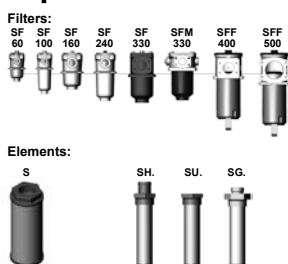




## Suction Filter SF/SFM/SFF and Suction Filter Elements S and S.. up to 500 l/min



### 1. TECHNICAL SPECIFICATIONS

#### 1.1 FILTER HOUSING

##### Construction

The filter housings are designed in accordance with international regulations. The SF filters consist of a filter housing and a bolt-on cover plate. The SFM and SFF filters consist of a filter head with filter bowl and bolt-on cover plate (on the SFF there is an automatic shut-off valve at the base of the filter bowl).

Standard equipment:

- with bypass valve
- connection for a clogging indicator

#### 1.2 FILTER ELEMENTS

HYDAC filter elements are validated and their quality is constantly monitored according to the following standards:

- ISO 2941
- ISO 2942
- ISO 2943
- ISO 3724
- ISO 3968
- ISO 11170
- ISO 16889

The suction elements S are designed to be screwed into the suction line on pumps or inside tanks.

The suction filter elements S.. are designed to be mounted simply onto the outside of the tank. Hoses and fittings must be supported to avoid any load on the connection. Elements can be changed very simply.

It is essential that suction filter elements are always installed well below the minimum oil level.

Standard equipment:

- without bypass valve

Filter elements are available with the following pressure stability values:

Paper (P): 5 bar  
Wire mesh(W): 5 bar

#### 1.3 FILTER SPECIFICATIONS

Nominal pressure	suction operation
Temperature range	-10 °C to +100 °C
Material of SF filter	Cover plate: aluminium Housing: aluminium
Material of SFM filter	Cover plate: aluminium Filter head: aluminium Filter bowl: polyamide
Material of SFF filter	Cover plate: GGG40 (SG Iron) Filter head: aluminium Filter bowl: steel
Material of S elements	Filter mesh: wire mesh End caps: polyamide Central tube: steel plate, zinc plated
Material of S.. elements	Filter mesh: wire mesh End caps: on request Central tube: on request
Type of clogging indicator	VR connection thread G ½ V1/4 conn. thread NPT (SFF only)
Pressure setting of clogging indicator	0.2 to 2 bar (others on request)
Cracking pressure of bypass valve	0.25 bar (SFF filter) 0.3 bar (SF and SFM filter) (others on request)
Cracking pressure of bypass valve for suction filter elements S (optional)	0.2 bar

#### 1.4 SEALS

NBR (= Perbunan)

#### 1.5 MOUNTING

As tank-top or inline filter.

#### 1.6 SPECIAL MODELS AND ACCESSORIES

On request

#### 1.7 SPARE PARTS

See Original Spare Parts List

#### 1.8 CERTIFICATES AND APPROVALS

On request

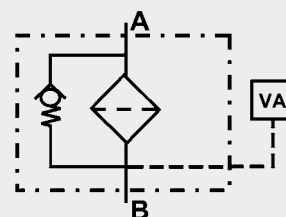
#### 1.9 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

- Hydraulic oils H to HLPD DIN 51524
- Lubrication oils DIN 51517, API, ACEA, DIN 51515, ISO 6743
- Compressor oils DIN 51506
- Biodegradable operating fluids VDMA 24568 HETG, HEES, HEPG
- Non-flam operating fluids HFA, HFB, HFC and HFD
- Operating fluids with high water content (>50%) on request

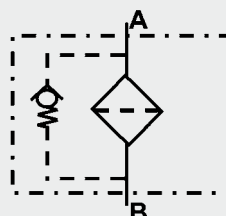
#### 1.10 IMPORTANT INFORMATION

- Filter housing must be earthed
- When using electrical clogging indicators, the electrical power supply to the system must be switched off before removing the clogging indicator connector.

#### Symbol for hydraulic systems SF, SFM, SFF



#### S elements



## 2. MODEL CODE (also order example)

### 2.1 COMPLETE FILTER

#### Filter type

SF, SFM, SFF

#### Filter material of element

P paper (not for SFF)  
W stainless steel wire mesh

#### Size of filter or element

SF: 60, 110, 160, 240, 330  
SFM: 330  
SFF: 400, 500

#### Operating pressure

W suction operation

#### Type and size of port

Type	Port	Filter size							
		SF 60	SF 110	SF 160	SF 240	SF 330	SFM 330	SFF 400	SFF 500
C	G ¾	•	•						
E	G 1¼			•	•				
F	G 1½						•		
G	G 2					•			
K	SAE DN 40 (1½")						•		
L	SAE DN 50 (2")					•			
M	SAE DN 65 (2½")							•	
P	SAE DN 100 (4")								•

#### Filtration rating in µm

P: 10, 20 (not for SFF)  
W: 75, 125

#### Type of clogging indicator

A with steel blanking plug in indicator port  
E pressure gauge  
UE vacuum pressure gauge  
UF vacuum pressure switch

for other clogging indicators,  
see brochure no. E 7.050../..

#### Type code

1

#### Modification number

X the latest version is always supplied

#### Supplementary details

KB without bypass valve  
V FPM seals  
W suitable for HFA and HFC emulsions

### 2.2 REPLACEMENT ELEMENT FOR SF/SFM/SFF FILTERS

#### Size

0060, 0110, 0160, 0240, 0330, 0400, 0500

#### Type

RS

#### Filtration rating in µm

P: 010, 020 (not for SFF)  
W: 075, 125

#### Filter material

P, W

#### Supplementary details

SFF must be added to model code for SFF filter  
V, W (for descriptions, see point 2.1)

### 2.3 REPLACEMENT CLOGGING INDICATOR

#### Type

VR connection thread G ½ (only for SF and SFM filter)  
V1/4 connection thread NPT (only for SFF filter)

#### Pressure setting

2 2 bar (for type E)  
1 1 bar (for type UE)  
0.2 0.2 bar (for type UF)

#### Type (see point 2.1)

#### Modification number

X the latest version is always supplied

#### Supplementary details

V (for descriptions, see point 2.1)

SF W 330 W L 10 UE 1 X /-V

0330 RS 075 W /-V

VR 1 UE . X /-V

## 2.4 SUCTION FILTER ELEMENT S

Size 0050 S 125 W /-B0.2  
 0015, 0025, 0050, 0100, 0180  
 Type S  
 Filtration rating in  $\mu\text{m}$  125  
 075, 125  
 Filter material W  
 Supplementary details B0.2  
 B0.2 special bypass cracking pressure 0.2 bar;  
 no details = standard

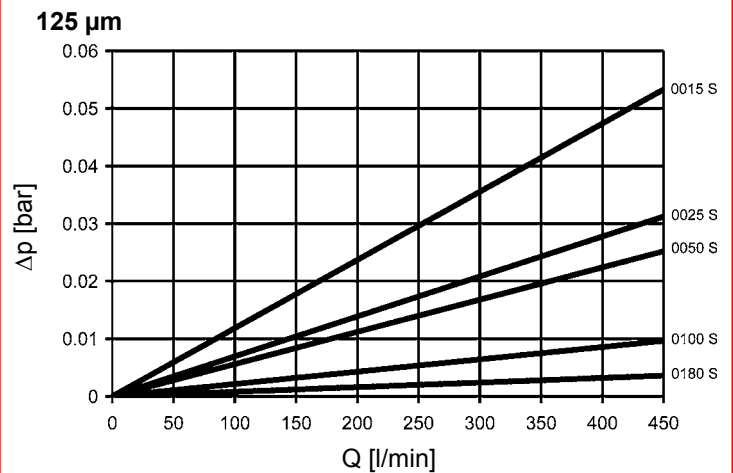
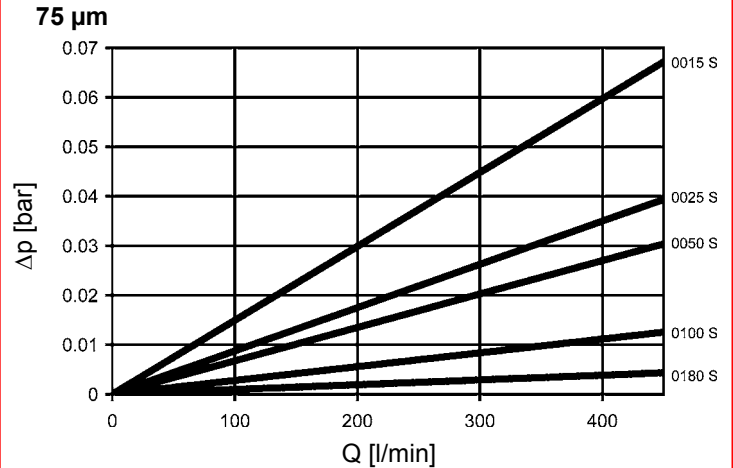
## 2.5 SUCTION FILTER ELEMENT S..

Size 0070 SGD 125 W  
 0040, 0060, 0070, 0110  
 Type SGD  
 SHB\* suction filter element hose connection  
 ( 38.1 and 32)  
 SUI\* suction filter element UN thread  
 ( 1 1/16-12 UN and 1 6/16-12UN)  
 SG.\* suction filter element thread  
 (G 3/4, G 1, G 1 1/2)  
 Filtration rating in  $\mu\text{m}$  125  
 125  
 Filter material W

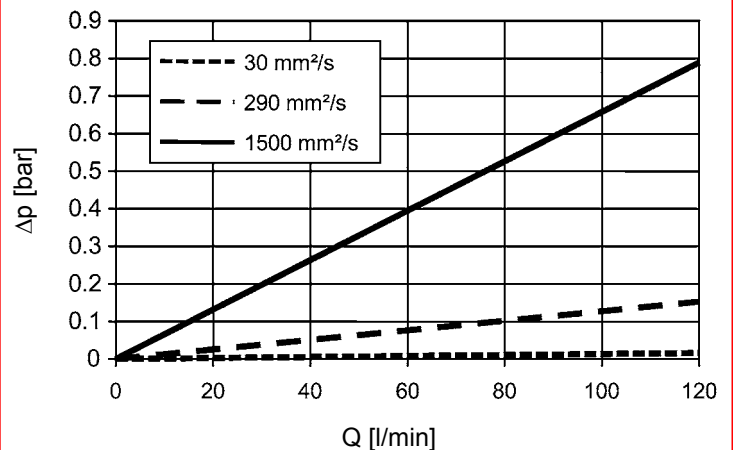
\*for further details on the designation, please see point 5

## 3. FILTER CALCULATION / SIZING S AND S..

### 3.1 $\Delta P$ -Q-GRAPHS FOR SUCTION FILTER ELEMENTS S (AT 30 $\text{MM}^2/\text{S}$ )



### 3.2 $\Delta P$ -Q-GRAPHS FOR SUCTION FILTER ELEMENTS S..



## 4. FILTER CALCULATION / SIZING SF, SFM, SFF

The total pressure drop of a filter at a certain flow rate Q is the sum of the housing  $\Delta p$  and element  $\Delta p$  and is calculated as follows

$$\Delta p_{\text{total}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}}$$

$$\Delta p_{\text{housing}} = (\text{see point 3.1})$$

$$\Delta p_{\text{element}} = Q \cdot \frac{SK^*}{1000} \cdot \frac{\text{viscosity}}{30}$$

(\*see point 3.2)

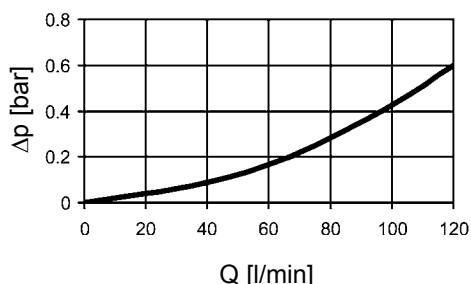
For ease of calculation, our Filter Sizing Program (Filter-IT) is available on request free of charge.

**NEW:** Sizing online at [www.hydac.com](http://www.hydac.com)

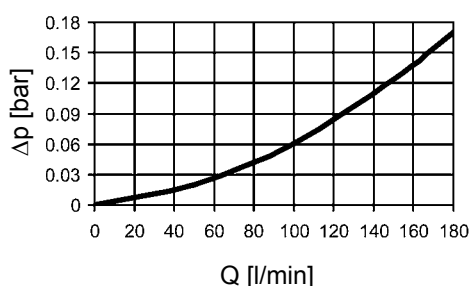
### 4.1 $\Delta P$ -Q HOUSING GRAPHS BASED ON ISO 3968

The housing graphs apply to mineral oil with a density of 0.86 kg/dm<sup>3</sup> and a kinematic viscosity of 30 mm<sup>2</sup>/s. In this case, the differential pressure changes proportionally to the density.

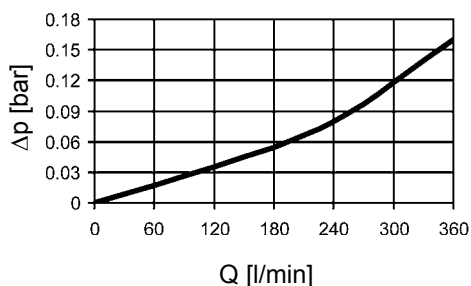
#### SF 60, 100



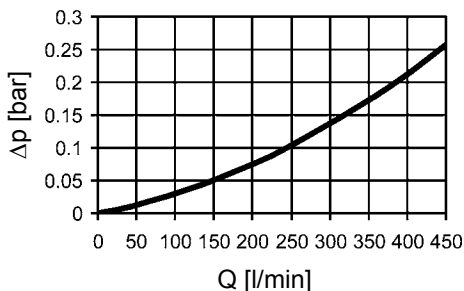
#### SF 160, 240



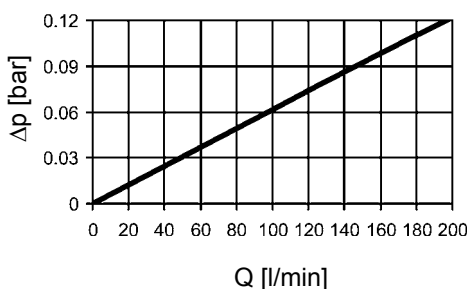
#### SF 330



#### SFM 330



#### SFF 400, 500

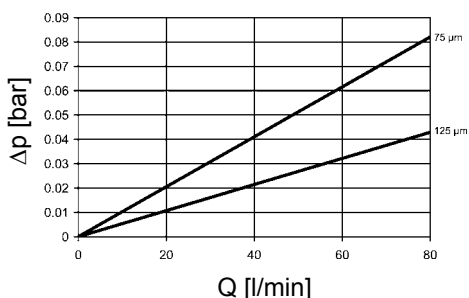


### 4.2 GRADIENT COEFFICIENTS (SK) FOR FILTER ELEMENTS (FOR FILTER ELEMENTS SF/SFM/SFF)

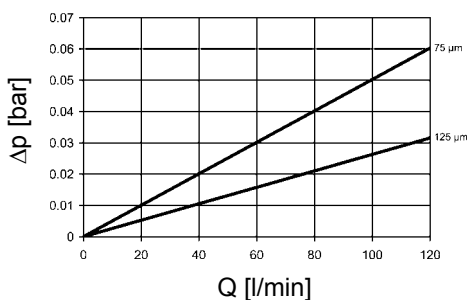
The gradient coefficients in mbar/(l/min) apply to mineral oils with a kinematic viscosity of 30 mm<sup>2</sup>/s. The pressure drop changes proportionally to the change in viscosity.

RS	W	
	75 μm	125 μm
60	1.03	0.54
110	0.52	0.26
160	0.36	0.19
240	0.25	0.13
330	0.19	0.10
400	0.20	0.16
500	0.20	0.16

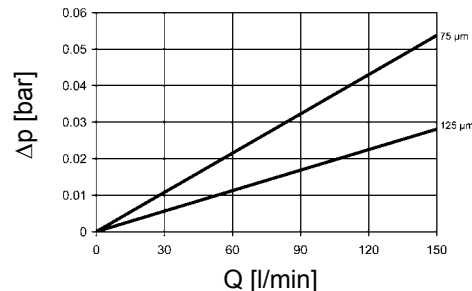
#### 60 W



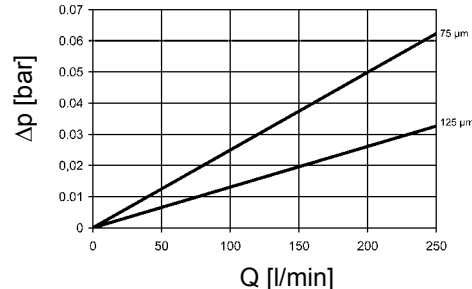
#### 110 W



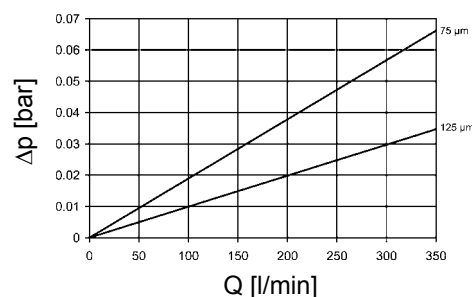
#### 160 W



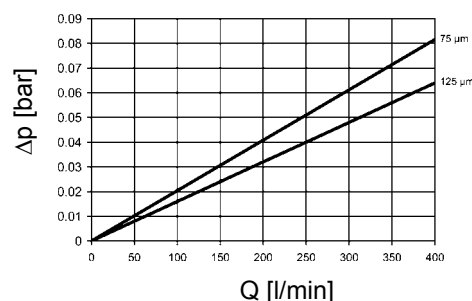
#### 240 W



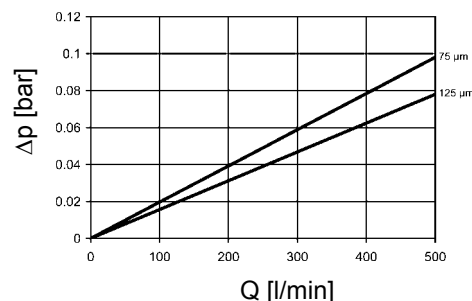
#### 330 W



#### 400 W

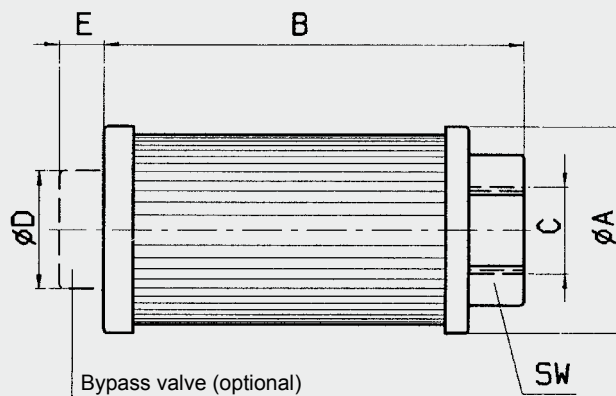


#### 500 W



## 5. DIMENSIONS

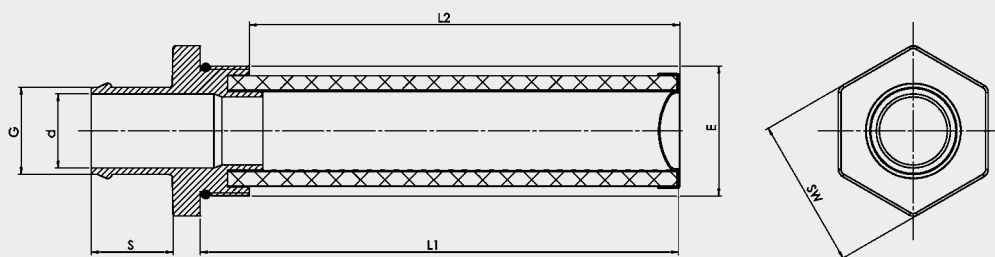
Suction filter element S  
for mounting on pumps or  
inside tanks



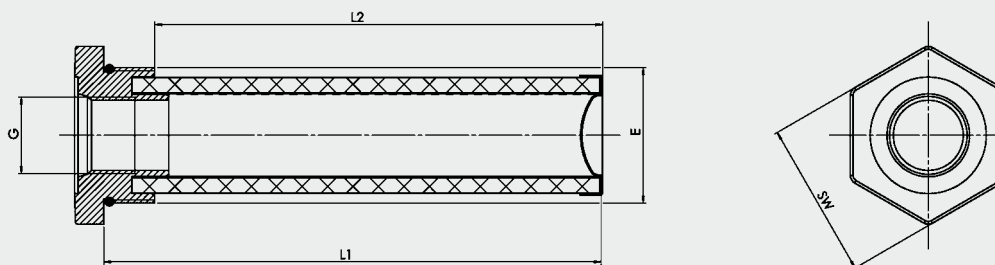
Types	A	B	C	D (ISO 228)	E	SW	Flow rate l/min
0015 S	44	104	G ½	24	10.5	30	15
0025 S	63	127	G ¾	36	13.5	46	25
0050 S	63	159	G 1	36	13.5	46	50
0100 S	86	210	G 1½	46	18.5	69	100
0180 S	86.5	311	G 2	46	18.5	69	180

Suction filter element S.. for mounting on outside of tank

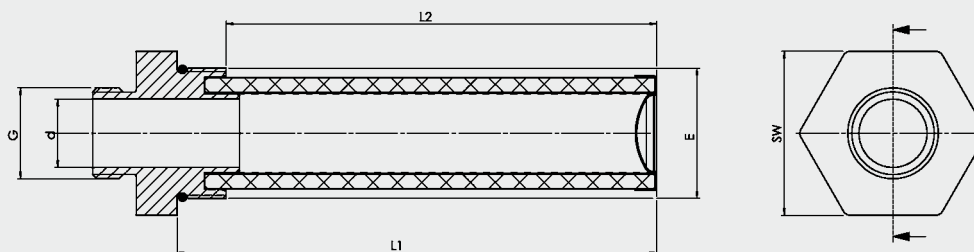
Type SHB



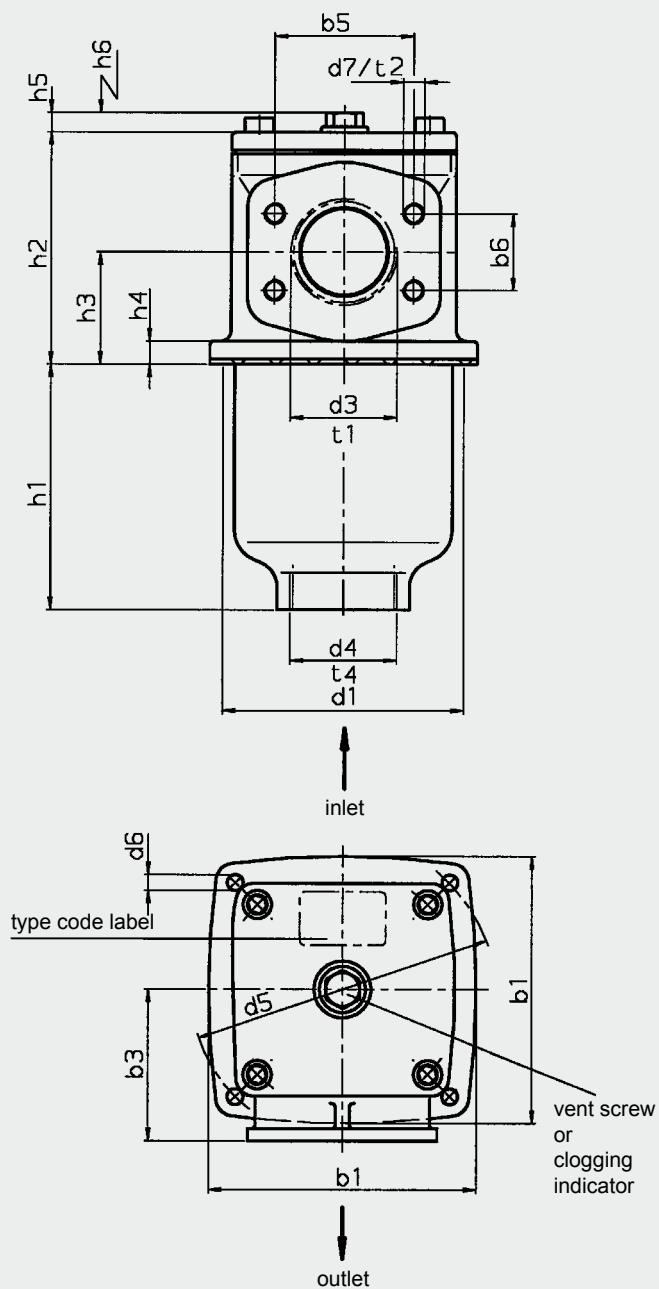
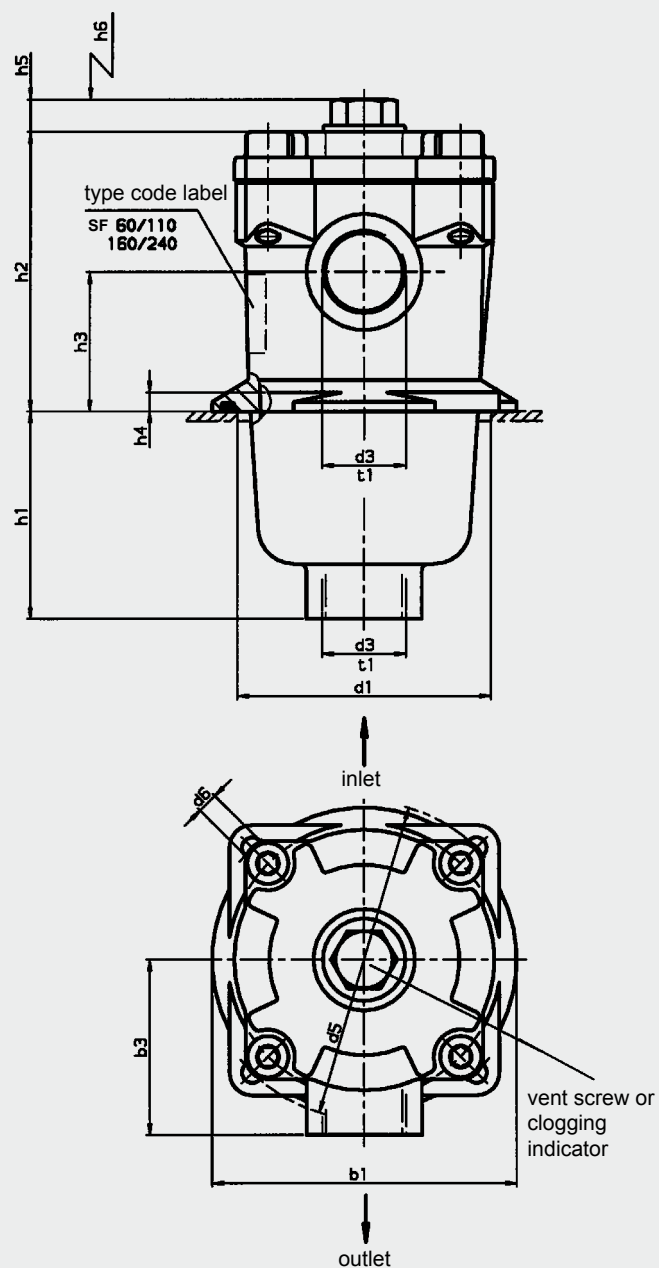
Type SUI



Type SGx

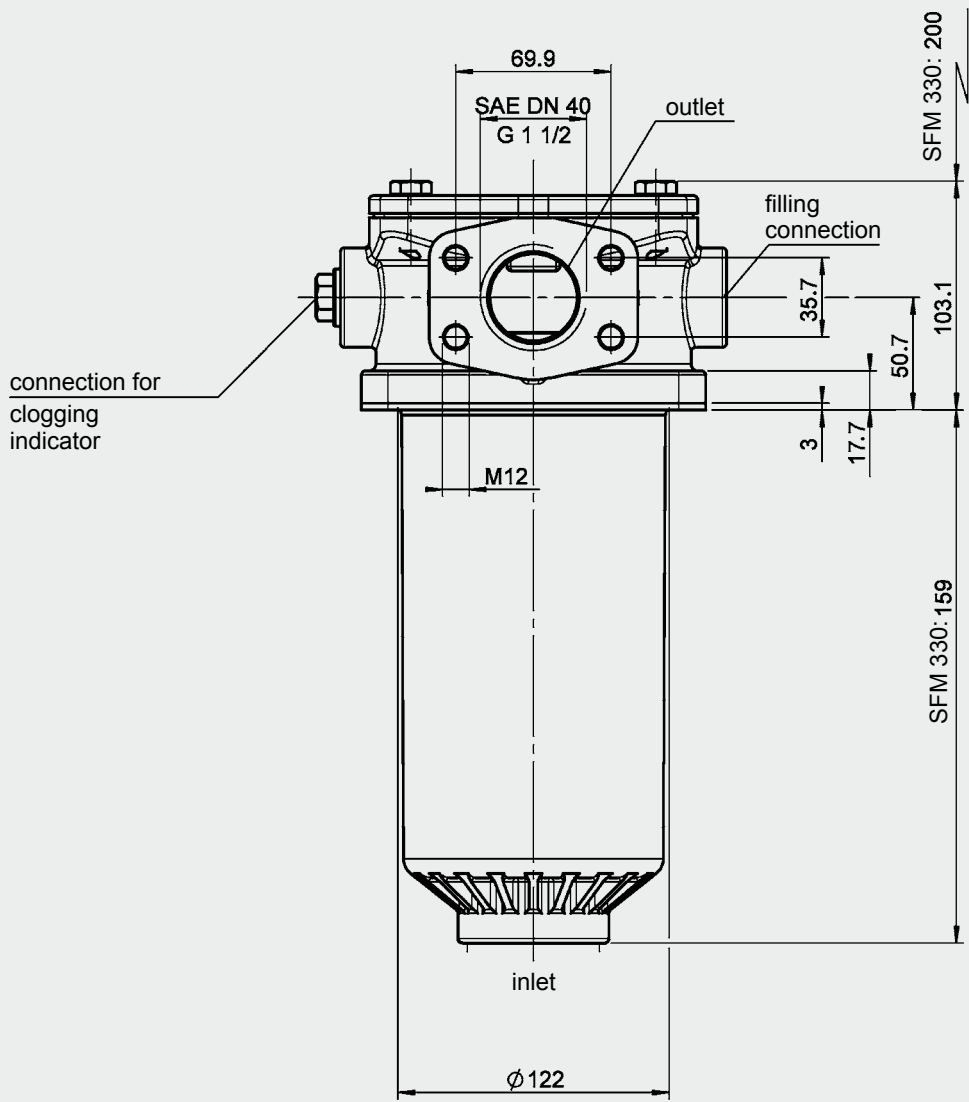


Designation	G	E	d	L1	L2	SW
0110 SHB 125 W	38.1	2½-12 UN 2 B	32	176	158	70
0070 SHB 125 W	32.0	1 7/8-12 UNF	25	176	158	55
0060 SHB 125 W	32.0	1 7/8-12 UNF	25	143	125	55
0070 SUI 125 W	1 1/16-12 UN	1 7/8-12 UNF	-	176	158	55
0060 SUI 125 W	1 1/16-12 UN	1 7/8-12 UNF	-	143	125	55
0110 SGF 125 W	G 1½	2½-12 UN 2 B	34	176	158	70
0070 SGD 125 W	G 1	2½-12 UN 2 B	25	176	158	60
0040 SGC 125 W	G ¾	1 7/8-12 UNF	20	143	125	55

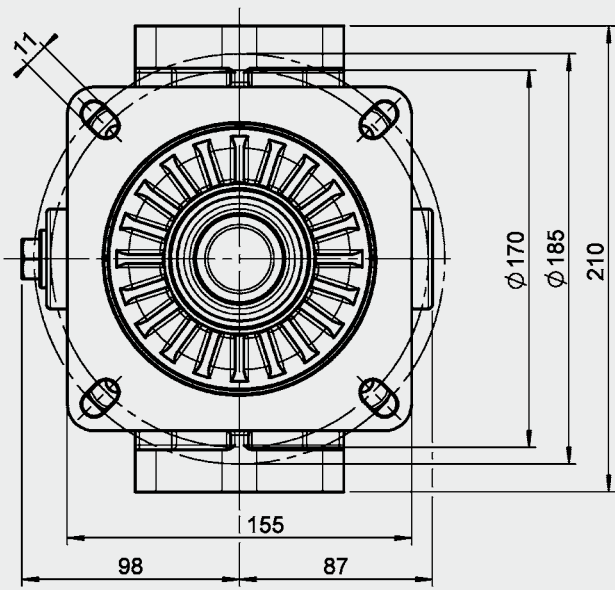


SF	b1	b3	b5	b6	d1	d3 <sup>1)</sup>	d4	d5	d6 <sup>2)</sup>	d7	h1	h2	h3	h4	h5	h6	t1	t2	t4	Weight incl. element [kg]	Volume of pressure chamber [l]
60	96	55	-	-	80	G ¾	-	100	M5	-	63	88	44	6	12	80	17	-	-	0.9	0.4
110	96	55	-	-	80	G ¾	-	100	M5	-	130	88	44	6	12	145	17	-	-	1.1	0.6
160	126	72	-	-	106	G 1¼	-	135	M6	-	89	108	54	6	12	120	20	-	-	1.8	1.0
240	126	72	-	-	106	G 1¼	-	135	M6	-	150	108	54	6	12	180	20	-	-	2.2	1.4
330	150	85	-	-	135	G2 SAE DN 50	G2	170	M8	-	138	131	63	13	12	180	27	-	27	4.1	2.0
			77.8	42.9						M12								23			

<sup>1)</sup> Threaded connection to ISO 228 / <sup>2)</sup> through-hole for bolt

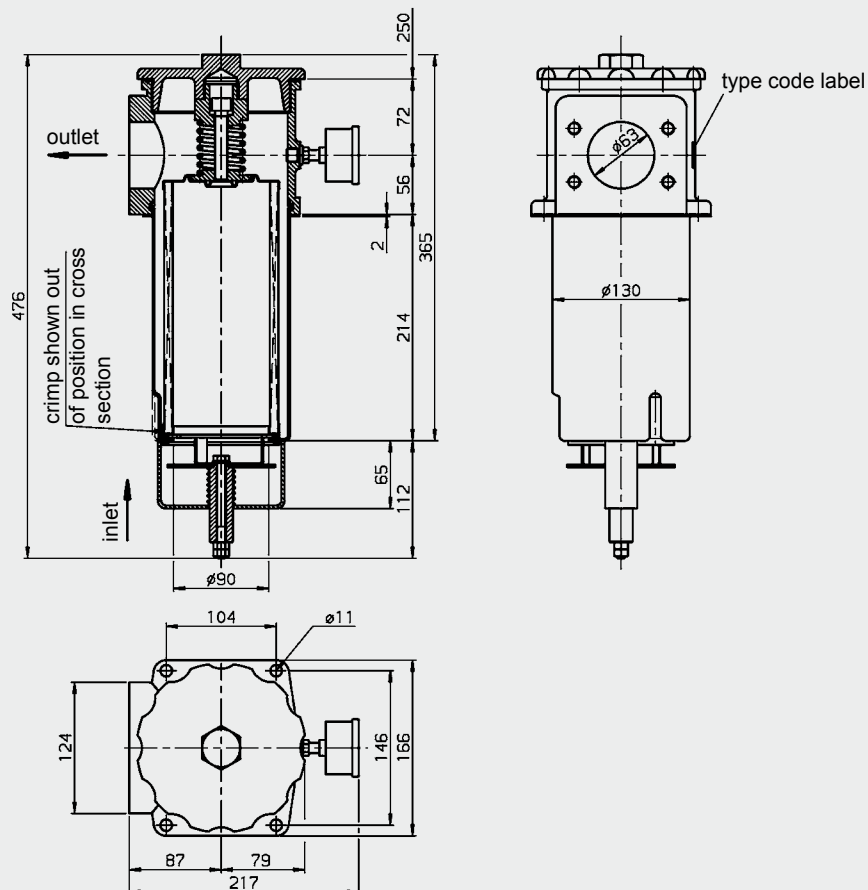


View from below

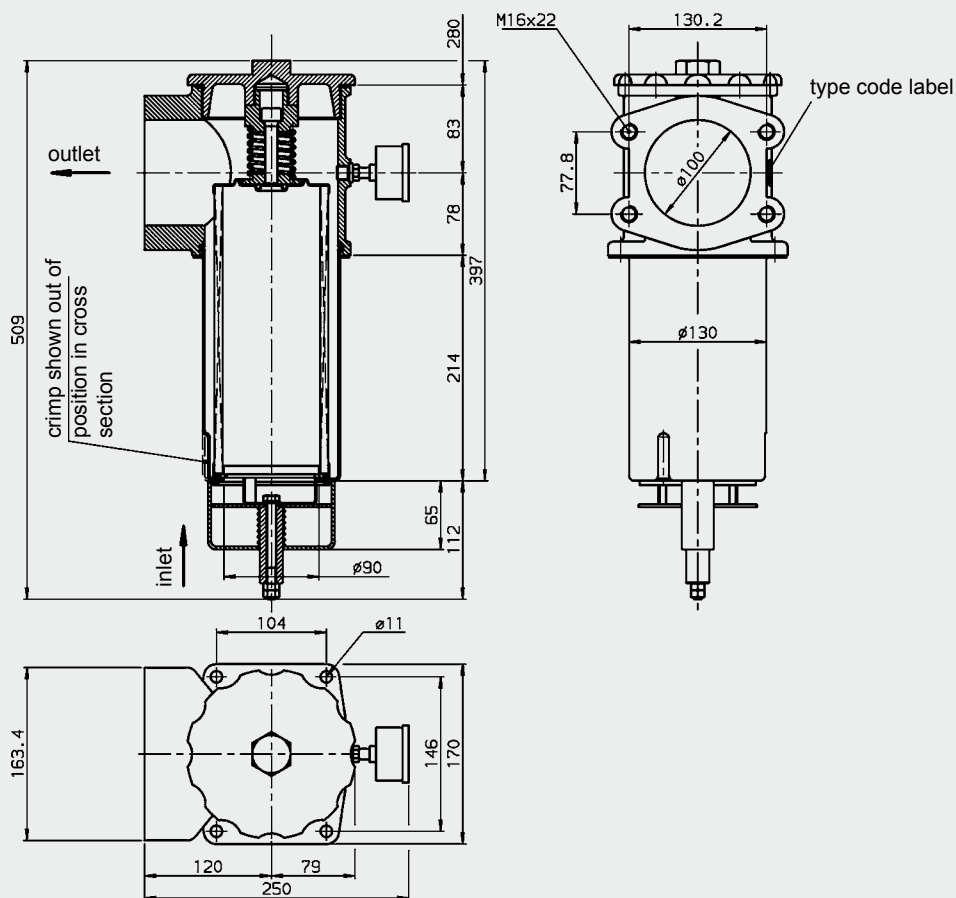


SFM	Weight including element [kg]	Volume of pressure range [l]
330	3.9	2.0

## SFF 400



## SFF 500



SFF	Volume of pressure chamber [l]
400	4.23
500	4.63

### NOTE

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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