

FML320 SERIES

In line pressure filters

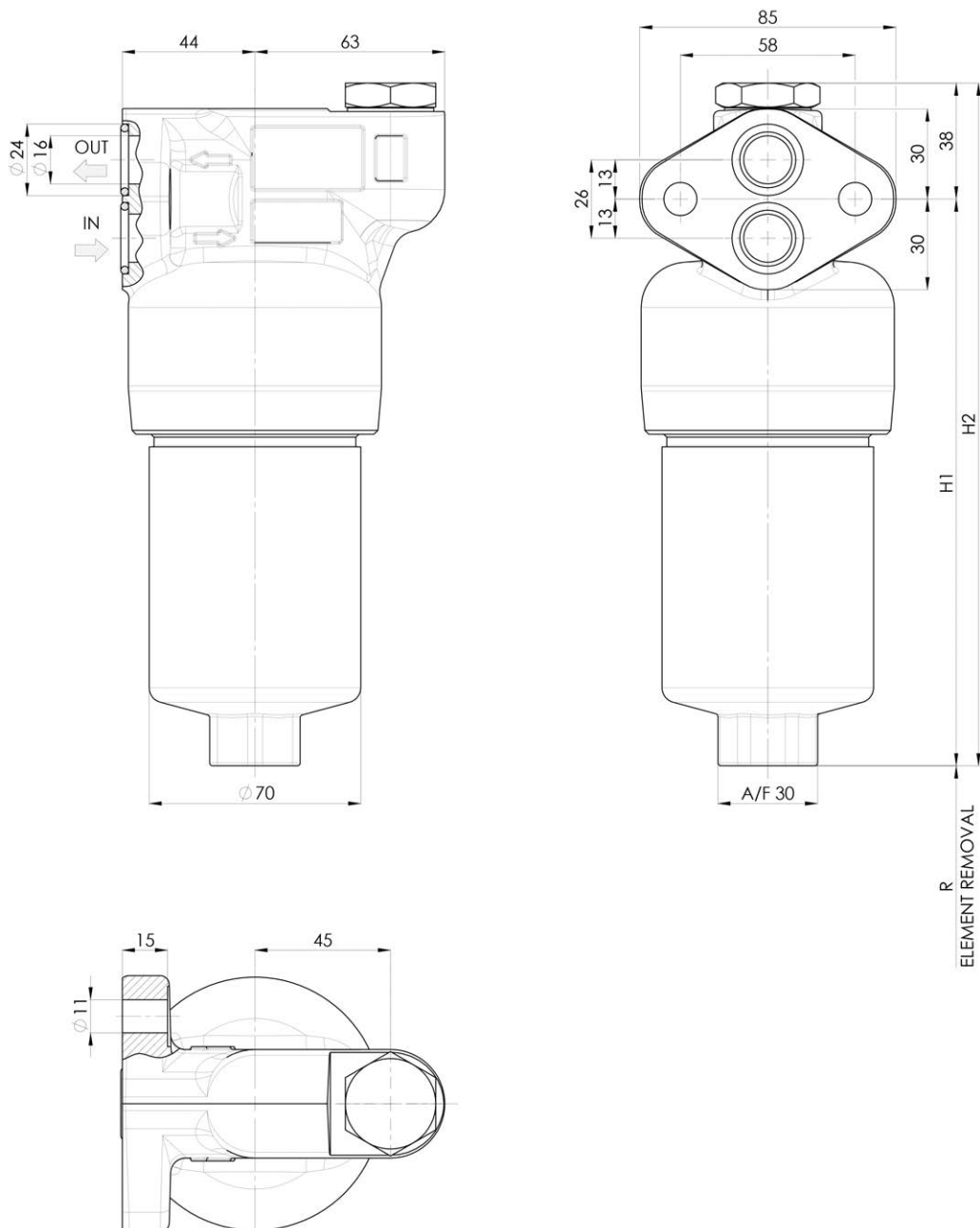
Inline filters for operating pressure up to 320 bar.
Flow rate up to 500 l/min



HOUSING	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
PRESSURE:	Max operating: up to 320 bar Fatigue rating: 10 ⁵ cycles 0÷320 bar 10 ⁶ cycles 0÷250 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

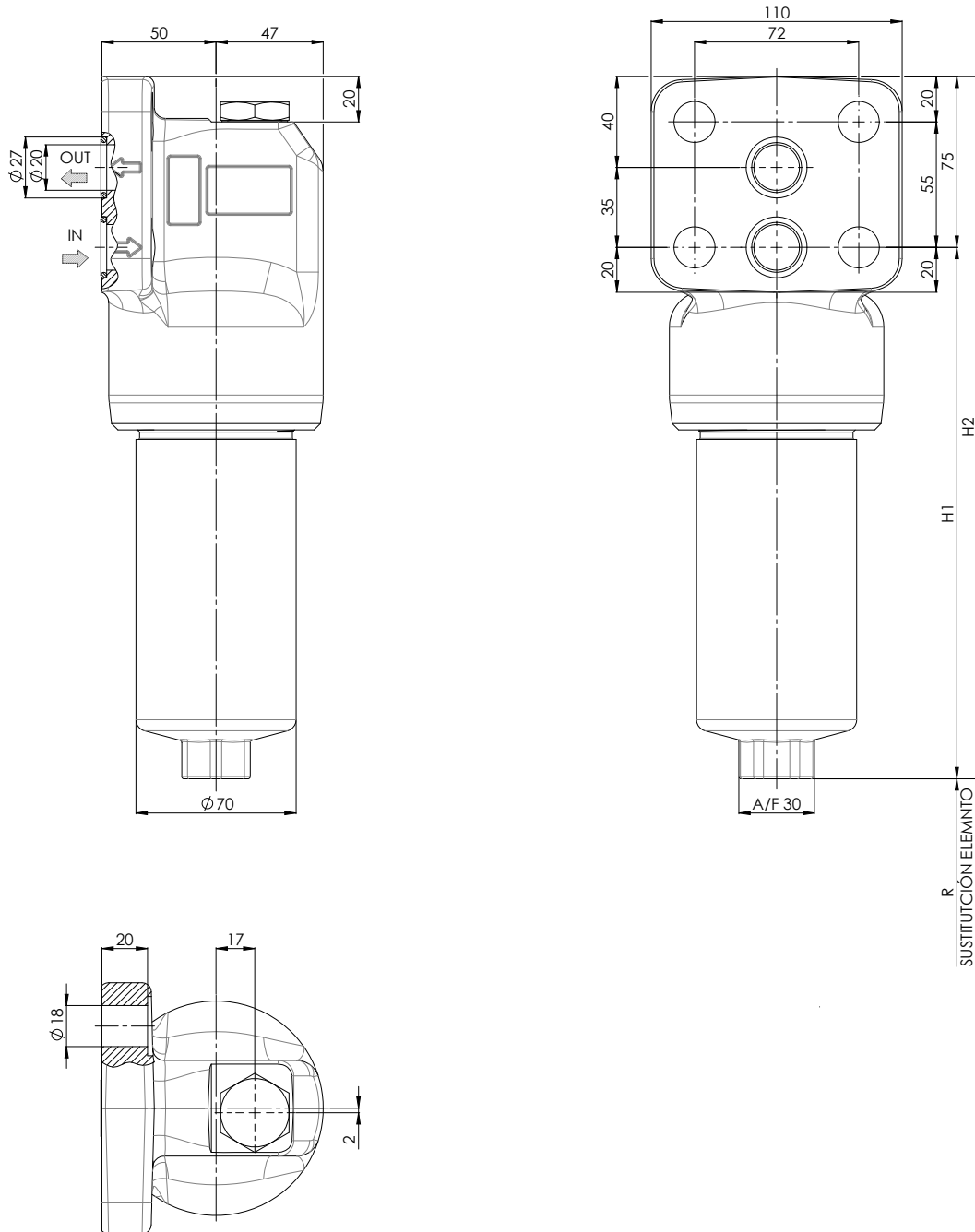


NOMINAL SIZE

MODEL	FLANGE SIZE	H1	H2	R	WEIGHT
FML320-D125	1	148	186	110	3,3 Kg
FML320-D120		188	226		3,8 Kg
FML320-D124		231	269		4,3 Kg
FML320-D121		281	319		4,9 Kg
FML320-D126		325	363		5,4 Kg

OVERALL DIMENSIONS

FML320 - D1 - 2x - FLANGE SIZE 2

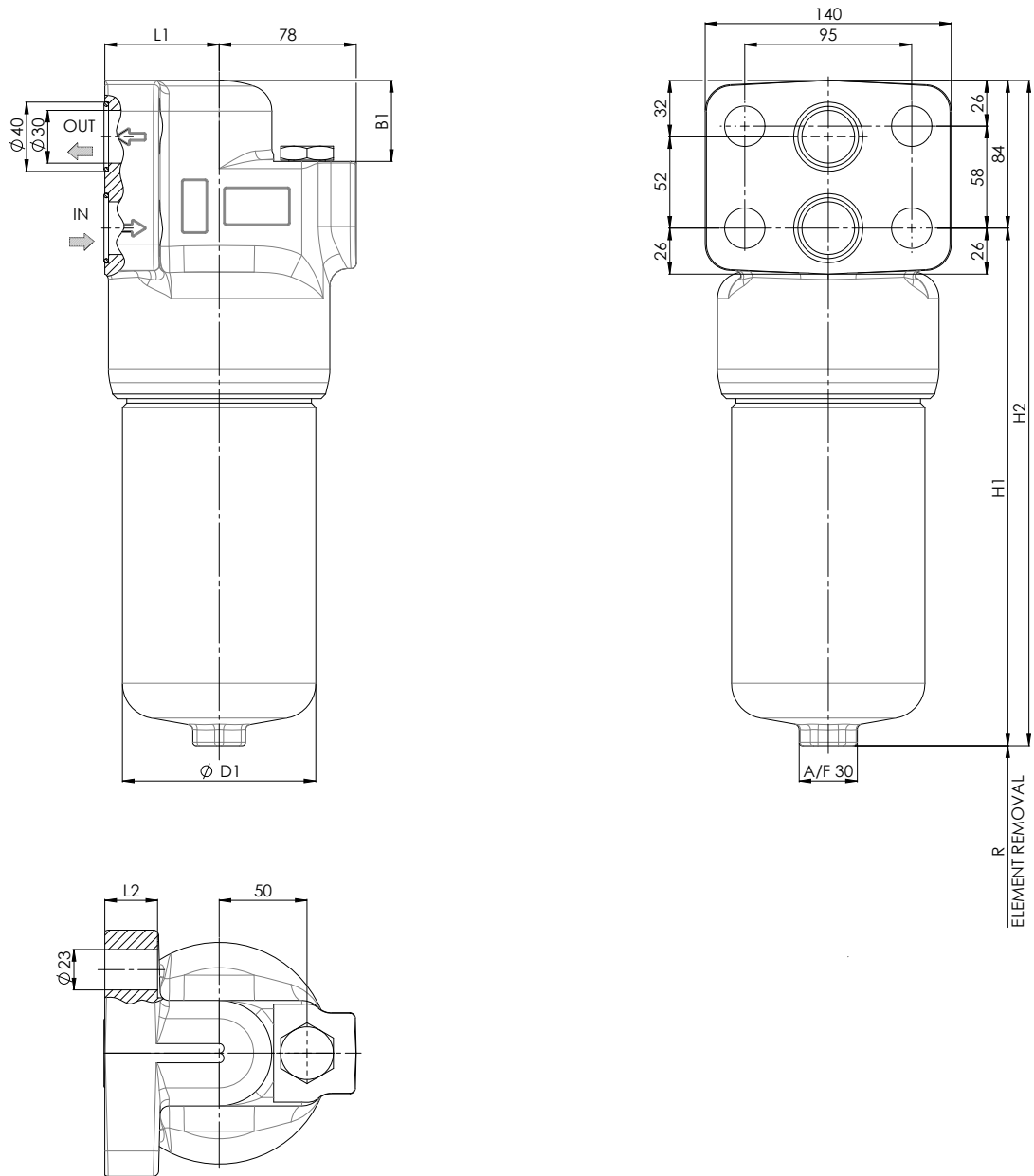


NOMINAL SIZE

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

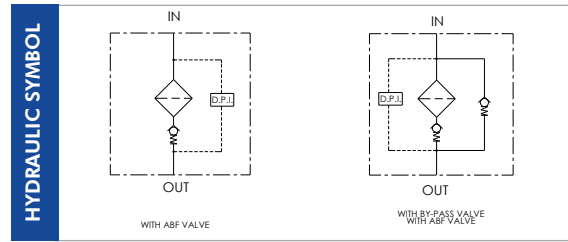
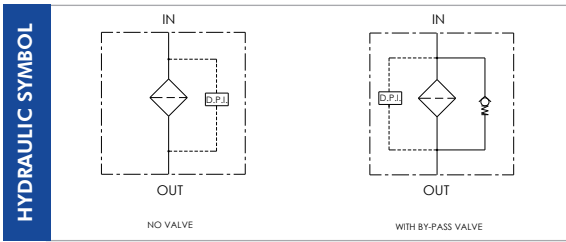
ACCESSORIES

The accessories must be ordered separately

INDICATOR

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

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

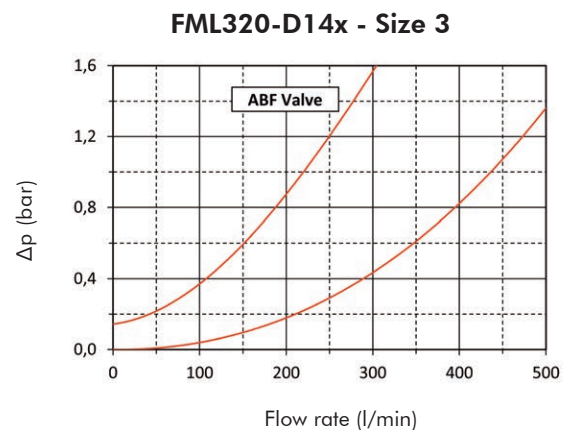
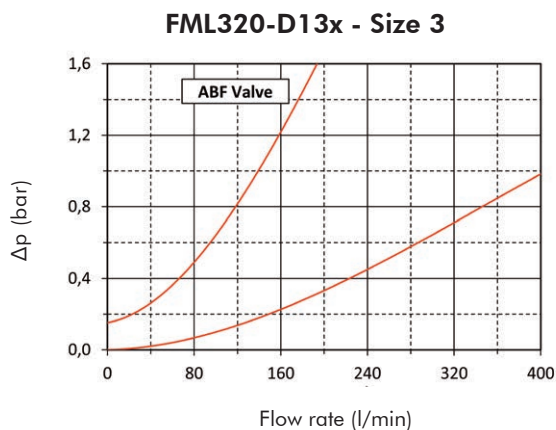
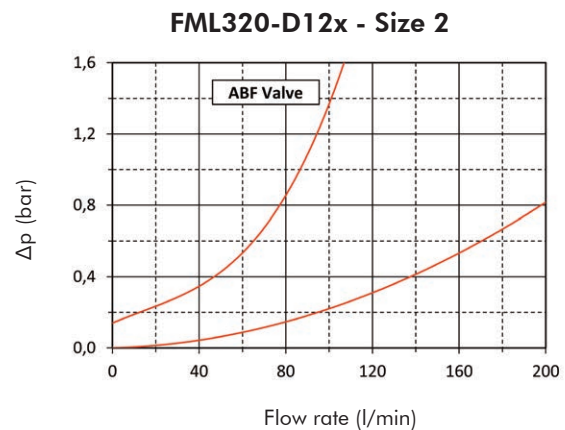
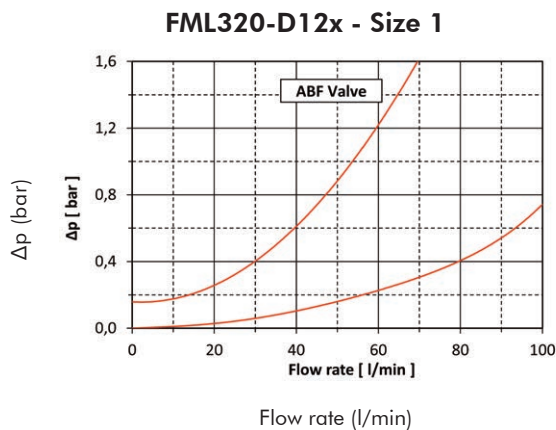


PRESSURE DROP (Δp) INFORMATION FOR FILTER SIZING

The total Δp through a filter assembly is given from Housing Δp + Element Δp . This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve. N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity and density 0,875 Kg/dm³.

HOUSING PRESSURE DROP

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



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

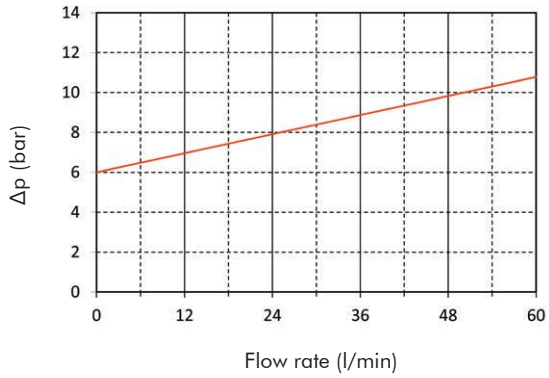
FML320D121G10BB2DCWE05S0 with 90 l/min and oil 46 cSt :

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

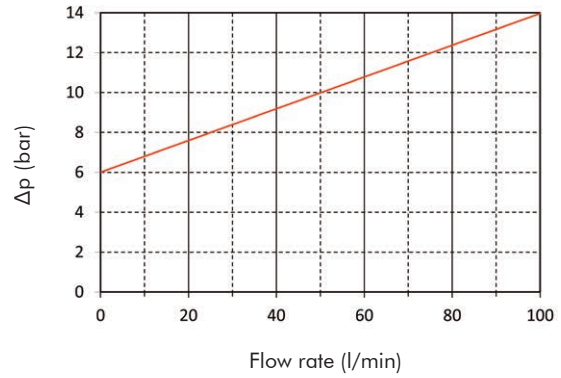
BYPASS VALVE PRESSURE DROP

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

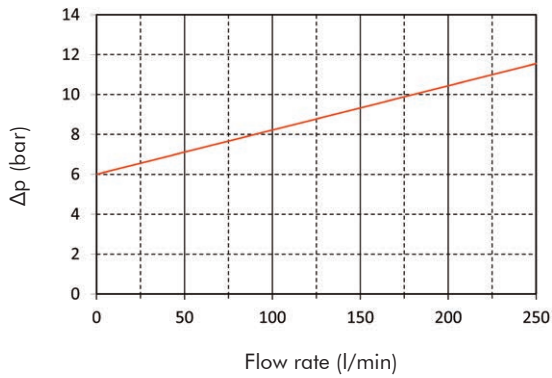
FML320 Size 1



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.