PROCESS AIR

Our sterile filters are all FDA CFR article 21 / EC 1935/2004 validated and approved. “Sterile” means “free of microorganisms that are capable of reproducing themselves”.

A more scientific definition of sterile is that a filter is defined as a sterilising filter when exposed to a concentration of 107 microorganisms (Brevundimonas diminuta) per. cm2 filter area and the filtrate is 100% sterile and therefore not containing microorganisms, such as bacteria.

Coli and streptococci typically have a size between 0,3 microns and 9 microns, resulting in that the sterile filter has a Filtration of 0,2 microns or better.

DEPTH FILTER:

A depth filter typically consists of multiple layers of metallic, polymeric or inorganic material. This type of filter is distinguished by a high filtration capacity and a high degree of security during use and sterilisation. It utilizes various filtration mechanisms, such as inertia and Brownian motion, to increase its filtration efficiency.

MEMBRANE FILTER:

A membrane filter is made of polymeric plastic film - typically polypropylene, these filters have less particle retention capacity, which can be solved by pre-filtration. The membranes have a 99,999998% retention rate and are available in several filtration degrees.

For the food industry, the recommended standard is a depth filter, and

for use in the pharmaceutical, fine chemical or biotech industries, we recommend membrane filters. Both filters are installed at the point of use.

It is recommended to install a central desiccant dryer as well as a coalescing microfilter and activated carbon filter, to ensure dry, oil and particle-free compressed air at the sterile filters, thereby extending the life of the filter.

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PROCESS AIR PREFILTER ELEMENT

P-FF | P-MF | P-SMF | P-AK

TECHNICAL DATA

- 0,2µm
- Borosilicate
- 20°C, available up to 200°C
- Silicone (others available)
- 99,99998%
- Stainless Steel SS304
- Max. 5 bar

DESCRIPTION:

All our standard coalescing, particulate and activated carbon filters are available as pre-filters for our stainless-steel filter housings designed for the most critical installations.

Thanks to the unique combination of binder-free, non-woven nanofiber filter media and our special pleating techniques, we can achieve a reduction of energy costs up to 70%, at a higher than regular efficiency.

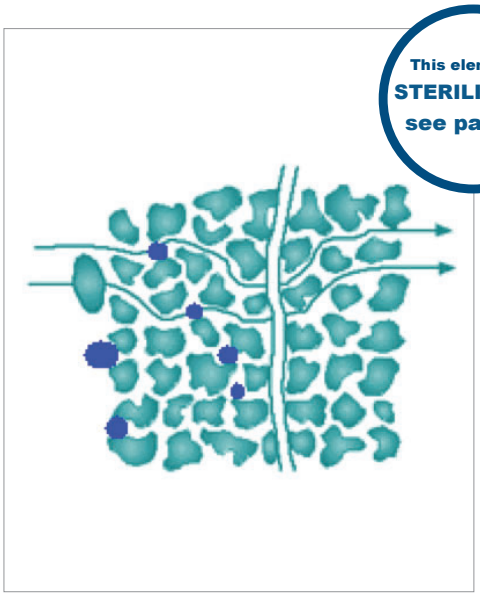
The new nanofiber material from Ultrafilter is oleophobic, which means that the oil and water particles are actively rejected to keep a low differential pressure drop. Consequently, the operating costs are reduced to a minimum compared with a conventional filter element.

All metal components on the prefilter elements are constructed of stainless steel.

Type	Filtration rate	Efficiency	Residual oil content	Max. differential pressure
P-FF	0,01 µm	99,999%	0,1 mg/m³	5 bar at 20°C
P-MF	0,01 µm	99,99998%	0,03 mg/m³	5 bar at 20°C
P-SMF	0,01 µm	99,99999%	<0,01 mg/m³	5 bar at 20°C
P-AK	Activated Carbon	N/A	0,003 mg/m³	2 bar at 20°C

STERILE DEPTH FILTER ELEMENT

P-SRF | P-SRF-N



This element is STERILISABLE see page 44

TECHNICAL DATA

- 0,2µm
- Borosilicate
- 20°C, available up to 200°C
- Silicone (others available)
- 99,99998%
- Stainless Steel SS304
- Max. 5 bar

DESCRIPTION:

The P-SRF is a depth filter with inner and outer guard end caps made of stainless steel. Consisting of a three-dimensional borosilicate depth media, the P-SRF achieves a void volume of 95%, ensuring a high containment capacity at high flow rates and low differential pressures. A retention rate of >99.99998% related to 0.2 µm is achieved during operation. The P-SRF N is available as a pleated sterile air filter.

DEPTH FILTER:

A depth filter typically consists of multiple layers of metallic, polymeric or inorganic material. This type of filter is distinguished by a high filtration capacity and a high degree of security during use and sterilisation. It utilises various filtration mechanisms, such as inertia and Brownian motion, to increase its filtration efficiency.

PROCESS AIR FILTER HOUSING

P-EG

TECHNICAL DATA

- SS304 or SS316L
- PED, ASME CRN
- 200°C (250°C as option)
- EPDM seals (others on request)
- 0006-0192: 16bar
  0288: 12bar
  0432-1920: 10 bar at 200°C
  25 bar on request


BSP


ASA / Weld


DIN / ANSI


NPT

DESCRIPTION:

P-EG filter housings in stainless steel are designed for the purification of compressed air technical gases and steam.

The Ultrafilter P-EG housing is engineered for low differential pressures at high flow rates. It is available in 18 different sizes from 60 to 19200 Nm3/hour.

The P-EG is the first-choice housing for process air applications. Such as pre-filtration, sterile filtration and steam filtration.

Model	Flow m³/h	Connection in/out			Filter Element	
		BSP	ASA	DIN	Size	Qty
P-EG 0006	60	R ¼"	DN10	DN10	03/10	1
P-EG 0009	90	R 3/8"	DN10	DN10	04/10	1
P-EG 0012	120	R ½"	DN15	DN15	04/20	1
P-EG 0018	180	R ¾"	DN20	DN20	05/20	1
P-EG 0027	270	R 1"	DN25	DN25	05/25	1
P-EG 0036	360	R 1¼"	DN32	DN32	07/25	1
P-EG 0048	480	R 1½"	DN40	DN40	07/30	1
P-EG 0072	720	R 2"	DN50	DN50	10/30	1
P-EG 0108	1080	R 2"	DN50	DN50	15/30	1
P-EG 0144	1440	R 2½"	DN65	DN65	20/30	1
P-EG 0192	1920	R 3"	DN80	DN80	30/30	1
P-EG 0288	2880	R 3"	DN80	DN80	30/50	1
P-EG 0432	4320	N/A	N/A	DN100	20/30	3
P-EG 0576	5760	N/A	N/A	DN100	30/30	3
P-EG 0768	7680	N/A	N/A	DN150	30/30	4
P-EG 1152	11520	N/A	N/A	DN150	30/30	6
P-EG 1536	15360	N/A	N/A	DN200	30/30	8
P-EG 1920	19200	N/A	N/A	DN200	30/30	10

Correction factor:

Operating pressure	bar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction factor	K1	0,25	0,36	0,5	0,6	0,75	0,9	1	1,1	1,2	1,4	1,5	1,6	1,75	1,9	2	2,1

STERILE MEMBRANE FILTER

ULTRA-MEM PF-PT | PF-PP

This element is STERILISABLE see page 44

TECHNICAL DATA

- 0,02µm, 0,1µm 0,2 µm, 0,45 µm
- ePTFE & Polypropylene
- -20°C to 80°C
- Silicone (others available)
- 99,99998%
- Code 7 (others available)
- Max. 6 bar at 20°C

DESCRIPTION:

For critical applications in sterile filtration, use of a hydrophobic PTFE membrane is recommended, especially in applications such as pharmaceutical industry and biotechnology.

For certain chemicals and applications, polypropylene membranes are available.

MEMBRANE FILTER:

A membrane filter is made of polymeric plastic film - typically polypropylene, these filters have less particle retention capacity, which is solved by pre-filtration. The membranes have a 100% retention rate and are available in several filtration degrees.

Model	PF-PT	PF-PP
Filtration rates	0,02 to 0,45 µm	0,1 to 0,2 µm
Material	ePTFE	Polypropylene
Applications		
Sterile process gases	•	•
Fine chemicals and solvents		•
Photoresists and developers		•
Biotechnology	•	
Powder handling and tabletting	•	•

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SANITARY AIR FILTER HOUSING

PG-EG

TECHNICAL DATA

- 304 or 316L
- PED
- Ra 0,8 (0,4 optional)
- EPDM (others available)
- 200°C
- Code Y (UF) or Code 7
- 0006-0192: 16bar
  0432-1920: 10 bar

Tri-clamp ASME

Dairy Union DIN 11851

Flange EN1092-1

Weld End

DESCRIPTION:

PG-EG stainless steels have been developed for the purification of compressed air and other technical gases in pharmaceutical, biotechnology and chemical industries.

PG-EG houses are the first choice in critical applications in sterile filtration.

All PG-EG filter housings to a specific size have been etched and passivated on the inner surface to quality of Ra 0,8.

Model	Flow m³/h	Connection (clamp)	Filter Element	
			Size	Qty
PG-EG 0032	45	DN25	05/30	1
PG-EG 0072	90	DN40	10/30	1
PG-EG 0108	135	DN50	15/30	1
PG-EG 0144	180	DN65	20/30	1
PG-EG 0192	270	DN80	30/30	1
PG-EG 0432	540	DN100	20/30	3
PG-EG 0576	810	DN100	30/30	3
PG-EG 0768	1080	DN150	30/30	4
PG-EG 1152	1620	DN150	30/30	6
PG-EG 1536	2160	DN200	30/30	8
PG-EG 1920	2700	DN200	30/30	10

Correction factor:

Operating pressure	bar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction factor	K1	0,25	0,36	0,5	0,6	0,75	0,9	1	1,1	1,2	1,4	1,5	1,6	1,75	1,9	2	2,1

STEAM FILTER

P-GS

Viton Seal
-15 / +200°C

PTFE Seal
-200 / +260°C

Silicone Seal
-55 / +200°C

Welded End Caps

TECHNICAL DATA

- 1µm, 5µm or 25 µm
- Sintered steel SS316L
- -20°C to 210°C
- EPDM (others available)
- 98% (steam) 100% gases
- Stainless steel SS304 Code Y (UF), DOE or Code 7 (others available)
- Max. 5 bar

DESCRIPTION:

The Ultrafilter P-GS filters are designed for removal of particles from steam liquids and gases.

The P-GS consists of a weldless filter pipe made from sintered stainless steel. The filter is well suited for culinary steam – where contact with production machines and the end product is needed.

The P-GS is suited for use in temperatures ranging from -20°C to 210°C and has a maximal differential pressure tolerance of 5 bar.

Applications	1 µm	5 µm	25 µm
Food Contact	•		
General use of steam		•	
Pre-filtration of steam			•

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STERILE TANK FILTER

P-BE

This element is STERILISABLE see page 44

TECHNICAL DATA

- 0,2µm
- Borosilicate, stainless steel housing
- -20°C to 200°C
- Silicone (others available)
- 99,999%
- Stainless steel SS304

DESCRIPTION:

P-BE filters are used to ensure 100% sterility in the storage vessels of pharmaceutical products, chemicals, food or of fermenters. The filter acts as a sterile breather for the content of the vessel. The P-BE is a depth filter and works both ways, and protects the surrounding area from exposure to the contents of the vessel.

The two-part housing is user-friendly designed and has splash protection to prevent liquids coming in contact with the filter media.

The filter element can be sterilised for continuous use up to 100 times. Regeneration is done by in-line steam or externally in an autoclave.

Model	Flow (m³/h)		Connection*	Filter Element	
	Δp = 20 mbar	Δp = 40 mbar		Size	Qty
P-BE 0006	5	9	DN32	03/10	1
P-BE 0027	12	24	DN40	05/25	1
P-BE 0032	17	35	DN50	05/30	1
P-BE 0072	35	70	DN50	10/30	1
P-BE 0144	70	140	DN80	20/30	1
P-BE 0192	105	210	DN80	30/30	1
P-BE 0432	210	420	DN100	20/30	3
P-BE 0576	315	630	DN100	30/30	3
P-BE 0768	420	840	DN150	30/30	4
P-BE 1152	630	1260	DN150	30/30	6
P-BE 1536	840	1680	DN200	30/30	8
P-BE 1920	1050	2010	DN200	30/30	10

*Milk Pipe fitting acc. DIN 11851 or flange acc. DIN 2633

PROCESS MESH FILTER

P-SM

TECHNICAL DATA

- 5 bar
- SS mesh 1.4301
- -20°C to 200°C
- EPM (others available)
- Stainless steel SS 1.4301

DESCRIPTION:

Pre and final filter with absolute retention rate for particle removal from ageous solutions, water and other liquids, as well as gases.
The P-SM consists of a regenerable stainless steel mesh, with stainless steel outer guard and end caps.
The retention rate extends from 5 µm up to 250 µm. Larger retention rates upon request.

Dimensions					
Element Size	A mm	B mm	Ø C mm	Ø D mm	Correction Factor
03/10	76	12	3/4"	42	0,12
04/10	104	12	3/4"	42	0,17
04/20	104	14	1"	52	0,19
05/20	104	14	1"	52	0,19
05/25	128	14	1"	62	0,32
05/30	128	16	2"	86	0,46
07/25	180	14	1"	62	0,47
07/30	180	16	2"	86	0,68
10/30	254	16	2"	86	1,00
15/30	381	16	2"	86	1,55
20/30	508	16	2"	86	2,10
30/30	762	16	2"	86	3,28
30/50	762	16	2"	140	5,89

STERILISATION

STERILISATION PROCEDURE

Both depth and membrane sterile filters can be sterilised in-line with steam or externally by autoclave. It is recommended to sterilise a sterile filter after every production batch or at least after 14 days.

Sterilisation temperature is between 110°C - 140°C, respectively for 30 and 10 min.

1. Valve (1) and valve (4) closes.

2. Drain valve (2) opens.

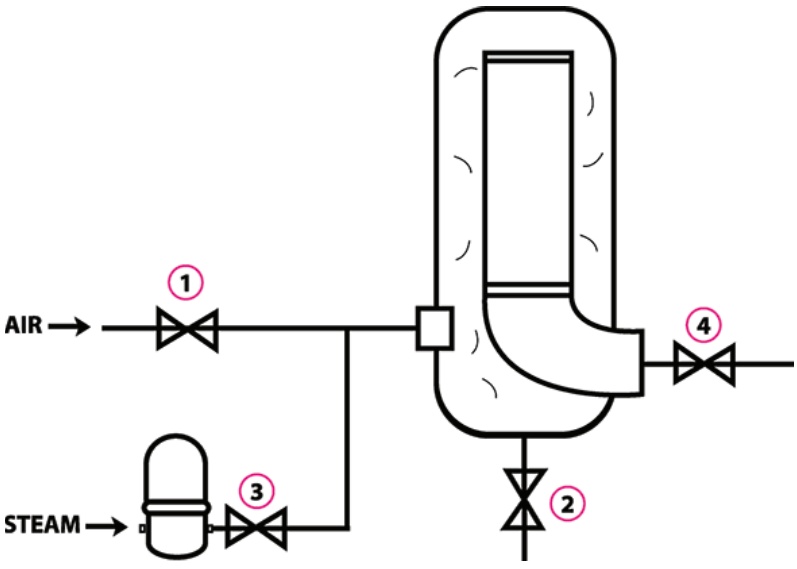
3. Valve (3) opens and steam flow into the filter housing.

4. After reaching a temperature of 100 ° C, the steam begins to condense at the same time that there is only opened to the valve (2), the pressure being built up to the desired steriliation temperature.

5. After reaching the steam, the temperature starts the actual sterilisation within the ages:

- Saturated steam 121 ° C - 30 minutes
- Saturated steam 131 ° C - 20 minutes
- Saturated steam 141 ° C - 10 minutes

When sterilisation rounded cast of valve (2), after which valve (3) & (1) open slowly and valve (4) closes gradually - and then start the process over again.



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