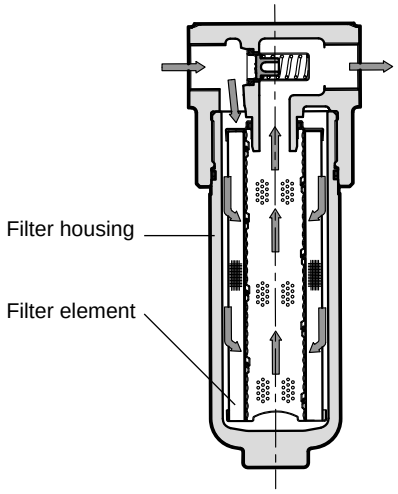
FPM

MEDIUM PRESSURE FILTER FOR IN-LINE MOUNTING

SERIES 20

p max **315** bar
Q nom (see table of performances)

OPERATING PRINCIPLE



— FPM filters are designed for in-line mounting, with BSP threaded hydraulic connections. There are threaded holes on the head for possible filter bracket fixing.

— The filter element is easily replaced using a standard hex spanner to unscrew the bowl, which has a specially shaped end

— FPM filters are designed to be installed on medium pressure lines up to 315 bar; the filter elements are made of high efficiency filtering materials and are available with three different filtration degrees:
F05 = 5 µm absolute (β_5 >100 - ISO 4401:1999 class 17/15/12)
F10 = 10 µm absolute (β_{10}>100 - ISO 4401:1999 class 18/16/13)
F25 = 25 µm absolute (β_{25} >100 - ISO 4401:1999 class 19/17/14)

— The filters are always supplied with bypass valve.

— Filters are available in standard (S) or long-life (L) versions, with large contaminant holding capacity. The collapse differential pressure is 21 bar for all the filter elements.

— All the FPM filters are designed to accomodate a differential clogging indicator, just optical or optical with electrical contact, that must be ordered separately (see point 5).

PERFORMANCES

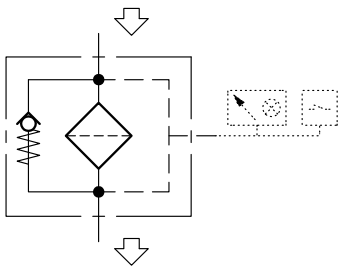
Filter code	BSP ports	Mass [kg]		Rated flow (indicative) (**NOTE**) [l/min]					
		type S	type L	F05S	F05S	F10S	F10L	F25S	F25L
FPM-TB012	1/2"	4	5	25	40	35	50	45	60
FPM-TB034	3/4"			35	50	50	65	65	80

Maximum operating pressure	bar	315
Collapsing differential pressure of the filter element	bar	21
Differential pressure for the opening of the bypass valve (±10 %)	bar	6
Ambient temperature range	°C	-25 / +50
Fluid temperature range	°C	-25 / +110
Fluid viscosity range	cSt	10 ÷ 400

NOTE: the flow rates stated in the table correspond to a pressure drop of 0.8 bar measured with mineral oil of viscosity 36 cSt at 50°C.
As for a different viscosity range, see the **NOTE** to point 2.2.

HYDRAULIC SYMBOL

(with bypass valve)



1 - IDENTIFICATION CODE

F	P	M	-	T	B				-				/	20		-	

Medium pressure filter, in line mounting

BSP threaded ports

Nominal dimension:
012 = 1/2” **034** = 3/4”

Filtration degree:
F05 = fibre 5 µm (β_5 > 100) - ISO 4401:1999 class 17/15/12
F10 = fibre 10 µm (β_{12} > 100) - ISO 4401:1999 class 18/16/13
F25 = fibre 25 µm (β_{25} > 100) - ISO 4401:1999 class 19/17/14

Filter type :
S = standard **L** = long-lasting element

B = with bypass valve Opening pressure 6 bar
0 = without bypass valve (upon request only)

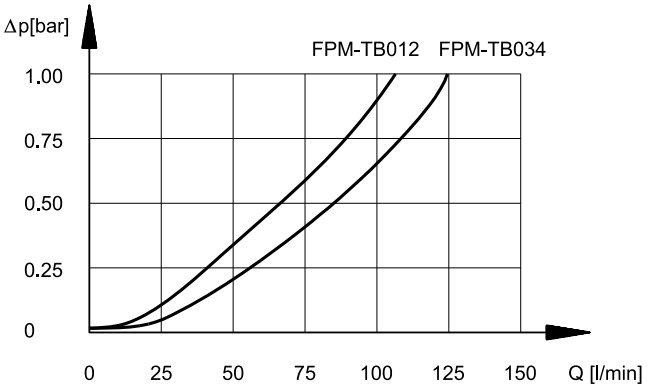
Seals:
N = NBR standard seals for mineral oils (**standard**)
V = FPM seals for special fluids

Series No.
(size and mounting dimensions remain unchanged from 20 to 29)

2 - CHARACTERISTIC CURVES

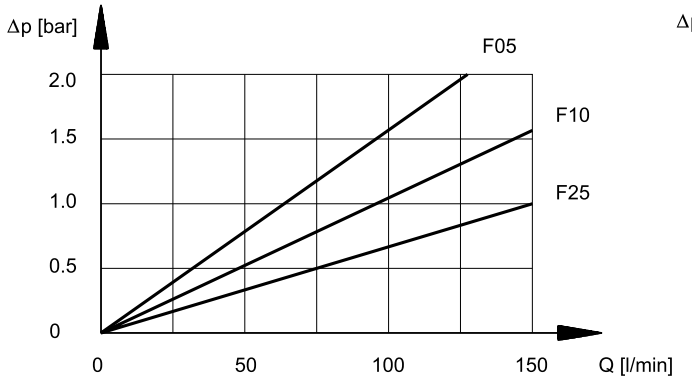
(values measured with viscosity of 36 cSt at 50 °C)

2.1 - Filter housing pressure drops

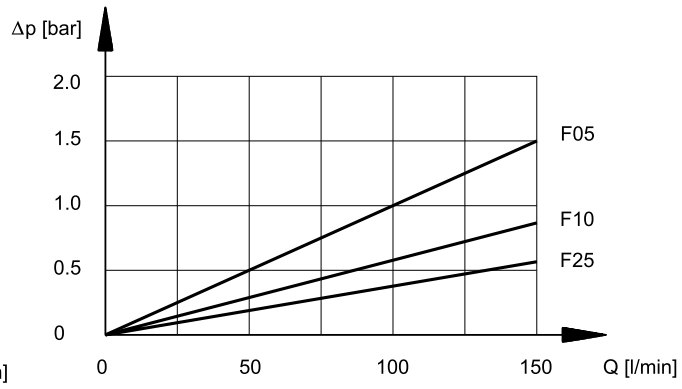


2.2 - FPME filter elements pressure drops

FPME-*S
(standard filter)



FPME-*L
(long-lasting filter)



NOTE 2: The filter size has to be selected so that, at the nominal flow rate, the total pressure drop is less than 1.2 bar and in any case this value must not exceed 1/3 of the setting of the bypass valve.

The total pressure drop through the filter is obtained by adding the pressure drop values of the housing to those of the filter element.

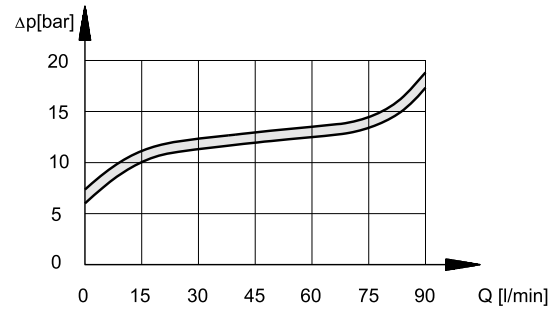
For fluids having a viscosity other than 36 cSt at operating temperature, the total pressure drop of the filter must be corrected by the following equation:

total Δp = housing Δp + (actual Δp of the filter element x actual viscosity (cSt) / 36)

actual Δp of the filter element = value obtainable from the diagrams in point 2.2

These formulae are valid for viscosities up to a maximum of 200 cSt. For applications with higher viscosities please consult our Technical Department.

2.3 - Pressure drops of the bypass valve



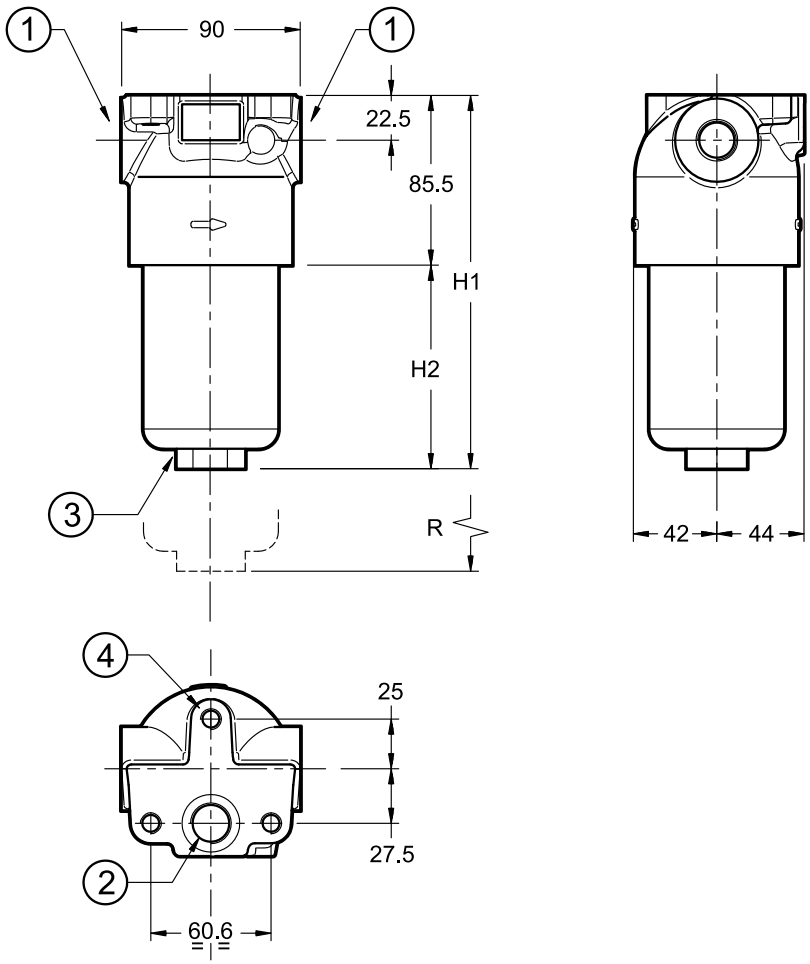
3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics.

The fluid must be preserved in its physical and chemical characteristics.

4 - OVERALL AND MOUNTING DIMENSIONS

dimensions in mm



1	In-line BSP connections: **FPM-TB012:** 1/2” BSP **FPM-TB034:** 3/4” BSP
2	Clogging indicator port: M20x1.5
3	Bowl removal spanner: SW30
4	No. 3 threaded holes M10 depth 15 mm for possible filter bracket.

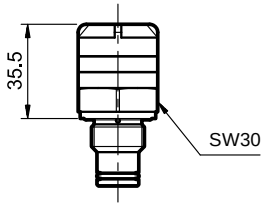
R = Clearance space for filter element removal

Filter code	H1	H2	R
FPM-TB*-F**S**	195	110	90
FPM-TB*-F**L**	290	205	90

5 - CLOGGING INDICATORS

The filters are all designed to accomodate a clogging indicator, which must be ordered separately. Tightening torque 90 Nm.

5.1 - Visual indicator for pressure filters
Identification code: VPM/10



This indicator measures the differential pressure between filter inlet and filter outlet.

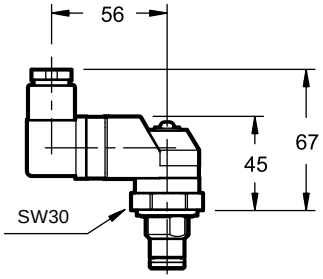
The indicator is supplied with coloured bands, which inform you about the clogging condition of the filter element:

WHITE: efficient filter element
$\Delta p < 5$ bar (± 10%)

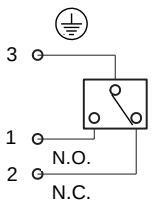
RED: the filter element need to be replaced $\Delta p > 5$ bar (± 10%)

5.2 - Electric-visual indicator for pressure filters
Identification code: EPM/10

This type of indicator operates by switching the electric contact when the clogging limit of the filter element is reached, as well as having a visual indicator like that of the VPM model.



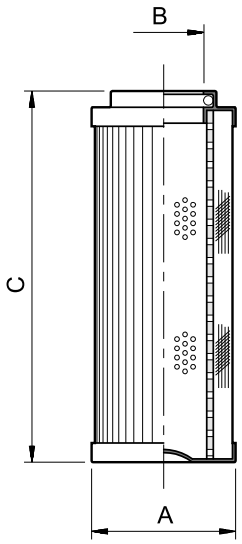
The contact can be wired in open or closed condition (see scheme).



TECHNICAL SPECIFICATIONS

		AC	DC
Differential operating pressure	bar	5	
Operating voltage	V	125 - 250	14 - 30
Max. load on contacts - resistive - inductive	A	 1 1	 4 3
Electric connector		EN 175301-803 (ex DIN 43650)	
Class of protection according to EN 60529 (atmospheric agents)		IP65	

6 - FILTER ELEMENTS



filter element code	ØA	ØB	C	Average filtering surface [cm²]
FPME-F*S**	52	23.5	115	975
FPME-F*L**	52	23.5	210	1830

FILTER ELEMENT IDENTIFICATION CODE

F P M E - | | | | / 10 |

Filter element for FPM filters

Filtration degree:
F05 = fibre 5 µm
F10 = fibre 10 µm
F25 = fibre 25 µm

Filter element type:
S = standard
L = long-lasting

Series No. (from 10 to 19 sizes and mounting dimensions remain unchanged)

N = NBR seals for mineral oils **(standard)**
V = FPM seals for special fluids (upon request)

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