



Donaldson.
FILTRATION SOLUTIONS

Process Filtration From Pure to Sterile

PF-PES "U"

MAIN FEATURES & BENEFITS:

- Absolute ratings of 0,2 µm, 0,45 µm & 0,6 µm
- Long service life
- Highly resistant materials
- Extremely low adsorption of proteins
- High thermal and hydrolytic stability



INDUSTRIES:



- Food and Beverage



- Chemical



- Engineering



- Pharmaceutical



- Cosmetics



- Environmental

Donaldson Filtration Deutschland GmbH
Büssingstr. 1
42781 Haan
Germany

Web: www.donaldson.com

Donaldson®
Ultrafilter

PRODUCT DESCRIPTION

The PF-PES „U“ filter cartridge is an absolute rated, pleated Polyethersulfone membrane filter. It's application areas reach from the sterile filtration of bottled water up to the cold sterilization of beer and wine. Furthermore this element can be used for all applications outside the food and beverage technology like the sterile filtration of cosmetics or pharmaceuticals.

The good performance of the PF-PES “U” filter element is based on its new filtration media. The Polyethersulfone membrane is inherently hydrophilic and distinguishes itself by having an outstanding holding capacity for small contaminations like colloids. This specific feature excellently qualifies the Donaldson PF-PES “U” for the filtration of liquids with turbidities like beer and wine. The extremely durable design maintains consistent porosity and impurity retention throughout its service life without shedding or unloading contaminations even under severe conditions.

The absolute rated PF-PES “U” membrane filter is designed and developed for the following applications:

Clarification and cold sterilization of

- Beer
- Wine
- Soft Drinks
- Bottled Water

Purification of Chemicals like

- Acids
- Bases
- Oxidising reagents
- Complexing agents

Sterile filtration of

- Cosmetics
- Process Water
- Ingredient Water
- Pharmaceuticals

PRODUCT SPECIFICATIONS

Product Specifications

Absolute Retention

- 0,2 µm, 0,45 µm, 0,65 µm

Rates

Filtration Surface

- 0,2 µm: 0,75 m² per 250 mm element (10")
- 0,45 µm: 0,65 m² per 250 mm element (10")
- 0,65 µm: 0,75 m² per 250 mm element (10")

Maximum Differential Pressure

Operating Temperature [°C / °F]	Differential Pressure – Forward Flow [bar / psi]	Differential Pressure – Reversed Flow [bar / psi]
20 / 68	5,0 / 73	3,5 / 51
30 / 86	4,5 / 65	2,5 / 36
40 / 104	4,0 / 58	1,5 / 22
50 / 122	3,0 / 43	1,0 / 15
70 / 158	1,5 / 22	0,5 / 7
80 / 176	0,5 / 7	0,2 / 3

Cumulative Steaming Time*

- 121°C – 125°C (30 minutes) Saturated Steam (Forward Flow) up to 40 cycles*

*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.

Recommended Surface Load

Liquid	Continuous Operation (10" element)	Temporary Operation (10" element)
	Surface Load [hl/h]	Surface Load [hl/h]
Water	7 – 9	max. 20
Fruit Juice	3 – 4	max. 10
Beer	1 – 2	max. 4
Wine	3 – 3,5	max. 10
Sparkling Wine	1,8 – 2	max. 4

MATERIAL COMPLIANCE

All components of the PF-PES “U” filter element are FDA listed for food contact use in the **Code of Federal Regulations (CFR), Title 21**

Filter Materials		CFR Title
Membrane	Polyethersulfone	177.2240
Upstream Support:	Polypropylene	177.1520
Downstream Support:	Polypropylene	177.1520
Outer Guard:	Polypropylene	177.1520
Core:	Polypropylene	177.1520
End Caps:	Polypropylene	177.1520
O-Rings:	EPDM	177.2600
Alternatively:	Silicone	177.2600
	Buna N	177.2600
	PTFE over silicone	177.1550
	PTFE over viton	177.1550
Sealing Method:	Thermal Bonding	

All products 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 filters show no migration of filter medium and is non-fibre releasing.
- Samples of the components of Donaldson PF-PES “U” element filters have been tested by an independent laboratory and were shown to meet all the requirements of current USP Class VI-121°C Plastics Test.

RETENTION RATES (ACCORDING TO HIMA CHALLENGE PER ASTM)

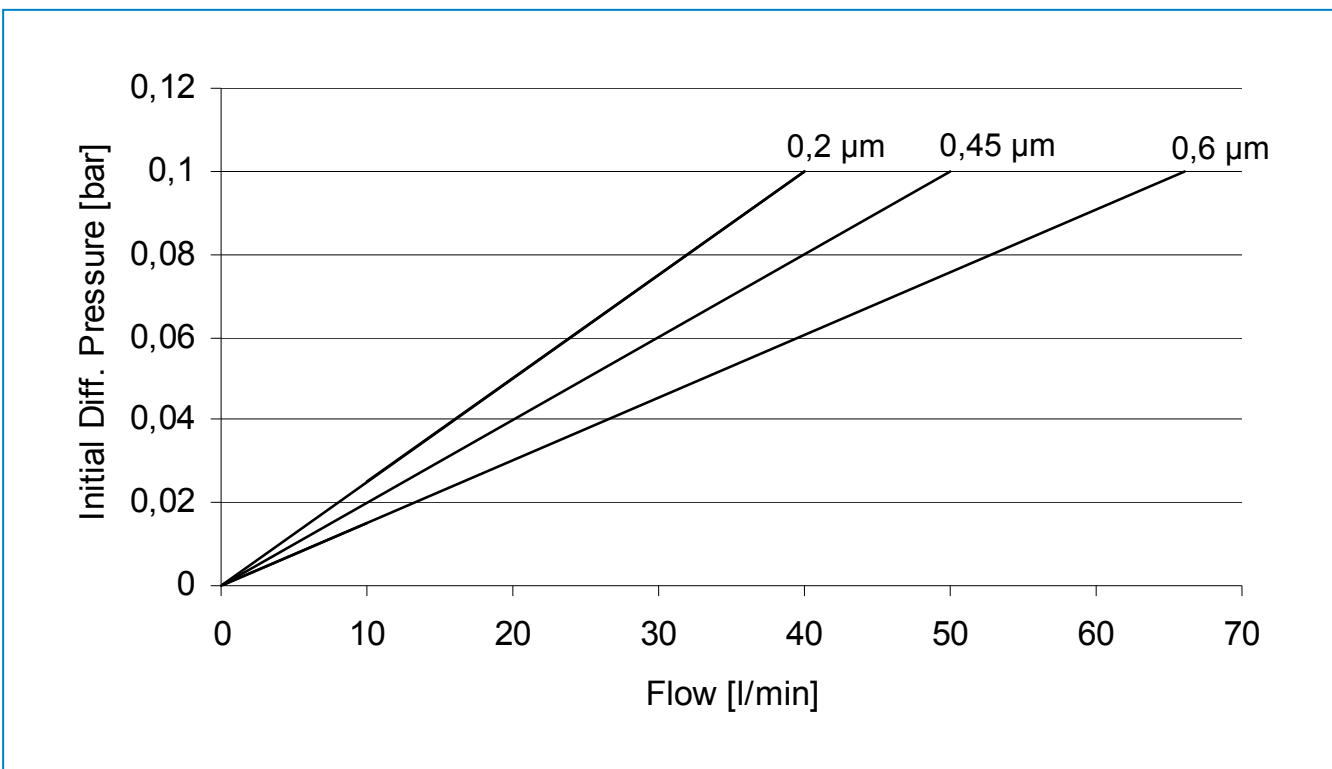
Filter Grade	Microorganism	LRV / cm ²
0,45 µm	<i>Serratia Marcescens</i>	> 4
0,2 µm	<i>Pseudomonas diminuta</i>	> 7

INTEGRITY TESTING

Bubble Point Test		Diffusion Test / Forward Flow Test	
Filter Grade	Minimum Bubble Point [bar / psi]	Filter Grade	Maximum Diffusion Values [ml / min]
0,65 µm	1,10 bar / 19 psi	0,65 µm	< 30 ml/min @ 1,034 bar (15 psi)
0,45 µm	1,72 bar / 25 psi	0,45 µm	< 30 ml/min @ 1,379 bar (20 psi)
0,2 µm	3,03 bar / 44 psi	0,2 µm	< 30 ml/min @ 2,414 bar (35 psi)

FLOW CHARACTERISTICS

PF-PES “U”, 10”, Deionised water, 25°C

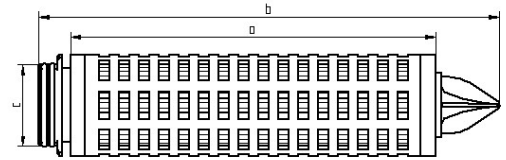


AVAILABLE END CAP CONFIGURATIONS

Dimensions (CODE 7 connection):

CODE 7						
Size	a		b		c	
	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	565	22,24	56,5	2,22
30"	750	29,53	815	32,08	56,5	2,22
40"	1000	39,49	1065	41,93	56,5	2,22

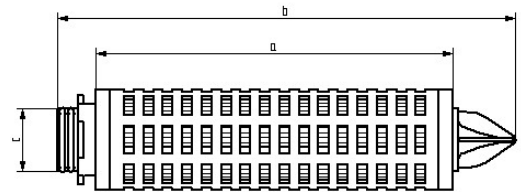
CODE 7: 2 x 226 o-rings, bayonet 2 locking tabs, locating fin.



Dimensions (CODE 9 connection):

CODE 9						
Size	a		b		c	
	mm	inch	mm	inch	mm	Inch
5"	125	4,92	195	7,67	44	1,73
10"	250	9,84	320	12,59	44	1,73
20"	500	19,68	570	22,44	44	1,73
30"	750	29,53	820	32,28	44	1,73
40"	1000	39,37	1070	42,12	44	1,73

P9: 2 x 222 o-rings, bayonet 3 locking tabs, locating fin.



Other end cap configurations on request.

Technical alterations reserved 04/2009

- Integrity test of this element to be done by Bubble Point or Forward Flow Test.
- For information on test equipment or test services, please contact your Donaldson Sales Engineer and visit our website at www.donaldson.com!

(Rev02 – 07/10)

