Donaldson
FILTRATION SOLUTIONS

PROCESS FILTRATION
FROM PURE TO STERILE

LifeTec™ (P)-SRF E

MAIN FEATURES & BENEFITS

- Developed for the sterile filtration of air and gases in compressed air applications in the electronics and semiconductor industry
- High retention rate (bacteria, viruses and particles) down to 3 nm (nanometers) to ensure product and process integrity
- High temperature and mechanical resistance for outstanding performance, minimizes production down time and maintenance costs
- Suitable for sterilization ,using VPHP and ozone - this leads to reduced total cost of ownership

PRODUCT DESCRIPTION

The LifeTec™ (P)-SRF E filter element is a pleated depth filter element with inner and outer liners and end caps made from stainless steel. The retention rate is >99.99999995 % related to 0.2 µm and >99.99999995% related to 0.02 µm. The retention for nano-sized particles (0.003 µm) is larger than 99.999999991 % as verified in a DIN EN 1822 adopted test.

Among a very high dirt holding capacity the LifeTec™ (P)-SRF E filter shows a low differential pressure and a high temperature tolerance. The filter element fulfils the stringent requirements in the semiconductor and electronics industry and works reliable even under extreme operating conditions. Noble gases, inert gases or ordinary gas mixtures might be filtered down to nano-dimensional level.

The sturdy stainless steel construction permits more than 160 possible sterilization cycles at specified conditions and withstands high differential pressures in both flow directions. LifeTec™ (P)-SRF E sterile filter elements ensure a safe and reproducible production.

INDUSTRIES

- Electronic
- Electrochemical
- Semiconductor
- Environment
- Chemical

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PRODUCT SPECIFICATIONS

Features	Specifications
Retention rate	> 99.99999995 % at 0.2 µm > 99.99999995 % at 0.02 µm > 99.999999991 % at 0.003 µm
Filtration surface	0.3 m² per 10" element (254 mm) For other element sizes see correction factor CF in section "Available end cap configurations"
Operating Temperature	-20 °C (-4 °F) to +200 °C (+392 °F)
Maximum differential pressure	5 bar (73 psid) for -20 °C (-4 °F) up to +200 °C (392 °F), independent of the system pressure or flow direction
Typical compressed air service life time	12 months
Sterilisation cycles*	121 °C (250 °F) saturated steam: >160 cycles (30 minutes) 131 °C (270 °F) saturated steam: >160 cycles (20 minutes) 141 °C (290 °F) saturated steam: >160 cycles (10 minutes) Independent of flow direction; forward and reversed steam flow possible
VPHP suitable	130 °C @ > 5000 ppm H_2O_2 > 50 hours

* Figures are based on lab tests to evaluate steaming resistance. Filter elements need to be checked in actual use. Contact Donaldson for recommended autoclaving / steaming procedures.

APPLICATIONS

The pleated sterile depth filter LifeTec™ (P)-SRF E is designed and developed for the following applications:

Filtration of air and gases in

- photo paint
- ion donation
- oxidation and diffusion ovens
- wafer drying
- aerospace technology
- filtration of solvents
- gas supply and automatic control systems

QUALITY ASSURANCE

All products have been inspected and released by Quality Assurance as having met the following requirements:

- All filters are fabricated without the use of chemical additives.
- All sterile filters are integrity tested according to ASTM D 2986-91 and EN 1822 to verify compliance with established quality and design specifications and to assure consistent and reliable performance.
- A factory certificate of compliance (2.2) according to DIN EN 10204 is available upon request.

MATERIAL DECLARATION (US & EU)

All components of the LifeTec™ (P)-SRF E filter cartridge are FDA listed for indirect food contact use in the Code of Federal Regulations (CFR), Title 21. Donaldson Filtration Deutschland GmbH confirms that all materials used for the (P)-SRF E elements meet regulatory and legislative requirements and guidelines for indirect food contact as detailed in European Regulation (EC) Number 1935/2004.

Filter materials		CFR Title 21
Filtermedium	Borosilicate	177.2260
Impregnation	PTFE	177.1550
Up- and downstream support	Stainless steel 1.4301	211.65
Inner and outer liner	Stainless steel 1.4301	211.65
Up- and downstream support media	PTFE	177.1550
End caps	Stainless steel 1.4301	211.65
Potting material	Silicone	177.2600
O-rings	Silicone	177.2600
Alternative o-rings	EPDM FEP over silicone FEP over viton	177.2600 177.1550 177.1550

RETENTION OF PARTICLES

The LifeTec™ (P)-SRF E sterile filter elements were challenged with an aerosol containing specified particle sizes for a defined time.

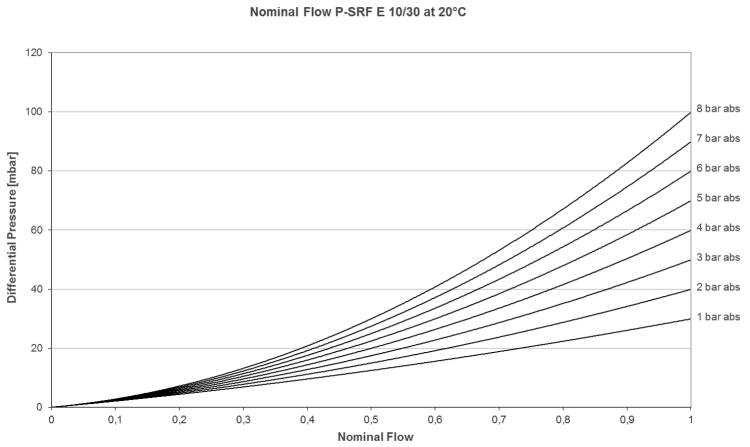
$$LRV = log10\left(\frac{Number\ of\ organisms\ in\ challenge}{Number\ of\ organisms\ in\ filtrate}\right)$$

Particle ≥ 0.2 µm:
LRV > 9
Particle ≥ 0.02 µm:
LRV > 9
Particle ≥ 0.003 µm:
LRV > 10

FLOW CHARACTERISTICS

Type (P)-SRF E		Flow at 7 barg [m³/h]	
housing	element	nominal*	maximum
0006	03/10	60	90
0009	04/10	90	120
0012	04/20	120	180
0018	05/20	180	270
0027	05/25	270	360
0036	07/25	360	480
0048	07/30	480	720
0072	10/30	720	1080
0108	15/30	1080	1440
0144	20/30	1440	1920
0192	30/30	1920	2280
0288	30/50	2880	4320

*The given nominal flow rate in the table represents 100 % nominal air flow in the diagram.



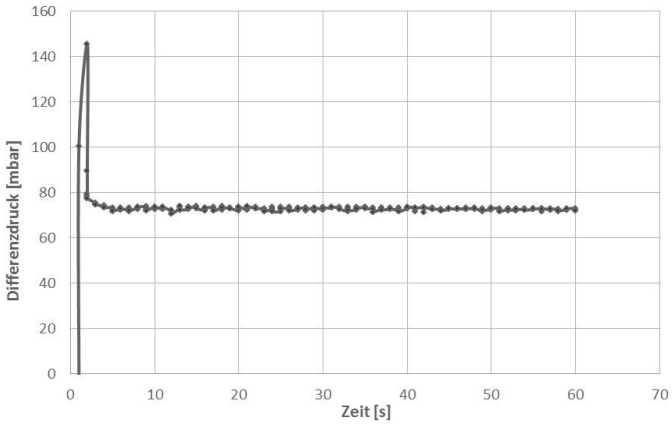
Pressure [barg]	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction Factor [-]	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13

Nominal and maximum flow for other pressures can be calculated with the above correction factors.

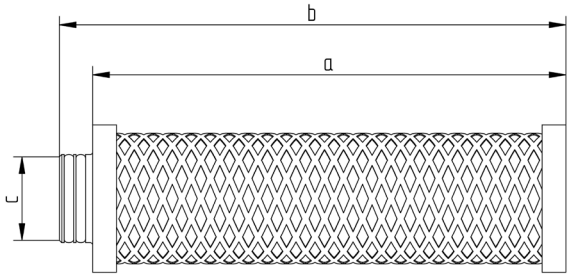
$$\dot{V}_{corrected} = \frac{\dot{V}_{nominal}}{Correction\ Factor}$$

DEWETTING CHARACTERISTICS

De-wetting characteristic of a LifeTec™ (P)-SRF E 10/3 after steaming at 1 barg (121 °C) for 30 minutes. Flow is 140 Nm³/h at 2 bar absolute. Normal operating conditions are reached after ~20 seconds.



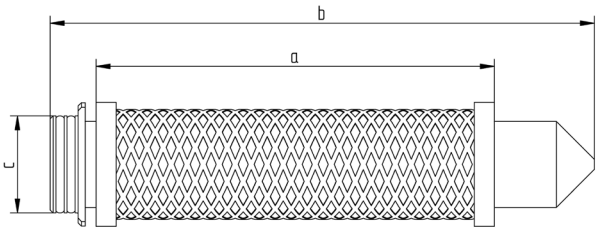
AVAILABLE END CAP CONFIGURATIONS



Dimensions uf-plug connection							
	a		b		c*		
Size	mm	inch	mm	inch	mm	inch	CF**
03/10	76	2.99	87	3.42	30	1.18	0.15
04/10	104	4.09	118	4.64	30	1.18	0.20
04/20	104	4.09	118	4.64	37	1.46	0.20
05/20	128	5.04	142	5.59	37	1.46	0.25
05/25	128	5.04	142	5.59	37	1.46	0.34
07/25	180	7.08	194	7.64	37	1.46	0.49
05/30	128	5.04	142	5.59	61	2.40	0.49
07/30	180	7.08	196	7.71	61	2.40	0.70
10/30	254	10	270	10.63	61	2.40	1.00
15/30	381	15	397	15.63	61	2.40	1.51
20/30	510	20	526	20.63	61	2.40	2.02
30/30	764	30	780	30.63	61	2.40	3.03
30/50	764	30	780	30.63	89	3.50	3.03

* Uf-plug connection with double-o-ring

** Correction factor filtration surface



Dimensions Code 7 connection						
	a		b		c	
Size	mm	inch	mm	inch	mm	inch
5"	125	4.92	190	7.48	56,5	2.22
10"	250	9.84	315	12.40	56,5	2.22
20"	500	19.68	585	22.24	56,5	2.22
30"	750	29.53	815	32.08	56,5	2.22

CODE 7: 2 x 226 o-rings, bayonet 2 locking tabs, locating fin

Other end cap configurations on request

For more information, please contact your Donaldson Sales Engineer and visit our website at www.donaldson.com!

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Contact us

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