

Donaldson's P-SRF X series of pleated sterile membrane filters offer exceptional filtration performance for compressed air and technical gases within the processed food and beverage industry. These elements provide:

- Hydrophobic Tetratex ePTFE media with excellent de-wetting characteristics
- Log 9 reduction for 0.2 micron contaminants
- Stainless steel construction that permits up to 250 steam sterilization cycles and resistance to extreme operating conditions
- Compatibility with VPHP and ozone sterilization process
- Non-fiber releasing filter medium that is compliant with CFR title 21 and EC/1935/2004

The P-SRF X sterile filter elements are a premier option to help protect your product and process integrity.



**P SRF-X**

FEATURES	BENEFITS
Robust stainless steel construction with Tetratex ePTFE media	Suitable for use in harsh environments where high temperature steam, vapor phase hydrogen peroxide (VPHP) or Ozone are used for sterilization
High retention rate of contaminants that are 3 nanometers or larger	Helps ensure product and process integrity in critical applications
High temperature and mechanical resistance for outstanding performance	Minimizes production down time and maintenance costs
Reduced de-wetting time for faster drying post-sterilization cycle	Leads to reduced total cost of ownership
Rated for up to 250 steam sterilization cycles	Provides longer service life and fewer annual change outs

## INDUSTRIES AND APPLICATIONS

The P-SRF X pleated sterile membrane filter is designed and developed for the following industries and applications:

### Industries

- Food and beverage
- Food ingredients
- Distilled Spirits
- Breweries
- Dairy
- Wine

### Applications

- Ingredient carbon dioxide
- Nitrogen blanketing
- PET bottle blowing
- Fermentation air
- Aseptic packaging

## RETENTION OF MICROORGANISMS

The procedure for microbiological evaluation is outlined by HIMA\*. The filter element was challenged with a minimum of 10<sup>7</sup> viable *Brevundimonas diminuta* microorganisms to each square centimeter of effective filtration area. The bacterial challenge is quantified by expressing the filter element efficiency to remove the challenge organism from the challenge suspension as a Log Reduction Value (LRV).

LRV = Log<sub>10</sub> (quantity of organisms in the challenge minus quantity of organisms after filtration)

***Brevundimonas diminutas* (>= 0.2 µm)    LRV > 9**

**MS2 Coliphage (>= 0.02 µm)    LRV > 8**

## SPECIFICATIONS

Retention Rate	>99.999999998% at 0.2 µm >99.999999998% at 0.02 µm >99.99999998% at 0.003 µm
Filtration Surface	5.4 ft² per 10 inch element (254 mm) (For other element sizes see Correction Factors Filtration Surface Area)
Operating Temperature	-4°F to 392°F
Maximum Differential Pressure	73 psid (-4°F to 392°F), regardless of the system pressure or flow direction
Typical Compressed Air Service Life	12 months

\* HIMA - Health Industry Manufacturers Association, known as AdvaMed.

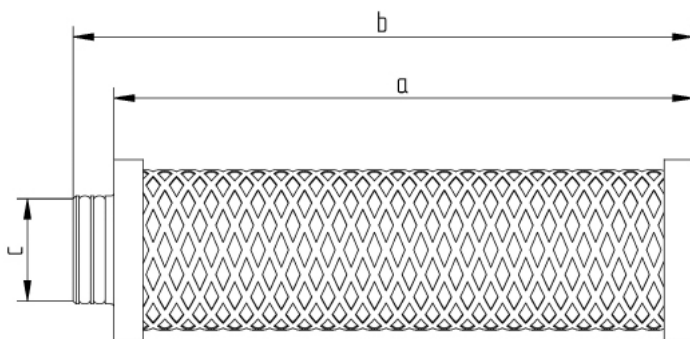
## MATERIAL COMPLIANCE (US & EU)

All components of the P-SRF X filter cartridge are FDA listed for food contact use in the Code of Federal regulations (CFR), Title 21. Donaldson confirms that all materials used for the P-SRF X elements meet regulatory and legislative requirements and guidelines for indirect food contact as detailed in European Regulation (EC) Number 1935/2004. These articles are intended for indirect food use in filtration of gases, therefore migration testing has been limited to an atmospheric and watery environment.

MATERIALS		CFR TITLE 21
Filter Media	PTFE	177.2660
Upstream Support	304 SS	211.65
Downstream Support	304 SS	211.65
Outer Liner	304 SS	211.65
Inner Liner	304 SS	211.65
Up- and downstream support media	PTFE	177.1550
End Caps	304 SS	211.65
Poting Compound	Silicone	177.2600
O-Rings Standard	Silicone	177.2600
O-Rings Optional	EPDM FEP over silicone FEP over Viton®*	

\* Viton is a registered trademark of DuPont Performance Elastomers L.L.C.

## DIMENSIONS



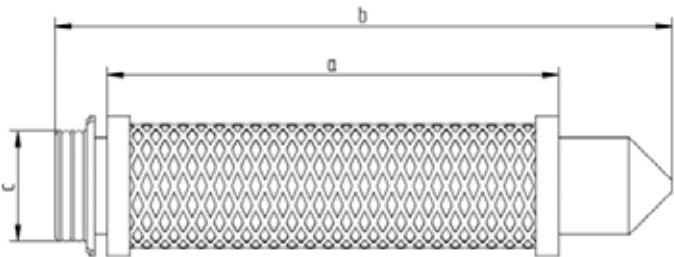
## UF PUSH-IN CONNECTION

Element Size	Dimensions (inches)			Correction Factors**
	A	B	C*	
03/10	2.99	3.42	1.18	0.15
04/10	4.09	4.64	1.18	0.20
04/20	4.09	4.64	1.46	0.20
05/20	5.04	5.59	1.46	0.25
05/25	5.04	5.59	1.46	0.34
07/25	7.08	7.64	1.46	0.49
05/30	5.04	5.59	2.40	0.49
07/30	7.08	7.71	2.40	0.70
10/30	10.00	10.63	2.40	1.00
15/30	15.00	15.83	2.40	1.51
20/30	20.00	20.63	2.40	2.02
30/30	30.00	30.63	2.40	3.03

\* UF plug connection with double O-Ring

\*\* Correction factors filtration surface area

DIMENSIONS



CODE 7 CONNECTION

Element Size	Dimensions (inches)		
	A	B	C
5"	4.92	7.48	2.22
10"	9.84	12.40	2.22
20"	19.68	22.24	2.22
30"	29.53	32.08	2.22

Code 7: 2 x 226 O-Rings, 2 bayonet locking tabs, locating fin

Other end cap configurations available upon request

QUALITY ASSURANCE

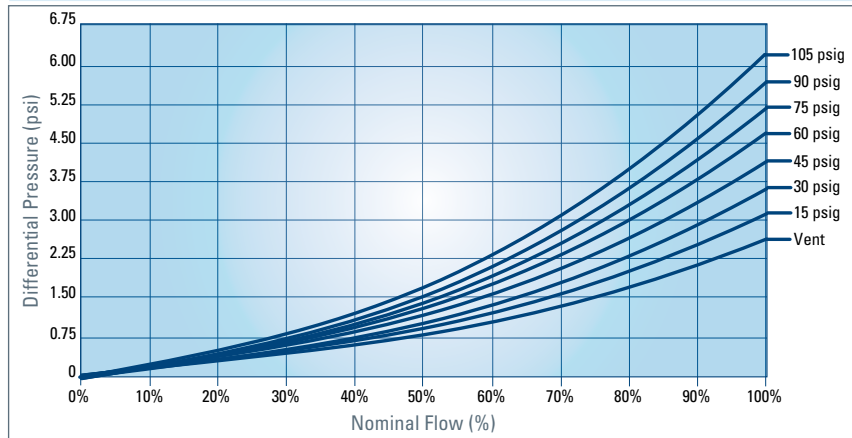
All P-SRF X elements have been inspected and released by Quality Assurance as having met the following requirements:

- All filters are fabricated without the use of binders, adhesives, additives or surface active agents.
- All sterile filters are integrity tested according to ASTM D 2986-91 and DIN EN 1822 to verify compliance with established quality and design specifications and to assure consistent and reliable performance.
- A Factory Test Certification according to DIN EN 10204 is available upon request.

FLOW CHARACTERISTICS P-SRF X FILTER ELEMENT

TYPE P-SRF X		100 PSIG (SCFM)	
HOUSING	ELEMENT	NOMINAL*	MAXIMUM
0006	03/10	35	53
0009	04/10	53	71
0012	04/20	71	106
0018	05/20	106	159
0027	05/25	159	212
0036	07/25	212	283
0048	07/30	283	424
0072	10/30	424	636
0108	15/30	636	848
0144	20/30	848	1,131
0192	30/30	1,131	1,696

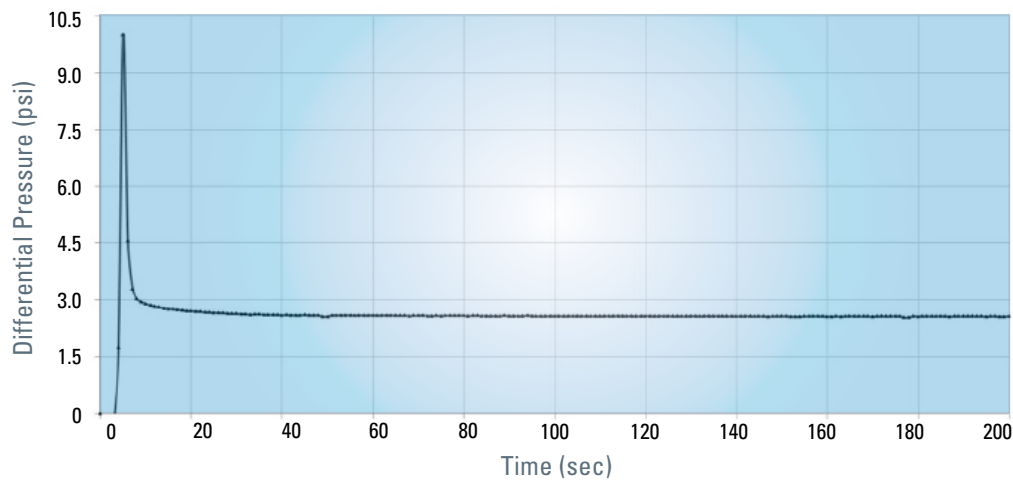
\*The given nominal flow rate in the table represents 100%

**P-SRF X Nominal Flow x 10/30 70°F**

PRESSURE (PSIG)	0	15	30	45	60	75	90	100	115	130	145	160	175	190	205	220	232
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

## DE-WETTING CHARACTERISTICS

De-wetting characteristics of a SRF X 10/3 P7 after steaming at 15 psig (250°F) for 30 minutes. Flow is 80 scfm at 30 psi absolute. Normal conditions are reached after ~ 50 seconds.



## AUTOCLAVING/STEAM STERILIZATION

Cumulative Steaming Time	250°F, Saturated Steam: 250 cycles (30 minutes) 270°F, Saturated Steam: 250 cycles (20 minutes) 290°F, Saturated Steam: 250 cycles (10 minutes) Independent of flow direction; forward and reverse steam flow possible
Vapor Phase Hydrogen Peroxide (VPHP) Suitable	266°F @ > 5,000 ppm H <sub>2</sub> O <sub>2</sub> , > 50 hours

## STERILIZE-IN-PLACE (SIP) PROCEDURE

- With SIP, the filter element and housing remain in place and steam is used to sterilize the filtration system without the need for disassembly.
- The steam used for SIP must be free of rust and other particles.
- Steam pressure must not be allowed to fall below 15 psig throughout the SIP process.
- Condensate must be drained from the system during sterilization.
- Any air trapped in the housing must be vented.
- Upstream and downstream pressure gauges must be used to ensure differential pressure across the filter does not exceed 5 psid during SIP.
- After sterilization, pressurize the system with process air or gas up to the steam pressure used and allow the system to cool until ready for use.
- Always use the lowest possible sterilization temperature to avoid excess stress on the filter element.

## AUTOCLAVE

- Generally, only the filter element is sterilized in an autoclave, but both the housing and element can be sterilized if removed from the process, disassembled and put in the autoclave.
- In addition to the cycle times given above, follow the specific procedures provided with the autoclave in use.



### Important Notice

Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, specifications, availability and data are subject to change without notice, and may vary by region or country.



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