



## FML320 SERIES

In line pressure filters

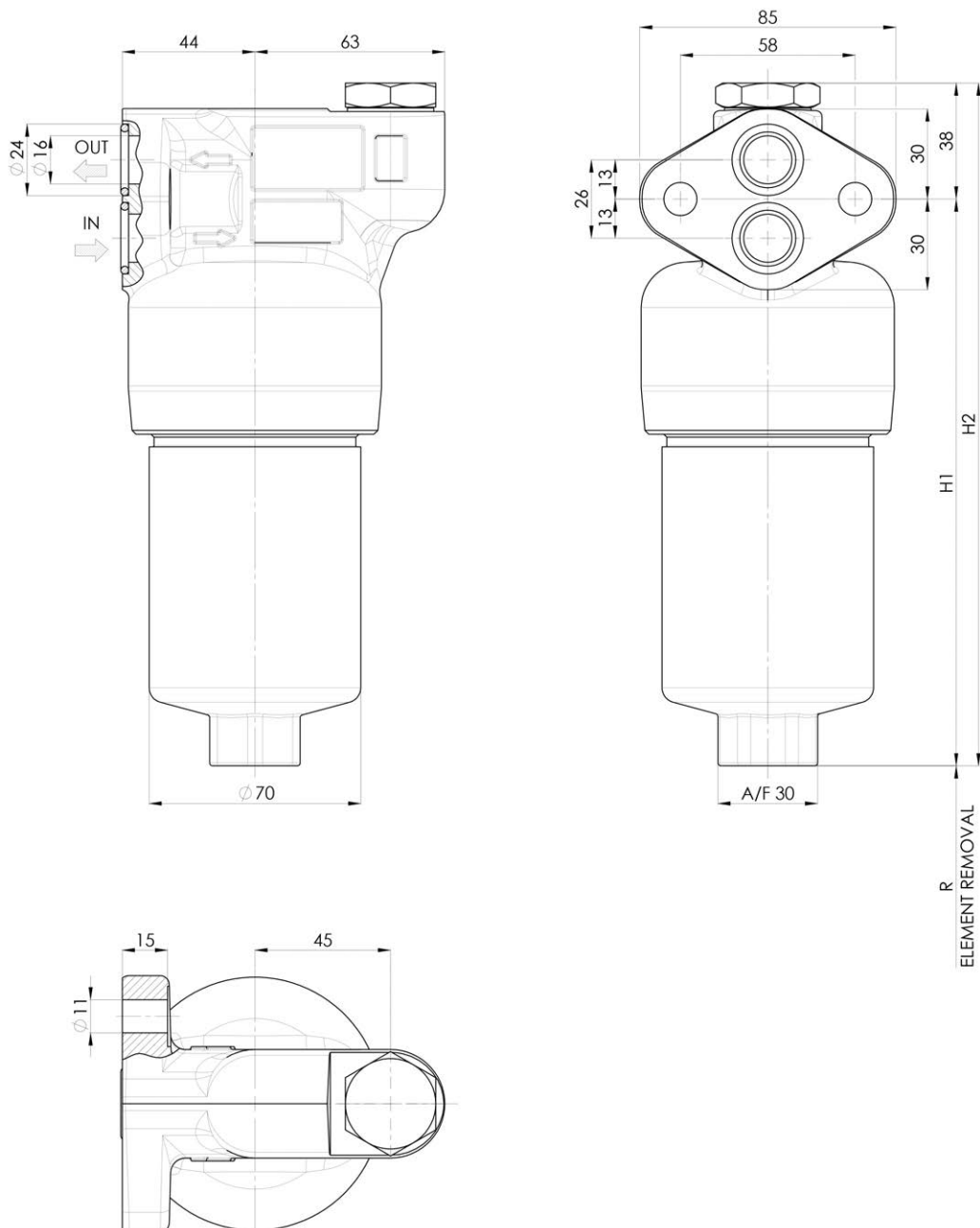
Inline filters for operating pressure up to 320 bar.  
Flow rate up to 500 l/min



<b>HOUSING</b>	tested according to NFPA T3.10.5.1, ISO 10771, ISO 3968
<b>PRESSURE:</b>	Max operating: up to 320 bar Fatigue rating: 10 <sup>5</sup> cycles 0÷320 bar 10 <sup>6</sup> cycles 0÷250 bar Burst: 750 bar
<b>CONNECTIONS:</b>	Manifold block mounting
<b>MATERIALS:</b>	Head: cast iron Bowl: carbon steel Seal: NBR (FKM on request)
<b>BYPASS VALVE:</b>	6 bar ABF valve
<b>ELEMENT</b>	tested according to ISO 11170, 2941, 2942, 2943, 3724, 3968, 16889, 16908, 23181
<b>FILTER MEDIA:</b>	Inorganic microfiber: G01 - G03 - G06 - G10 G15 - G25
<b>COLLAPSE PRESSURE:</b>	21 bar 210 bar
<b>TEMPERATURE RANGE:</b>	with NBR seal from -30 °C to +100 °C  with FKM seal (OPTION) from -25 °C to +120 °C
<b>FLUID COMPATIBILITY:</b>	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

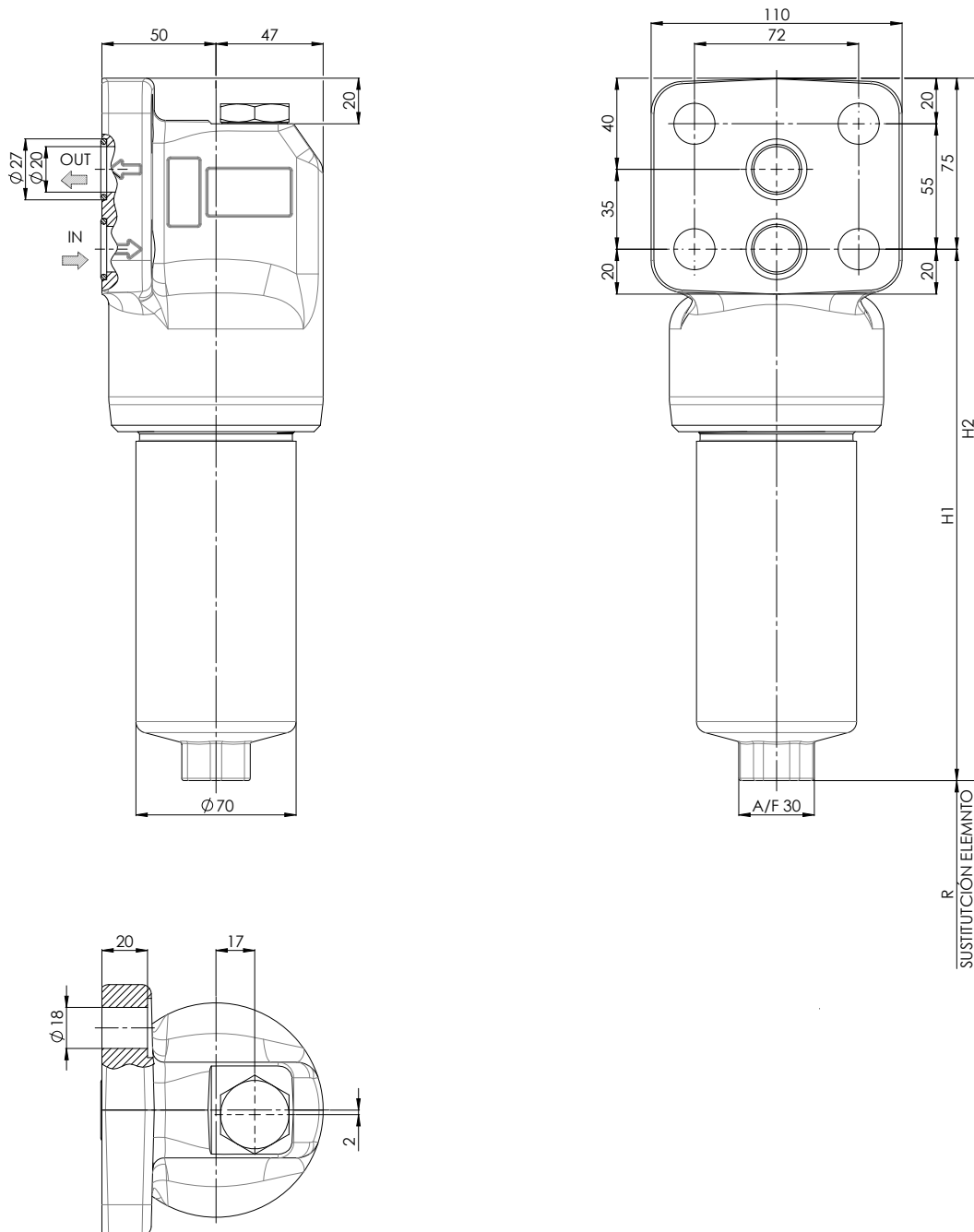


## NOMINAL SIZE

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

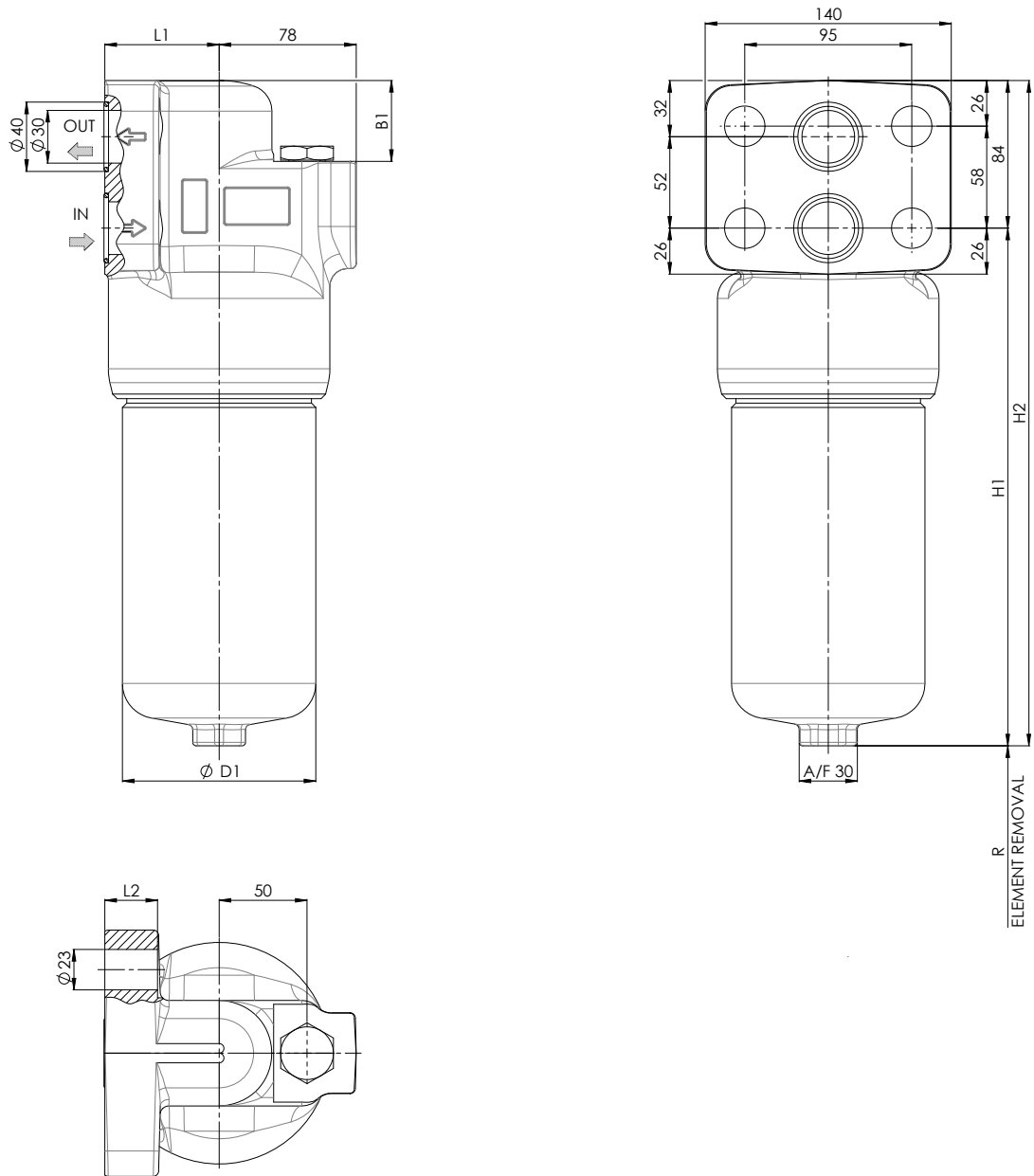


## NOMINAL SIZE

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.
<b>FML320</b>	<b>D1</b>	<b>21</b>	<b>G10</b>	<b>A</b>	<b>B</b>	<b>2</b>	<b>D</b>	<b>C</b>	<b>W</b>	<b>000</b>	<b>S</b>	<b>0</b>
SPARE ELEMENT	<b>D1</b>	<b>21</b>	<b>G10</b>	<b>A</b>								

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

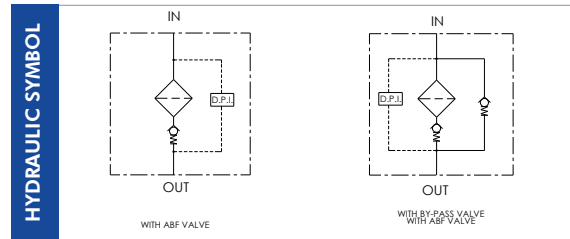
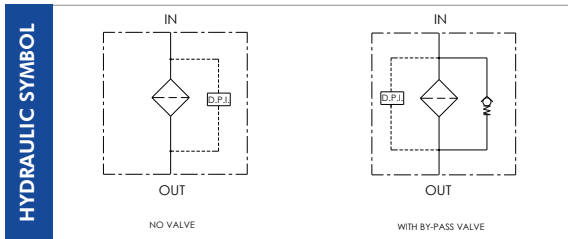
## ACCESSORIES

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	



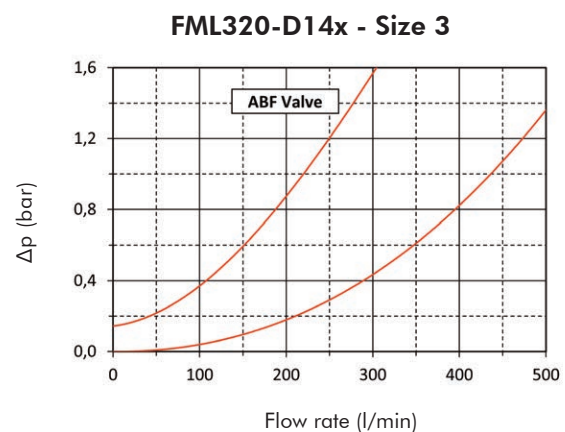
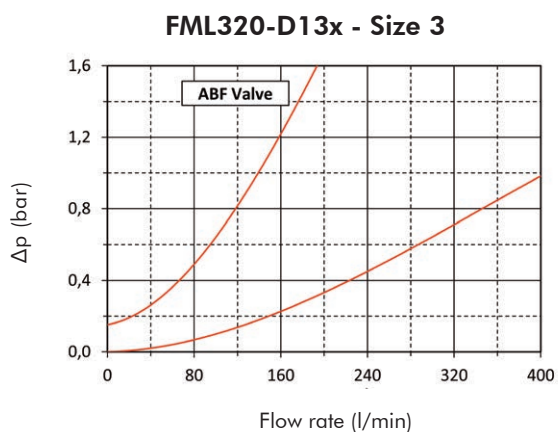
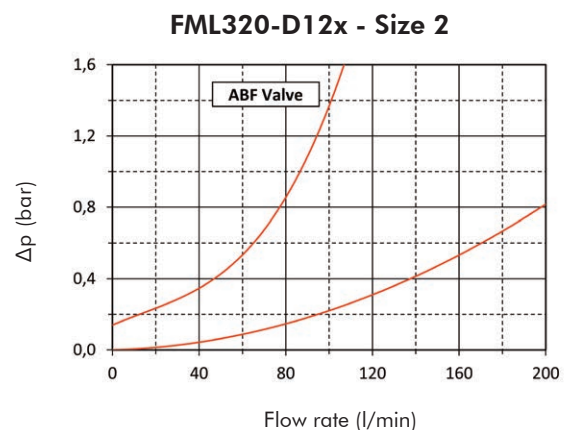
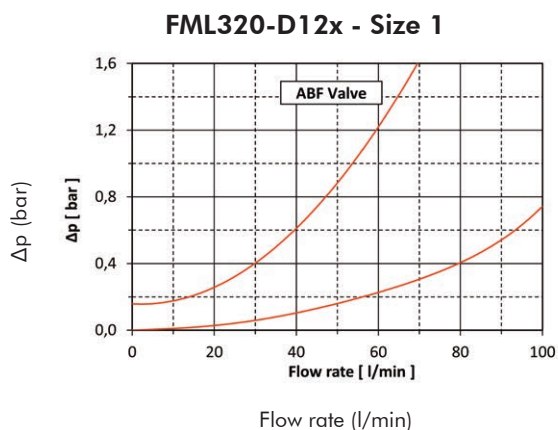
## PRESSURE DROP ( $\Delta p$ ) INFORMATION FOR FILTER SIZING

The total  $\Delta p$  through a filter assembly is given from Housing  $\Delta p$  + Element  $\Delta p$ .

This ideally should not exceed 1,0 bar and should never exceed 1/3 of the set value of the by-pass valve. N.B. All the reported data have been obtained at our laboratory, according to specification ISO3968 with mineral oil having 32 cSt viscosity and density 0,875 Kg/dm<sup>3</sup>.

## HOUSING PRESSURE DROP

The housing  $\Delta p$  is given by the curve of the considered model and port, in correspondence of the flow rate value.



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

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

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

### EXAMPLE OF TOTAL $\Delta p$ CALCULATION

FML320D121G10AB2DCWE05S0 with **90** l/min and oil **46** cSt:

Housing  $\Delta p$  0,18 bar + element  $\Delta p$  0,57 bar:  $(90 \times 4,42)/1000 \times (46/32) =$  total assembly  $\Delta p$  0,75 bar

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

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

If the oil has a viscosity  $V_x$  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
<b>D125</b>	57,38	39,23	27,50	16,53	10,15	8,03
<b>D120</b>	37,18	26,03	14,77	11,57	6,89	6,13
<b>D124</b>	24,56	17,19	11,37	6,63	4,93	3,92
<b>D121</b>	23,89	16,72	11,25	5,25	3,85	3,34
<b>D126</b>	17,65	11,48	7,79	5,17	3,55	2,85
<b>D135</b>	20,27	14,19	9,50	5,66	4,01	3,41
<b>D136</b>	16,90	11,83	7,92	4,72	3,34	2,84
<b>D137</b>	12,35	8,64	5,79	3,45	2,44	2,07
<b>D140</b>	18,57	13,00	9,63	5,05	3,74	3,33
<b>D141</b>	10,22	7,15	4,00	2,57	1,76	1,44
<b>D142</b>	5,53	3,87	2,93	1,67	1,12	0,83
<b>D143</b>	4,59	3,21	1,80	1,10	0,93	0,70

### EXAMPLE OF TOTAL $\Delta p$ CALCULATION

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

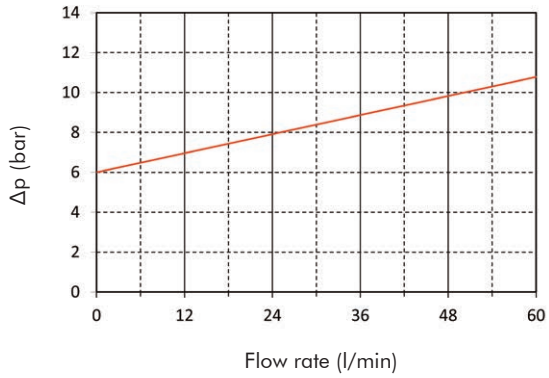
Housing  $\Delta p$  0,18 bar + element  $\Delta p$  0,68 bar:  $(90 \times 5,25)/1000 \times (46/32) =$  total assembly  $\Delta p$  0,86 bar



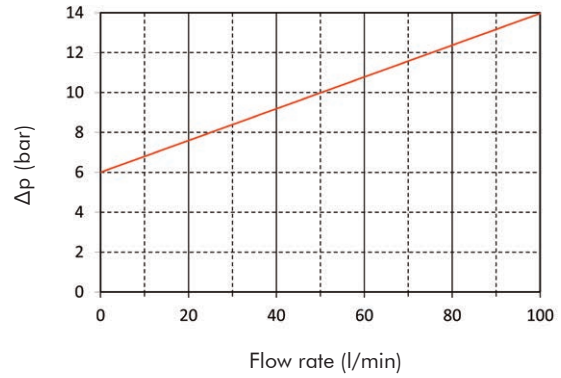
## BYPASS VALVE PRESSURE DROP

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

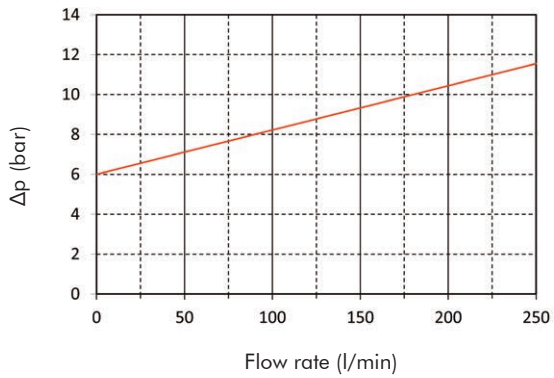
**FML320 Size 1**



**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/dm<sup>3</sup>.

## 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.

