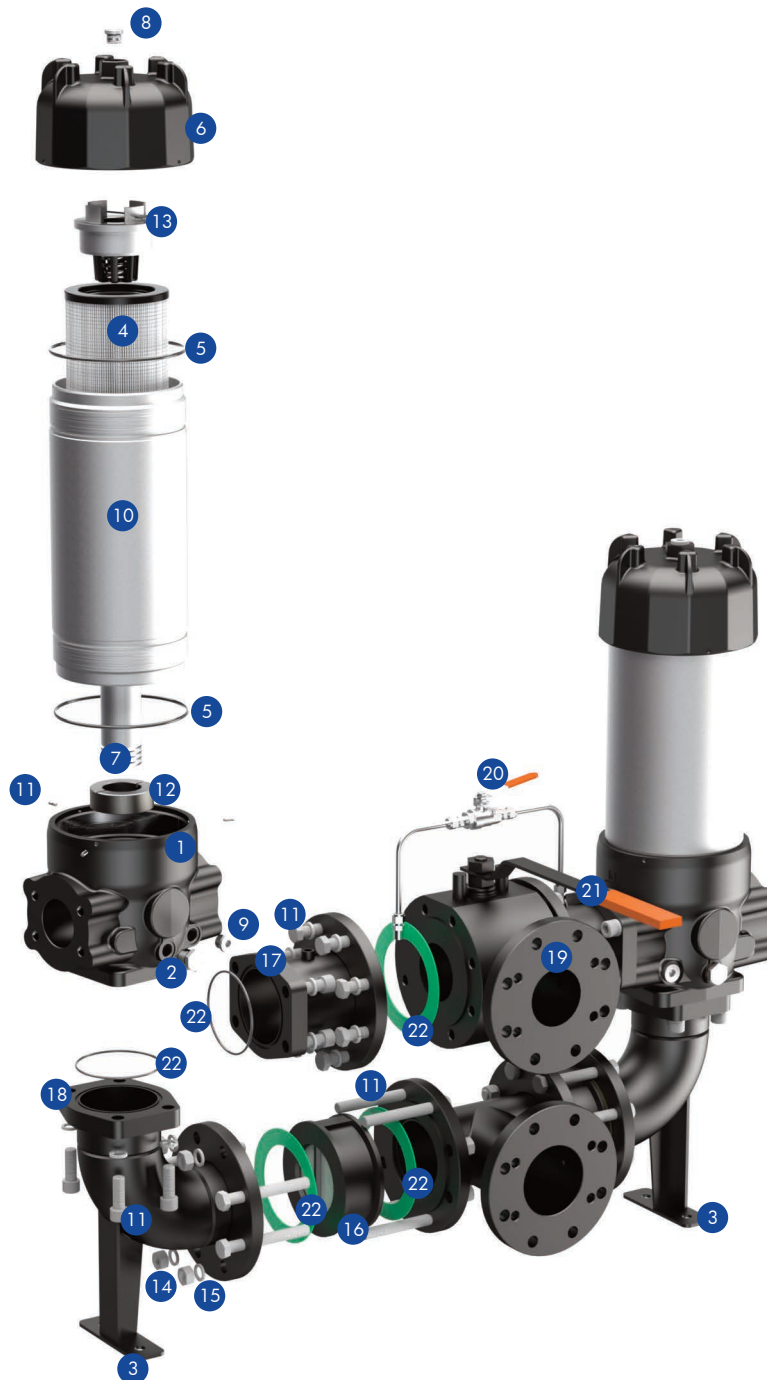
BYPASS VALVE PRESSURE DROP

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



N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity and density 0.875 Kg/dm³.

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

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 leakage by actuating the equalizing lever again.
 13. The used filter elements can not be cleaned and re-use.



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
 max operating 32 bar sizes 160 to 400

CONNECTIONS: G 1"
 G 1 1/2"

MATERIALS: Head: aluminium alloy
 Bowl : aluminium alloy; painted
 carbon steel for size FDD040XD400 only
 Seals: NBR

BYPASS VALVE: 3,5 bar

ELEMENT

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

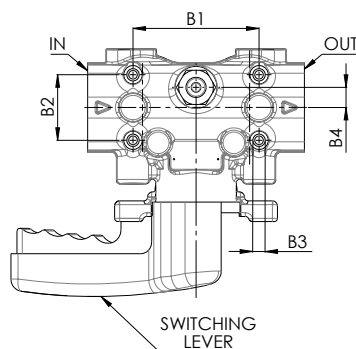
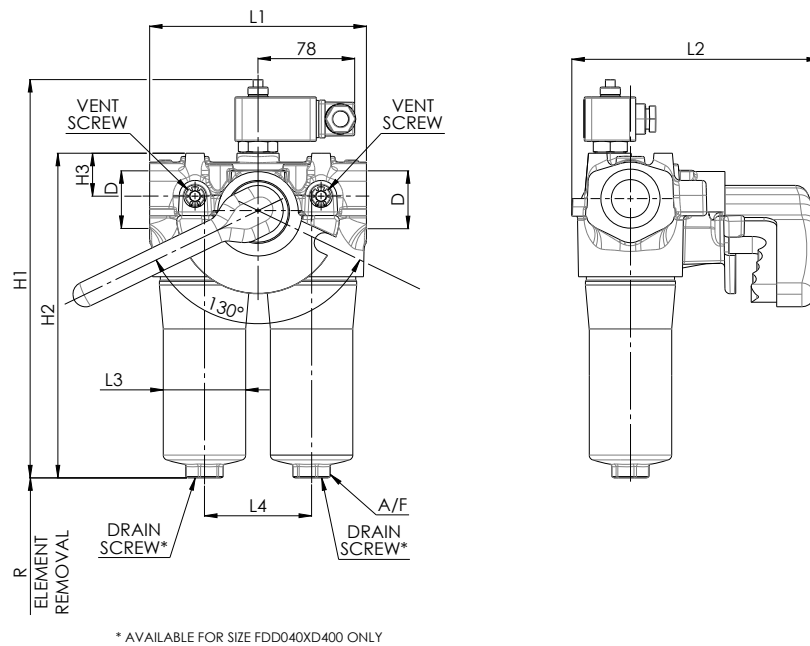
FILTER MEDIA: glassfiber G01 - G03 - G06 - G10 - G15
 G25

COLLAPSE PRESSURE: 20 bar
 210 bar

TEMPERATURE RANGE: -30°C +100°C

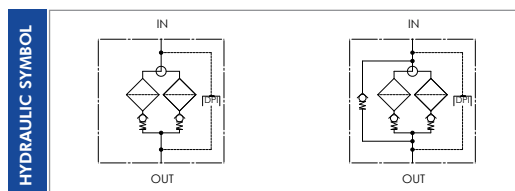
FLUID COMPATIBILITY: Full with HH-HL-HM-HV
 HETG-HEES (acc. to ISO 6743/4).
 For use with other fluid please
 contact Filtrec Customer Service
 (info@filtrec.it).

OVERALL DIMENSIONS



NOMINAL SIZE

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



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 $\beta_{4\mu m(c)} > 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
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	

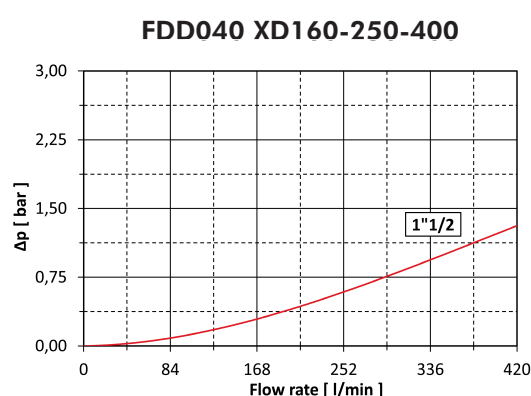
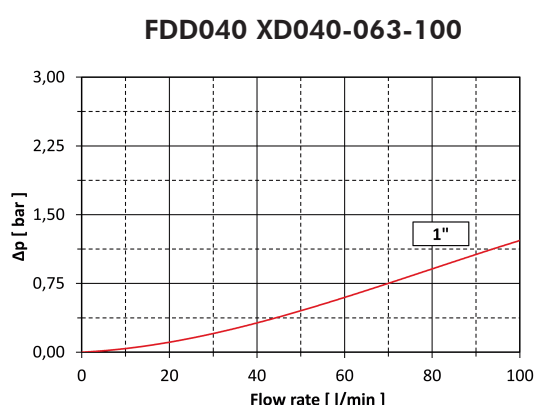
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP (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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 40 l/min with XD100G10A and oil viscosity 46 cSt: $40 \times 3,6/1000 \times 46/32 = 0,21$ 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 Δp 0,21 bar ($40 \times 3,6/1000 \times 46/32$) = 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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 40 l/min with XD100G10B and oil viscosity 46 cSt: $40 \times 6,75/1000 \times 46/32 = 0,39$ 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 Δp 0,39 bar ($40 \times 6,75/1000 \times 46/32$) = 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/dm³.

USER TIPS



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

-  The IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
- The filter housing should be preferably mounted with the bowl (6) downward.
- Secure to the frame the filter head (1) using the threaded fixing holes (3).
- Verify that no tension is present on the filter after mounting.
- Enough space must be available for filter element replacement.
- The visual clogging indicator must be in a easily viewable position.
- When a electrical indicator is used, make sure that it is properly wired.
- Never run the system with no filter element fitted.
-  Keep in stock a spare FILTREC filter element for timely replacement when required.
- Filter housing should be earthed.

OPERATION

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

MAINTENANCE

-  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.
- Loosen vent screw of the filter side not in use by 2-3 turns; max. until contact is made with the safety stop.
- 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!
- Remove filter element with a side-to-side motion.
- Check O-ring on the filter bowl for damage and replace, if necessary.
-  Make sure that the order number on the spare element corresponds to the order number of the filter name-plate.
- Lightly lubricate the threads of the filter bowl and screw into the filter head.
- 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.
- Tighten vent screw and check filter for leaks by operating the pressure equalizing lever once again.



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
 Head: painted cast iron
 Bowl: painted cast iron
 Seals: NBR

BYPASS VALVE: 3,5 bar

ELEMENT

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

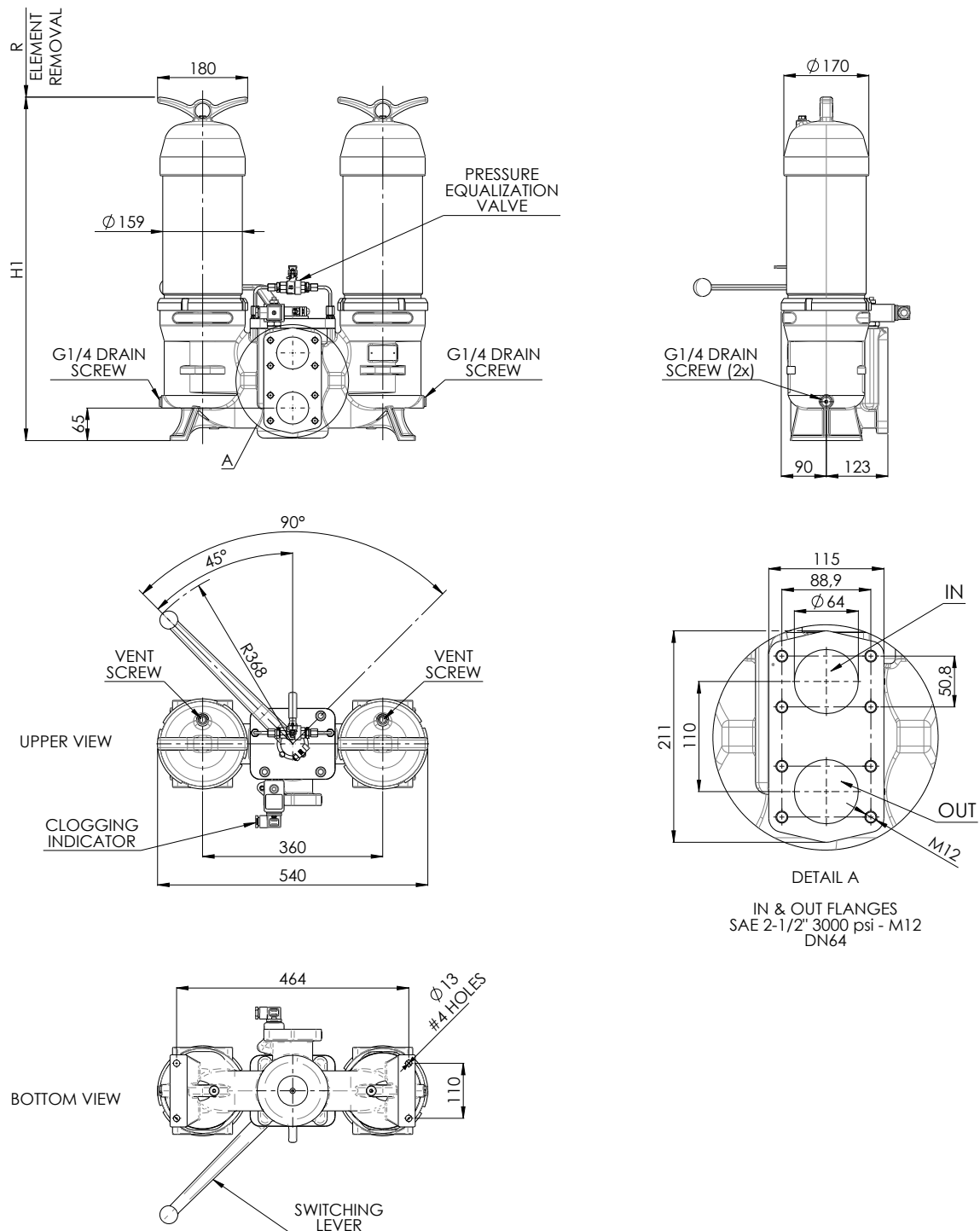
FILTER MEDIA: glassfiber G01 - G03 - G06 - G10 - G15 G25

COLLAPSE PRESSURE: 20 bar
 210 bar

TEMPERATURE RANGE: -30°C +100°C

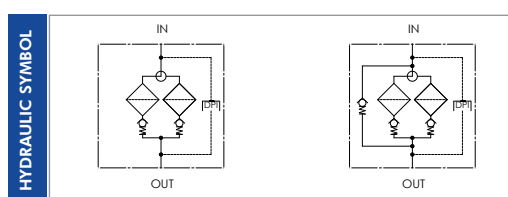
FLUID COMPATIBILITY: Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4).
 For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS



NOMINAL SIZE

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



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 $\beta_{4\mu m(c)} > 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
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	

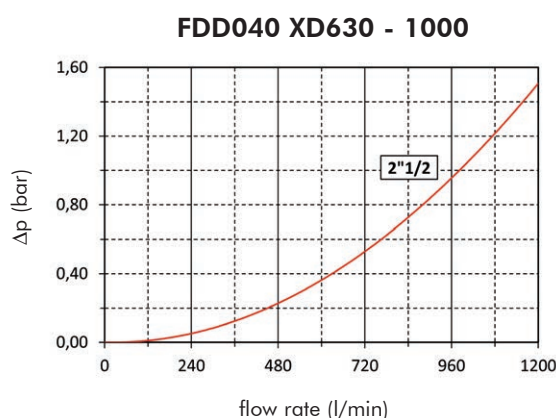
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP (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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 400 l/min with XD1000G10A and oil viscosity 46 cSt: $400 \times 0,54/1000 \times 46/32 = 0,31$ 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 Δp 0,31 bar ($400 \times 0,54/1000 \times 46/32$) = 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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 400 l/min with XD1000G10B and oil viscosity 46 cSt: $400 \times 0,67/1000 \times 46/32 = 0,38$ 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 Δp 0,38 bar ($400 \times 0,67/1000 \times 46/32$) = 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/dm³.

USER TIPS



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

-  The IN and OUT ports must be connected to the hoses in the correct flow direction an arrow shows on the filter head (1).
- The filter housing should be preferably mounted with the bowl (8) upward.
- Secure to the frame the filter head (1) using the fixing holes (3).
- Verify that no tension is present on the filter after mounting.
- Enough space must be available for filter element replacement.
- The visual clogging indicator must be in a easily viewable position.
- When a electrical indicator is used, make sure that it is properly wired.
-  Never run the system with no filter element fitted.
-  Keep in stock a spare FILTREC filter element for timely replacement when required.
- Filter housing should be earthed.

OPERATION

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

MAINTENANCE

-  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.
- Loosen vent screw of the filter side not in use by 2-3 turns; max. until contact is made with the safety stop.
- Remove drain plug in housing bottom and drain oil.
- 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!
- Lift out filter element.
- Check seal on filter bowl. We recommend replacement in any case.
-  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.
- Push the element carefully over the spigot and tight filter bowl until full stop. Back off the filter bowl 1/8 turn.
- Tighten drain plug housing bottom.
- To refill the filter chamber, operate only the pressure equalizing lever, until fluid emerges bubble-free from the drain cavity.
- Tight vent screw. Check for leakage by actuating the equalizing lever again.



WWW.SUMY.IR

FDD315 SERIES

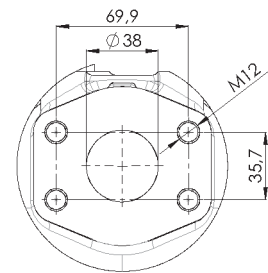
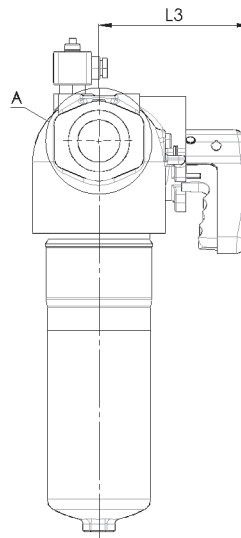
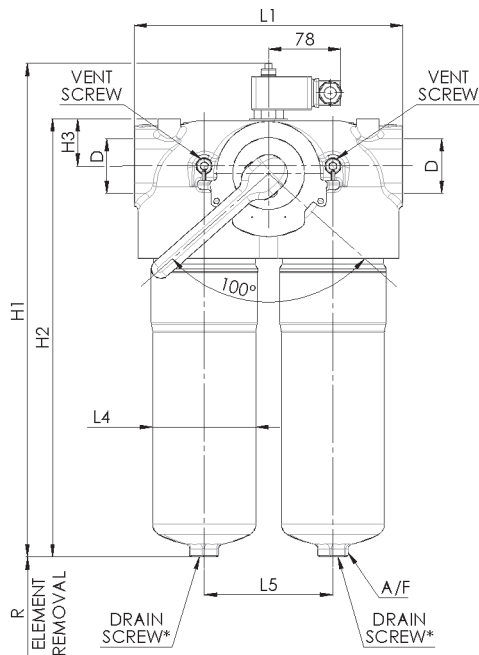
Duplex high pressure filters

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



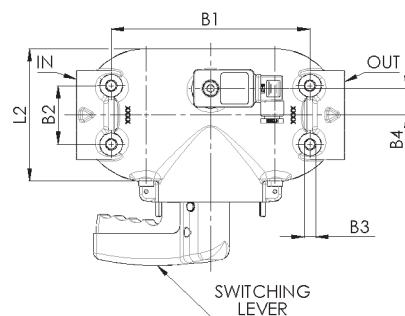
HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	max operating 315 bar sizes 040 to 100 max operating 200 bar sizes 160 to 400
CONNECTIONS:	G 1" G 1 1/2" SAE Flange 1 1/2" 3000 psi
MATERIALS:	Head: painted cast iron Bowl: painted carbon steel Seal: NBR
BYPASS VALVE:	7 bar
ELEMENT	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 210 bar
TEMPERATURE RANGE:	-30°C +100°C
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS



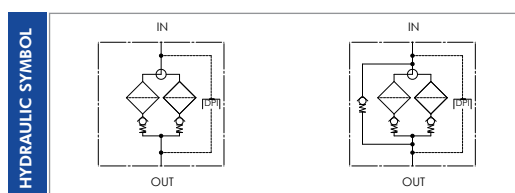
DETAIL A
IN & OUT FLANGES
SAE 1-1/2" 3000 psi - M12
DN38

* AVAILABLE FOR SIZES FDD040XD250 AND FDD040XD400 ONLY



NOMINAL SIZE

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



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 $\beta_{4\mu m(c)} > 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
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

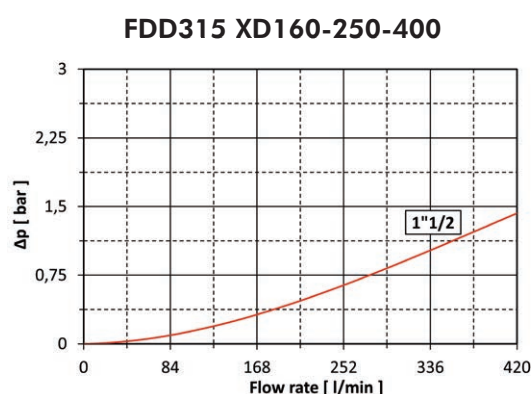
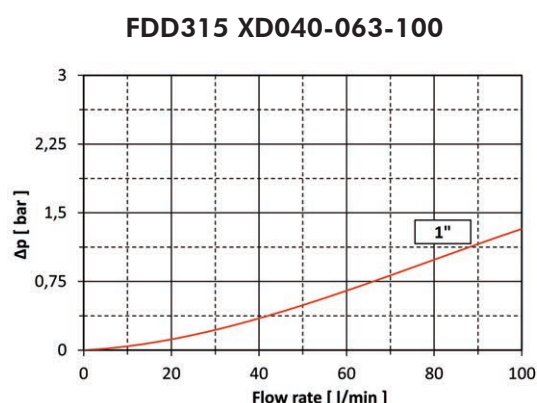
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

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

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

Example: 40 l/min with XD100G10A and oil viscosity 46 cSt: $40 \times 3,6/1000 \times 46/32 = 0,21$ 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 Δp 0,45 bar ($40 \times 3,6/1000 \times 46/32$) = 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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 40 l/min with XD100G10B and oil viscosity 46 cSt: $40 \times 6,75/1000 \times 46/32 = 0,39$ 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 Δp 0,84 bar ($40 \times 6,75/1000 \times 46/32$) = 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/dm³.

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.



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
Burst: 55 bar

CONNECTION: G 1 1/4"

MATERIALS: Head: aluminium alloy
Bowl: painted steel
Seal: FKM

BYPASS VALVE: No by-pass

ELEMENT

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

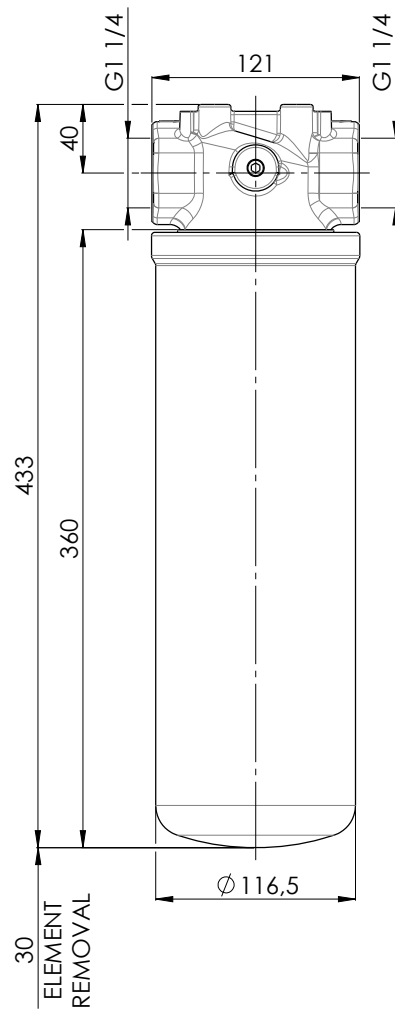
FILTER MEDIA: Inorganic microfiber:
G01 - G03 - G06 - G10 - G25
Inorganic microfiber + water absorbent:
GW40

COLLAPSE PRESSURE: 12 bar

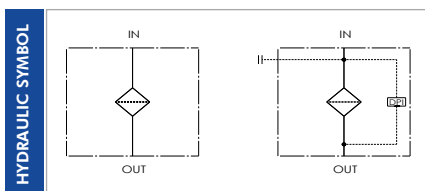
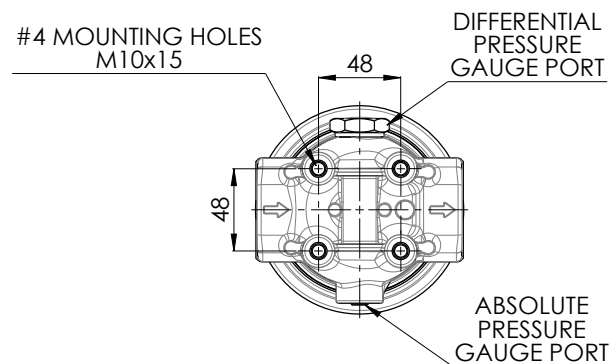
TEMPERATURE RANGE: from -25 °C to +120 °C

FLUID COMPATIBILITY: Full with HH-HL-HM-HV
HETG-HEES (acc. to ISO 6743/4).
Diesel EN590, ASTM D975
Biodiesel B0 to B100 EN14214
Fuel oil EN1603-1
For use with other fluid please
contact Filtrec Customer Service
(info@filtrec.it).

OVERALL DIMENSIONS



Weight: 3,9Kg



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 $\beta_{4\mu m(c)} \geq 10.000$ glassfiber $\beta_{4\mu m(c)} \geq 2.000$
	G03	glassfiber $\beta_{5\mu m(c)} \geq 5.000$ glassfiber $\beta_{4\mu m(c)} \geq 2.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 2.000$
	G10	glassfiber $\beta_{10\mu m(c)} \geq 2.000$ glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{25\mu m(c)} \geq 2.000$
	GW40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$ + water absorbent
5. SEALS	V	FKM
6. BYPASS VALVE	0	no by-pass
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	B6	G 1 1/4"
9. BYPASS VALVE	0	no by-pass
inbuilt into the filter head		
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

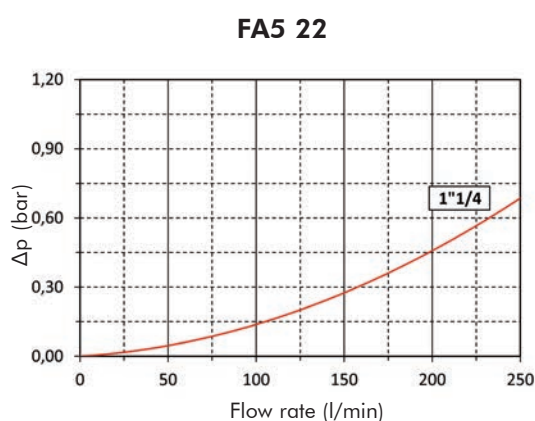
INDICATOR	MP0	pressure gauge rear connection, scale 0-16 bar
(Y and F) digit for FKM seal option For other options see clogging indicators catalogue	MPC	pressure gauge rear connection, setting 3 bar, scale 0-10 bar
	MRC	pressure gauge radial connection, setting 3 bar, scale 0-10 bar
	EY2	differential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

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000. If the oil has a viscosity V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 100 l/min with A522G01V0/AB2 and oil viscosity 46 cSt $> 100 \times 5,8/1000 \times 46/32 = 0,83$ 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 Δp 0,83 bar $(100 \times 5,8/1000 \times 46/32)$ = total assembly Δp 0,97 bar

USER TIPS



CARTRIDGE TIGHTENING TORQUE

All models	1/2 turn
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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 compatability 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 threaded 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.SUMY.IR

FA4 SERIES

In line medium pressure filters

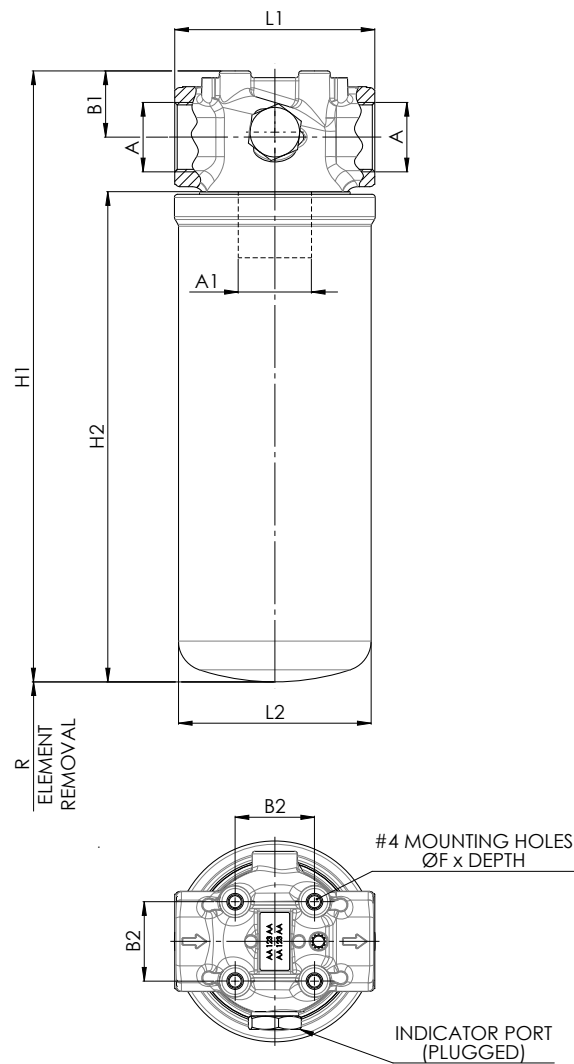
Inline filters with spin-on cartridge for operating pressure up to 35 bar, flow rate up to 250 l/min.

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



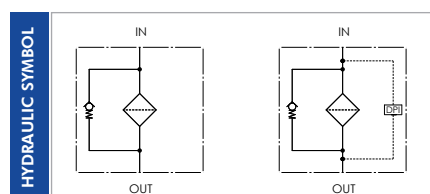
HOUSING	tested according to NFPA T3.10.17, ISO12829, ISO3968
PRESSURE:	Max operating: 34,5 bar for FA4 1x 24 bar for FA4 2x Burst: 69 bar for FA4 1x 55 bar for FA4 2x
CONNECTION:	G 3/4" - G 1" - G 1 1/4"
MATERIALS:	Head: aluminium alloy Bowl: painted steel Seal: NBR (FKM on request)
BYPASS VALVE:	No bypass (on request) 3,5 bar setting (preferred option)
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber: G03 - G06 - G10 - G15 G25 - G40 Paper: C10 - C25
COLLAPSE PRESSURE:	15 bar for FA4 1x 12 bar for FA4 2x
TEMPERATURE RANGE:	with NBR seal is from -30 °C to +100 °C with FKM seal (OPTION) is from -25 °C to +120 °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).

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	



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 $\beta_{10\mu m(c)} > 2$ C25 paper $\beta_{25\mu m(c)} > 2$ G03 glassfiber $\beta_{5\mu m(c)} > 1.000$ G06 glassfiber $\beta_{7\mu m(c)} > 1.000$ G10 glassfiber $\beta_{12\mu m(c)} > 1.000$ G15 glassfiber $\beta_{17\mu m(c)} > 1.000$ G25 glassfiber $\beta_{22\mu m(c)} > 1.000$ G40 glassfiber $\beta_{35\mu m(c)} > 1.000$									
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

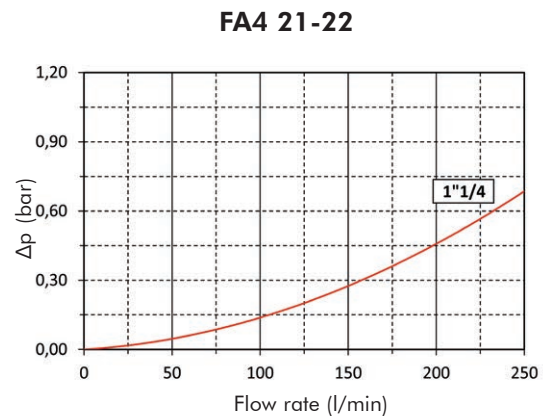
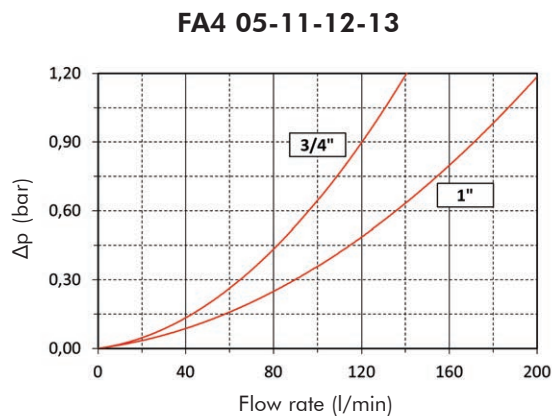
INDICATOR	EX2	differential electric 2,7 bar - NBR
	VX2	differential visual 2,7 bar - NBR
	VEXF2	differential visual-electric 2,7 bar - FKM
PLUG	P01	metal plug for indicator port - NBR
	PF1	metal plug for indicator port - FKM

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000. If the oil has a viscosity V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 100 l/min with A421G10 and oil viscosity 46 cSt: $(100 \times 1,75) / 1000 \times (46 / 32) = 0,25$ 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

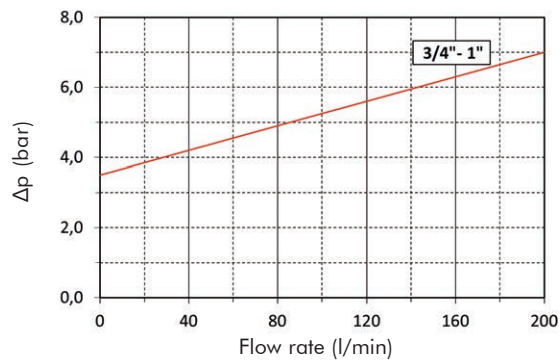
FA421G10BB6D0000S0 with 100 l/min and oil 46 cSt

Housing Δp 0,14 bar + element Δp 0,25 bar $(100 \times 1,75/1000 \times 46/32)$ = total assembly Δp 0,39 bar

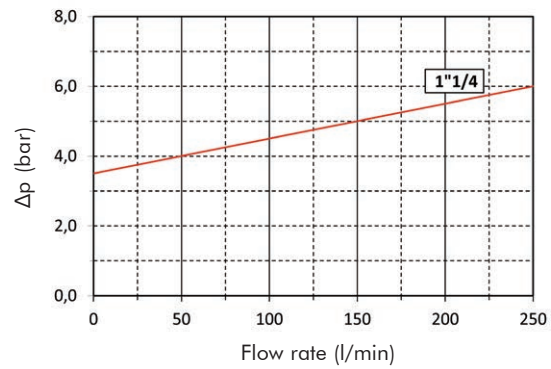
BYPASS VALVE PRESSURE DROP

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/dm³.

USER TIPS



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



CARTRIDGE TIGHTENING TORQUE

All models	1/2 turn
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INDICATOR TIGHTENING TORQUE

All models	50 Nm
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WARNING

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

DISPOSAL OF FILTER ELEMENT

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

INSTALLATION

-  1. 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.



FAH SERIES

In line spin-on type filters

Inline filters with spin-on cartridge, suitable for use on return or low pressure line.

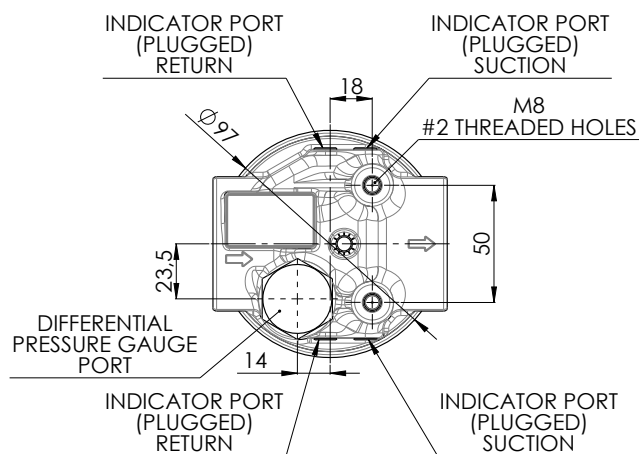
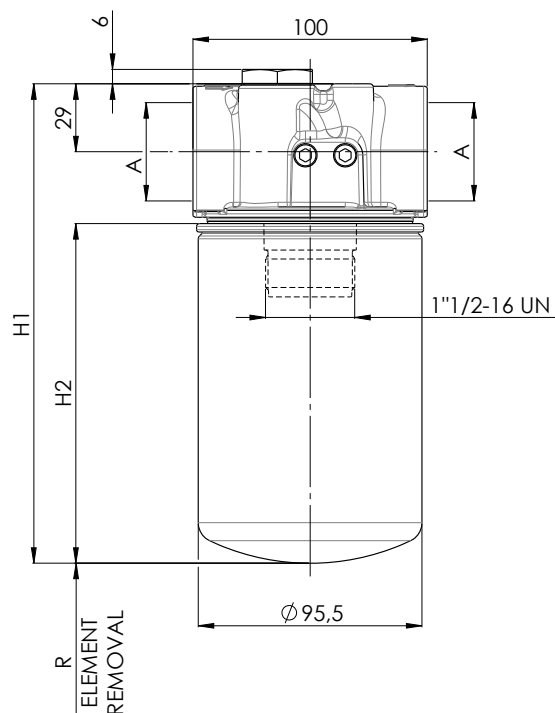
Available with or without bypass, indicator port is a standard option to fit a visual or electrical indicator.



HOUSING	tested according to NFPA T3.10.17, ISO12829, ISO3968
PRESSURE:	Max operating 14 bar for FAH-A15x - FAHD-A15x Max operating 17 bar for FAH-A14x Burst: 20 bar for FAH-A15x - FAHD-A15x Burst: 28 bar for FAH-A14x
CONNECTIONS:	G 3/4" ÷ G 1 1/2" SAE Flange 1 1/2" 3000 psi
MATERIALS:	Head: aluminium alloy Bowl: painted steel 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: G03 - G06 - G10 - G25 - G40 - GW03 - GW06 - GW10 - GW25 Paper: C10 - C25 - CW25 Wire mesh: 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). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS

FAH - A14x

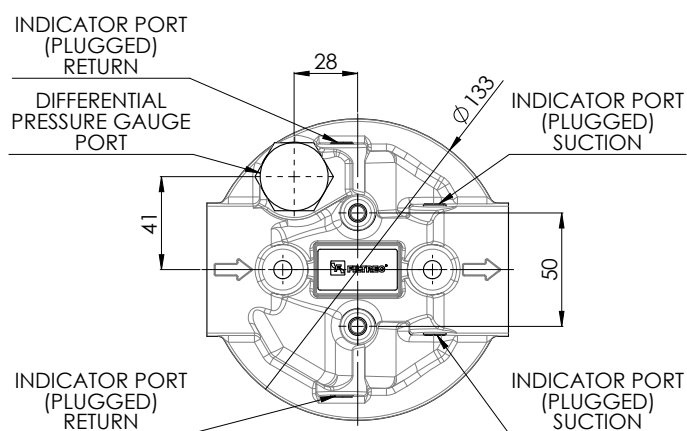
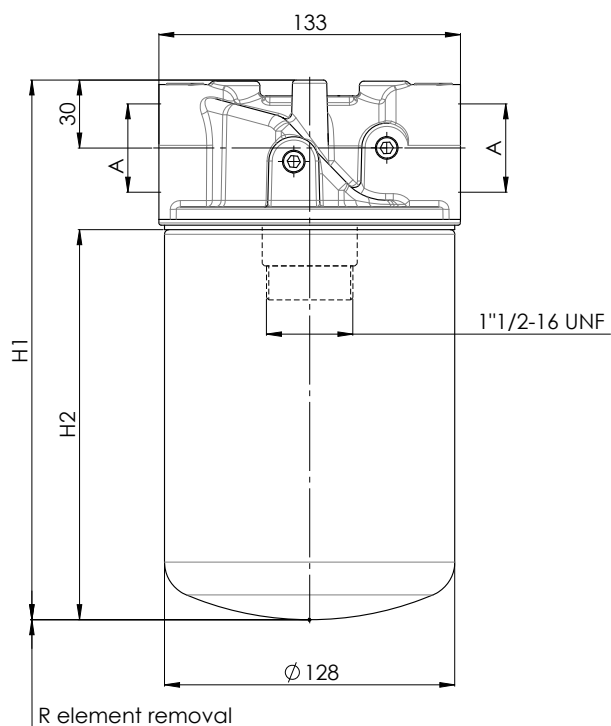


NOMINAL SIZE

CODE	A	H1	H2	R	WEIGHT
FAH - A140	G 3/4"	205	145	20	1,2 Kg
FAH - A142	G 1 1/4"	270	210		1,4 Kg

OVERALL DIMENSIONS

FAH - A15x

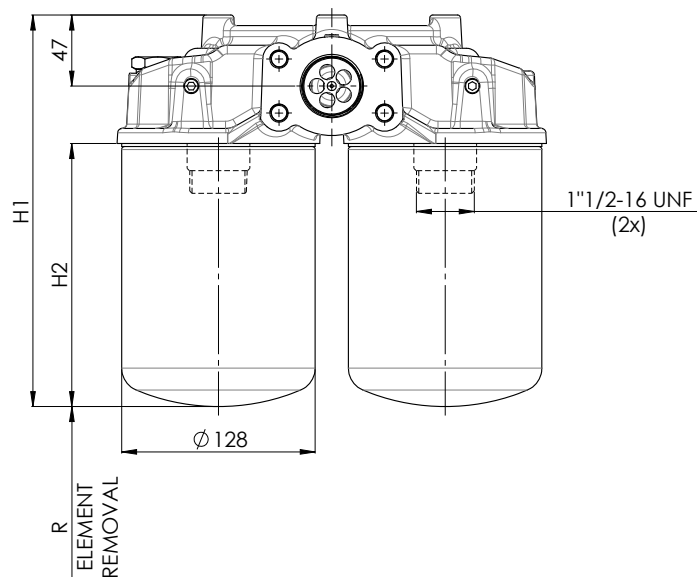


NOMINAL SIZE

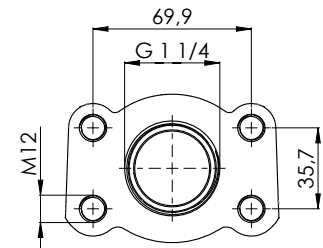
CODE	A	H1	H2	R	WEIGHT
FAH - A150	G 1 1/4"	238	172	40	2 Kg
FAH - A152		398	266		2,3 Kg

OVERALL DIMENSIONS

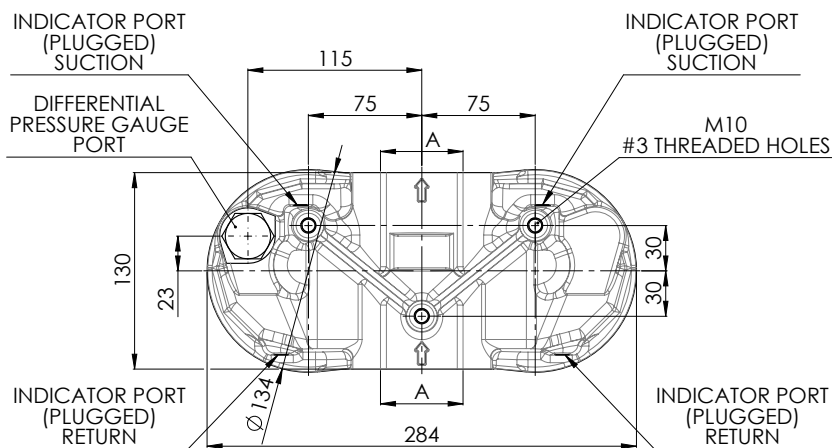
FAHD - A15x



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	257	172	40	6,4 Kg
FAHD - A152	G1 1/4" + 1 1/2" SAE J518-3000 - M12	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 $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	GW03	glassfiber $\beta_{5\mu m(c)} \geq 1.000$ + water absorbent
	GW06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$ + water absorbent
	GW10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$ + water absorbent
	GW25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$ + water absorbent
	C10	paper $\beta_{10\mu m(c)} \geq 2$
	C25	paper $\beta_{25\mu m(c)} \geq 2$
	CW25	paper $\beta_{25\mu m(c)} \geq 2$ + water absorbent
	T60	wire mesh 60 μm
	T125	wire mesh 125 μm
5. SEALS	B	NBR
		omitted for spare elements
6. CONNECTIONS	B4	G 3/4"
	B5	G 1"
	B6	G 1 1/4"
	B7	G 1 1/2"
	B6F7M	G 1 1/4" or 1 1/2" SAE J518-3000 psi - M12
		for FAHD-50-52 only
7. BYPASS VALVE	0	no bypass
	D	3,5 bar
		on request only for size 40-42
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

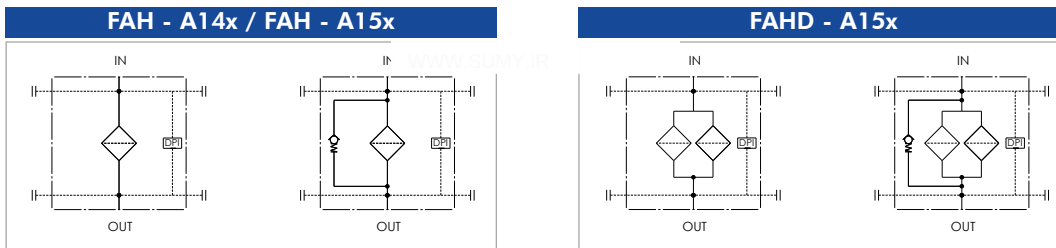
For other options see clogging indicators catalogue

MPC	pressure gauge 0÷10 bar setting 3 bar
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
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HYDRAULIC SYMBOLS



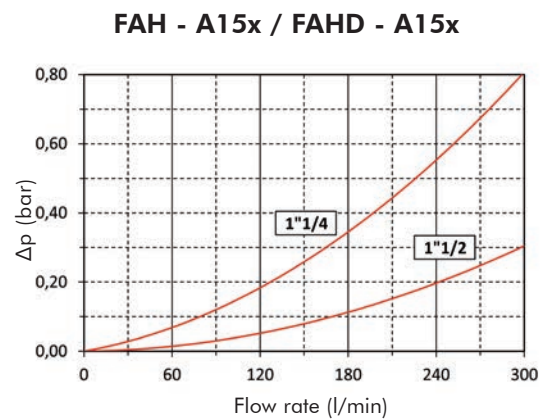
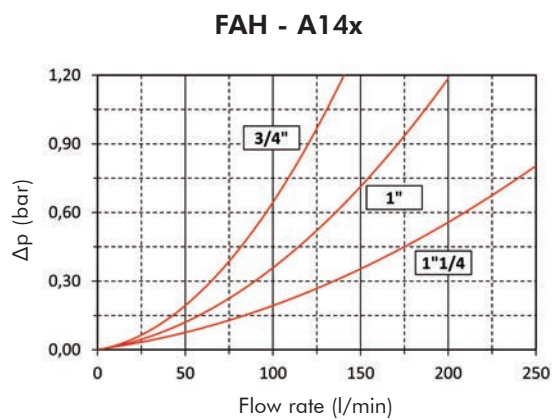
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp . This ideally should not exceed 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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000. If the oil has a viscosity V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 120 l/min with A150G25 and oil viscosity 46 cSt: $(120 \times 1,41)/1000 \times (46/32) = 0,24$ bar

Example: 120 l/min with (*1) 2x A150G25 and oil viscosity 46 cSt: $(120 \times 0,71)/1000 \times (46/32) = 0,12$ 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:

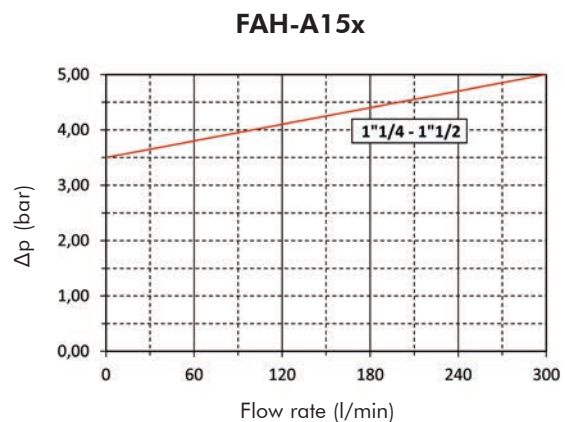
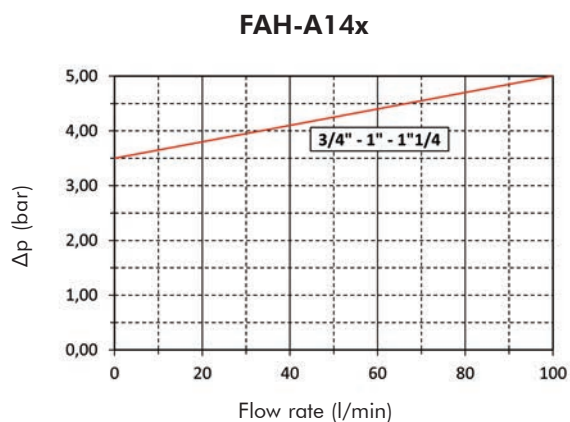
Housing Δp 0,19 bar + element Δp 0,24 bar $(120 \times 1,41)/1000 \times (46/32) =$ Total assembly Δp 0,43 bar.

FAHDA150G25BB7DS000S0 with 120 l/min and oil 46 cSt:

Housing Δp 0,05 bar + element Δp 0,12 bar $(120 \times 0,71)/1000 \times (46/32) =$ 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.



USER TIPS



CARTRIDGE TIGHTENING TORQUE

All models	3/4 turn
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INDICATOR TIGHTENING TORQUE

Differential pressure gauge	50 Nm
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WARNING

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

DISPOSAL OF FILTER ELEMENT

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

INSTALLATION

-  The IN and OUT ports must be connected to the hoses in the correct flow direction, an arrow shows on the filter head (1).
- The filter housing should be preferably mounted with the cartridge (3) downward.
- Secure to the frame the filter head (1) using the threaded fixing holes (2).
- Verify that no tension is present on the filter after mounting.
- Enough space must be available for filter element cartridge replacement.
- The visual clogging indicator must be in a easily viewable position.
- When a electrical indicator is used, make sure that it is properly wired.
-  Never run the system with no filter element fitted.
- Keep in stock a spare FILTREC filter element for timely replacement when required.

OPERATION

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

MAINTENANCE

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



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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
Burst: 20 bar

CONNECTIONS: G 3/4" ÷ G 1 1/2"

MATERIALS: Head: aluminium alloy
Bowl: painted steel
Seal: NBR

BYPASS VALVE: No by-pass (max work pressure 5 bar)
0,25 bar setting (SUCTION)
1,7 bar setting (RETURN/IN LINE)

ELEMENT

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

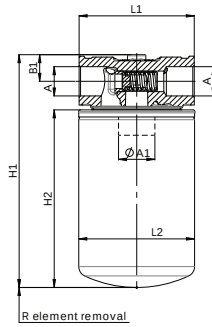
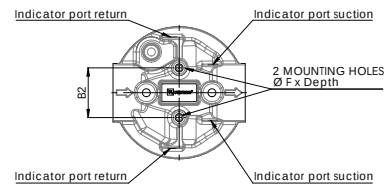
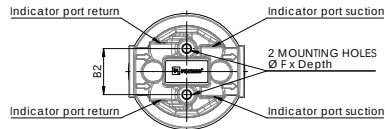
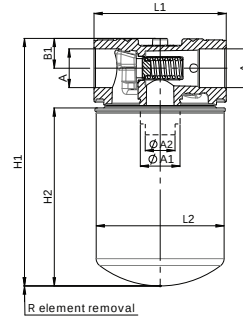
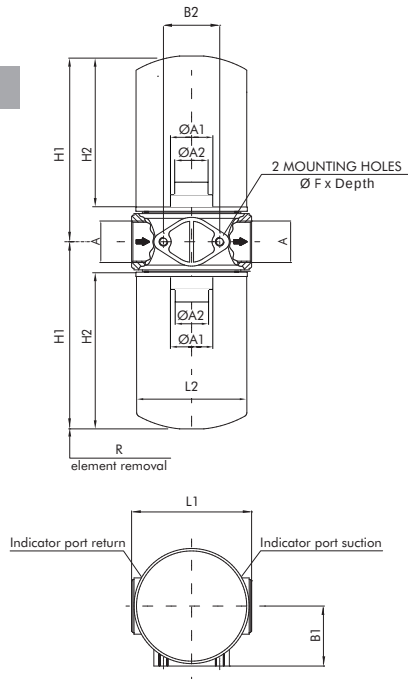
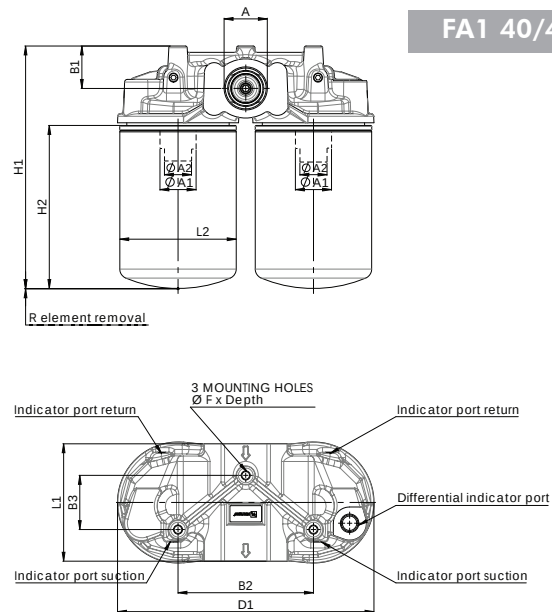
FILTER MEDIA: Paper:
C10 - C25 - CW25
Inorganic microfiber:
G10 - G25
Wire mesh:
T60 - T125

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).
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
FA1-11									257			1,5 Kg	A-1-11	213
FA1-20	G 1 1/4"	G 1 1/4"	1 1/2" 16-UN	30	50	---	---	M8x15	249	133		1,9 Kg	A-1-20	182
FA1-21									295			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
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	130		5,0 Kg	2x A-1-20	182
FA1-41	G 1 1/4" + 1 1/2" SAE								313			5,2 Kg	2x A-1-21	228
FA1-42	J518-3000								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 $\beta_{10\mu m(c)} \geq 2$
	C25	paper $\beta_{25\mu m(c)} \geq 2$
	CW25	paper $\beta_{25\mu m(c)} \geq 2$ + water absorbent
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	T60	wire mesh 60 μm
	T125	wire mesh 125 μm
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
	* 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	

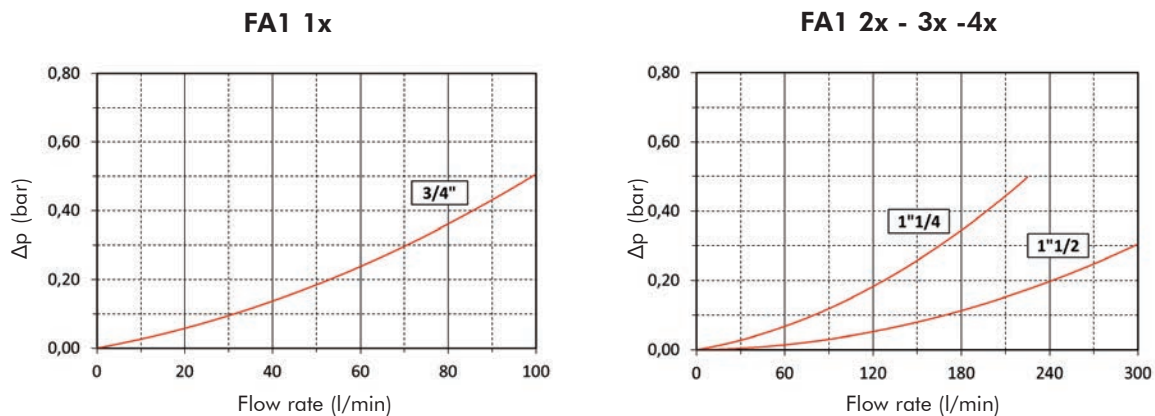
* Available also with LC24=Led connector (see clogging indicators catalogue)

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000. If the oil has a viscosity V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 80 l/min with A120G10 and oil viscosity 46 cSt: $(80 \times 2,33)/1000 \times (46/32) = 0,27$ bar

Example: 80 l/min with (*1) 2x A120G10 and oil viscosity 46 cSt: $(80 \times 1,17)/1000 \times (46/32) = 0,13$ 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 Δp 0,27 bar $(80 \times 2,33)/1000 \times (46/32)$ = total assembly Δp 0,37 bar.

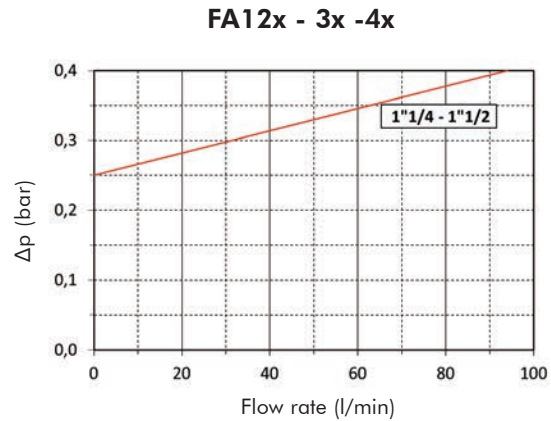
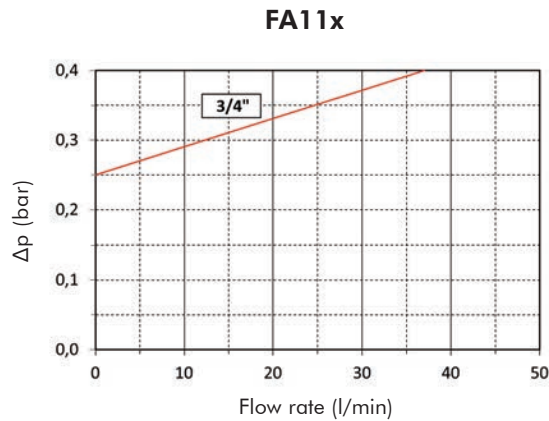
FA140G10BB6R000 with 80 l/min and oil 46 cSt:

Housing Δp 0,03 bar + element Δp 0,13 bar $(80 \times 1,17)/1000 \times (46/32)$ = total assembly Δp 0,16 bar.

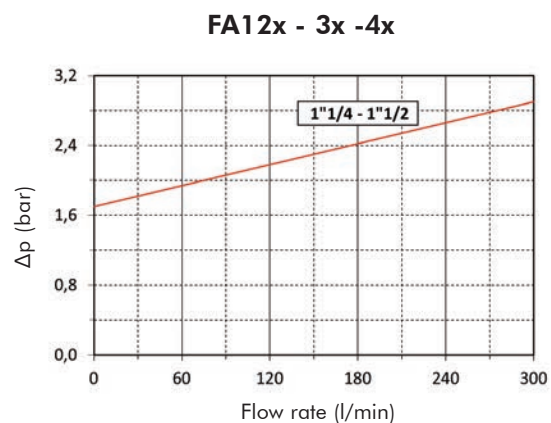
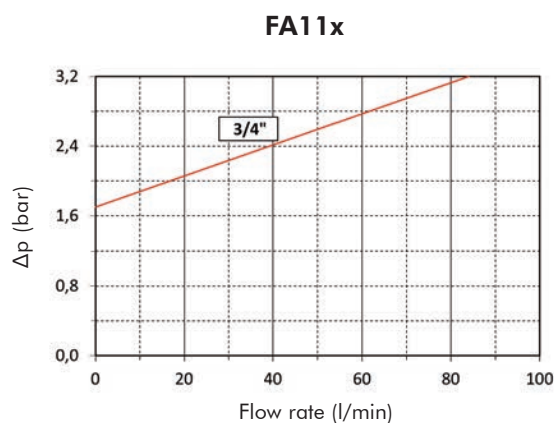
BYPASS VALVE PRESSURE DROP

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

SUCTION BYPASS

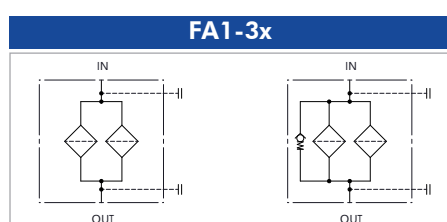
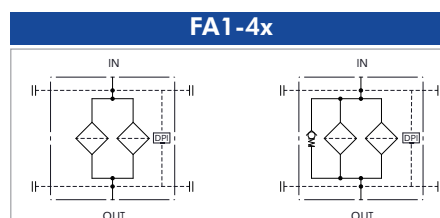
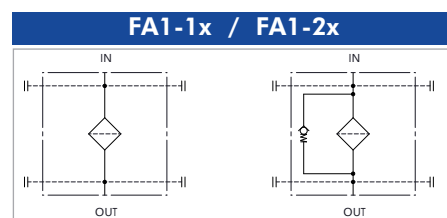


RETURN/INLINE BYPASS



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.

HYDRAULIC SYMBOLS



USER TIPS



CARTRIDGE TIGHTENING TORQUE

All models	3/4 turn
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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.



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"
Additional ports (optional): G 1/2" to 1"

MATERIALS: Head: aluminium alloy
Bowl and top cover: PA6 reinforced
Seal: NBR

BYPASS VALVE: Inbuilt in the filter element
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
G06 - G10 - G15 - G25 - G40
Paper: C10
Synthetic: M05 - M10 - M15
Metal wire mesh: T60

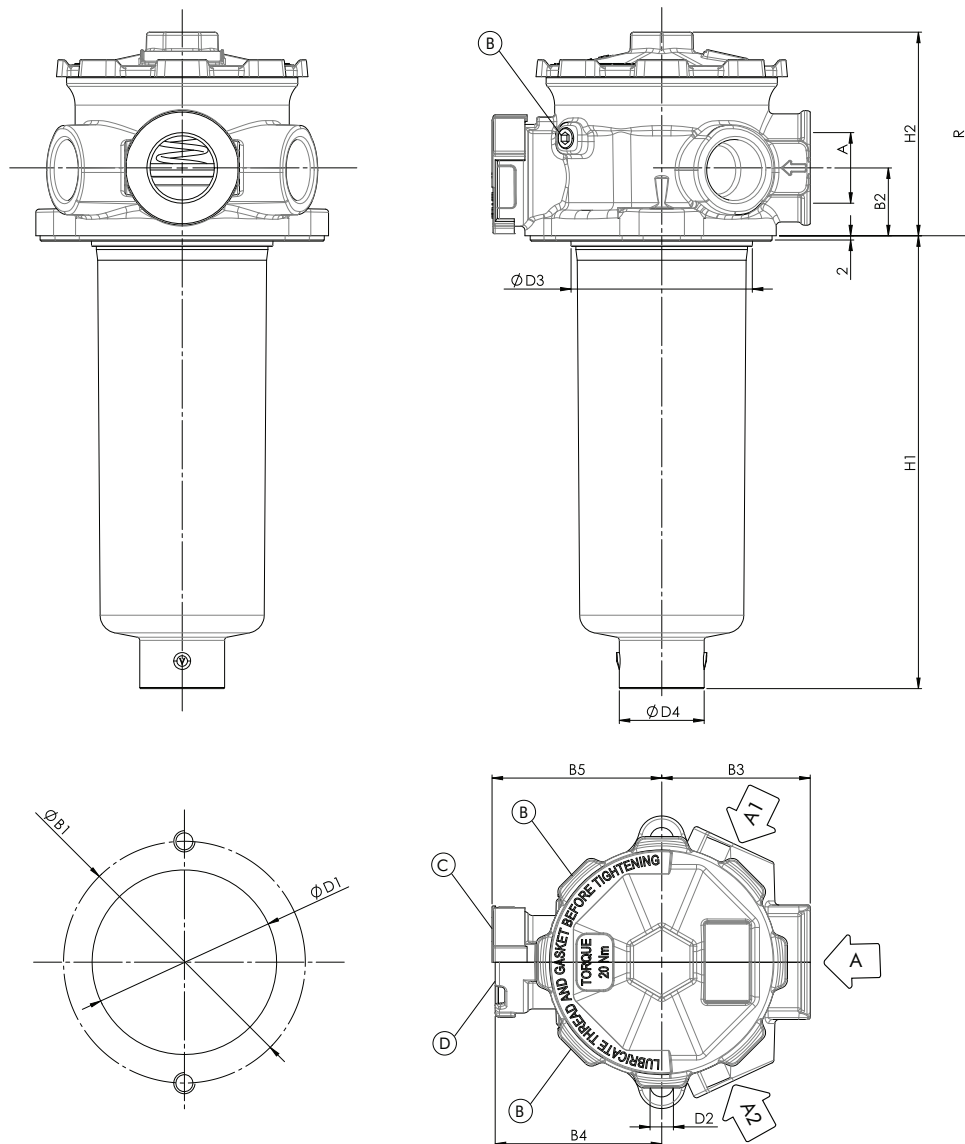
COLLAPSE PRESSURE: 10 bar

TEMPERATURE RANGE: -30°C +100°C

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

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

2 MOUNTING HOLES

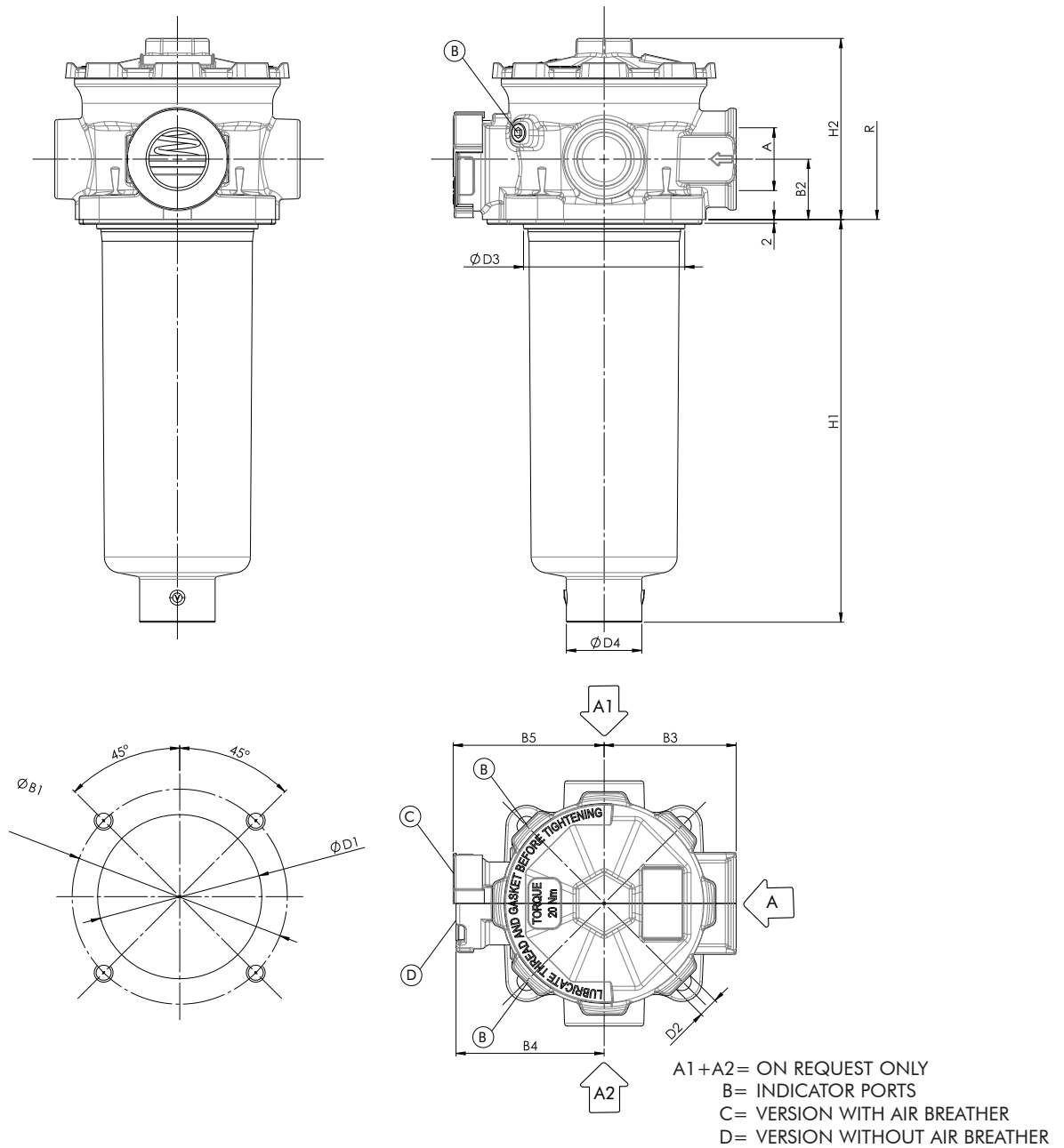


A1 + A2 = ON REQUEST ONLY
 B = INDICATOR PORTS
 C = VERSION WITH AIR BREATHER
 D = VERSION WITHOUT AIR BREATHER

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												104	77	200	0,8
FR62R102	G 3/4"	G 1/2"	84 - 88	26	51	62	64	60 - 64	11	59	25	168	77	265	0,8
FR62R104												201	77	300	0,9
FR62R120												87	96	210	1,0
FR62R122	G 1"											132	96	260	1,0
FR62R130	G 1 1/4"	G 1"	114 - 116	32	70	78	80	87 - 91	11	86	40	214	96	340	1,1
FR62R131												318	96	440	1,2

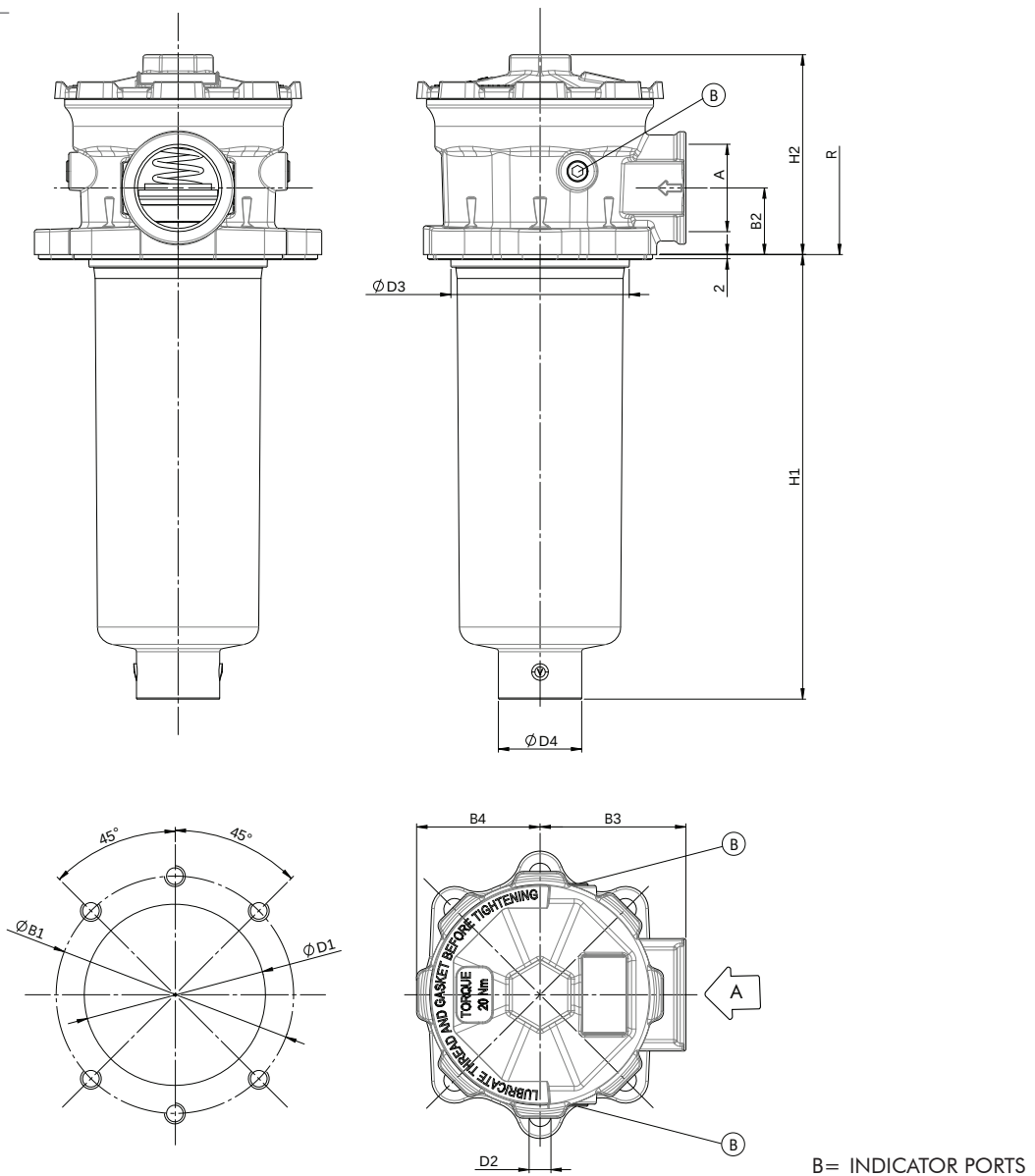
4 MOUNTING HOLES



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												104	77	200	0,9
FR64R102	G 3/4"	G 1/2"	84 - 88	26	51	62	64	60 - 64	11	59	25	168	77	265	0,9
FR64R104												201	77	300	1,0
FR64R120												87	96	210	1,1
FR64R122	G 1"											132	96	260	1,1
FR64R130	G 1 1/4"	G 1"	114 - 116	32	70	78	80	87 - 91	11	86	40	214	96	340	1,2
FR64R131												318	96	440	1,3

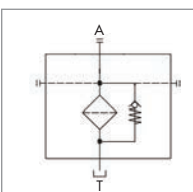
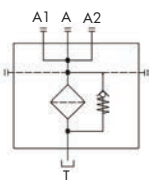
6 MOUNTING HOLES can fit both 2 or 4 holes tank mounting pattern



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 $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	C10	paper $\beta_{10\mu m(c)} \geq 2$
	T60	wire mesh 60 μm
	M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$
	M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$
	M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$
6. BYPASS VALVE	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"
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
	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
	ET2250	extension tube 250 mm long
	ET2500	extension tube 500 mm long (for size 20-22-30-31)
	CT2250	connection tube 250 mm long
	DF040	diffuser Ø 40 mm
	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.

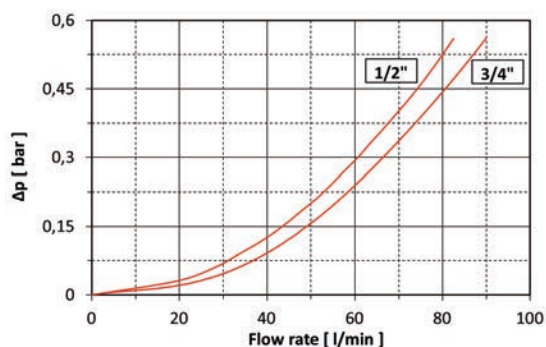
For multiport versions, the housing Δp to be considered is the sum of the Δp through all the ports that can be used contemporarily.

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/dm³.

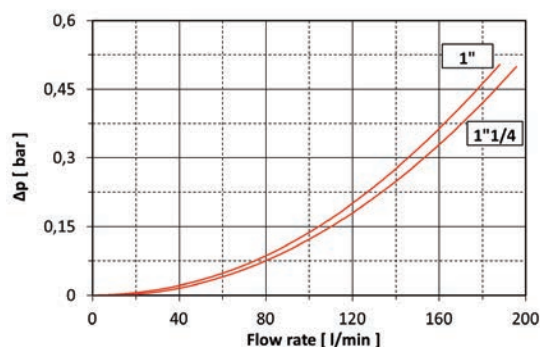
HOUSING PRESSURE DROP

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

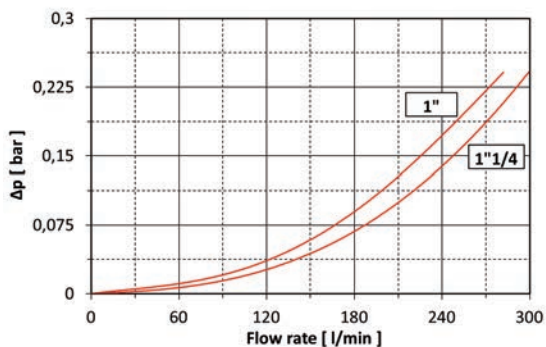
FR6x R101-02-04



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 $> 80 \times 3,19/1000 \times 46/32 = 0,36$ 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

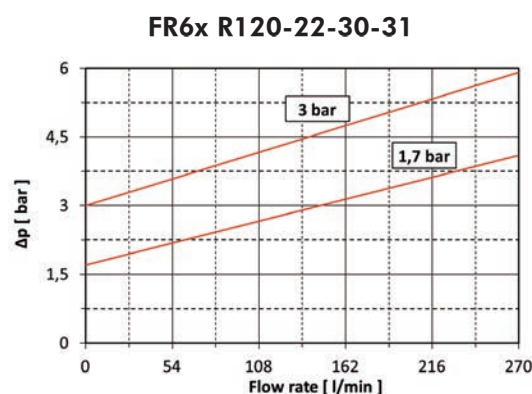
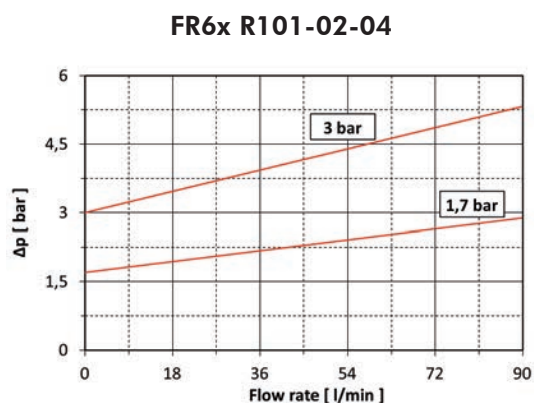
EXAMPLE OF TOTAL Δp CALCULATION

FR62**R130**G10BB**B6001**B000 with **80** l/min and oil **46** cSt:

Housing Δp 0,01 bar + element Δp 0,36 bar ($80 \times 3,19/1000 \times 46/32$) = total assembly Δp 0,37 bar

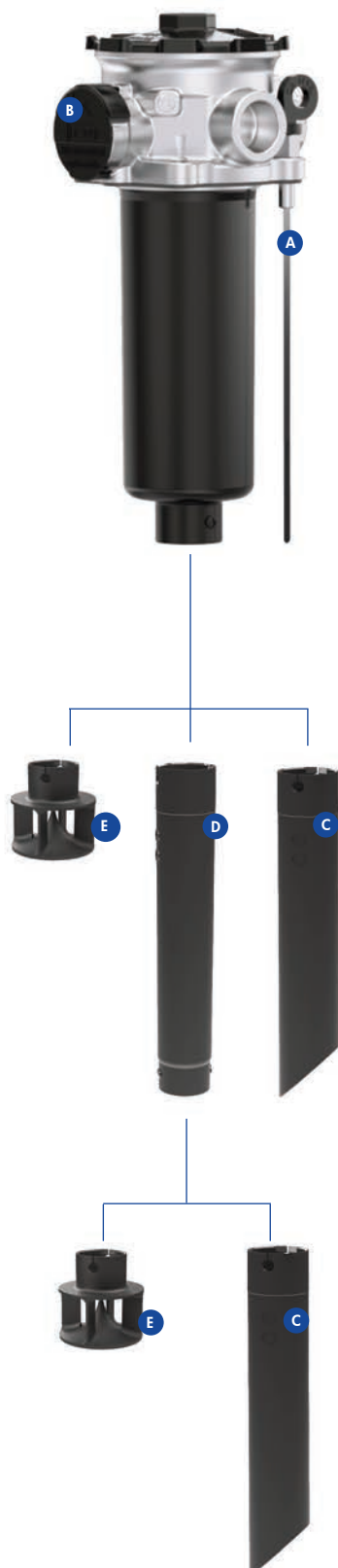
BYPASS VALVE PRESSURE DROP

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



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
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B AIR BREATHER

PART NR.	FILTRATION	FLOW RATE	Δp
B610F03	3 μm	up to 300 NI/min	50 mbar

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

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

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 $\varnothing$ 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

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

OPERATION



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

MAINTENANCE



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



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
Burst: 16 bar

CONNECTIONS: G 3/8" ÷ G 2"

MATERIALS: Cover and head: aluminium alloy
Bowl: PA6 reinforced
Seal: NBR (FKM on request)

BYPASS VALVE: Inbuilt in the filter element
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
G06 - G10 - G15 - G25 - G40
Paper: C10 - C25
Synthetic: M05 - M10 - M15
Metal wire mesh: T60

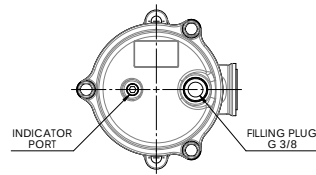
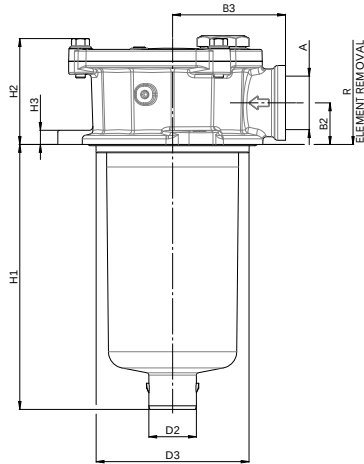
COLLAPSE PRESSURE: 10 bar

TEMPERATURE RANGE: -30°C +100°C

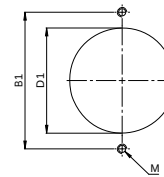
FLUID COMPATIBILITY: Full with HH-HL-HM-HV
HETG-HEES (acc. to ISO 6743/4).
For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

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

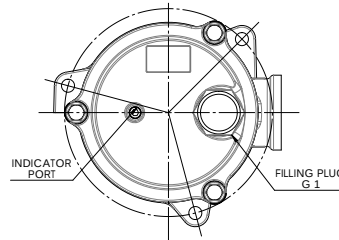
OVERALL DIMENSIONS



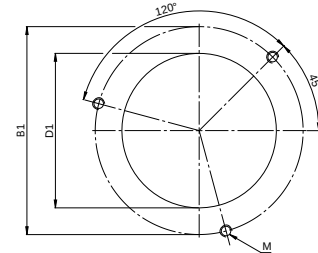
FRT R1 10 | 11 | 20 | 22 | 30 | 31



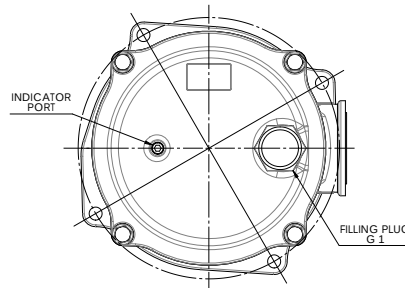
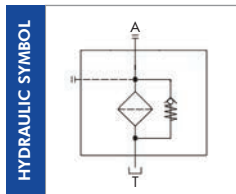
TANK MOUNTING PATTERN



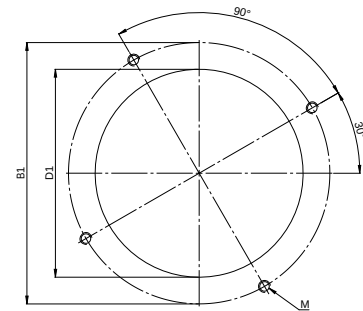
FRT R1 40 | 43 | 45



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"	89	25	51	67,5	24	67	82	60	8	M6	150	0,45
FRT R1 11	G 3/4"							155				220	0,60
FRT R1 20	G 1/2" - G 3/4"	115	28,5	67	88,5	40	87	92	73		M8	160	0,80
FRT R1 22	G 1"							137				210	0,90
FRT R1 30	G 3/4" - G 1"							218				290	1,10
FRT R1 31	G 1 1/4"		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	11	M10	300	2,10
FRT R1 43								269				350	2,40
FRT R1 45								436				520	3,10
FRT R1 50								164				250	2,90
FRT R1 51	G 1 1/4"							223	105			310	3,30
FRT R1 60	G 1 1/2"	220	42	115	175	65	174	273				360	3,90
FRT R1 64	G 2"							423				510	5,10
FRT R1 66													

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 $\beta_{7\mu m(c)} \geq 1.000$ G10 glassfiber $\beta_{12\mu m(c)} \geq 1.000$ G15 glassfiber $\beta_{17\mu m(c)} \geq 1.000$ G25 glassfiber $\beta_{22\mu m(c)} \geq 1.000$ G40 glassfiber $\beta_{35\mu m(c)} \geq 1.000$ C10 paper $\beta_{10\mu m(c)} \geq 2$ C25 paper $\beta_{25\mu m(c)} \geq 2$ T60 wire mesh 60 μm M05 synthetic $\beta_{10\mu m(c)} \geq 1.000$ M10 synthetic $\beta_{15\mu m(c)} \geq 1.000$ M15 synthetic $\beta_{20\mu m(c)} \geq 1.000$
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

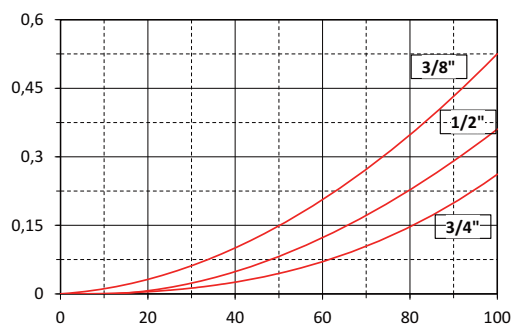
The total Delta P through a filter assembly is given from Housing Δp + Element Δp .
 The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.

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/dm³.

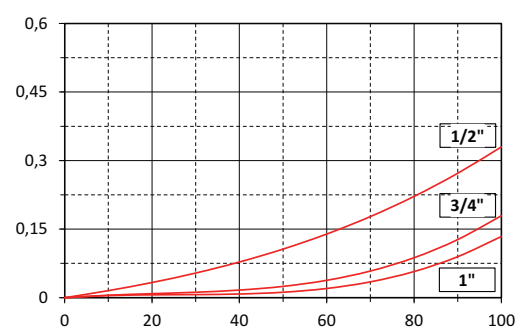
HOUSING PRESSURE DROP

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

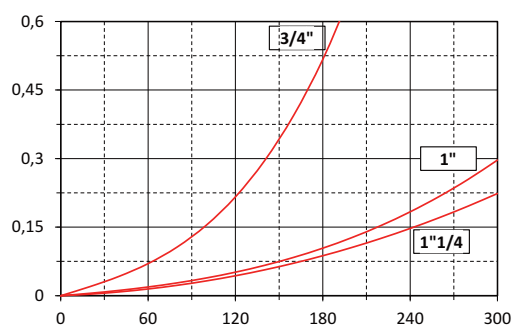
FRT R1 10-11



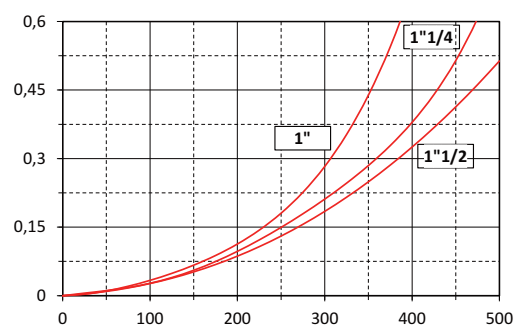
FRT R1 20-22



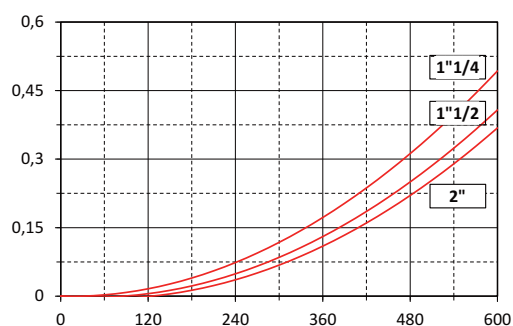
FRT R1 30-31



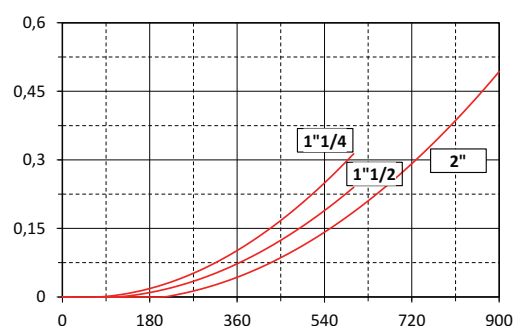
FRT R1 40-43-45



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 $> 80 \times 3,19/1000 \times 46/32 = 0,36$ 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

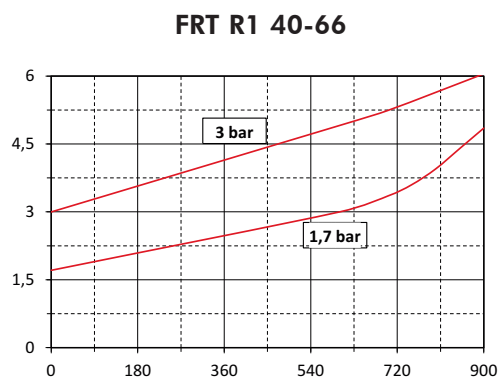
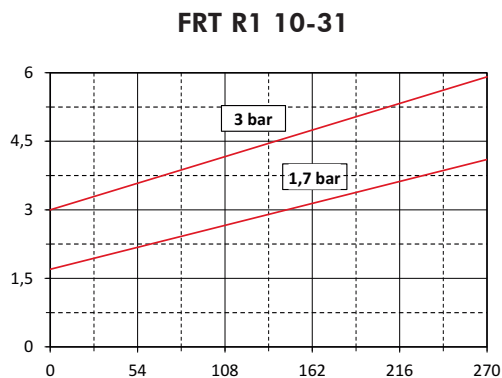
EXAMPLE OF TOTAL Δp CALCULATION

FRTR130G10BBB60C000S0 with **80** l/min and oil **46** cSt:

Housing Δp 0,01 bar + element Δp 0,36 bar ($80 \times 3,19/1000 \times 46/32$) = 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.



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
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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
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for size 50 to 66

06.016.00493	DF065	diffuser Ø 65 mm
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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
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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

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

OPERATION

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

MAINTENANCE

-  Before removing the top cover from the head, ensure that the system is switched off and there is no residual pressure in the filter.
- Unscrew the fixing bolts of the top cover and remove it.
- Remove the spring (4) first, then the dirty element (3) and the bowl (2).
- Clean the bowl (2) and fit a new FILTREC element (3), verifying the part number, particularly concerning the micron rating.
- 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.
- Check the top cover O-ring conditions and replace if necessary.
- Put the spring (4) in its position on the filter element (3).
- Mount the top cover onto the head and fix it screwing the fixing bolts.
-  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

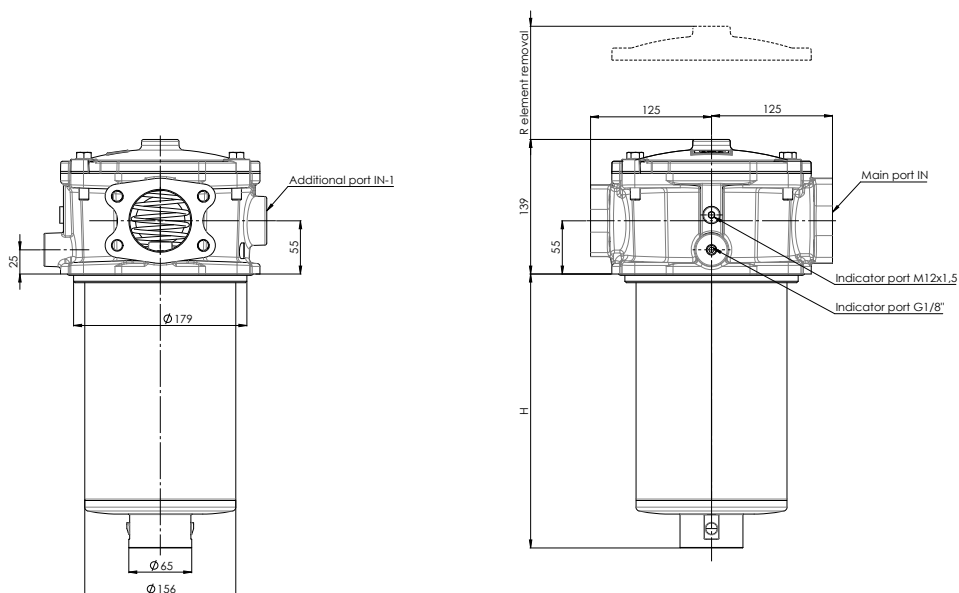
Return filter for the tank lid mounting.
Flow rates up to 1000 l/min.
Range of accessories available.
Elements XR according to DIN 24550.



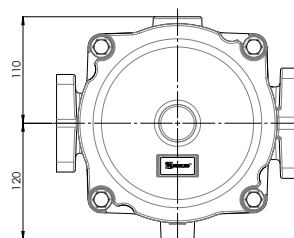
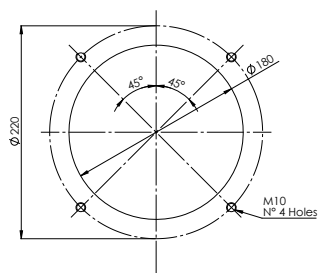
HOUSING	tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968	
PRESSURE:	Max operating:	10 bar
	Burst:	20 bar
CONNECTIONS:	2 1/2" SAE 3000 FLANGE	
ADDITIONAL PORT:	G 1" (standard)	
MATERIALS:	Cover and head:	aluminum alloy
	Bowl:	painted carbon steel
	Seal:	NBR (FKM on request)
BYPASS VALVE:	As separate part into the filter housing 3 bar	
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181	
FILTER MEDIA:	Inorganic microfiber	
	G03 - G06 - G10 - G15 - G25 - G40	
	Synthetic: M05 - M10 - M15	
COLLAPSE PRESSURE:	10 bar	
TEMPERATURE RANGE:	-30°C +100°C	
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).	

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

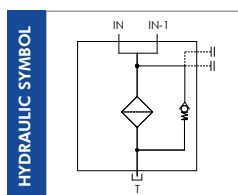
OVERALL DIMENSIONS



TANK HOLE



FRT-...-F9MB5



NOMINAL SIZE

MODEL	IN	IN-1	H	R	WEIGHT Kg
FRT-R6-70	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 $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$
	M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$
	M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$
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 $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
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	

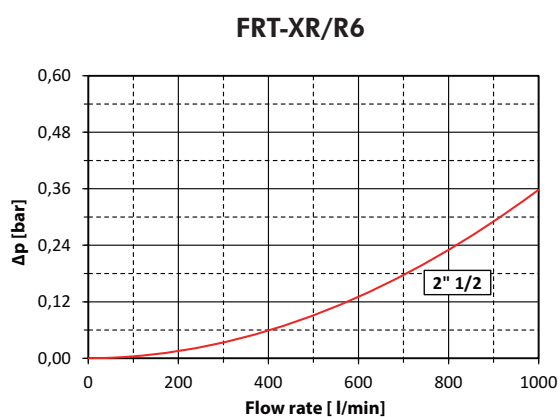
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

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

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

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

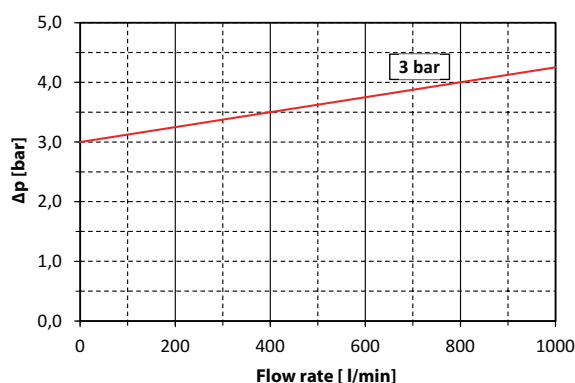
FRTXR400G10B0F9MB5C000S0 with 400 l/min and oil 46 cSt:

Housing Δp 0,09 bar + element Δp 0,27 bar ($400 \times 0,47 / 1000 \times 46/32$) = 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
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C DIFFUSER

Diffuser is an effective way to reduce foaming and turbulence nor- mally caused by return lines. Plug and play option to be directly installed on the filter bowl or to connection tube (CT4200). Installation of a diffuser in the hydraulic tank is an easy way to ensure the reliability of the overall system.
A diffuser must always be installed below the minimum oil level.

06.016.00493	DF065	diffuser Ø 65 mm
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USER TIPS



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

SPARE SEALS KIT (6)

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

COVER SCREW TIGHTENING TORQUE

30 Nm

INDICATOR TIGHTENING TORQUE

10 Nm

WARNING

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

DISPOSAL OF FILTER ELEMENT

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

INSTALLATION

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

OPERATION

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

MAINTENANCE

-  Before removing the top cover from the head, ensure that the system is switched off and there is no residual pressure in the filter.
- Unscrew the fixing bolts of the top cover and remove it.
- Remove the spring (4) first, then the bowl (2) with the dirty element (3) and reusable bypass (5).
- 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.
- Check the top cover O-ring conditions and replace them if necessary.
- Put the spring (4) in its position on the reusable bypass (5).
- Mount the top cover onto the head and fix it screwing the fixing bolts.
-  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.

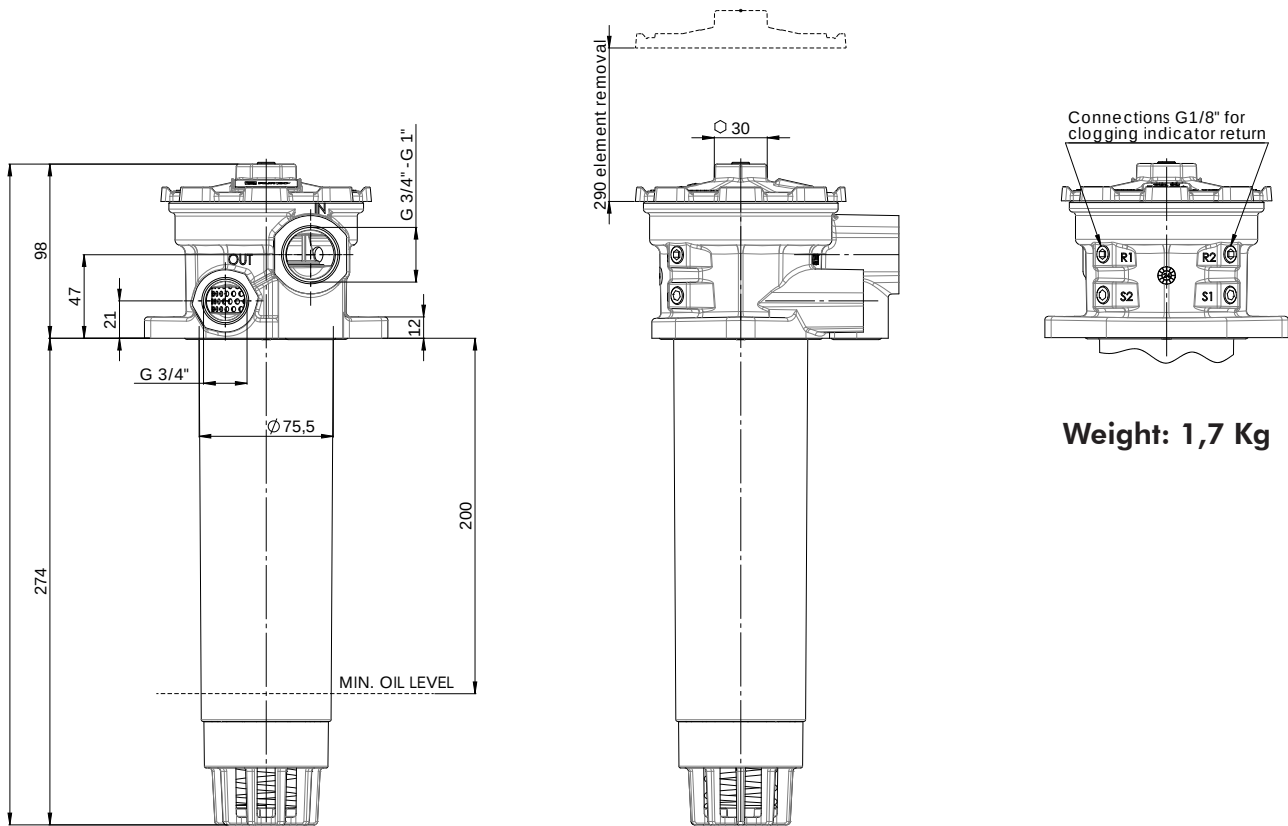


HOUSING		tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968
PRESSURE:	Max operating:	up to 10 bar
	Burst:	20 bar
CONNECTIONS:	G 3/4" ÷ G 1"	
MATERIALS:	Head:	aluminum
	Cover:	PA6 + GF
	Bowl:	PA6 + GF + CF
	Seal:	NBR (FKM on request)
BYPASS VALVE:	2,5 bar	
PRESSURIZATION VALVE:	0,5 bar	
ELEMENT		tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber:	
	G06 - G10 - G15 - G25	
	Synthetic:	
Available in std. and antistatic version		M05 – M10 – M15
COLLAPSE PRESSURE:	10 bar	
TEMPERATURE RANGE:	with NBR seal	
	from -30 °C to +100 °C (short term up to -40°C)	
	with FKM seal (OPTION)	
	from -25 °C to +120 °C	
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV	
	HETG-HEES (acc. to ISO 6743/4).	
		For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

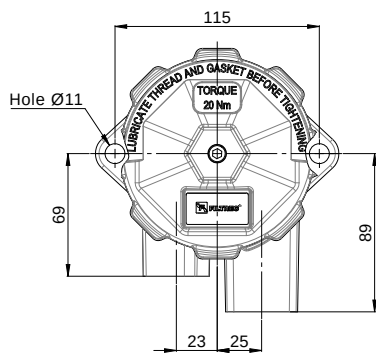
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

OVERALL DIMENSIONS

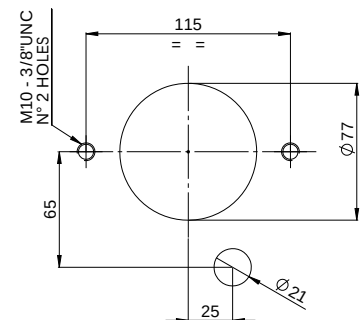
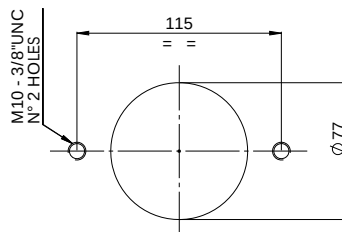
FHT-A/B/C/D



Weight: 1,7 Kg

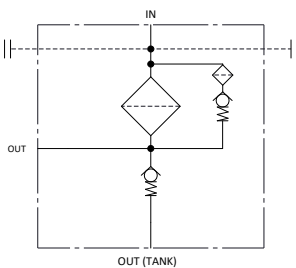


TANK MOUNTING PATTERN POSSIBLE IN BOTH CONFIGURATIONS

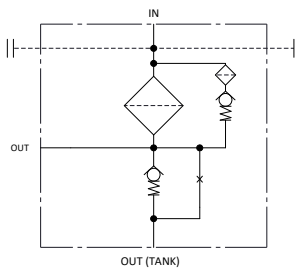


HYDRAULIC SYMBOLS

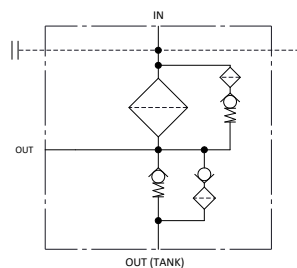
FHT-A-H5-11



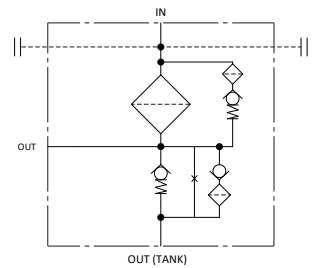
FHT-B-H5-11



FHT-C-H5-11

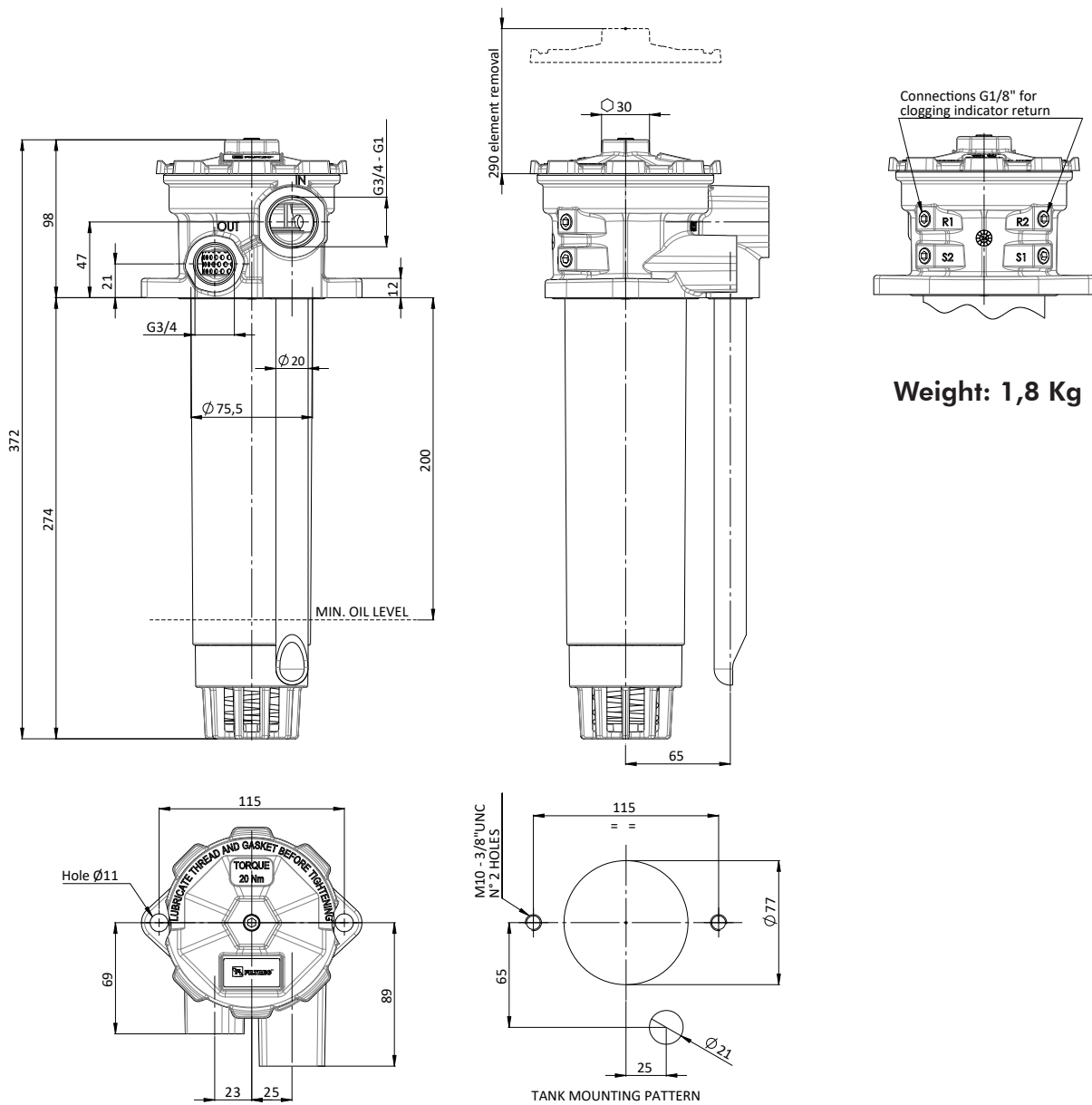


FHT-D-H5-11



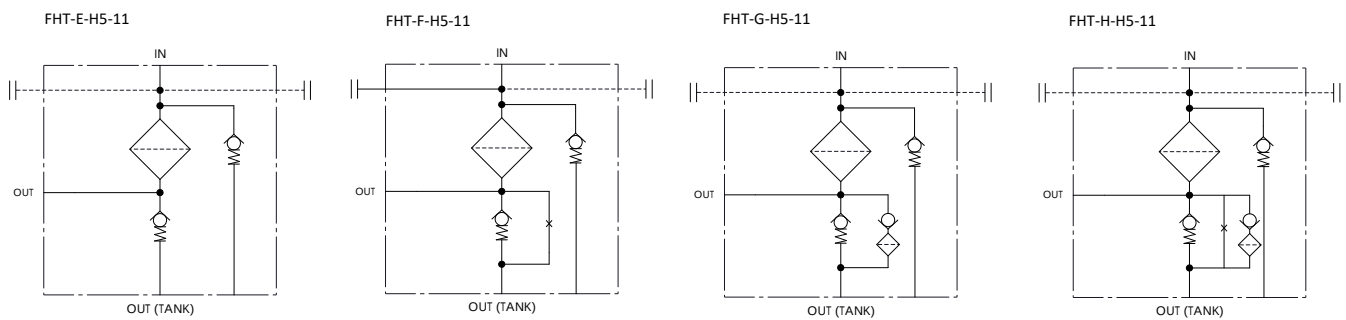
OVERALL DIMENSIONS

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 $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$
	M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$
	M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$
6. SEALS	B	NBR
7. BYPASS VALVE	0	no bypass or no element (only for configuration E-F-G-H or empty housing config)
Inbuilt into the filter element	2	2,5 bar (only for configuration A-B-C-D)
8. ELEMENT SUFFIX	ESD	antistatic version
only for spare element "/" before the three-digit suffix is needed		
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

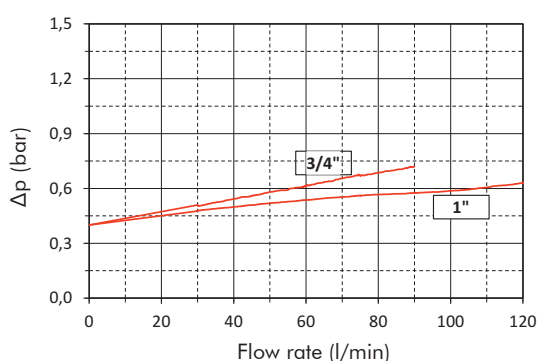
The total Delta P through a filter assembly is given from Housing Δp + Element Δp .
 The max recommended total Δp is 1 bar with clean element.

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/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.

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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 80 l/min with H511M15B2/ESD and oil viscosity 46 cSt: $(80 \times 2,40)/1000 \times (46/32) = 0,276$ bar

	G06	G10	G15	G25	M05	M10	M15
H511	5,76	4,27	4,32	3,73	2,88	2,51	2,40

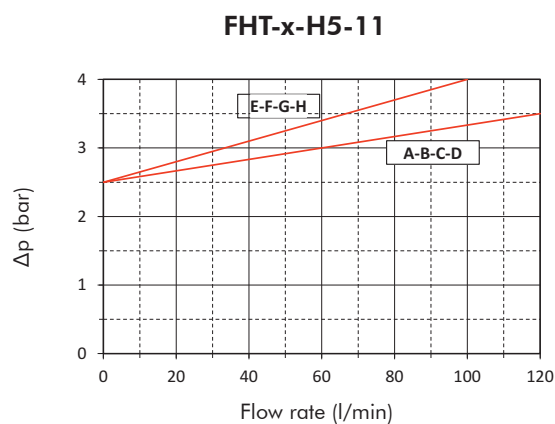
EXAMPLE OF TOTAL Δp CALCULATION

FHTCH511M15B2ESDB5B41000S1 with 80 l/min and oil 46 cSt:

Housing Δp 0,58 bar + element Δp 0,276 bar $(80 \times 2,40)/1000 \times (46/32) =$ 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.



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.



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FRM SERIES

Tank top return filters

The FRM filters are available with various configurations:

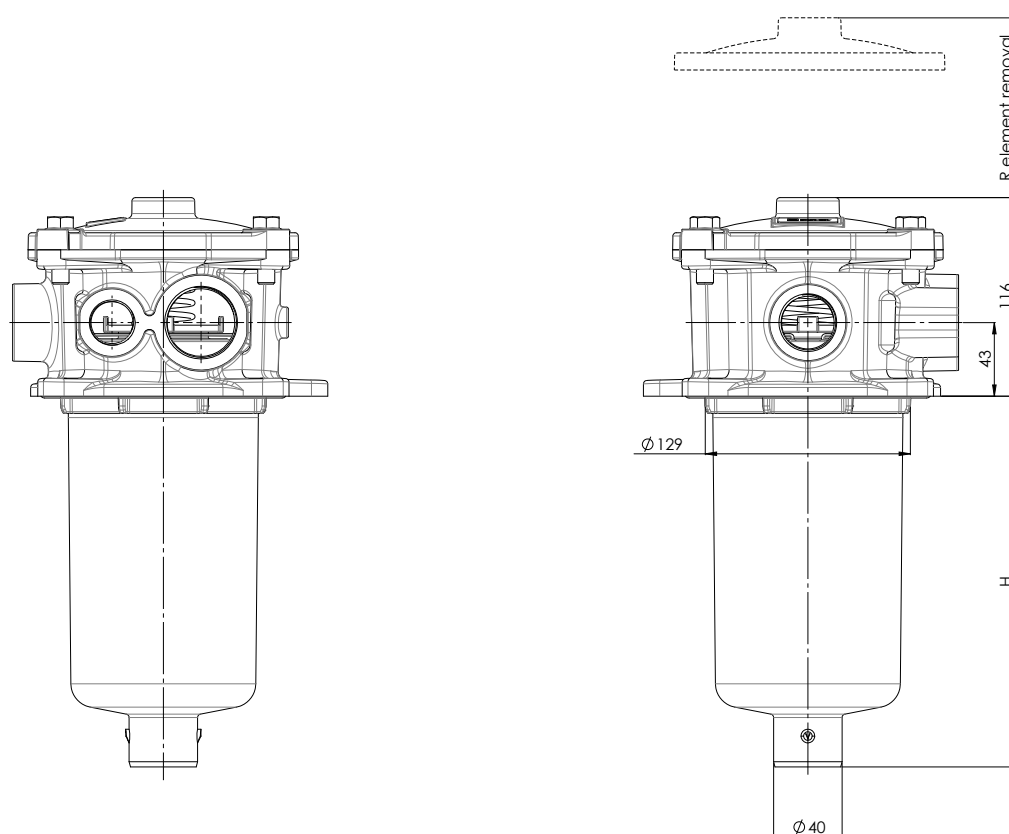
- with 3 or 4 tank mounting holes
- with supplementary inlet ports
- flow rate up to 500 l/min
- with quick service cover



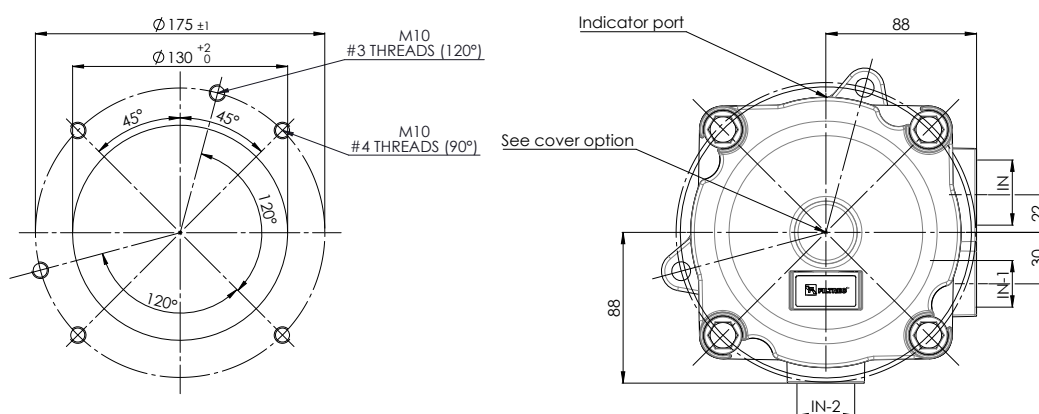
HOUSING	tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968
PRESSURE:	Max operating: 10 bar
CONNECTIONS:	G 1 1/4" - G 3/4" - G 1" G 1 1/2" - G 1" + 1 1/4" SAE 3000 FLANGE M
MATERIALS:	Head: aluminium alloy Bowl: PA6 reinforced Seal: NBR (FKM on request)
BYPASS VALVE:	Inbuilt in the filter element C version 3 bar B version 1,7 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Inorganic microfiber G03 - G06 - G10 - G15 - G25 - G40 Paper: C10 - C25 Wire mesh: T60 Synthetic: M05 - M10 - M15
COLLAPSE PRESSURE:	10 bar
TEMPERATURE RANGE:	-30°C + 100°C
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

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

OVERALL DIMENSIONS FRM 40 43 45 B6B4B5

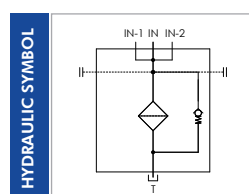


TANK MOUNTING PATTERN

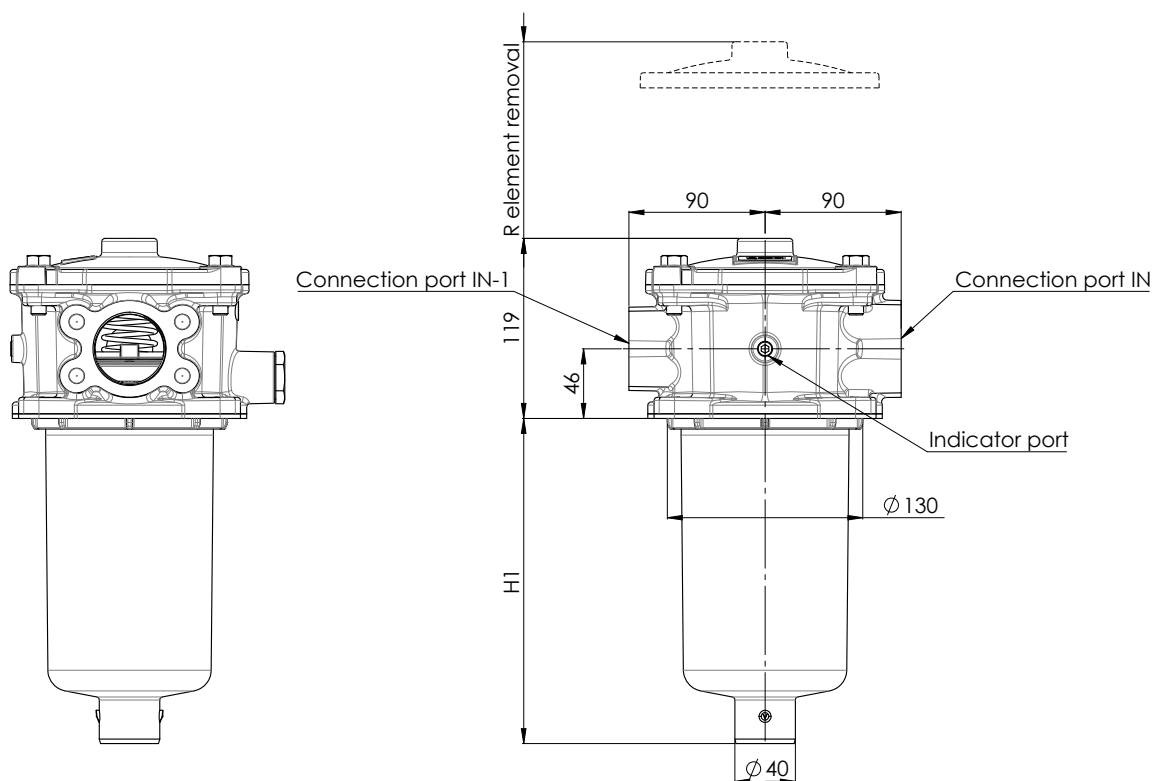


NOMINAL SIZE

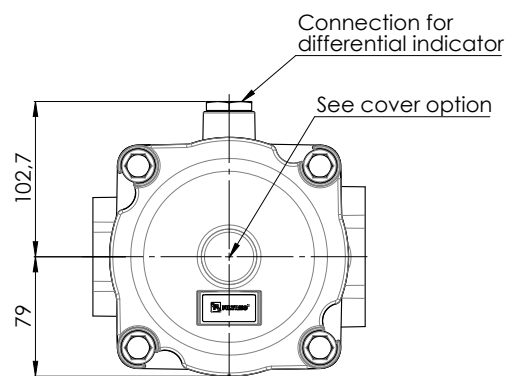
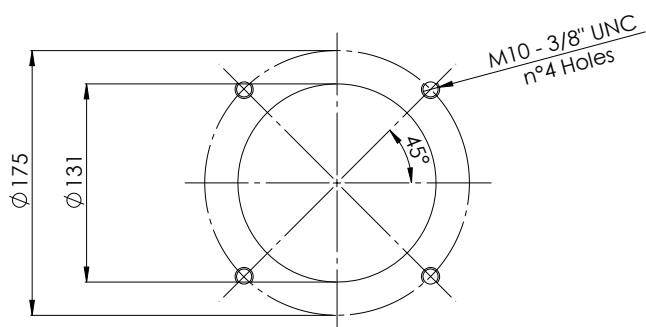
MODEL	IN	IN-1	IN-2	H	R	WEIGHT
FRM-R1-40-B6B4B5	G 1 1/4"	G 3/4"	G 1"	217	300	2,1 Kg
FRM-R1-43-B6B4B5				263	350	2,2 Kg
FRM-R1-45-B6B4B5				430	520	2,4 Kg



OVERAL DIMENSIONS FRM 40 43 45 B7B5F6M

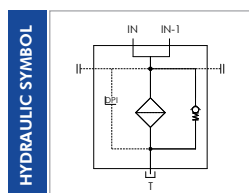


TANK MOUNTING PATTERN



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



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 $\beta_{5\mu m(c)} \geq 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	C10	paper $\beta_{10\mu m(c)} \geq 2$
	C25	paper $\beta_{25\mu m(c)} \geq 2$
	T60	wire mesh 60 μm
	M05	synthetic $\beta_{10\mu m(c)} \geq 1.000$
	M10	synthetic $\beta_{15\mu m(c)} \geq 1.000$
	M15	synthetic $\beta_{20\mu m(c)} \geq 1.000$
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

The accessories must be ordered separately
 (F) digit for FKM seal option
 LC24=Led connector (see clogging indicators catalogue)
 *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
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DIFFUSER

DF040	diffuser Ø 40 mm
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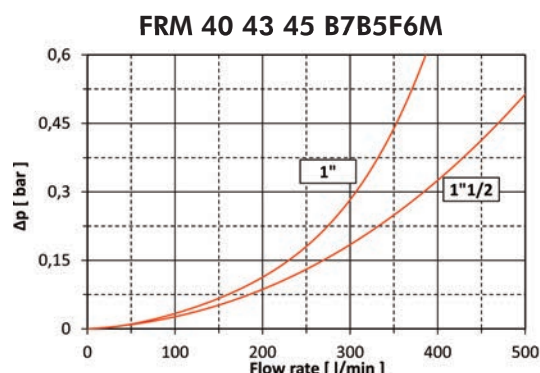
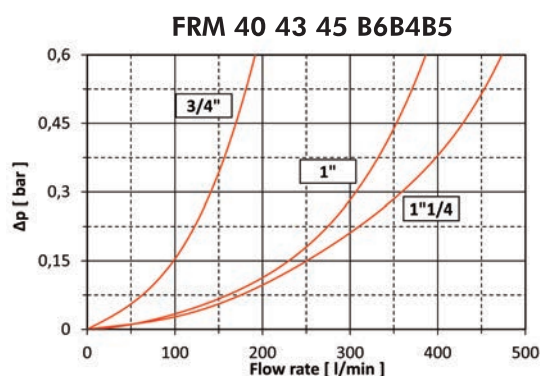
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Delta P through a filter assembly is given from Housing Δp + Element Δp .
 The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.

N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity at 40°C and density 0,875 kg/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

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

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

Example: 200 l/min with R143G10C and oil viscosity 46 cSt: $(200 \times 1,21)/1000 \times (46/32) = 0,35$ 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

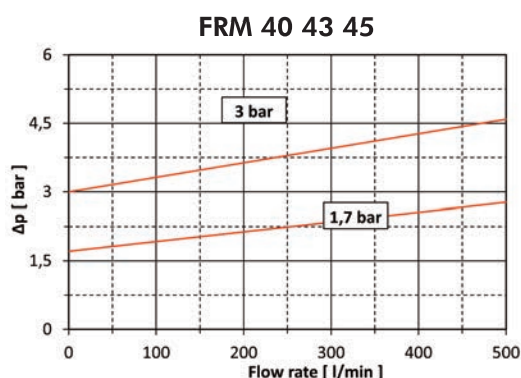
EXAMPLE OF TOTAL Δp CALCULATION

FRMR143G10CBB6B4B50T000S0 with **200** l/min and oil **46** cSt (for port 1" 1/4):

Housing Δp 0,10 bar + element Δp 0,35 bar $(200 \times 1,21)/1000 \times (46/32) =$ 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.



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
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C DIFFUSER

Diffuser is an effective way to reduce foaming and turbulence normally caused by return lines. Plug and play option to be directly installed on the filter bowl or to connection tube (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
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USER TIPS FRM 40 43 45 B6B4B5



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
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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.

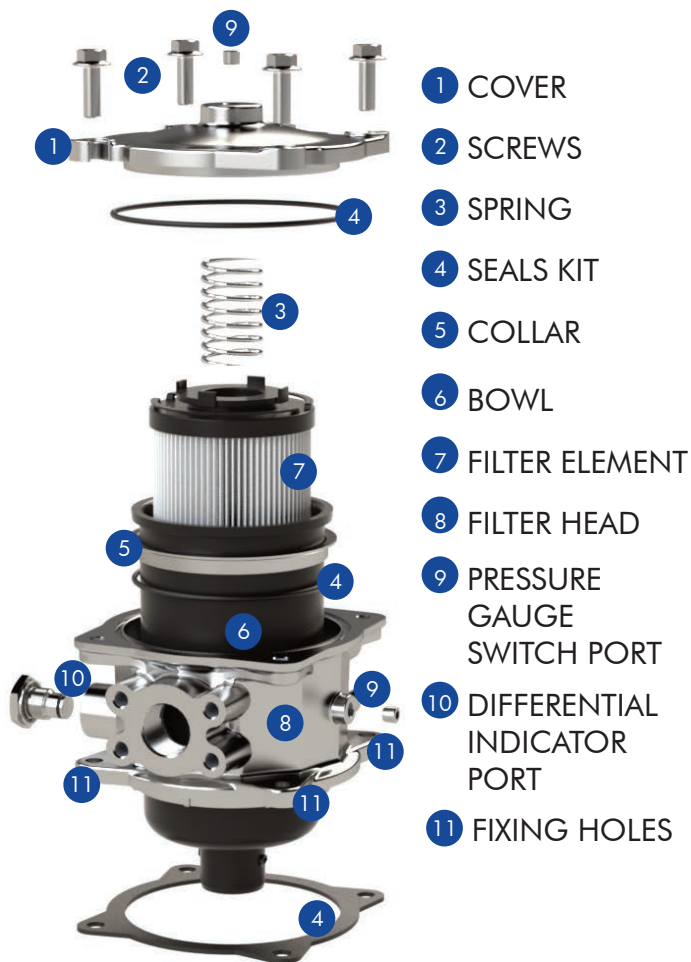
OPERATION

-  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

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



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

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
C version 3 bar

ELEMENT

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

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

BURST PRESSURE: 10 bar

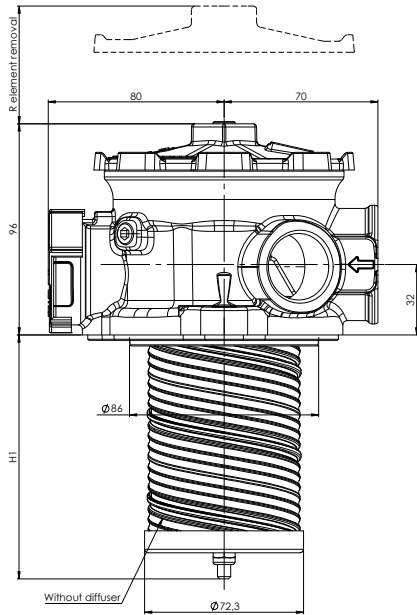
TEMPERATURE RANGE: -30°C +100°C

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

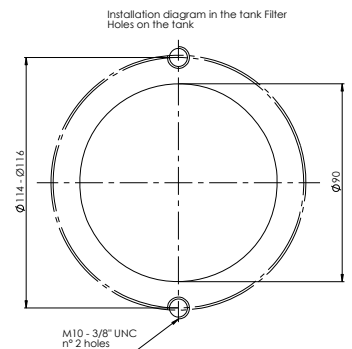
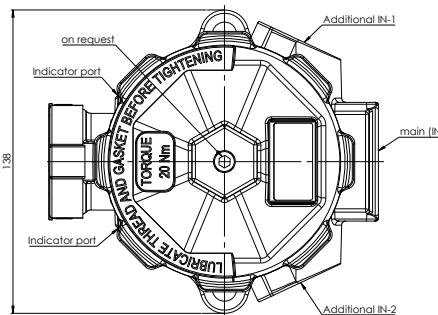
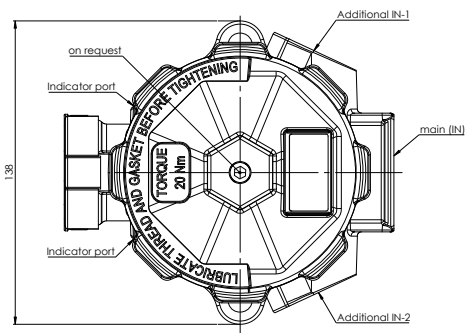
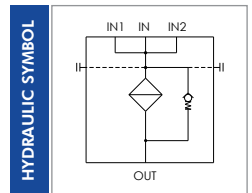
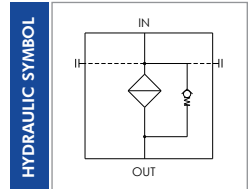
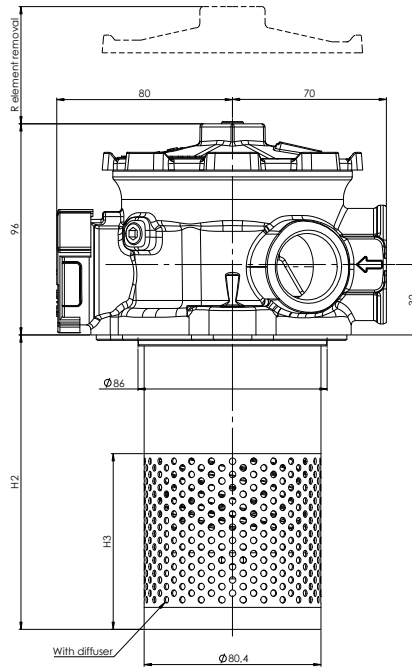
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

FCR7F-1X-...-X-2A

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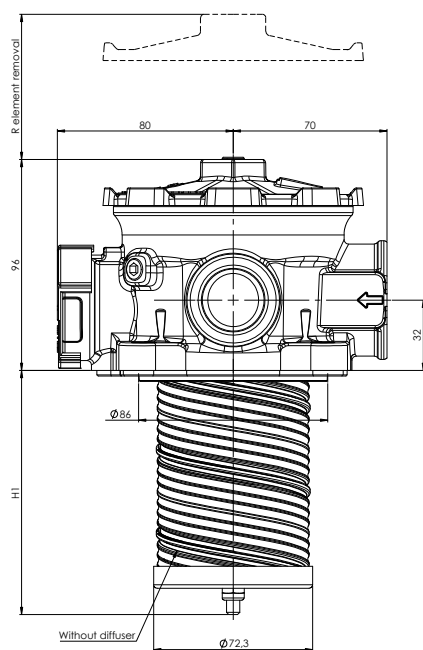
NOMINAL SIZE

MODEL	IN	IN-1	IN-2	H1	H2	H3	R	WEIGHT*	
								Vers. 0	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

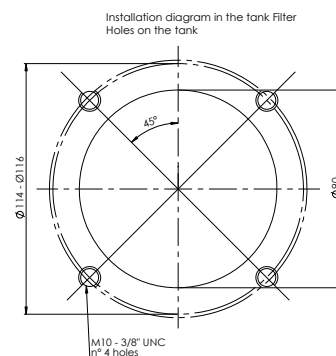
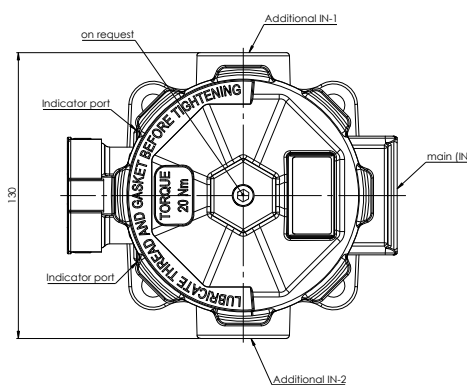
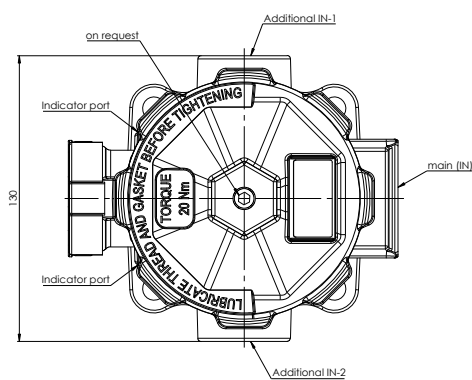
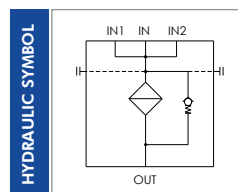
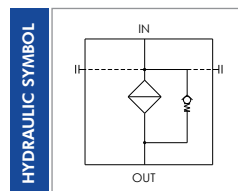
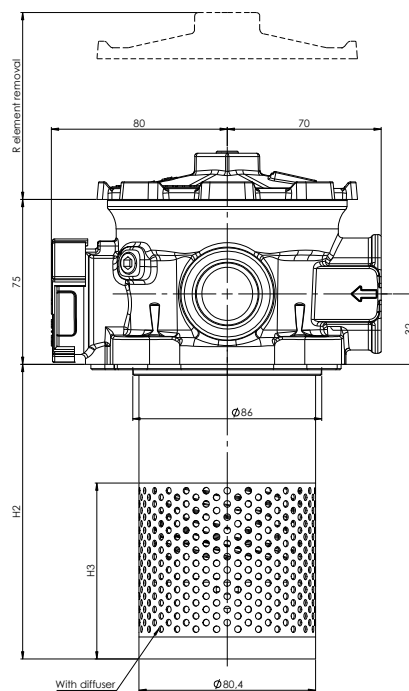
* Weight without element and magnets

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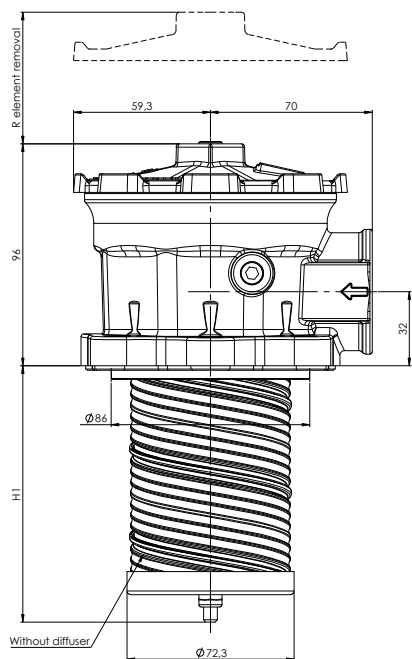
NOMINAL SIZE

MODEL	IN	IN-1	IN-2	H1	H2	H3	R	WEIGHT*	
								Vers. 0	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

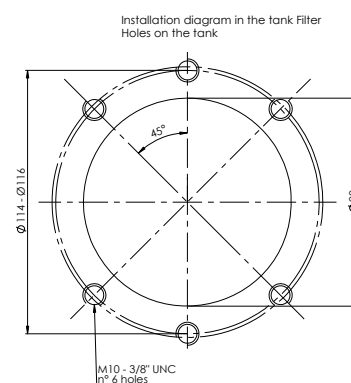
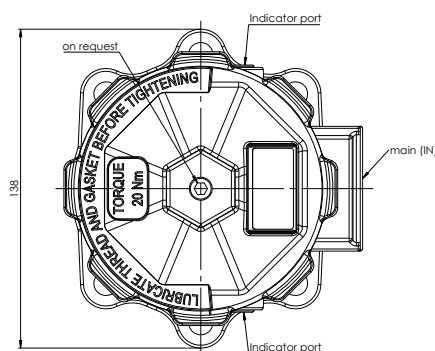
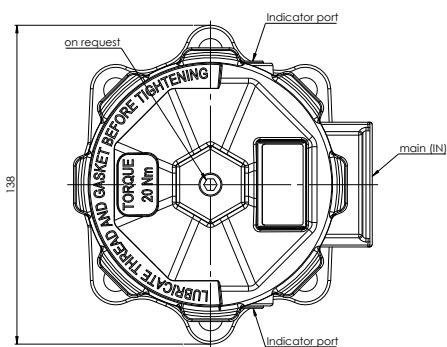
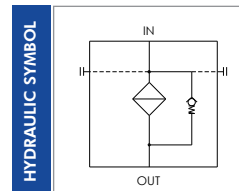
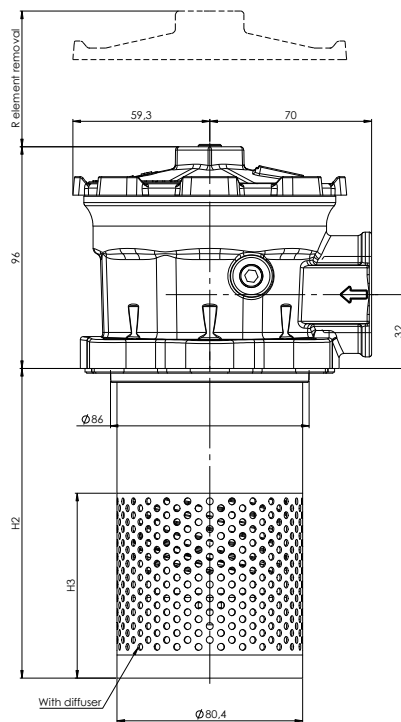
* Weight without element and magnets

FC-R7F-1X-...-0-6A

VERSION 0



VERSION S



NOMINAL SIZE

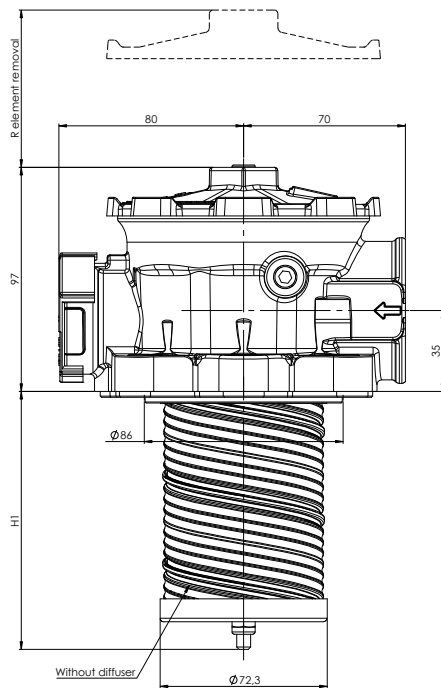
MODEL	IN	H1	H2	H3	R	WEIGHT*	
						Vers. 0	Vers. S
FCR7F-11	G 1" G 1 1/4"	111	134	80	220	1,5 Kg	1,8 Kg
FCR7F-12		156	179		265	1,5 Kg	1,9 Kg
FCR7F-13		206	229		315	1,6 Kg	2 Kg
FCR7F-14		306	329	100	415	1,6 Kg	2,1 Kg

* Weight without element and magnets

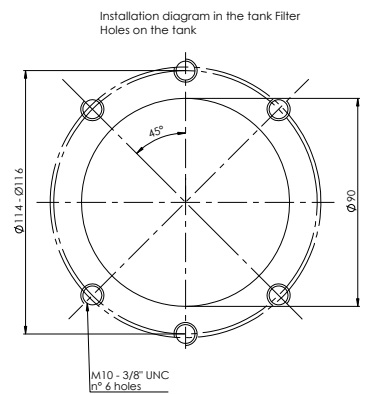
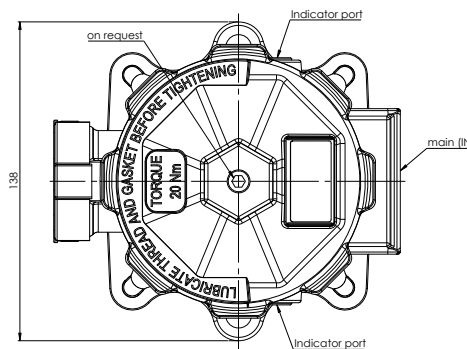
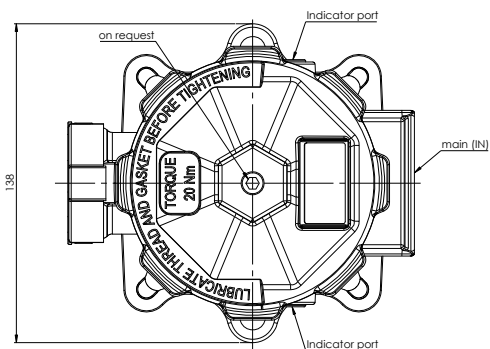
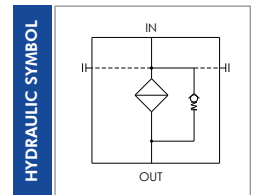
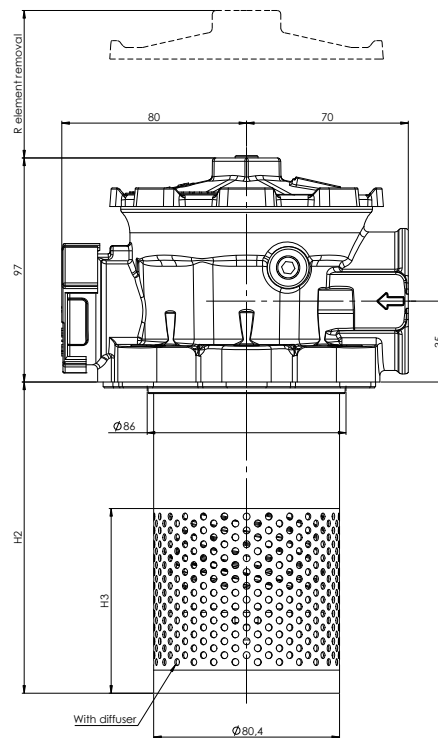
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
	FC	R7F	14	G40	B	B6	00	B	0	0	B	0	000	1	2A
SPARE ELEMENT		R7F	14	G40	B										
1. FILTER SERIES	FC														
2. FILTER ELEMENT SERIES	R7F														
3. FILTER SIZE	11														
	12														
	13														
	14														
4. FILTER MEDIA	000		no element												
	G03		glassfiber $\beta_{5\mu m(c)} > 1.000$												
	G06		glassfiber $\beta_{7\mu m(c)} > 1.000$												
	G10		glassfiber $\beta_{12\mu m(c)} > 1.000$												
	G15		glassfiber $\beta_{17\mu m(c)} > 1.000$												
	G25		glassfiber $\beta_{22\mu m(c)} > 1.000$												
	G40		glassfiber $\beta_{35\mu m(c)} > 1.000$												
	C10		paper $\beta_{10\mu m(c)} > 2$												
	C25		paper $\beta_{25\mu m(c)} > 2$												
	T60		wire mesh 60 μm												
	M05		synthetic $\beta_{10\mu m(c)} > 1.000$												
	M10		synthetic $\beta_{15\mu m(c)} > 1.000$												
	M15		synthetic $\beta_{20\mu m(c)} > 1.000$												
5. SEALS	B		NBR												
	V		FKM (on request)												
6. MAIN PORT	B5		G 1"												
	B6		G 1 1/4"												
7. ADDITIONAL PORT	00		no additional port												
	B5		G 1"x 2												
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												
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												
	MRB		pressure gauge radial connection												
	PDB		pressure switch												
	MPC		pressure gauge rear connection												
	MRC		pressure gauge radial connection												
	PDC		pressure switch												
	LC24		LED connector for pressure switch												

FC-R7F-1X-...-1-6A

VERSION 0



VERSION S

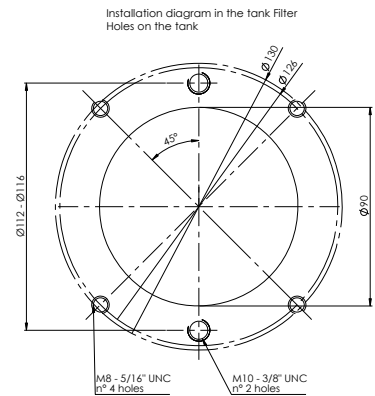
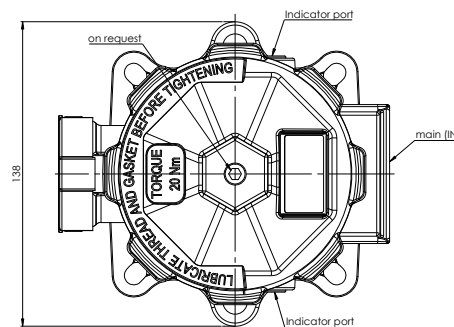
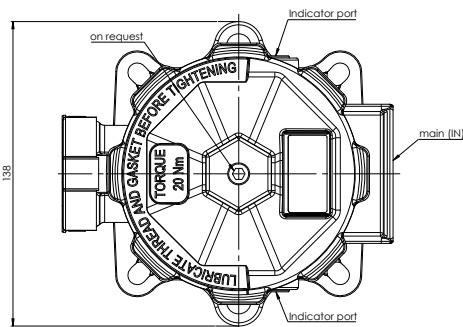
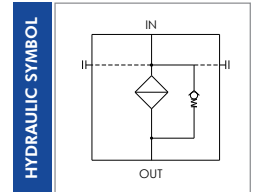
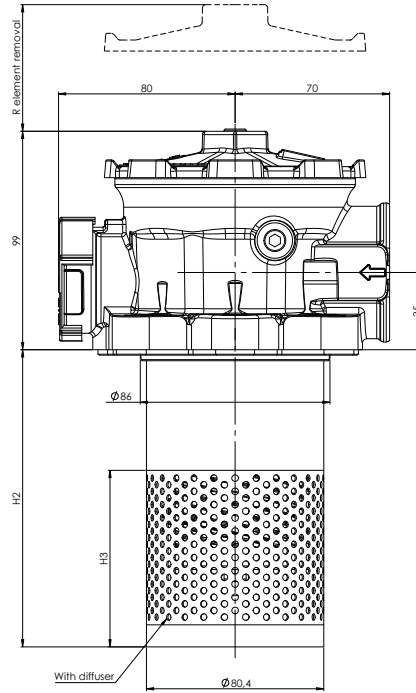
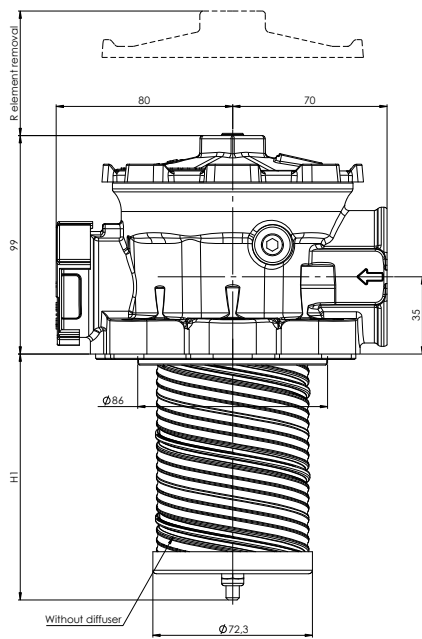


NOMINAL SIZE

MODEL	IN	H1	H2	H3	R	WEIGHT*	
						Vers. 0	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	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

	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 $\beta_{5\mu m(c)} > 1.000$
	G06 glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10 glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15 glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25 glassfiber $\beta_{22\mu m(c)} > 1.000$
	G40 glassfiber $\beta_{35\mu m(c)} > 1.000$
	C10 paper $\beta_{10\mu m(c)} > 2$
	C25 paper $\beta_{25\mu m(c)} > 2$
	T60 wire mesh 60 μm
	M05 synthetic $\beta_{10\mu m(c)} > 1.000$
	M10 synthetic $\beta_{15\mu m(c)} > 1.000$
	M15 synthetic $\beta_{20\mu m(c)} > 1.000$
5. SEALS	B NBR
	V FKM (on request)
6. MAIN PORT	B7 G 1 1/2"
7. ADDITIONAL PORT	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 2 hole tank mounting pattern Ø 112-116mm M10 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
	MRB pressure gauge radial connection with "B" bypass option
	PDB pressure switch
	MPC pressure gauge rear connection
	MRC pressure gauge radial connection with "C" bypass option
	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 .

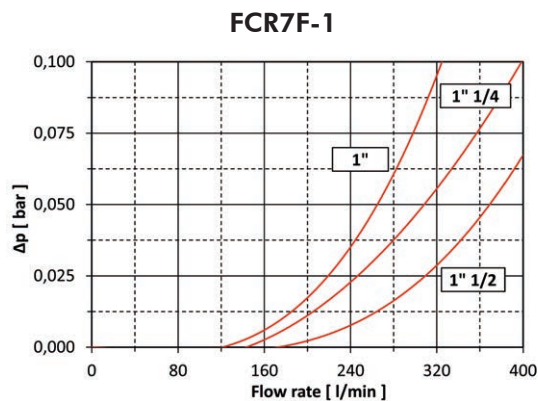
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

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

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

Example: 300 l/min with R7F14G40B and oil viscosity 46 cSt: $300 \times 1,10/1000 \times 46/32 = 0,47$ 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

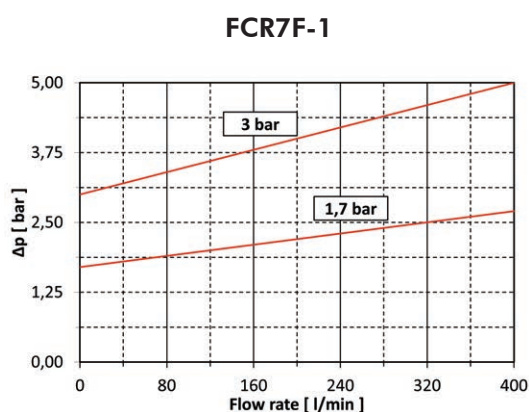
EXAMPLE OF TOTAL Δp CALCULATION

FCR7F14G40BB700B00B000016B with **300** l/min and oil **46** cSt:

Housing Δp 0,02 bar + element Δp 0,47 bar ($300 \times 1,10/1000 \times 46/32$) = 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.



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.

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 NI/min	50 mbar

N.B. we recommend to replace the air breather when replacing the oil filter element.
 (when working in a very dirt environment, a more frequent air breather replacement could be necessary)



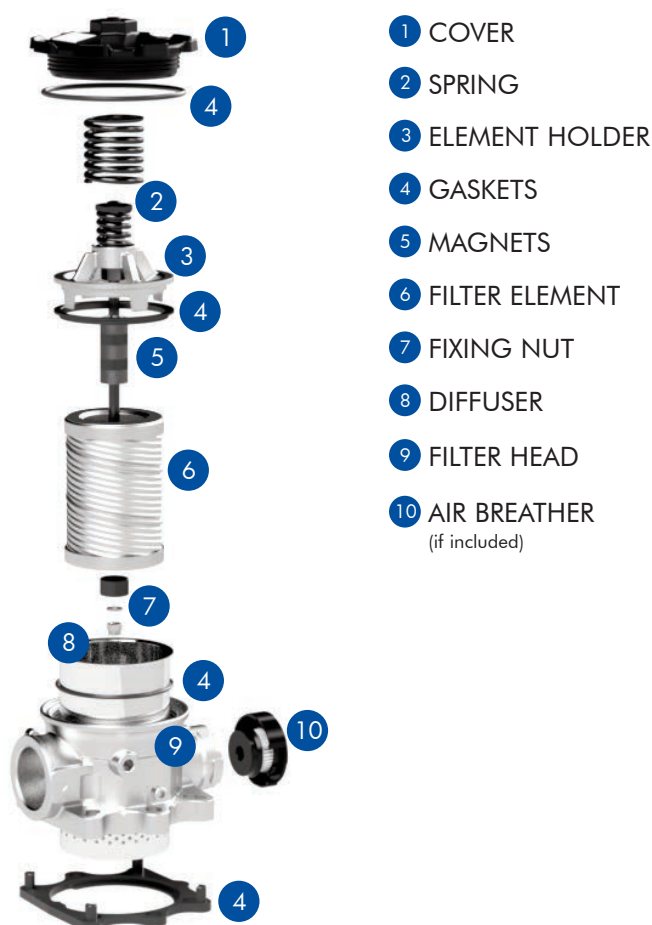
C LED CONNECTOR

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



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



®

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FCR7F-2-3 SERIES

Tank top return filters

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

Flow rates up to 1200 l/min.



HOUSING

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

PRESSURE:	Max operating:	10 bar
	Burst:	20 bar
CONNECTIONS:	G 1" - G 1 1/2"	
	1 1/4" SAE 3000 FLANGE M	
	2" SAE 3000 FLANGE M	
	2 1/2" SAE 3000 FLANGE M	
MATERIALS:	Head and cover:	aluminium alloy
	Element holder:	aluminium alloy
	Diffuser:	stainless steel
	Seal:	NBR (FKM on request)
BYPASS VALVE:	B version	1,7 bar
	C version	3 bar

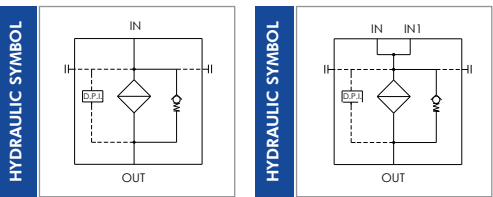
ELEMENT

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

FILTER MEDIA:	Inorganic microfiber
	G03 - G06 - G10 - G15 - G25 - G40
	Paper: C10 - C25
	Wire mesh: T60
	Synthetic: M05 - M10 - M15
BURST PRESSURE:	10 bar

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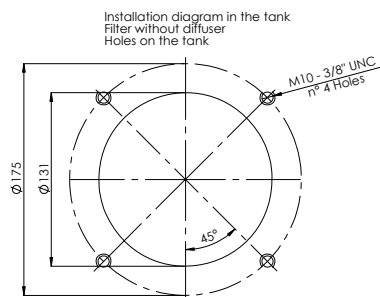
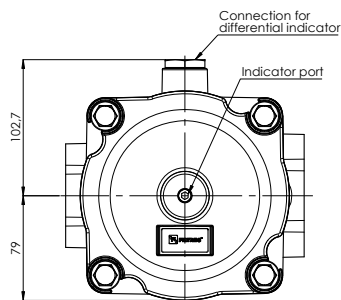
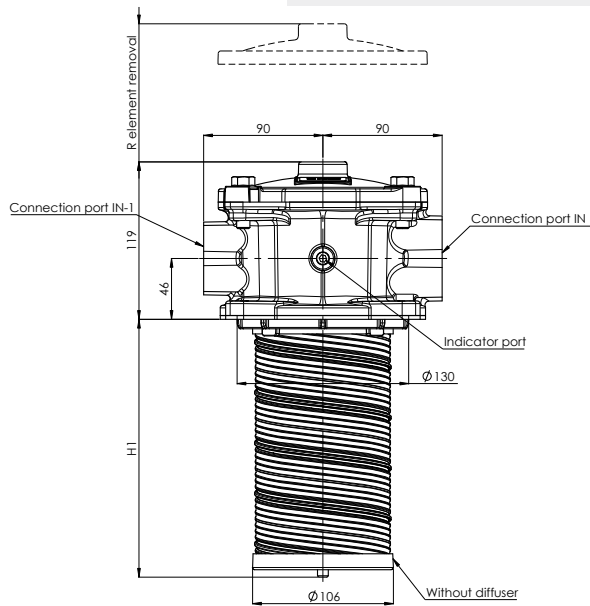
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV
	HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).



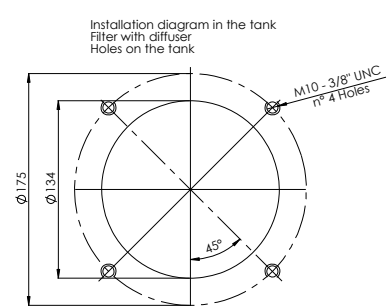
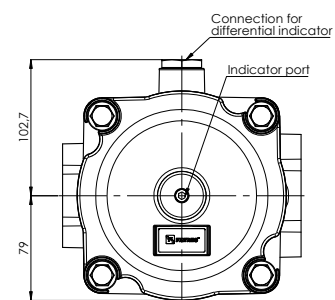
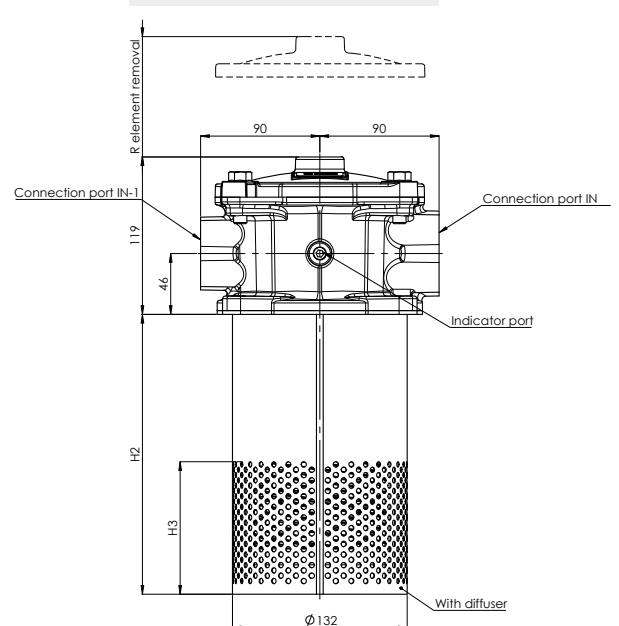
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

FCR7F-2X

VERSION 0



VERSION S



NOMINAL SIZE

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

* Weight without element and magnets

ORDERING INFORMATION

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

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

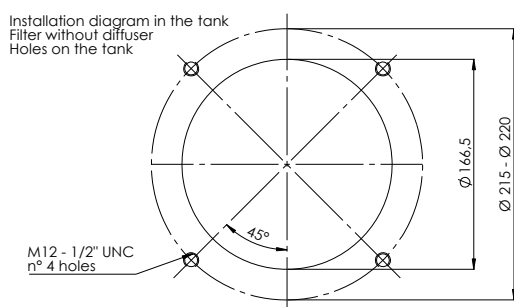
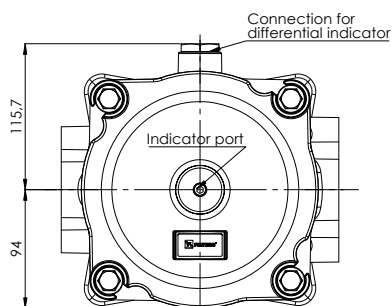
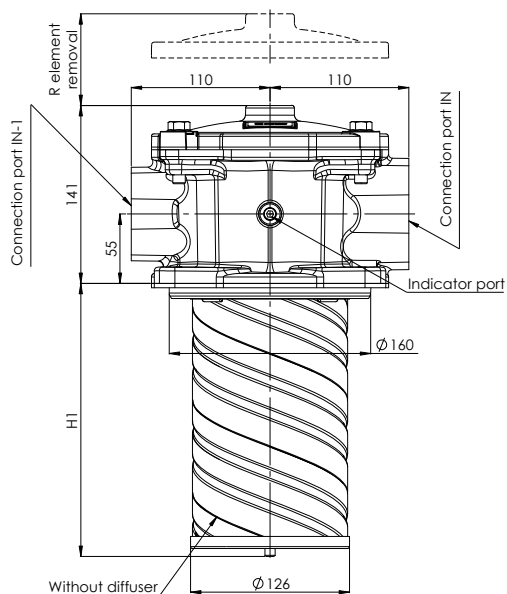
ACCESSORIES

The accessories must be ordered separately
(F) digit for FKM seal option

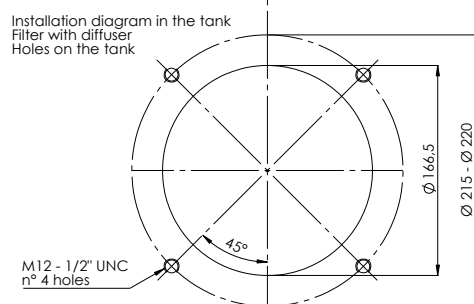
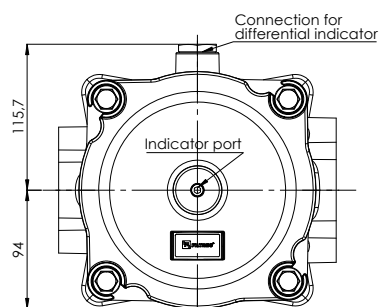
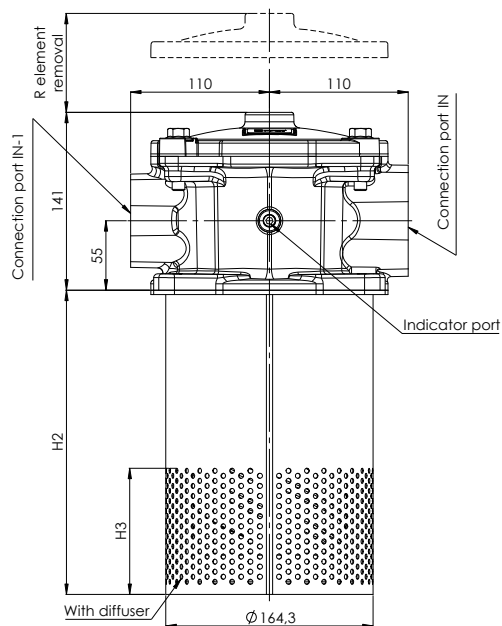
MPB	pressure gauge rear connection	
MRB	pressure gauge radial connection	with "B" bypass option
PDB	pressure switch	
MPC	pressure gauge rear connection	
MRC	pressure gauge radial connection	
PDC	pressure switch	with "C" bypass option
E02 (EF2)	differential electric 2,7 bar	
V02 (VF2)	differential visual 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	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 $\beta_{5\mu m(c)} > 1.000$
	G06 glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10 glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15 glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25 glassfiber $\beta_{22\mu m(c)} > 1.000$
	G40 glassfiber $\beta_{35\mu m(c)} > 1.000$
	C10 paper $\beta_{10\mu m(c)} > 2$
	C25 paper $\beta_{25\mu m(c)} > 2$
	T60 wire mesh 60 μm
	M05 synthetic $\beta_{10\mu m(c)} > 1.000$
	M10 synthetic $\beta_{15\mu m(c)} > 1.000$
	M15 synthetic $\beta_{20\mu m(c)} > 1.000$
5. SEALS	B NBR
	V FKM (on request)
6. MAIN PORT	00 not machined
	F9M 2 1/2" SAE 3000 FLANGE M
7. ADDITIONAL PORT	00 not machined
	F8M 2" SAE 3000 FLANGE M
8. BYPASS VALVE	B 1,7 bar
	C 3 bar
9. MAGNETS	0 no magnets
	M with magnets
10. DIFFUSER	0 no diffuser
	S with diffuser
11. INDICATOR PORT OPTION	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
(F) digit for FKM seal option

MPB	pressure gauge rear connection	
MRB	pressure gauge radial connection	with "B" bypass option
PDB	pressure switch	
MPC	pressure gauge rear connection	
MRC	pressure gauge radial connection	
PDC	pressure switch	with "C" bypass option
E02 (EF2)	differential 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 .

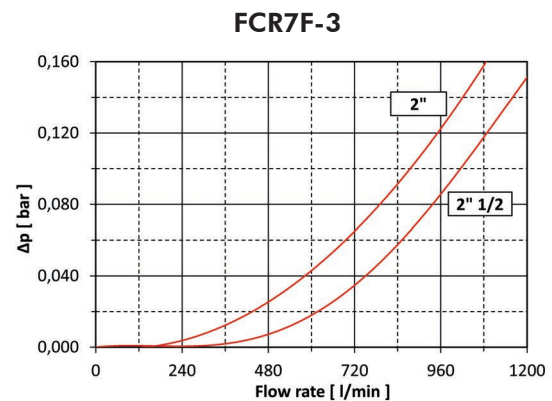
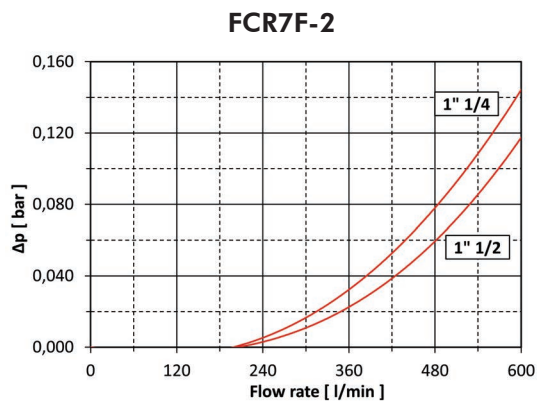
The max recommended total Δp for return filters is 0,4 – 0,6 bar with clean element.

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

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

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

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

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

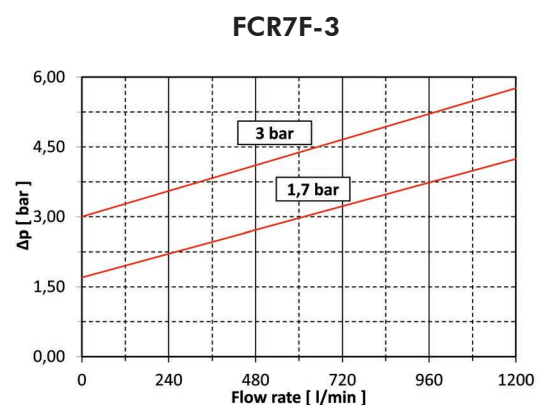
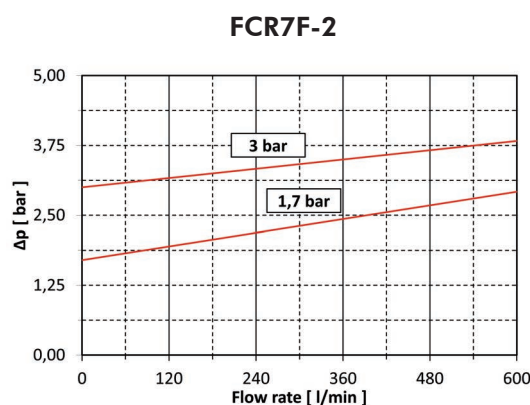
EXAMPLE OF TOTAL Δp CALCULATION

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

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

BYPASS VALVE PRESSURE DROP

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



N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity and density 0,875 Kg/dm³.

USER TIPS



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

SPARE SEALS KIT (5)

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

INDICATOR TIGHTENING TORQUE

PRESSURE GAUGE / SWITCH	10 Nm
DIFFERENTIAL	50 Nm

COVER SCREWS TIGHTENING TORQUE (2)

M10	30 Nm
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WARNING

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

DISPOSAL OF FILTER ELEMENT

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

INSTALLATION

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



WWW.SUMY.IR

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 Diffuser: stainless steel Seal: NBR (FKM on request)
BYPASS VALVE:	B version 1,7 bar C version 3 bar (not available for FVR7F4x)

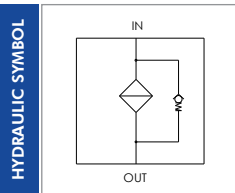
ELEMENT

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

FILTER MEDIA:	Inorganic microfiber G03 - G06 - G10 - G15 - G25 - G40 Paper: C10 - C25 Wire mesh: T60 Synthetic: M05 - M10 - M15
BURST PRESSURE:	10 bar

TEMPERATURE RANGE: -30°C +100°C

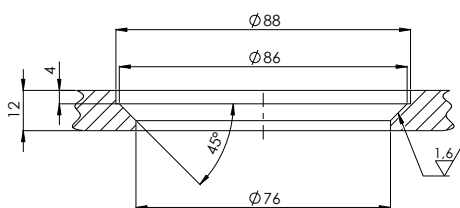
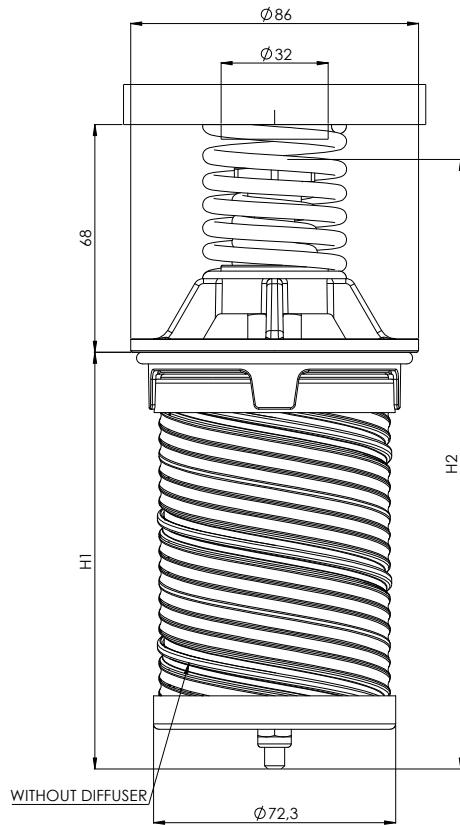
FLUID COMPATIBILITY: Full with HH-HL-HM-HV
HETG-HEES (acc. to ISO 6743/4).
For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).



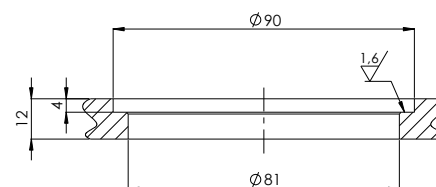
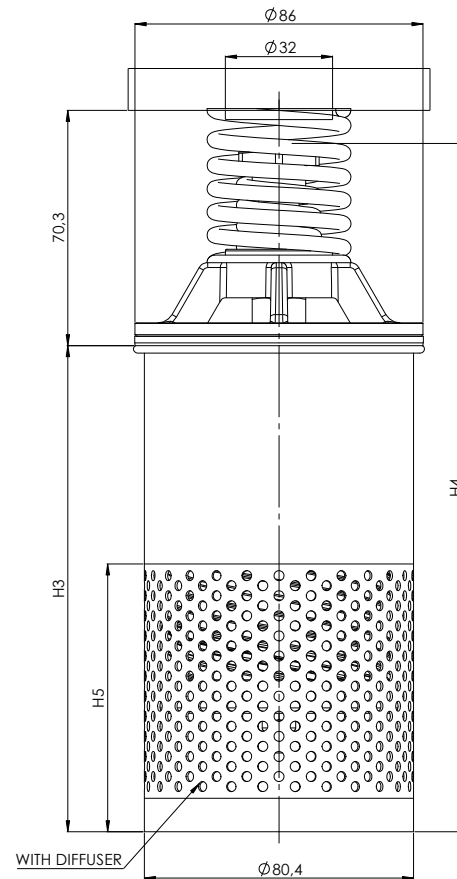
* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

FV-R7F-1X

VERSION 0



VERSION D



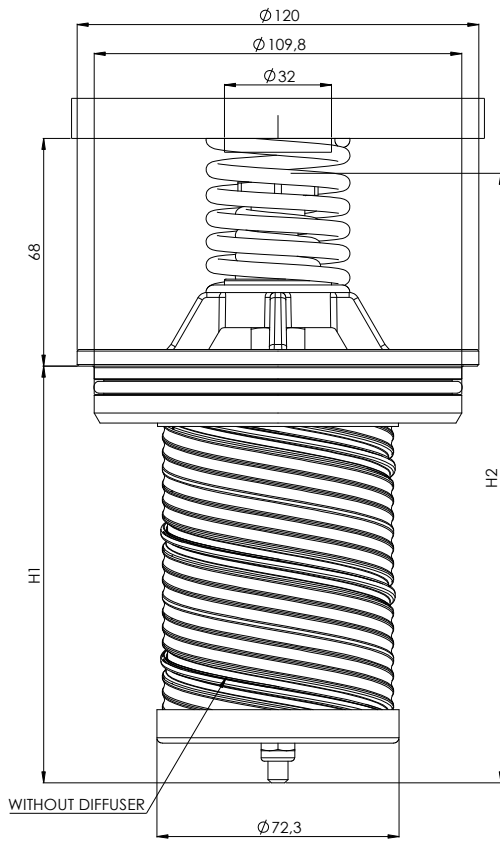
NOMINAL SIZE

MODEL	H1	H2	H3	H4	H5	H6	H7	WEIGHT*	
								Vers. 0	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

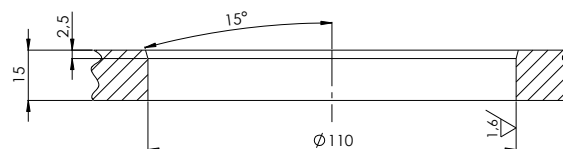
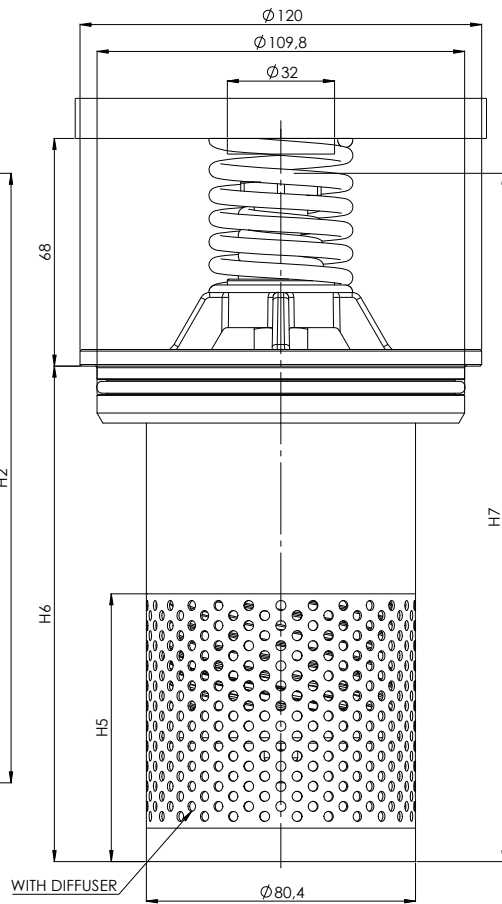
* Weight without element and magnets

FV-R7F-1X

VERSION W



VERSION S



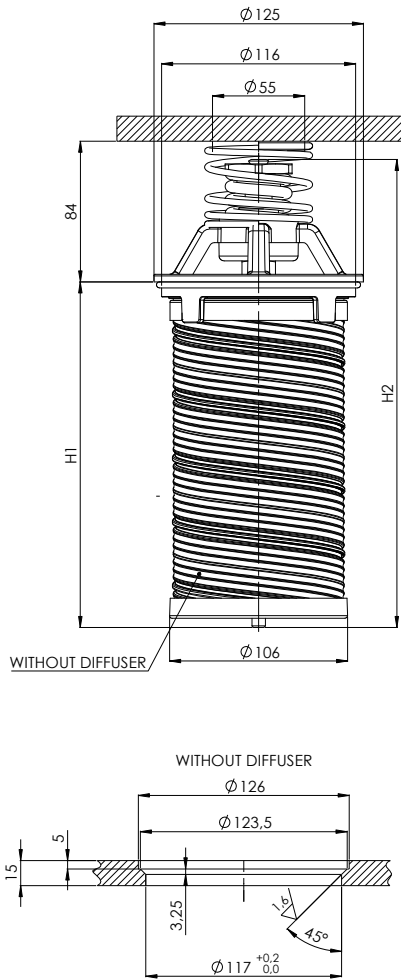
NOMINAL SIZE

MODEL	H1	H2	H3	H4	H5	H6	H7	WEIGHT	
								Vers. W	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

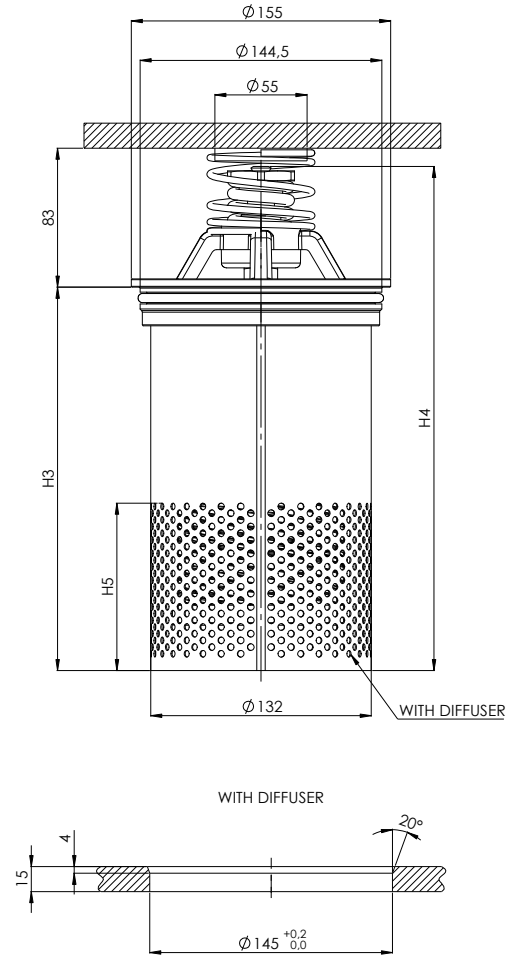
* Weight without element and magnets

FV-R7F-2

VERSION 0



VERSION S



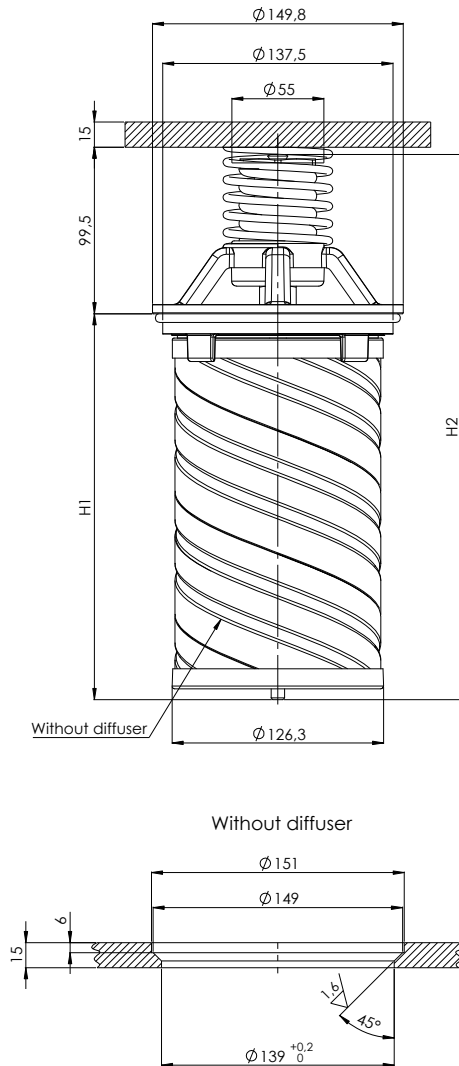
NOMINAL SIZE

MODEL	H1	H2	H3	H4	H5	WEIGHT*	
						Vers. 0	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

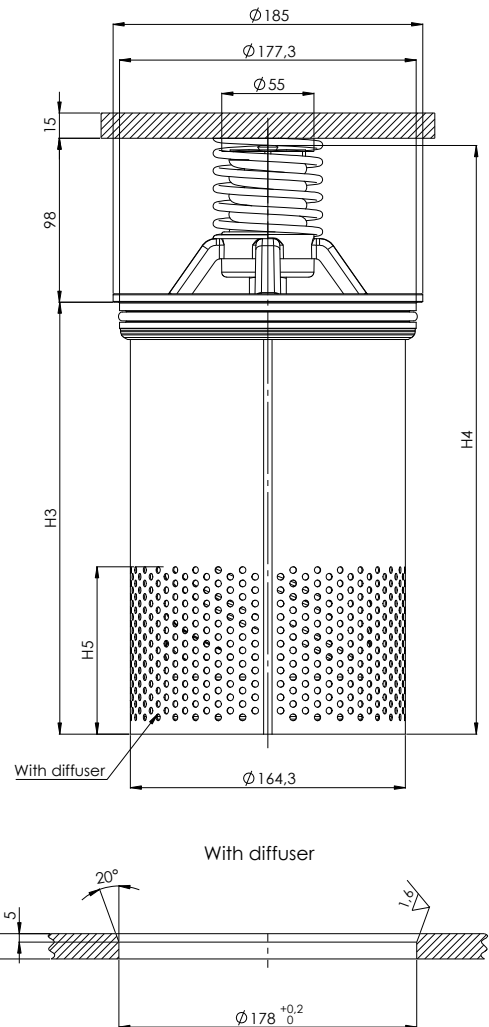
* Weight without element and magnets

FV-R7F-3

VERSION 0



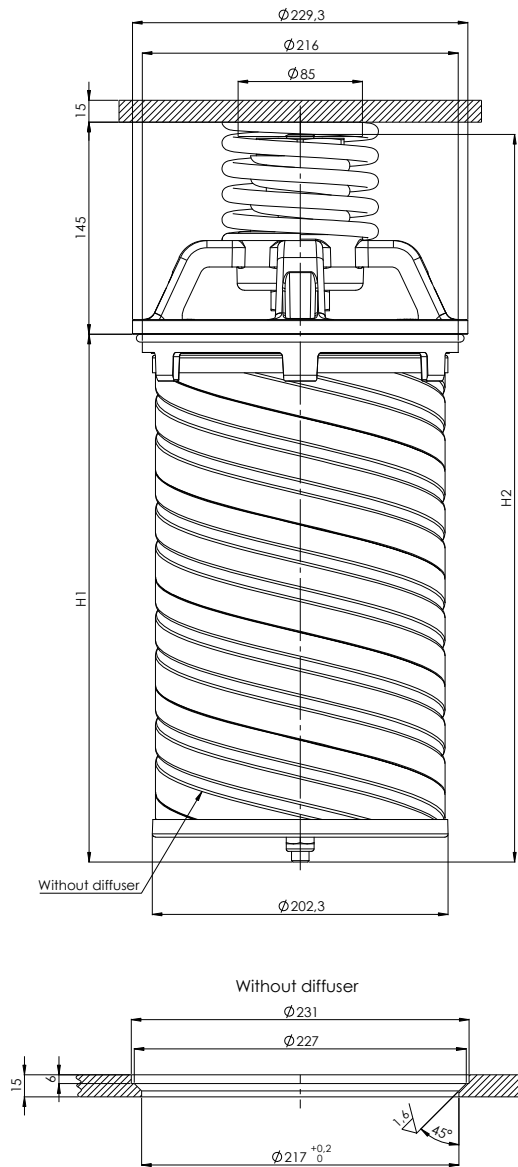
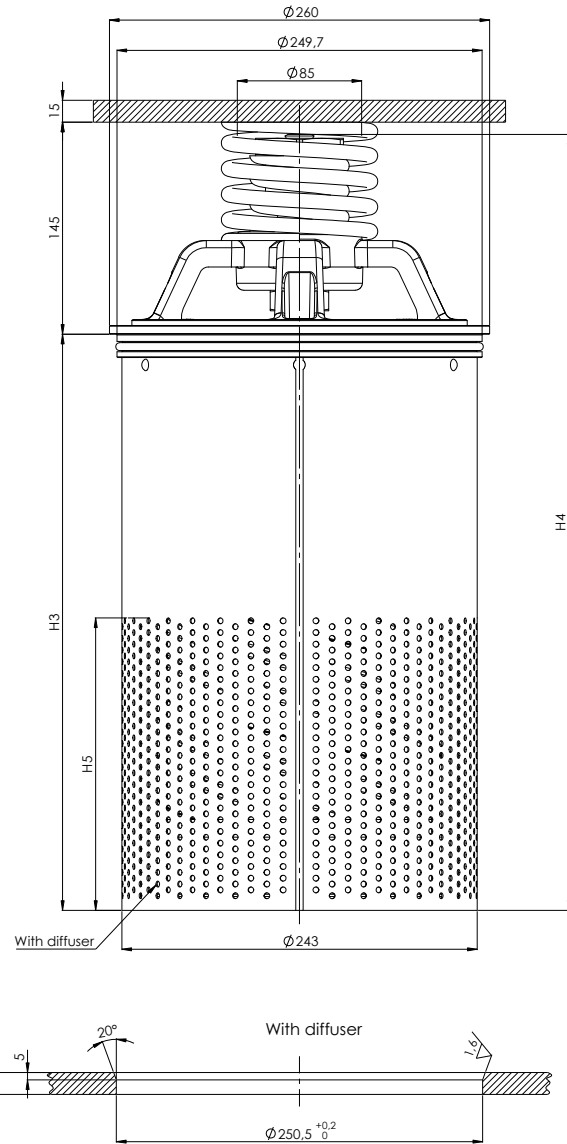
VERSION S



NOMINAL SIZE

MODEL	H1	H2	H3	H4	H5	WEIGHT*	
						Vers. 0	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	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 $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} > 1.000$
	C10	paper $\beta_{10\mu m(c)} > 2$
	C25	paper $\beta_{25\mu m(c)} > 2$
	T60	wire mesh 60 μm
	M05	synthetic $\beta_{10\mu m(c)} > 1.000$
	M10	synthetic $\beta_{15\mu m(c)} > 1.000$
	M15	synthetic $\beta_{20\mu m(c)} > 1.000$
5. SEALS	B	NBR
	V	FKM (on request)
6. 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
	W	no diffuser - with ring
		available for FVR7F1x only

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.

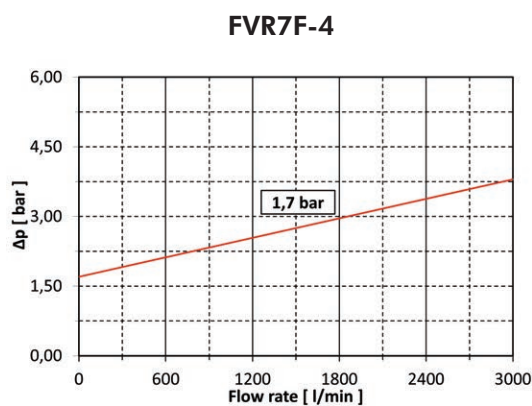
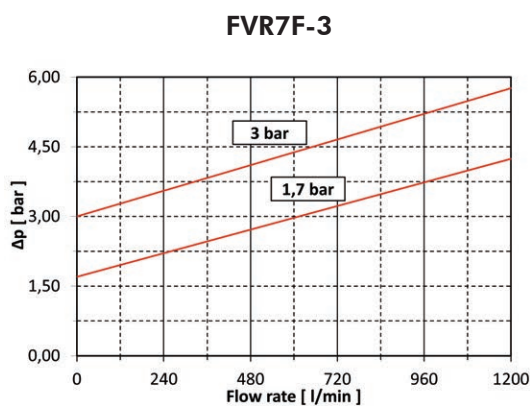
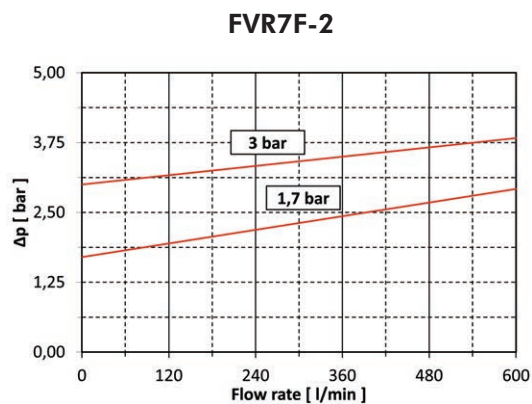
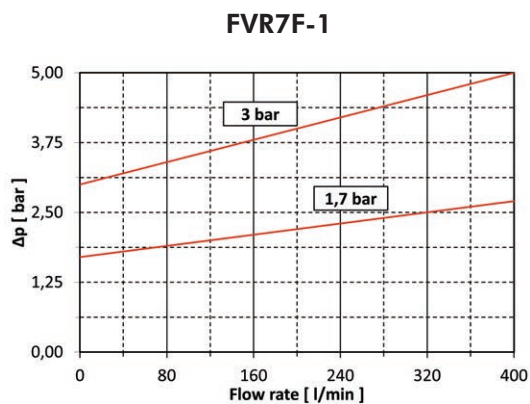
If the oil has a viscosity V_1 different than 32 cSt a corrective factor $V_1/32$ must be applied.

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

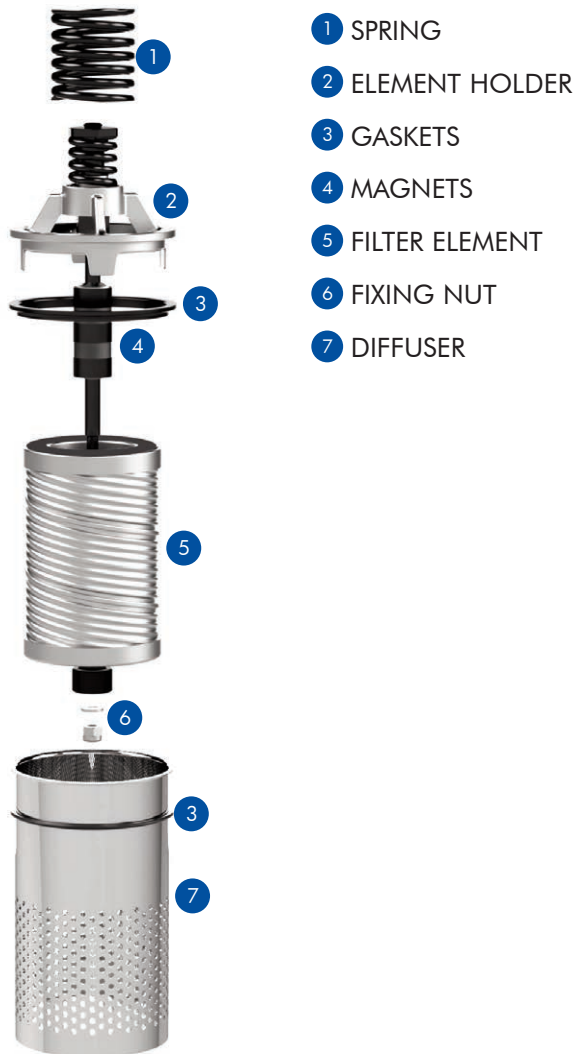
BYPASS VALVE PRESSURE DROP

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



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



SPARE SEALS KIT (3)

	NBR	FKM (on request)
FVR7F-1X (version O)	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 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, 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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FA2 SERIES

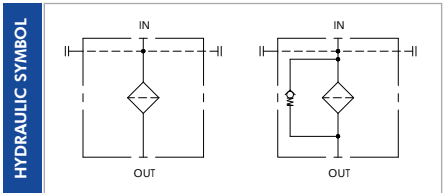
Tank-top, spin-on type filters

Return line filters with spin-on cartridge for operating pressure up to 12 bar, flow rate up to 300 l/min.

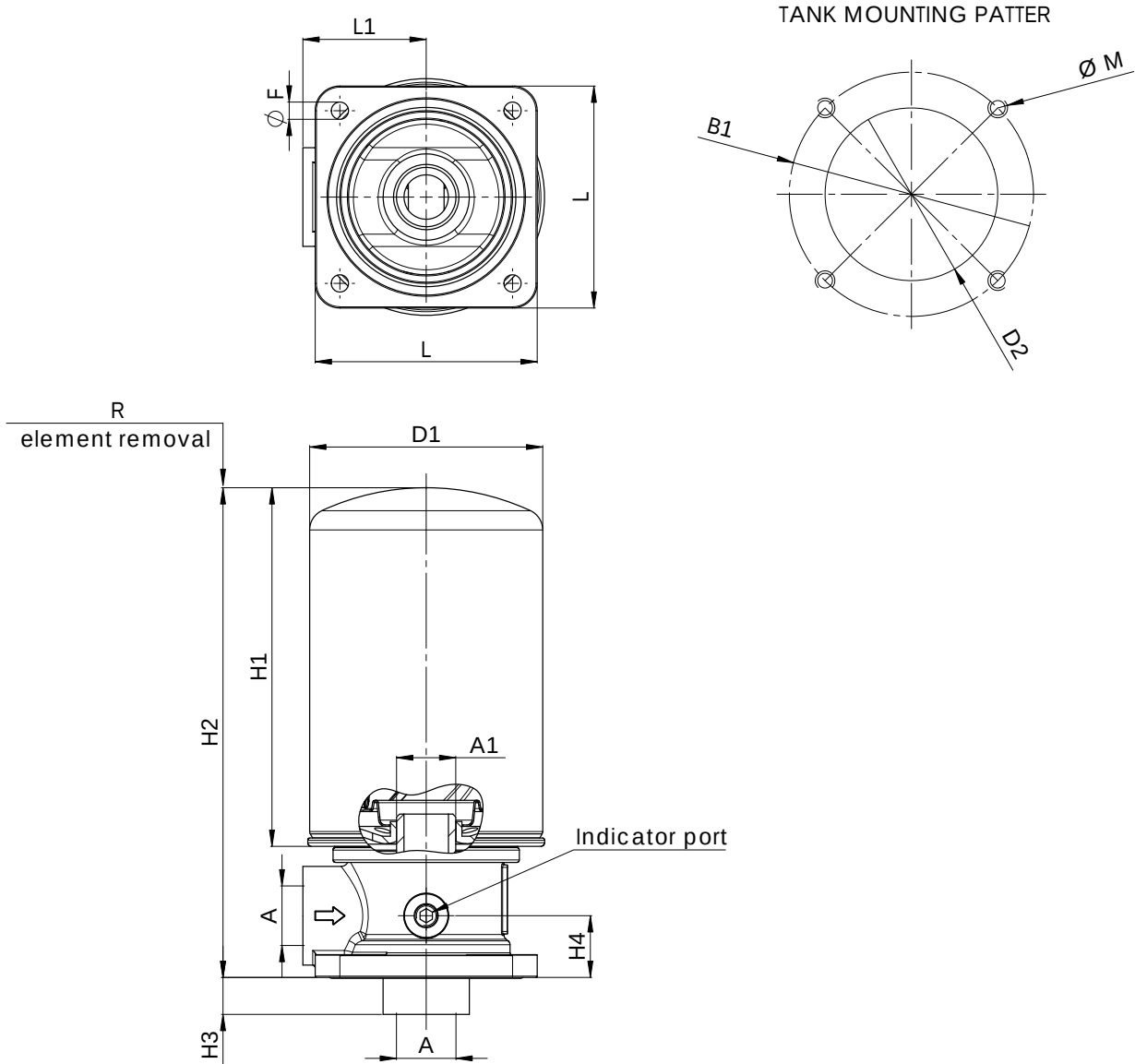
Bypass valve inbuilt in the filter element, indicator port is a standard option to fit a visual or electrical indicator.



HOUSING	tested according to NFPA T3.10.17, ISO12829, ISO3968
PRESSURE:	Max operating: 12 bar Burst: 20 bar
CONNECTIONS:	G 3/4" ÷ G 1 1/2"
MATERIALS:	Head: aluminium alloy Bowl: painted steel Seal: NBR
BYPASS VALVE:	1,7 bar
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181
FILTER MEDIA:	Paper: C10 - C25 Inorganic microfiber: G10 - G25 Wire mesh: 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). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).



OVERALL DIMENSIONS



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 $\beta_{10\mu m(c)} > 2$	
	C25	paper $\beta_{25\mu m(c)} > 2$	
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$	
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$	
	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
	*PDB	pressure switch 1,3 bar SPDT
	MPA	pressure / vacuum gauge -1÷5 bar
	LC24	LED connector for pressure switch

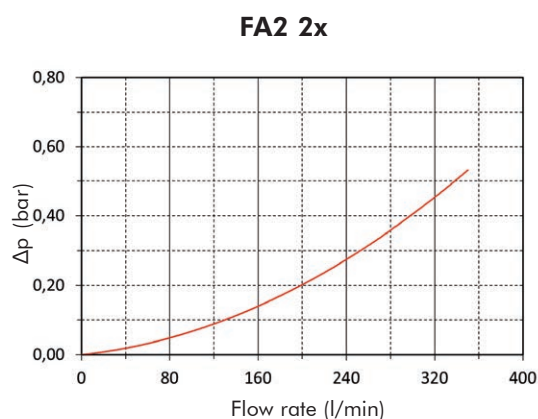
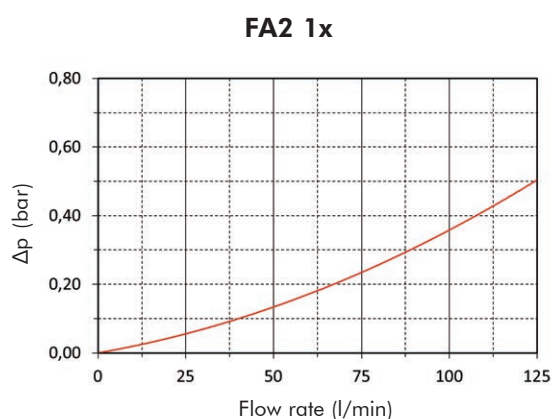
* Available also with LC24=Led connector (see clogging indicators catalogue)

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP

The element Δp (bar) is given by the flow rate (l/min) multiplied by the factor in the table here below corresponding to the selected media and divided by 1000. If the oil has a viscosity V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

Example: 125 l/min with A220C10BM and oil viscosity 46 cSt $> 125 \times 0,67/1000 \times 46/32 = 0,12$ 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

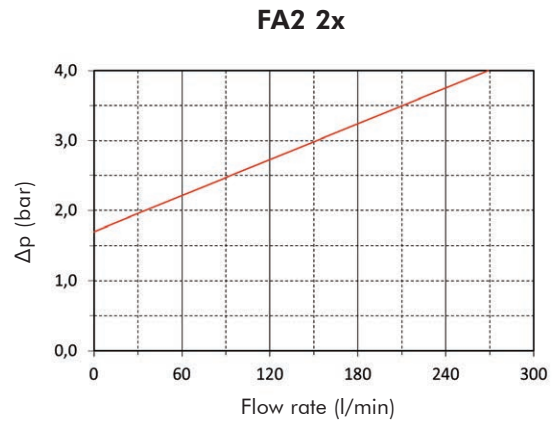
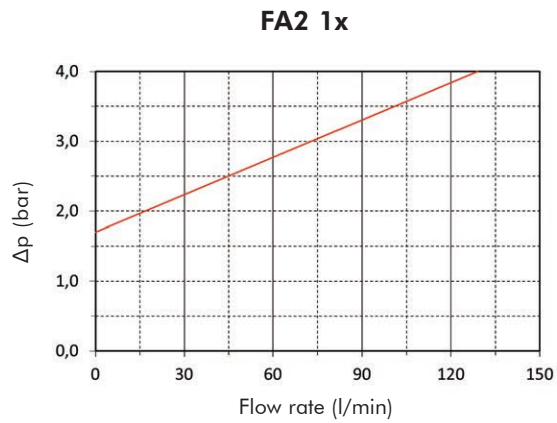
EXAMPLE OF TOTAL Δp CALCULATION

FA220C10BMBB7000 with 125 l/min and oil 46 cSt:

Housing Δp 0,1 bar + element Δp 0,12 bar $(125 \times 0,67/1000 \times 46/32) =$ 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.



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



CARTRIDGE TIGHTENING TORQUE

All models	3/4 turn
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INDICATOR TIGHTENING TORQUE

Pressure gauge/switch	10 Nm
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WARNING

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

DISPOSAL OF FILTER ELEMENT

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

INSTALLATION

-  1. 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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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
Top cover: PA6 reinforced
Seal: NBR

BYPASS VALVE: No by-pass or 0,3 bar setting

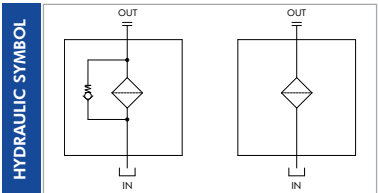
ELEMENT

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

FILTER MEDIA: Cellulose: C10 - C25
Wire mesh: T60 - T125 - T250
Inorganic microfiber: G40

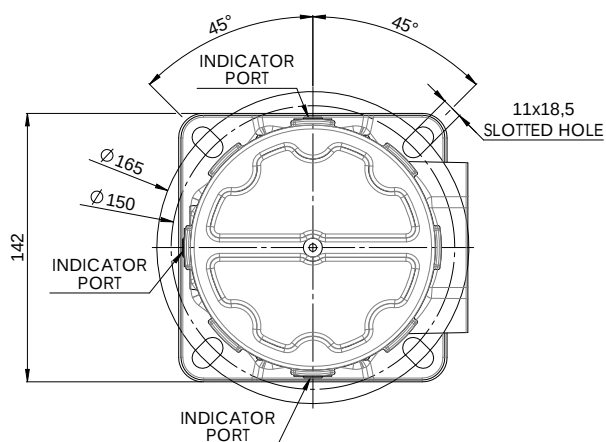
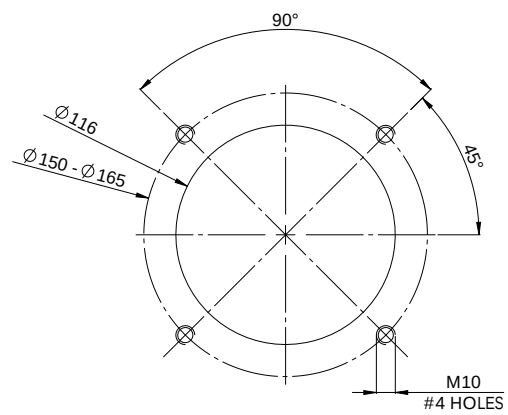
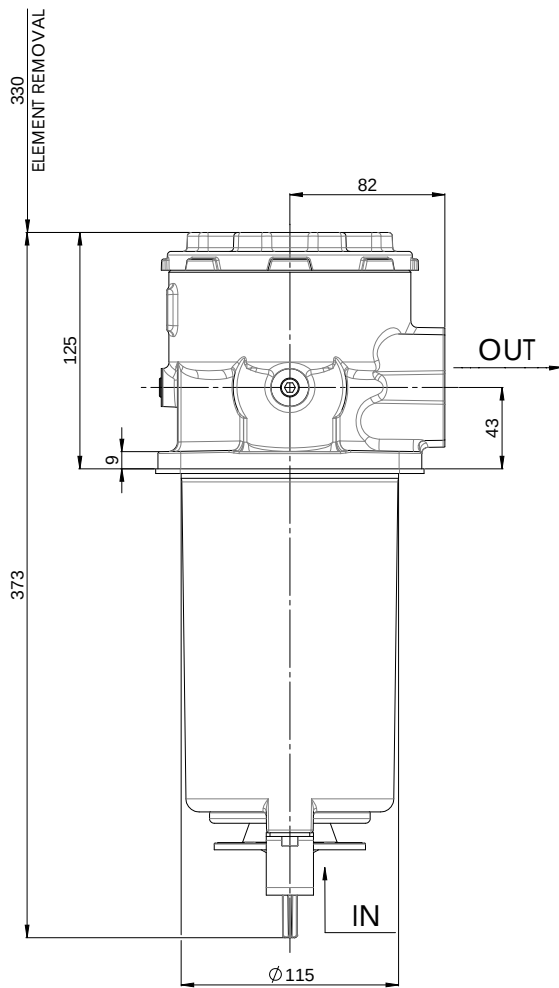
TEMPERATURE RANGE: -30°C +100°C

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

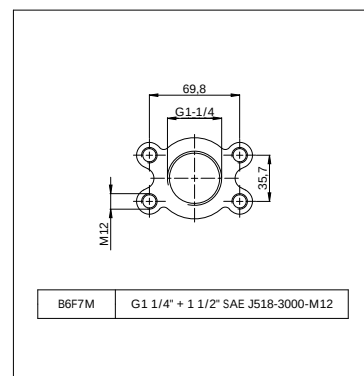


* as reference method only for verifying the pressure fatigue resistance and establishing the burst pressure ratings.

OVERALL DIMENSIONS



MAIN PORT OPTIONS - D1



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 $\beta_{10\mu m(c)} \geq 2$
	C25	paper $\beta_{25\mu m(c)} \geq 2$
	T60	wire mesh 60 μm
	T125	wire mesh 125 μm
	T250	wire mesh 250 μm
	G40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$
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
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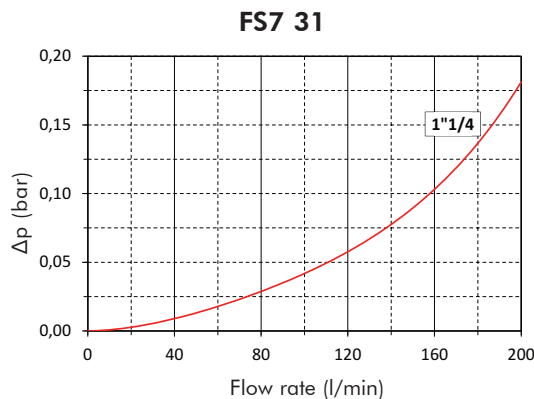
The accessories must be ordered separately

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.



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 S731C10 and oil viscosity 46 cSt = $(80 \times 0,375)/1000 \times (46/32) = 0,043$ bar

	C10	C25	T60	T125	T250	G40
S731	0,375	0,100	0,075	0,050	0,003	0,110

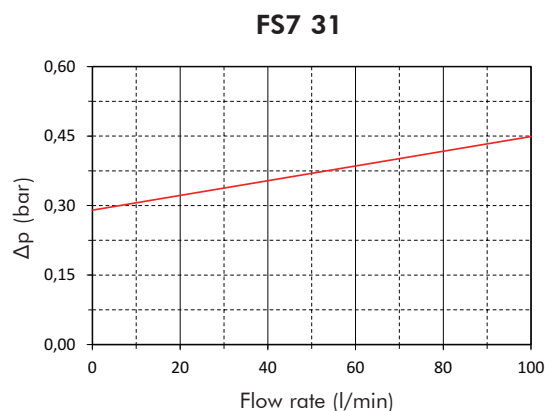
EXAMPLE OF TOTAL Δp CALCULATION

FS731C10BB6F7M00BMT000S0 with 80 l/min and oil 46 cSt

Housing Δp 0,03 bar + element Δp 0,043 bar $(80 \times 0,375)/1000 \times (46/32) =$ 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.



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 COVER ASSEMBLY | 4 WASHER |
| 2 ELEMENT | 5 STOPPER |
| 3 HOLDER | 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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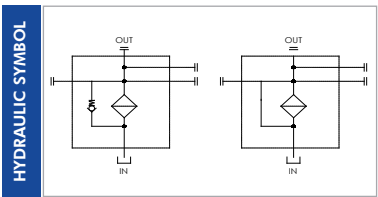
FS5 SERIES

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.

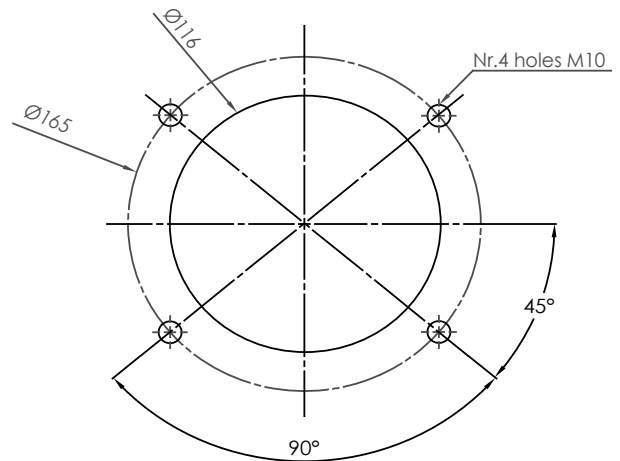
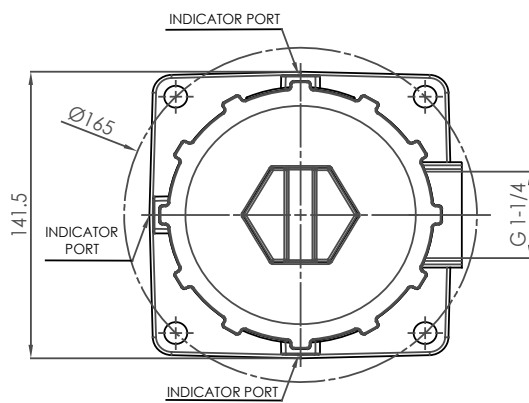
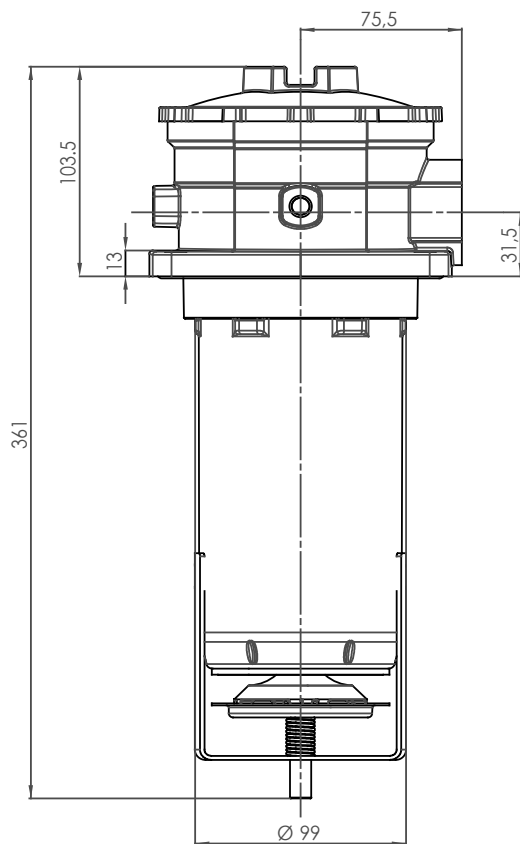


HOUSING	tested according to NFPA T3.10.5.1*, ISO 10771*, ISO 3968
CONNECTIONS:	G 1 1/4"
MATERIALS:	Head: aluminium alloy Top cover: PA6 reinforced Seal: NBR
BYPASS VALVE:	No bypass or 0,3 bar setting
ELEMENT	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Cellulose: C10 - C25 Wire mesh: T60 - T125 - T250 Inorganic microfiber: G40
TEMPERATURE RANGE:	-30°C +100°C
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).



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

OVERALL DIMENSIONS



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 $\beta_{10\mu m(c)} > 2$
	C25	paper $\beta_{25\mu m(c)} > 2$
	G40	glassfiber $\beta_{35\mu m(c)} > 1.000$
	T60	wire mesh 60 μm
	T125	wire mesh 125 μm
	T250	wire mesh 250 μm
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

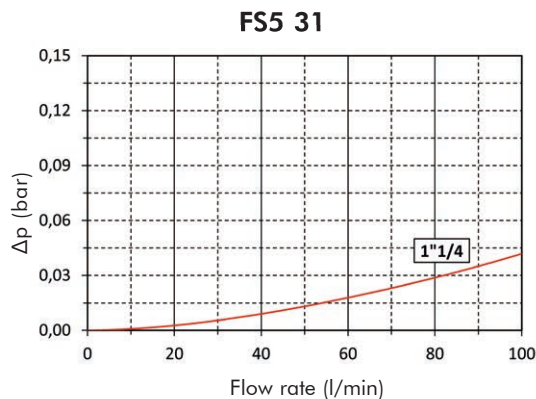
INDICATOR	MPS	vacuum gauge scale 0÷-1 bar
	PDS	vacuum switch -0,2 bar SPDT
	LC24	LED connector for vacuum switch

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.



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: 50 l/min with S531C25 and oil viscosity 46 cSt $> 50 \times 0,11/1000 \times 46/32 = 0,008$ bar

	C10	C25	T60	T125	T250	G40
S531	0,38	0,11	0,08	0,06	0,04	0,13

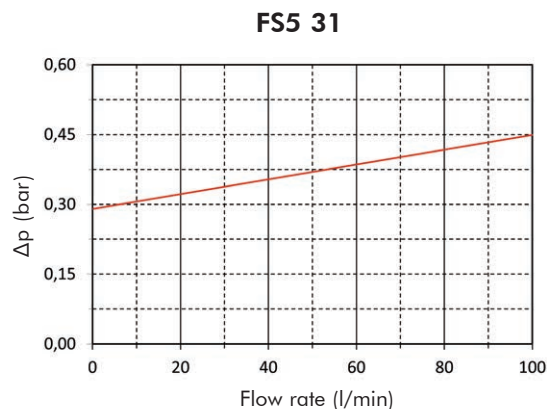
EXAMPLE OF TOTAL Δp CALCULATION

FS531C25BB600B0T000S0 with 50 l/min and oil 46 cSt

Housing Δp 0,014 bar + element Δp 0,008 bar ($50 \times 0,11/1000 \times 46/32$) = total assembly Δp 0,022 bar

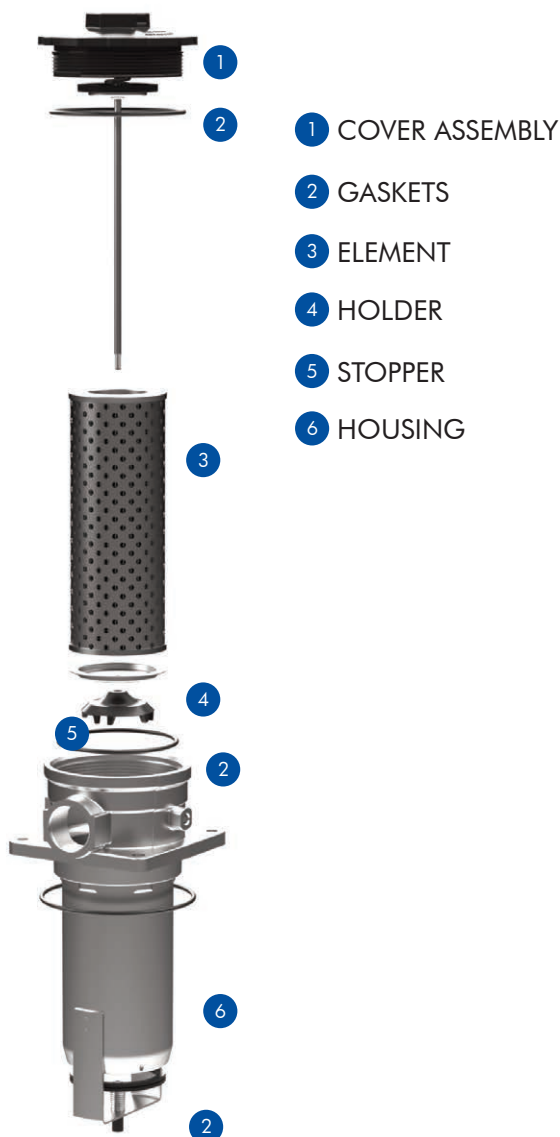
BYPASS VALVE PRESSURE DROP

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



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 $0,875 \text{ Kg/dm}^3$.

USER TIPS



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

CT11 6--rev.02/24



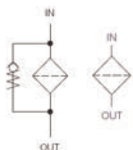
FS1 SERIES

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:	Polyamide reinforced
End cap:	Zinc plated steel
Internal core:	Zinc plated steel
Bypass valve:	Polyamide reinforced

FILTER MEDIA:

Stainless steel wire mesh (125 μ m and 60 μ m)
 Zinc plated steel wire mesh (250 μ m)

BYPASS VALVE:

setting 0,25 bar

DIFFERENTIAL COLLAPSE PRESSURE:

1 bar (ISO 2941)

OPERATING TEMPERATURE RANGE:

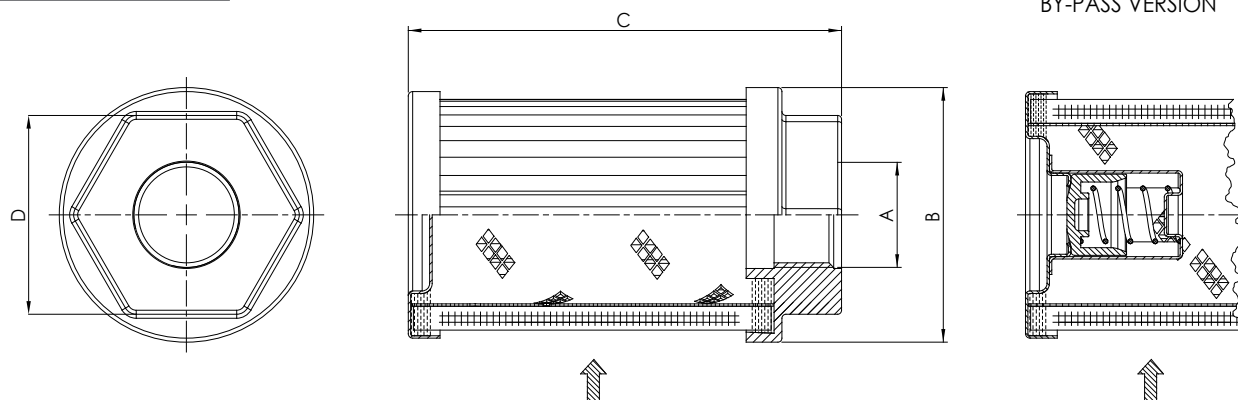
-20°C to 100°C

FLUID COMPATIBILITY:

Full with HH-HL-HM-HV (acc. to ISO 2943).

For use with other fluid applications please contact Filtrec Customer Service (info@filtrec.it).

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 μ m (subject to MOQ)

T125 125 μ m

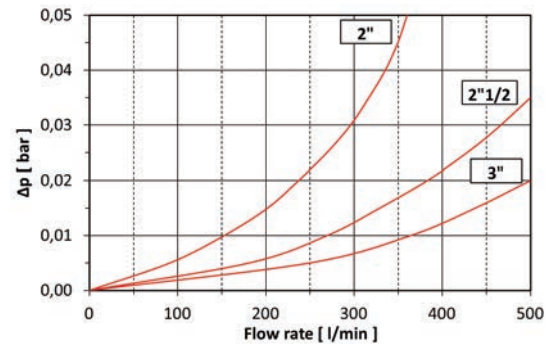
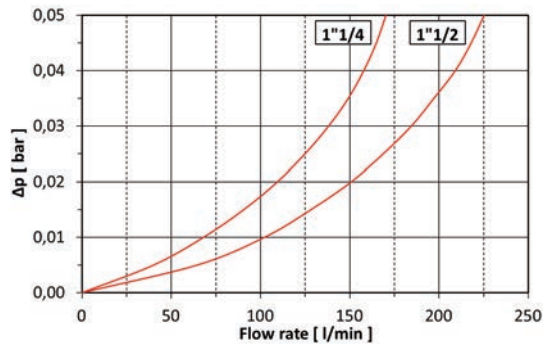
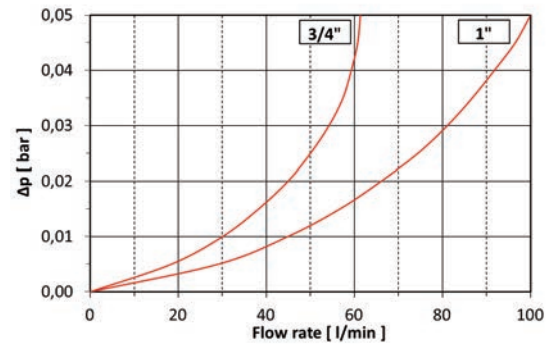
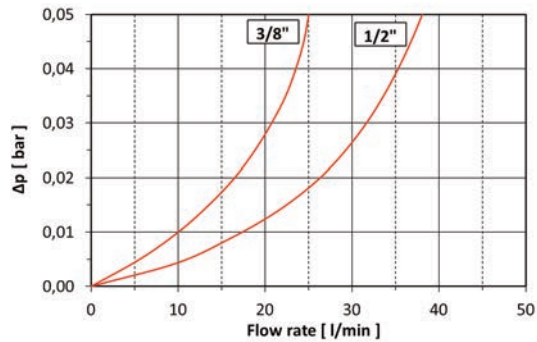
T250 250 μ m (subject to MOQ)

N.B. The Flow Rate values given in the table refer to Δp 0,02 bar bar with clean element and oil having viscosity 32 cSt and density 0,875 Kg/dm³.

For different flow rates verify the pressure drop on the diagrams at page 3.

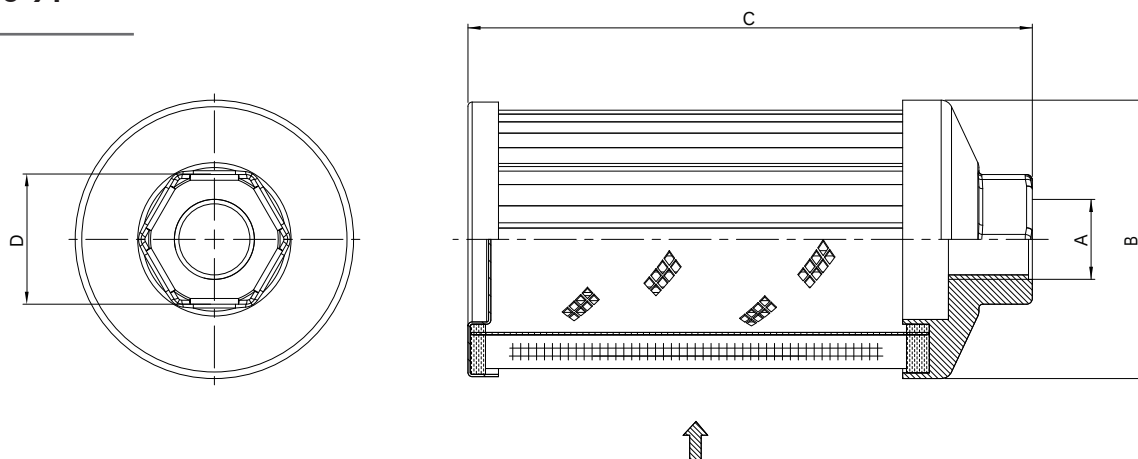
PRESSURE DROP DIAGRAMS

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/dm³.

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

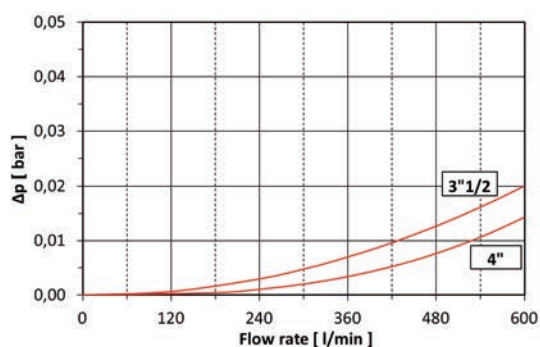
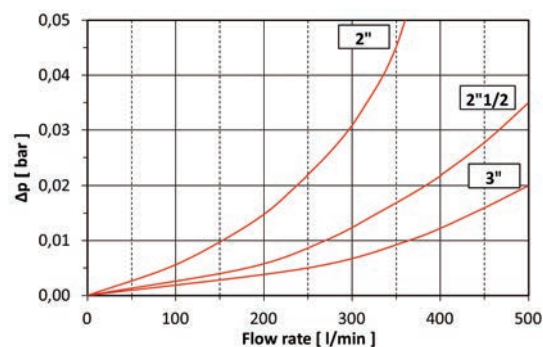
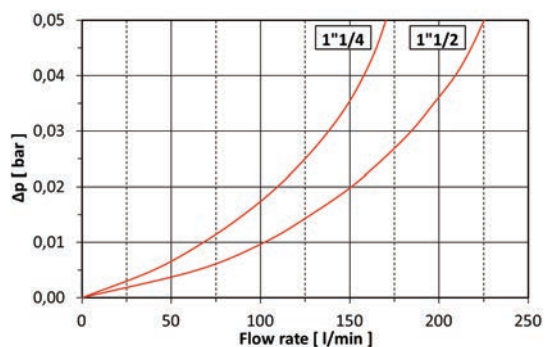
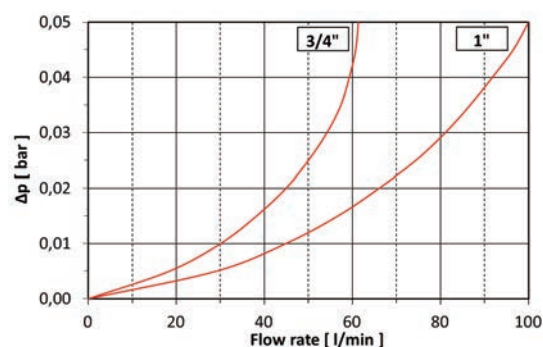
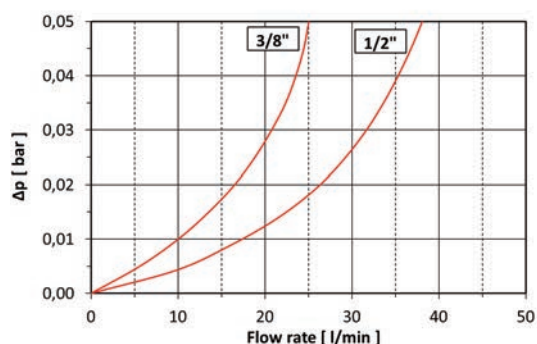
T60	60 μm (subject to MOQ)
T125	125 μm
T250	250 μm (subject to MOQ)

N.B. The Flow Rate values given in the table refer to Δp 0,02 bar with clean element and oil having viscosity 32 cSt and density 0,875 Kg/dm³.

For different flow rates verify the pressure drop on the diagrams at page 5.

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/dm³.

USER TIPS

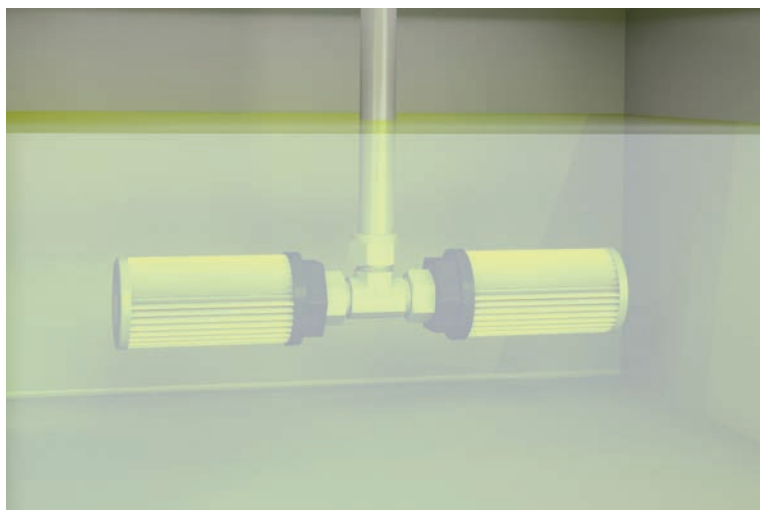
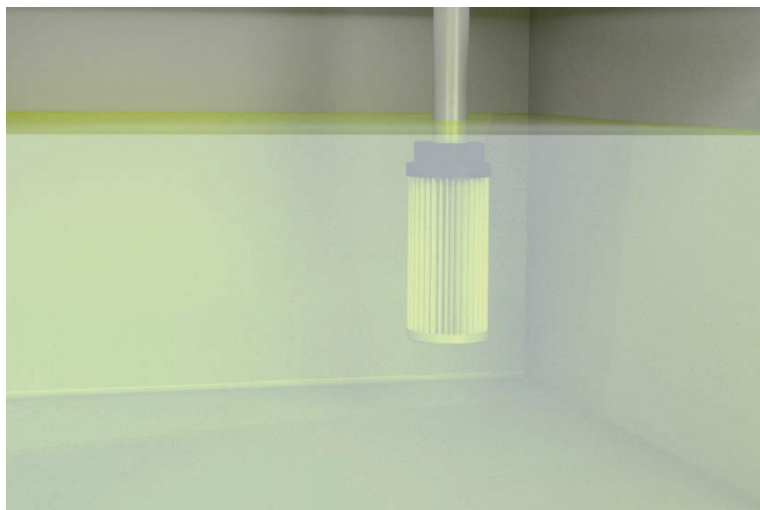
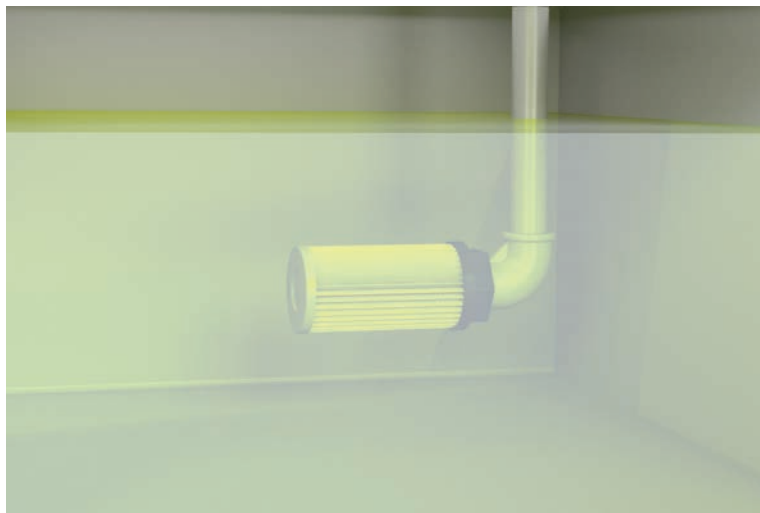
The suction strainer must be always largely sized to avoid any possible cavitation of the pump and port size equal or larger than the pump port.

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.







WWW.SUMY.IR

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.

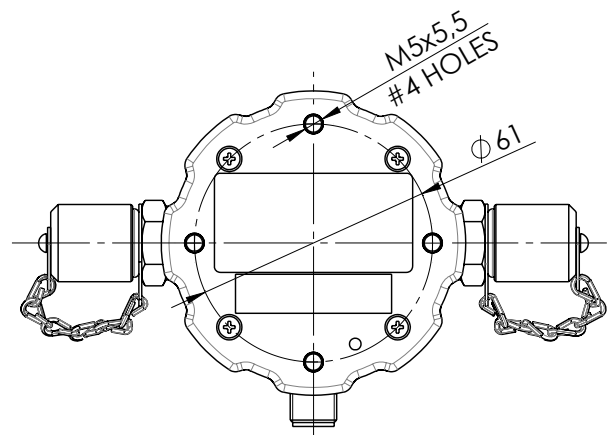
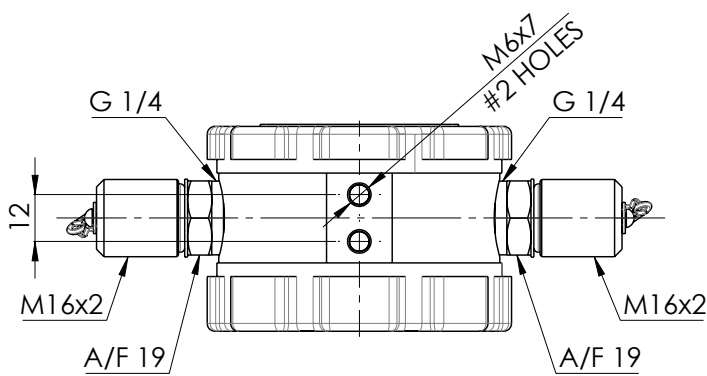
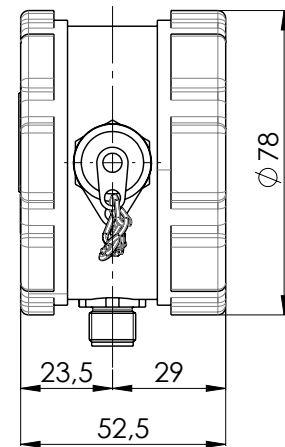
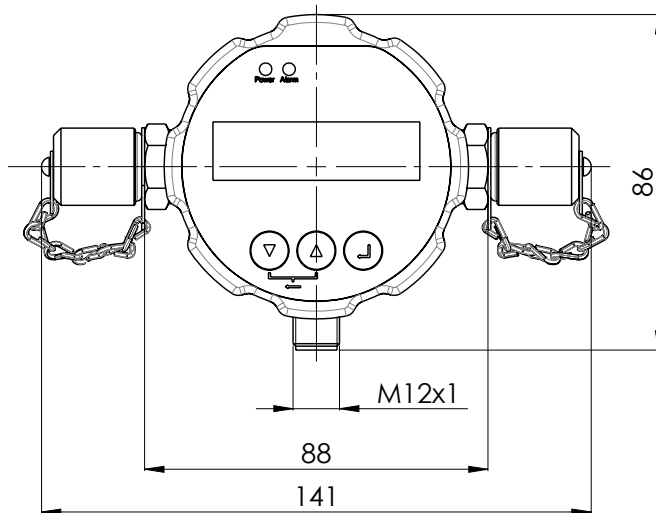


MAX OPERATING PRESSURE:	max operating 420 bar
FLOW RATE:	50... 400 ml/min
FLUID CONNECTIONS:	G 1/4" Minimes M16x2
ELETTRICAL CONNECTION:	M12x1 - 8 pole
MATERIALS:	Stainless steel, sapphire, chrome, FFKM, NBR Minimes coupling: zinc/nickel
PROTECTION CLASS:	IP67
ANALOG OUTPUT:	4...20 mA
TEMPERATURE RANGE:	-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**

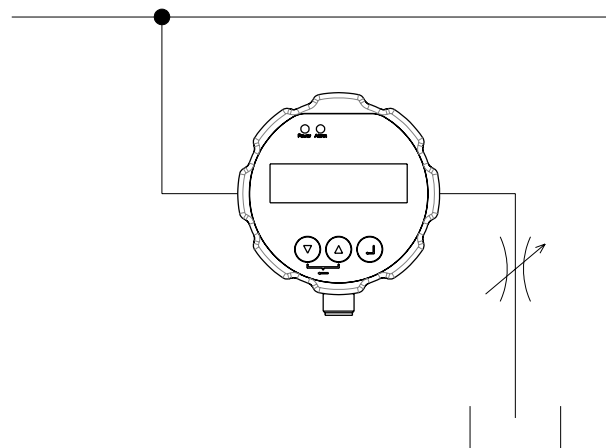
OVERALL DIMENSIONS



CONNECTING SCHEME

For further information on installation and electrical connection, please refer to the manual.

MAIN HYDRAULIC LINE



TECHNICAL INFORMATION

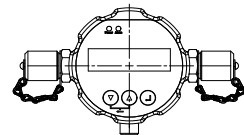
Sensor Data	Size	Unit
Max Operating Pressure dynamic	420	bar
static	600	bar
Permissible flow rate	50...400	ml/min
Operating conditions		
Temperature	-20 ... +85	°C
Relative humidity	0 ... 100	% r H. (non-condensing)
Display readable up to	60	°C
Compatible liquids	mineral oils (H, HH, HL, HM, HV, HLP, 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

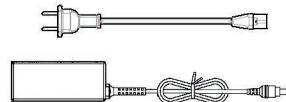
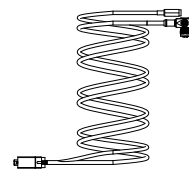
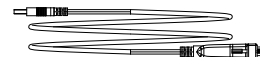
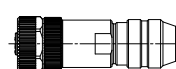
2) Output IOut is freely configurable (see operating manual)

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 Input range: 100...240VAC 50/60Hz Output voltage: 24VDC / max. 0,63A / 15W Temperature range in operation: 0...40°C Compatible with cable FMSA04S0 and FMSA07S0 Supply line: Euro power cord 2-pole, 1.5m	FMSA01S0	04.006.00190	
Data cable for computer connection Side 1: M12 8-pole, 90° angled, IP67 Side 2: D-Sub connector 9-pole with separate DC Plug for power supply Length: 5m, shielded Temperature range -25°C...90°C Oil-resistant	FMSA04S0	04.006.00191	
Adapter USB - RS232 serial Side 1 (PC): USB A plug Side 2 (periphery): D-Sub connector 9-pole Length: 1.8m	FMSA05S0	04.006.00194	
Data cable with open ends Side 1: M12 8-pole, 90° angled, IP67 Side 2: open Length: 5m, shielded Temperature range -25°C...90°C Oil-resistant	FMSA03S0	04.006.00192	
Sensor connector M12 8-pole, straight, IP67 Suitable for cable diameter 6...8 mm Temperature range -20°C ... 85°C Oil-resistant	FMSA02S0	04.006.00193	
Cable for power supply connection Side 1: M12 8-pole, 90° angled, IP67 Side 2: DC Plug for power supply Length: 5m, shielded Temperature range -25°C...90°C Oil-resistant	FMSA07S0	04.006.00533	





WWW.SUMY.IR

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.

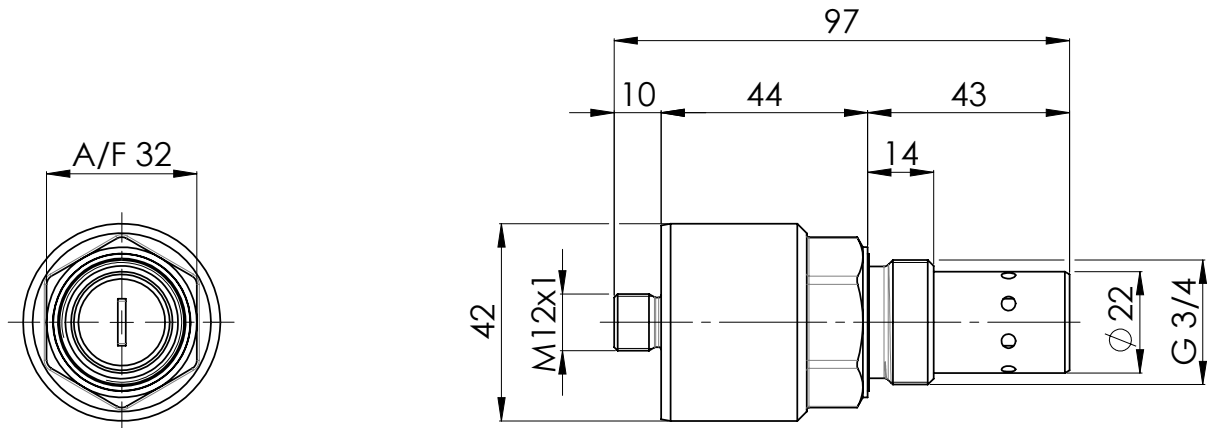


MAX OPERATING PRESSURE:	50 bar
FLUID CONNECTIONS:	G 3/4"
ELETTRICAL CONNECTION:	M12x1 - 8 pole
MATERIALS:	aluminum, HNBR, polyurethane and epoxy resin, chemical nickel / gold, soldering tin, aluminum oxide, glass
PROTECTION CLASS:	IP67
ANALOG OUTPUT:	4...20 mA
TEMPERATURE RANGE:	-20 °C + 120 °C
FLUID 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.

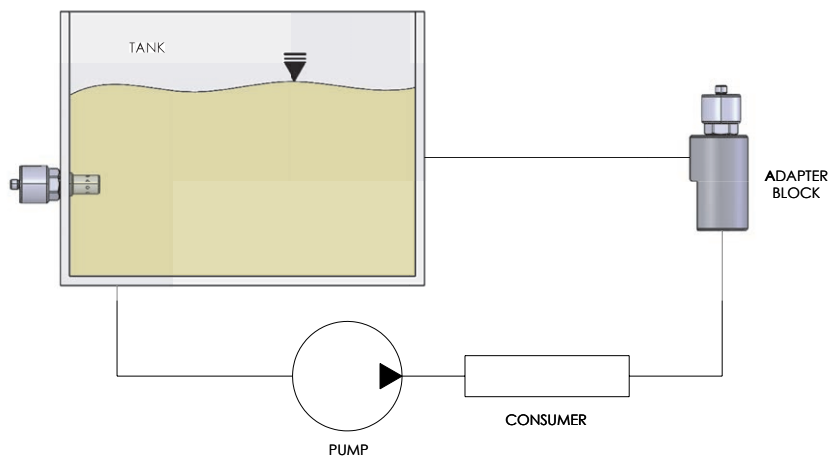
The FMSS moisture and temperature sensor is certified 

OVERALL DIMENSIONS

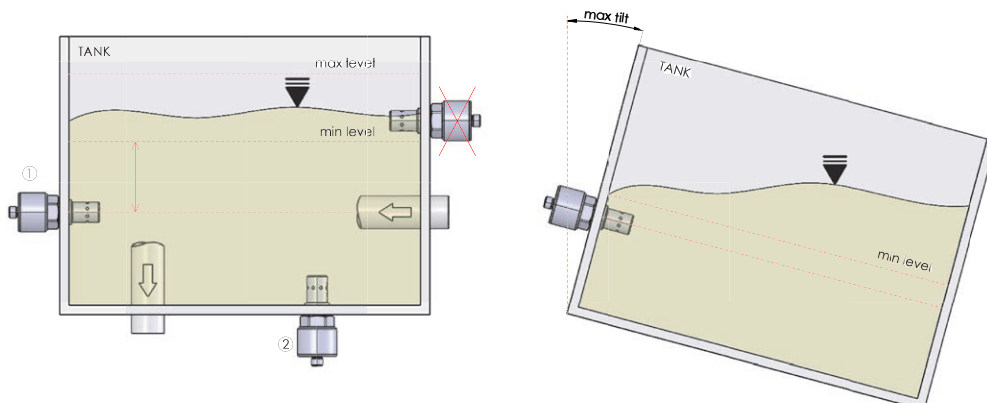


CONNECTING SCHEME

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	G ³ / ₄ "	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

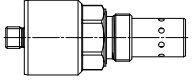
4) Outputs IOut1 and IOut2 are freely configurable (see operating manual)

5) In relation to the analogue current signal (4 ... 20 mA)

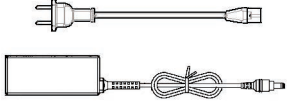
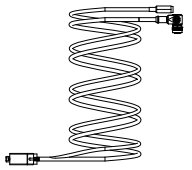
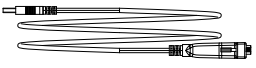
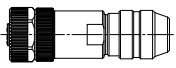
6) Works calibration

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 Input range: 100...240VAC 50/60Hz Output voltage: 24VDC / max. 0,63A / 15W Temperature range in operation: 0...40°C Compatible with data cable FMSA04S0 Supply line: Euro power cord 2-pole, 1.5m	FMSA01S0	04.006.00190	
Data cable for computer connection Side 1: M12 8-pole, 90° angled, IP67 Side 2: D-Sub connector 9-pole with separate DC Plug for power supply Length: 5m, shielded Temperature range -25°C...90°C Oil-resistant	FMSA04S0	04.006.00191	
Adapter USB - RS232 serial Side 1 (PC): USB A plug Side 2 (periphery): D-Sub connector 9-pole Length: 1.8m	FMSA05S0	04.006.00194	
Data cable with open ends Side 1: M12 8-pole, 90° angled, IP67 Side 2: open Length: 5m, shielded Temperature range -25°C...90°C Oil-resistant	FMSA03S0	04.006.00192	
Sensor connector M12 8-pole, straight, IP67 Suitable for cable diameter 6...8 mm Temperature range -20°C ... 85°C Oil-resistant	FMSA02S0	04.006.00193	
Sensor adapter block for pipe installation Line connectors 3/4" Material: Aluminum Pressure range: up to 50bar Oil-resistant	FMSA06S0	04.006.00375	





WWW.SUMY.IR

FUH015 SERIES

Transfer and filtration portable unit



TECHNICAL SPECIFICATION

MAIN:	Flow Rate: 15 l/min
	Operating temperature: from 0 °C to +80 °C
	Fluid viscosity range: 10-220 cSt
ELECTRIC:	Voltage: 230 V
	Frequency: 50 - 60 Hz
	Power consumption: 0.25 kW
FRAME:	Dimensions L, W, H [mm]:
	290 x 368 x 533 mm
	Dry Weight: 16 kg
MATERIALS:	Base frame: Painted steel

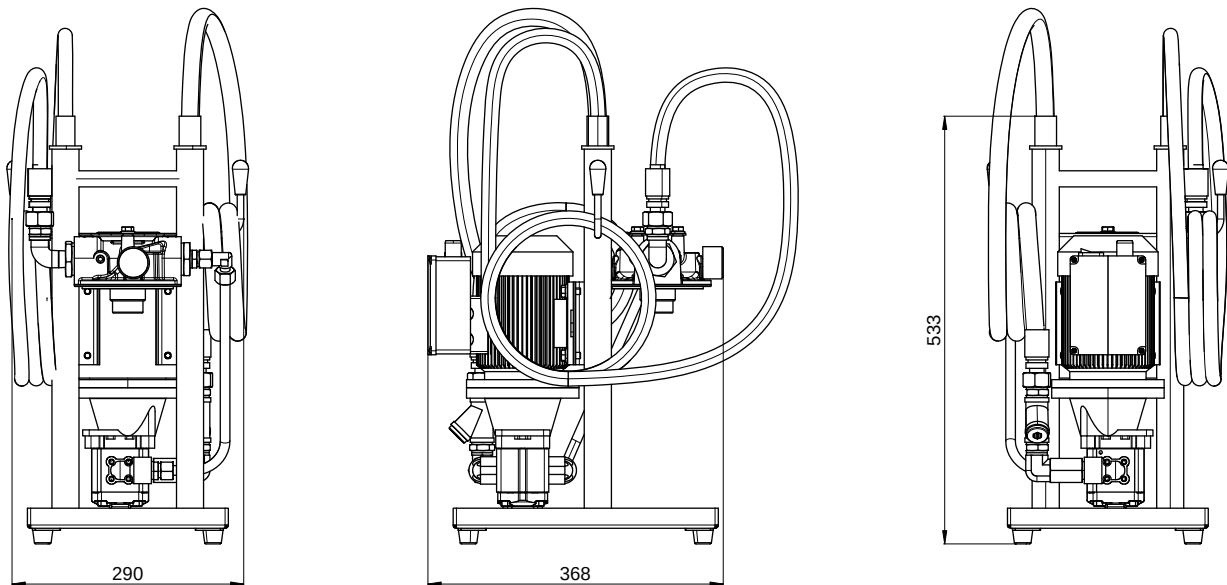
ELEMENT

	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fiberglass: G03 - G06 - G10 - G25
	Fiberglass with water removal: GW03 - GW06 - GW10 - GW25
	Paper: C25
	Paper with water removal: CW25
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).

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.

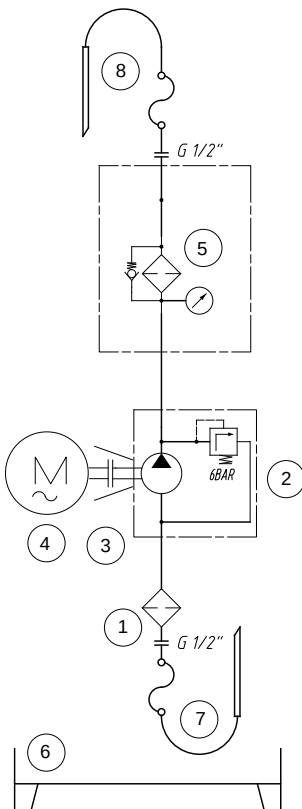
The FUH015 filtration unit is certified **CE**

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 μ 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
- Suction filter "Y" 500 µm
- Suction and delivery pipes in armorvin + lance L=2m
- Support frame with drip tray
- 2P+T industrial plug, L=2m

ORDERING INFORMATION

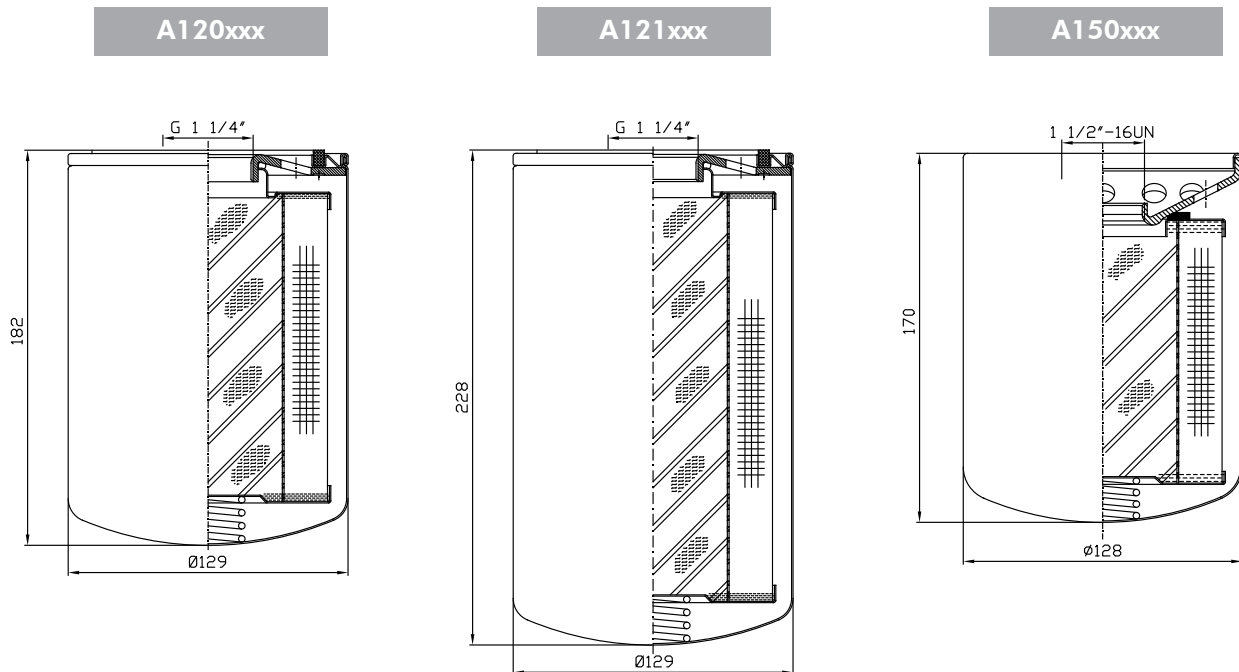
SPARE ELEMENTS

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 $\beta_{12\mu m(c)} > 1.000$	AVAILABLE FILTER MEDIA FOR A120-A121
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$	
	C25	paper $\beta_{25\mu m(c)} > 2$	
	CW25	paper $\beta_{25\mu m(c)} > 2$ + water absorbent	
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$	AVAILABLE FILTER MEDIA FOR A150
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$	
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$	
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$	
	GW03	glassfiber $\beta_{5\mu m(c)} > 1.000$ + water absorbent	
	GW06	glassfiber $\beta_{7\mu m(c)} > 1.000$ + water absorbent	
	GW10	glassfiber $\beta_{12\mu m(c)} > 1.000$ + water absorbent	
	GW25	glassfiber $\beta_{22\mu m(c)} > 1.000$ + water absorbent	
	C25	paper $\beta_{25\mu m(c)} > 2$	
	CW25	paper $\beta_{25\mu m(c)} > 2$ + 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



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.





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.



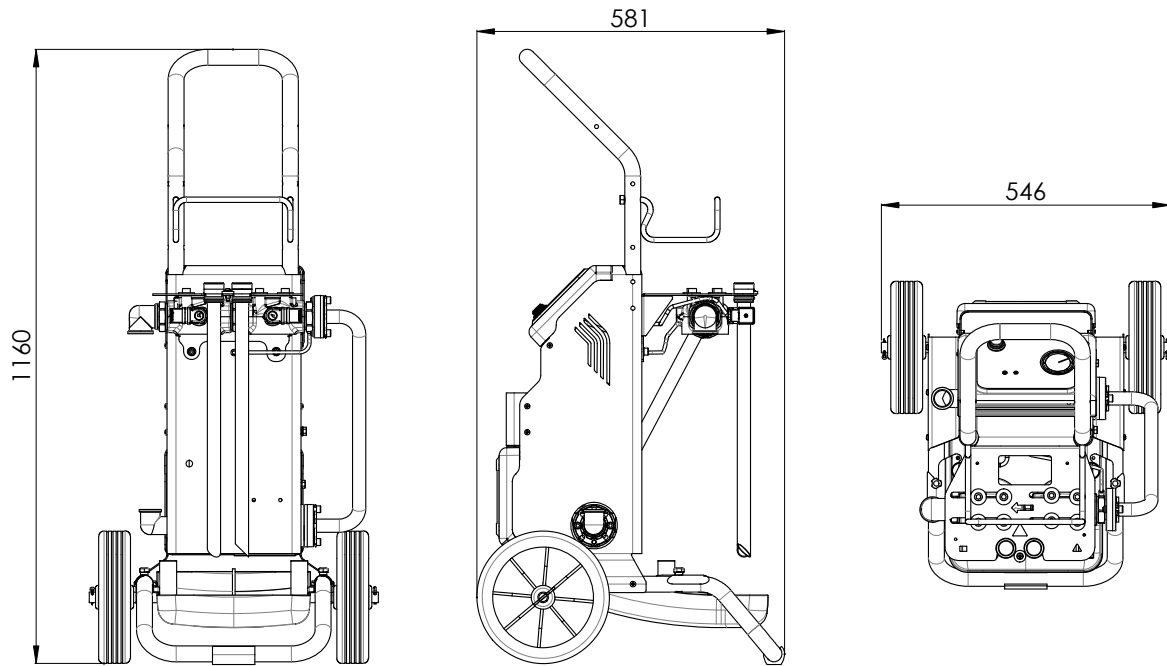
TECHNICAL SPECIFICATION	
MAIN:	Flow Rate: 50 l/min Operating temperature: from -10 °C to +50°C Fluid viscosity: Diesel from 2 to 5,35 cSt Oil from 4,5 to 300 cSt (500 cSt short term)
ELECTRIC:	Voltage: 220 V Frequency: 50 - 60 Hz Power consumption: 1,6 kW
FRAME:	Dimensions L, W, H[mm]: 581X546X1160
MATERIALS:	Base frame: Painted

ELEMENT	
tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968,16889, 16908, 23181	
FILTER MEDIA:	Fiberglass: G01 - G03 - G06 - G10 - G25 Water absorbent: GW40 - AW40
FLUID COMPATIBILITY:	Full With HH-HL-HM-HV-HETG-HEES (acc. to ISO 6743/4). Diesel EN590. ASTM D975 Biodiesel B0 to B100 EN14214 Fuel oil EN51603-1 For use with other fluid please contact Filtrac Customer Service (info@filtrac.it).

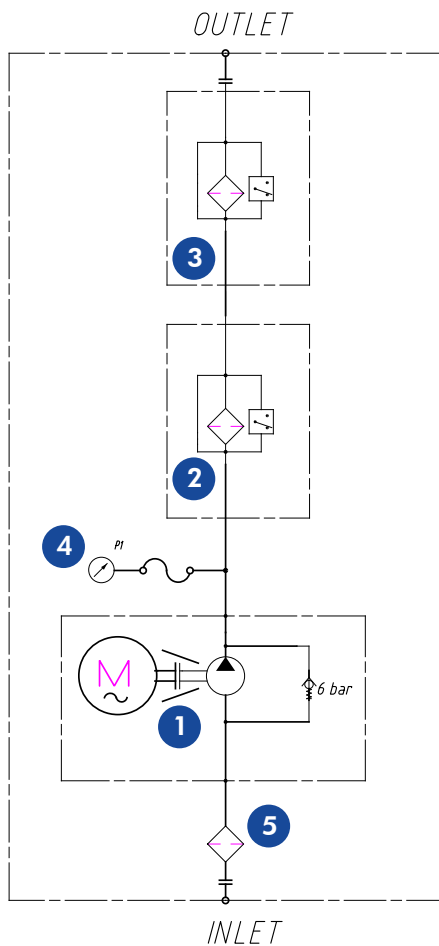
The unit is supplied complete with an Instruction and Maintenance Manual available on our website www.filtrac.com in the "Hydraulic Filter" section. The unit can be used by authorized operators who have read and understood all of its contents.

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 - support frame with removal drip tray - foot valve (ON /OFF) with suction strainer - suction and delivery pipes + lances L=3 - 2P+T type "F" plug (Schuko), L= 5m - control panel with ON/OFF switch - control panel with indicator lights for: SYSTEM ON CLOGGED FILTER #1* & #2* *= 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 $\beta_{4\mu m(c)} \geq 10.000$ Anti ESD -AbsoluteBeta Sparkbuster technology included Filter #1 specific for Diesel Fuel
	G03	glassfiber $\beta_{5\mu m(c)} \geq 5.000$ Anti ESD -AbsoluteBeta Sparkbuster technology included
	G06	glassfiber $\beta_{7\mu m(c)} \geq 2.000$
	G10	glassfiber $\beta_{10\mu m(c)} \geq 2.000$
	G25	glassfiber $\beta_{25\mu m(c)} \geq 2.000$
	GW40	glassfiber $\beta_{35\mu m(c)} \geq 1.000$ + water absorbent
	AW40	water absorbent only (higher water retention capacity) only for Filter #2
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.

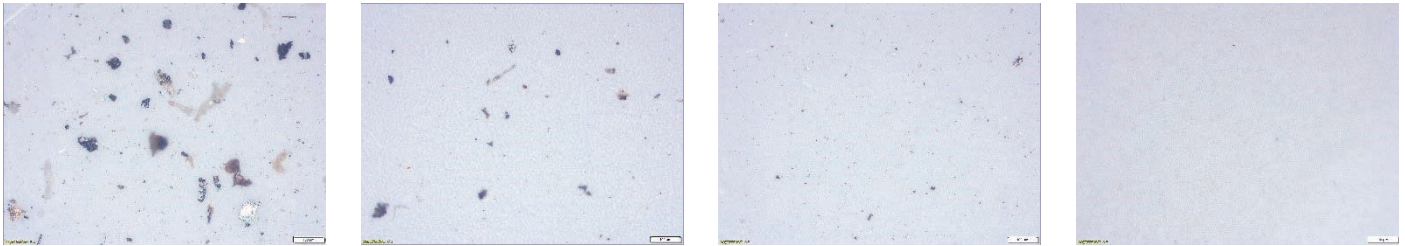
To achieve the emissions target, manufacturers use high pressure injection systems on their diesel engines. Today, almost all the diesel engines use a High Pressure Common Rail (HPCR) system to inject the fuel, with pressure up to 2500 bar.

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 β ratio at $4\text{ }\mu\text{m(c)}$ 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.





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 Operating temperature: from 0 °C to + 80°C Fluid viscosity range: 10-800cSt
ELECTRIC:	Voltage: 380/400 Vac 220/230 Vac (on request) Frequency: 50 - 60 Hz Power consumption: 1,5Kw
FRAME:	Dimensions L, W, H[mm]: 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 U564GW01/VRE
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).

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

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 ($T > 100^{\circ}\text{C}$) 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 $0.45\ \mu\text{m}$, 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.

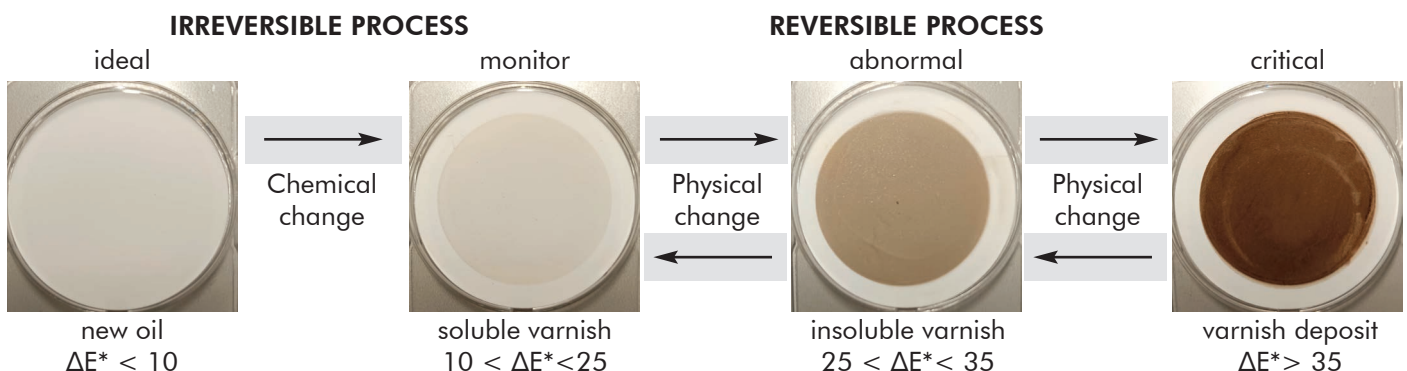
If ΔE^* value increases, it is necessary to remove the varnish precursor from the oil to avoid any future problem.

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.

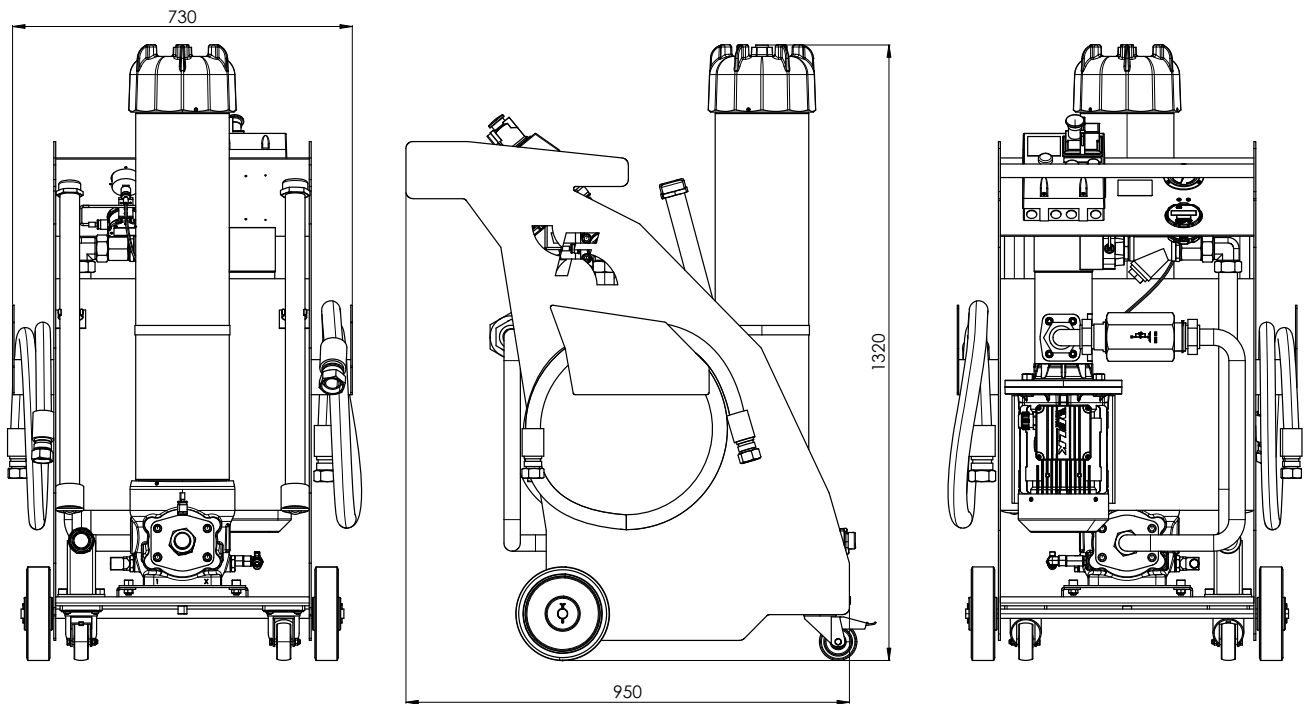
Filtrec filter elements with "/VRE" option are able to efficiently remove non-solid substances like varnish precursors as well as solid particle contamination.

These filter elements combine a high efficiency glass fiber media ($\beta_{4(c)} \geq 2000$) and a dedicated cellulose fibers media to reach high filtration performance for solid and non-solid contaminants.



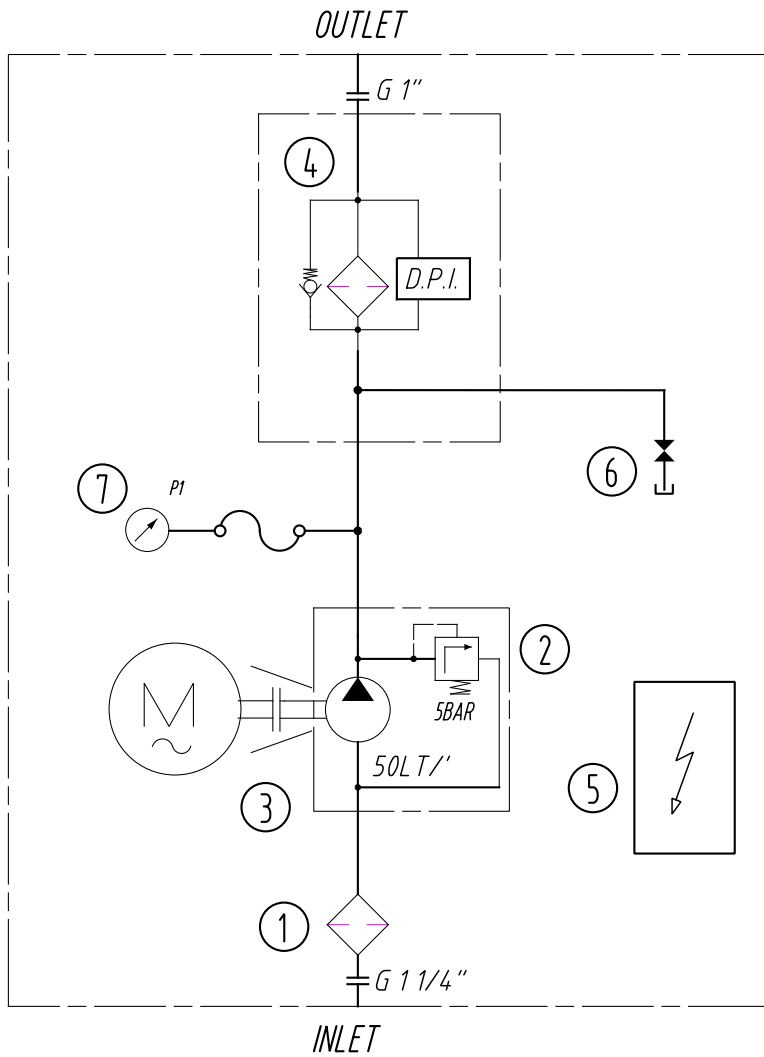
OVERALL DIMENSIONS

FUVR050



HYDRAULIC DIAGRAM

FUVR050



- 1- Suction filter "Y" 500 μ 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 Support frame with drip tray Suction filter "Y" 500 µm Suction and delivery hoses + lance L=3m 3P+N+PE (N=not connected)+ industrial plug, L=2m 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 $\beta_{4\mu m(c)} > 2.000$			
	GW01	glassfiber $\beta_{4\mu m(c)} > 2.000$ + 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 acceptable 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.





FUH050-FUH100 SERIES
Transfer and filtration portable unit



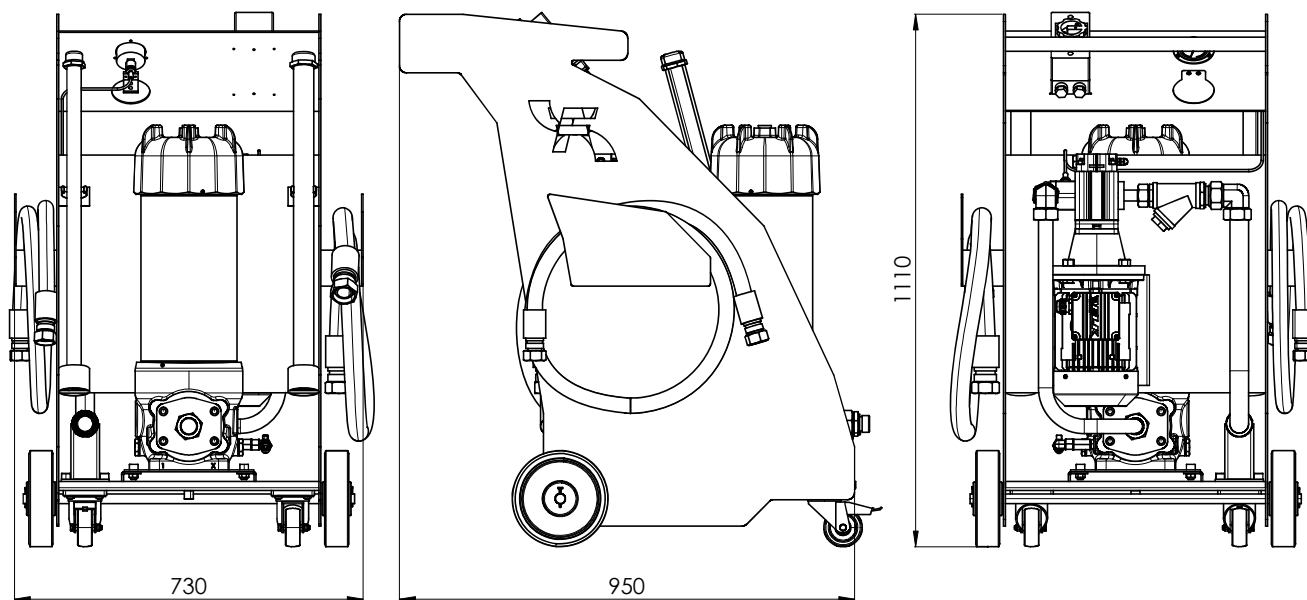
TECHNICAL SPECIFICATION	
MAIN:	Flow Rate: FUH050: 50 l/min FUH100: 100 l/min Operating temperature: from 0 °C to +80°C Fluid viscosity range: 10-800cSt
ELECTRIC:	Voltage: 380/400 Vac 220/230 Vac (on request) Frequency: 50 - 60 Hz Power consumption: FUH050: 1,5Kw FUH100: 2,2Kw
FRAME:	Dimensions L, W, H[mm]: FUH050: 730X950X1110 FUH100: 730X950X1320
DRY WEIGHT:	FUH050: 148 Kg FUH100: 188 Kg
MATERIALS:	Base frame: Painted steel
ELEMENT	
FILTER MEDIA:	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181 Fiberglass: G01 - G03 - G06 - G10 G15 - G25 - G40 Water absorbent: GW03 - GW10 AW40
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).

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.

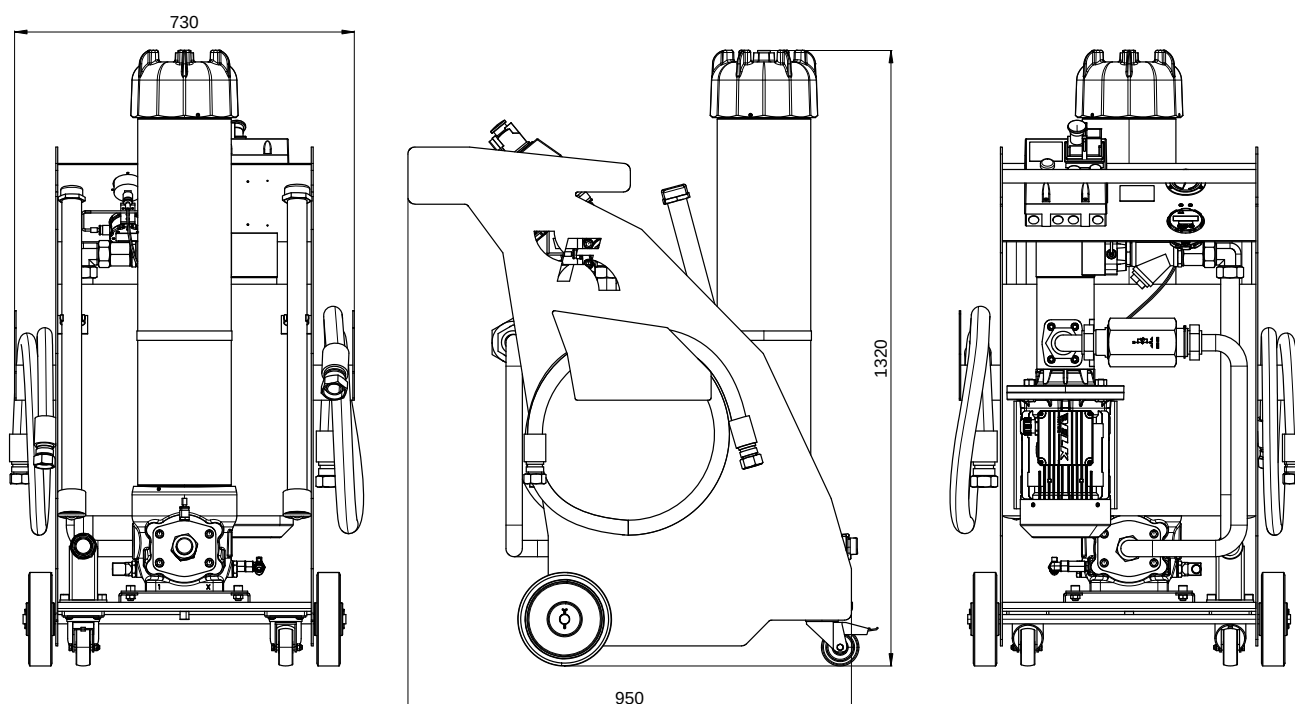
The FUH050 and FUH100 filtration units are certified

OVERALL DIMENSIONS

FUH050

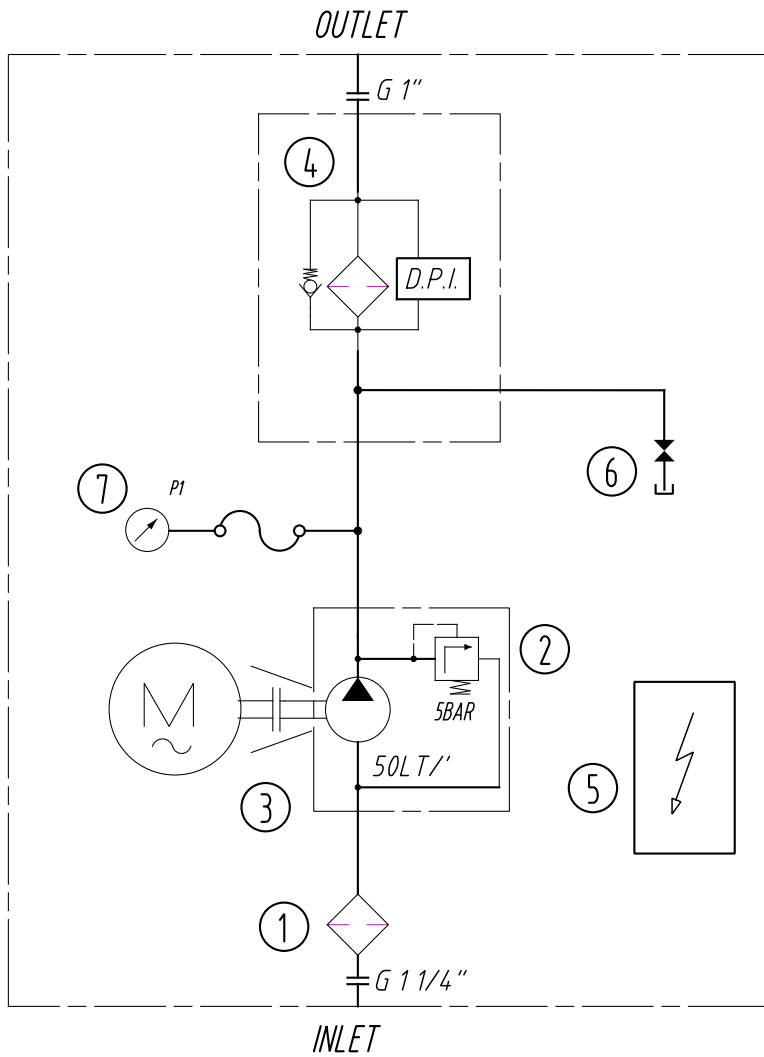


FUH100



HYDRAULIC DIAGRAM

FUH050

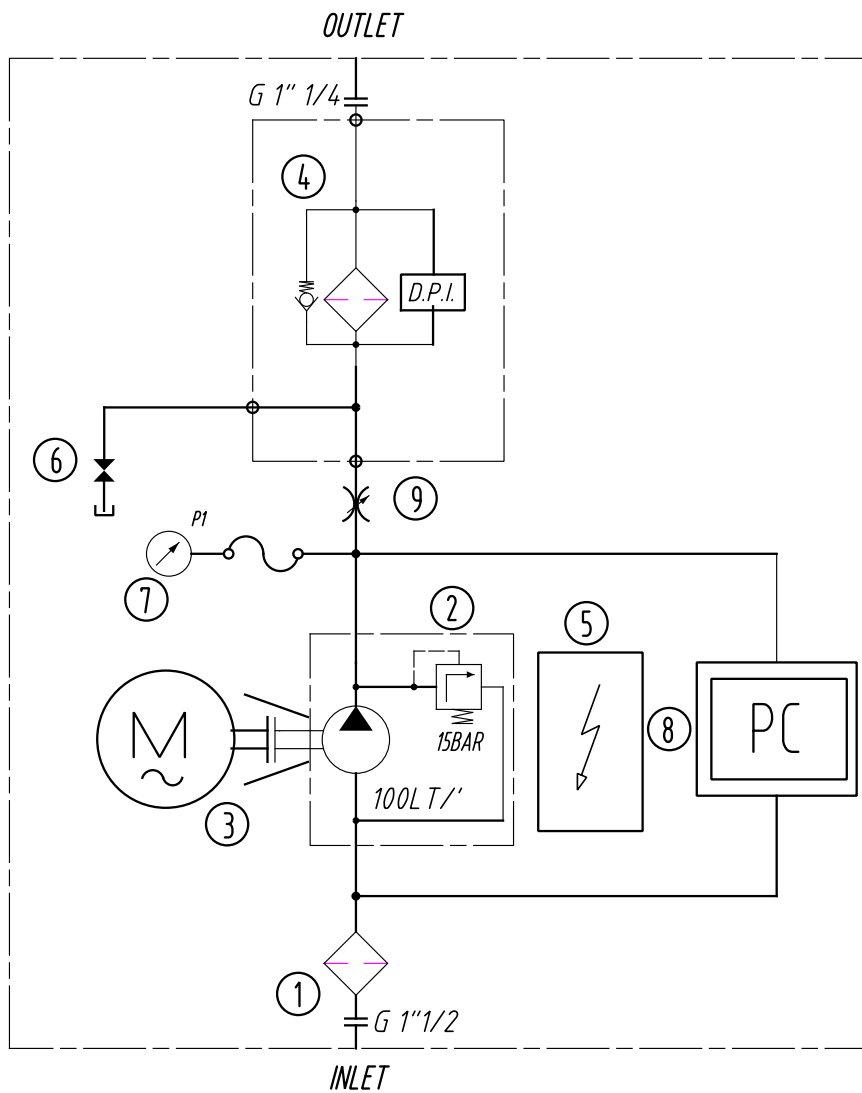


- 1- Suction filter "Y" 500 μ m
- 2- Gear pump + pressure relief valve 5 bar
- 3- Motor with pump coupling
- 4- Filter with visual clogging indicator
- 5- Control Panel
- 6- Sampling drain valve
- 7- Pressure gauge

Suction and delivery hoses are included but not connected

HYDRAULIC DIAGRAM

FUH100



- 1- Suction filter "Y" 500 μ 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 Support frame with drip tray Suction filter "Y" 500 µm Suction and delivery hoses + lance L=3m 3P+N+PE (N=not connected)+ industrial plug, L=2m 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 Support frame with drip tray Suction filter "Y" 500 µm Suction and delivery hoses + lance L=3m 3P+N+PE (N=not connected)+ industrial plug, L=2m Control panel with ON/OFF switch with safety release coil and emergency interlock push button Control panel with indicator lights for: 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 $\beta_{4\mu m(c)} > 1.000$
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$
	G40	glassfiber $\beta_{35\mu m(c)} > 1.000$
	GW03	glassfiber $\beta_{5\mu m(c)} > 1.000$ + water absorbent
	GW10	glassfiber $\beta_{12\mu m(c)} > 1.000$ + water absorbent
	AW40	water absorbent 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.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 Oil tank capacity: 150 l Water tank capacity: 25 l Operating temperature: 50-60 °C Fluid viscosity range: 32-460 cSt Final water content: <100 ppm Dehydration speed: 3.75 l/h (oil ISO VG 46)
ELECTRIC:	Voltage: 400 V Frequency: 50 Hz Power consumption: 14.5 kW Heater capacity: 7 kW
FRAME:	Dimensions L, W, H [mm]: 1411x916x1882 Dry Weight: 650 kg Inlet connections: 1 1/2" Outlet connections: 3/4" Op. vacuum pressure: -0.65 bar / -0.85 bar
MATERIALS:	Base frame: Painted steel Vacuum chamber: Stainless steel Hydraulic seals: NBR
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).

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 T_1 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 T_2 , 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.

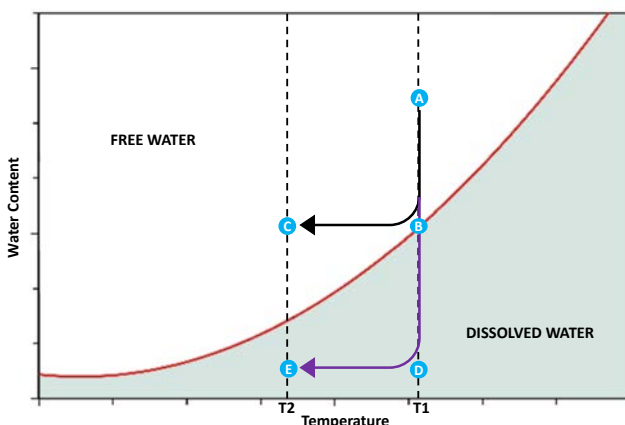


Figure 1

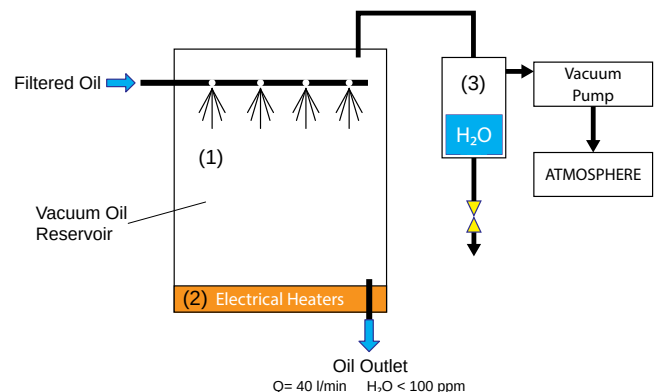
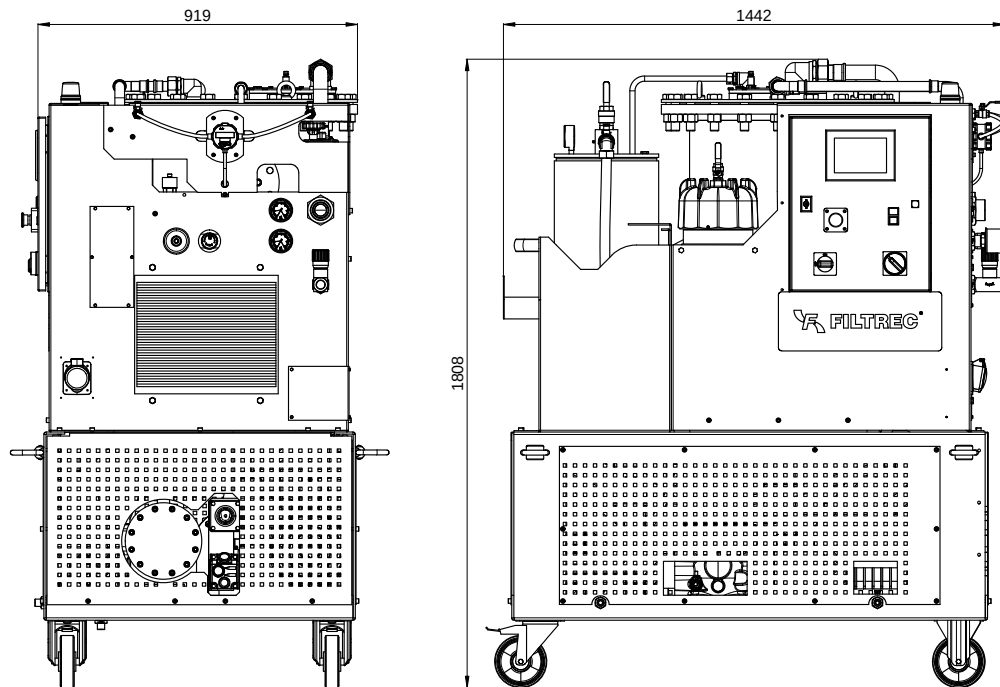


Figure 2

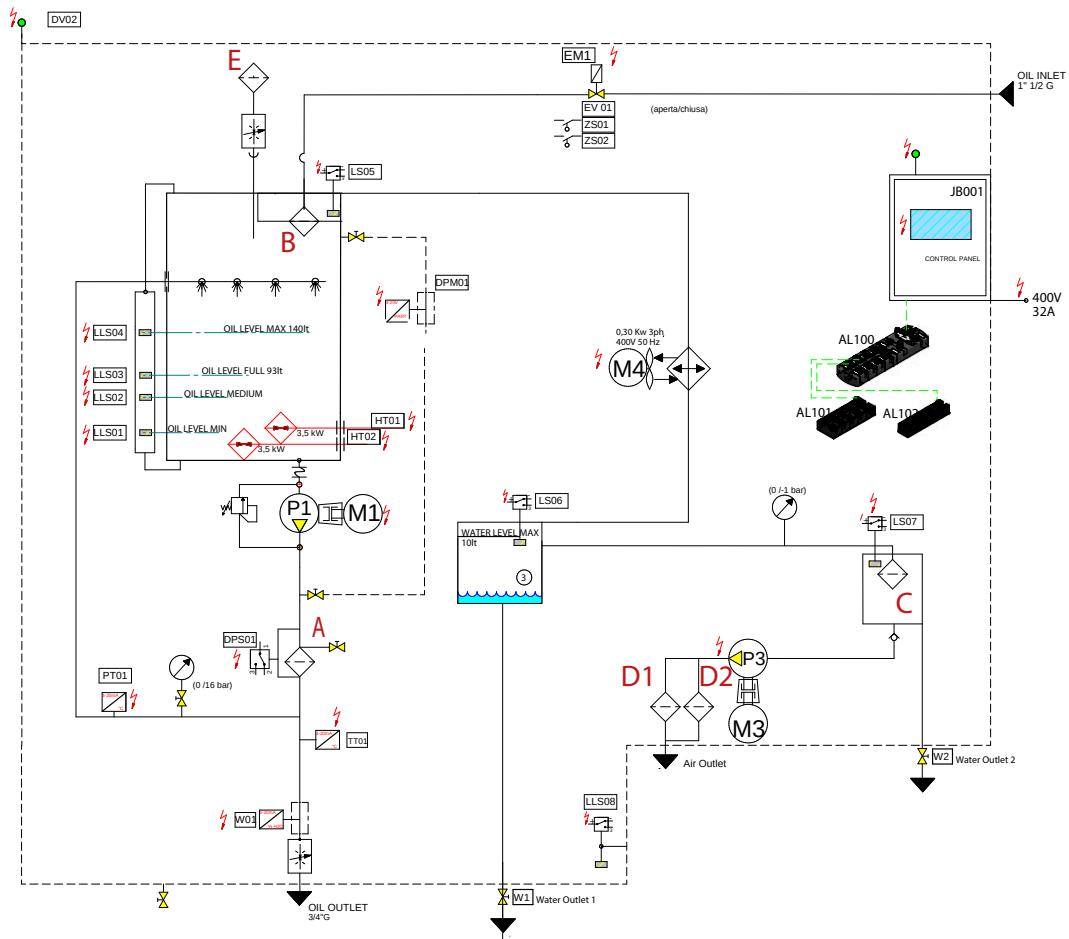
CAUTION

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 $\beta_{4\mu m(c)} > 1.000$			
	G03	glassfiber $\beta_{5\mu m(c)} > 1.000$			
	G06	glassfiber $\beta_{7\mu m(c)} > 1.000$			
	G10	glassfiber $\beta_{12\mu m(c)} > 1.000$			
	G15	glassfiber $\beta_{17\mu m(c)} > 1.000$			
	G25	glassfiber $\beta_{22\mu m(c)} > 1.000$			
	G40	glassfiber $\beta_{35\mu m(c)} > 1.000$			
	T25	wire mesh 25 μm			
4. SEALS	B	NBR			
5. BYPASS VALVE inbuilt into the filter element	0	no bypass			
	3	3 bar			
6. ELEMENT SUFFIX	/007	Improved compatibility for high water content fluid 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 FILTER 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 FUV040 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 FUV040 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



PW SERIES

Clogging indicators for suction line and return line with cable and connector



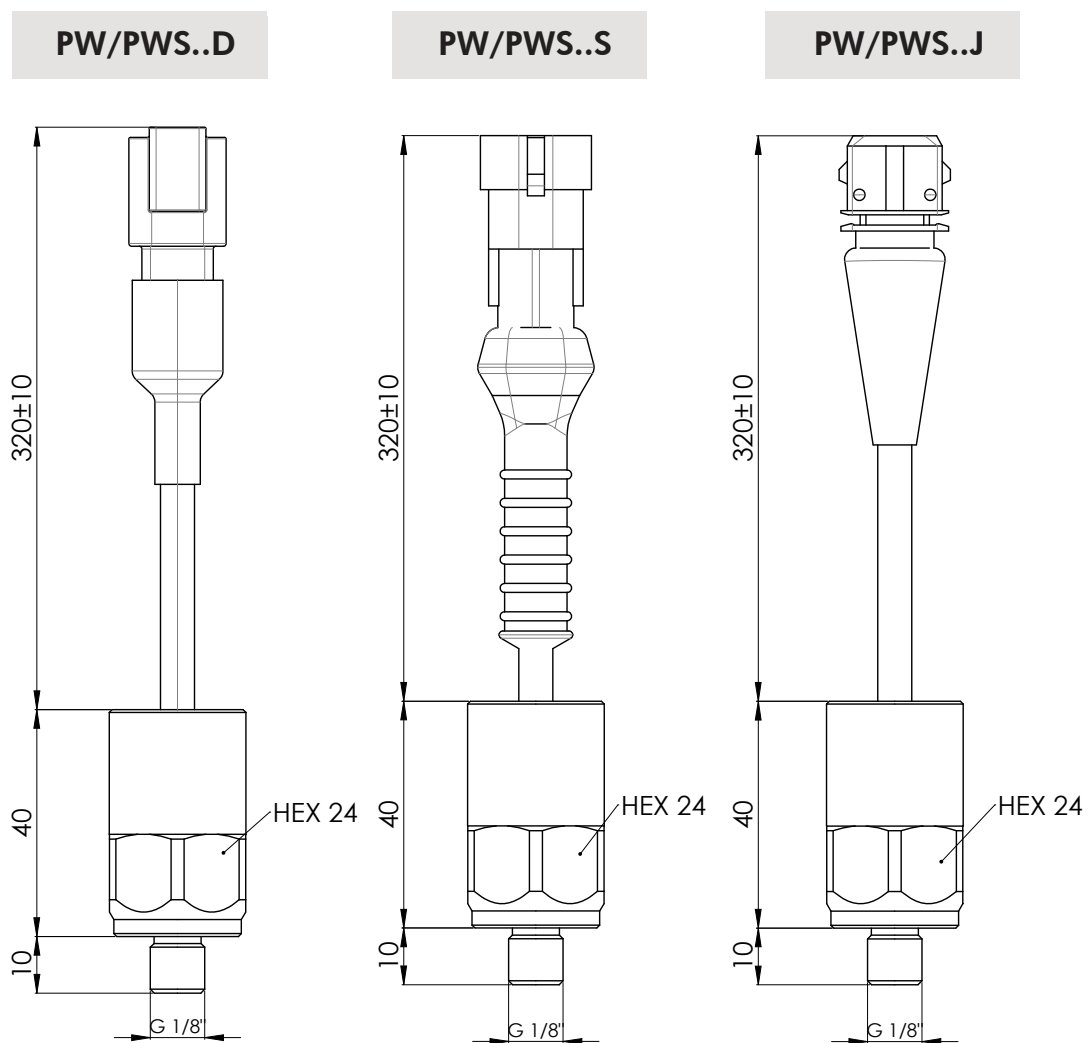
PW
PWS..J

PW
PWS..D

PW
PWS..S

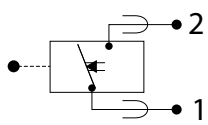
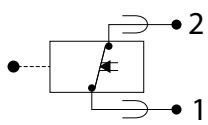
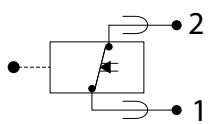
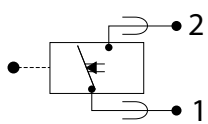
PRESSURE:	Max operating up to 25 bar
CONNECTION:	G 1/8"
MATERIALS:	Body: Brass Cover and connector: PA66 + G.F. Seal: HNBR standard
SETTINGS ΔP:	For suction application: PWSxx -0,2 ±10% bar For return line application: PWBxx 1,3 ± 10% bar PWCxx 2,0 ± 10% bar
ELECTRICAL SPECS.:	Contact configuration N.O./N.C.
CONNECTOR TYPE:	Deutsch DT04-2P SUPERSEAL 1.5 2 WAY 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). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS



Weight: ~210g

MECHANICAL CONDITION

ΔP CONDITION	ELECTRIC SYMBOL N.O.	ELECTRIC SYMBOL N.C.
$P < P_{set}$		
$P \geq P_{set}$		

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. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • Protection: IP67 EN60529
04.006.00553	PWSAD				• Connector N.O. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • 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. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • Protection: IP67 EN60529
04.006.00555	PCSAS				• Connector N.O. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • 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. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • Protection: IP67 EN60529
04.006.00557	PWSAJ				• Connector N.O. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • 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. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • Protection: IP67 EN60529
04.006.00262	PWCCD			2,0	
04.006.00460	PWBAD			1,3	• Connector N.O. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • 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. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • Protection: IP67 EN60529
04.006.00498	PWCCS			2,0	
04.006.00501	PWBAS			1,3	• Connector N.O. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • Protection: IP67 EN60529
04.006.00504	PWCAS			2,0	

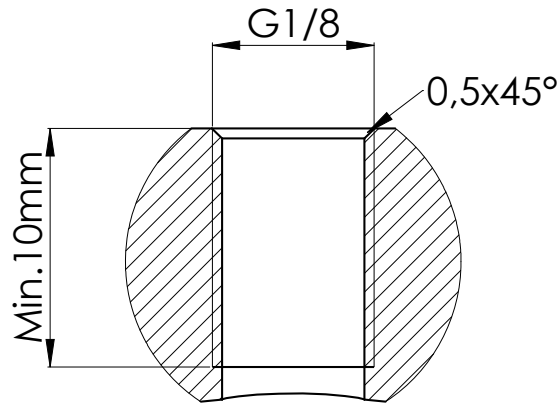
ORDER CODE	MODEL	SEALS	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00507	PWBCJ	HNBR	Junior Timer 2 Way 	1,3	• Connector N.C. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • Protection: IP67 EN60529
04.006.00510	PWCCJ			2,0	
04.006.00513	PWBAJ			1,3	• Connector N.O. • Max switching voltage: 48VDC • Max current: 0,5A resistive 0,2A inductive • 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
Cover and connector: PA66 + G.F.
Seal: HNBR standard

SETTINGS ΔP : **For suction application:**

PCSxx -0,2 $\pm$ 10% bar

For return line application:

PCBxx 1,3 $\pm$ 10% bar

PCCxx 2,0 $\pm$ 10% bar

ELECTRICAL SPECS.: Contact configuration N.O./N.C.

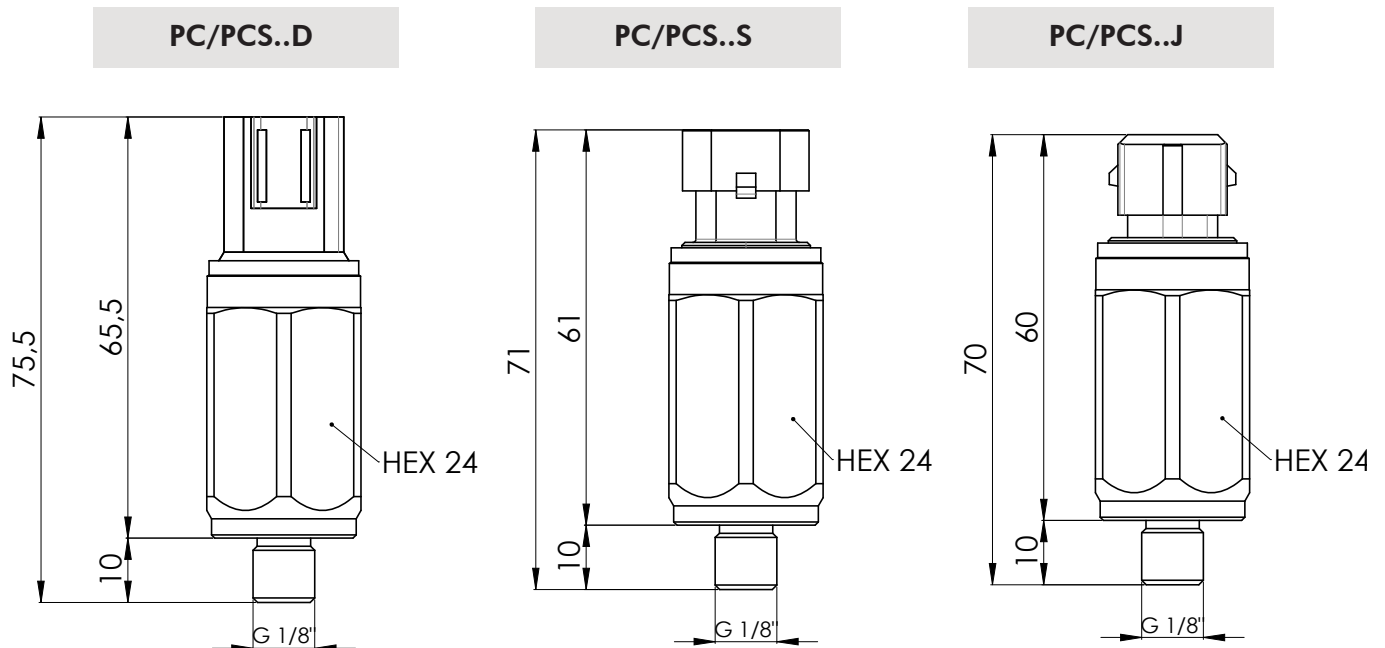
CONNECTOR TYPE: Deutsch DT04-2P
SUPERSEAL 1.5 2 WAY
JUNIOR POWER TIMER 2 WAY

DEGREE OF PROTECTION: IP67 according to EN60529

OPERATING TEMPERATURE: -30°C - +100°C

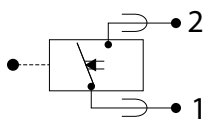
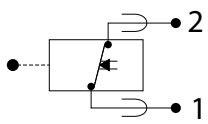
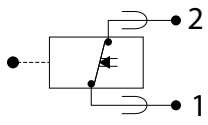
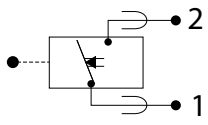
FLUID COMPATIBILITY: Full with HH-HL-HM-HV-HETG-HEES-HFA
HFB-HFC
(acc. to ISO 6743/4).
For use with other fluid please contact Filtrec
Customer Service (info@filtrec.it).

OVERALL DIMENSIONS



Weight: ~150g

MECHANICAL CONDITION

ΔP CONDITION	ELECTRIC SYMBOL N.O.	ELECTRIC SYMBOL N.C.
$P < P_{set}$		
$P \geq P_{set}$		

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. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00410	PCSAD			• Connector N.O. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • 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. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00418	PCSAS			• Connector N.O. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • 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. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00426	PCSAJ			• Connector N.O. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • 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. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00181	PCCCD			2,0	
04.006.00180	PCBAD			1,3	• Connector N.O. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • 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. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00439	PCCCS			2,0	
04.006.00442	PCBAS			1,3	• Connector N.O. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00445	PCCAS			2,0	

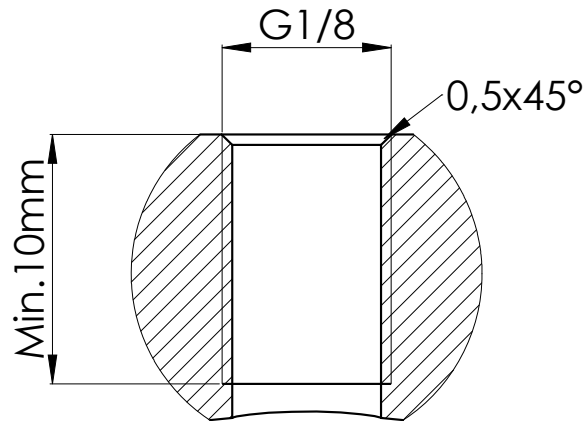
ORDER CODE	MODEL	SEALS	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00448	PCBCJ	HNBR	Junior Timer 2 Way 	1,3	• Connector N.C. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00451	PCCCJ			2,0	
04.006.00454	PCBAJ			1,3	• Connector N.O. • Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • 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	





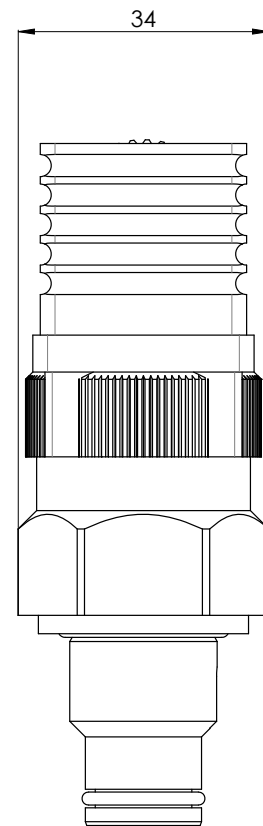
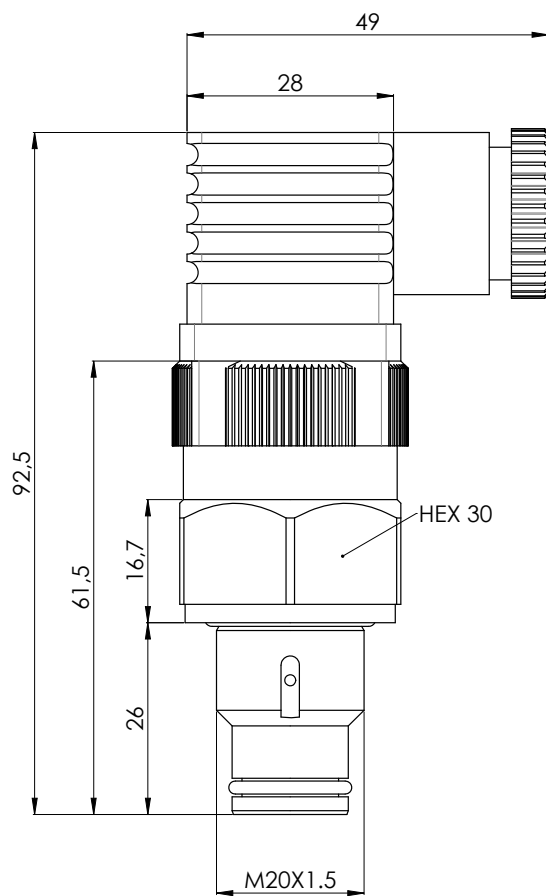
E SERIES

Electrical differential clogging indicators



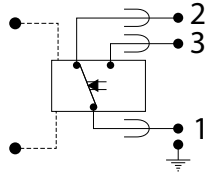
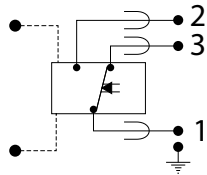
PRESSURE:	Max operating up to 420 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: Brass Cover and connector: PA66 + G.F. Seal: NBR standard FKM on request
SETTINGS ΔP :	1,3 bar $\pm 10\%$ 2,7 bar $\pm 10\%$ 5,0 bar $\pm 10\%$ 8,0 bar $\pm 10\%$
ELECTRICAL SPECS.:	Contact configuration SPDT
CONNECTOR TYPE:	according to DIN 43650 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). For use with other fluid please contact Filtrtec Customer Service (info@filtrtec.it).

OVERALL DIMENSIONS

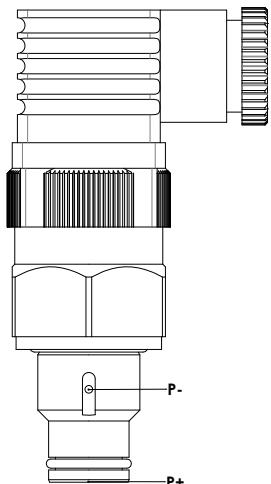


Weight: 173,6 gr

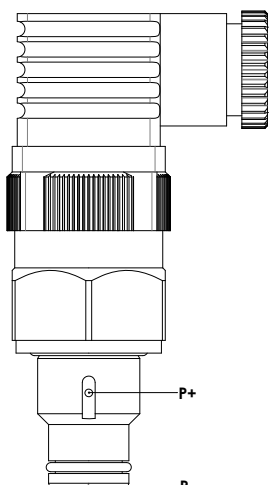
MECHANICAL CONDITION

ΔP CONDITION	ELECTRIC SYMBOL
$P+ - P- < \Delta P_{set}$	
$P+ - P- \geq \Delta P_{set}$	

ORDERING INFORMATION / DETAILS

ORDER CODE	MODEL	SEALS	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00129 04.006.00130	E02 EF2	NBR FKM		2,7 bar	• Connector DIN 43650 • Max AC voltage: 250Vac • Max current: 5A resistive 1A inductive • Max DC voltage: 30Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
04.006.00131 04.006.00132	E05 EF5	NBR FKM		5,0 bar	
04.006.00136 04.006.00137	E08 EF8	NBR FKM		8,0 bar	

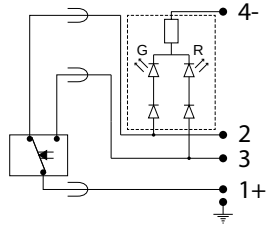
 50 / 90 Nm - See hydraulic filter catalogues

ORDER CODE	MODEL	SEALS	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00664 04.006.00665	EX1 EY1	NBR FKM		1,3 bar	• Connector DIN 43650 • Max AC voltage: 250Vac • Max current: 5A resistive 1A inductive • Max DC voltage: 30Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
04.006.00520 04.006.00521	EX2 EY2	NBR FKM		2,7 bar	
04.006.00133 04.006.00134	EX5 EY5	NBR FKM		5,0 bar	
04.006.00138 04.006.00139	EX8 EY8	NBR 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



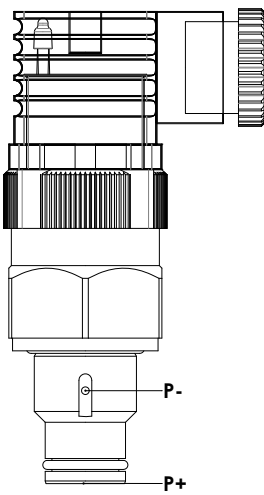
4. TIGHTEN THE SCREW



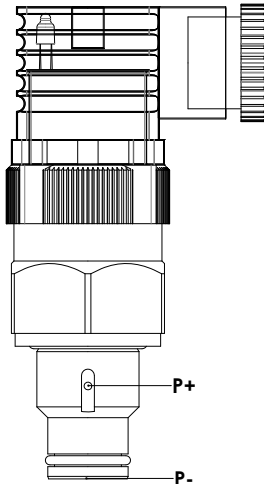
VERSION WITH INTEGRATED LED CONNECTOR

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 04.006.00523	E02L EF2L	NBR FKM		2,7 bar	• Connector DIN 43650 • Max DC voltage: 24Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
04.006.00169 04.006.00524	E05L EF5L	NBR FKM		5,0 bar	
04.006.00177 04.006.00525	E08L EF8L	NBR FKM		8,0 bar	

 50 / 90 Nm - See hydraulic filter catalogues

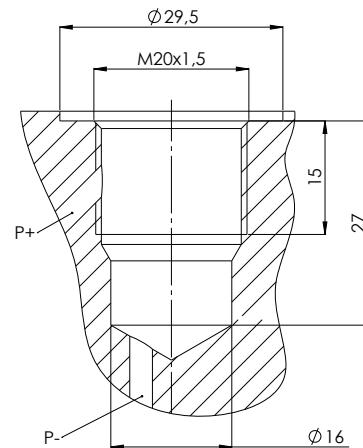
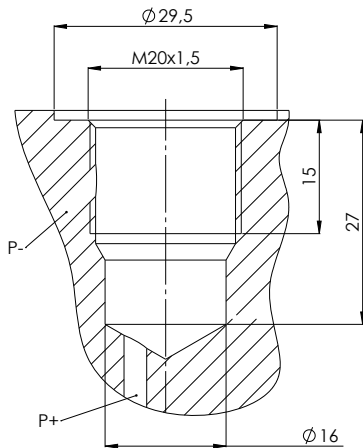
ORDER CODE	MODEL	SEALS	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00526 04.006.00527	EX2L EY2L	NBR FKM		2,7 bar	• Connector DIN 43650 • Max DC voltage: 24Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
04.006.00528 04.006.00529	EX5L EY5L	NBR FKM		5,0 bar	
04.006.00530 04.006.00531	EX8L EY8L	NBR FKM		8,0 bar	

 50 / 90 Nm - See hydraulic filter catalogues

INDICATOR SEAT

E0.../EF.../E0...L/EF...L

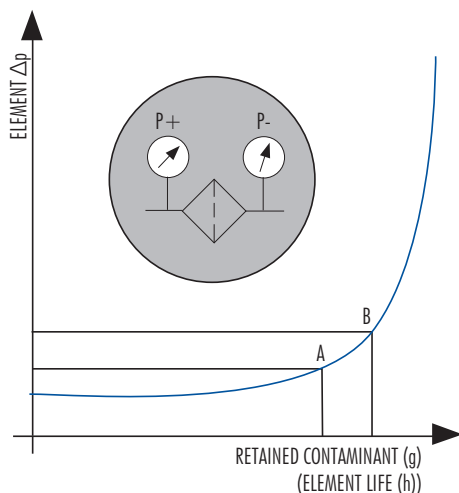
EX.../EY.../EX...L/EY...L



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 than 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		





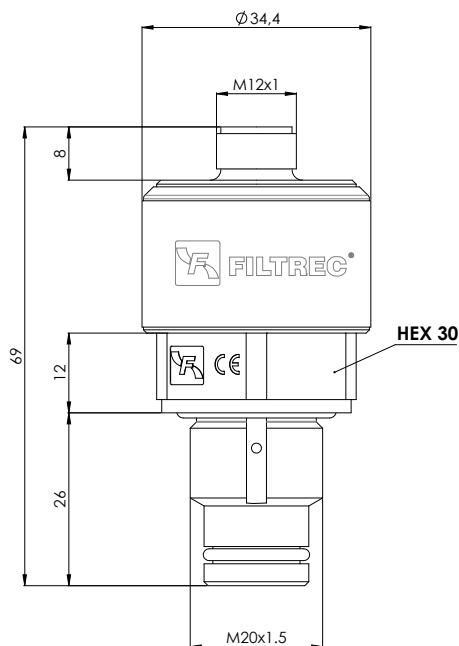
EA SERIES

4-20 mA Electronical differential pressure transmitter

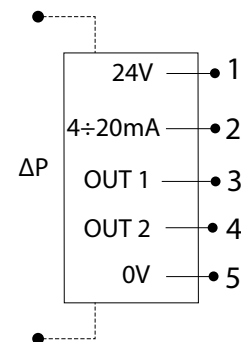


PRESSURE:	Max operating up to 420 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: Brass Cover and connector: PA66 + G.F. Seal: FKM
RANGE ΔP :	2,0 ÷ 8,0 bar
ELECTRICAL SPECS.:	Analog output 4÷20 mA N°2 digital output PNP - N.O.
CONNECTOR TYPE:	M12x1 - 5 PIN
DEGREE OF PROTECTION:	IP67 according to EN60529
OPERATING TEMPERATURE:	-30°C - +80°C
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV-HETG-HEES, HFA-HFB-HFC (acc. to ISO 6743/4) For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

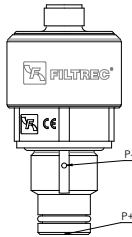
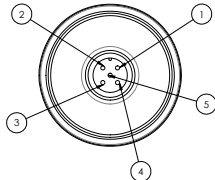
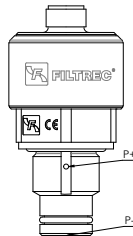
OVERALL DIMENSIONS AND ELECTRICAL SCHEME



Weight: : ~140g



ORDERING INFORMATION / DETAILS

ORDER CODE	MODEL	VIEW	RANGE	ELECTRICAL CONNECTION
04.006.00629	EA F8		2,0 ÷ 8,0 bar	 24Vdc ± 10% - Analog output 4÷20mA 4mA = 2 bar 20mA = 8 bar - Digital output 1 calibrated at 6 bar – PNP - Max Load 0,2A – N.O. - Digital output 2 calibrated at 8 bar – PNP - Max Load 0,2A – N.O. 0V - GND
04.006.00630	EAX F8			

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

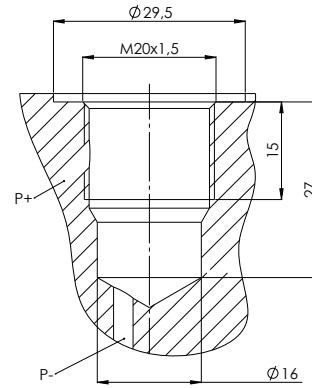
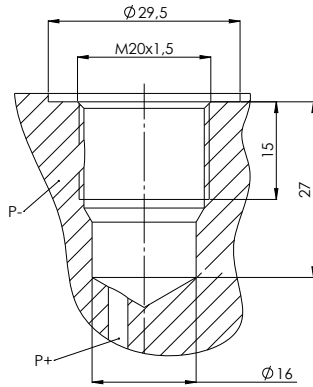


50 / 90 Nm - See hydraulic filter catalogues

INDICATOR SEAT

EA...

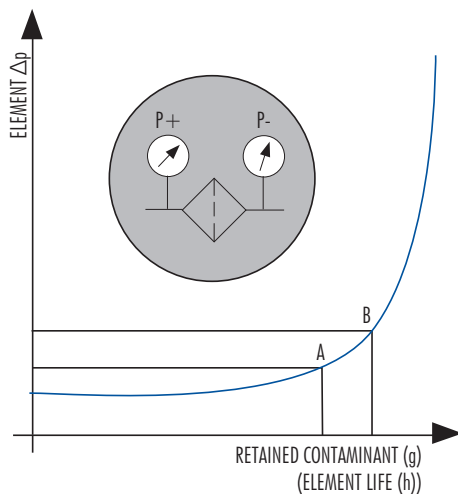
EAX...



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 than 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	
		EA8	EAX8
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
Cover and connector: PA66 + G.F.
Seal: HNBR standard

SETTINGS ΔP : 2,7 bar $\pm 10\%$
5,0 bar $\pm 10\%$
8,0 bar $\pm 10\%$

ELECTRICAL SPECS.: Contact configuration N.O./N.C.

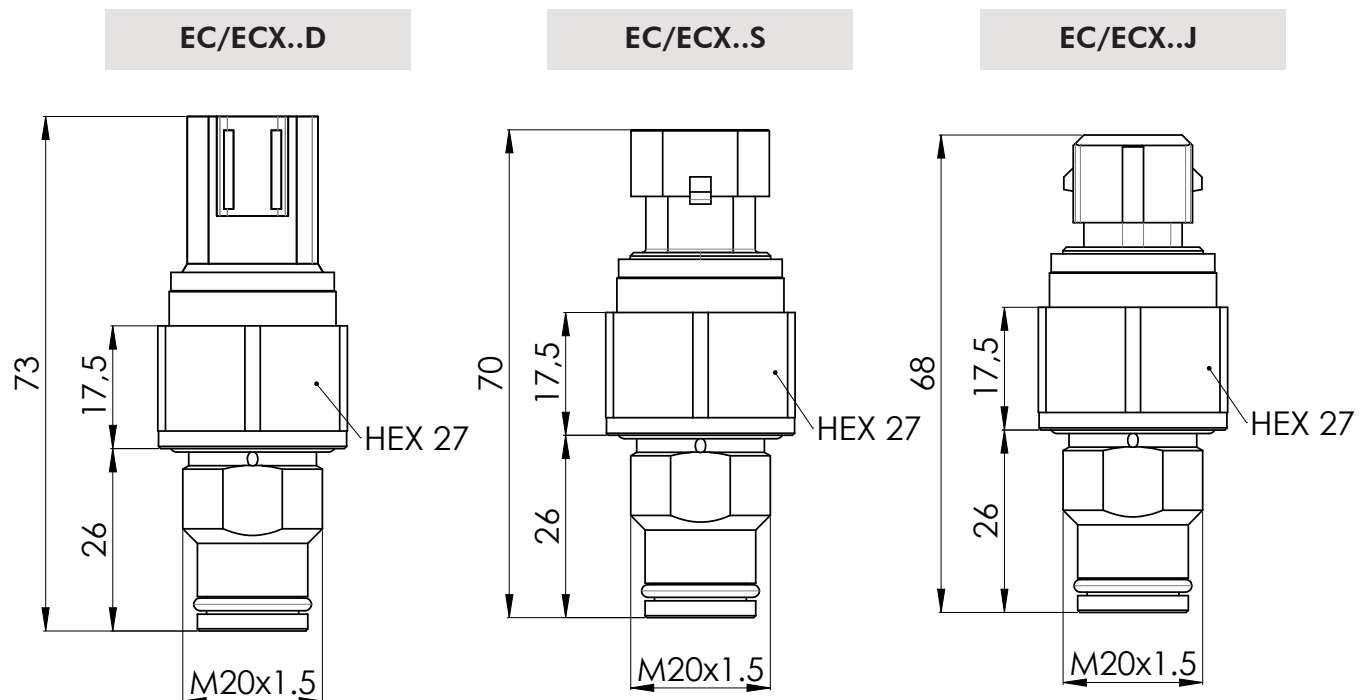
CONNECTOR TYPE: Deutsch DT04-2P
SUPERSEAL 1.5 2 WAY
JUNIOR POWER TIMER 2 WAY

DEGREE OF PROTECTION: IP67 according to EN60529

OPERATING TEMPERATURE: -30°C - + 80°C

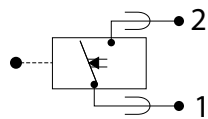
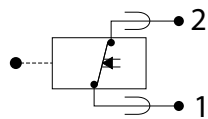
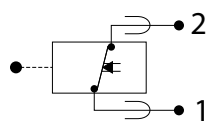
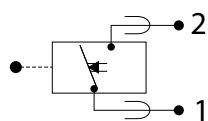
FLUID COMPATIBILITY: Full with HH-HL-HM-HV-HETG-HEES-HFA
HFB-HFC
(acc. to ISO 6743/4).
For use with other fluid please contact Filtrec
Customer Service (info@filtrec.it).

OVERALL DIMENSIONS

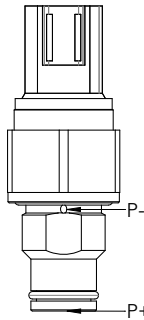


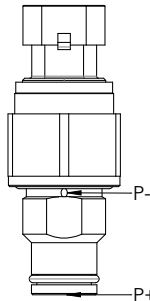
Weight: ~150g

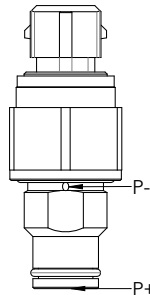
MECHANICAL CONDITION

ΔP CONDITION	ELECTRIC SYMBOL N.O.	ELECTRIC SYMBOL N.C.
$P+ - P- < \Delta P_{set}$		
$P+ - P- \geq \Delta P_{set}$		

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 • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00446	EC02DC0	N.C.		5,0 bar	
04.006.00447	EC05DA0	N.O.		8,0 bar	
04.006.00449	EC05DC0	N.C.			
04.006.00450	EC08DA0	N.O.			
04.006.00452	EC08DC0	N.C.			

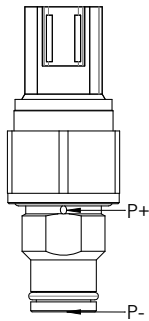
ORDER CODE	MODEL	CONN	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00435	EC02SA0	N.O.	Superseal 1.5 2 Way 	2,7 bar	• Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00437	EC02SC0	N.C.		5,0 bar	
04.006.00438	EC05SA0	N.O.		8,0 bar	
04.006.00440	EC05SC0	N.C.			
04.006.00441	EC08SA0	N.O.			
04.006.00443	EC08SC0	N.C.			

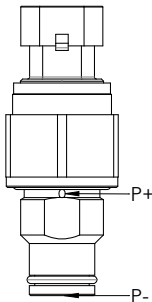
ORDER CODE	MODEL	CONN	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00453	EC02JA0	N.O.	Junior Timer 2 Way 	2,7 bar	• Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00455	EC02JC0	N.C.		5,0 bar	
04.006.00456	EC05JA0	N.O.		8,0 bar	
04.006.00458	EC05JC0	N.C.			
04.006.00459	EC08JA0	N.O.			
04.006.00461	EC08JC0	N.C.			

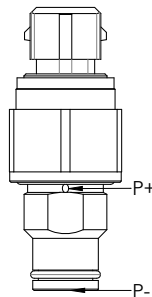


50 / 90 Nm - See hydraulic filter catalogues

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 • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00502	ECX2DC0	N.C.		5,0 bar	
04.006.00503	ECX5DA0	N.O.		8,0 bar	
04.006.00505	ECX5DC0	N.C.			
04.006.00506	ECX8DA0	N.O.			
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 • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00493	ECX2SC0	N.C.		5,0 bar	
04.006.00494	ECX5SA0	N.O.		8,0 bar	
04.006.00496	ECX5SC0	N.C.			
04.006.00497	ECX8SA0	N.O.			
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 • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00511	ECX2JC0	N.C.		5,0 bar	
04.006.00512	ECX5JA0	N.O.		8,0 bar	
04.006.00514	ECX5JC0	N.C.			
04.006.00515	ECX8JA0	N.O.			
04.006.00517	ECX8JC0	N.C.			

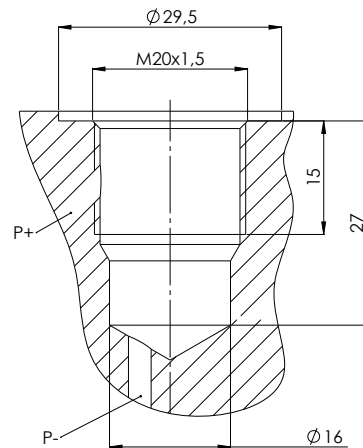
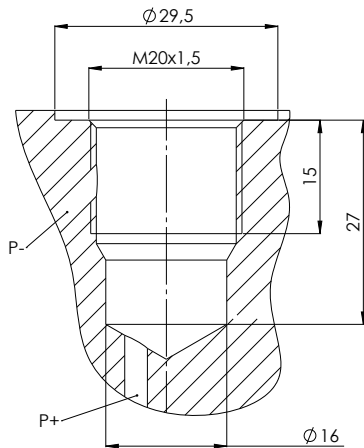


50 / 90 Nm - See hydraulic filter catalogues

INDICATOR SEAT

EC...

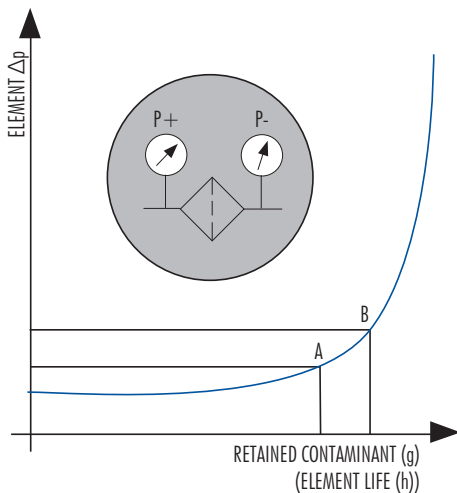
ECX...



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 than 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		





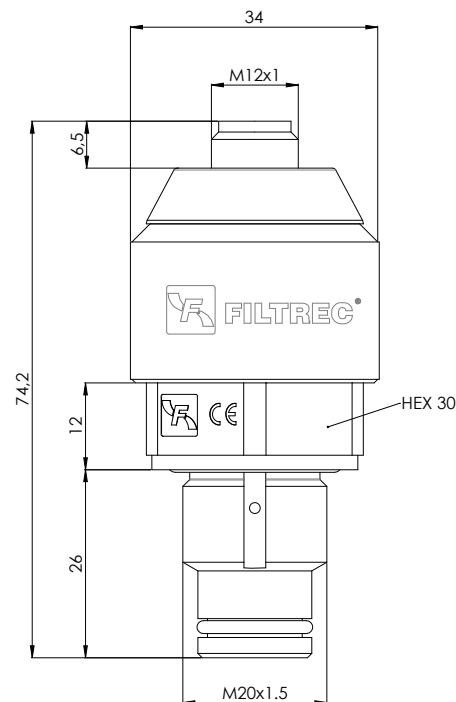
ED SERIES

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.



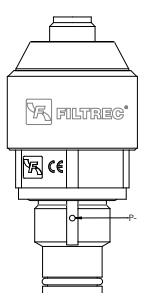
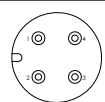
PRESSURE:	Max operating up to 420 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: Brass Cover and connector: PA66 + G.F. Seal: FKM
SETTINGS ΔP :	2,7 bar $\pm 10\%$ 5,0 bar $\pm 10\%$ 8,0 bar $\pm 10\%$
ELECTRICAL SPECS.:	Contact configuration PNP - N.O.
CONNECTOR TYPE:	M12x1 - 4 PIN
DEGREE OF PROTECTION:	IP67 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). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS



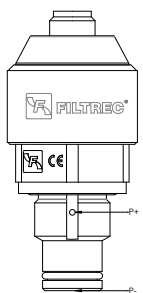
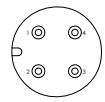
Weight: ~140g

ORDERING INFORMATION / DETAILS

ORDER CODE	MODEL	VIEW	SETTING	VISUAL OUTPUT SPECS.
04.006.00543	EDF2		2,7 bar	 1. 24Vdc $\pm$ 10% 2. Output 75% PNP - Max load 0,2 N.O. 3. 0V 4. Output 100% PNP - Max load 0,2 N.O.
04.006.00544	EDF5		5,0 bar	
04.006.00545	EDF8		8,0 bar	



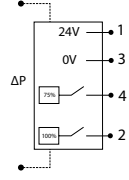
50 / 90 Nm - See hydraulic filter catalogues

ORDER CODE	MODEL	VIEW	SETTING	VISUAL OUTPUT SPECS.
04.006.00577	EDXF2		2,7 bar	 1. 24Vdc $\pm$ 10% 2. Output 75% PNP - Max load 0,2 N.O. 3. 0V 4. Output 100% PNP - Max load 0,2 N.O.
04.006.00578	EDXF5		5,0 bar	
04.006.00579	EDXF8		8,0 bar	

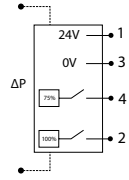
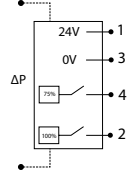
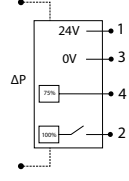
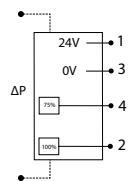


50 / 90 Nm - See hydraulic filter catalogues

If $T < \text{Thermal lock-out } (20^{\circ}\text{C})$

ΔP CONDITION	MODEL	RANGE	VISUAL	ELECTRICAL SYMBOL
Any ΔP within measuring range	EDF2 EDXF2	$0 \div 2,7 \text{ bar}$		
	EDF5 EDXF5	$0 \div 5,0 \text{ bar}$		
	EDF8 EDXF8	$0 \div 8,0 \text{ bar}$		

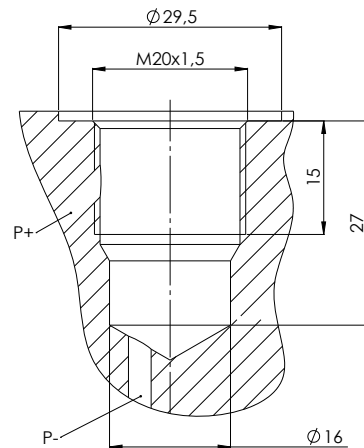
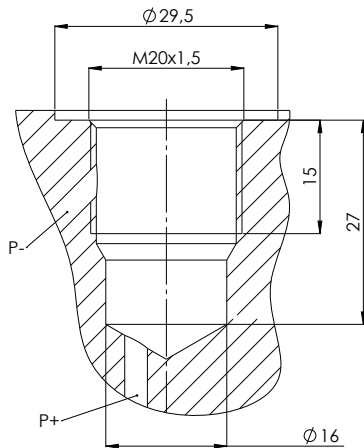
If $T > \text{Thermal lock-out } (20^{\circ}\text{C})$

ΔP CONDITION	MODEL	RANGE	VISUAL	ELECTRICAL SYMBOL
$0 < \Delta P < 50$	EDF2 EDXF2	$0 \div 1,3 \text{ bar}$		
	EDF5 EDXF5	$0 \div 2,5 \text{ bar}$		
	EDF8 EDXF8	$0 \div 4,0 \text{ bar}$		
$50 \leq \Delta P < 75$	EDF2 EDXF2	$1,3 \div 2,0 \text{ bar}$		
	EDF5 EDXF5	$2,5 \div 3,7 \text{ bar}$		
	EDF8 EDXF8	$4,0 \div 6,0 \text{ bar}$		
$75 \leq \Delta P < 100$	EDF2 EDXF2	$2,0 \div 2,7 \text{ bar}$		
	EDF5 EDXF5	$3,7 \div 5,0 \text{ bar}$		
	EDF8 EDXF8	$6,0 \div 8,0 \text{ bar}$		
$\Delta P \geq 100$	EDF2 EDXF2	$\geq 2,7 \text{ bar}$	 BLINKING	
	EDF5 EDXF5	$\geq 5,0 \text{ bar}$		
	EDF8 EDXF8	$\geq 8,0 \text{ bar}$		

INDICATOR SEAT

ED...

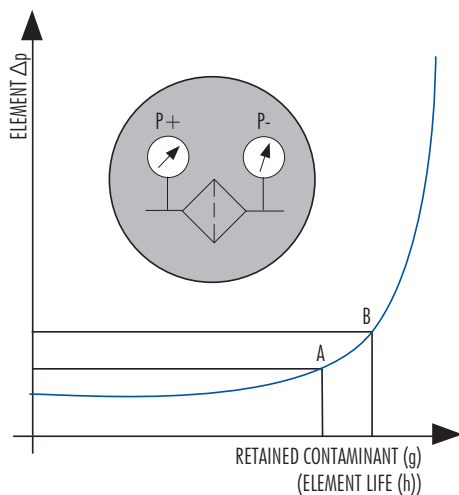
EDX...



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 than 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		



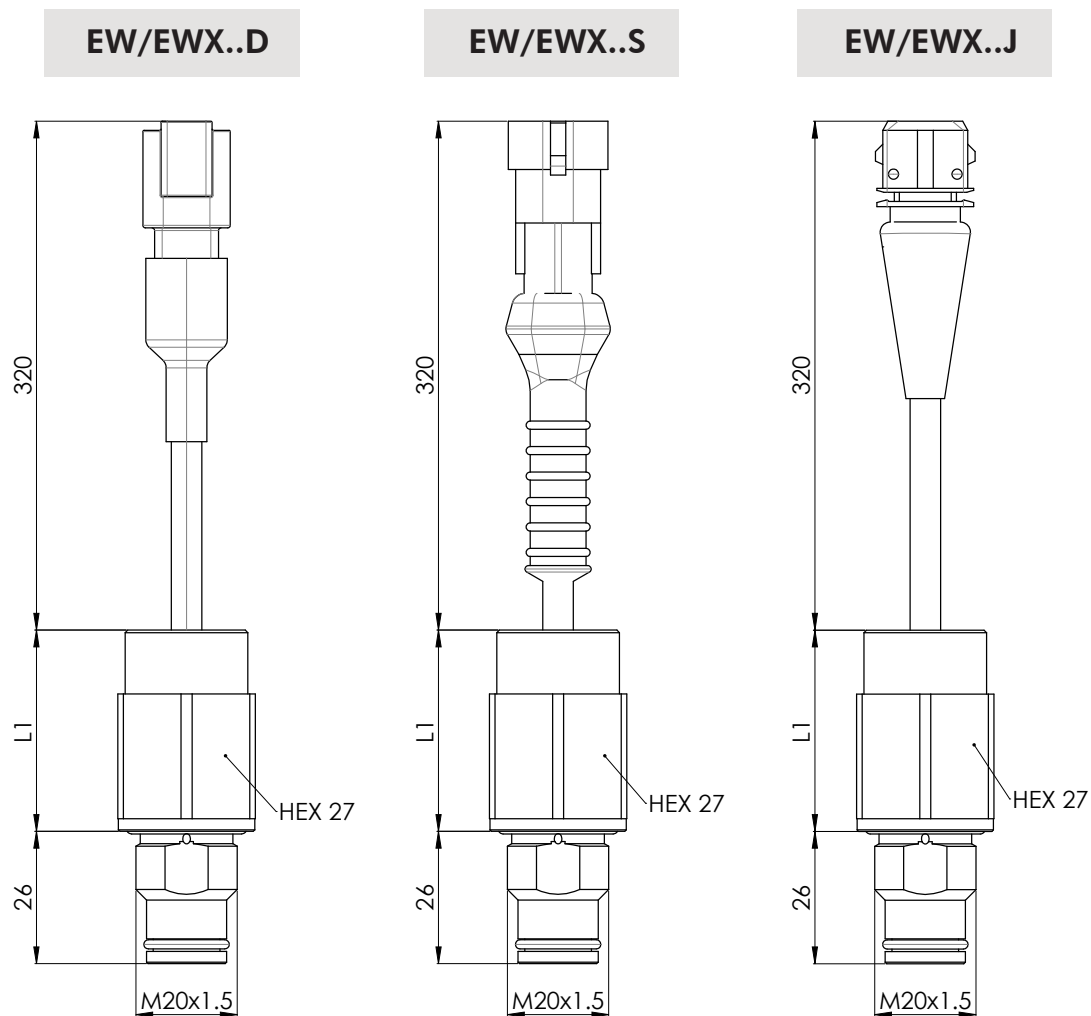
EW SERIES

Electrical differential indicators with cable and connector with and without thermostatic switch set at 30°C



PRESSURE:	Max operating up to 420 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: Brass Cover and connector: PA66 + G.F. Seal: HNBR standard
SETTINGS ΔP :	2,7 bar $\pm$ 10% 5,0 bar $\pm$ 10% 8,0 bar $\pm$ 10%
ELECTRICAL SPECS.:	Contact configuration N.O./N.C.
CONNECTOR TYPE:	Deutsch DT04-2P SUPERSEAL 1.5 2 WAY 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). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

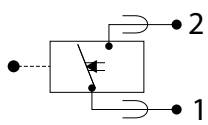
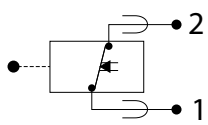
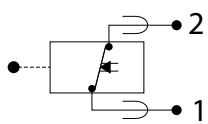
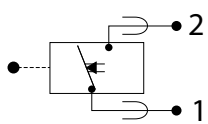
OVERALL DIMENSIONS



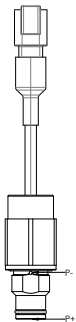
**L1: 49 WITH THERMOSTAT
40 WITHOUT THERMOSTAT**

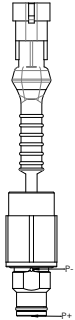
Weight: ~240g

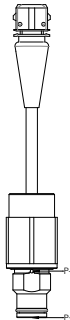
MECHANICAL CONDITION

ΔP CONDITION	ELECTRIC SYMBOL N.O.	ELECTRIC SYMBOL N.C.
$P+ - P- < \Delta P_{set}$		
$P+ - P- \geq \Delta P_{set}$		

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 • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00412	EW02DAT				
04.006.00413	EW02DC0				
04.006.00564	EW05DA0	N.O.		5,0 bar	
04.006.00416	EW05DAT				
04.006.00417	EW05DC0				
04.006.00419	EW08DA0	N.O.		8,0 bar	
04.006.00420	EW08DAT				
04.006.00421	EW08DC0				

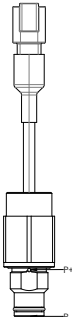
ORDER CODE	MODEL	CONN	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00399	EW02SA0	N.O.	Superseal 1.5 2 Way 	2,7 bar	• Max switching voltage: 48VDC • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00400	EW02SAT				
04.006.00401	EW02SC0	N.C.			
04.006.00403	EW05SA0				
04.006.00404	EW05SAT	N.O.		5,0 bar	
04.006.00405	EW05SC0				
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 • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00424	EW02JAT				
04.006.00425	EW02JC0	N.C.			
04.006.00427	EW05JA0				
04.006.00428	EW05JAT	N.O.		5,0 bar	
04.006.00429	EW05JC0				
04.006.00431	EW08JA0	N.O.			
04.006.00432	EW08JAT				
04.006.00433	EW08JC0	N.C.		8,0 bar	

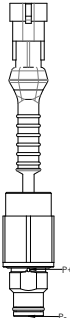


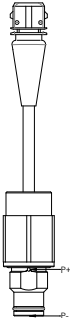
50 / 90 Nm - See hydraulic filter catalogues

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 • Max current: 5A resistive 2A inductive • 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 • Max current: 5A resistive 2A inductive • 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 • Max current: 5A resistive 2A inductive • Protection: IP67 EN60529
04.006.00482	EWX2JAT				
04.006.00483	EWX2JC0	N.C.			
04.006.00484	EWX5JA0	N.O.			
04.006.00485	EWX5JAT			5,0 bar	
04.006.00486	EWX5JC0	N.C.			
04.006.00487	EWX8JA0	N.O.			
04.006.00488	EWX8JAT			8,0 bar	
04.006.00489	EWX8JC0	N.C.			

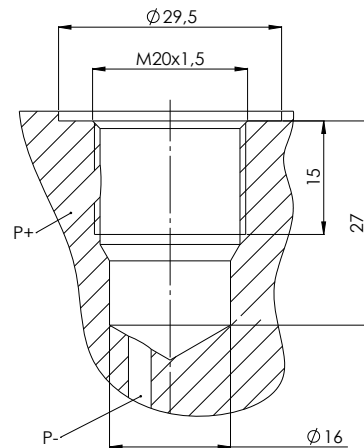
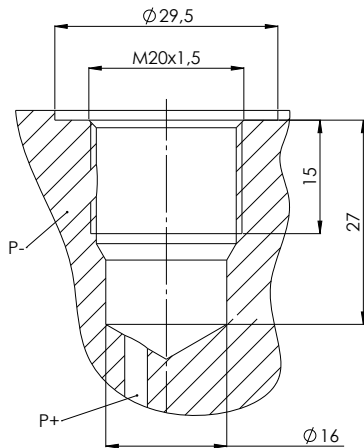


50 / 90 Nm - See hydraulic filter catalogues

INDICATOR SEAT

EW...

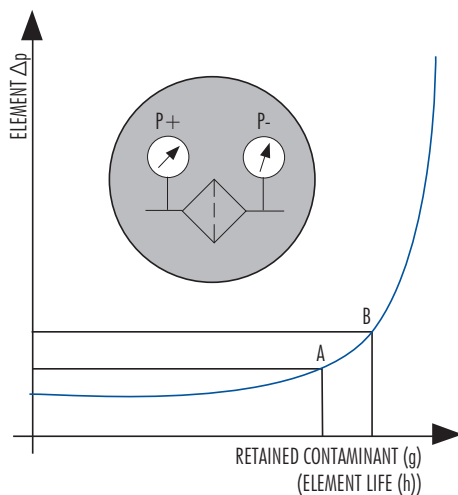
EWX...



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 than 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		





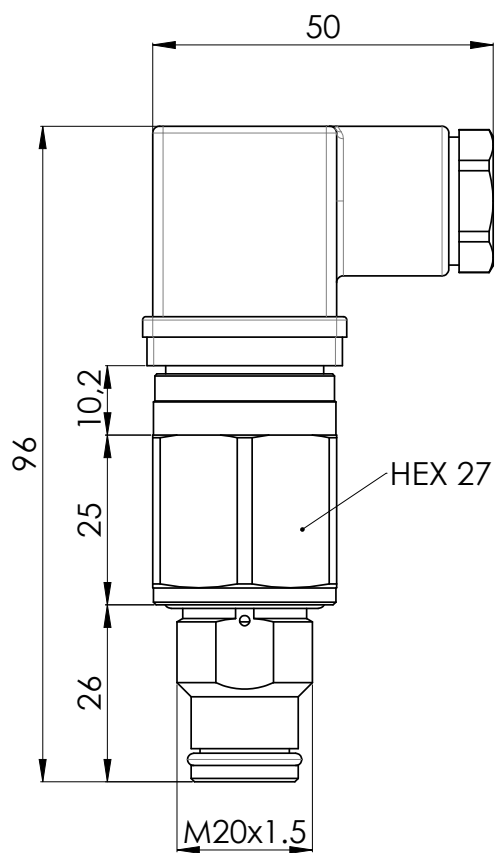
ET SERIES

Electrical differential clogging indicators with thermostatic switch set at 30°C



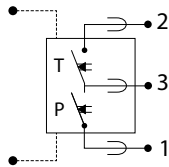
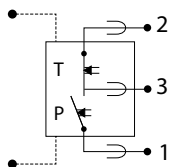
PRESSURE:	Max operating up to 420 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: Brass Cover and connector: PA66 + G.F. Seal: NBR standard FKM on request
SETTINGS ΔP :	2,7 bar $\pm 10\%$ 5,0 bar $\pm 10\%$ 8,0 bar $\pm 10\%$
ELECTRICAL SPECS.:	See electrical symbol
CONNECTOR TYPE:	according to DIN 43650 with 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). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS

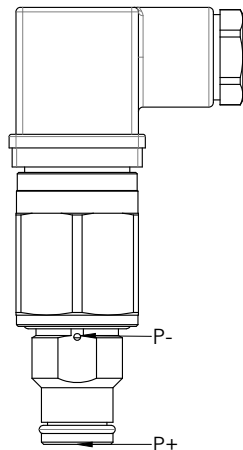


Weight: 180 gr

MECHANICAL CONDITION

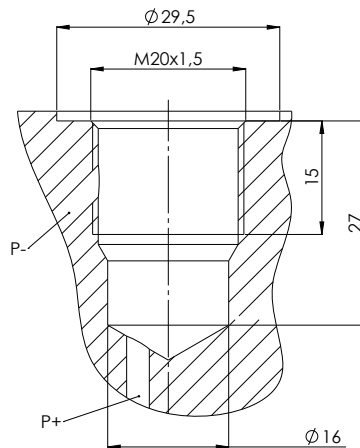
ΔP CONDITION	ELECTRIC SYMBOL
$P+ - P- < \Delta P_{set}$	 $T < T_{set}$
$P+ - P- \geq \Delta P_{set}$	 $T \geq T_{set}$

ORDERING INFORMATION / DETAILS

ORDER CODE	MODEL	SEALS	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00547 04.006.00548	ET02 ETF2	NBR FKM		2,7 bar	• Connector DIN 43650 • Max AC and DC voltage: 24V Max current: 5A resistive 1A inductive • Protection: IP65 EN60529
04.006.00117 04.006.00135	ET05 ETF5	NBR FKM		5,0 bar	
04.006.00549 04.006.00550	ET08 ETF8	NBR FKM		8,0 bar	
 50 / 90 Nm - See hydraulic filter catalogues					

INDICATOR SEAT

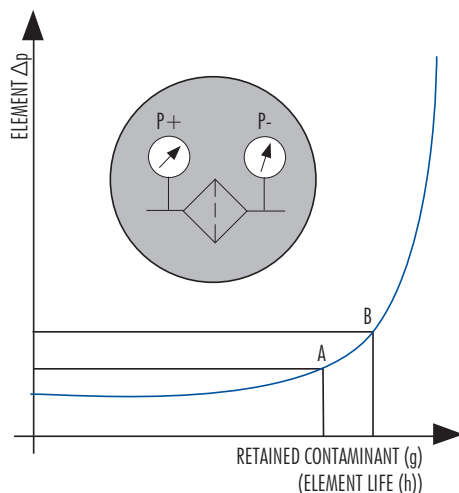
ET.../ETF...



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 than 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		





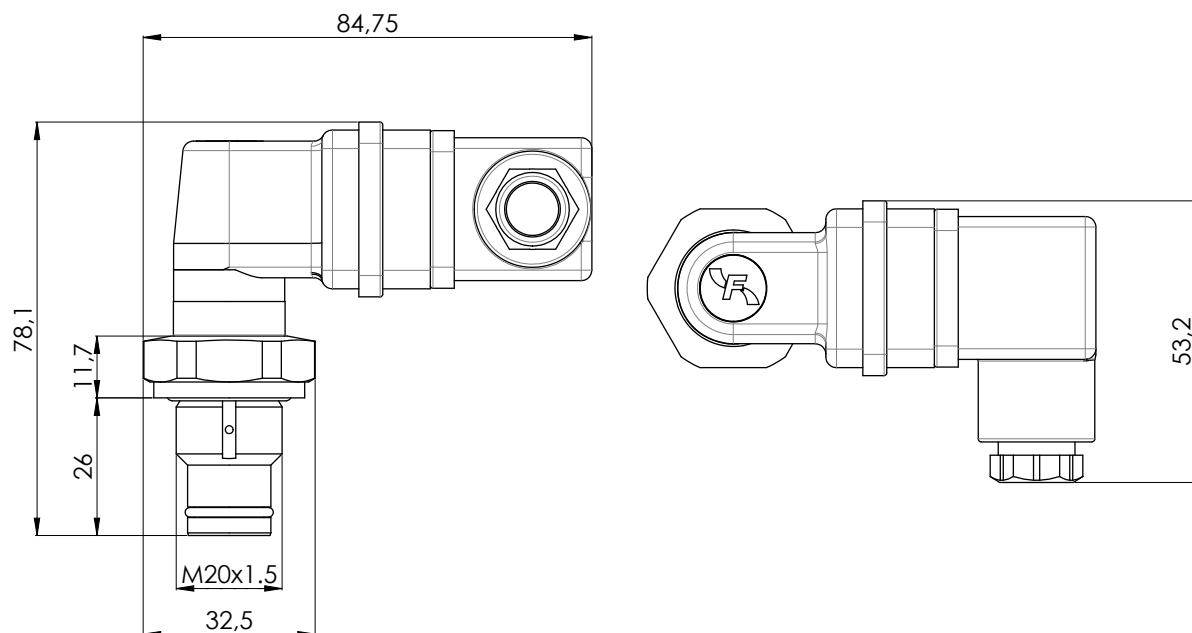
ES SERIES

Electrical differential clogging indicators in stainless steel



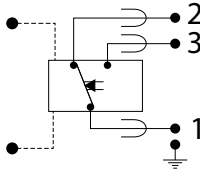
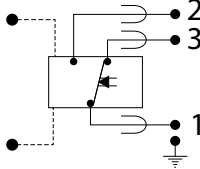
PRESSURE:	Max operating up to 700 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: AISI 304 - 316L Cover and connector: PA66 + G.F. Seal: FKM standard
SETTINGS ΔP :	2,7 bar $\pm 10\%$ 5,0 bar $\pm 10\%$ 8,0 bar $\pm 10\%$
ELECTRICAL SPECS.:	Contact configuration SPDT
CONNECTOR TYPE:	according to DIN 43650 with 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%)-HF DU (acc. to ISO 6743/4) For use with other fluid please contact Filtrtec Customer Service (info@filtrtec.it).

OVERALL DIMENSIONS

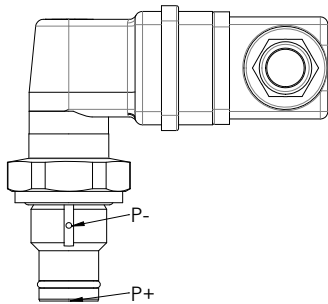


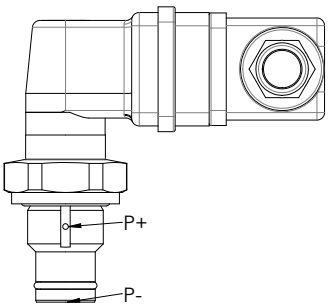
Weight: 181 gr

MECHANICAL CONDITION

ΔP CONDITION	ELECTRIC SYMBOL
$P+ - P- < \Delta P_{set}$	
$P+ - P- \geq \Delta P_{set}$	

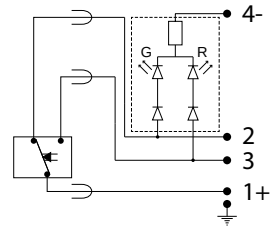
ORDERING INFORMATION / DETAILS

ORDER CODE	MODEL	BODY MATERIAL	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00609 04.006.00651	ESF2 ESLF2	AISI 304 AISI 316L		2,7 bar	• Connector DIN 43650 • Max AC voltage: 250Vac • Max current: 5A resistive 1A inductive • Max DC voltage: 30Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
04.006.00611 04.006.00653	ESF5 ESLF5	AISI 304 AISI 316L		5,0 bar	
04.006.00613 04.006.00655	ESF8 ESLF8	AISI 304 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 04.006.00658	ESXF2 ESLXF2	AISI 304 AISI 316L		2,7 bar	• Connector DIN 43650 • Max AC voltage: 250Vac • Max current: 5A resistive 1A inductive • Max DC voltage: 30Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
04.006.00618 04.006.00660	ESXF5 ESLXF5	AISI 304 AISI 316L		5,0 bar	
04.006.00620 04.006.00662	ESXF8 ESLXF8	AISI 304 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



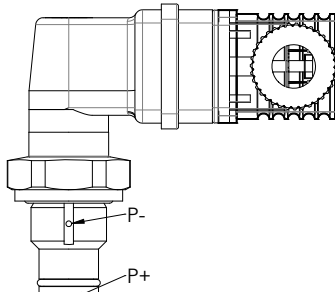
4. TIGHTEN THE SCREW



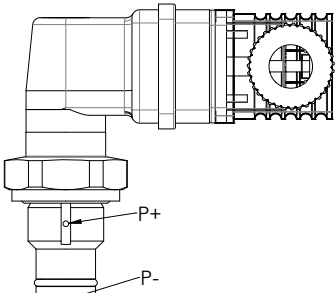
VERSION WITH INTEGRATED LED CONNECTOR

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 04.006.00652	ESF2L ESLF2L	AISI 304 AISI 316L		2,7 bar	• Connector DIN 43650 • Max DC voltage: 24Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
04.006.00612 04.006.00654	ESF5L ESLF5L	AISI 304 AISI 316L		5,0 bar	
04.006.00614 04.006.00656	ESF8L ESLF8L	AISI 304 AISI 316L		8,0 bar	

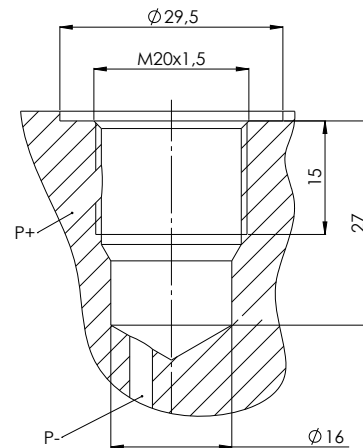
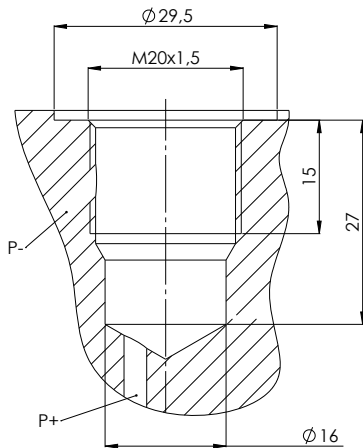
 50 / 90 / 100 Nm - See hydraulic filter catalogues

ORDER CODE	MODEL	BODY MATERIAL	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00617 04.006.00659	ESXF2L ESXLF2L	AISI 304 AISI 316L		2,7 bar	• Connector DIN 43650 • Max DC voltage: 24Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
04.006.00619 04.006.00661	ESXF5L ESXLF5L	AISI 304 AISI 316L		5,0 bar	
04.006.00621 04.006.00663	ESXF8L ESXLF8L	AISI 304 AISI 316L		8,0 bar	
 50 / 90 / 100 Nm - See hydraulic filter catalogues					

INDICATOR SEAT

ES.../ES...L

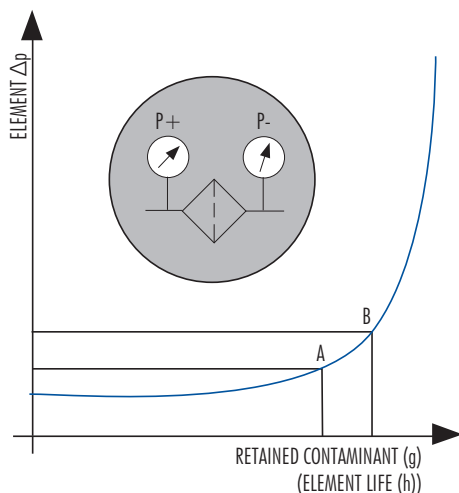
ESX.../ESX...L



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 than 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:

- MPB
- MPC
- MPD 0 ÷ 10 bar
- MRB
- MRC
- MRD

For suction or return line application:

- MPA -1 ÷ 5 bar

For suction line application:

- MPS 0 ÷ -1 bar

For low pressure line application:

- MP0 0 ÷ 16 bar

CONNECTION:

R1/8" - tapered connection

MATERIALS:

- Nozzle: Brass
- Cover: ABS

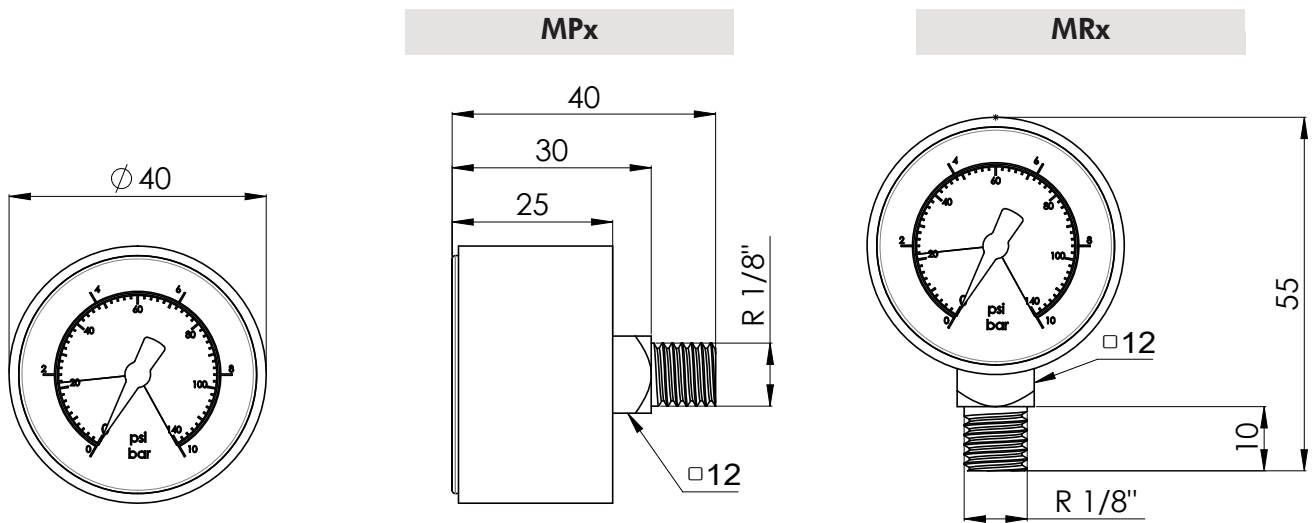
OPERATING
TEMPERATURE:

-30°C - +80°C

FLUID
COMPATIBILITY:

Full with HH-HL-HM-HV-HETG-HEES-HFA
HFB-HFC
(acc. to ISO 6743/4).
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 1,7 ÷ 10 bar
04.006.00153	MPC		0 ÷ 3 bar 3 ÷ 10 bar
04.006.00632	MPD		0 ÷ 2,5 bar 2,5 ÷ 10 bar
04.006.00152	MRB		0 ÷ 1,7 bar 1,7 ÷ 10 bar
04.006.00154	MRC		0 ÷ 3 bar 3 ÷ 10 bar
04.006.00633	MRD		0 ÷ 2,5 bar 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 -0,3 ÷ 1,4 bar 1,4 ÷ 5 bar
 10 Nm - See hydraulic filter catalogues			

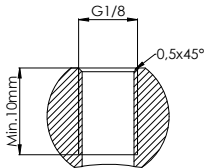
INDICATOR FOR APPLICATION ON SUCTION LINE

ORDER CODE	MODEL	VIEW	SETTING
04.006.00015	MPS		0 ÷ -0,15 bar -0,15 ÷ -0,25 bar -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	MPO (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	MPO
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





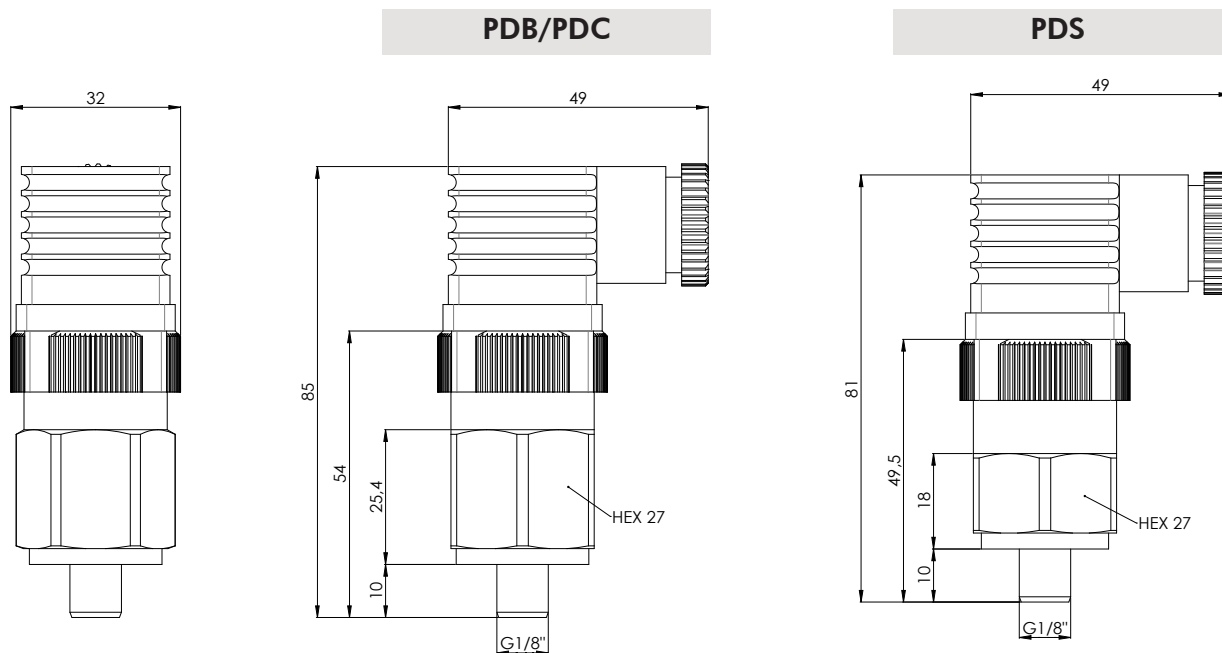
P SERIES

Clogging indicators for suction line and return line



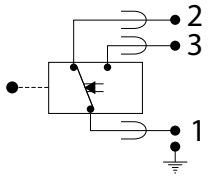
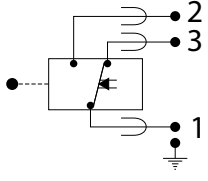
PRESSURE:	Max operating up to 25 bar
CONNECTION:	G1/8"
MATERIALS:	Body: Brass Cover and connector: PA66 + G.F. Internal seals: HNBR
SETTINGS:	For suction application: PDS -0,2 bar $\pm$ 10% For return line application: PDB 1,3 bar $\pm$ 10% PDC 2,0 bar $\pm$ 10%
ELECTRICAL SPECS.:	Contact configuration SPDT
CONNECTOR TYPE:	according to DIN 43650 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 (acc. to ISO 6743/4). For use with other fluid please contact Filtrtec Customer Service (info@filtrtec.it).

OVERALL DIMENSIONS



Weight: ~124 g

MECHANICAL CONDITION

ΔP CONDITION	ELECTRIC SYMBOL
$P < P_{set}$	
$P \geq P_{set}$	

ORDERING INFORMATION / DETAILS

INDICATOR FOR APPLICATION ON SUCTION LINE

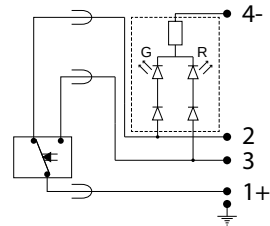
ORDER CODE	MODEL	SEALS	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00141	PDS	HNBR		-0,2 bar	• Connector DIN 43650 • Max AC voltage: 250Vac • Max current: 3A resistive 2A inductive • Max DC voltage: 30Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
 10 Nm - See hydraulic filter catalogues					

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 • Max AC voltage: 250Vac • Max current: 3A resistive 2A inductive • Max DC voltage: 30Vdc • Max current: 4A resistive 3A inductive • 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

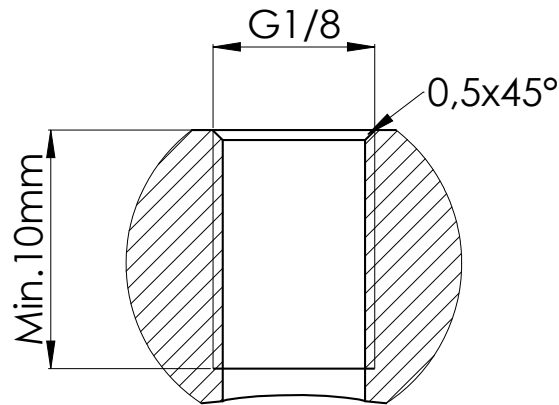
ORDER CODE	MODEL	SEALS	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00540	PDSL	HNBR		-0,2 bar	• Connector DIN 43650 • Max DC voltage: 30Vdc • Max current: 4A resistive 3A inductive • Protection: IP65 EN60529
 10 Nm - See hydraulic filter catalogues					

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 • Max DC voltage: 30Vdc • Max current: 4A resistive 3A inductive • 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	





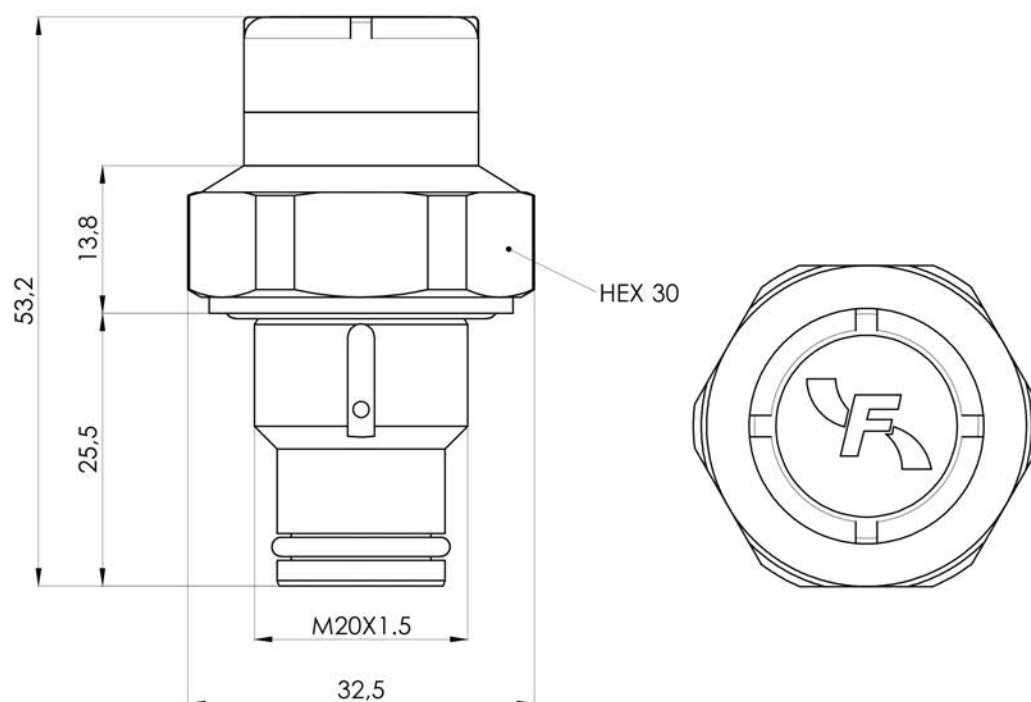
V SERIES

Visual differential clogging indicators



PRESSURE:	Max operating up to 420 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: Brass Cap: PA66 Lens: PA12 Seal: NBR standard FKM on request
SETTINGS ΔP :	1,3 bar $\pm 10\%$ 2,7 bar $\pm 10\%$ 5,0 bar $\pm 10\%$ 8,0 bar $\pm 10\%$
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). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS

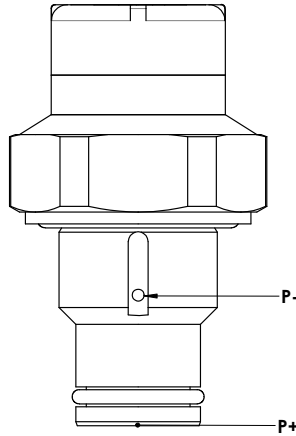


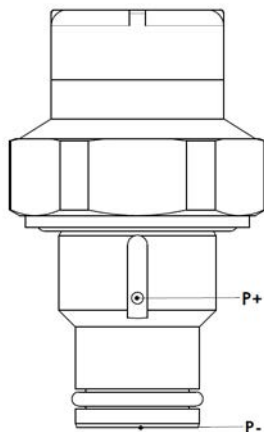
Weight: 107 gr

MECHANICAL CONDITION

ΔP CONDITION	VISUAL CONDITION
$P+ - P- < \Delta P_{set}$: GREEN	
$P+ - P- \geq \Delta P_{set}$: RED	

ORDERING INFORMATION / DETAILS

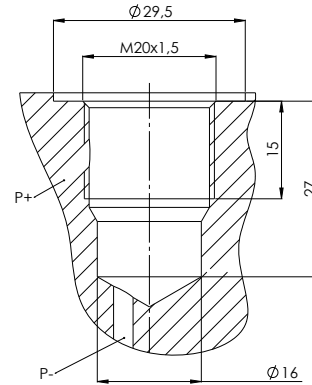
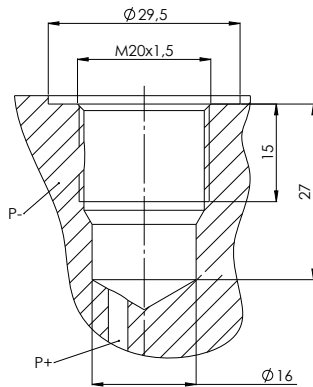
ORDER CODE	MODEL	SEALS	VIEW	SETTING
04.006.00119 04.006.00120	V02 VF2	NBR FKM		2,7 bar
04.006.00121 04.006.00122	V05 VF5	NBR FKM		5,0 bar
04.006.00125 04.006.00126	V08 VF8	NBR FKM		8,0 bar
 50 / 90 Nm - See hydraulic filter catalogues				

ORDER CODE	MODEL	SEALS	VIEW	SETTING
04.006.00666 04.006.00667	VX1 VY1	NBR FKM		1,3 bar
04.006.00518 04.006.00519	VX2 VY2	NBR FKM		2,7 bar
04.006.00123 04.006.00124	VX5 VY5	NBR FKM		5,0 bar
04.006.00127 04.006.00128	VX8 VY8	NBR FKM		8,0 bar
 50 / 90 Nm - See hydraulic filter catalogues				

INDICATOR SEAT

V0.../VF...

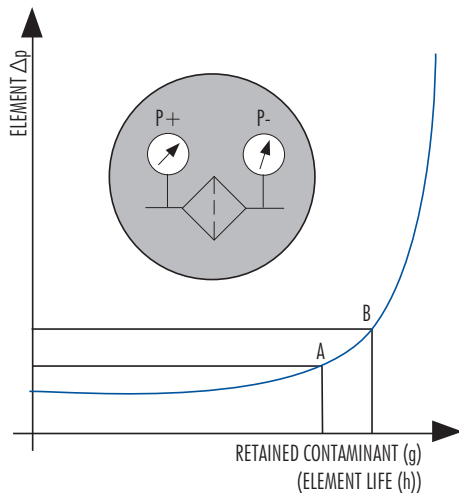
VX.../VY...



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 than 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		





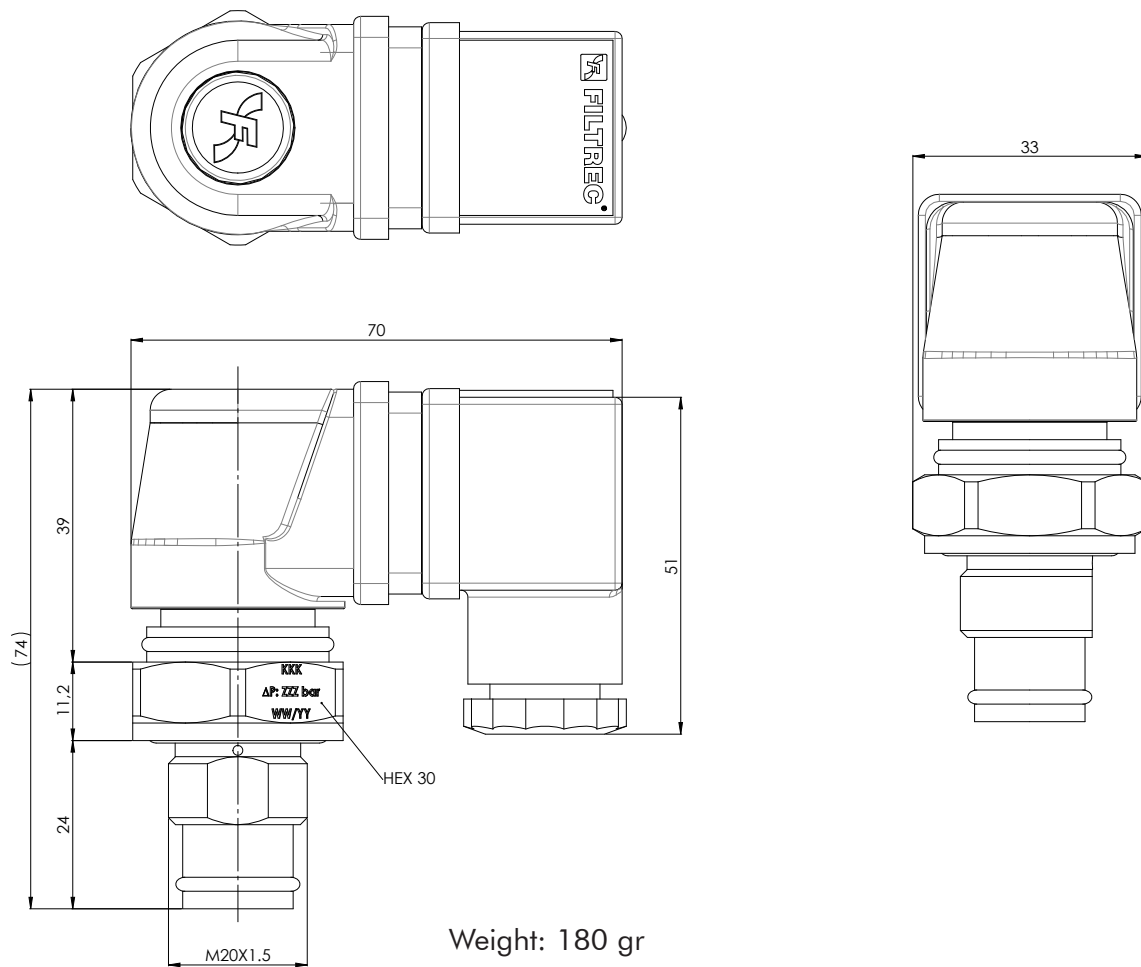
VE SERIES

Visual and electrical differential clogging indicators

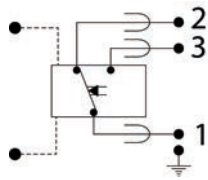
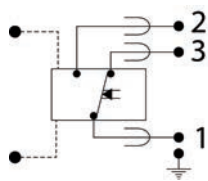


PRESSURE:	Max operating up to 420 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: Brass Cover and connector: PA66 + G.F. Seal: FKM
SETTINGS ΔP :	2,7 bar $\pm 10\%$ 5,0 bar $\pm 10\%$ 8,0 bar $\pm 10\%$
ELECTRICAL SPECS.:	Contact configuration SPDT
CONNECTOR TYPE:	according to DIN 43650 with cable gland PG09/PG11
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). For use with other fluid please contact Filtrtec Customer Service (info@filtrtec.it).

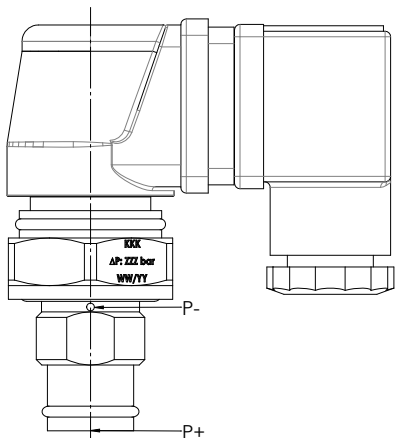
OVERALL DIMENSIONS



MECHANICAL CONDITION

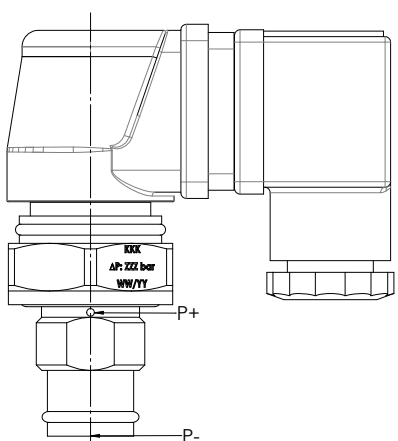
ΔP CONDITION	VISUAL CONDITION	ELECTRIC SYMBOL
$P+ - P- < \Delta P_{set}$: GREEN		
$P+ - P- \geq \Delta P_{set}$: RED		

ORDERING INFORMATION / DETAILS

ORDER CODE	MODEL	VIEW	SETTING	ELECTRICAL SPECS.
04.006.00388	VEF2		2,7 bar	• Connector DIN 43650 • Max AC voltage: 250Vac • Max current: 1A resistive 0.3A inductive • Max DC voltage: 24Vdc • Max current: 3A resistive 1A inductive • 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 • Max AC voltage: 250Vac • Max current: 1A resistive 0.3A inductive • Max DC voltage: 24Vdc • Max current: 3A resistive 1A inductive • Protection: IP67 EN60529
04.006.00395	VEXF5		5,0 bar	
04.006.00396	VEXF8		8,0 bar	

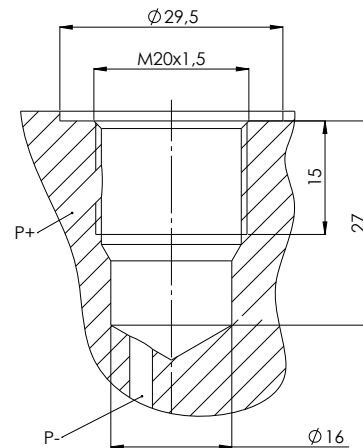
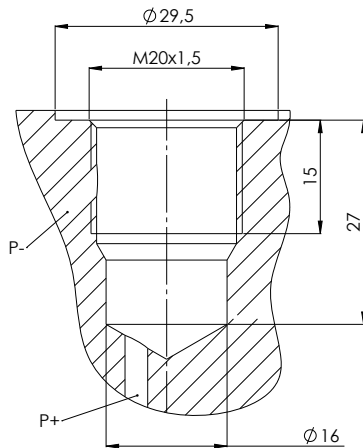


50 / 90 Nm - See hydraulic filter catalogues

INDICATOR SEAT

VE

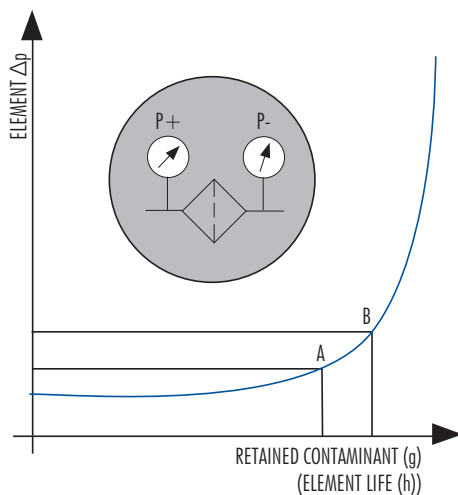
VEX



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 than 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		





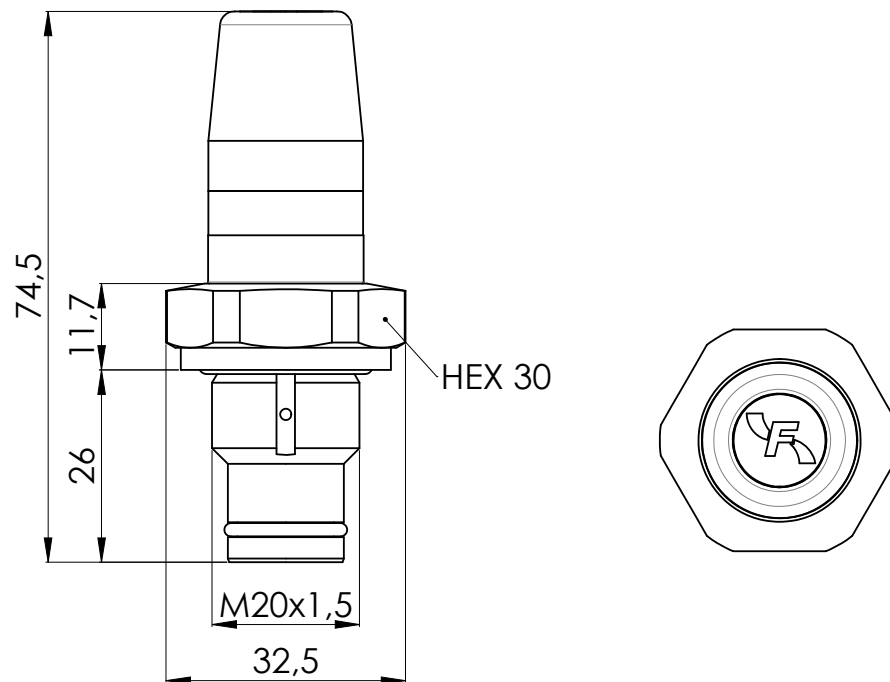
VS SERIES

Visual differential clogging indicators in stainless steel



PRESSURE:	Max operating up to 700 bar
CONNECTION:	M20x1,5
MATERIALS:	Body: AISI 304 - 316L Cap: PA66 + 30% GF Lens: PA12 Seal: FKM standard
SETTINGS ΔP :	2,7 bar $\pm 10\%$ 5,0 bar $\pm 10\%$ 8,0 bar $\pm 10\%$
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) For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

OVERALL DIMENSIONS

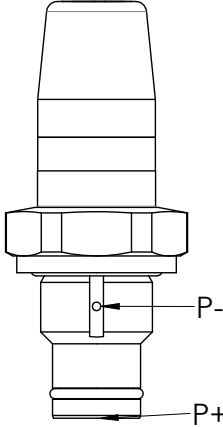


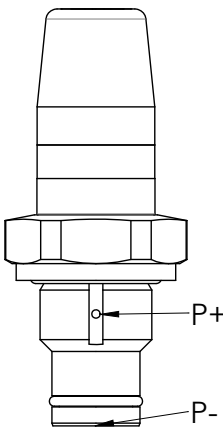
Weight: 124 gr

MECHANICAL CONDITION

ΔP CONDITION	VISUAL CONDITION
$P+ - P- < \Delta P_{set}$: GREEN	
$P+ - P- \geq \Delta P_{set}$: RED	

ORDERING INFORMATION / DETAILS

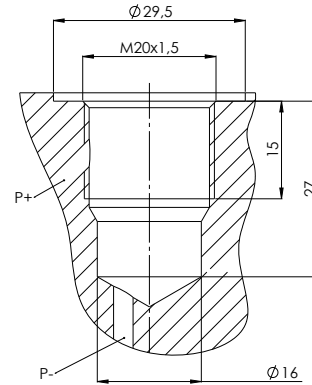
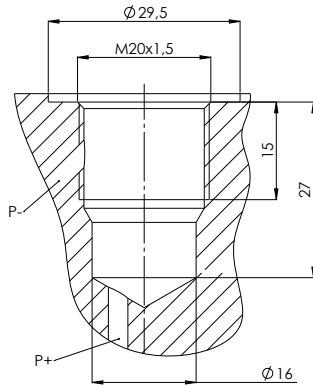
ORDER CODE	MODEL	BODY MATERIAL	VIEW	SETTING
04.006.00601 04.006.00643	VSF2 VSLF2	AISI 304 AISI 316L		2,7 bar
04.006.00602 04.006.00644	VSF5 VSLF5	AISI 304 AISI 316L		5,0 bar
04.006.00603 04.006.00645	VSF8 VSLF8	AISI 304 AISI 316L		8,0 bar
 50 / 90 / 100 Nm - See hydraulic filter catalogues				

ORDER CODE	MODEL	BODY MATERIAL	VIEW	SETTING
04.006.00605 04.006.00647	VSXF2 VSLXF2	AISI 304 AISI 316L		2,7 bar
04.006.00606 04.006.00648	VSXF5 VSLXF5	AISI 304 AISI 316L		5,0 bar
04.006.00607 04.006.00649	VSXF8 VSLXF8	AISI 304 AISI 316L		8,0 bar
 50 / 90 / 100 Nm - See hydraulic filter catalogues				

INDICATOR SEAT

VS...

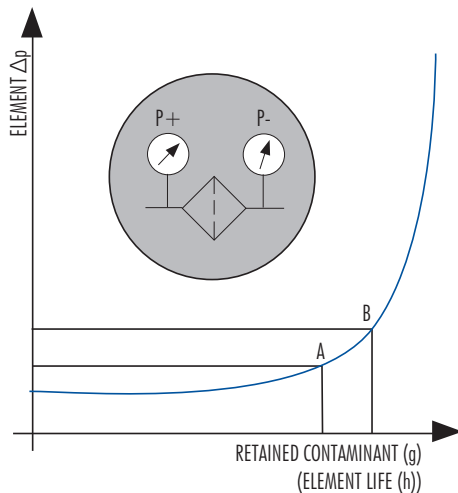
VSX...



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 than 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		





FB1 SERIES

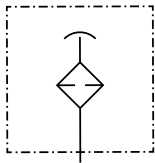
Air breather filters, with replaceable filter element



TECHNICAL SPECIFICATION

MATERIALS:	Cover: painted steel Connection thread: steel zinc plated
FILTER MEDIA:	Cellulose (air filtration 3 µm)
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 NI/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 (depends on application and environment)	$K_{op.cond}$
High level	$7 \div 10$
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Measuring the air flow poses a challenging task. Typically, this parameter can be estimated using the following equation:

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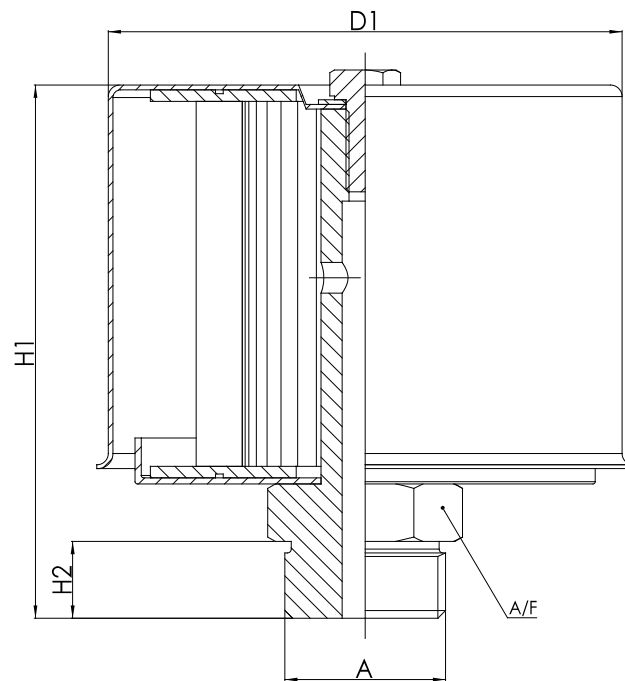
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We highly recommend replacing the air breather with each service interval (or, at the very least, annually), matching the frequency of replacing the return fluid filters. Doing so ensures optimal performance and longevity of the hydraulic system.

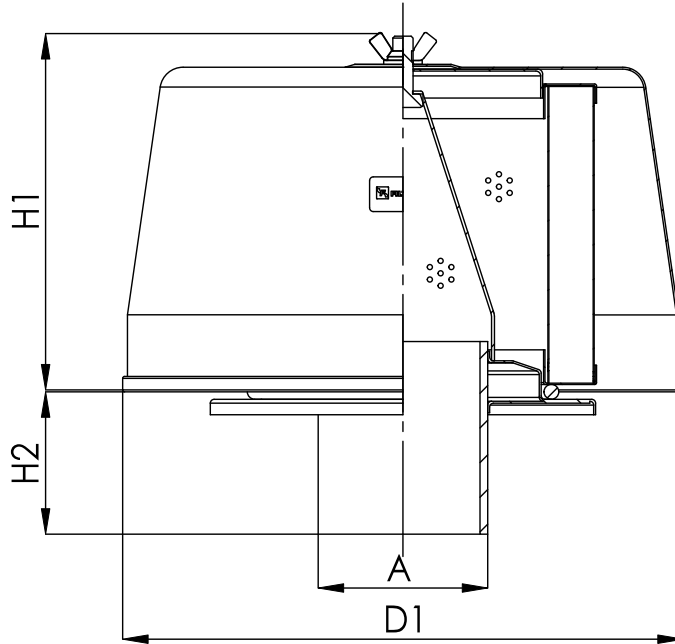
OVERALL DIMENSIONS



NOMINAL SIZE

CODE	A	D1	H1	H2	A/F	AIR FLOW RATE NI/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 NI/min Dp 0,015 barg
FB140	G 1" G 1 1/4"	130	100	40 60	1200 2000
FB141	G 1 1/2" G 2"	130	130	45 60	2500 3300
FB150	G 2"	172	160	50	5000
FB160	G 2 1/2"	204			9000
FB170	G 3"	290	190	60	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" size 10
	B3	G 1/2" size 20
	B4	G 3/4" size 20
	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 µm)

ORDERING INFORMATION

1.	2.	3.
B1	10	C10

1. SERIES	FB1																		
2. FILTER SIZE	<table> <tr><td>10</td><td>cover Ø48</td></tr> <tr><td>20</td><td>cover Ø67</td></tr> <tr><td>30</td><td>cover Ø108</td></tr> <tr><td>40</td><td>cover Ø130</td></tr> <tr><td>41</td><td>cover Ø130</td></tr> <tr><td>50</td><td>cover Ø172</td></tr> <tr><td>60</td><td>cover Ø204</td></tr> <tr><td>70</td><td>cover Ø290</td></tr> <tr><td>80</td><td>cover Ø336</td></tr> </table>	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
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3. FILTER MEDIA	C10 cellulose (air filtration 3 µm)																		

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, sharp 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 housing, 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

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INSTALLATION

1. The air breather filters are mounted on the tank in a threaded seat (no burrs, sharp 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 housing, 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).





FB2 SERIES

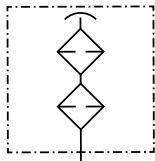
Air filters and filler breathers, with replaceable filter element



TECHNICAL SPECIFICATION

MATERIALS:	Housing: polyamide PA6+GF Basket : polyamide PA6+GF Gaskets : NBR
FILTER MEDIA:	Cellulose (air filtration 3µm) Glassfiber (air filtration 1µm)
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

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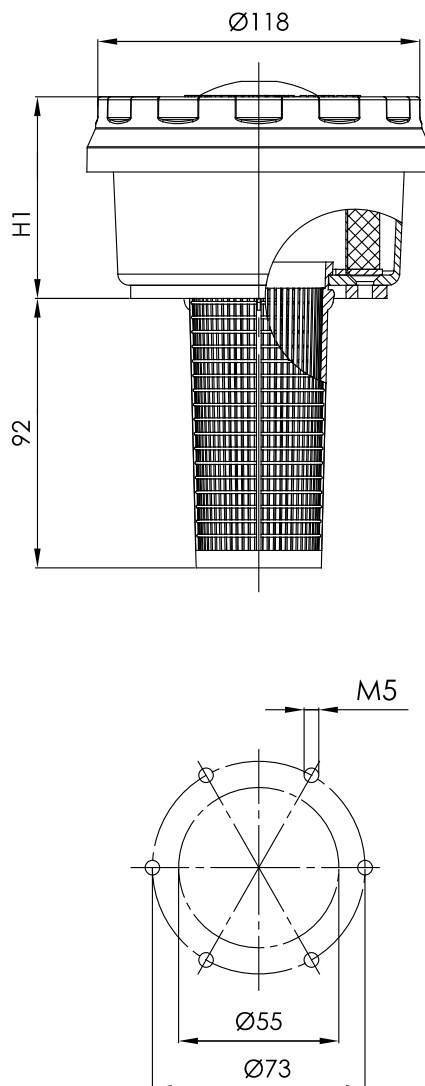
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OVERALL DIMENSIONS



NOMINAL SIZE

CODE	H1	AIR FLOW RATE l/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	length 1
	51	length 2
3. MOUNTING TYPE	D2	flange, DIN 24557/2
4. FILTER MEDIA	000	without element
	C10	cellulose (air filtration 3 μm)
	G10	glassfiber (air filtration 1 μm)
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	length 1
	51	length 2
4. FILTER MEDIA	C10	cellulose (air filtration 3 μm)
	G10	glassfiber (air filtration 1 μm)

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).





FT2 SERIES

Air breather filters

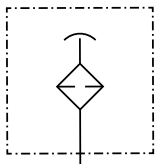
These air breather filters, manually tightened, are suggested for applications on hydraulic power unit or tanks subjected to rapid volume changes, where high air flows are involved.



TECHNICAL SPECIFICATION

MATERIALS:	Cover: polyamide PA6+GF Threaded connection: polyamide PA6+GF Gasket: NBR
FILTER MEDIA:	Cellulose (air filtration 3µm) 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). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

HYDRAULIC SYMBOL



AIR BREATHER SIZING

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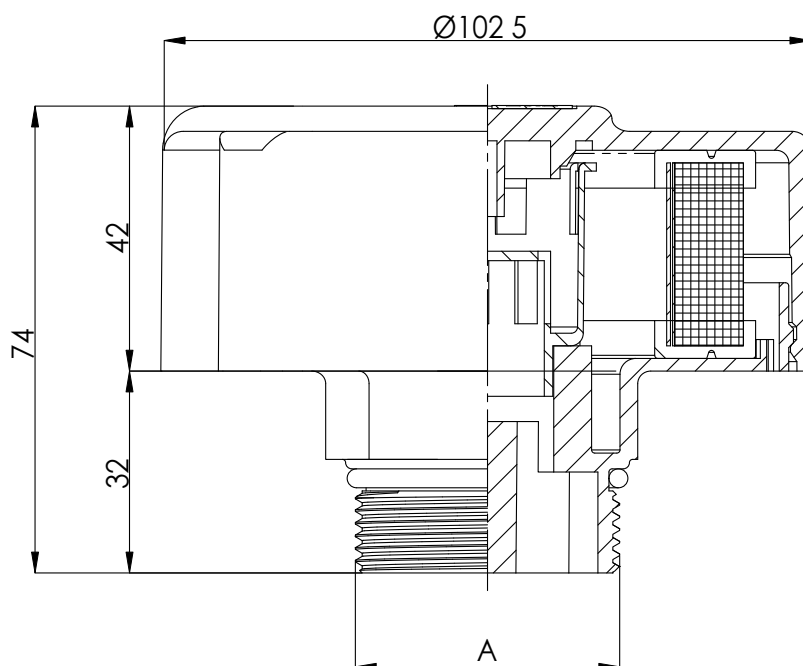
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OVERALL DIMENSIONS



NOMINAL SIZE

CODE	A	AIR FLOW RATE NI/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 µm)
	G10	glassfiber (air filtration 1 µm) – 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, sharp 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





FA3 SERIES

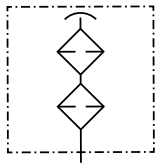
Flange mounted with spin-on element



TECHNICAL SPECIFICATION

MATERIALS:	Canister: painted steel
	Flange and basket: zinc plated steel
	Gasket: NBR
FILTER MEDIA:	Cellulose (air filtration 3μm)
	Glassfiber (air filtration 1μm)
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



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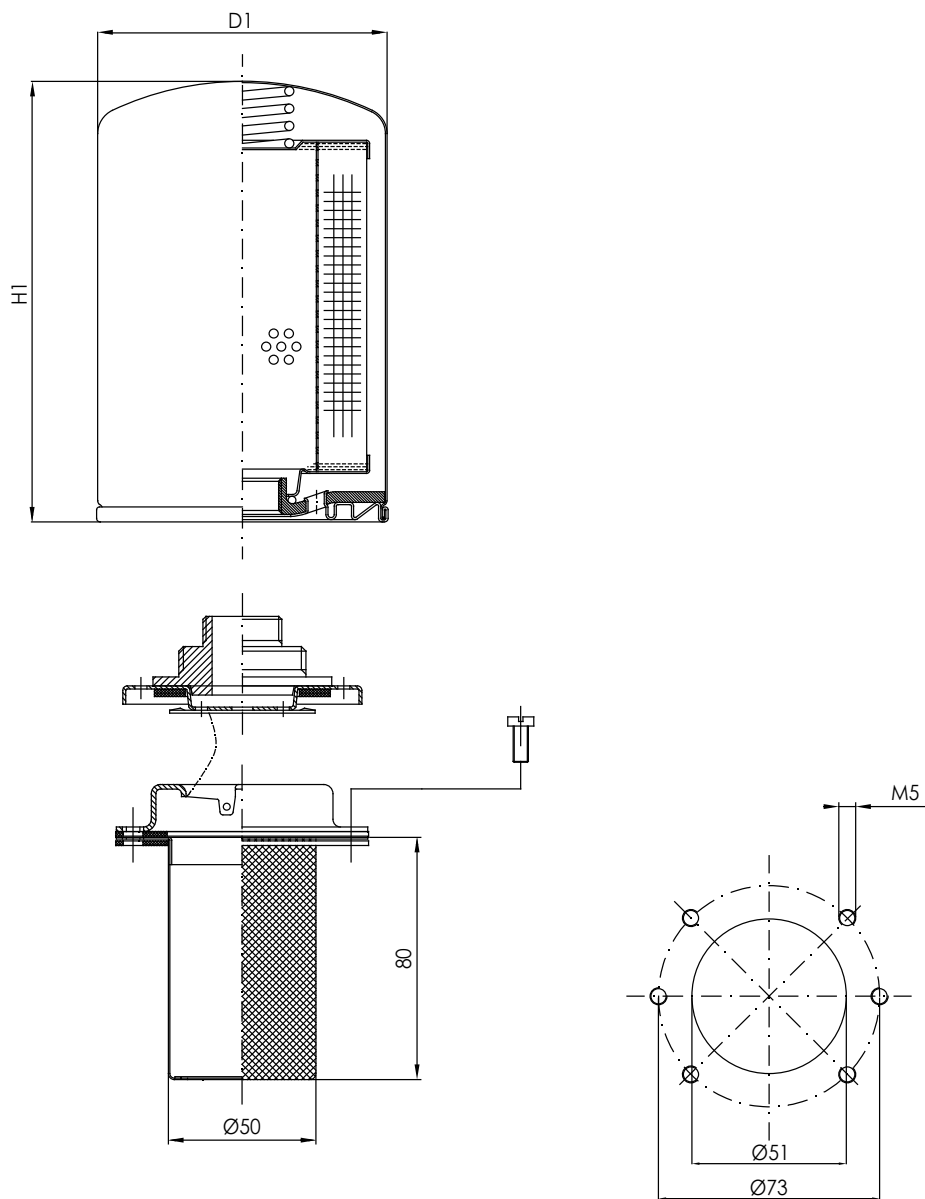
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OVERALL DIMENSIONS



NOMINAL SIZE

CODE	D1	H1	G	AIR FLOW RATE NI/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.
SPARE ELEMENT	FA3	10	C03
	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 μm)
	G01	glassfiber (air filtration 1 μm)

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
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**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, sharp 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 keeping 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.





FT5 & FT8 SERIES

Filler breathers with flange or welding mounting

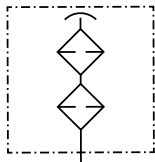
These filler breathers, manually tightened on the tank, are suggested for prevent from the solid contamination contained in the air applications and during the loading and the emptying of the tank.



TECHNICAL SPECIFICATION

MATERIALS:	Cover: chrome plated steel
	Basket: zinc plated steel
	Flange: zinc plated steel
	Gaskets: NBR
FILTER MEDIA:	Polyurethane (air filtration 3 μ m e 10 μ 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 NI/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 (depends on application and environment)	$K_{op.cond}$
High level	$7 \div 10$
Medium level	$3 \div 7$
Low level	$1 \div 3$

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.



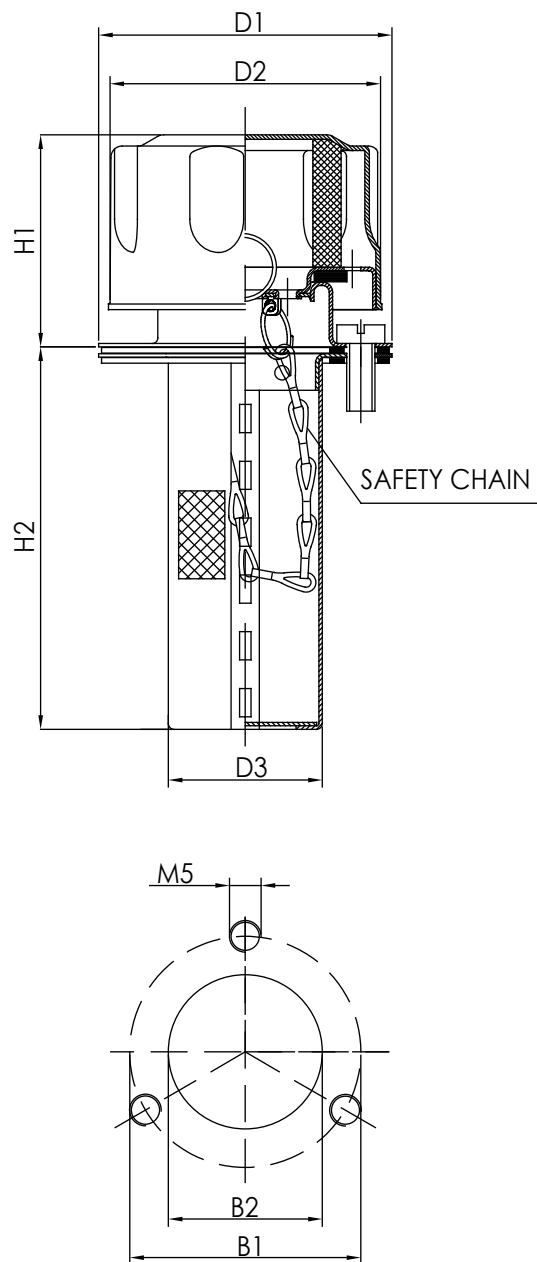
Filtrec's Air Breathers serve as a fundamental element in every hydraulic system.

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

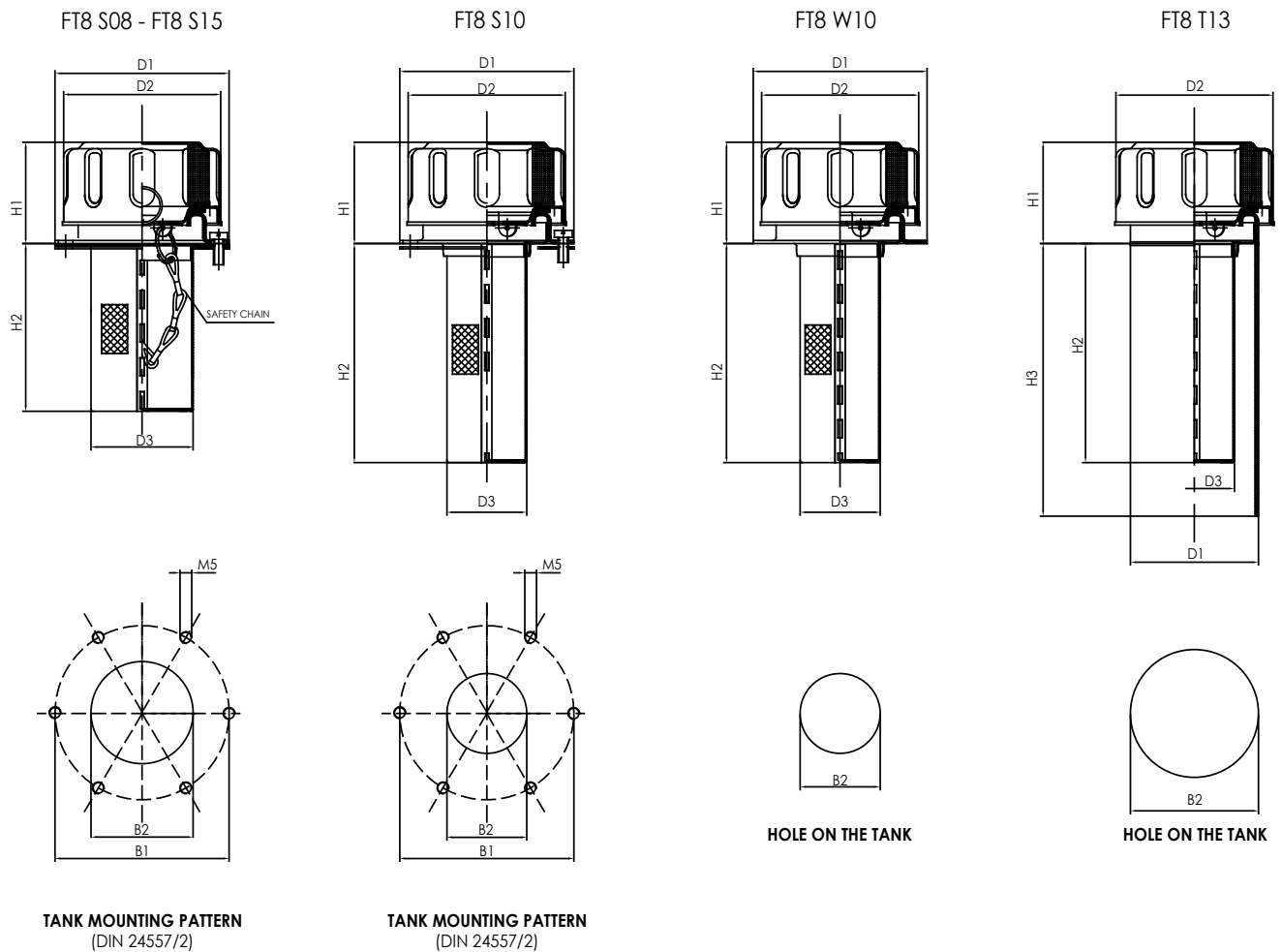
CODE	B1	B2	H1	H2	D1	D2	D3	AIR FLOW RATE NI/min Dp 0,015 barg	
								F03	F10
FT5	41	31	37	67	52	48	27,5	200	250

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 µm)
	F10	polyurethane (air filtration 10 µm)
4. GASKETS	B	NBR
5. PRESSURIZATION VALVE	0	no valve
6. PADLOCK HOLDER	0	without padlock holder

OVERALL DIMENSIONS FT8



NOMINAL SIZE

CODE	B1	B2	H1	H2	D1	D2	D3	AIR FLOW RATE NI/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 NI/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 µm)
	F10	polyurethane (air filtration 10 µm)
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 pressurization 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
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**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



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.





FT6 & FT7 SERIES

Air breather filters

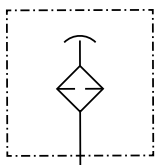
These air breather filters, manually tightened, are suggested for applications on hydraulic power unit or tanks subjected to rapid volume changes, where high air flows are involved.



TECHNICAL SPECIFICATION

MATERIALS:	Cover: chrome plated steel Threaded connection: zinc plated steel
FILTER MEDIA:	Polyurethane (air filtration 3 μm e 10 μm)
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 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 NI/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 (depends on application and environment)	$K_{op.cond}$
High level	$7 \div 10$
Medium level	$3 \div 7$
Low level	$1 \div 3$

Measuring the air flow poses a challenging task. Typically, this parameter can be estimated using the following equation:

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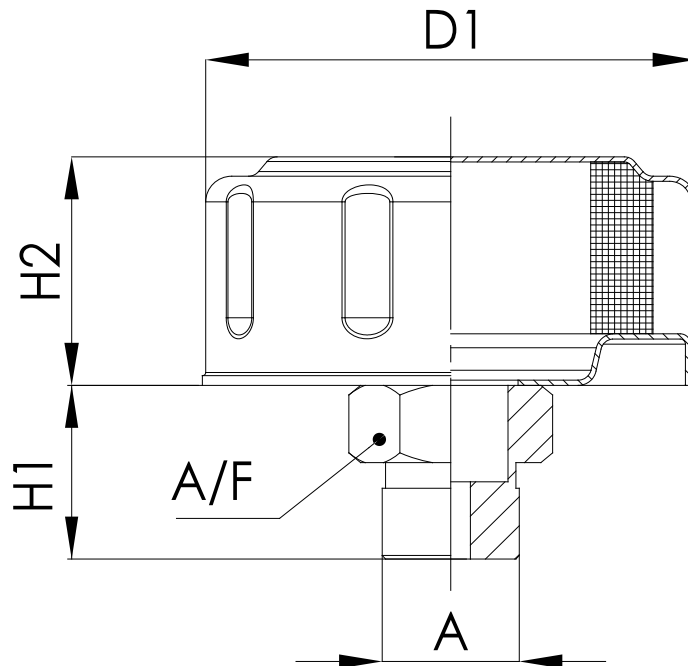
Filtrec's Air Breathers serve as a fundamental element in every hydraulic system.

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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	A	H1	H2	D1	A/F	AIR FLOW RATE NI/min Dp 0,015 barg	
						F03	F10
FT6...B1	G 1/4"	27	31	48	22	200	250
FT6...B2	G 3/8"				24		
FT6...B3	G 1/2"		35,5	75	27	450	550
FT7...B3	G 1/2"				32		
FT7...B4	G 3/4"						

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 µm)
	F10	polyurethane (air filtration 10 µm)
4. CONNECTIONS	B1	G 1/4" — FT6
	B2	G 3/8" — FT6
	B3	G 1/2" — FT6 - FT7
	B4	G 3/4" — FT6 - FT7
5. PRESSURIZATION VALVE	0	no valve
	1	0,35 bar — FT7 only
	2	0,75 bar — FT7 only

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, sharp 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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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.

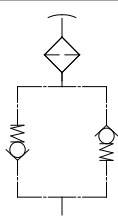
Additionally, this product acts as an anti-splash measure minimizing the risk of spills, provided that the hydrostatic pressure remains within safe limits.



TECHNICAL SPECIFICATION

MATERIALS:	Breather body:	Aluminum with anodic oxidation
	Breather cover:	Zinc plated steel
	Gaskets:	NBR
FILTER MEDIA:	Polyester (air filtration 10 μm) on request Cellulose (air filtration 3 μm) Glassfiber (air filtration 1 μm)	
PRESSURIZATION VALVE:	0,35 preferred option 0,50 or 0,75 bar on request	
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 BREATHES SIZING

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Low level	$1 \div 3$

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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.



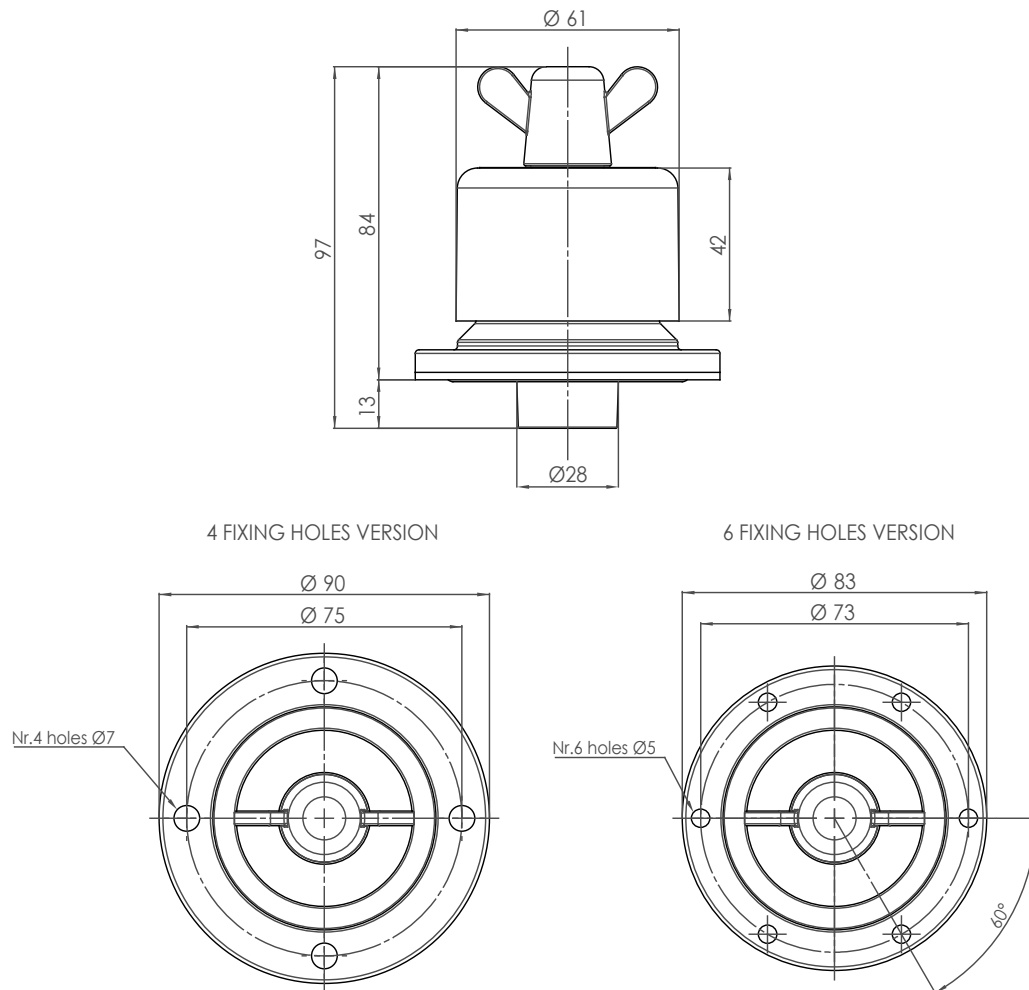
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OVERALL DIMENSIONS



NOMINAL SIZE

CODE	AIR FLOW RATE l/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 μm) on request	For B4 and B5
	C10	cellulose (air filtration 3 μm)	For B4 and B5
	G10	glassfiber (air filtration 1μm)	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



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.





FBD SERIES

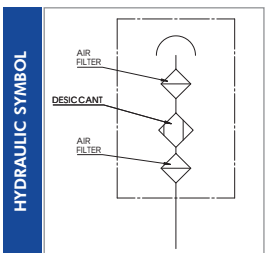
Desiccant Breathers

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.

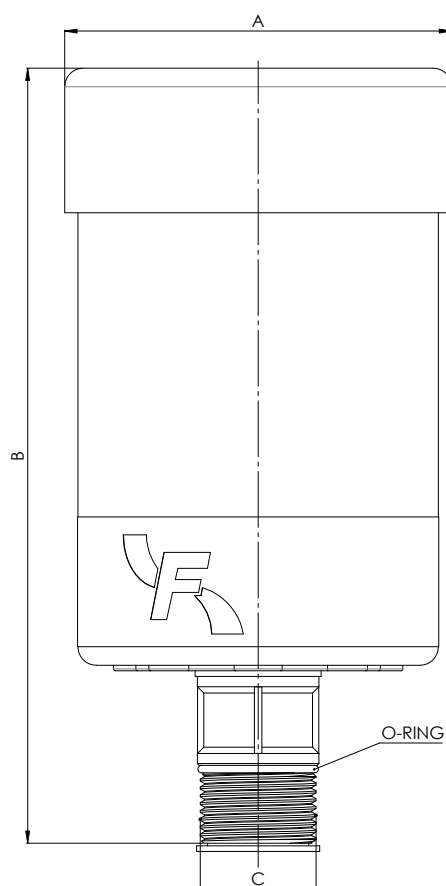


TECHNICAL SPECIFICATION

MATERIALS:	Cover:	Polycarbonate
	Shell:	Polycarbonate
	Center Tube:	Nylon
	Humidity Absorbent:	Silica gel
	Oil Mist Collector:	Polyurethane
	Filter media:	Polyester
FILTER EFFICIENCY:	Air filtration 3µm absolute	
TEMPERATURE RANGE:	-30°C to +90°C	
CONNECTION THREAT:	G 3/8"	
	G 1"	
	(Multi-fits NPT, BSP or BSPP threads)	
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV	
	HETG-HEES (acc. to ISO 6743/4).	
	For use with other fluid please contact Filtrac Customer Service (info@filtrac.it).	



OVERALL DIMENSIONS



NOMINAL SIZE

MODEL	A	B	C*
FBD 11	Ø64	147	G 3/8"
FBD 20		155	
FBD 21	Ø104	210	G 1"
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 3µm 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**



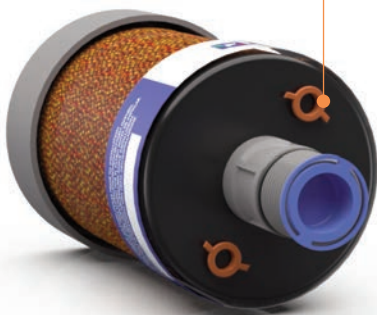
IMPORTANT INFORMATION FOR INSTALLATION

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

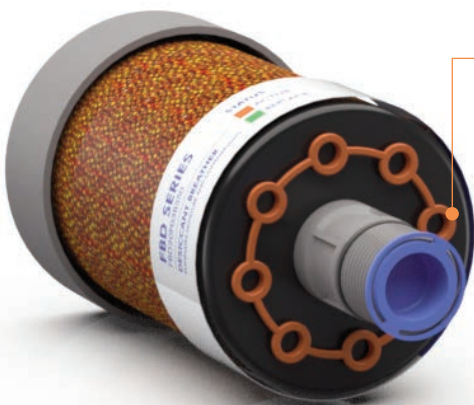
Remove rubber plugs prior to use



CODE	Max Air flow* [l/min]			
	with 8 holes open	with 6 holes open	with 4 holes open	with 2 holes open
FBD20				
FBD21	500	375	250	125
FBD22				

* at 69 mbar/1PSID

Remove rubber plugs prior to use



MAINTENANCE AND DISPOSAL



ACTIVE



REPLACE

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.





WWW.SUMY.IR

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.

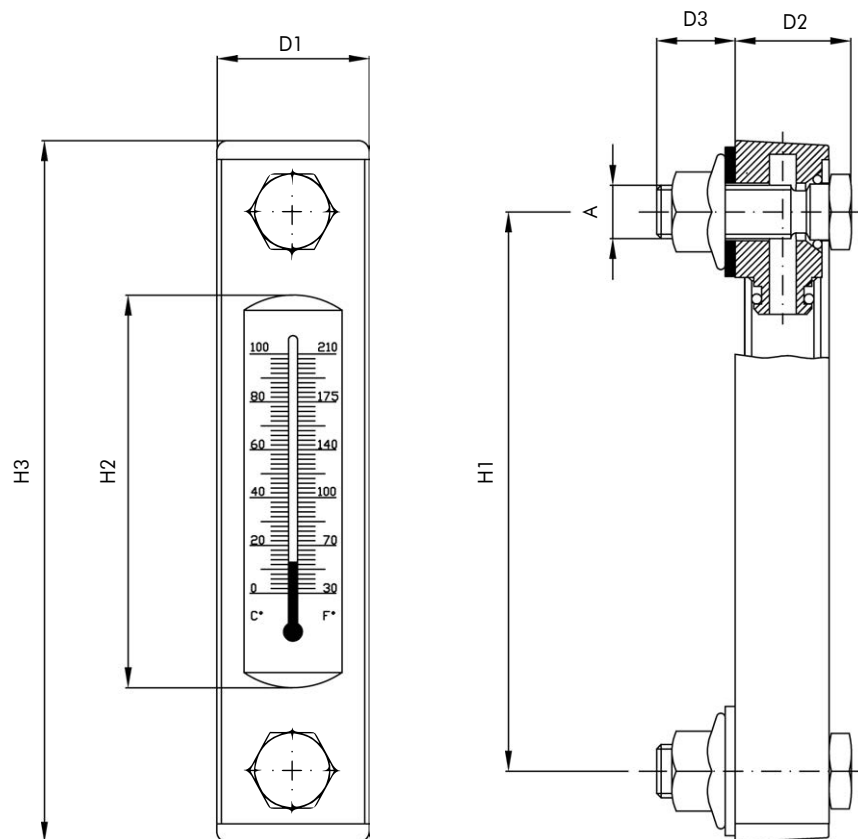
Several sizes and configurations are available to meet every tank requirement.



PRESSURE:	Max operating: up to 1 bar
FIXING SCREWS:	Metric – tightening torque 10 Nm
TEMPERATURE RANGE:	- 30° C+ 80° C
THERMOMETER:	Option: Capillary on size 1-2-3 Analog on size 4-5-6
MATERIALS:	End caps: polyamide Protection: aluminium Screws: zinc plated Seals: NBR 70 ShA Body: transparent polyamide
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).

OVERALL DIMENSIONS

SIZE 1-2-3

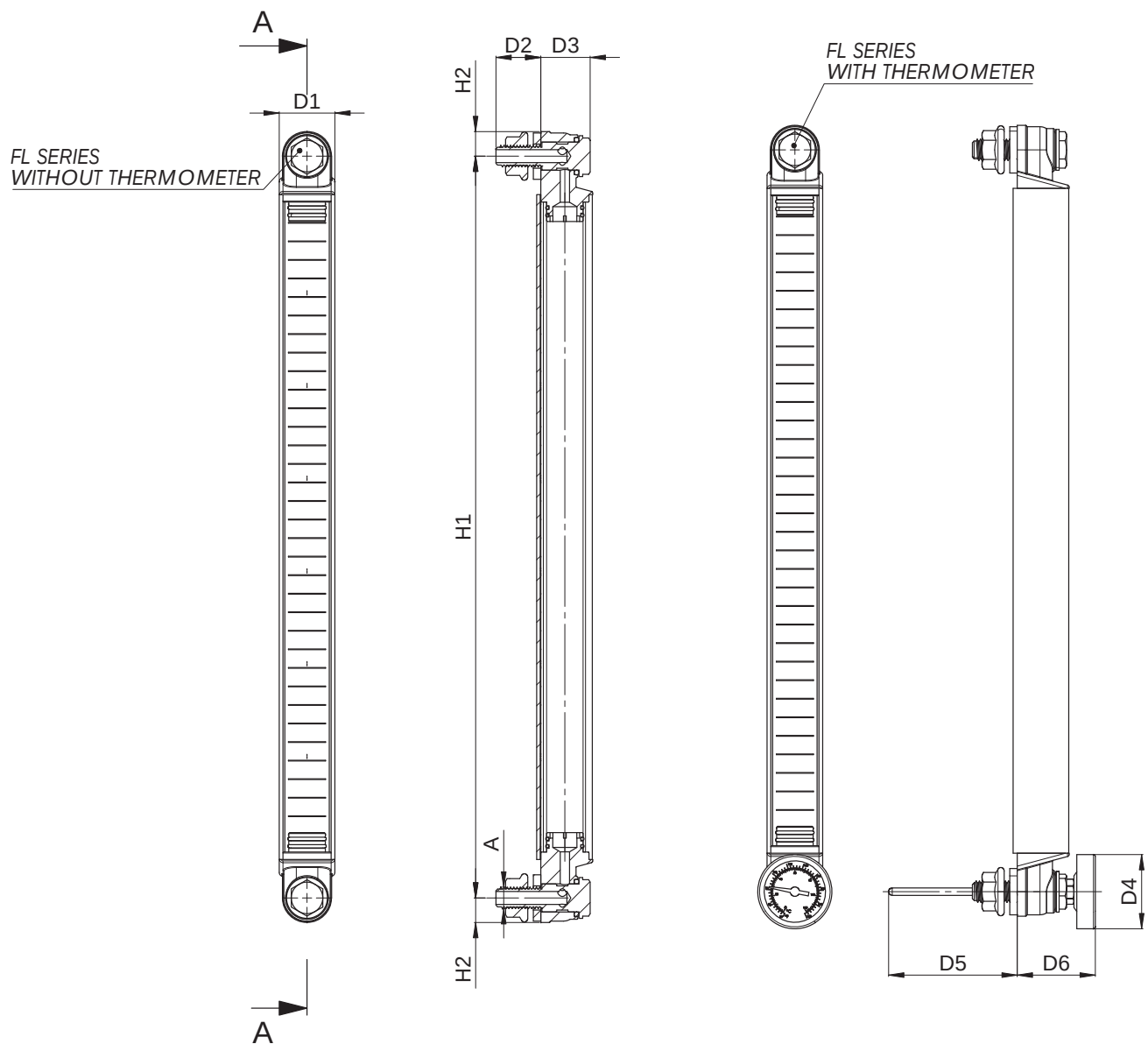


NOMINAL SIZE

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	1	holes distance 76 mm
*custom lenght available on request with MOQ	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





WWW.SUMY.IR

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.

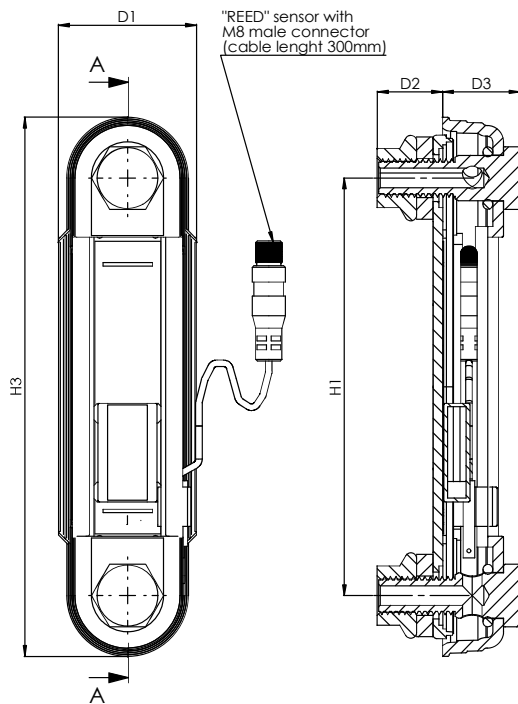


PRESSURE:	Max operating: up to 1 bar
FIXING SCREWS:	Metric – tightening torque 10 Nm
MAX WORKING TEMPERATURE :	- 30° C + 90° C
THERMOMETER:	60°C N.O. or N.C. 70°C N.O. or N.C.
MATERIALS:	SIZE 2 Outer protection: polyamide Body: polyamide Screws: zinc plated Seals: NBR 70 ShA SIZE 3-4-5-6 Outer protection: polyamide Body: polyamide Screws: zinc plated Seals: NBR 70 ShA
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).

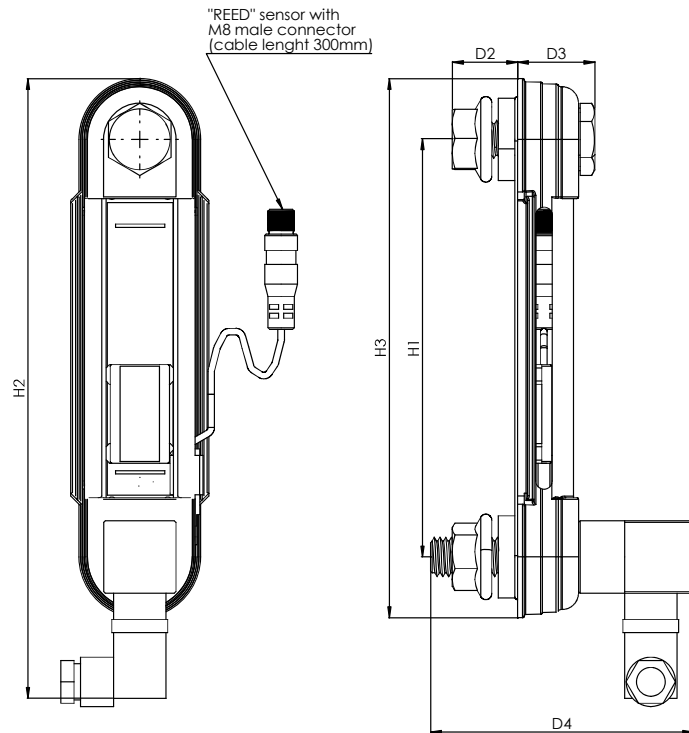
OVERALL DIMENSIONS

SIZE 2

FLV SERIES WITHOUT THERMOMETER



FLV SERIES WITH THERMOMETER



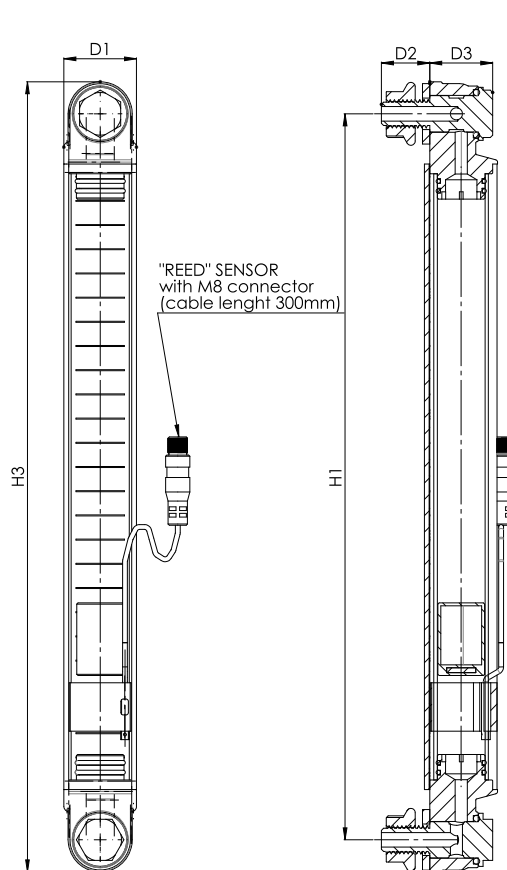
NOMINAL SIZE

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

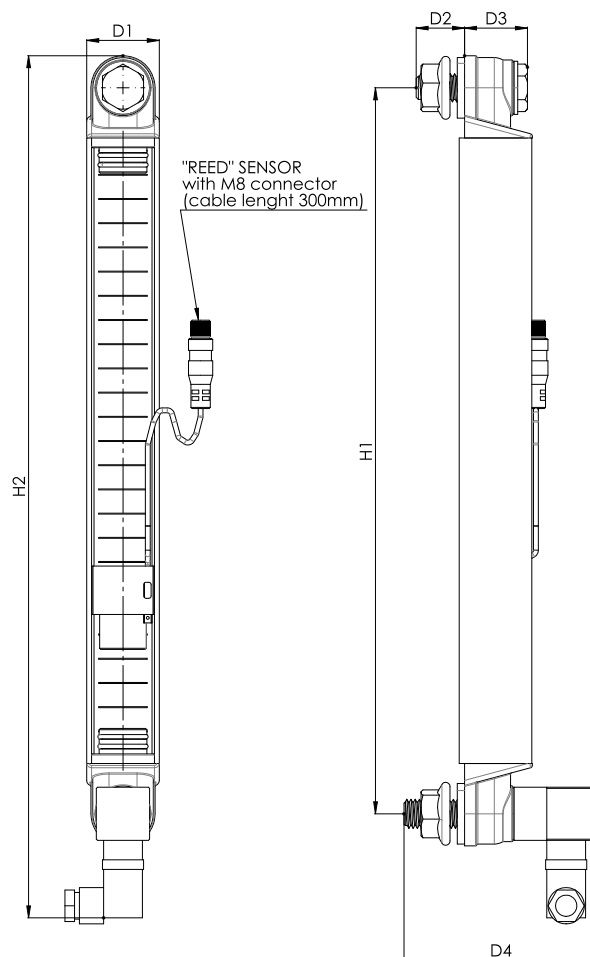
OVERALL DIMENSIONS

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

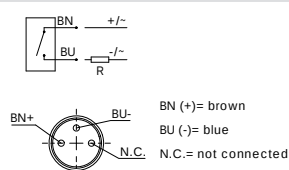
ADDITIONAL REED	REED-NO	FLVR1
ONLY FOR SIZE 3-4-5-6		

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

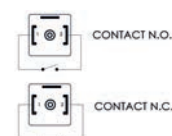
REED SWITCH ELECTRICAL DIAGRAM



MAX TEMPERATURE SWITCH

Sensor type	Bimetal contact
Power supply	AC/DC
Electrical contact	N.O. Normally open 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





FLA SERIES

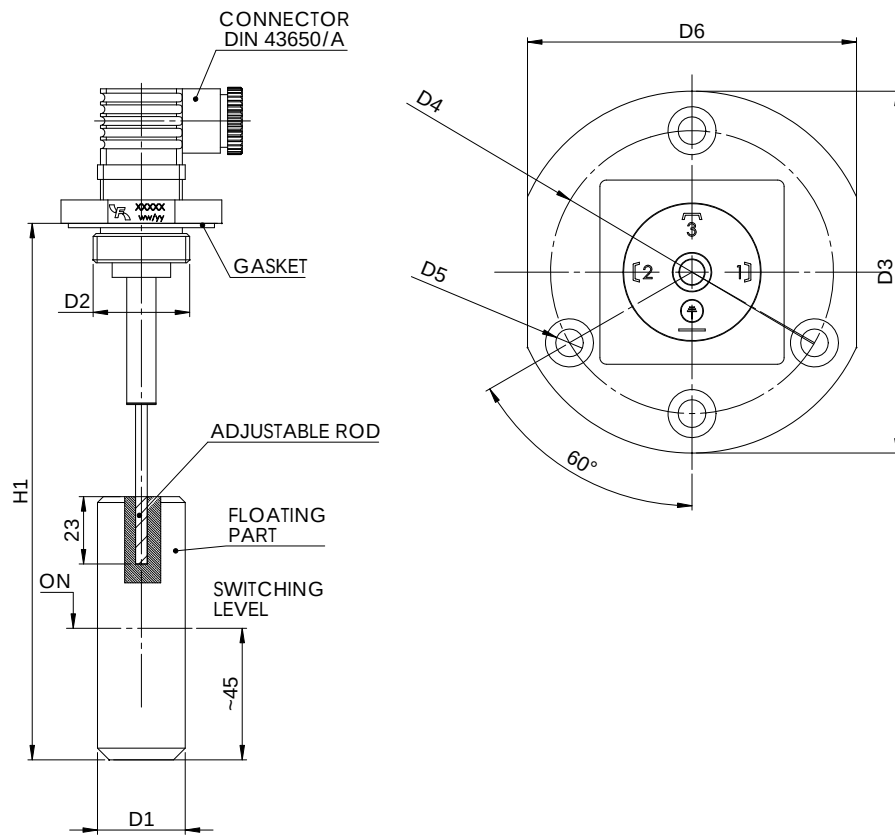
Electromagnetic level switch - spdt

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.

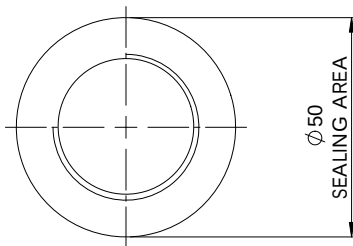


PRESSURE:	Max operating: up to 5 bar
MAX WORKING TEMPERATURE :	- 10° C + 90° C
MAX FLUID VISCOSITY	150 cSt
CONNECTIONS:	Three holes flange - 120° M4 Two holes flange - 180° M4 G1"
MATERIALS:	Rod: Stainless Steel Floating part: PA66 Housing: Anodized Aluminum Gasket: NBR
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV-HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrac Customer Service (info@filtrac.it).

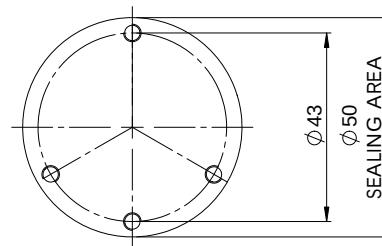
OVERALL DIMENSIONS



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

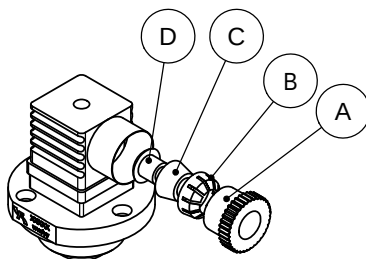
- Electrical connection in accordance with DIN 43650/A
- Electrical protection in accordance with DIN 40050-IP65
- Maximum electrical load N.O./N.C. 30V AC/DC - 0,25A
- Other electrical features on request

ELECTRICAL DIAGRAM



CONNECTION PG9 (A) + (B) + (C) + (D)
 CABLE Ø 6-8

CONNECTION PG11 (A) + (B) + (C)
 CABLE Ø 8-10







FLT SERIES

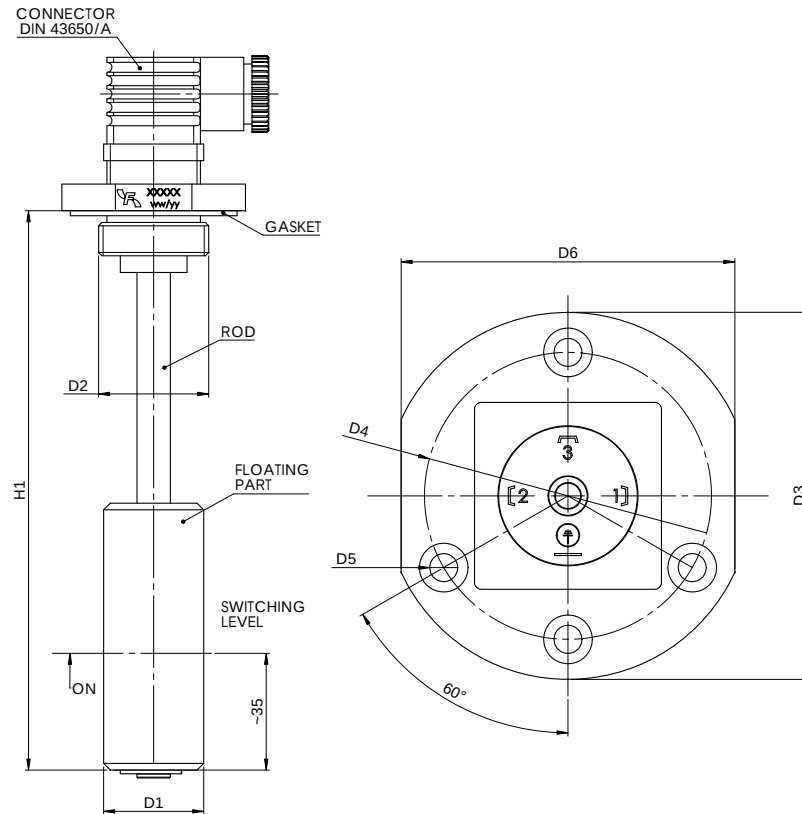
Electromagnetic level and temperature switch

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.

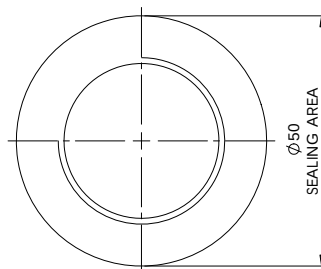


PRESSURE:	Max operating: up to 5 bar
MAX WORKING TEMPERATURE :	- 10° C + 90° C
MAX FLUID VISCOSITY	150 cSt
CONNECTIONS:	Three holes flange - 120° M4 Two holes flange - 180° M4 G1"
MATERIALS:	Rod: Stainless Steel Floating part: PA66 Housing: Anodized Aluminum Gasket: NBR
FLUID COMPATIBILITY:	Full with HH-HL-HM-HV-HETG-HEES (acc. to ISO 6743/4). For use with other fluid please contact Filtrec Customer Service (info@filtrec.it).

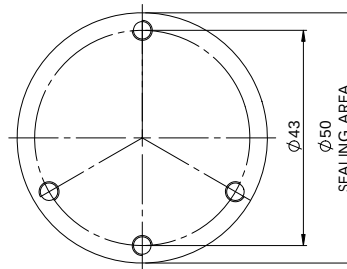
OVERALL DIMENSIONS



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.
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

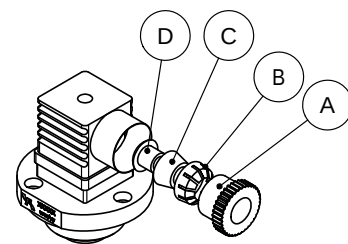
1. SERIES	FLT	
2. SIZE	150	Rod length 150 mm
	200	Rod length 200 mm
	250	Rod length 250 mm
	350	Rod length 350 mm
	400	Rod length 400 mm
	500	Rod length 500 mm
3. LEVEL SWITCH	A	Open without oil / closed with oil
	B	Closed without oil / open with oil
4. SWITCHING TEMPERATURE (C°)	50	with thermometer 50°C
	60	with thermometer 60°C
	70	with thermometer 70°C
5. THERMOMETER SWITCH	A	Open with $T < T_{set}$ / Closed with $T \geq T_{set}$
	B	Closed with $T < T_{set}$ / Open with $T \geq T_{set}$

ELECTRICAL SPECIFICATIONS

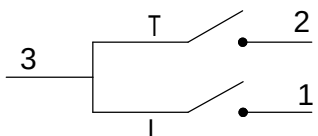
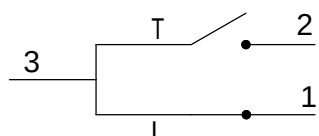
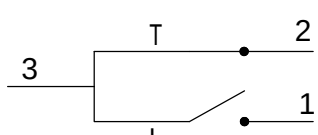
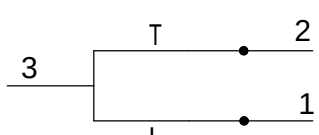
- Electrical connection in accordance with DIN 43650/A
- Electrical protection in accordance with DIN 40050-IP65
- Maximum electrical load 30V AC/DC - 0,25A
- Other electrical features on request

CONNECTION PG9 (A) + (B) + (C) + (D)
CABLE Ø 6-8

CONNECTION PG11 (A) + (B) + (C)
CABLE Ø 8-10



ELECTRICAL CONTACT EXAMPLE WITHOUT LIQUID AND $T < T_{set}$

	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

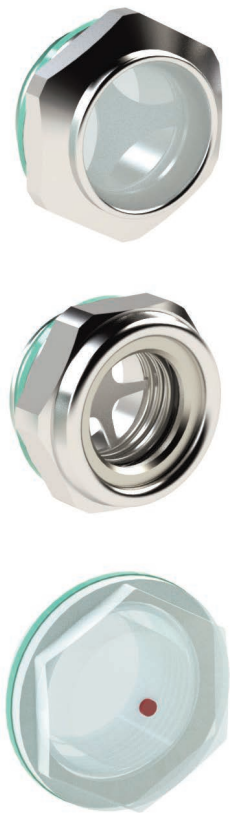




FLS SERIES

Oil sight gauges

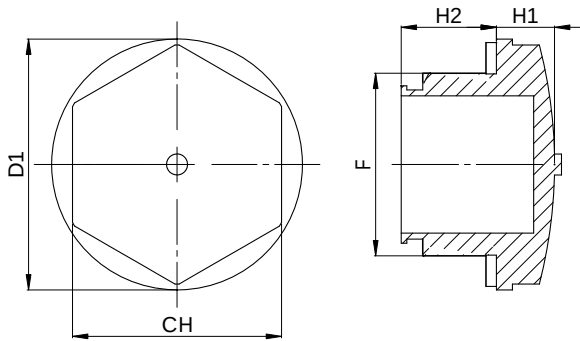
FLS is a range of compact oil sight gauges for monitoring the fluid level in the tank. They are directly fitted on the tank side. Several configurations can be selected to meet every condition: sizes, body, and lens materials.



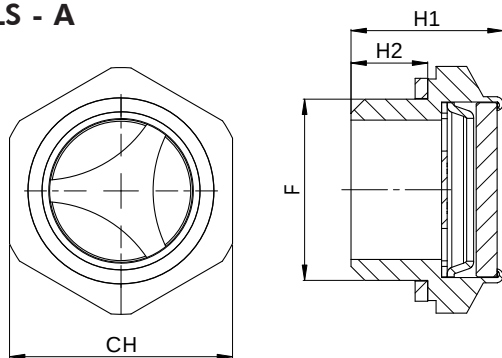
PRESSURE:	Max operating: up to 5 bar (20 bar for FLSV)
FIXING SCREWS:	Metric – tightening torque 10 Nm
MAX WORKING TEMPERATURE :	- 10° C + 100° C (+ 130° C for FLSV)
MATERIALS:	for FLSP version Body: Polyamide Lens: Polyamide Seals: Flat fiber gasket for FLSA version Body: Aluminium alloy Lens: Polyamide Seals: Flat fiber gasket for FLSV version Body: Aluminium alloy Lens: Glass Seals: Flat fiber gasket
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).

OVERALL DIMENSIONS

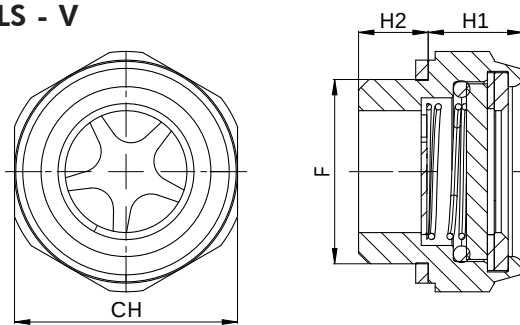
FLS - P



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
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1. SERIES	FLS
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		BODY	LENS
2. SIZE	P	Polyamide	
	A	Aluminium	Polyamide
	V	Aluminium	Natural glass

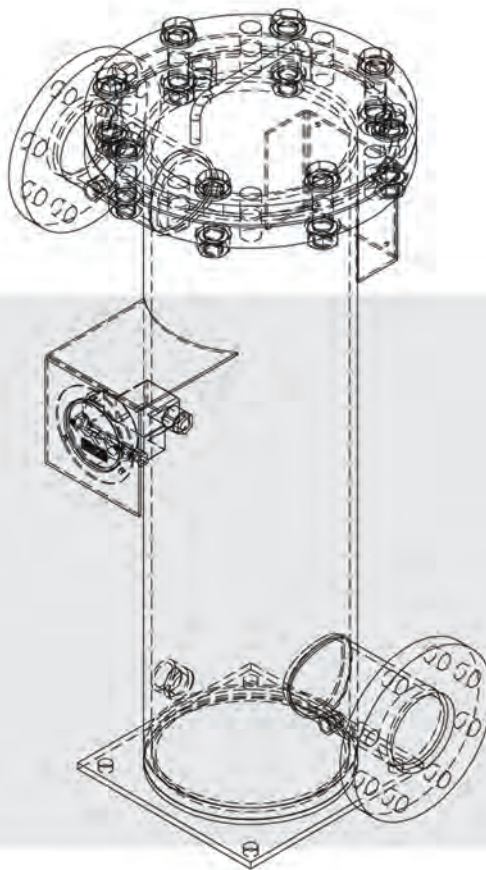
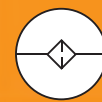
3. CONNECTIONS	FOR FLSP		FOR FLSA		FOR FLSV	
	B1	G 1/4"	B1	G 1/4"	B3	G 1/2"
	B2	G 3/8"	B2	G 3/8"	B4	G 3/4"
	B3	G 1/2"	B3	G 1/2"	B5	G 1"
	B4	G 3/4"	B4	G 3/4"	M20	M20X1,5
	B5	G 1"	B5	G 1"	M33	M33X1,5
	B6	G 1 1/4"	B6	G 1 1/4"		
	B7	G 1 1/2"	B7	G 1 1/2"		
	B8	G 2"	M14	M14x1,5		
	M14	M14x1,5	M16	M16X1,5		
	M16	M16X1,5	M18	M18X1,5		
	M18	M18X1,5	M20	M20X1,5		
	M20	M20X1,5	M22	M22X1,5		
	M22	M22X1,5	M24	M24X1,5		
	M26	M26X1,5				
	M27	M27X1,5				
	M40	M40X1,5				

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.



SX Series

Features of the filter system

- Suitable for filter rating from 3 μm to 1000 μm
- 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

Application



NATURAL GAS
PRODUCTION AND
PROCESSING



OIL PRODUCTION
AND PROCESSING



CHEMICAL
PETROCHEMICAL
PLANTS



POWER STATION



Certification

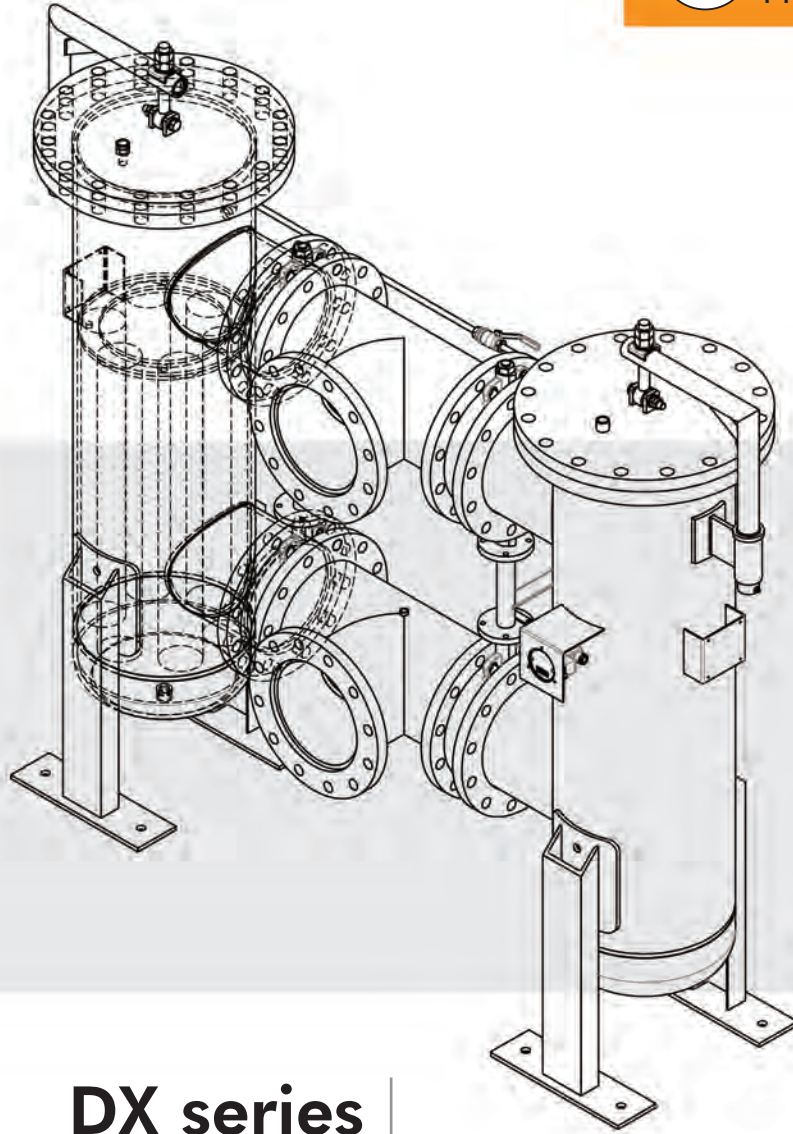
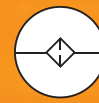
- ASME Section VIII with U-Stamp
- NB Certificate of Authorization
- ATEX
- PED
- Others upon request

info & contact: www.filtrec.com
info@filtrec.it



CT58-rev.02-07/17





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.



DX Series

Features of the filter system

- Suitable for filter rating from 3 μm to 1000 μm
- 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
- 1 filter working + 1 filter 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

Application



Certification

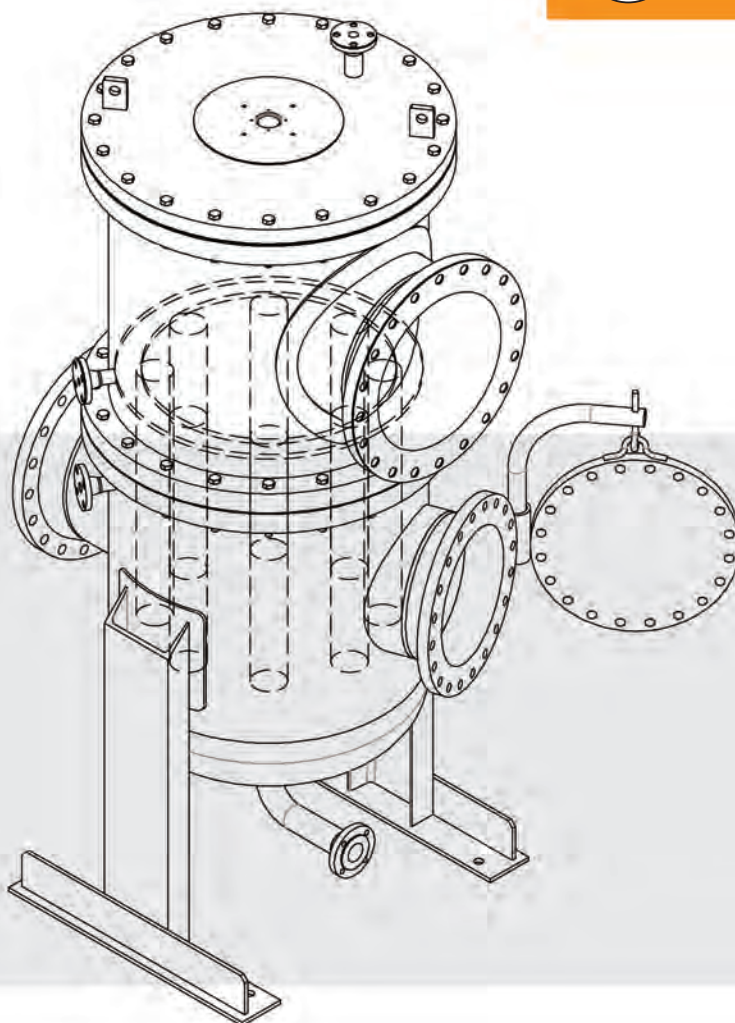
- ASME Section VIII with U-Stamp
- NB Certificate of Authorization
- ATEX
- PED
- Others upon request

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CT59-rev.02-07/17





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).

SCS Series

Features of the filter system

- Suitable for filter rating from 50 μm to 2000 μm
- Flow rates max 6500 m³/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

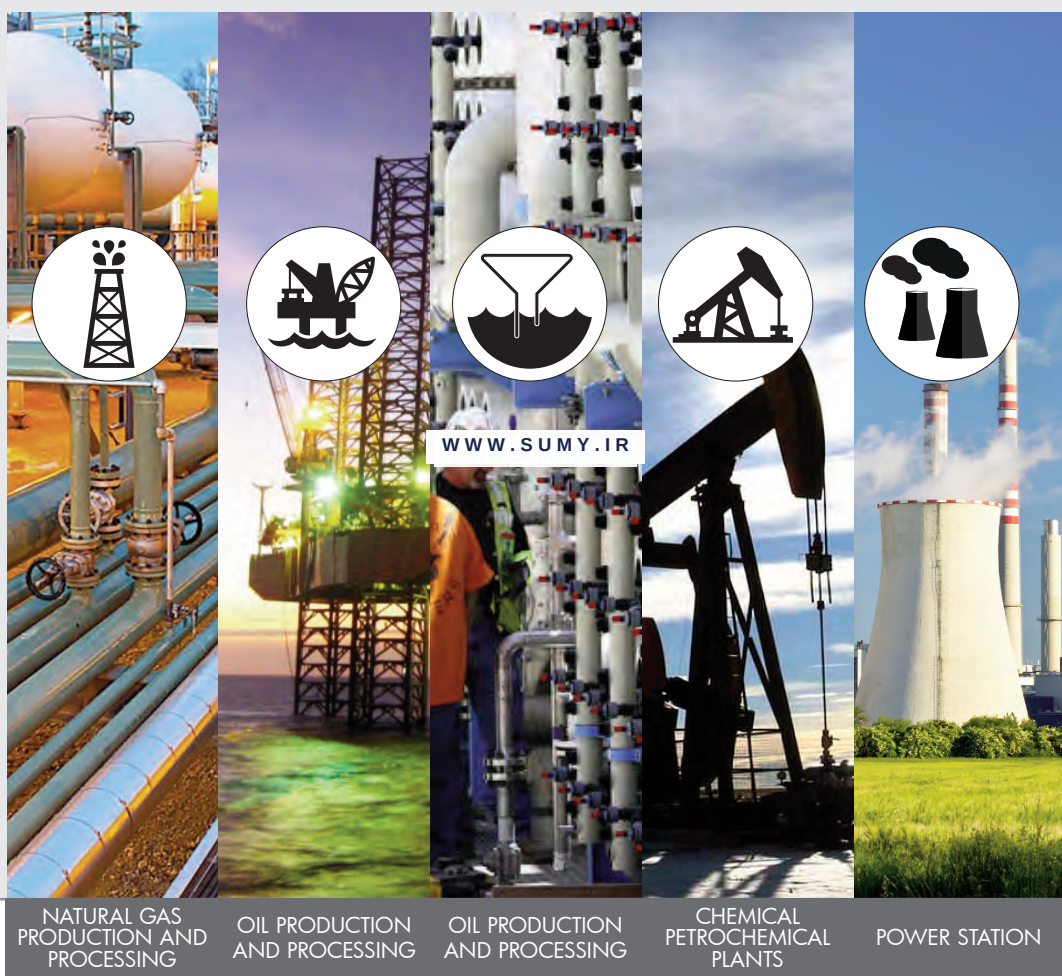
Filter Elements

- Slotted tubes

Accessories

- Differential visual / electrical pressure gauge
- Electrical control box
- Backwashing electropneumatic valve
- Safety valve
- Shut-off valves
- Others upon request

Application



Certification

- ASME Section VIII with U-Stamp
- NB Certificate of Authorization
- ATEX
- PED
- Others upon request

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CT59-rev.02-07/17





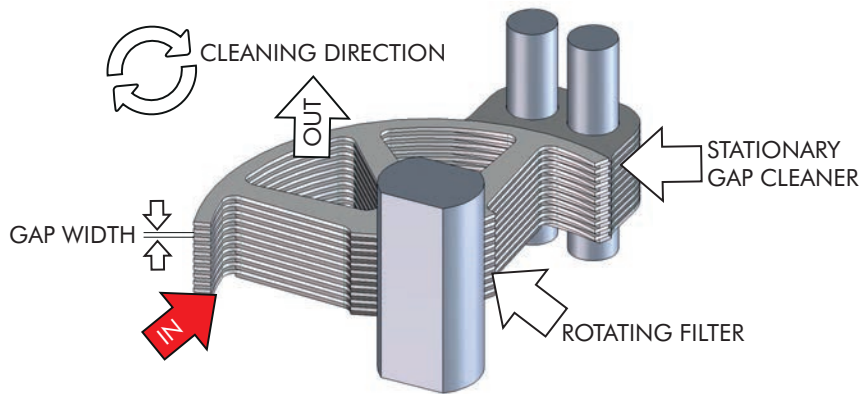
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KM Series

GAP TYPE FILTERS

GAP-TYPE FILTER DESIGN



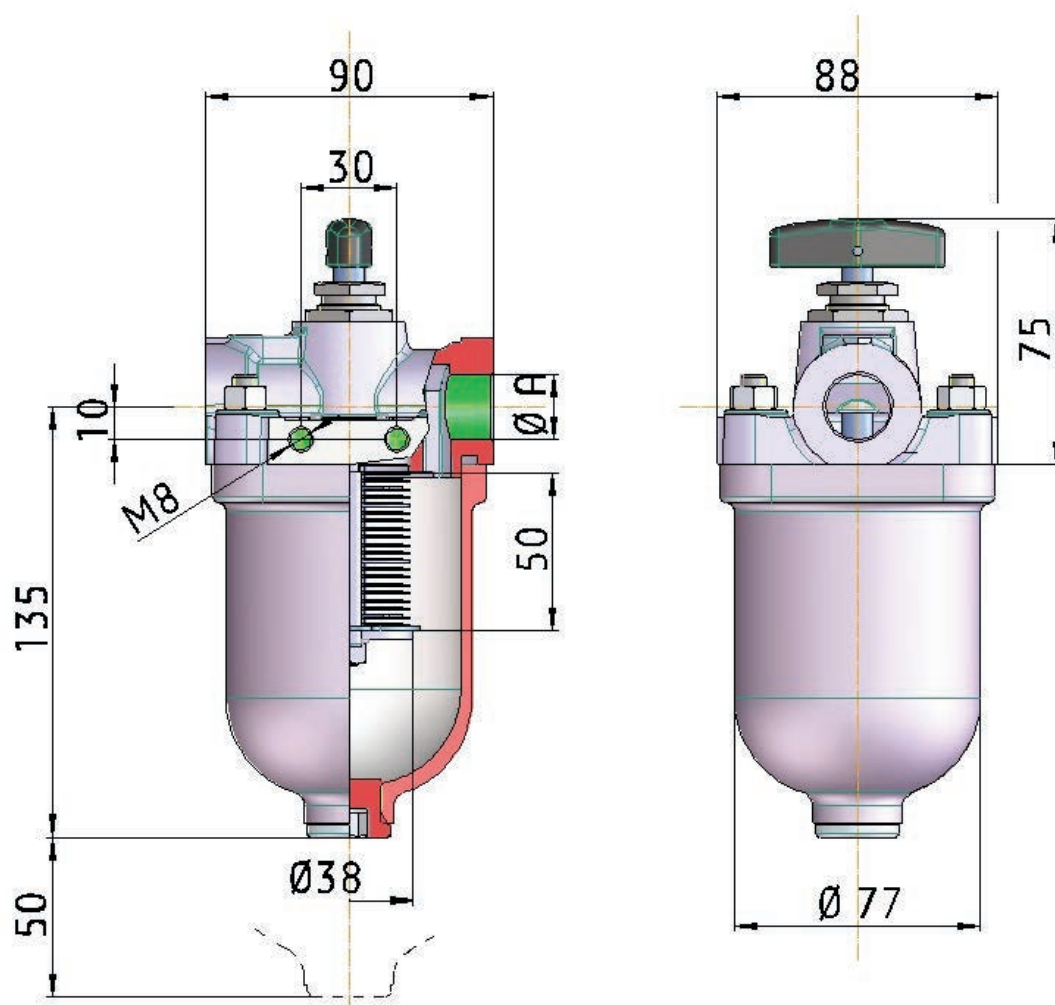
KMGP - Plate gap-type filters (gap widths ≥ 0.1 mm) Highly viscous fluids

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

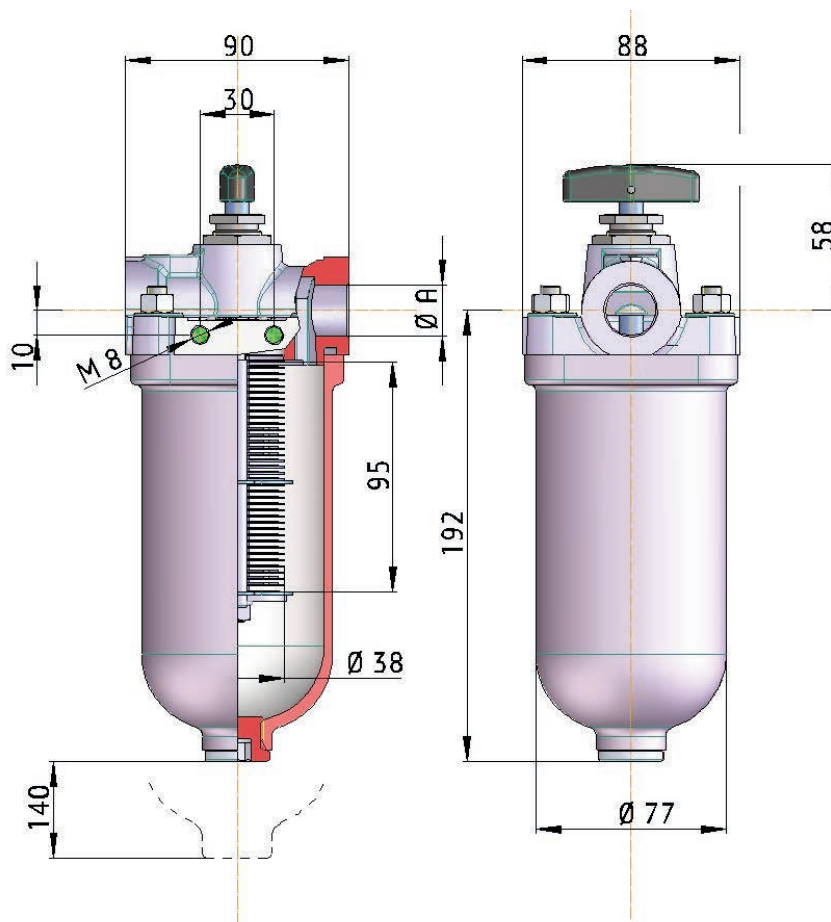


ORDERING INFORMATION

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

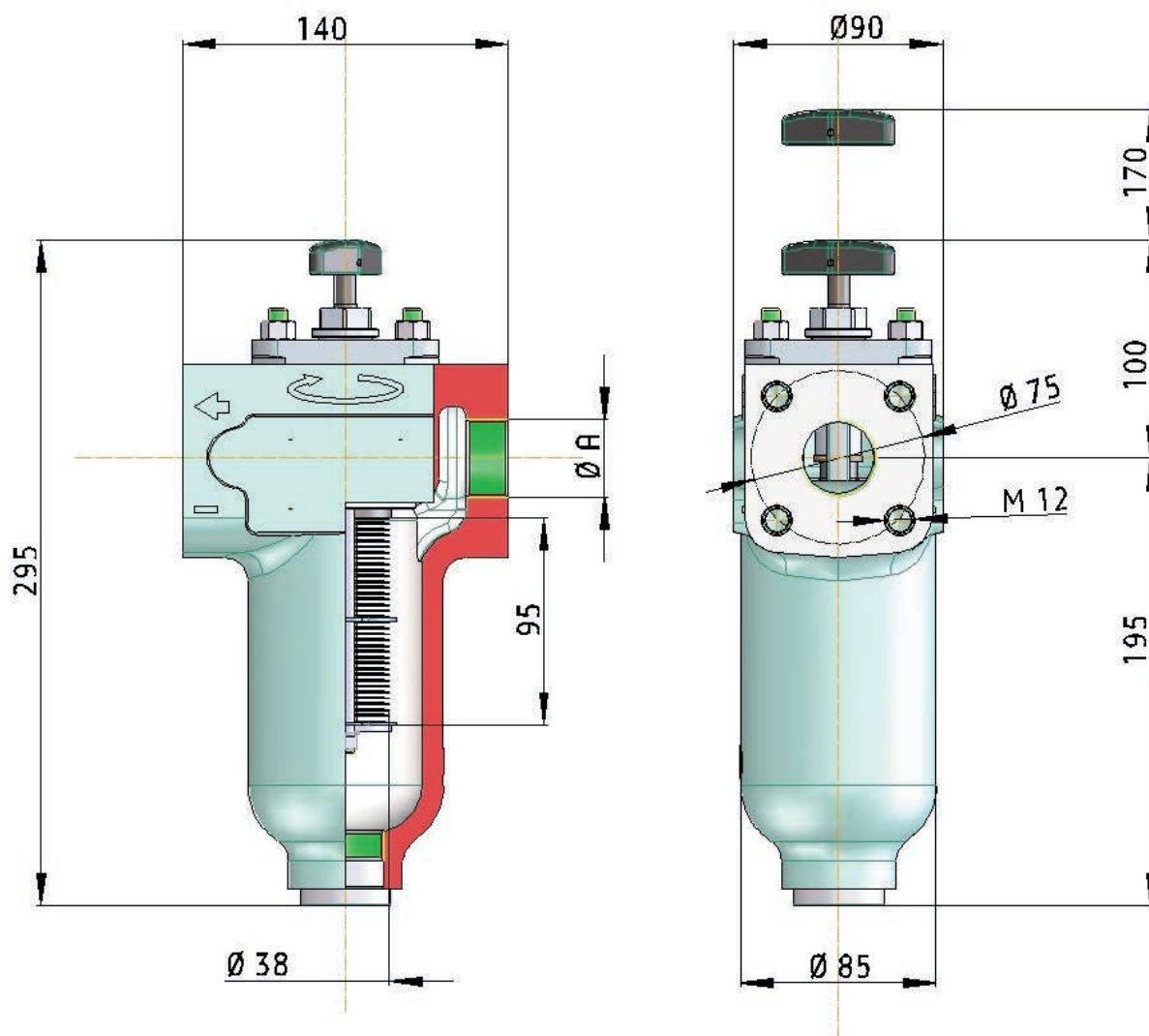


ORDERING INFORMATION

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

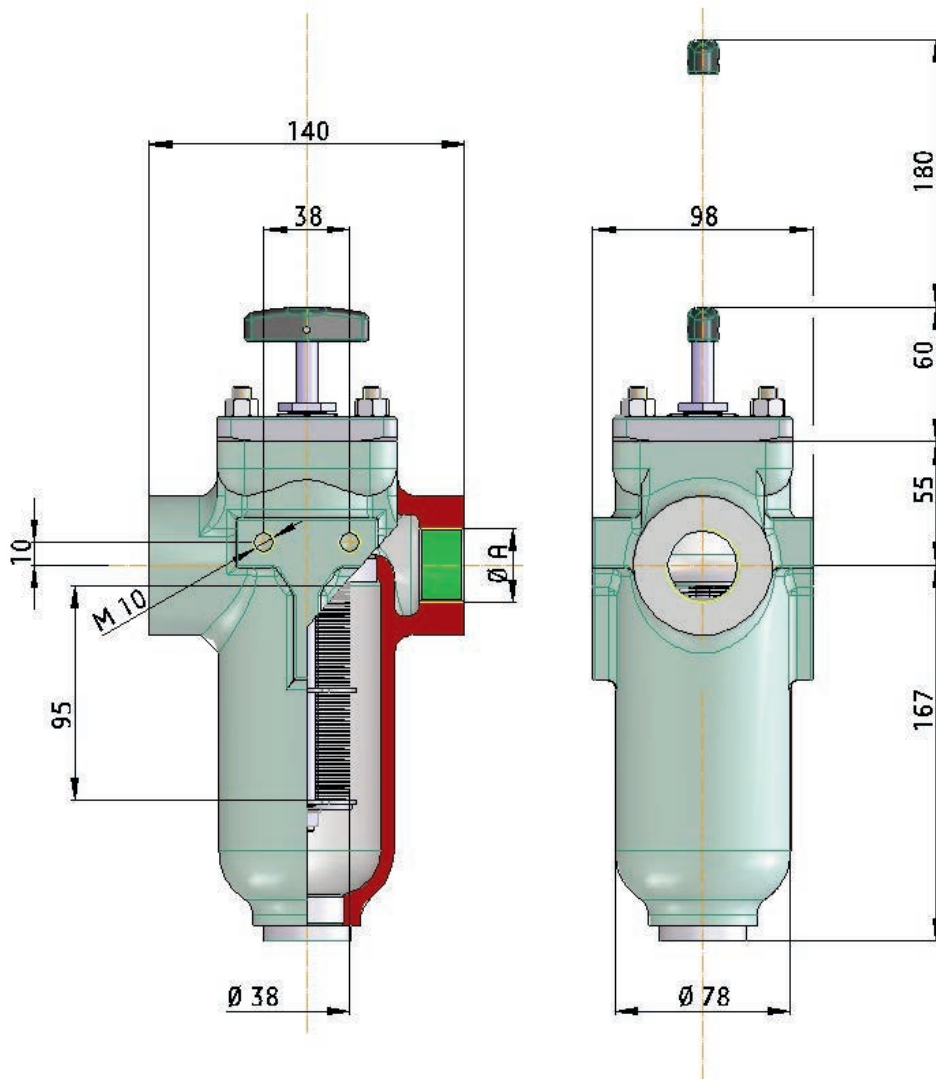


ORDERING INFORMATION

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

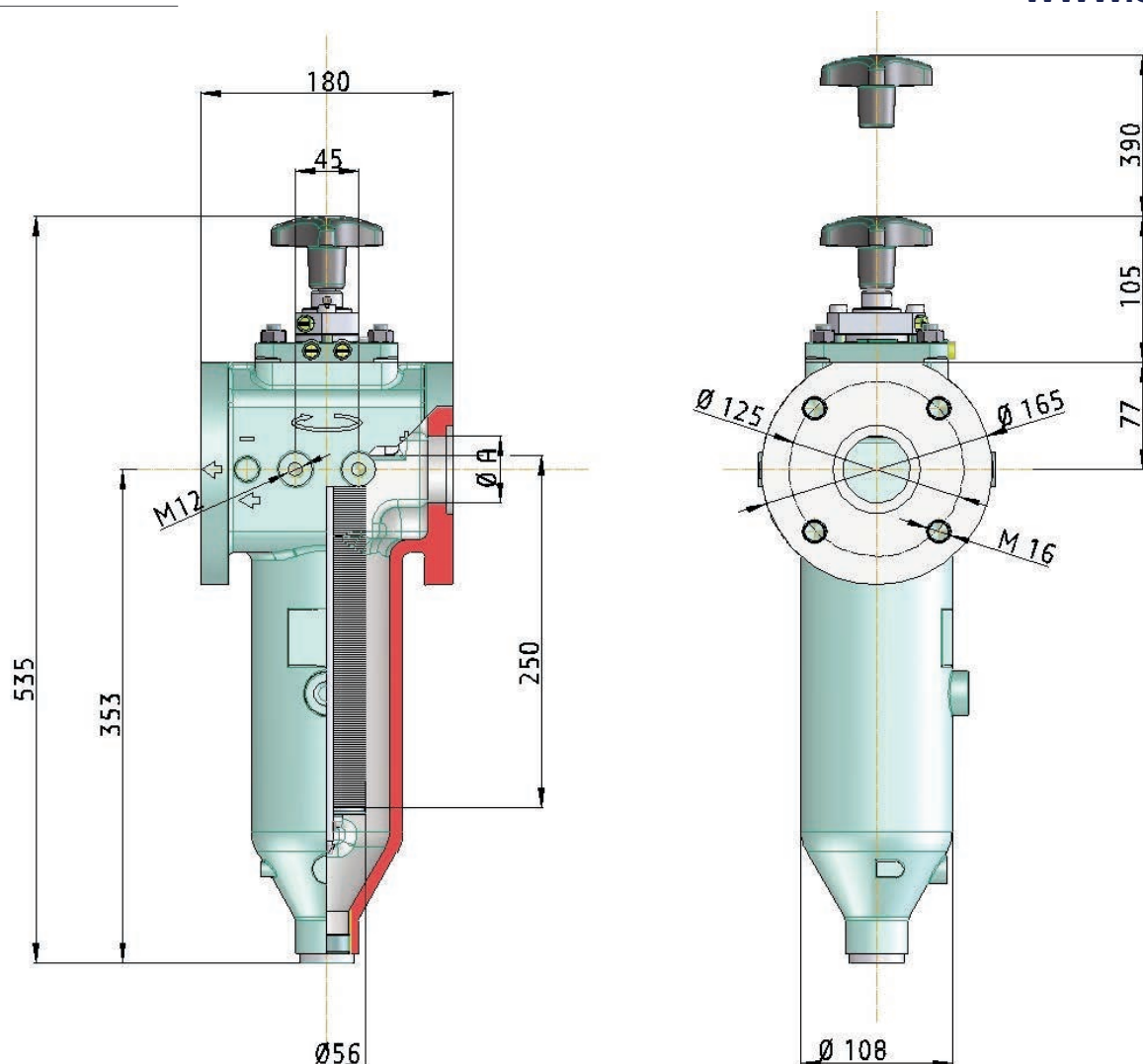
*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.



KMGP00017	25.001.00024	100	3000	10	120	G 1	gray cast iron	gray cast iron	steel	1	8	painted
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*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

OVERALL DIMENSIONS



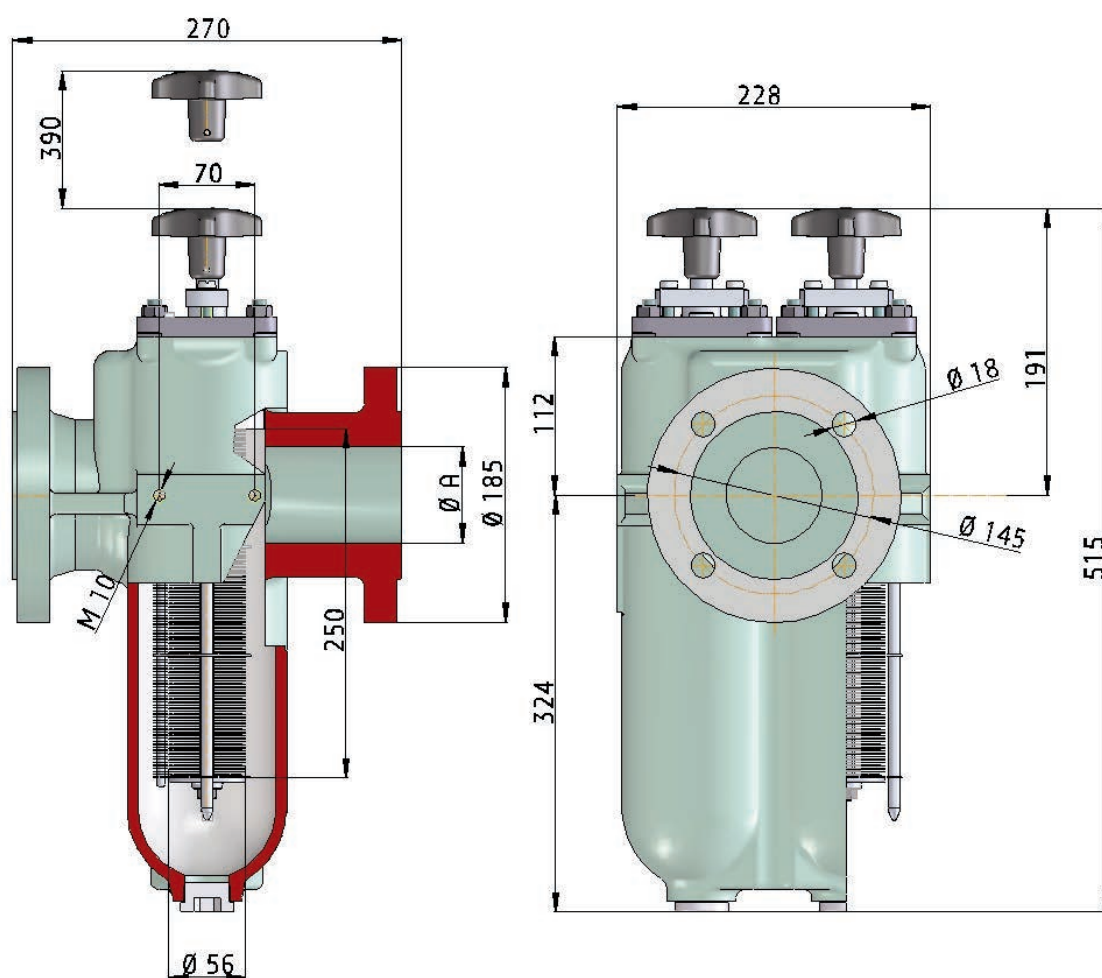
ORDERING INFORMATION

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

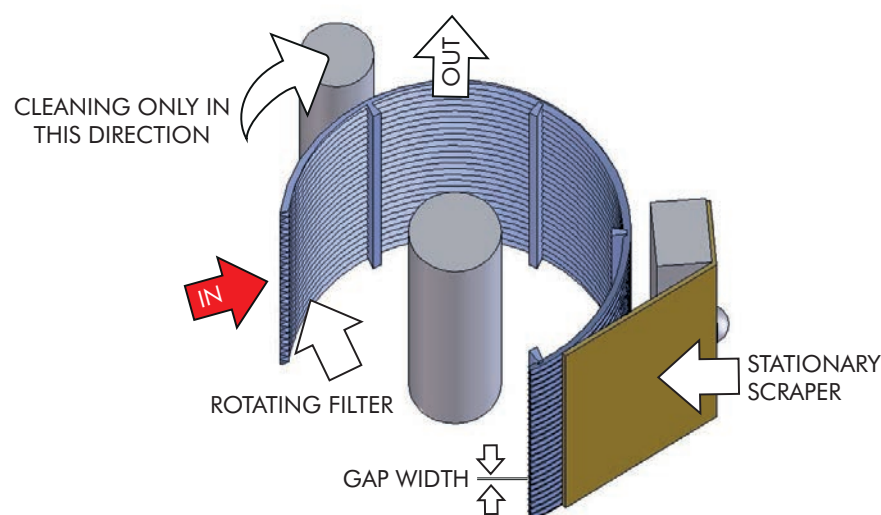


ORDERING INFORMATION

Filtrec filter assembly	Filter insert	Gap width (μm)	Nominal flow rate (l/h) *	Max. operating pressure (bar)	Max. operating temp. ($^{\circ}\text{C}$)	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 D_p of 0,2 to 0,4 bar.

GAP-TYPE FILTER DESIGN



KMGT - Tube gap-type filters (gap widths ≥ 0.05 mm)

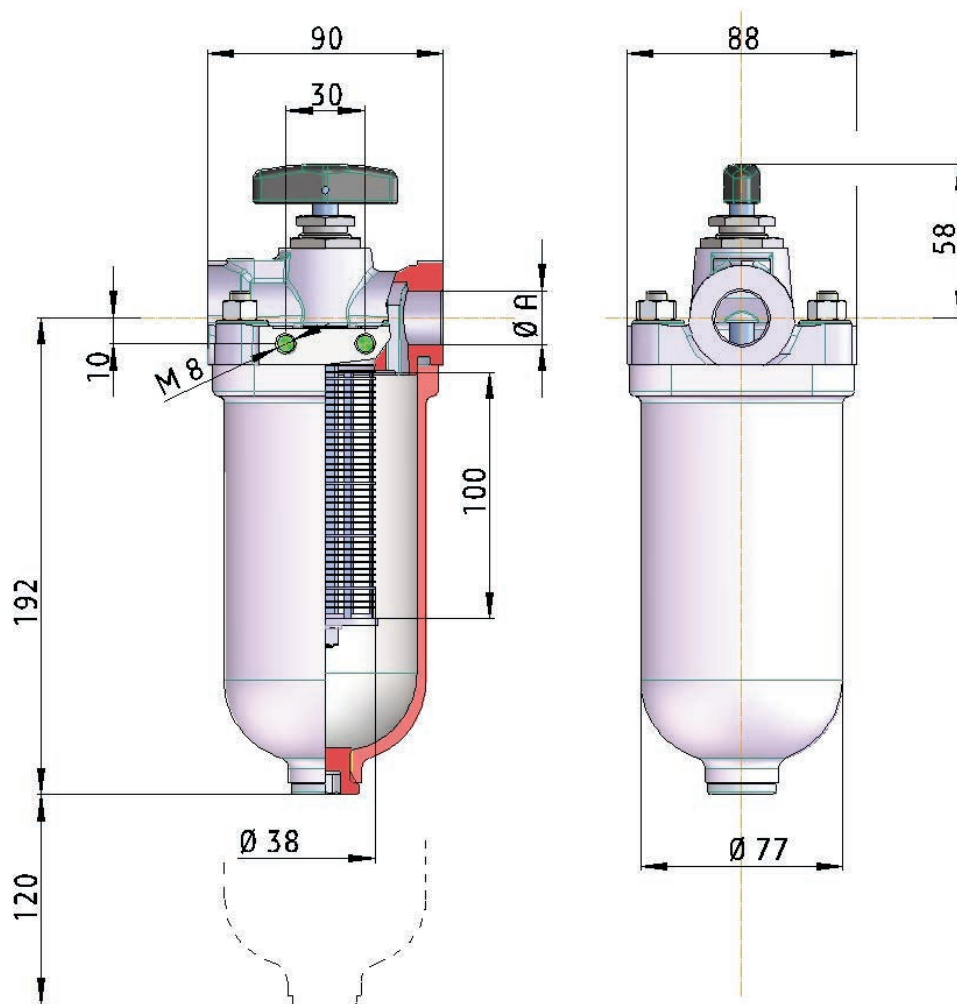
Watery and/or aggressive fluids

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

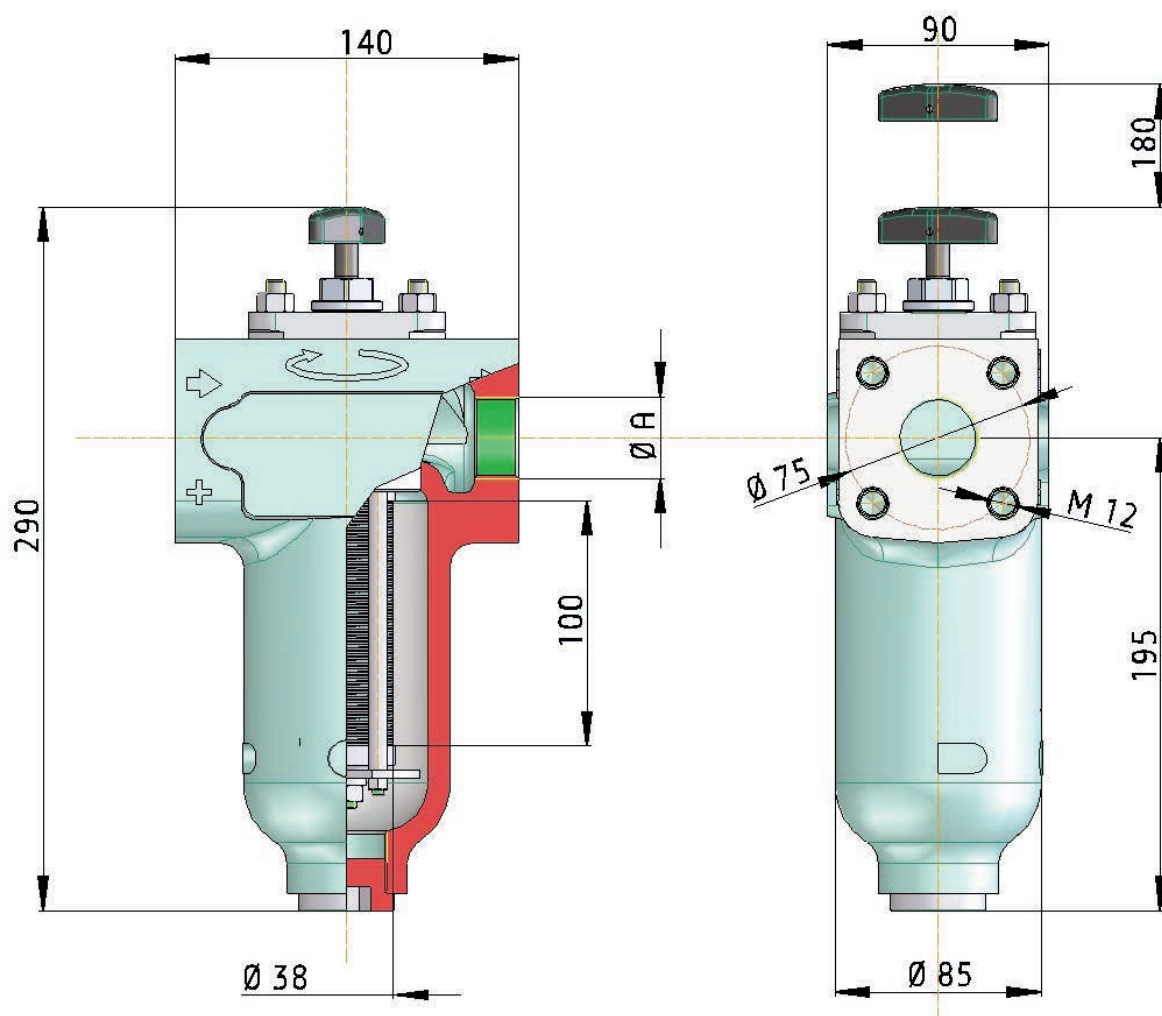


ORDERING INFORMATION

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

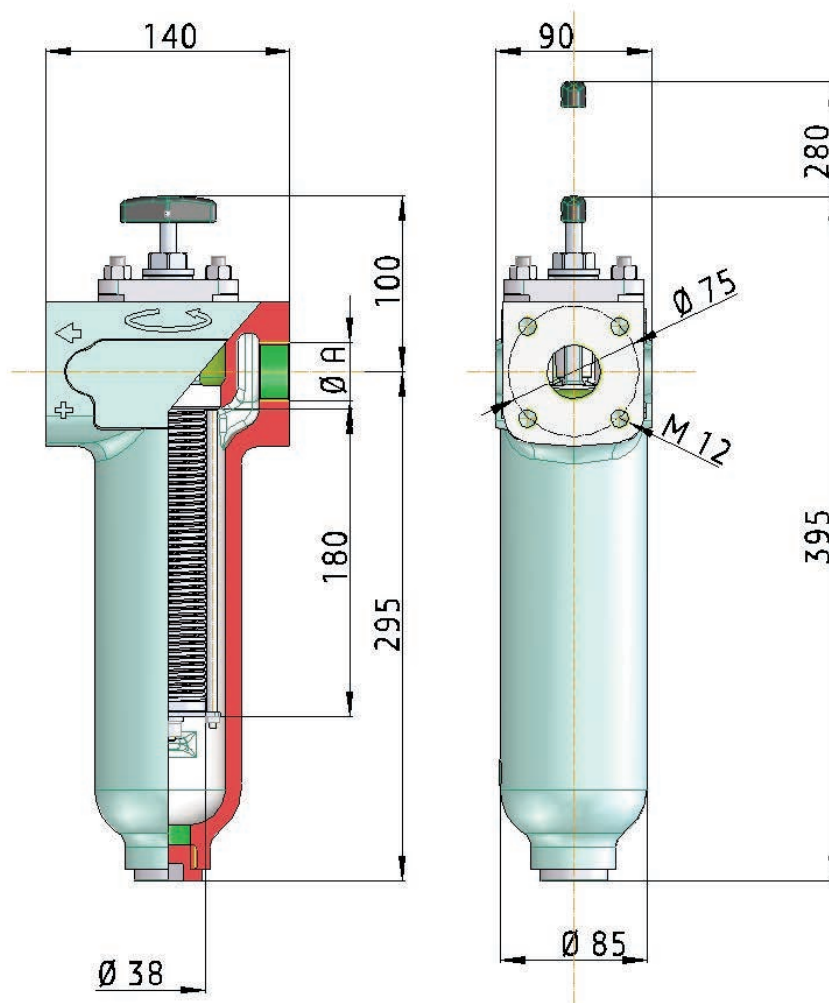


ORDERING INFORMATION

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

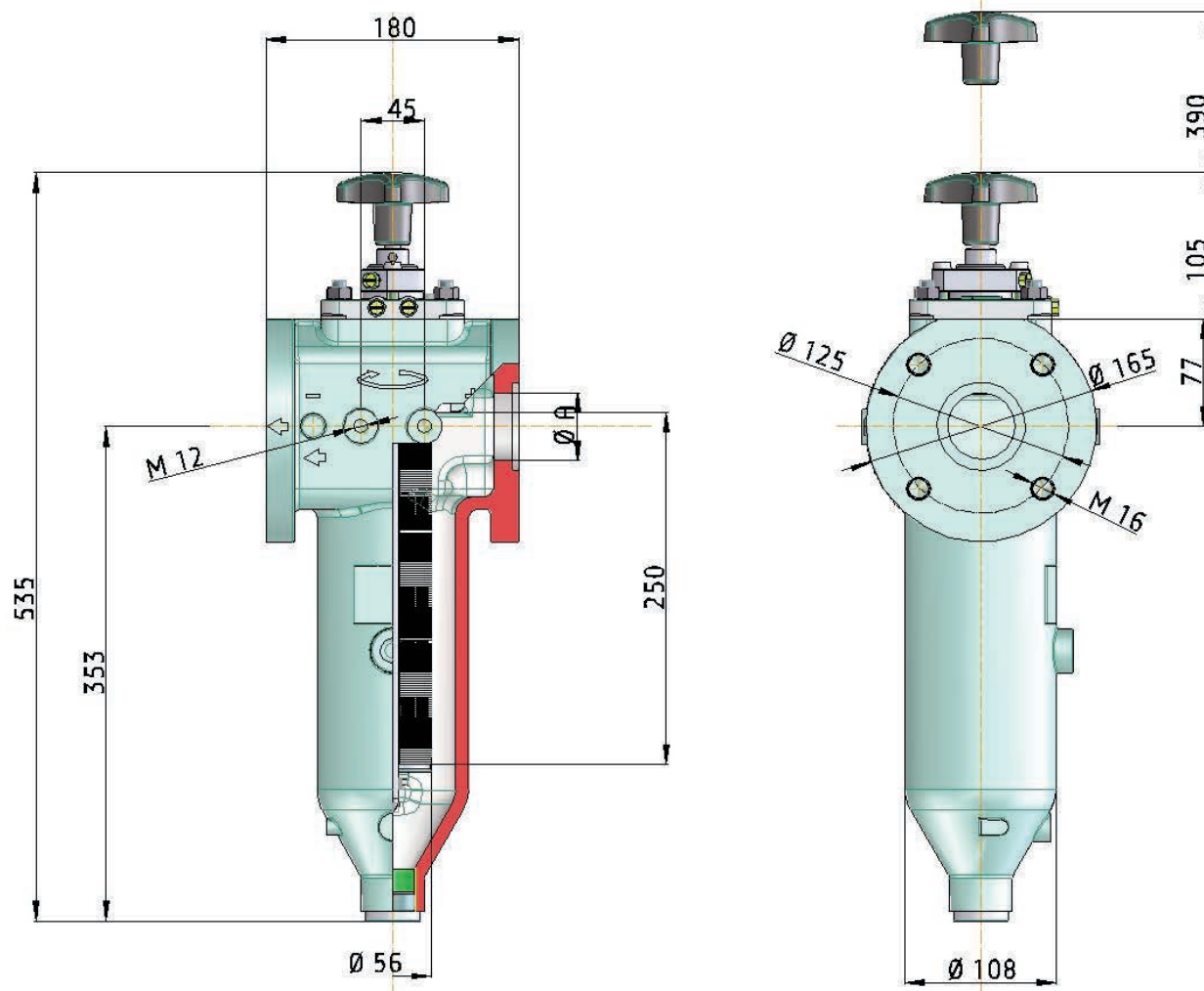


ORDERING INFORMATION

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

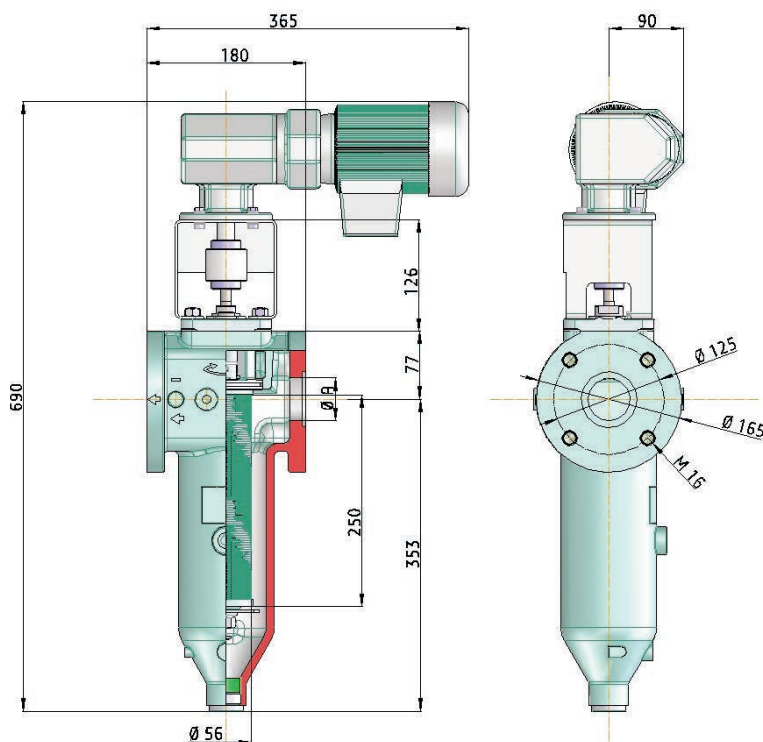


ORDERING INFORMATION

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

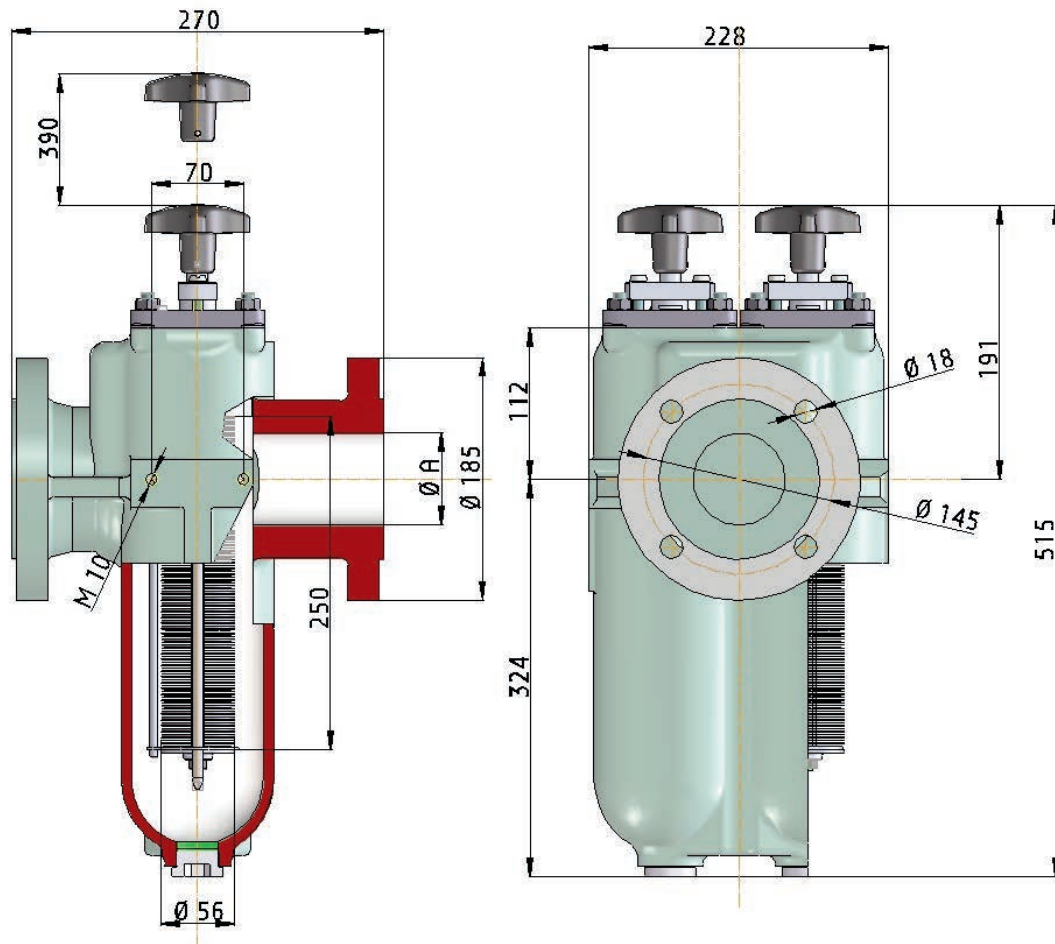
Filtrec filter assembly	Filter insert	Gap width (µm)	Nominal flow rate (l/h) *	Max. operating pressure (bar)	Max. operating temp. (°C)	Port size -A-	Material head	Material Housing	Media pack material	Volume (l)	Weight approx. (kg)
KMGT00007	25.003.00016	50	4000	40	120	DN 50 PN 16/40	aluminium	aluminium	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.

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KM SERIES | 15/23

Multiple element filter assembly

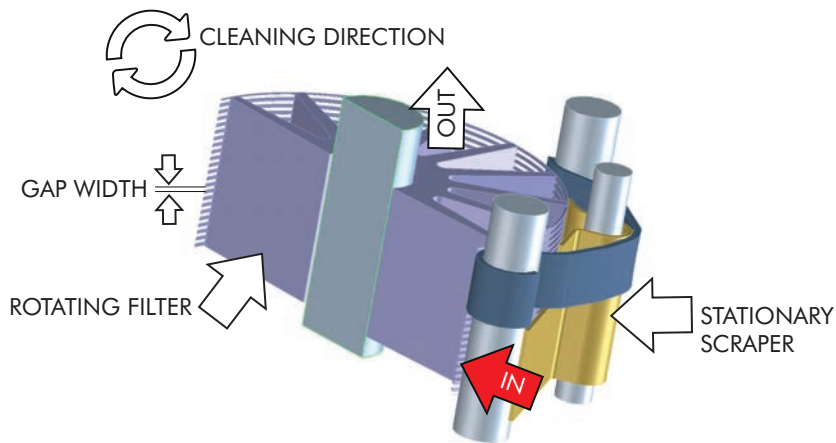


ORDERING INFORMATION

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



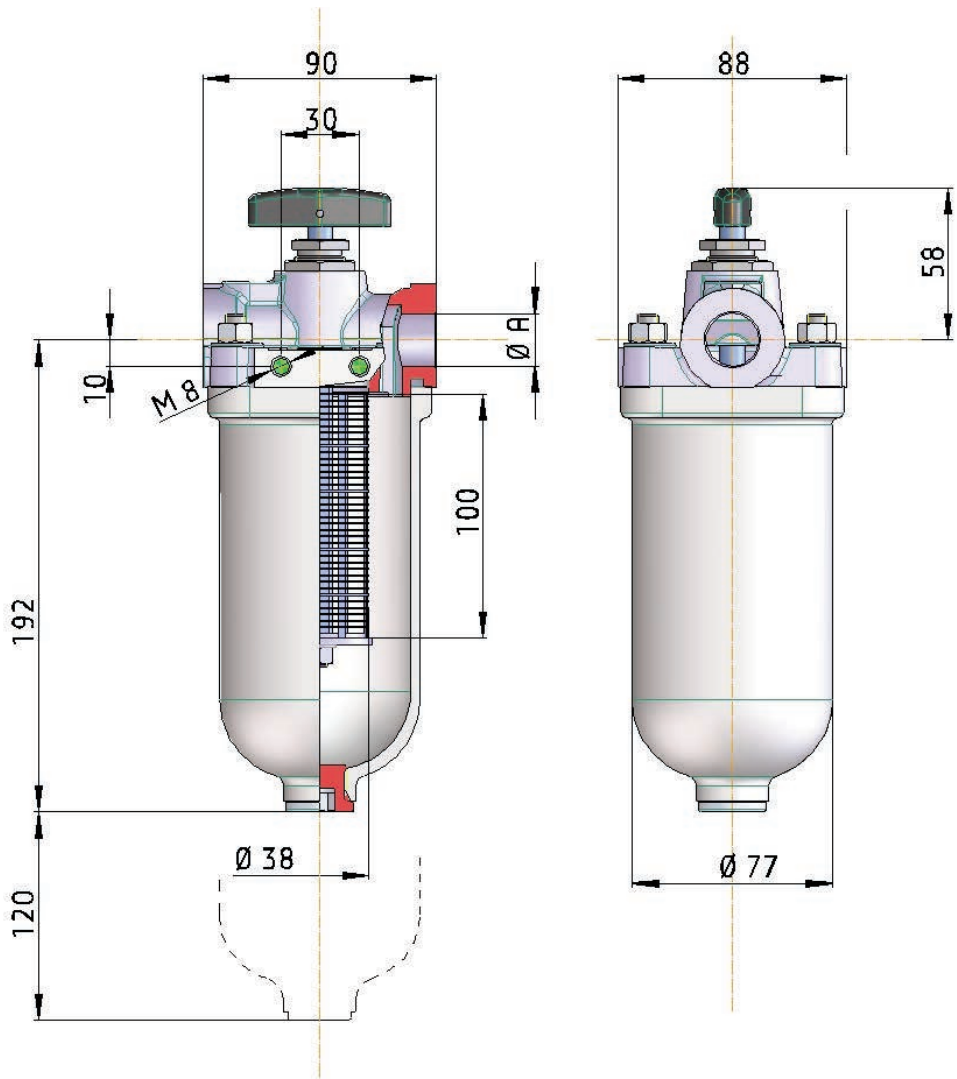
KMGW - Wire gap-type filters (gap widths ≥ 0.03 mm) Fuels and lubricants

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

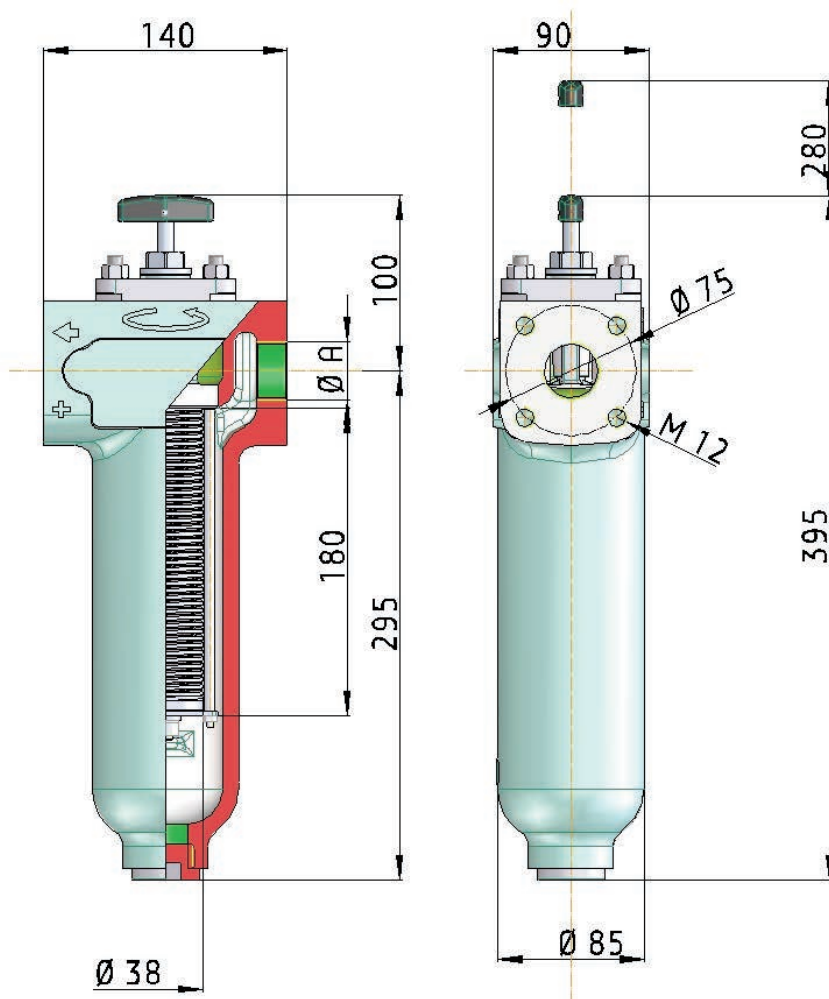


ORDERING INFORMATION

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	paint
KMGW00003	25.002.00012	50	3000	40 Bar	120°	G 3/4	gray cast iron	steel	stainless steel	0,5	2,2	paint
KMGW00006	25.002.00024	100	3900	40 Bar	120°	G 3/4	gray cast iron	steel	stainless steel	0,5	2,2	paint

*Max flow rates apply to liquids with a viscosity of 72 (cSt) with Dp of 0,2 to 0,4 bar.

OVERALL DIMENSIONS

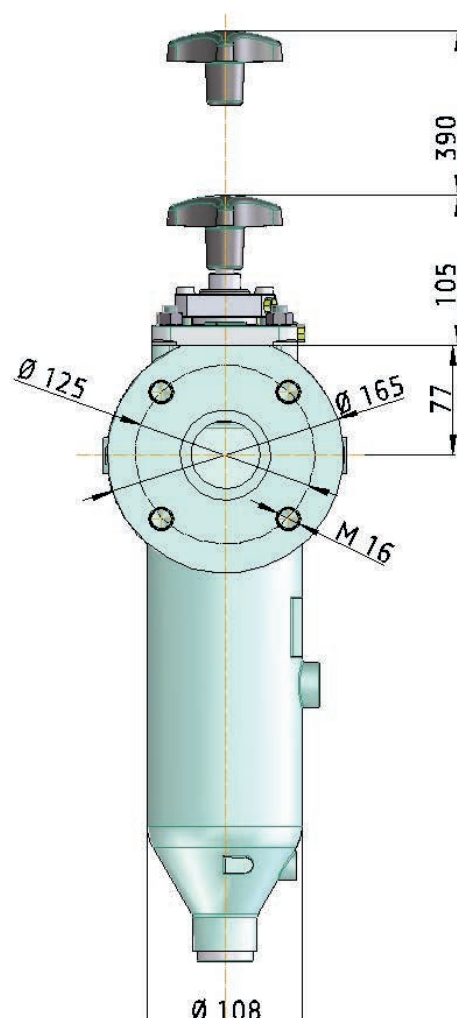
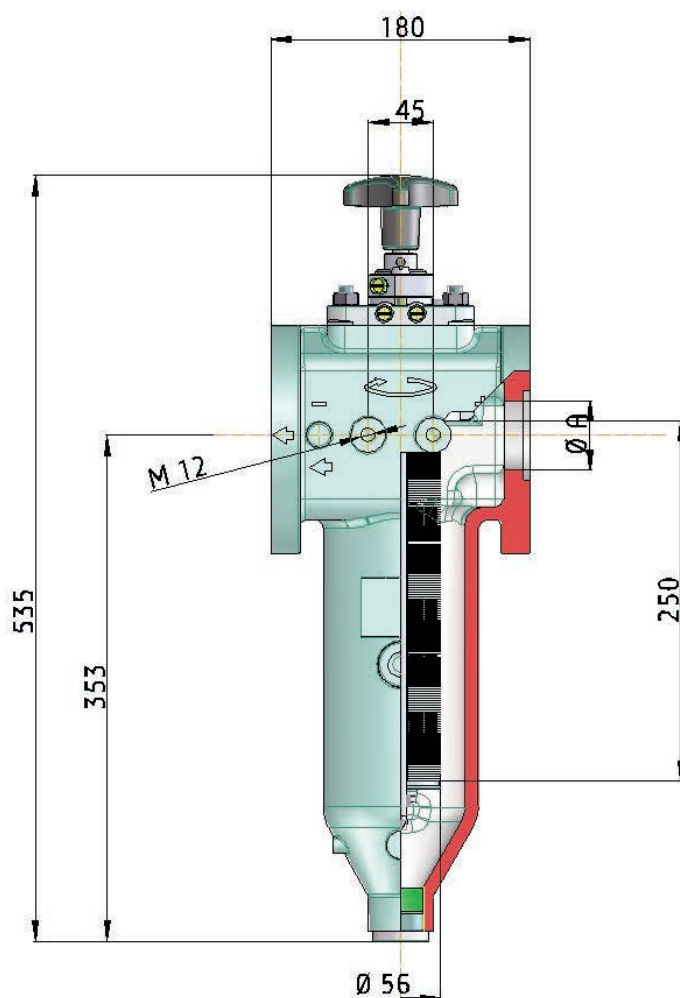


ORDERING INFORMATION

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



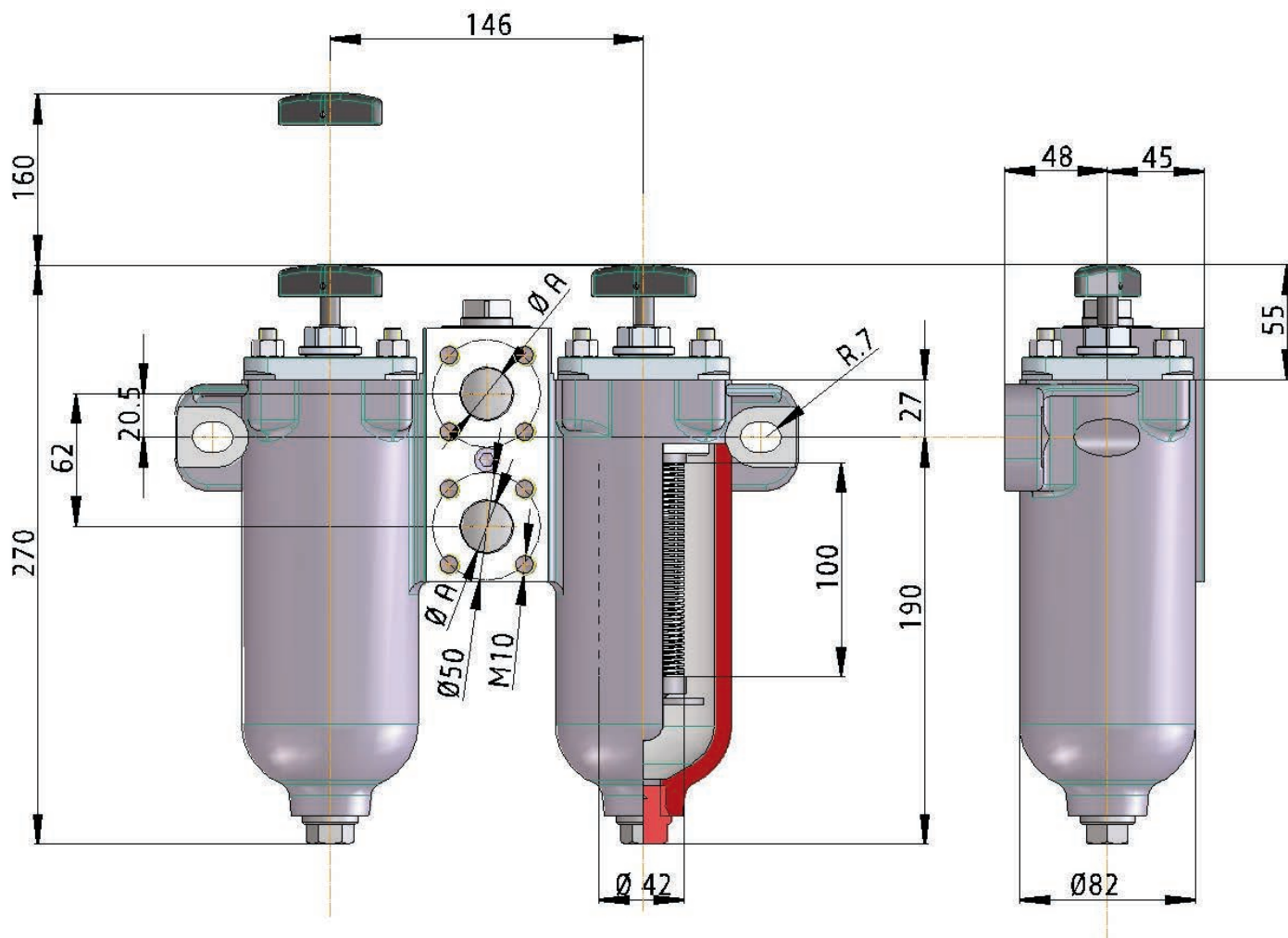
ORDERING INFORMATION

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

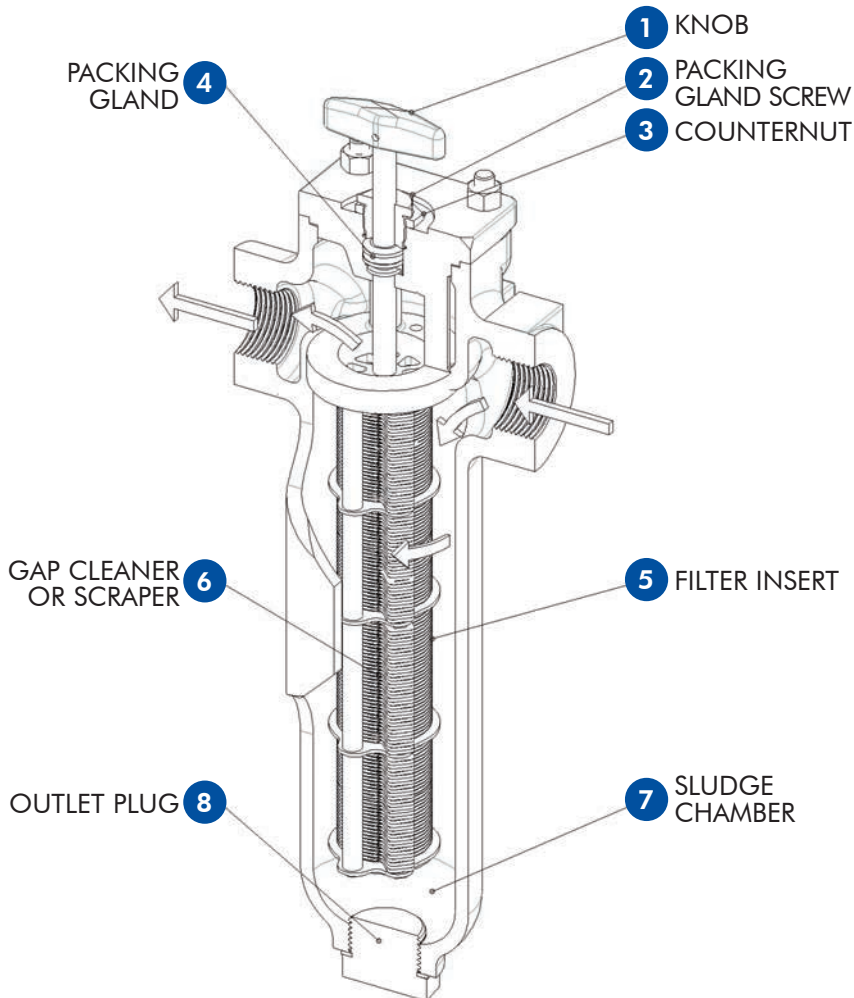


ORDERING INFORMATION

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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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 1" Ansi 150 RF 1" Ansi 300 RF DN25 PN16 DN25 PN40
MATERIALS:	Head: St.Steel 316/316L Body: St.Steel 316/316L Seal: NBR (FKM option) 3-Way valve: Steel 316/316L

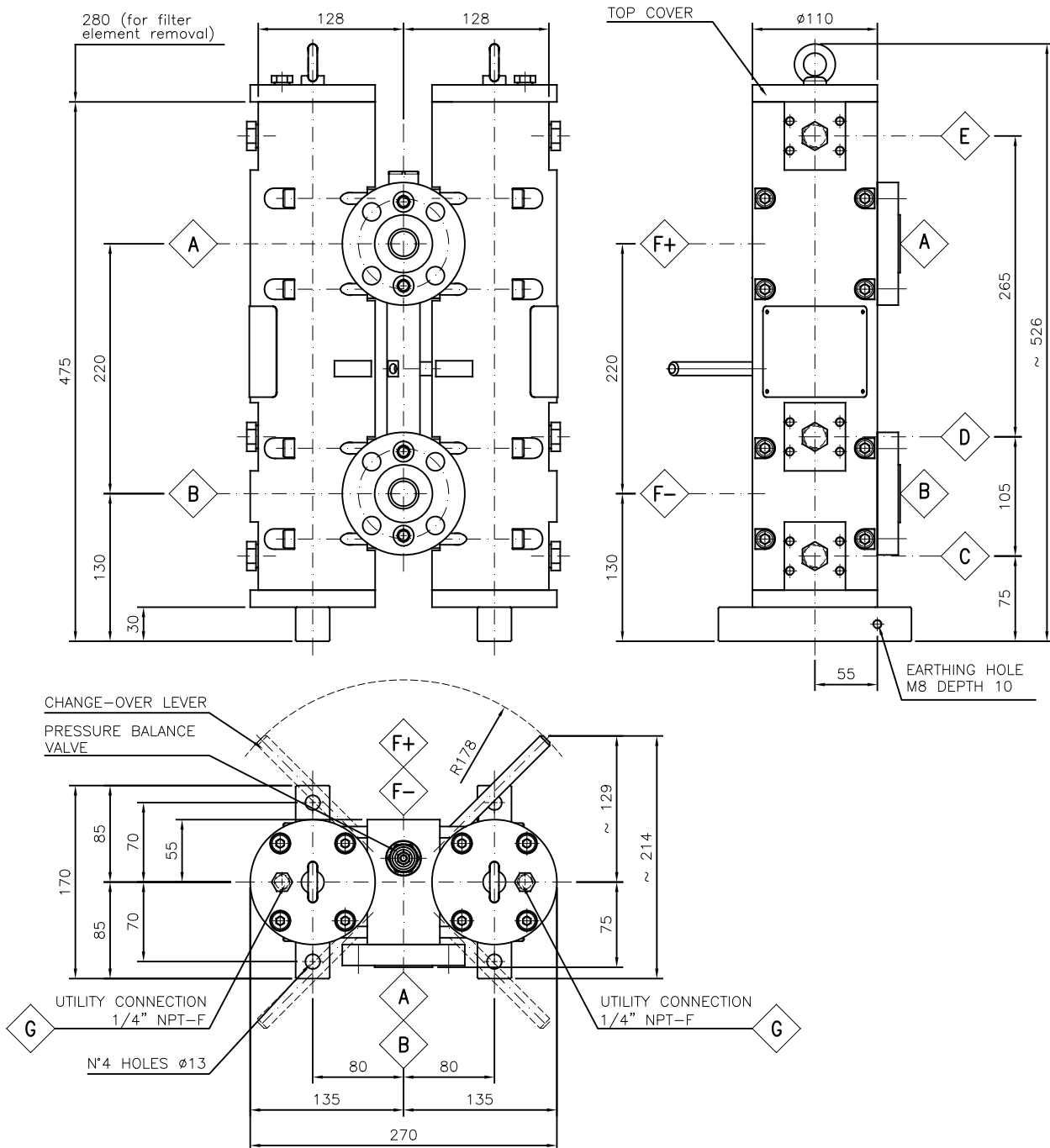
ELEMENT

	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G03 - G05 - G10 G15 - G20 - G40 Synthetic Media: M05 - M08 - M10 - M15 Wire Mesh: T25 - T40 - T80 - T125
COLLAPSE PRESSURE:	20 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °C with EPDM seal (ON REQUEST) from -57 °C to +150 °C with HNBR seal (ON REQUEST) from -48 °C to +150 °C

OVERALL DIMENSIONS

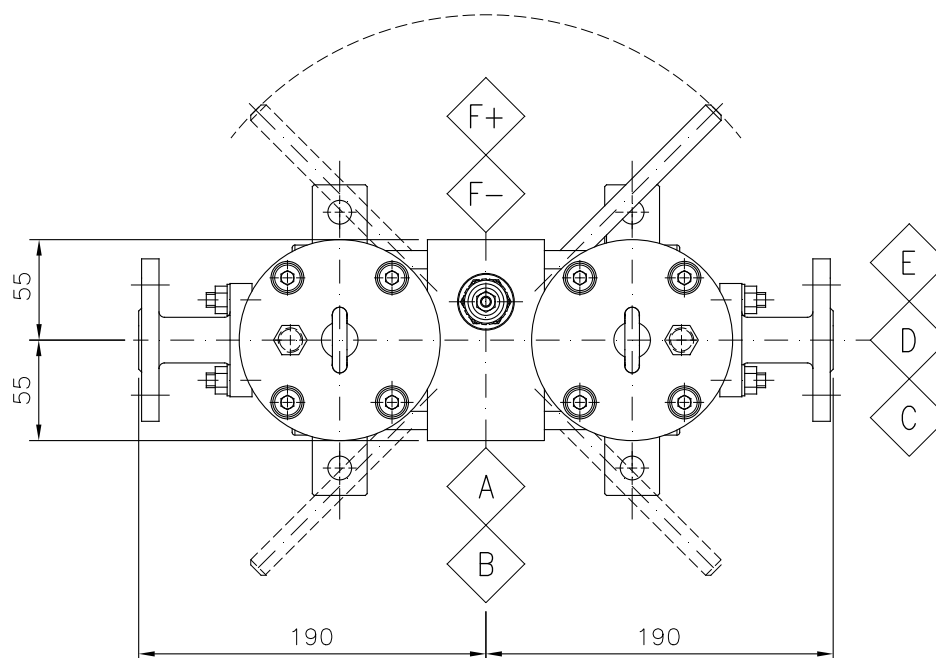
IN/OUT 1" ANSI150/300 PN16/PN40

VENT/DRAIN 1/2" NPT-F



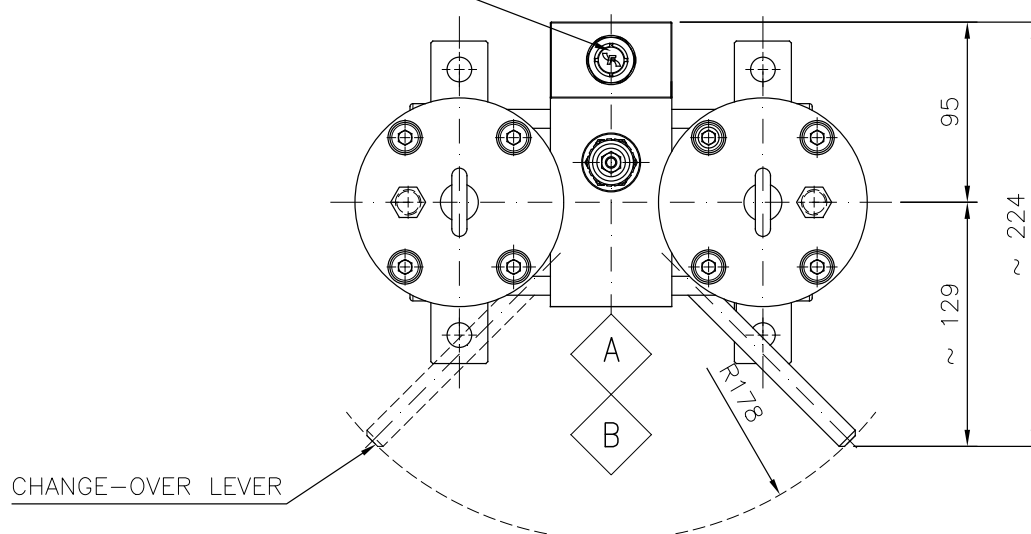
OVERALL DIMENSIONS

DUPLEX FILTER WITH VENT AND DRAIN FLANGED CONNESSION



LEVER POSITION FOR DUPLEX FILTER WITH DIFFERENTIAL INDICATOR

DIFFERENTIAL VISUAL
or ELETRICAL 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	1/2" NPT-F
	B	1/2" Ansi 150 flange
	C	DN15 PN16 flange
	D	1/2" 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 $\beta_{5\mu m(c)} \geq 1.000$
	G05	Glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	Glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	Glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G20	Glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	Glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	M05	Synthetic $\beta_{10\mu m(c)} \geq 1.000$
	M08	Synthetic $\beta_{12\mu m(c)} \geq 1.000$
	M10	Synthetic $\beta_{15\mu m(c)} \geq 1.000$
	M15	Synthetic $\beta_{20\mu m(c)} \geq 1.000$
	T25	Wire mesh 25 μm
	T40	Wire mesh 40 μm
	T80	Wire mesh 80 μm
	T125	Wire mesh 125 μm

ORDERING INFORMATION

11. ELEMENT VERSION	ESD	Anti-static technology
	002	Stainless Steel end caps and metal parts
12. CLOGGING INDICATOR Differential pressure indicator block 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

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.

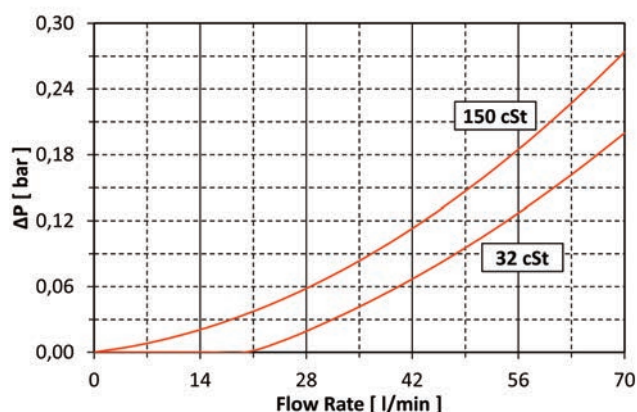
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP (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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

50 l/min with OX1012G15B0/ESD and oil viscosity 46 cSt: $(50 \times 2,23 / 1000) \times (46 / 32) = 0.16$ bar

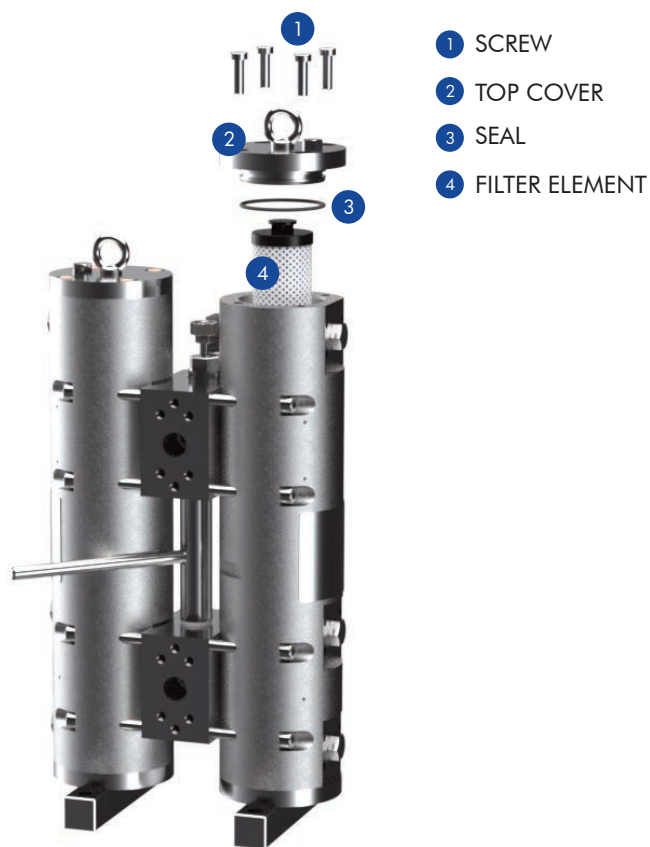
	G03	G05	G10	G15	G20	G40	M05	M08	M10	M15	T25	T40	T80	T125
OX1012....0/...	6.84	4.05	2.89	2.23	2.00	0.74	1.70	1.53	1.35	1.08	0.28	0.26	0.25	0.21

EXAMPLE OF TOTAL Δp CALCULATION

DOXSB1012S025AA0G150-0000 with 50 l/min and oil 46 cSt:

Housing Δp + element Δp = 0.1 bar + $(50 \times 2.23 / 1000) \times (46 / 32)$ bar = 0.26 bar

USER TIPS



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.





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.

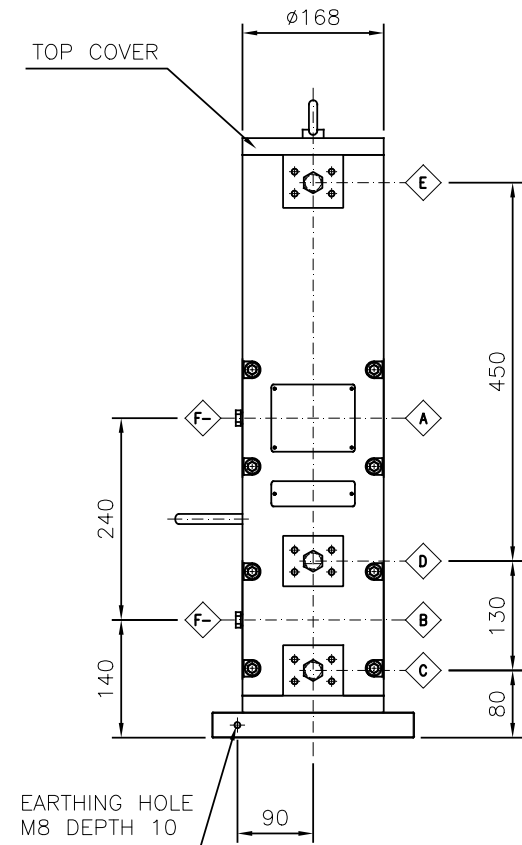


HOUSING

PRESSURE:	Max operating: 16 bar
TEMPERATURE:	Max operating: 100°C
CONNECTIONS:	2" SAE 3000 2" Ansi 150 RF DN50 PN16
MATERIALS:	Head: St. Steel 316/316L / Carbon Steel Body: St. Steel 316/316L / Carbon Steel Seal: NBR (FKM option) 3-Way valve: Steel 316/316L / Carbon Steel

ELEMENT

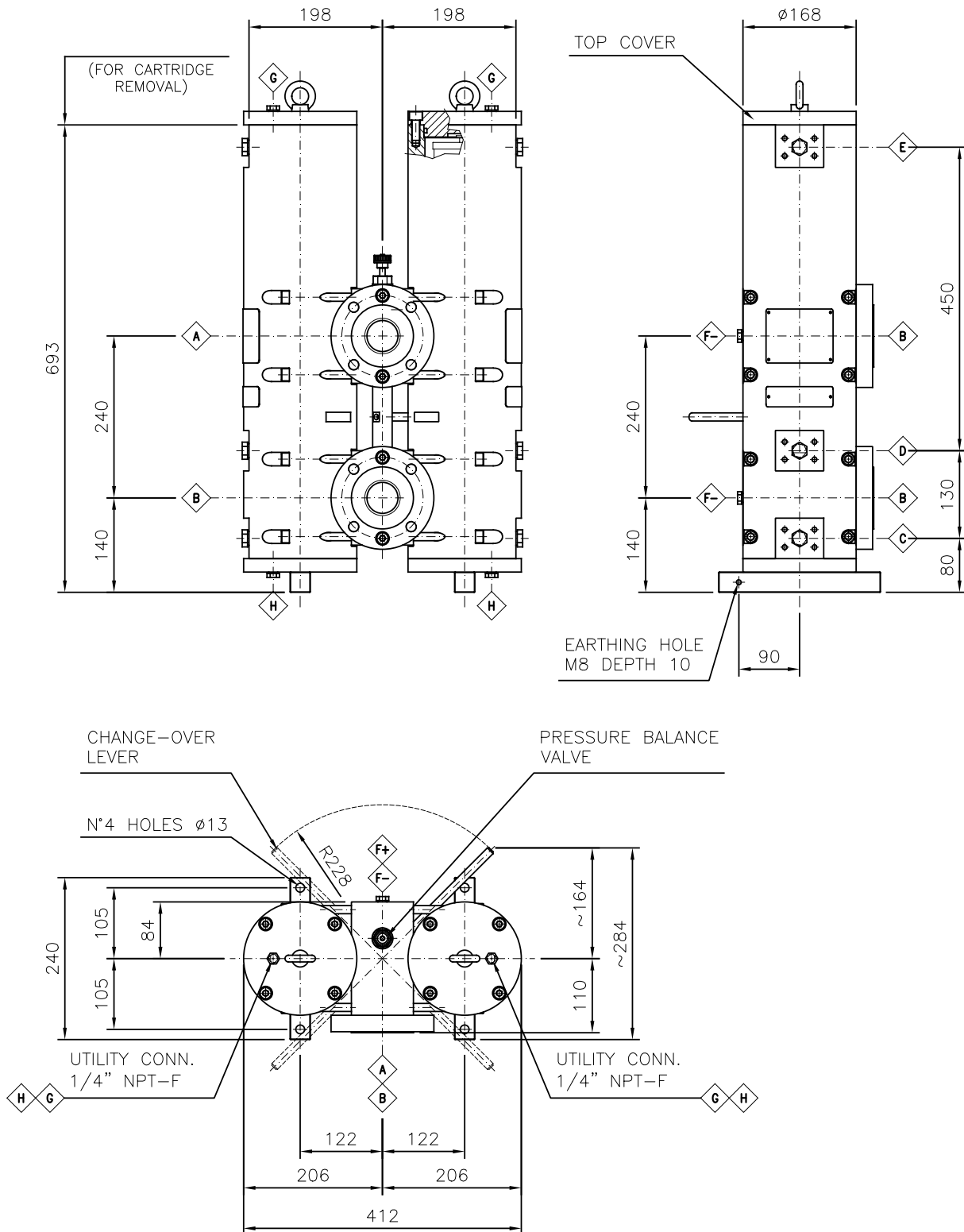
	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
FILTER MEDIA:	Fibreglass: G03 - G05 - G10 G15 - G20 - G40 Synthetic Media: M05 - M08 - M10 - M15 Wire Mesh: T25 - T40 - T80 - T125
COLLAPSE PRESSURE:	20 bar
TEMPERATURE RANGE:	with NBR seal from -30 °C to +100 °C with FKM seal (OPTION) from -25 °C to +120 °C with EPDM seal (ON REQUEST) from -57 °C to +150 °C with HNBR seal (ON REQUEST) from -48 °C to +150 °C



OVERALL DIMENSIONS

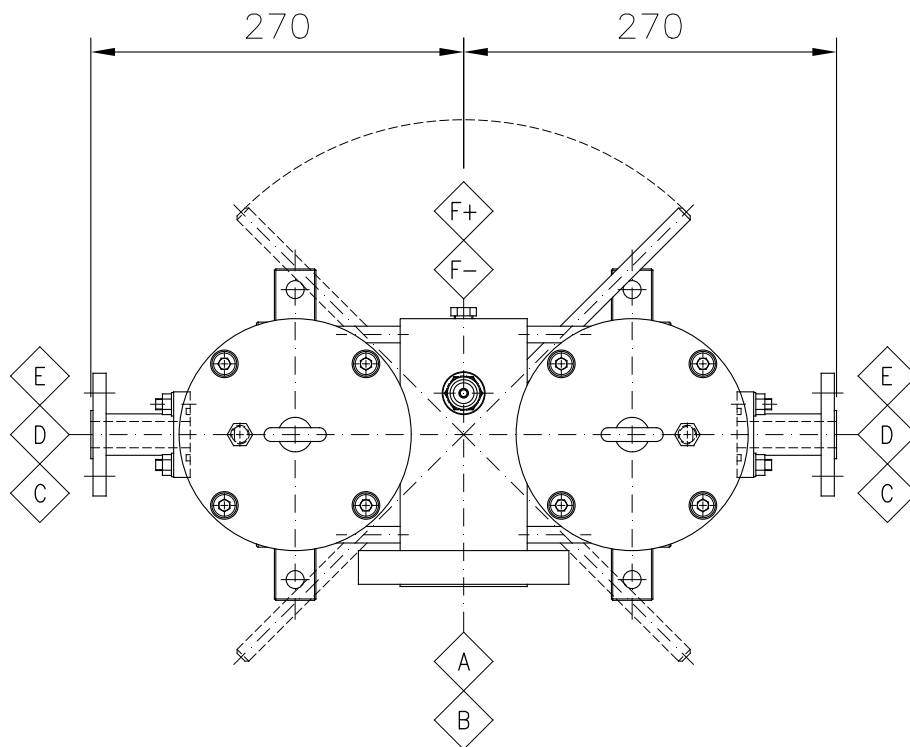
IN/OUT 2" ANSI150 / PN16

VENT/DRAIN 1/2" NPT-F

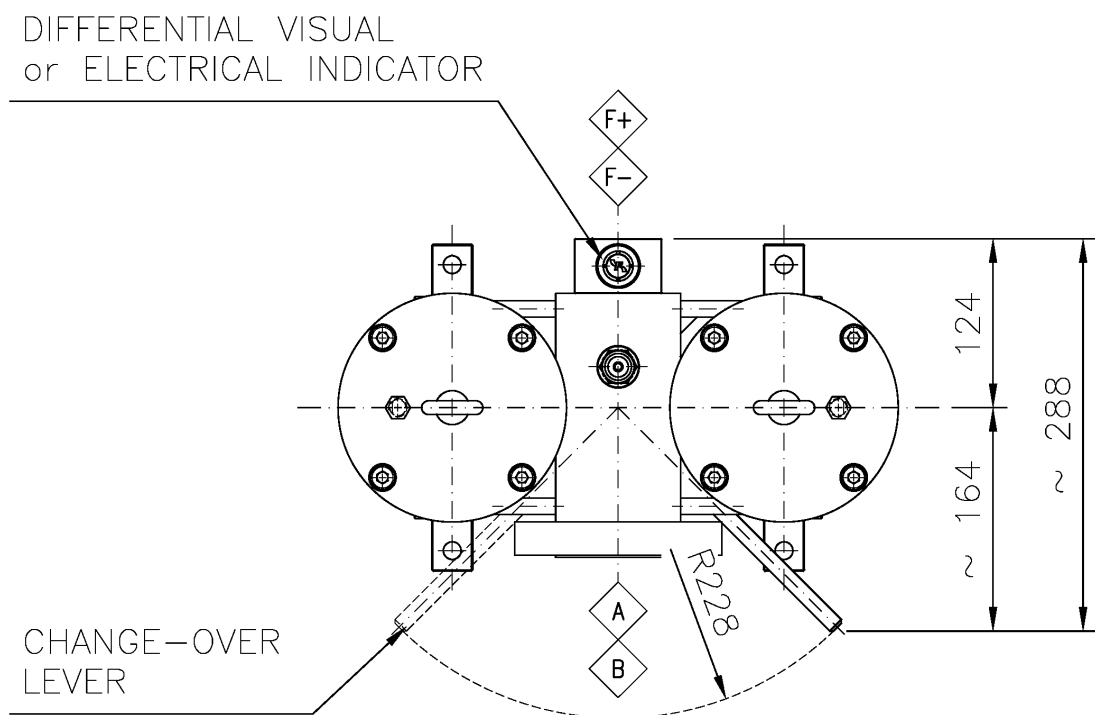


OVERALL DIMENSIONS

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 $\beta_{5\mu m(c)} \geq 1.000$
	G05	Glassfiber $\beta_{7\mu m(c)} \geq 1.000$
	G10	Glassfiber $\beta_{12\mu m(c)} \geq 1.000$
	G15	Glassfiber $\beta_{17\mu m(c)} \geq 1.000$
	G20	Glassfiber $\beta_{22\mu m(c)} \geq 1.000$
	G40	Glassfiber $\beta_{35\mu m(c)} \geq 1.000$
	M05	Synthetic $\beta_{10\mu m(c)} \geq 1.000$
	M08	Synthetic $\beta_{12\mu m(c)} \geq 1.000$
	M10	Synthetic $\beta_{15\mu m(c)} \geq 1.000$
	M15	Synthetic $\beta_{20\mu m(c)} \geq 1.000$
	T25	Wire mesh 25 μm
	T40	Wire mesh 40 μm
	T80	Wire mesh 80 μm
	T125	Wire mesh 125 μm
11. ELEMENT VERSION	ESD	Anti-static technology
	002	Stainless Steel end caps and metal parts

ORDERING INFORMATION

12. CLOGGING INDICATOR

Differential pressure indicator block 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
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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.

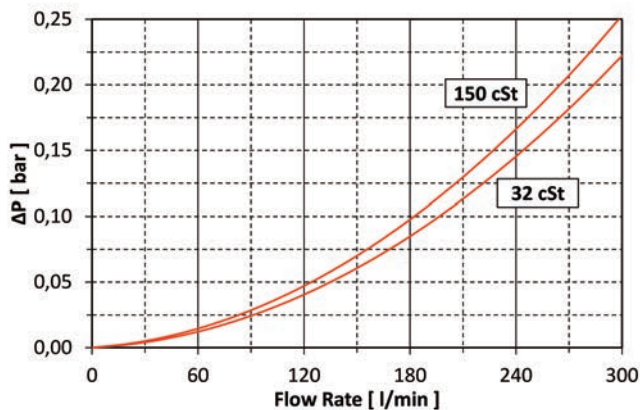
PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

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/dm³.

HOUSING PRESSURE DROP

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



ELEMENT PRESSURE DROP (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 V_x different than 32 cSt a corrective factor $V_x/32$ must be applied.

240 l/min with OX2026G15B0/ESD and oil viscosity 46 cSt: $(240 \times 0.43 / 1000) \times (46 / 32) = 0.15$ 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 + $(240 \times 0.43 / 1000) \times (46 / 32)$ bar = 0.3 bar

USER TIPS



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.

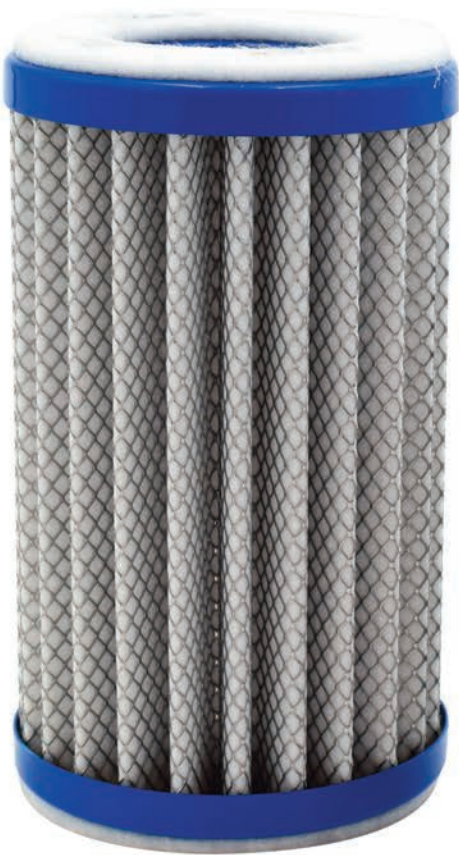
INSTALLATION

-  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.





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.

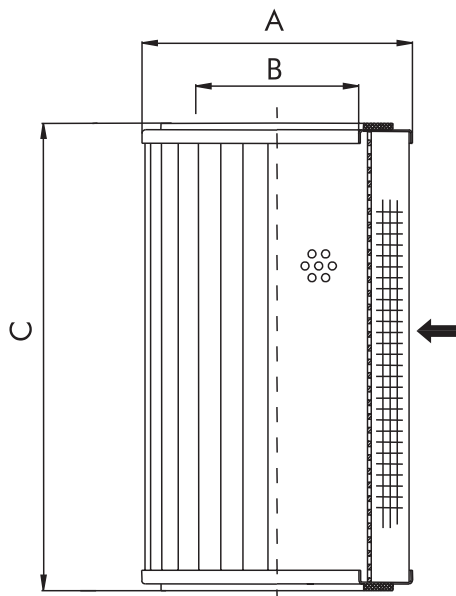
Made by needle-punched polyester felt with reinforcement mesh. Filtration degree 5 and 50 μm (nominal at 99%).

TECHNICAL INFORMATION

FILTER MEDIA:	Polyester needlefelt
MICRON RATING:	• 5 μm (nominal rating of 99% at 5 μm and 98% at 3 μm) • 50 μm (nominal rating of 99% at 50 μm)
GLUE:	Polyurethane
SEAL:	Needlefelt
MAX. TEMPERATURE:	120°C
END CAPS:	Zinc steel
CORE:	High strength expanded galvanized steel
MESH SUPPORT:	Epoxy wire mesh

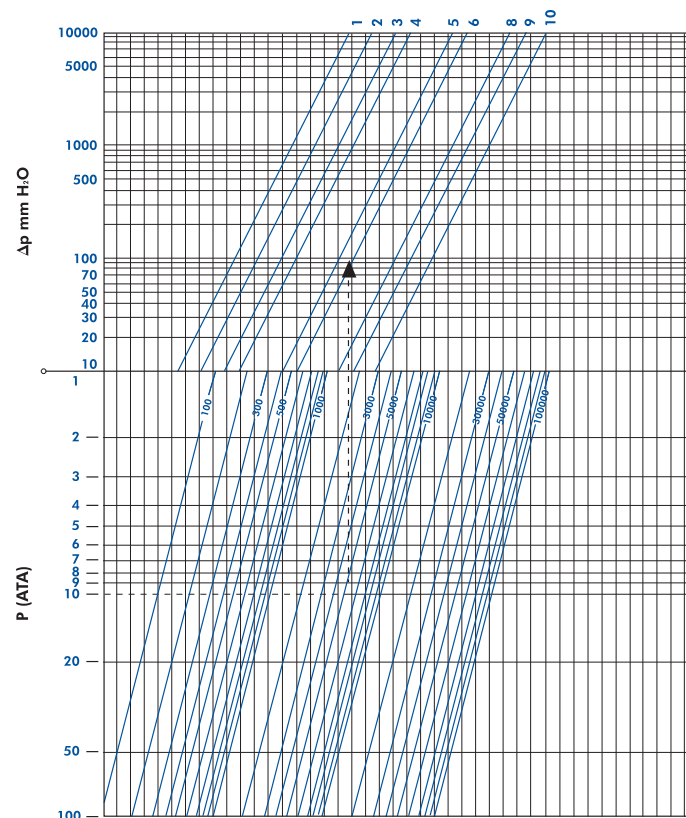


OVERALL DIMENSIONS

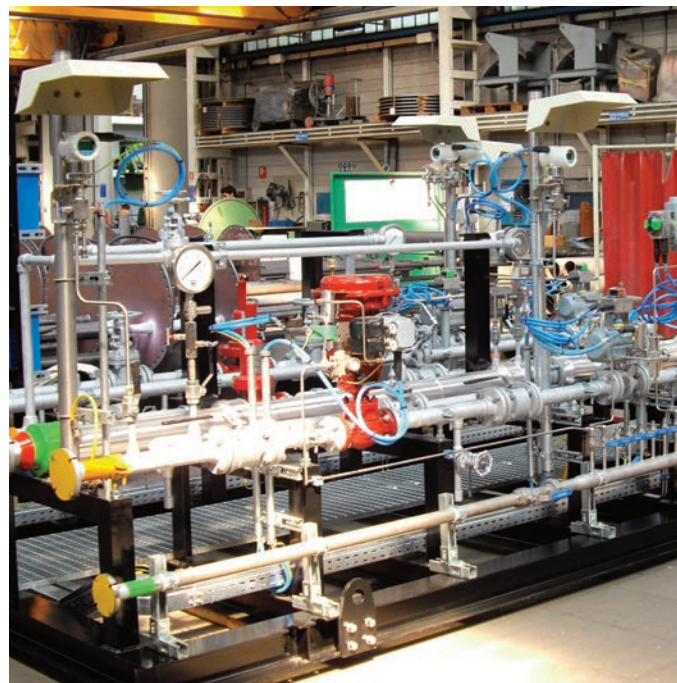


DIMENSIONS			WEIGHT	CODE		INT COD.
A	B	C	kg	5 μ m	50 μ m	
80	35	120	0,200	WX145	WX248	G 0.5
95	50	165	0,325	WX146	WX249	G 1.0
120	68	210	0,565	WX147	WX250	G 1.5
165	86	270	1,260	WX148	WX251	G 2.0
200	110	283	1,550	WX149	WX252	G 2.5
252	138	320	2,310	WX150	WX253	G 3.0
299	186	250	3,010	WX151	WX254	G 3.5
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



BROCHURES

TECHNOLOGY BROCHURES

▲BS LU EBETA®

THE ULTIMATE FILTRATION TECHNOLOGY

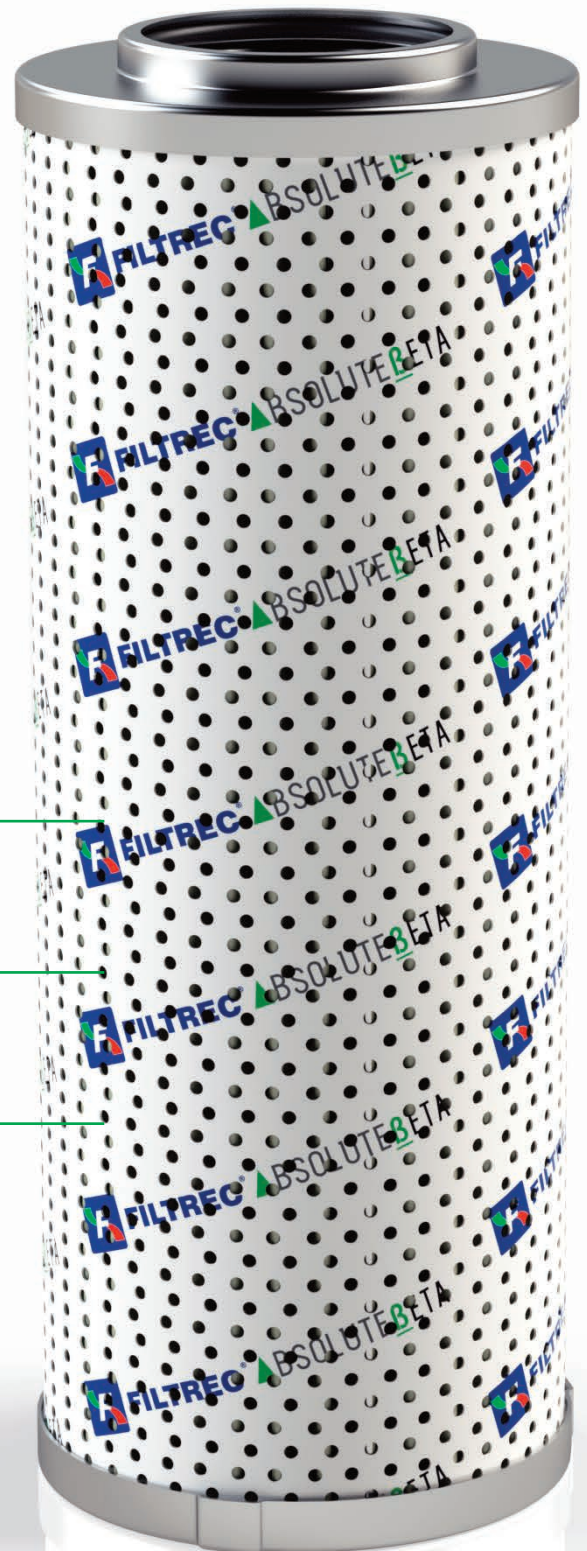
The **New FILTREC Technology** for filter elements, comes from three decades of experience within filter element construction. Steady, enthusiastic R&D activity, paying close attention to customers requirements & feedback.

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

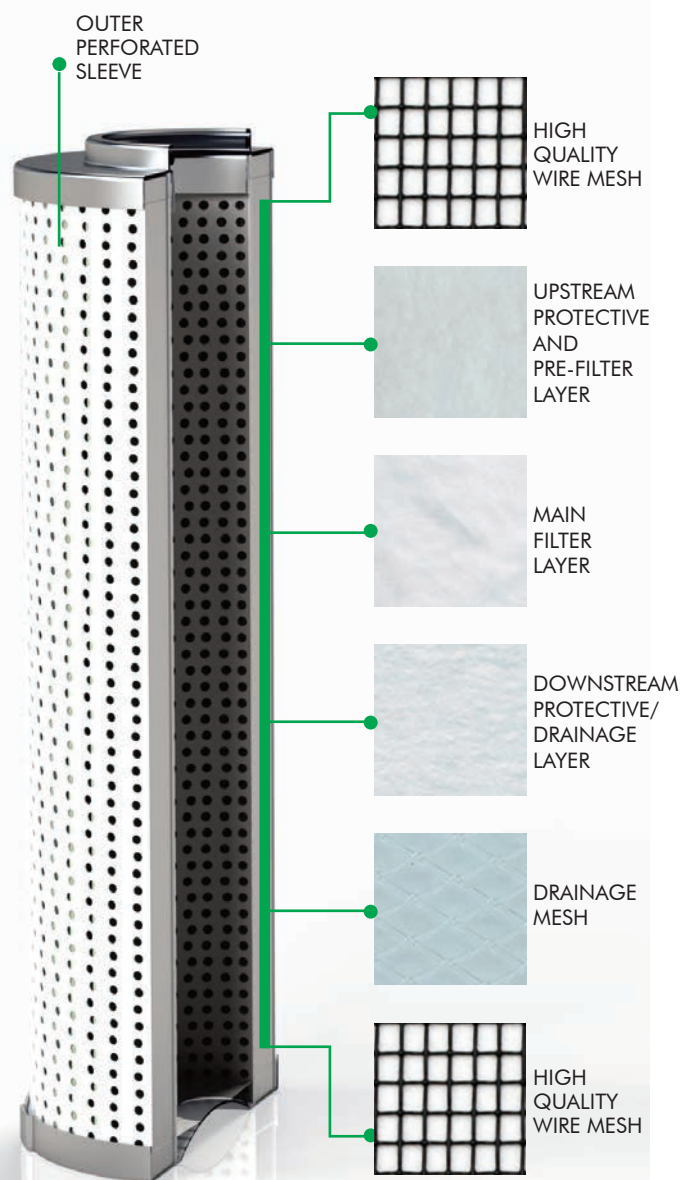


This new media Pack configuration gives extraordinary performance, in terms of life cycle but mainly in terms of filtration efficiency.

All of the performed tests with Absolute-Beta 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.

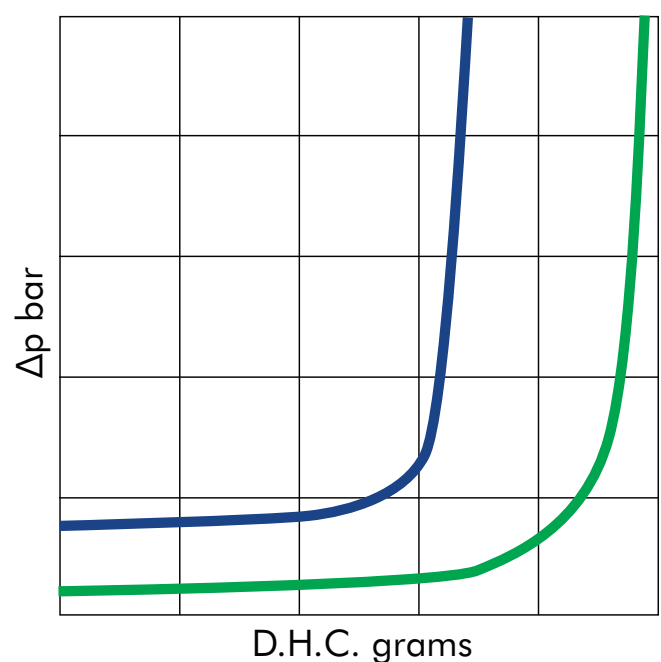
Higher Dirt Holding Capacity (D.H.C.) together with a lower pressure drop, increase filter element life dramatically.

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.

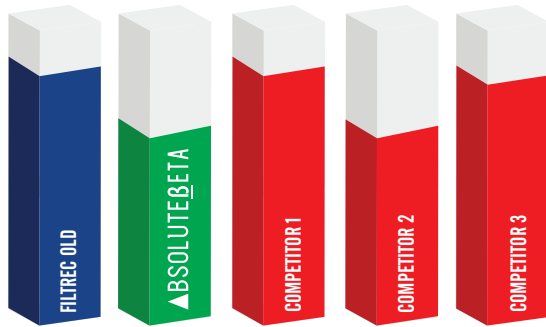
Major benefits are visible on the 3 - 5 and 10 micron media pack, where we found a D.H.C. increase of over 40% , compared with our previous media pack, which in most cases is greater than our major competitor.

With Absolute Beta Media pack configuration, it is possible to achieve a 20% reduction in energy or fuel consumption.



ABSOLUTEBETA **FILTREC OLD**

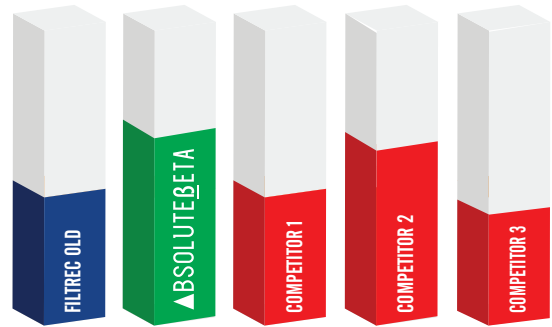
LOWER PRESSURE DROP



30% Decrease in pressure drop compared to previous media.

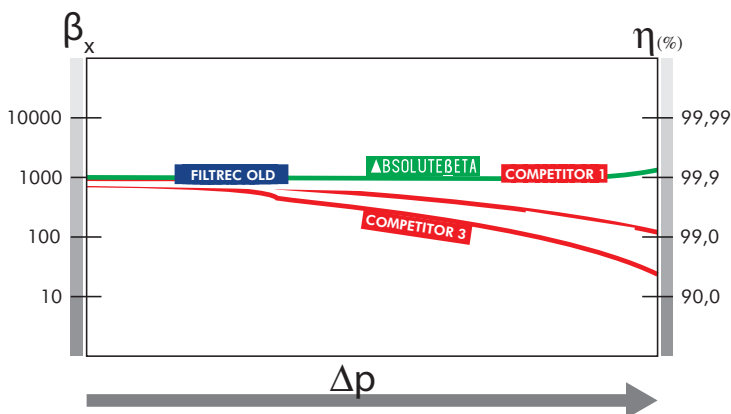
This achievement has a large impact on the application and filter selection which gives us the possibility to choose a smaller filter for the same application or to have a long lasting filter element. This allows for less maintenance and service along with cost savings on product inventory.

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 (Beta 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.

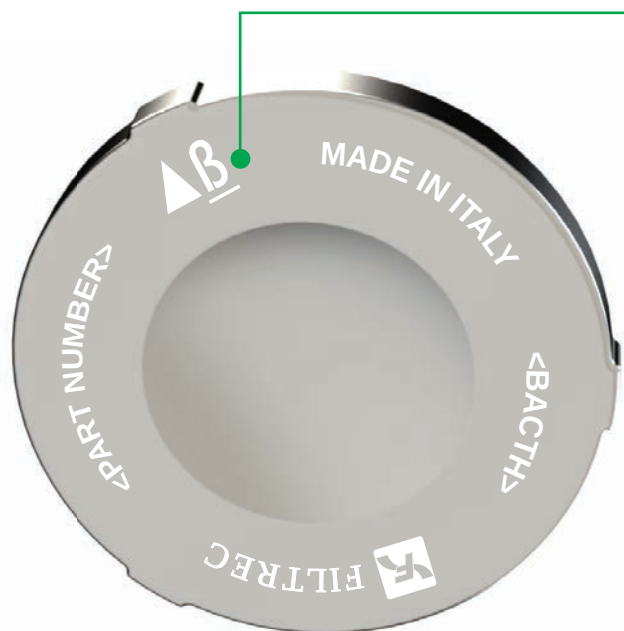
The "New" Absolute Beta Media Pack along with better performance allows the possibility to save energy which is important within every application.

**LESS
PRESSURE
DROP**

**LESS
POWER**

**MORE
ECO
FRIENDLY**

HALLMARK



You will find **▲B** hallmark on the endcap of the new filter element generation.



New label on the box

▲ABSOLUTEBETA

**HIGHEST
PERFORMANCES**

**MONEY
SAVING**



**ECO
FRIENDLY**



▲BS LU EBETA® | 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

▲BS LU EBETA® | 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 ABSOLUTE BETA | 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

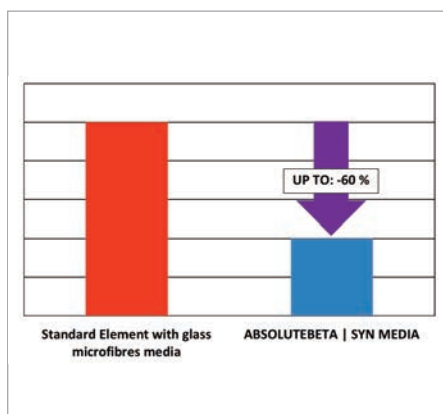


Fig.1 ABSOLUTE BETA | SYN MEDIA pressure drop performance

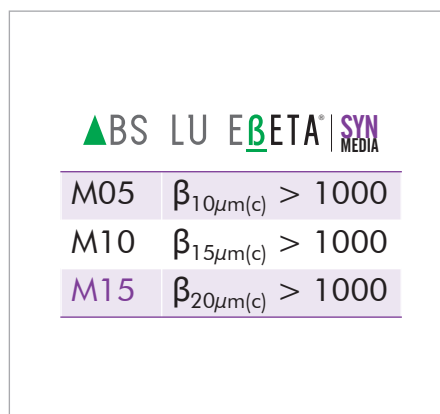


Fig.2 Beta ratio efficiency values (β) for ABSOLUTE BETA | SYN MEDIA

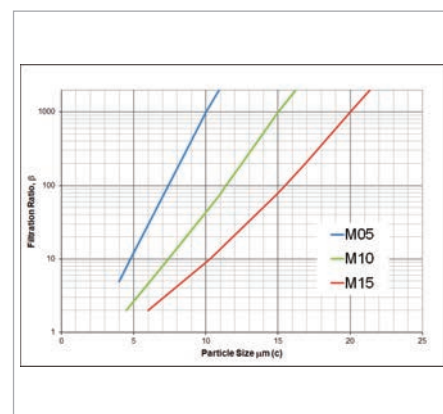


Fig.3 Beta ratio efficiency values (β) for ABSOLUTE BETA | SYN MEDIA

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.

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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?



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:

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Fig.1 Electrostatic discharges in the filter element

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 ABSOLUTE BETA[®] 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.**

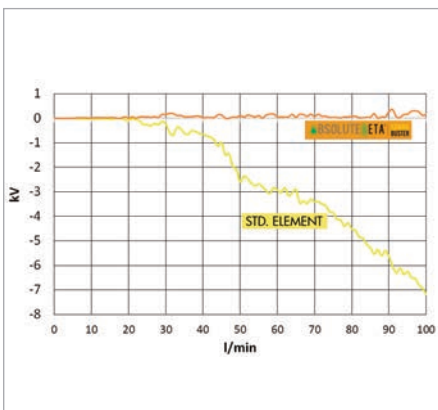


Fig.2 Static Charge Vs Flow Rate (using low conductivity oil)

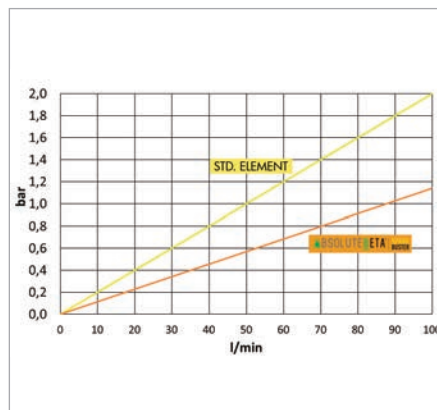


Fig.3 Δp Vs Flow Rate (using low conductivity oil)

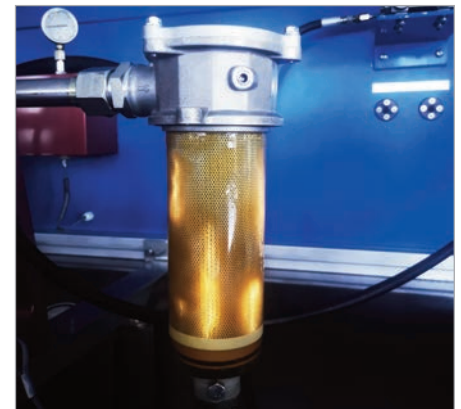


Fig.4 Electrostatic discharges tested in our R&D Department

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ABSOLUTE BETA®

H₂O
H₂O 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 H₂O Plus
0.082 ml/cm² for H₂O
- A = filtering surface of filter element (cm²)

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 ABSOLUTE BETA | H2O | H2O PLUS?

Our new technology **ABSOLUTE BETA | H2O** can guarantee:

- Water and solid particles removal especially with **ABSOLUTE BETA | 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.

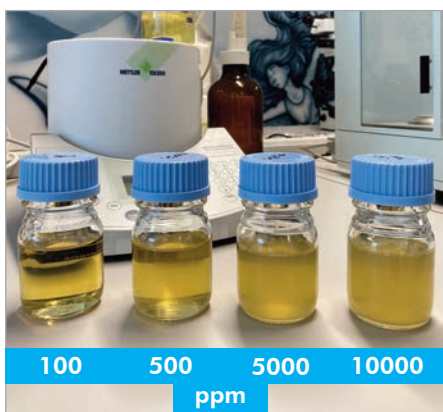


Fig.1 Water content determination according to Karl Fischer titration method ISO 12937

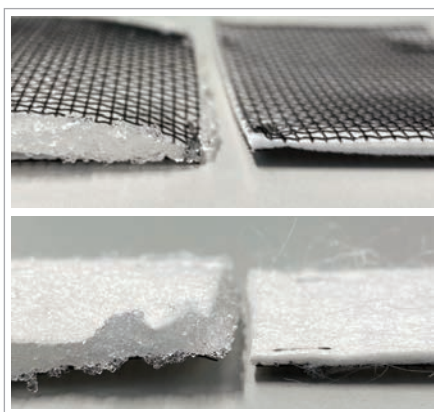


Fig.2 Absolute Beta H2O and H2O | plus media with and with and without absorbed water

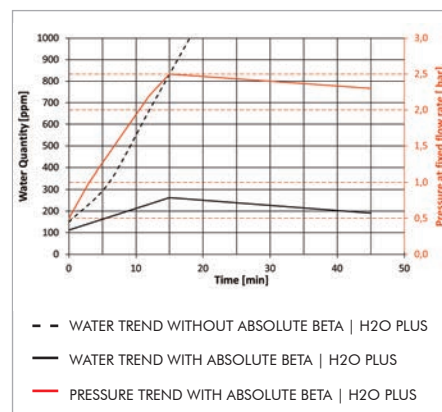


Fig.3 Example of water and pressure trend on an Absolute Beta H2O | PLUS element.

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