Pressure Filter SF Technical Data

Technical Data

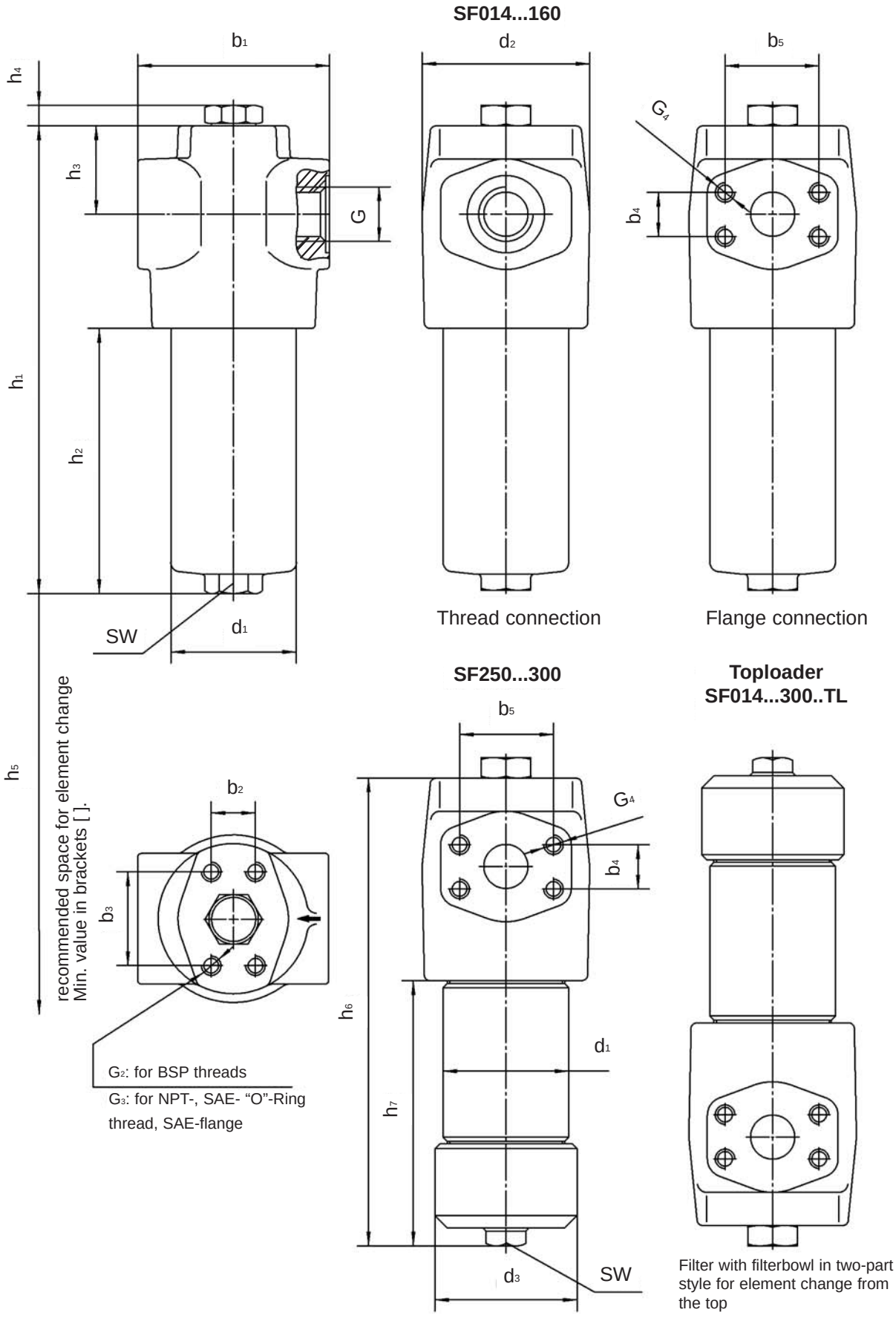
STAUFF high pressure filters are designed for in-line hydraulic applications, with a maximum operating pressure of 420 bar *(6000 PSI)*. Used together with STAUFF filter elements, a high efficiency of contaminant removal is assured. The high dirt holding capacity of the elements ensures long service life and, as a result, reduced maintenance costs.

Technical Specification

Construction	In-line assembly, with threaded mounting holes on top of head
Filter head	Spheroidal graphite cast iron
Filter bowl	Cold drawn steel
Seals	O-Rings NBR (Buna-N®) FPM (Viton®) EPDM (Ethylene-propylene), support ring PTFE
Port connections	BSP, NPT, SAE “O”-Ring thread or SAE Code 61 & 62 flange
Operating pressure	max 420 bar *(6000 PSI)*
Proof pressure	630 bar *(9100 PSI)*
Burst pressure	>1260 bar *(18250 PSI)*
Temperature range	-10°C up to +100°C *(14°F up to 212°F)*
By-pass valve	Allows unfiltered oil to by-pass the contaminated element once the opening pressure has been reached
Reverse flow valve	Allows reverse flow through the filter head without backflushing the element
Non-return valve	Prevents draining of the delivery line during element change
Multi-function valve	Forward by-pass, reverse flow capability and non-return valve opening pressure 6 $^{+0,5}$ bar (*87* $^{+7,25}$ *PSI*) Δp all in one valve
Clogging indicators	standard actuating pressure 5 $_{-0,5}$ bar (72 $_{-7,25}$ *PSI*)Δp execution indicators: visual, electrical and visual-electrical (24 V, 110 V, 220 V versions) other actuating pressures on request
Filter elements	Specifications see page 9
Media	Mineral oils, other fluids on request

Pressure Filter SF Dimensions

Dimensions



Dimensions in mm (inch)

Pressure Filter SF Dimensions

Dimensions

Filter Size	Thread connection G				Weight including elements			
	BSP	NPT	SAE- "O"-Ring thread	SAE - flange *6000 PSI*	with bowl in one-part style		with bowl in two-part style	
					kg	*lbs*	kg	*lbs*
SF014	G 3/4	3/4"	1 1/16-12 UN	3/4"	5,3	*11,7*	5,9	*13*
SF030					6,2	*13,7*	6,9	*15,2*
SF045	G 1 1/4	1 1/4"	1 5/8-12 UN	1 1/4"	10,3	*22,7*	12,2	*26,9*
SF070					12	*26,5*	13,7	*30,2*
SF125					16,3	*35,9*	20	*44,1*
SF090	G 1 1/2	1 1/2"	1 7/8-12 UN	1 1/2"	27	*59,9*	32	*70,5*
SF160					35,5	*78,3*	39,3	*86,5*
SF250					-	-	49	*108*
SF300					-	-	57,3	*126,3*

Filter Size	Dimensions														
					with filterbowl in one-part style Type SF					with filterbowl in two-part style Type SF...-TL					
	b_1	d_2	h_3	h_4	d_1	h_1	h_2	h_5	SW	d_1	d_3	h_6	h_7	h_5	SW
SF014	104 *(4,1)*	83 *(3,27)*	48 *(1,89)*	12,5 *(0,49)*	68 *(2,68)*	188 *(7,4)*	78 *(3,07)*	100 [85] *(3,94 [3,35])*	27 *(1,06)*	70 *(2,76)*	84 *(3,31)*	190 *(7,48)*	80 *(3,15)*	65 *(2,6)*	27 *(1,06)*
SF030						254 *(10)*	144 *(5,67)*	170 [85] *(6,69 [3,35])*				256 *(10,08)*	146 *(5,75)*	130 *(5,12)*	
SF045	140 *(5,51)*	116 *(4,57)*	49,5 *(1,95)*		95 *(3,74)*	239 *(9,41)*	103 *(4,06)*	140 [120] *(5,51 [4,72])*	32 *(1,26)*	101,6 *(4)*	115 *(4,53)*	241 *(9,49)*	103 *(4,06)*	100 *(3,94)*	32 *(1,26)*
SF070						298 *(11,73)*	161 *(6,34)*	200 [120] *(7,87 [4,72])*				300 *(11,81)*	163 *(6,42)*	160 *(6,3)*	
SF125						483 *(19,11)*	343 *(13,5)*	380 [120] *(14,96 [4,72])*				485 *(19,1)*	344 *(13,54)*	340 *(13,39)*	
SF090	178 *(7,01)*	159 *(6,26)*	72 *(2,84)*		130 *(5,12)*	323 *(12,72)*	148 *(5,83)*	190 [150] *(7,48 [5,91])*	36 *(1,42)*	133 *(5,24)*	155 *(6,1)*	329,5 *(12,97)*	154,5 *(6,08)*	120 *(4,72)*	36 *(1,42)*
SF160						494 *(19,45)*	319 *(12,56)*	360 [150] *(14,17 [5,91])*				500,5 *(19,71)*	325,5 *(12,82)*	290 *(11,42)*	
SF250						not available						656,5 *(25,85)*	481,5 *(18,96)*	425 *(16,73)*	
SF300						not available						821,5 *(32,34)*	646,5 *(25,45)*	590 *(23,23)*	

Filter Size	Dimensions Mounting Flange								Dimensions SAE-Flange *6000 PSI*		
	New Standard Style (for new engineering/constructions) TH				Old Style (running out, not for new engineering/constructions) T						
	b_2	b_3	G_2	G_3	b_2	b_3	G_2	G_3	b_4	b_5	G_4
SF014	32 *(1,26)*	56 *(2,21)*	M6x9	1/4 - 28 UNF x 0.35	23,8 *(0,94)*	50,8 *(2)*	M10x15	3/8 -16 UNC x 0.59	23,8 *(0,94)*	50,8 *(2)*	3/8-16 UNC
SF030											
SF045	35 *(1,38)*	85 *(3,35)*	M10x15	3/8 - 24 UNF x 0.59	31,6 *(1,24)*	66,7 *(2,63)*	M14x20	1/2-13 UNC x 0.79	31,6 *(1,24)*	66,7 *(2,63)*	1/2-13 UNC
SF070											
SF125											
SF090	60 *(2,36)*	115 *(4,53)*	M12x20	1/2 - 20 UNF x 0.79	36,7 *(1,45)*	79,4 *(3,13)*	M16x20	5/8-11 UNC x 0.79	36,7 *(1,45)*	79,4 *(3,13)*	5/8-11 UNC
SF160											
SF250											
SF300											

Dimensions in mm *(inch)*

Pressure Filter SF Valves

Valves

The optional valves are fitted as an insert in the filter head and incorporate the spigot on which the element seals. The valve is selected to suit the filter application.

HV-O **Non-by-pass standard insert** without any valve function. Element collapse rating should be higher than system pressure

HV-B **By-pass valve** which allows oil to bypass the element when the differential pressure across the element reaches $6^{+0,5}$bar *(87$^{+7,25}$ PSI)*. (Other pressure settings available on request). The opening pressure should be higher than the Δp setting of an optional clogging indicator. Low collapse (30 bar / *435 PSI* Δp) elements are normally used with this valve.

HV-R **Reverse flow valve** is used in systems where there is flow in reverse through the filter. It allows reverse flow without back-flushing the element but does not filter in the reverse direction. Element collapse rating should be higher than the system pressure.

HV-N **Non-return valve**
This valve prevents the oil in the delivery line from draining out while the filter is being serviced. Because there is no by-pass, the element collapse rating should be higher than system pressure.

HV-M **Multi-function valve**
This valve combines the by-pass, the reverse flow and the non-return functions in one unit. The by-pass opening pressure is $6^{+0,5}$ bar (*87$^{+7,25}$ PSI)* Δp with other opening pressures available on request. The opening pressure should be higher than the Δp setting of an optional clogging indicator. Low collapse (30 bar / *435 PSI* Δp) elements are normally used with this valve.

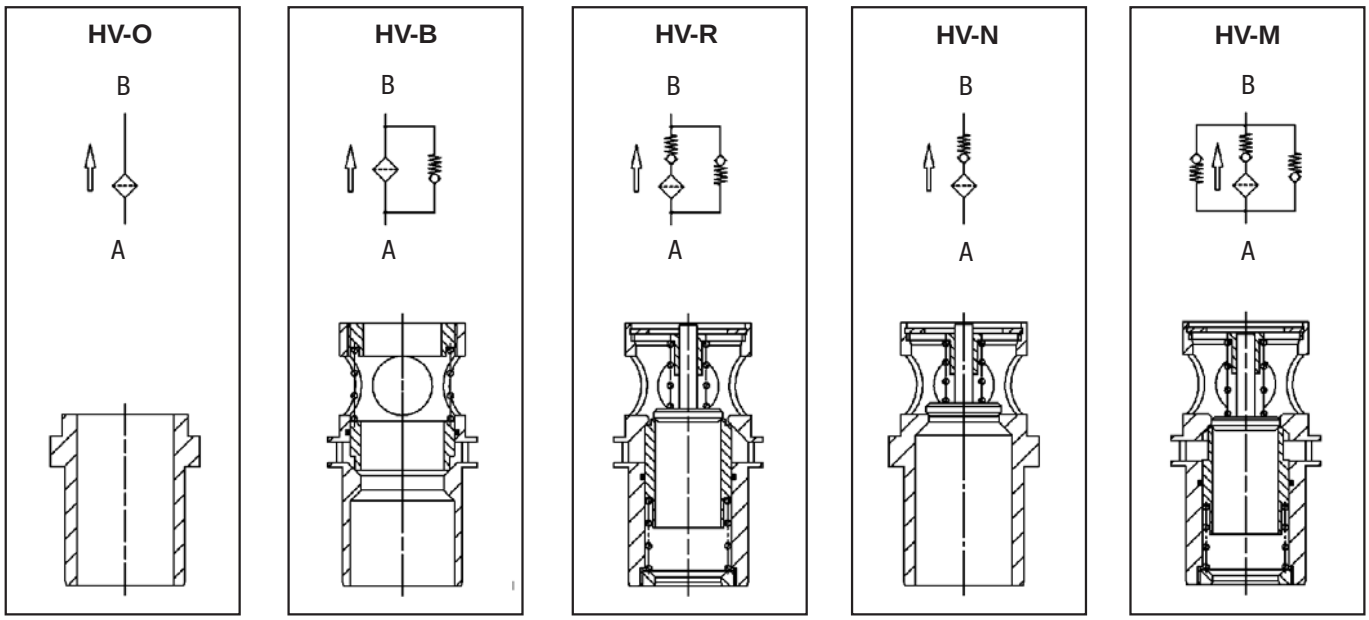
HV – M 014/030 /X

Valves

Code	Valve type
O	Non-bypass standard insert without any valve
B	By-pass Valve
R	Reverse Flow Valve
N	Non-Return Valve
M	Multi-Function Valve

Design Code
only for information

Filter Group
014/030
045/070/125
090/160/250/300



Flow characteristics of the valves see page 10

Pressure Filter SF Clogging Indicators

Clogging Indicators

STAUFF pressure filters have a range of clogging indicators available. If no indicator is specified, the port is sealed by a plug (HI-O). The clogging indicators are actuated by the differential pressure (Δp) across the element. The special piston design minimizes the effects of peak pressures in the system. An optional thermostatic lockout (thermo-stop) is available to prevent false indication under cold start conditions. Fluid temperature must be at least 20°C *(68°F)* for the indicator to function.

Technical Specification

Body	Stainless steel
Seals	NBR (Buna-N®), FPM (Viton®), EPDM Seal 18,5x23,9x2 *(0,73x 0,94x 0,08)* O-Ring 15,5x1,5 *(0,61x0,06)*
Thread	1/2" BSP
Differential pressure setting	$5_{-0,5}$ bar *($72_{-7,25}$ PSI)* (other settings on request)
Electrical	Standard DIN appliance plug, Screwed cable gland PG11, protection rating (DIN40050) IP65, both NO and NC contacts are available in the switch, rated capacity: see chart

The visual clogging indicators are available in the following configurations :

Manual reset	The indicator continues to display the clogged signal even through the Δp may have fallen. Pressing the plastic cover down will reset the indicator.
Automatic reset	The clogged signal will disappear when the Δp drops below the setting for the indicator.

Electrical and visual-electrical clogging indicators are only available with automatic reset.

HI – P T 220 B - 5,0B /X

Clogging Indicator

Code	Execution
O	plug
A	visual, automatic reset
V	visual, manual reset
E	electrical
P	visual-electrical

Thermostop

	without Thermostop
T	with Thermostop

Voltage (only for Code P)

24	24 V
110	110 V
220	220 V

Design Code

only for information

Differential pressure setting

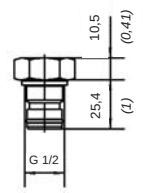
25P	*25 PSI* (1,72 bar)
2,0B	2,0 bar *(29 PSI)*
3,0B	3,0 bar *(43,5 PSI)*
5,0B	5,0 bar *(72,5 PSI)* (Standard)
7,0B	7,0 bar *(101,5 PSI)*

others on request

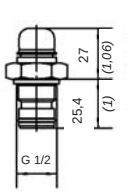
Sealing Material

B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM

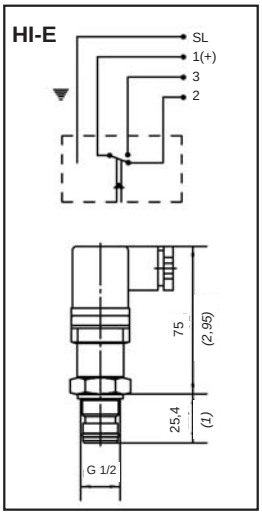
HI-O



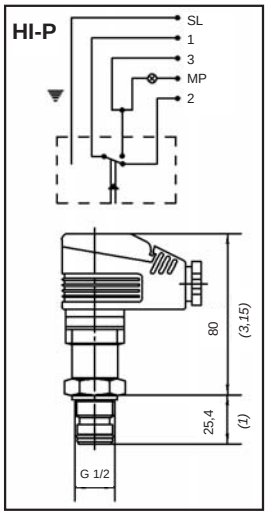
HI-A
HI-A



HI-E



HI-P



Rated Capacity HI-E and HI-P

Alternating current
250V AC 5 Amps

Direct current:
see table below

Voltage V	Resistive Load Amps	Inductive Load Amps
24	8,00	7,00
110	0,50	0,20
220	0,25	0,10

N.B. High voltage peaks occur when inductive loads are switched off.
Protective circuitry should be employed to reduce contact burnout.

Pressure Filter SF Ordering Code

Ordering Code Filter Housings

SF 014 ... V – TH B / B / PT 220 / TL /X

Filter type	SF

Group

Size	Flow *	
	l/min	GPM
014	60	14
030	110	30
045	160	45
070	240	70
090	330	90
160	660	160
250	990	250
300	1320	300

Note: Exact flow will depend on filter element selected. Consult Technical data on page 10 & 11

for complete filters:
identification filter material
+ micron rating code
(see ordering code filter elements below)

Seal material

B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM

other seal materials on request

Connecting Flange

TH	Type TH (new standard)
(T)	*Type T*

see table page 5
dimensions connecting flange
Type T is running out, please use only type TH for new engineering/constructions

Design Code
only for information

Style filterbowl

	with bowl in one-part style
TL	Toploader. with bowl in two-part style

Voltage (only for code P)

24	24 V
110	110 V
220	220 V

Thermostop

	without Thermostop
T	with Thermostop

Clogging indicator

	without clogging indicator
A	visual, with autom. reset
V	visual, with manual reset
E	electrical
P	visual-electrical

Valve

O	without valve
B	By-pass valve
R	Reverse flow valve
N	Non return valve
M	Multi-function valve

Connection style		Group								
Code	Connection style	014	030	045	070	125	090	160	250	300
B	BSP	G3/4		G1 1/4			G1 1/2			
B1	BSP	G1		G1 1/2			-			
N	NPT	3/4"		1 1/4"			1 1/2"			
U	SAE-"O"-Ring thread	1 1/16 – 12		1 5/8 – 12			1 7/8 – 12			
F	SAE-flange *(3000 PSI)*	3/4"		1 1/4"			1 1/2"			
F1	SAE-flange *(3000 PSI)*	1"		-			2"			
G	SAE-flange *(6000 PSI)*	3/4"		1 1/4"			1 1/2"			

Other port connections on request. Flanges do not belong to the scope of supply!

Ordering Code Filter Elements

SE-014 G 10 V /X

Series	SE

Group
according to filter housing

Filter material			Micron ratings available
Code	Material	max $\Delta p^*_{collapse}$	
A	Stainless fiber	210 bar *(3045 PSI)*	03, 05, 10, 20
G	Inorganic glass fiber	30 bar *(435 PSI)*	
H	Inorganic glass fiber	210 bar *(3045 PSI)*	
B, **S**	Stainless mesh	30 bar *(435 PSI)*	25, 50, 100, 200

*collapse / burst resistance as per ISO 2941

Bold type identifies preferred material, other materials or micron ratings on request

Design Code
only for information

Seal material

B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM

other seal materials on request

Micron rating

03	3 µm
05	5 µm
10	10 µm
20	20 µm
25	25 µm
50	50 µm
100	100 µm
200	200 µm

other micron ratings on request

Pressure Filter SF Filter Elements SE

Replacement Filter Elements for SF Series

STAUFF replacement filter elements for SF series filters are manufactured in the common filter materials such as stainless fiber, stainless mesh, paper and inorganic glass fiber. As standard all replacement elements series SF have tin plated steel parts for use with aggressive media such as water glycol, other materials available on request. All STAUFF replacement elements comply with quality specifications in accordance with international standards.

SE-014 G 10 V /X

Series	SE

Group
according to filter housing

Filter material			Micron ratings available
Code	Material	max $\Delta p^*_{collapse}$	
A	Stainless fiber	210 bar *(3045 PSI)*	03, 05, 10, 20
G	Inorganic glass fiber	30 bar *(435 PSI)*	
H	Inorganic glass fiber	210 bar *(3045 PSI)*	
B, **S**	Stainless mesh	30 bar *(435 PSI)*	25, 50, 100, 200
*collapse / burst resistance as per ISO 2941			

Bold type identifies preferred material, other materials or micron ratings on request

Design Code
only for information

Seal material	
B	NBR (Buna®)
V	FPM (Viton®)
E	EPDM
other seal materials on request	

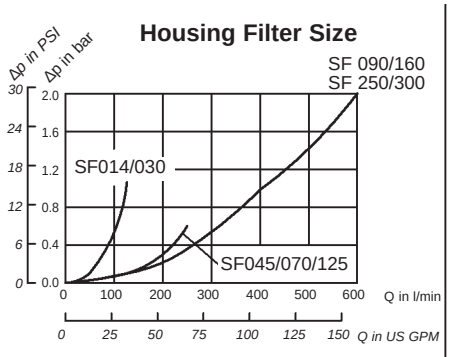
Micron rating	
03	3 µm
05	5 µm
10	10 µm
20	20 µm
25	25 µm
50	50 µm
100	100 µm
200	200 µm
other micron ratings on request	

Pressure Filter SF Flow Characteristics

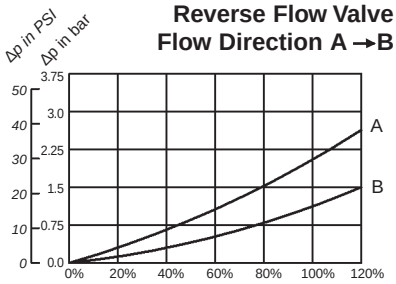
Flow Characteristics of Pressure Filters

The following characteristics are valid for mineral oils with a density of 0,85 kg/dm³ and the kinematic viscosity of 30 mm²/s. The characteristics have been determined in accordance to ISO 3968.

Housing Filter Size

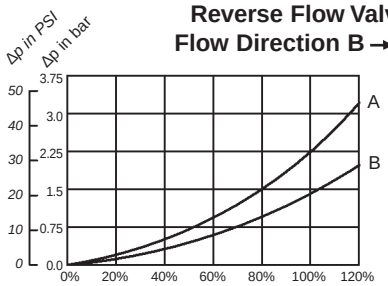


Reverse Flow Valve Flow Direction A → B



Q as a percentage of the nominal flow

Reverse Flow Valve Flow Direction B → A



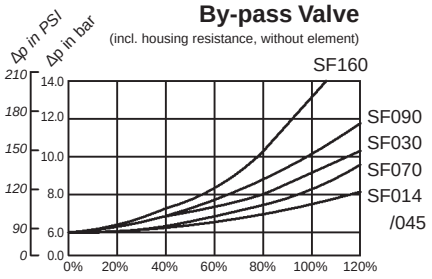
Q as a percentage of the nominal flow

A= Filter Size SF 030/070/125/160/250/300 B= Filter Size SF 014/045/090

Characteristics of the multi-function valve are approximately 15% higher than those of the reverse flow valve

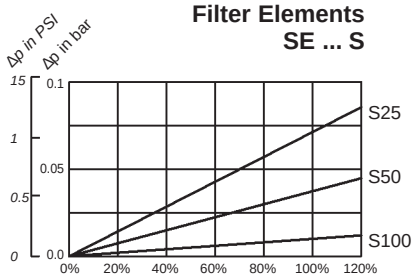
By-pass Valve

(incl. housing resistance, without element)



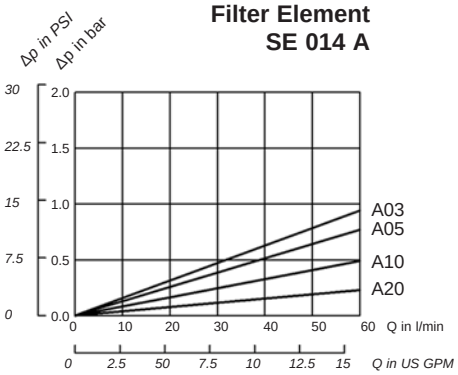
Characteristics of the multi-function valve are approximately 5% higher than those of the by-pass valve.

Filter Elements SE ... S

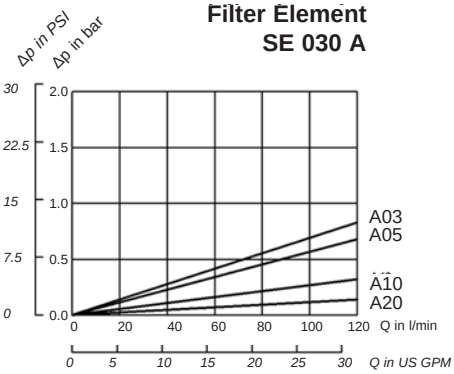


Q as a percentage of the nominal flow

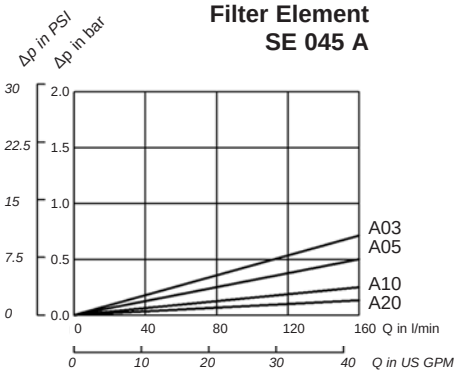
Filter Element SE 014 A



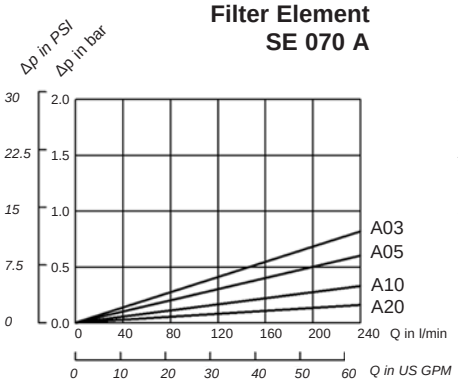
Filter Element SE 030 A



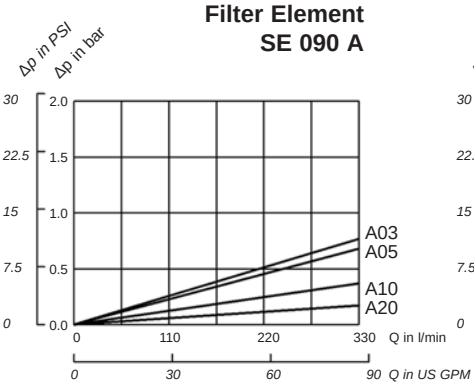
Filter Element SE 045 A



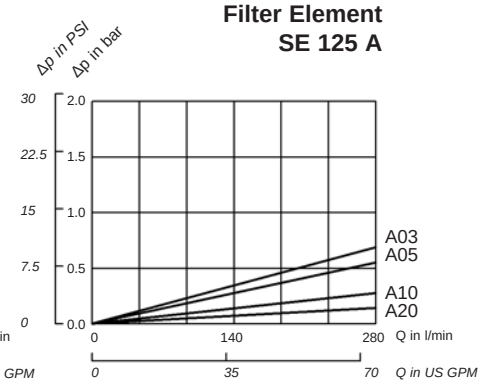
Filter Element SE 070 A



Filter Element SE 090 A



Filter Element SE 125 A

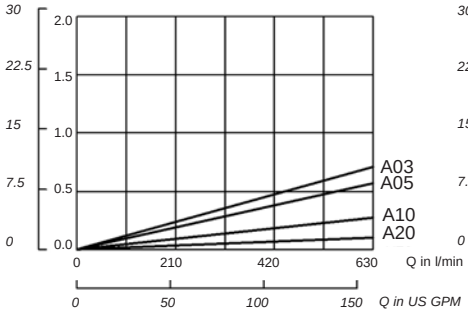


Pressure Filter SF Flow Characteristics

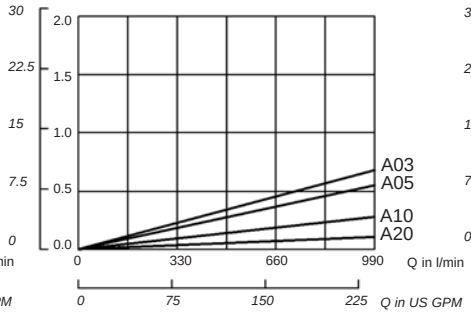
Flow Characteristics of Pressure Filters

The following characteristics are valid for mineral oils with a density of 0,85 kg/dm³ and the kinematic viscosity of 30 mm²/s. The characteristics have been determined in accordance to ISO 3968.

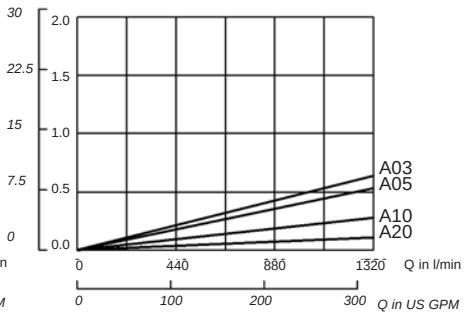
Filter Element SE 160 A



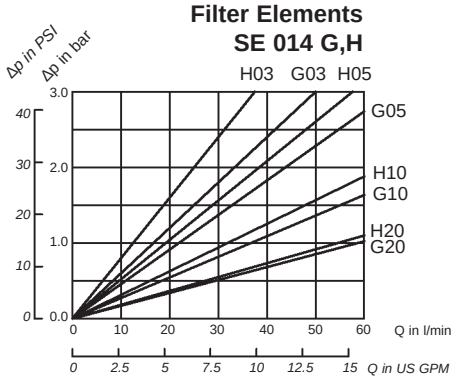
Filter Element SE 250 A



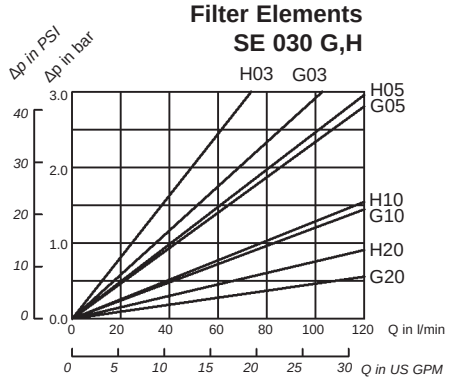
Filter Element SE 300 A



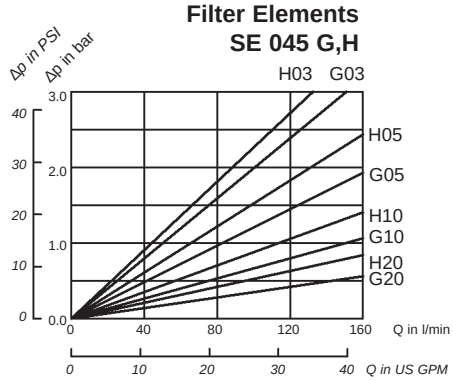
Filter Elements SE 014 G,H



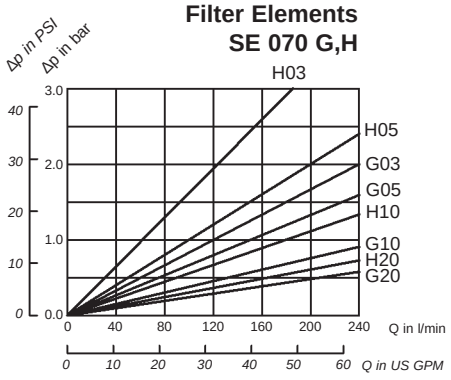
Filter Elements SE 030 G,H



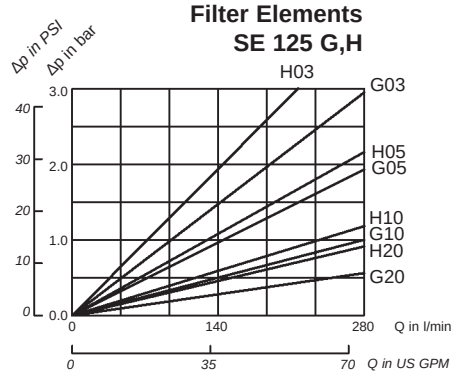
Filter Elements SE 045 G,H



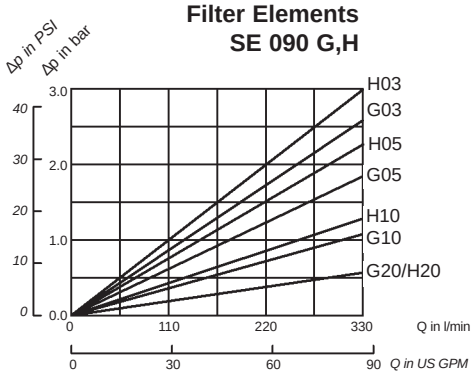
Filter Elements SE 070 G,H



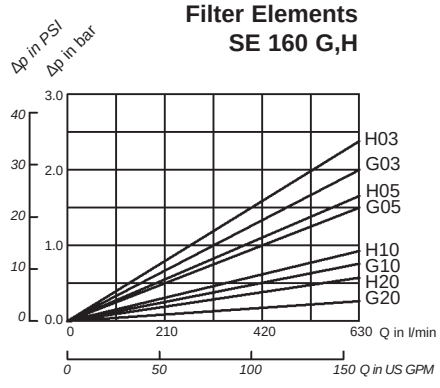
Filter Elements SE 125 G,H



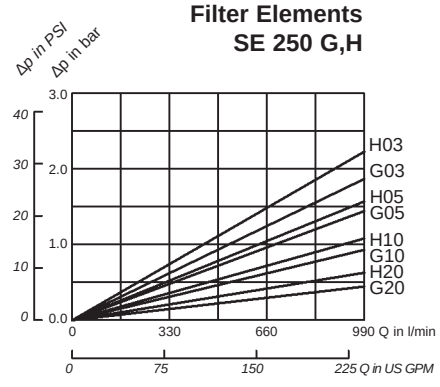
Filter Elements SE 090 G,H



Filter Elements SE 160 G,H



Filter Elements SE 250 G,H



Filter Elements SE 300 G,H