Donaldson
FILTRATION SOLUTIONS

P-SRF V

STERILE AIR PLEATED DEPTH FILTER ELEMENTS

Process Filtration

The P-SRF V filter element is a sterile grade, pleated depth filter element in a stainless steel body, designed for critical applications in the processed food and beverage industry. The media configuration and stainless steel construction provides:

- Log reduction value of 9 at 0.2 micron in venting, compressed air and technical gas applications
- Up to 150 steam sterilization cycles at specified conditions, including vapor phased hydrogen peroxide (VPHP)
- Ability to withstand high differential pressure in both flow directions
- De-wetting time of less than 10 seconds
- Non-fiber releasing depth media that is compliant with CFR Title 21 211.72 for food contact use

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

P-SRF V

FEATURES	BENEFITS
Thirteen lengths and multiple connection options	Ability to configure elements to meet most processed food and beverage application flow requirements
High-quality stainless steel construction ensures excellent mechanical stability, thermal resistance up to 200° C (392° F)	More than 150 sterilization cycles possible at specific conditions, and is suited for Vapor Phase Hydrogen Peroxide (VPHP) sterilization
Proprietary three-dimensional binder-free borosilicate depth filter media	Large void volume 95%, is chemically inert and developed specifically for the filtration of bacteria and viruses in processed food and beverages
Inherently hydrophobic media	Ensures high flow rates, low pressure drop, and excellent de-wetting characteristics
Validated retention of bacteria and viruses	Provides assurance of integrity and performance over the life of the element
Depth filter medium is non-fiber releasing	All components meet FDA requirements for contact with food in accordance with the Code of Federal Regulations (CFR), Title 21
The filter element is manufactured according to DIN EN ISO 9001	Globally recognized quality management
Polydimethylsiloxane (PDMS) coating	Element is caustic-resistant, hydrophobic and fast drying

INDUSTRIES AND APPLICATIONS

Industries

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

Applications

- Tank ventilation
- Carbon dioxide
- Fermentation air
- Technical gases
- Aseptic packaging
- Container aeration

RETENTION OF MICROORGANISMS

The procedure for microbiological evaluation is outlined by HIMA*. The filter element was challenged with a minimum of 10^7 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_{10} (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 > 9***

* HIMA - Health Industry Manufcturers Association, known as AdvaMed.

SPECIFICATIONS

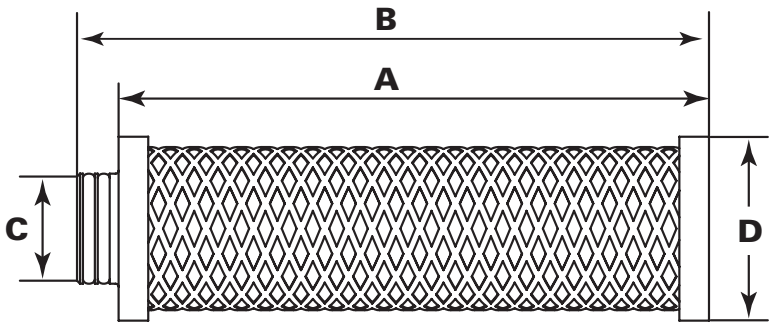
Retention Rate	>99.99999995% at 0.2 µm >99.99999995% at 0.02 µm >99.999999991% at 0.003 µm
Filtration Surface	3,103 cm^2 per 254 mm element (3.34 ft^2 per 10 inch element) (For other element sizes see Correction Factors Filtration Surface Area)
Operating Temperature	-20° C to 200° C (-4° F to 392° F)
Maximum Differential Pressure	5 bar; -20° C to 200° C (73 psid; -4° F to 392° F), regardless of the system pressure or flow direction
Typical Compressed Air Service Life	12 months
Typical Vent Service Life	6 months

MATERIAL COMPLIANCE (US & EU)

All components of the P-SRF V 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 V elements meet regulatory and legislative requirements and guidelines for indirect food contact as detailed in European Regulation (EC) Number 1935/2004.

MATERIALS		CFR TITLE 21
Filter Media	Borosilicate	177.2660
Impregnation	PTFE	177.1520
Upstream Support	304 SS	211.65
Downstream Support	304 SS	211.65
Outer Liner	304 SS	211.65
Inner Liner	304 SS	211.65
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®*	

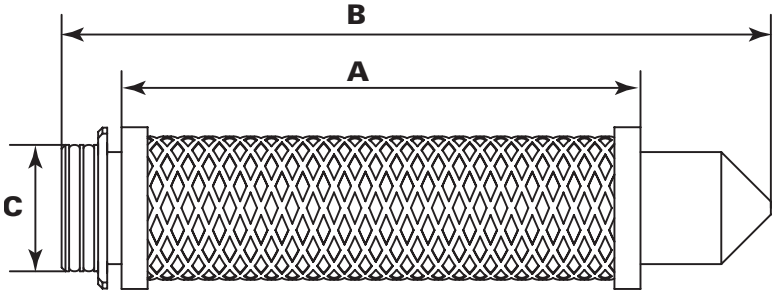
DIMENSIONS



UF PUSH-IN CONNECTION

Element Size	Dimensions						Correction Factors**
	A		B		C*		
	mm	in.	mm	in.	mm	in.	
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	10.00	270	10.63	61	2.40	1.00
15/30	381	15.00	402	15.83	61	2.40	1.51
20/30	508	20.00	524	20.63	61	2.40	2.02
30/30	762	30.00	778	30.63	61	2.40	3.03
30/50	762	30.00	778	30.63	89	3.50	3.03

* UF plug connection with double O-Ring. ** Correction factors filtration surface area



CODE 7 CONNECTION

Element Size		Dimensions					
		A		B		C	
mm	in.	mm	in.	mm	in.	mm	in.
127	5	125	4.92	190	7.48	56	2.22
254	10	250	9.84	315	12.40	56	2.22
508	20	500	19.68	565	22.24	56	2.22
762	30	750	29.53	815	32.08	56	2.22

Code 7: 2 x 226 O-Rings, 2 bayonet locking tabs, locating fin. Other end cap configurations available upon request

QUALITY ASSURANCE

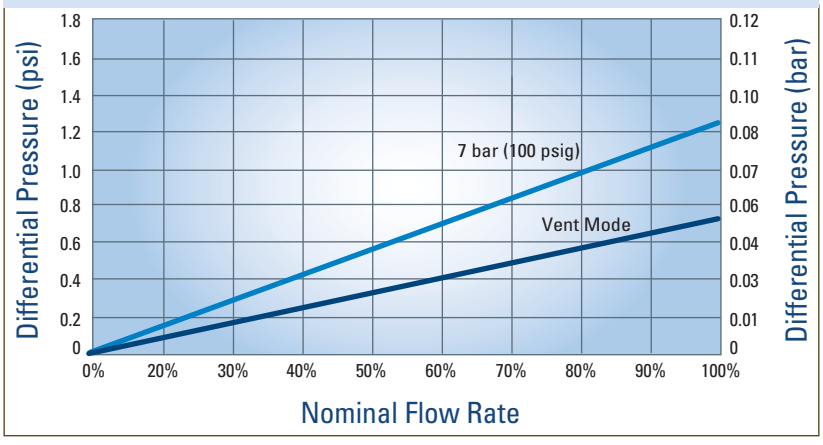
All P-SRF V elements have been inspected and released by Quality Assurance as having met the following requirements:

- 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 V FILTER ELEMENT

Type P-SRF V		Flow at 7 bar (100 psig)			
		Nominal*		Maximum	
Housing	Element	m^3/hr	cfm	m^3/hr	cfm
0006	03/10	59	35	90	53
0009	04/10	90	53	121	71
0012	04/20	121	71	180	106
0018	05/20	180	106	270	159
0027	05/25	270	159	360	212
0036	07/25	360	212	481	283
0048	07/30	481	283	720	424
0072	10/30	720	424	1081	636
0108	15/30	1081	636	1441	848
0144	20/30	1441	848	1922	1,131
0192	30/30	1922	1,131	2882	1,696
0288	30/50	2882	1,696	4322	2,544

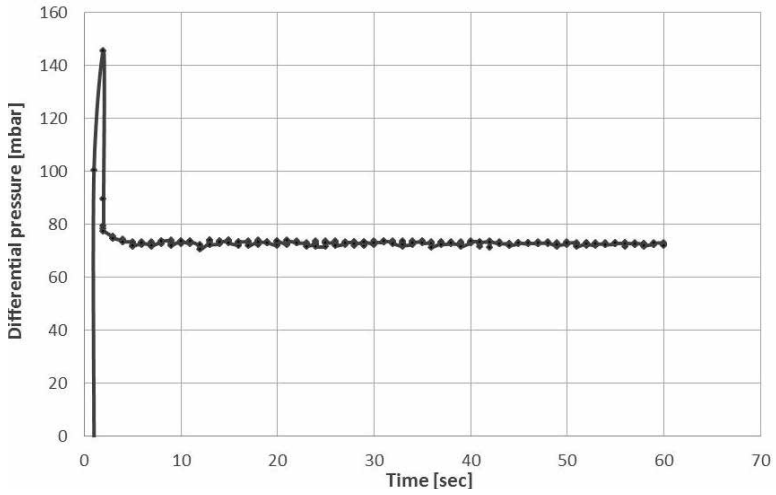
P-SRF V 10/30 NOMINAL FLOW



Pressure: bar	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pressure: psig	0	15	29	43	58	72	87	101	116	130	145	159	174	188	203	217	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 V 10/3 P7 after steaming at 1 bar at 121° C (15 psig at 250° F) for 30 minutes. Flow is 140 Nm^3/h at 2 bar (82 cfm at 30 psig) (absolute). Normal conditions are reached within 10 seconds.



AUTOCLAVING/STEAM STERILIZATION

Cumulative Steaming Time	121° C (250° F), Saturated Steam: 160 cycles (30 minutes) 132° C (270° F), Saturated Steam: 160 cycles (20 minutes) 143° C (290° F), Saturated Steam: 160 cycles (10 minutes) Independent of flow direction; forward and reverse steam flow possible
Vapor Phase Hydrogen Peroxide (VPHP) Suitable	130° C (266° F) @ > 5,000 ppm H_2O_2 , > 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 1 bar (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 0.5 bar (7 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.

Registered: Quality Management System 9001:2008 ISO

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