Filter element

Element description

M - Wire Mesh

P - Paper

N.B. P series cellulose cartridges are compatible only with mineral oils in according to ISO 2943 - 4.

Characteristics of filter elements with nominal filtration, M series

For wire mesh filter elements, filtration degree is defined as the maximum diameter of a sphere corresponding to the mesh size, in microns.

Characteristics of filter elements with nominal filtration, P series

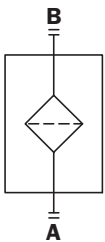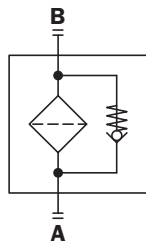For cellulose filter elements, filtration efficiency expressed in micron is to be construed as nominal $\beta_{X©} > 2$.

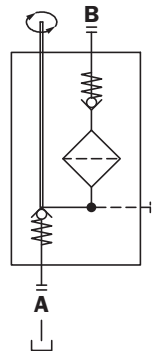# Hydraulic symbols & Compatibility

Style **S**
Serie STR
STH-STF-STM

Style **B**
Serie STR-MPA-MPM

Series
SF2 250

Series
SF2 500 S-M
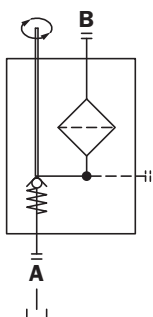
Series
SF2 500 D-K
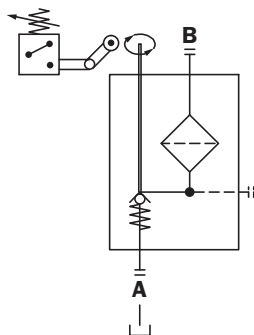
Compatibility (to ISO 2943)

- Housings compatible with:
  Mineral oils, synthetic fluids
  aqueous emulsions, water and glycol
  (series W required: only for SF2 250 housing).

- The filter elements are compatible with:
  Mineral oils, synthetic fluids.
  Aqueous emulsions, water and glycol.

- NBR seals series A, compatible with:
  Mineral oils, synthetic fluids, aqueous emulsions
  and water and glycol.

- FPM seals series V, compatible with:
  Mineral oils, synthetic fluids
  aqueous emulsions, water and glycol.

FLANGE SAE 3000 PSI

Connection to 3000 psi SAE flange

Dimension	1 1/2" SAE 3000 PSI M	1 1/2" SAE 3000 PSI UNC	2" SAE 3000 PSI M	2" SAE 3000 PSI UNC	2 1/2" SAE 3000 PSI M	2 1/2" SAE 3000 PSI UNC	3" SAE 3000 PSI M	3" SAE 3000 PSI UNC	4" SAE 3000 PSI M	4" SAE 3000 PSI UNC
A	38	38	51	51	63	63	73	73	99	99
B	70	70	77,8	77,8	88,9	88,9	106,4	106,4	130,2	130,2
C	35,7	35,7	42,9	42,9	50,8	50,8	62	62	77,8	77,8
D	M12	1/2" UNC	M12	1/2" UNC	M12	1/2" UNC	M16	5/8" UNC	M16	5/8" UNC

SAE flange connections available on Suction filters

Filter Type	Connections				
	1 1/2" SAE 3000	2" SAE 3000	2 1/2" SAE 3000	3" SAE 3000	4" SAE 3000
SF2 250	X				
SF2 500		X			
SF2 501			X		
SF2 505		X			
SF2 510			X		
SF2 503				X	
SF2 504					X
SF2 535				X	
SF2 540					X

Filter sizing

Correct sizing of the filter must be based on a variable pressure drop depending on the application:

• suction filter Δp from 5 to 8 kPa

The pressure drop calculation is performed by adding together the value for the housing and the value for the filter element. The pressure drop in the housing is proportional to the fluid density kg/dm³; all the graphs in the catalogue are referred to mineral oil with density of 0,86 kg/dm³.
The filter element pressure drop value is proportional to viscosity mm²/s, the Y values in the catalogue are referred to viscosity of 30 mm²/s.

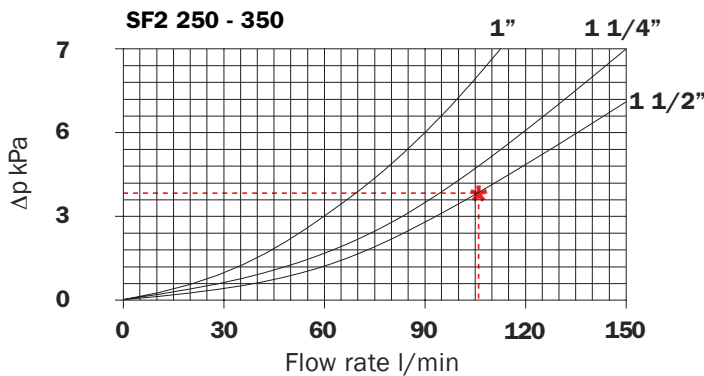## Multiplication factor "Y" for definition of the pressure drop of filter elements.

Reference viscosity 30 mm²/s

Filter Element	Nominal Filtration	
	N Series	
Type	P 1 0	P 2 5
SF 250	65	21

1 bar = 100 kPa

Filter housing Δp pressure drop

The curves are plotted utilising mineral oil with density of 0,86 kg/dm³ to ISO 3968. Δp varies proportionally with density.

SF2 250 - 350

Example with paper element

Δp Tot.
Δpc Filter housing
Δpe Filter element
Y Multiplication factor
Q l/min = flow rate
V1 = reference viscosity 30 mm²/s (cSt)
V2 = operating viscosity in mm²/s (cSt)
Δp Tot. = Δpc + Δpe
Δpe = Y : 1000 x Q x (V2/V1)

Calculation example with HLP Mineral Oil Variation in viscosity

Data:
Suction filter with connections G 1 1/2"
Flow rate   =   110 l/min
Viscosity   =   46 mm²/s (cSt)
Density   =   0,86 Kg/dm³
Filtration   =   P25
With bypass valve & magnet

Filter type - SF2 250

Practical example

Q   =   110 l/min
V_2 =   46 mm²/s (cSt)
Filtration   =   P25
Δp Tot. max = **8 kPa** (max. recommended value)
Δpc = 4 kPa (* see diagram)
Δpe = (21 : 1000) x 110 x (46/30) = 3,53 kPa
Δp Tot. = 4 + 3,53 = 7,53 kPa

Sized filter type:
SF2 250 A G1 R P25 P01

Filter housing Δp pressure drop

The curves are plotted utilising mineral oil with density of 0,86 kg/dm³ to ISO 3968. Δp varies proportionally with density.

Filter element Δp pressure drop

The curves are plotted utilising mineral oil with density of 0,86 kg/dm³ to ISO 3968. Δp varies proportionally with viscosity.

Example with wire mesh element

Δp Tot.
Δpc Filter housing
Δpe Filter element
Y Multiplication factor
Q l/min = flow rate
V1 = reference viscosity 30 mm²/s (cSt)
V2 = operating viscosity in mm²/s (cSt)
Δp Tot. = Δpc + Δpe
Δpe = Y : 1000 x Q x (V2/V1)

Calculation example with HLP Mineral Oil Variation in viscosity

Data:
Suction filter with connections 3" SAE 3000 PSI
Flow rate   = 250 l/min
Viscosity   = 46 mm²/s (cSt)
Density   = 0,86 Kg/dm³
Filtration   = M90

Filter type - SF2 503

Practical example

Q   = 250 l/min
V_2 = 46 mm²/s (cSt)
Filtration   = M90
Δp Tot. max = **8 kPa** (max. recommended value)
Δpc = 1,4 kPa (* see diagram)
Δpe = 3,5 x (46/30) = 5,35 kPa
Δp Tot. = 1,4 + 5,35 = 6,75 kPa

Sized filter type:
SF2 503 A F1 S M90 P01