



**Donaldson**  
FILTRATION SOLUTIONS

**PES-BN**

**MEMBRANE FILTER ELEMENTS**

Process Filtration

**The LifeTec® PES-BN filter element is a sterile grade rated, pleated high performance polyethersulfone membrane filter.** It provides the greatest assurance of filtration performance, stability and service life for sterile filtration and microbial stabilization of highly colloidal liquids.

The outstanding performance of the PES-BN filter element is based on its state-of-the-art filtration media. The hydrophilic polyethersulfone membrane distinguishes itself by having an asymmetrically designed pore structure. The pore size steadily decreases towards the center of the medium, resulting in a highly porous structure. This extremely durable design maintains consistent porosity and impurity retention throughout its service life without shedding or unloading contaminations.

All components meet EU and USA requirements for Food Contact Use in accordance with the FDA Code of Federal Regulations (CFR), Title 21 and EU European Regulation (EC) EC/1935/2004 and subsequent amendments.

The filter element is manufactured in accordance with the GMP requirements as defined in EC/2023/2006, has no migration of filter media, is non-fiber releasing and is thermally welded.

All materials used do not contain any Substances of Very High Concern (SVHC) as defined in EC/1907/2006 and EC/65/2011.



**PES-BN**

## **FEATURES & BENEFITS**

- Sterile grade rating of 0.45 µm
- Excellent flow rate
- Highly resistant materials
- Extremely low absorption of proteins
- High thermal and hydrolytic stability
- Approved for Food Contact Use according to CFR Title 21 & EC/1935/2004

## APPLICATIONS

INDUSTRIES & APPLICATIONS			CLARIFICATION AND FINAL FILTRATION		
Breweries	Mineral Water	Chemical	Deionized Water	Process Water	Bottled Water
Wineries	Soft Drinks		Chemically Treated Water	Ingredient Water	
			High Temperature Water	Soft Drinks	
BEVERAGE CLARIFICATION & COLD STERILIZATION					
Beer	Wine				
Beer Mix	Wine Coolers				

## SPECIFICATIONS

### QUALITY TEST

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

- All 10" sterile filter modules are integrity tested to verify compliance with established quality and design specifications and to assure consistent and reliable performance.
- The traceability of each filter element according to EC/1935/2004 is provided by serial number.
- All PES-BN filter elements are completely staged, assembled, tested and packaged in Class 7 clean room facility, whose Quality Management System is approved by an accredited registering body to the appropriate ISO 9001 Quality Systems Standard.

### MATERIAL COMPLIANCE USA

All components of the PES-BN filter element are FDA listed for food contact use in the Code of Federal Regulations (CFR), Title 21.

MATERIALS		CFR TITLE 21
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
	Silicone	177.2600
Sealing Method	Thermal Bonding	

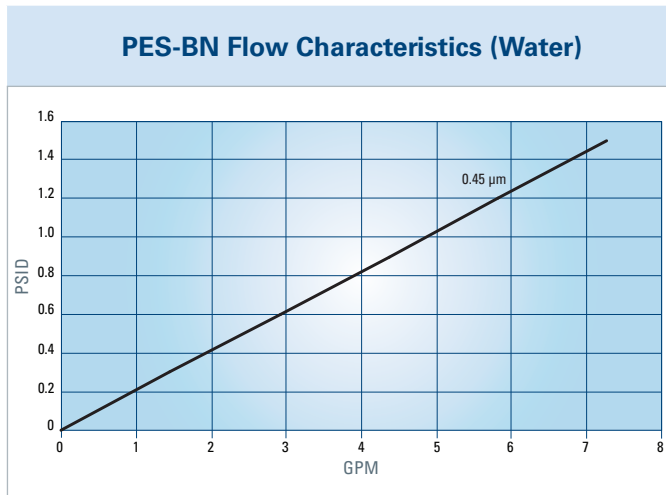
## MATERIAL COMPLIANCE EU

The PES-BN filter element meets the guideline for Food Contact Use as given in EC/1935/2004. All polymeric components (polypropylene, polyethersulfone) meet the requirements of EU Directive EC/10/2011 relating to plastic materials and articles intended to come into contact with foodstuffs. Migration tests have been carried out in simulants (B, D1) after flushing or in flow conditions. All materials used do not contain any Substances of Very High Concern (SVHC) as defined in EC/1907/2006 (REACH Guideline) and EC/65/2011 (RoHS Guideline) and are free of any latex-based components. Furthermore the materials do not contain any Animal Derived Ingredient (ADI-free) and thus bear no risk of transmitting TSE and BSE.

## INTEGRITY TESTING

BACTERIA RETENTION RATES (ACCORDING TO HIMA CHALLENGE PER ASTM)		
Filter Grade	Microorganism	LRV / cm <sup>2</sup>
PES-BN 0.45 µm	Serratia Marescens	> 7
Filter Grade	0.45 µm (Sterile Retention Rate)	
Filtration Surface	0.72 m <sup>2</sup> per 250 mm element (10")	
Maximum Differential Pressure	Operating Temperature	Differential Pressure
	100°F	80 psi
	150°F	60 psi
	180°F	30 psi
Cumulative Steaming Time*	249.8°F - 257°F (30 minutes) Saturated Steam (Forward Flow) up to 100 cycles	

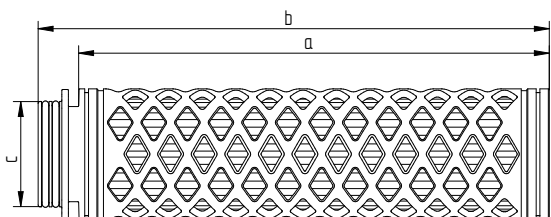
\* Figures are based on lab tests to evaluate steaming resistance. Filter elements need to be checked in actual use. Contact Donaldson for recommended Autoclaving/Steaming procedures.



Filter Grade	Minimum Bubble Point	Maximum Diffusion Values
0.45 µm	18 psi	20 ml/min @ 10 psi

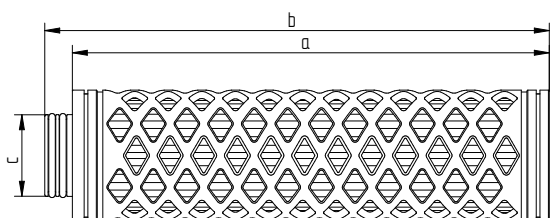
Integrity test to be done by Bubble Point or Forward Flow Test. For information on test equipment or test services, please contact your Donaldson Sales Engineer and visit our website at [www.donaldsonprocessfilters.com](http://www.donaldsonprocessfilters.com).

## DIMENSIONS



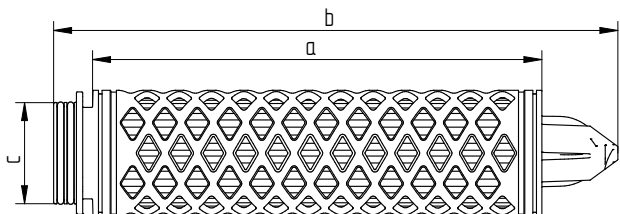
CODE 2 Connection			
Filter Size	Dimensions (in)		
	a	b	c
10"	10.0	10.8	2.2
20"	19.5	20.3	2.2
30"	29.0	29.8	2.2
40"	38.5	39.4	2.2

Code 2: 2 x 226 O-Rings, bayonet 2 locking tabs, flat end cap, integrated reinforcement ring



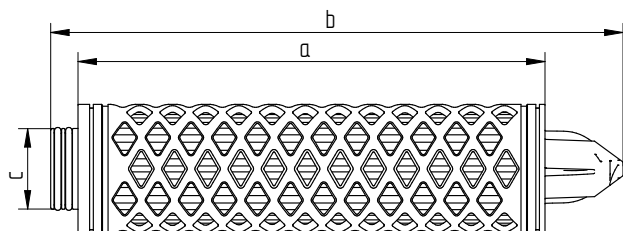
CODE 3 Connection			
Filter Size	Dimensions (in)		
	a	b	c
10"	10.1	10.7	1.7
20"	19.6	20.2	1.7
30"	29.1	29.7	1.7
40"	38.7	39.3	1.7

Code 3: 2 x 222 O-Rings, plug connection, flat end cap, integrated reinforcement ring



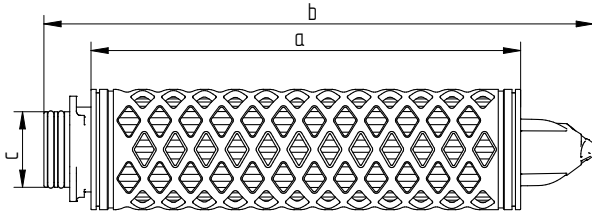
CODE 7 Connection			
Filter Size	Dimensions (in)		
	a	b	c
10"	9.9	12.4	2.2
20"	19.4	21.9	2.2
30"	28.9	31.5	2.2
40"	38.5	41.0	2.2

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



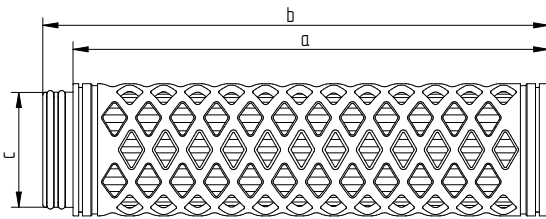
CODE 8 Connection			
Filter Size	Dimensions (in)		
	a	b	c
10"	10.0	12.2	1.7
20"	19.5	21.8	1.7
30"	29.1	31.3	1.7
40"	38.6	40.8	1.7

Code 8: 2 x 222 O-Rings, plug connection, locating fin, integrated reinforcement ring



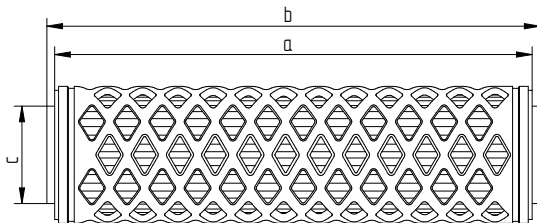
CODE 9 Connection			
Filter Size	Dimensions (in)		
	a	b	c
10"	9.8	12.6	1.7
20"	19.4	22.1	1.7
30"	28.9	31.7	1.7
40"	38.4	41.2	1.7

Code 9: 2 x 222 O-Rings, bayonet 3 locking tabs, locating fin, integrated reinforcement ring



UF Connection			
Filter Size	Dimensions (in)		
	a	b	c
10"	9.9	10.6	2.4
20"	19.4	20.1	2.4
30"	29.0	29.6	2.4

Code UF: 2 x 226 O-Rings, plug connection, flat end cap, integrated reinforcement ring



DOE Connection			
Filter Size	Dimensions (in)		
	a	b	c
10"	9.6	9.8	2.0
20"	19.7	19.9	2.0
30"	29.7	29.9	2.0
40"	39.7	39.9	2.0

DOE: Double open end with EPDM gaskets

**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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**PES-BN Membrane Filter Elements (10/16)**

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