Donaldson
FILTRATION SOLUTIONS

Process Filtration
From pure to sterile
(P)-SRF C

MAIN FEATURES & BENEFITS

- Developed for the sterile filtration of air and gases in compressed air applications
- 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 (P)-SRF C 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.

The (P)-SRF **C** was developed for the safe and sterile filtration of **c**ompressed air and other process gases. The filter element fulfils the high requirements in food and beverage industries (dairies, food processing, soft drinks) as well as in pharmaceutical industries and works reliable even under extreme operating conditions.

The depth filter medium complies with the FDA (Food and Drug Administration) requirements CFR Title 21 (211.72 latest edition) and (EC) No. 1935/2004 for indirect food contact use.

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

INDUSTRIES

- Dairies

- Food

- Breweries

- Pharmaceutical

- Chemical

Donaldson®
Ultrafilter

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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 m^2 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 (P)-SRF C is designed and developed for the following applications:

Filtration of air and gases

- Compressed Air
- Carbon Dioxide
- Fermentation Air
- Technical Gases

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 (P)-SRF C 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 C 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 MIKROORGANISMS

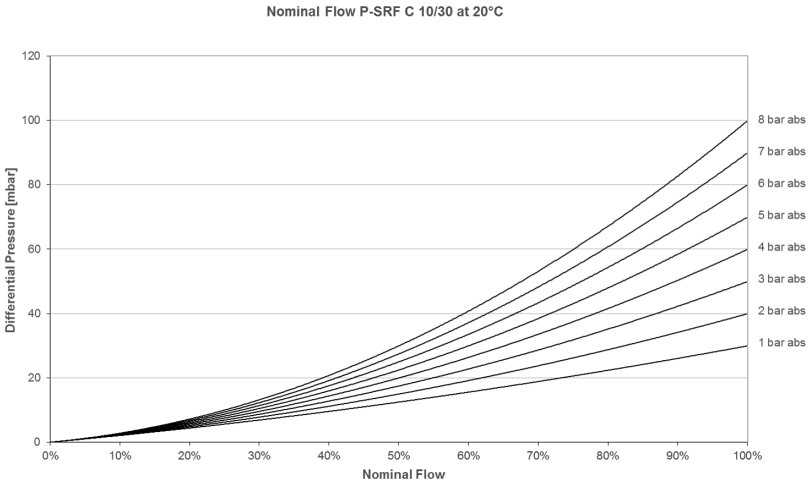
The (P)-SRF C sterile filter elements were challenged with a specified bacteria, phage and particle aerosol for a defined time. Down stream analysis of the filtered air was done using impactor or impinger.

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

- **Brevundimonas Diminuta (≥ 0.2 µm):**
  LRV > 9
- **MS2 Coliphagen (≥ 0.02 µm):**
  LRV > 9
- **Nano-sized particles (≥ 0.003µm):**
  LRV > 10

FLOW CHARACTERISTICS

Type (P)-SRF C		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.

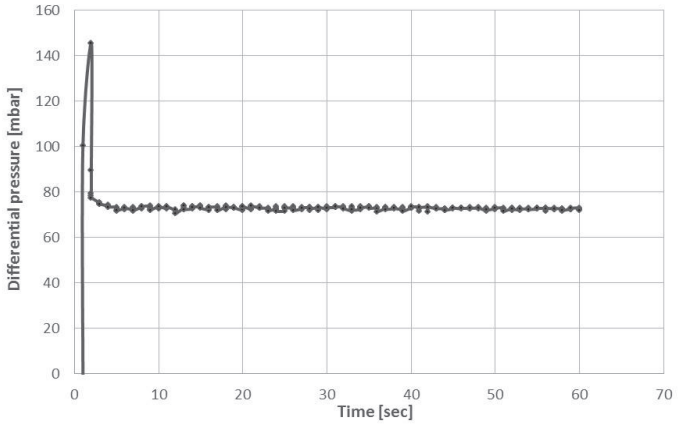
Pressure [barg]	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction Factor [-]	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13

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

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

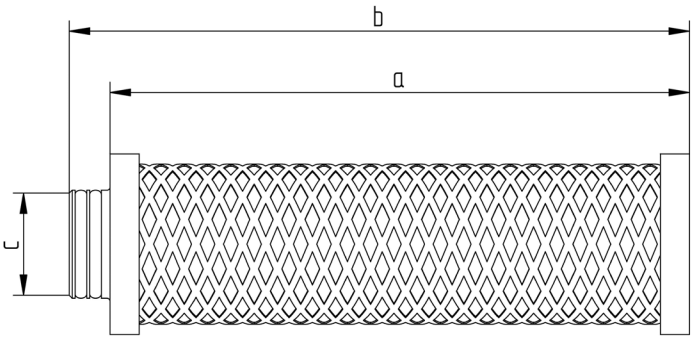
DE-WETTING CHARACTERISTICS

De-wetting characteristic of a (P)-SRF C 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

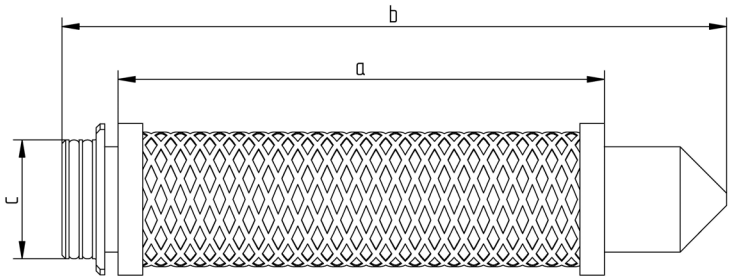
Dimensions uf-plug connection							
	a		b		c*		
Size	mm	inch	mm	inch	mm	inch	CF**
03/10	76	2.99	87	3.42	30	1.18	0.15
04/10	104	4.09	118	4.64	30	1.18	0.20
04/20	104	4.09	118	4.64	37	1.46	0.20
05/20	128	5.04	142	5.59	37	1.46	0.25
05/25	128	5.04	142	5.59	37	1.46	0.34
07/25	180	7.08	194	7.64	37	1.46	0.49
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**!

Donaldson® Ultrafilter