

## Description

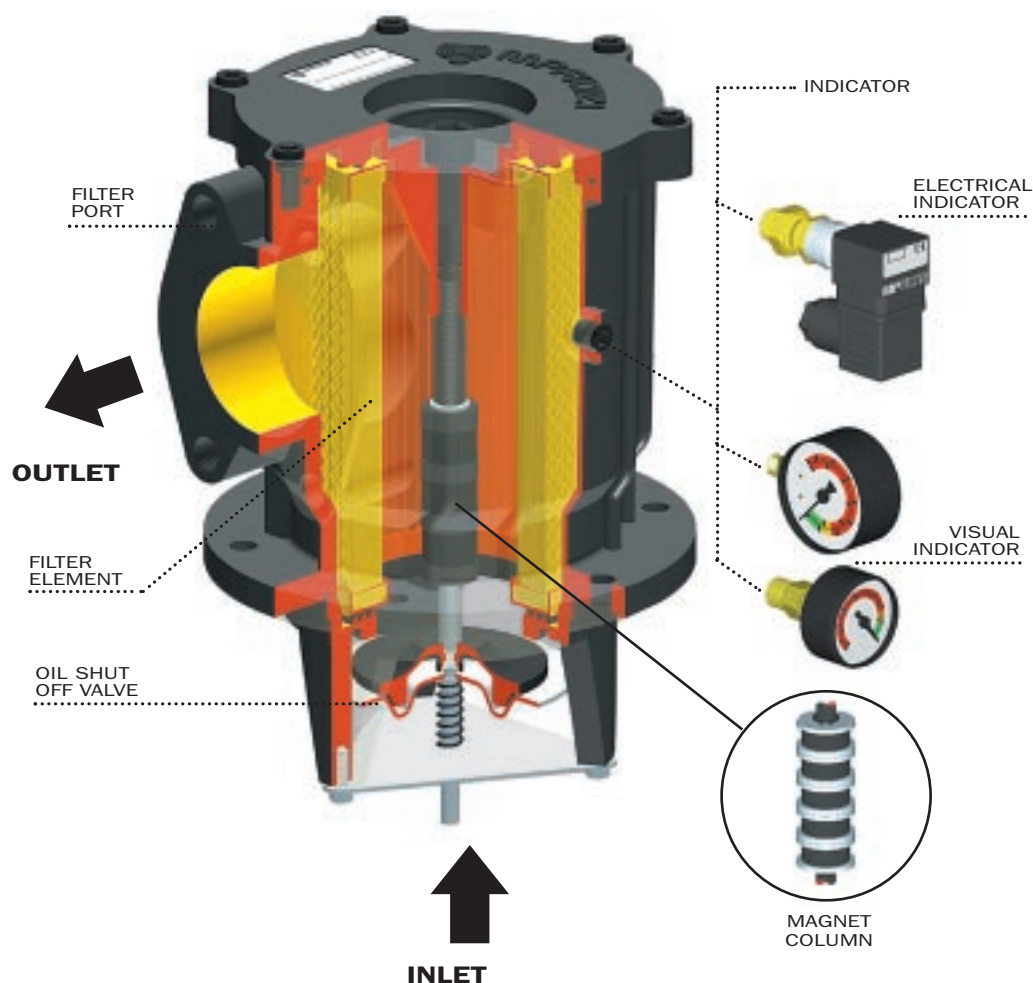
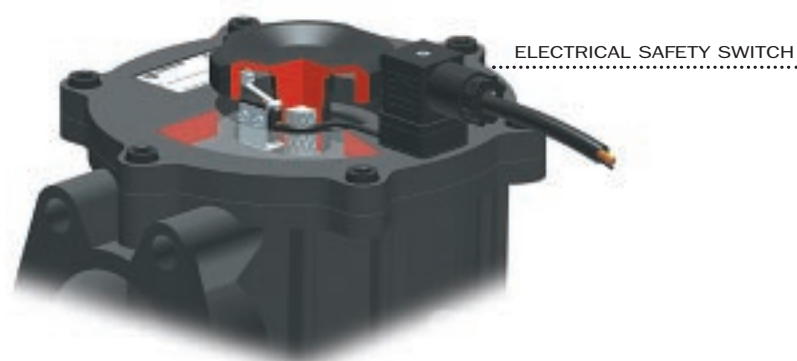
# SF2 500

The SF2 series are designed for reservoir side-wall mounting applications, suitable for flow rates to 850 l/min and filtration from 25 to 250 micron.

The design of the SF2 ensures an excellent performance in terms of low pressure drop and high dirt holding capacity. The SF2 filters are without bypass and include a magnetic prefilter. The filtration flow from «inside to outside» of the filter element ensures that the contaminant is collected inside the element itself, avoiding contact with tank oil during element change.

A major feature of these filters is that the filter element (situated under the oil level) can be changed without emptying the reservoir; the valve is actioned by handwheel on the filter cover, to avoid accidental start up when the valve is closed, an antistart safety switch is available as an option.

Clogging indicators are available as vacuum switches or as vacuummeters. These filters are particularly suitable for industrial application, die-casting and plastic injection machines.



## Filter element:

### Materials

### End caps:

Nylon

### Support tube:

Steel expanded metal

### Support frames:

Expanded metal

### Element material Nominal filtration

## M Series

Square wire mesh (filtration degree is defined in microns by the maximum diameter of a sphere corresponding to the mesh size).

### Filtering area Filter elements

| Type SF2 | SF2 503 | SF2 504 | SF2 505 | SF2 510 | SF2 535 | SF2 540 |
|----------|---------|---------|---------|---------|---------|---------|
| M25      | 2280    | 2660    | 1710    | 1800    | 3650    | 5110    |
| M60      | 2280    | 2660    | 1710    | 1800    | 3650    | 5110    |
| M90      | 2280    | 2660    | 1710    | 1800    | 3650    | 5110    |
| M250     | 2280    | 2660    | 1710    | 1800    | 3650    | 5110    |

Values in cm<sup>2</sup>

## Filter body:

### Materials

#### Head

Pressure aluminium die casting  
Steel (only for SF2 535-540)

#### Seals

A Series: Nitrile (Buna-N)  
V Series: Viton

#### Cover

Anodized aluminium

#### Indicator

Brass

#### Optional Flange

Anodized aluminium

### Working temperature

From -25 to +110°C  
For temperature outside this range, please consult our Sales and Network Organization

### Types of indicator

Description:  
**SF2 500** series filters are available with visual and electrical indicators.

#### Visual indicator

**V Series** (radial connection)  
**V0 Series** (axial connection)

vacuumeter: scale 0÷76 cmHg  
vacuumeter: scale 0÷76 cmHg

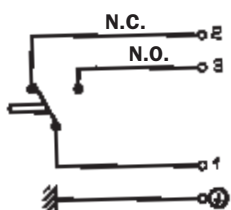
#### Electrical indicator

**E1 Series:**  
vacuumeter with change-over contacts at the setting pressure of 20 kPa±10%.  
Calibration range from 15 to 90 kPa.

#### Operational information:

Max voltage: 220 Vac 50÷60 Hz  
Max current: 0.5 A resistive,  
0.2 A inductive.  
Protection degree IP65

### Electrical safety Switch



The scheme refers to the oil shut off valve in a closed position

Protection degree: IP67  
Max voltage: 250Vca 50-60Hz  
Max current: 3A resistive  
3A inductive

Compatibility  
with fluids

Filter head and bowls

compatible for use with:

- mineral oils  
(types HH-HL-HM-HR-HV-HG as per ISO 6743/4)
- water-based emulsions  
(types HFAE-HFAS as per ISO 6743/4)
- synthetic fluids  
(types HS-HFDR-HFDS-HFDU as per ISO 6743/4)
- water-glycol  
(types HFC as per ISO 6743/4)

**Ask for anodised version**

Filter elements

As per ISO 2943; suitable for mineral oils (types HH-HL-HM-HR-HV-HG as per ISO 6743/4)  
synthetic fluids (A and M series only)  
(types HS-HFDR-HFDS-HFDU as per ISO 6743/4)

For water-based emulsions (type HFAE-HFAS as per ISO 6743/4) and fluids other than those mentioned, please consult our Sales Network Organization.

Seals

**A Series**  
**Nitrile (Buna-N)** compatible with mineral oils  
(types HH-HL-HM-HR-HV-HG as per ISO 6743/4) water - based emulsions  
(types HFAE-HFAS as per ISO 6743/4)

water - glycol  
(types HFC as per ISO 6743/4)

**V Series**  
**Viton** compatible with synthetic fluids  
(types HS-HFDR-HFDS-HFDU as per ISO 6743/4)

# Selection & installation information

## Filter element types

### M Series

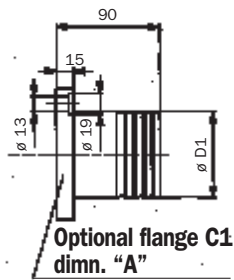
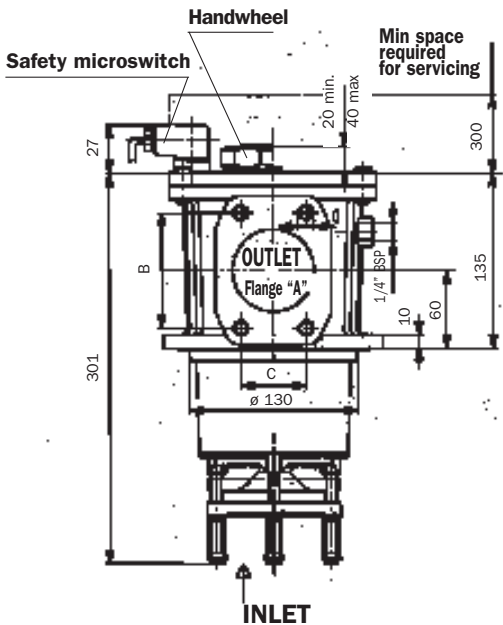
Metal mesh media, available in 25, 60, 90, 250 µm  
Example - **M25, M60, M90 or M250**

Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

The following filter sizing recommendations are based using a mineral oil fluid at 30 mm²/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of **8kPa** (0,08 bar)

## SF2 SERIES 500 - 501

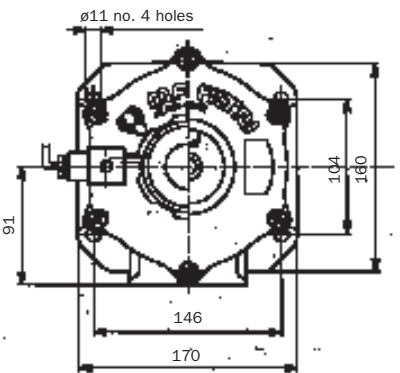
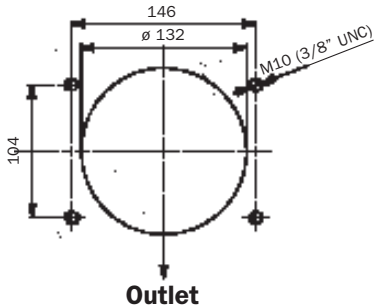
### SF2 500 -501



| Filter Assembly | Flow rate<br>l/min<br>* | Port Size<br>BSP/NPT/SAE | Weight<br>kg<br>** |
|-----------------|-------------------------|--------------------------|--------------------|
| M25             | 250                     | 2" SAE                   | 4,0                |
| M60             | 280                     |                          |                    |
| M90             | 280                     |                          |                    |
| M250            | 280                     |                          |                    |
| M25             | 300                     | 2" 1/2 SAE               | 4,0                |
| M60             | 340                     |                          |                    |
| M90             | 340                     |                          |                    |
| M250            | 340                     |                          |                    |

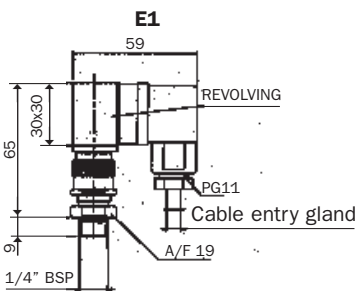
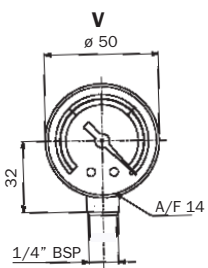
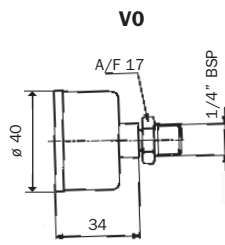
\* Flow rates with 30 mm²/s fluid viscosity  
\*\* Weight including filter element

### Filter mounting dimns



### Flange Connections

| Type    | A                      | B     | C     | D        | D1 |
|---------|------------------------|-------|-------|----------|----|
| 500- F1 | 2"SAE 3000PSI/M        | 77,77 | 42,88 | M12      | 63 |
| 500- F2 | 2"SAE 3000PSI/UNC      | 77,77 | 42,88 | 1/2" UNC | 63 |
| 501- F1 | 2 1/2" SAE 3000PSI/M   | 88,90 | 50,80 | M12      | 75 |
| 501- F2 | 2 1/2" SAE 3000PSI/UNC | 88,90 | 50,80 | 1/2" UNC | 75 |





# Selection & installation information

## Filter element types

### M Series

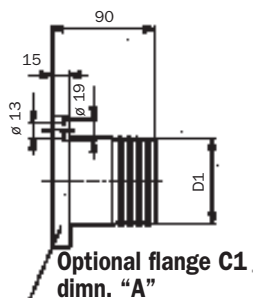
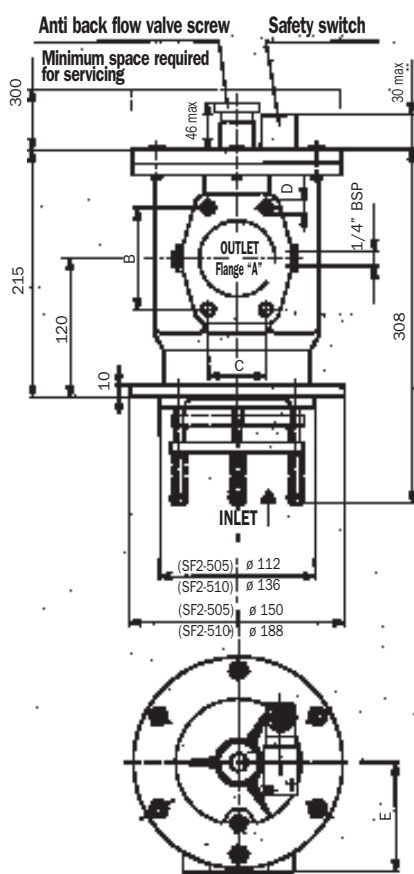
Metal mesh media, available in 25, 60, 90, 250 µm  
Example - **M25, M60, M90 or M250**

Please refer to individual pressure drop curves to obtain filter assembly pressure drop information

The following filter sizing recommendations are based using a mineral oil fluid at 30 mm<sup>2</sup>/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of **8kPa** (0,08 bar)

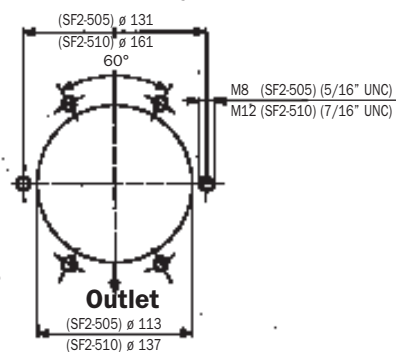
## SF2 SERIES 505 - 510

### SF2 505-510



Optional flange C1  
dimn. "A"

### Filter mounting dimns.

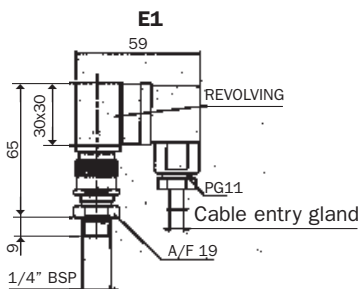
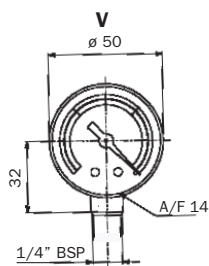
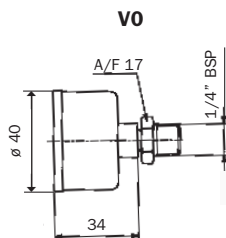


| Filter Assembly | Flow rate<br>l/min<br>* | Port Size<br>BSP/NPT/SAE | Weight<br>kg<br>** |
|-----------------|-------------------------|--------------------------|--------------------|
| M25             | 200                     | 2" SAE                   | 6,0                |
| M60             | 250                     |                          |                    |
| M90             | 250                     |                          |                    |
| M250            | 250                     |                          |                    |
| M25             | 250                     | 2" 1/2 SAE               | 7,2                |
| M60             | 280                     |                          |                    |
| M90             | 280                     |                          |                    |
| M250            | 280                     |                          |                    |

\* Flow rates with 30 mm<sup>2</sup>/s fluid viscosity  
\*\* Weight including filter element

### Flange Connections

| Type    | A                      | B     | C     | D        | D1 | E  |
|---------|------------------------|-------|-------|----------|----|----|
| 505- F1 | 2"SAE 3000PSI/M        | 77,77 | 42,88 | M12      | 63 | 84 |
| 505- F2 | 2"SAE 3000PSI/UNC      | 77,77 | 42,88 | 1/2" UNC | 63 | 84 |
| 510- F1 | 2 1/2" SAE 3000PSI/M   | 88,90 | 50,80 | M12      | 75 | 95 |
| 510- F2 | 2 1/2" SAE 3000PSI/UNC | 88,90 | 50,80 | 1/2" UNC | 75 | 95 |



# Selection & installation information

## Filter element types

### M Series

Metal mesh media, available in 25, 60, 90, 250 µm  
Example - **M25, M60, M90 or M250**

**Please refer to individual pressure drop curves to obtain filter assembly pressure drop information**

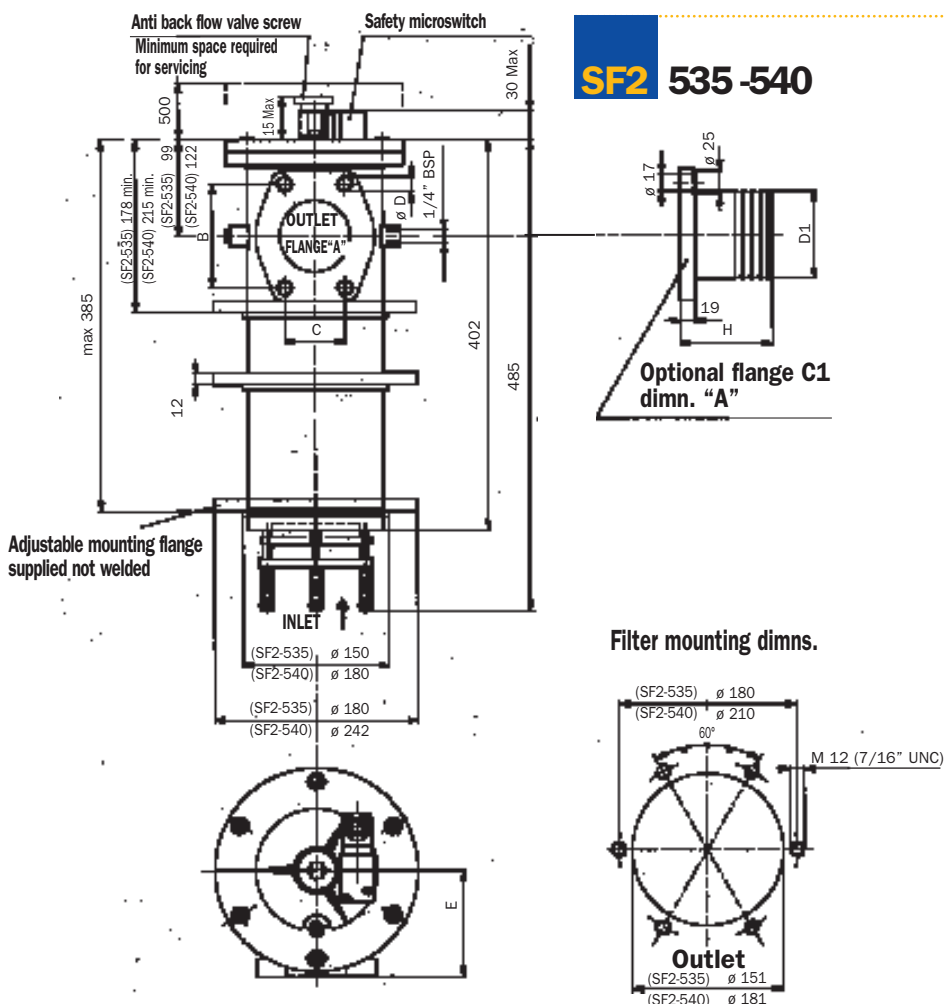
The following filter sizing recommendations are based using a mineral oil fluid at 30 mm<sup>2</sup>/s (cSt) with a maximum total filter assembly (housing and filter element) pressure drop of **8k Pa** (0,08 bar).

## SF2 SERIES 535 - 540

### SF2 535-540

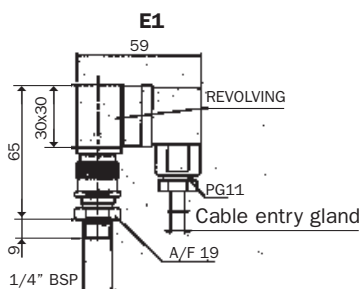
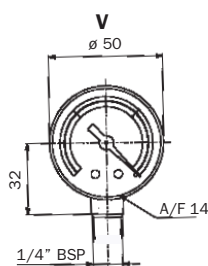
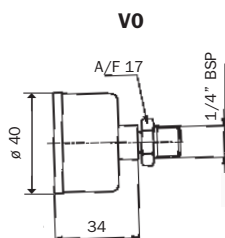
| Filter Assembly | Flow rate<br>l/min<br>* | Port Size<br>BSP/NPT/SAE | Weight<br>kg<br>** |
|-----------------|-------------------------|--------------------------|--------------------|
| M25             | 450                     | 3" SAE                   | 17,0               |
| M60             | 550                     |                          |                    |
| M90             | 550                     |                          |                    |
| M250            | 550                     |                          |                    |
| M25             | 700                     | 4" SAE                   | 19,0               |
| M60             | 800                     |                          |                    |
| M90             | 800                     |                          |                    |
| M250            | 800                     |                          |                    |

\* Flow rates with 30 mm<sup>2</sup>/s fluid viscosity  
\*\* Weight including filter element



## Flange Connections

| Type    | A                 | B      | C     | D       | D1  | E   | H   |
|---------|-------------------|--------|-------|---------|-----|-----|-----|
| 535- F1 | 3"SAE 3000PSI/M   | 106,38 | 61,93 | M16     | 89  | 110 | 95  |
| 535- F2 | 3"SAE 3000PSI/UNC | 106,38 | 61,93 | 5/8"UNC | 89  | 110 | 95  |
| 540- F1 | 4"SAE 3000PSI/M   | 130,18 | 77,77 | M16     | 114 | 120 | 100 |
| 540- F2 | 4"SAE 3000PSI/UNC | 130,18 | 77,77 | 5/8"UNC | 114 | 120 | 100 |



## Pressure drop information

### General

Pressure drop versus flow rate curve information for both housing and filter elements is in accordance with ISO 3968

**Filter assembly pressure drop** -  $\Delta p_{\text{Total}} = \Delta p_{\text{Housing}} + \Delta p_{\text{Filter element}}$

**Housing pressure drop** - The housing pressure drop is proportional to the fluid density

**Filter element pressure drop** - Filter element pressure drop is proportional to kinematic viscosity therefore always check the fluid operating temperature and fluid type to obtain the working viscosity according to the following formula:

$\Delta p_1 \text{ Filter element} = (\text{working viscosity} / \text{brochure viscosity}) \times \Delta p \text{ filter element}$

1 bar = 100 kPa

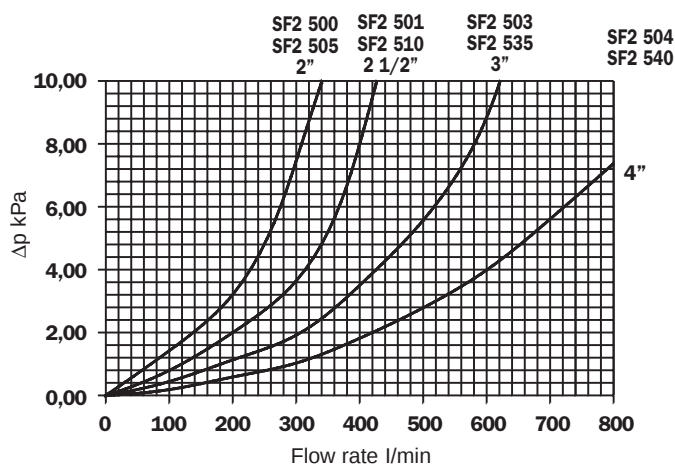
## Filter assembly sizing example

### Selection

- Customer requires a 250 l/min filter assembly
- Mineral oil fluid: ISO VG 46 (46 mm<sup>2</sup>/s (cSt) at 40°C)
- M90 - 90 micron filtration
- **Housing pressure drop** - SF2 503 with 250 l/min  $\Delta p = 1,4 \text{ kPa}$  (see curve on page 9)
- **Filter element pressure drop** (brochure viscosity) - SF2 503 M90 A with 250 l/min  $\Delta p = 3,5 \text{ kPa}$  (see curve on page 10)
- **Filter element pressure drop** (working viscosity) - With 46 mm<sup>2</sup>/s (cSt)  $\Delta p_1 = 3,5 \times (46/30) = 5,4 \text{ kPa}$
- **Filter assembly pressure drop**  $\Delta p_{\text{Total}} = \Delta p_{\text{Housing}} + \Delta p_1 \text{ Filter element} = 1,4 + 5,4 = 6,8 \text{ kPa}^*$  { \*acceptable pressure drop as per our recommendations

## Filter housing pressure drop

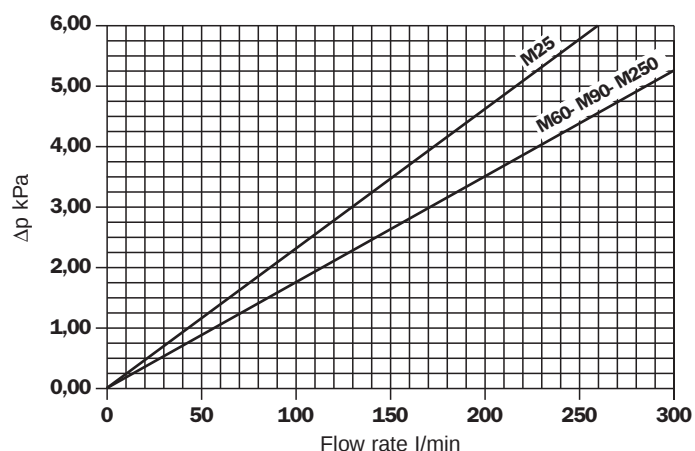
The curves were obtained using a mineral oil with a density of 0,86 kg/dm<sup>3</sup>.  
The  $\Delta p$  varies proportionally to the density



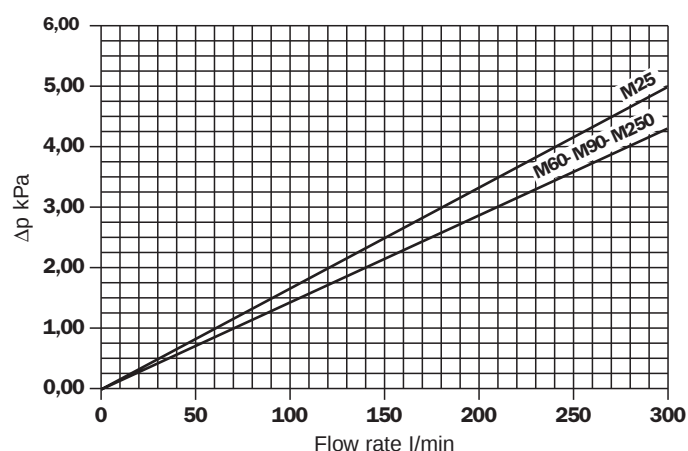
## Filter element pressure drop

The curves were obtained using a mineral oil with a kinematic viscosity of 30 mm<sup>2</sup>/s (cSt). The  $\Delta p$  varies proportionally to the fluid kinematic viscosity.

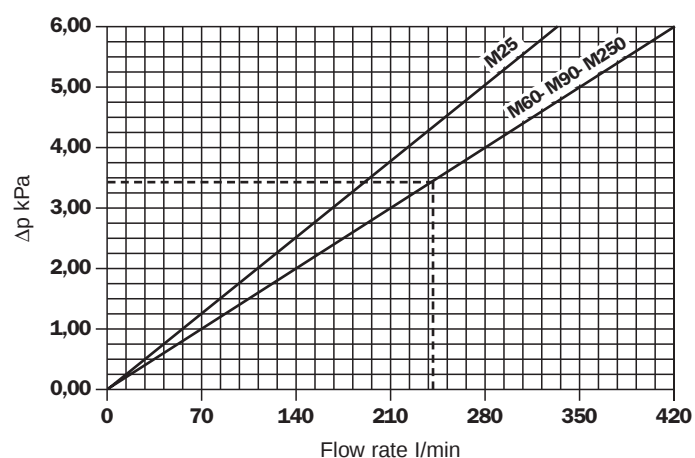
**SF 505**



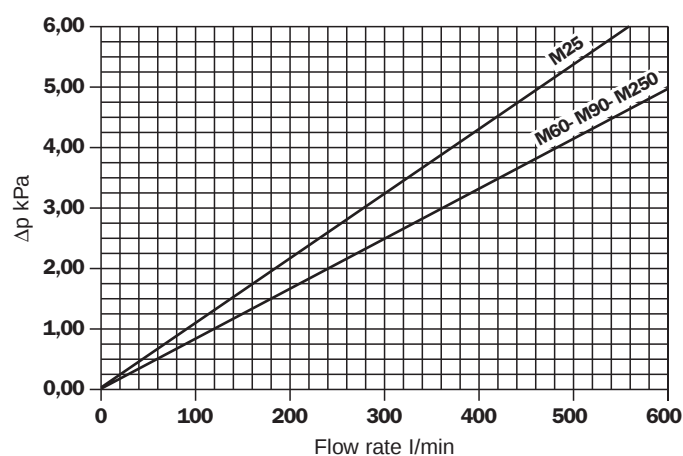
**SF 510**



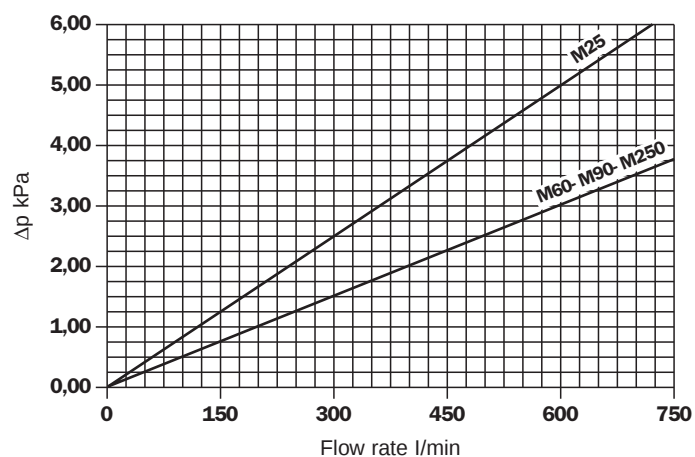
**SF 503**



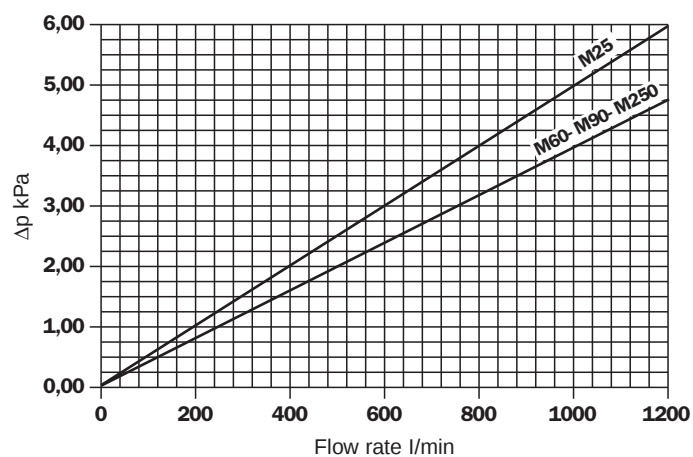
**SF 504**



**SF 535**



**SF 540**



# Ordering code example

SF2

500

A

F1

S

M25

V

This example shows how order a complete filter with features based on the customer request.

| Nominal sizes |                                  |
|---------------|----------------------------------|
| 500           | (Use SF 510 filter element code) |
| 501           |                                  |
| 503           |                                  |
| 504           |                                  |
| 505           |                                  |
| 510           |                                  |
| 535           |                                  |
| 540           |                                  |

| Seals |                  |
|-------|------------------|
| A     | Nitrile (Buna-N) |
| V     | Viton            |

| Port option |                       |                            |                       |                       |
|-------------|-----------------------|----------------------------|-----------------------|-----------------------|
| Type        | 500<br>505            | 501<br>510                 | 503<br>535            | 504<br>540            |
| F1          | 2"SAE<br>3000 PSI/M   | 2 1/2"SAE<br>3000 PSI/M    | 3"SAE<br>3000 PSI/M   | 4"SAE<br>3000 PSI/M   |
| F2          | 2"SAE<br>3000 PSI/UNC | 2 1/2" SAE<br>3000 PSI/UNC | 3"SAE<br>3000 PSI/UNC | 4"SAE<br>3000 PSI/UNC |
| C1 (flange) | 2" SAE<br>3000 PSI    | 2 1/2" SAE<br>3000 PSI     | 3" SAE<br>3000 PSI    | 4" SAE<br>3000 PSI    |

| Filter assy. | Element type |
|--------------|--------------|
| 500          | 510          |
| 501          | 510          |
| 503          | 503          |
| 504          | 504          |
| 505          | 505          |
| 510          | 510          |
| 535          | 535          |
| 540          | 540          |

| Filter condition indicator |                                              |
|----------------------------|----------------------------------------------|
| S                          | With threaded hole only                      |
| T1                         | With hole + plug                             |
| V0                         | Visual (axial vacuumeter)                    |
| V                          | Visual (radial vacuumeter)                   |
| E1                         | Electrical (change-over contacts vacuumeter) |

| Filter elements |                  |
|-----------------|------------------|
| M25             | Square wire mesh |
| M60             |                  |
| M90             |                  |
| M250            |                  |

| Options |                                                               |
|---------|---------------------------------------------------------------|
| S       | Without microswitch, without handwheel                        |
| C       | With microswitch, without handwheel (505, 510, 535, 540)      |
| D       | With microswitch, with nylon handwheel (500, 501, 503, 504)   |
| K       | With microswitch, with steel handwheel (500, 501, 503, 504)   |
| M       | Without microswitch, with nylon handwheel (500, 501, 503,504) |

SF

510

M25

This example shows how order a filter element with features based on the customer request

Replacement element

MP Filtri - Filtration products will only be guaranteed if original MP Filtri replacement elements and spares are used

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