

FILTER ELEMENT - VSF

(Particulate + Bacteria removal + Sterile)

DESCRIPTION

The VSF filter element was developed for highly efficient sterile filtration of compressed air, process air and technical gasses. Depth filter medium made of borosilicate glass microfibers ensures highly efficient removal of submicron particles down to $0,01\mu\text{m}$ including microorganisms (bacteria). The filter medium supported with NOMEX* is rigidly held between two stainless steel cylinders and encapsulated between stainless steel end-caps. This results in exceptionally strong filter element that ensures highly efficient filtration and allows a large number of sterilization cycles.

APPLICATIONS

- Packing industry
- Chemical industry
- Food & beverage industry
- Biotechnology
- Dairies
- Pharmaceutical industry
- Breweries
- Fermentation processes
- Hospitals



FILTER ELEMENT RATING ACCORDING TO ISO8573-1

Solid particles	Water	Oil
Class 1	-	-

Validated according to ISO12500-3

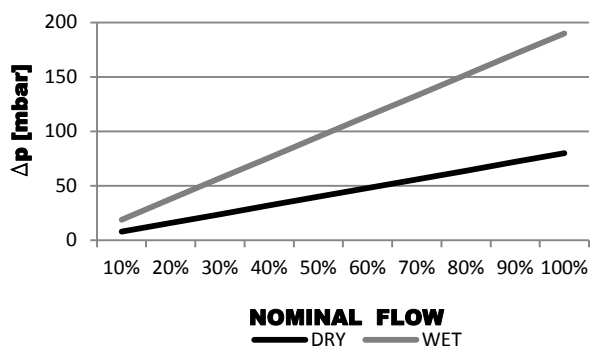
MICROBIOLOGICAL EFFICIENCY¹

Test organism	% Efficiency	Titer reduction
<i>Brevundimonas diminuta</i>	>99.999999991	$>1.16 \times 10^{10}$
MS-2 Coliphage	>99.9999999901	$>1.02 \times 10^{11}$

¹The microbiological efficacy was independently evaluated by Public Health England (PHE). The challenge test was conducted on 0730- VSF filter element using aerosolised microorganisms, at 1050 L/min, under negative pressure, at $22\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ and $42\% \pm 5\%$ relative humidity.

TECHNICAL SPECIFICATION

Operating temperature	-20 / +150°C	-4 / +302 °F
Short duration temperature limit (max 15min)	200 °C	392 °F
Differential pressure (dry)	80 mbar	1,160 psi
Differential pressure (wet)	190 mbar	2,756 PSI
Particle retention (nominal)	99,9999% (0,01 μm)	
100% integrity tested (DOP test)		✓
Manufactured without use of binders or other chemical additives		✓
All components meet the FDA requirements for contact with food in accordance with the Code of Federal Regulations (CFR), title 21		✓



MATERIALS

Filter media	Borosilicate micro fibers
Support media	NOMEX*
Support (inner-outer)	Stainless Steel 1.4301
Bonding	Silicone
Endcaps	Stainless Steel 1.4301
Sealing	Silicone

*Nomex is a registered trademark of E.I. du Pont de Nemours and Co. In

SIZES

FILTER ELEMENT SIZE	DIMENSIONS [mm]	FLOW CAPACITY [Nm ³ /h]	FLOW CAPACITY [scfm]	FITS INTO FILTER HOUSING	
				SF	SPF
0310	Ø=42;L=76	75	44	SF 006	SPF 005
0410	Ø=42;L=104	105	62	SF 009	SPF 007
0420	Ø=52;L=104	150	88	SF 012	SPF 010
0520	Ø=52;L=128	225	132	SF 018	SPF 018
0525	Ø=62;L=128	315	185	/	SPF 030
0530	Ø=86;L=128	315	185	SF 032	/
0725	Ø=62;L=180	420	247	/	SPF 047
0730	Ø=86;L=180	600	353	SF 048	SPF 070
1030	Ø=86;L=254	900	530	SF 072	SPF 094
1530	Ø=86;L=381	1260	742	SF 108	SPF 150
2030	Ø=86;L=508	1680	989	SF 144, SF 432	SPF 175
3030	Ø=86;L=760	2400	1413	SF 192, SF 576 (3X), SF 768 (4X), SF 1152 (6X), SF 1536 (8X), SF 1920 (10X)	SPF 200
3050	Ø=140;L=762			SF 006	SPF 240

Ø=Diameter;L=length

CORRECTION FACTORS

To calculate the correct capacity of a given filter based on actual operating conditions, multiply the nominal flow capacity by the appropriate correction factor(s).

CORRECTED CAPACITY = NOMINAL FLOW CAPACITY x C_{OP}

OPERATING PRESSURE

[bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
[psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232
C _{OP}	0,38	0,5	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13

STERILIZATION (saturated steam)

Cumulative steaming time:

- 121°C/250°F, Sterilization 30min, Heating and cooling 30min (100 cycles)
- 132°C/270°F, Sterilization 20min, Heating and cooling 40min (100 cycles)
- 143°C/290°F, Sterilization 10min, Heating and cooling 50min (100 cycles)

MAINTENANCE

Replace filter element when first of the following criteria is reached:

- twelve months in operation
- as required by application
- prescribed number of sterilisation cycles

Please note that all VSF (sterile) filter elements are delivered unsterile in unsterile packaging! Please sterilize the filter elements before first use if needed for the application.

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