

## PROCESS FILTRATION FROM PURE TO STERILE

### LifeTec PES-BN



#### MAIN FEATURES & BENEFITS

- Absolute grade rating of 0.45 µm
- Excellent flow rate
- Highly resistant materials
- Highly asymmetrical membrane design
- High thermal and hydrolytic stability
- Approved for food contact use acc. to CFR Title 21 & EC/1935/2004

#### PRODUCT DESCRIPTION

The LifeTec PES-BN filter element is a absolute 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 LifeTec PES-BN filter element is based on its state-of-the-art filtration media. The Polyethersulfone membrane is inherently hydrophilic and distinguishes itself by having an asymmetrically designed pore structure. The pore size steadily decreases towards the centre 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 the EU and USA requirements for food contact use in accordance with CFR (Code of Federal Regulations) Title 21 and 1935/2004/EC 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 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.

#### INDUSTRIES



- Breweries
- Wineries
- Beverages
- Soft Drinks and Water
- Chemical Industry

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## APPLICATIONS

The absolute rated LifeTec PES-BN membrane filter is designed and developed for the filtration of highly colloidal liquids:

### Clarification and cold sterilization of beverages like:

- Beer
- Beer Mix
- Wine
- Wine Coolers

### Clarification and final filtration of:

- Deionized Water
- Chemically treated Water
- High temperature Water
- Process Water
- Ingredient Water
- Soft Drinks
- Bottled Water

## 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 LifeTec 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 ISO9001 Quality Systems Standard.

## MATERIAL COMPLIANCE USA

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

Filter Materials		CFR Title 21
Membrane	Polyethersulfone	§ 177.2240
Upstream support	Polypropylene	§ 177.1520
Scrim	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 Donaldson LifeTec PES-BN filter element meets the guideline for food contact use as given in European Regulation (EC) Number 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. The PP materials used for Cage & Core are treated acc. to EMA/410/01 Rev.03 and thus bear no risk of transmitting TSE and BSE.

## RETENTION RATES (According to HIMA Challenge per ASTM)

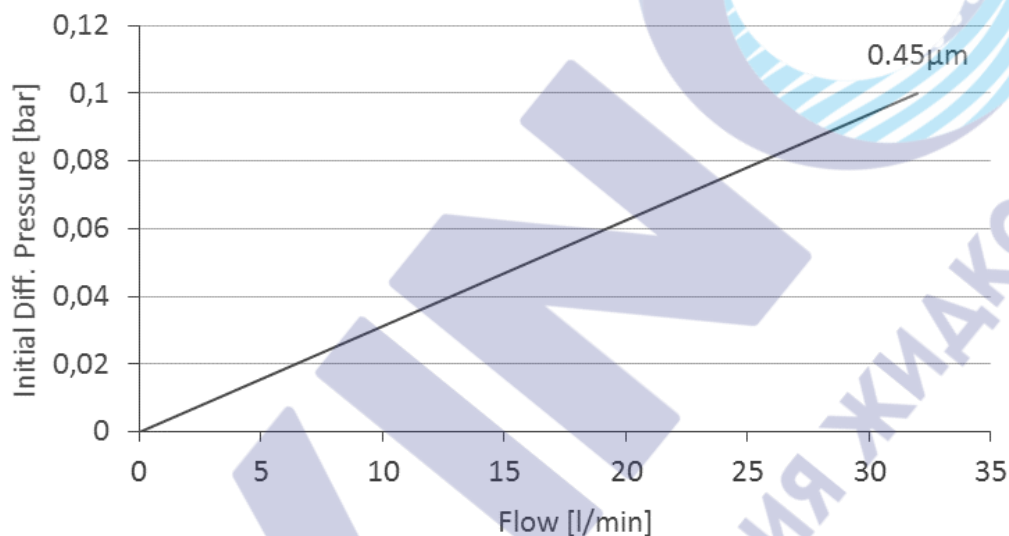
Filter Grade	Microorganism	LRV / cm²
0.45 µm	Pediococcus damnosus	> 7
	Lactobacillus lindneri	> 10

## PRODUCT SPECIFICATIONS

Product Specifications				
Filter Grade	0.45 µm (absolute retention rate)			
Filtration Surface	0.72 m² per 250 mm element (10")			
Maximum Differential Pressure	Operating temperature		Differential pressure	
	°C	°F	bar	psi
	38	100	> 15	217
	66	150	> 11	159
	82	180	> 9	130
Cumulative Steaming Time*	121°C – 125°C (30 minutes) saturated steam (forward flow) more than 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.

## FLOW CHARACTERISTICS

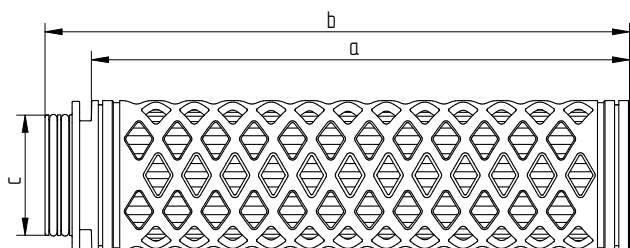


LifeTec PES-BN

10", Deionized water, 20°C

## INTEGRITY TESTING

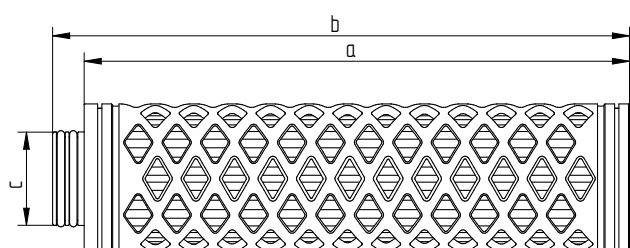
Bubble-Point-Test			Diffusion Test / Forward Flow Test	
Filter Grade	Minimum Bubble Point		Filter Grade	Maximum Diffusion Values
	bar	psi		
0.45 µm	1.30	18.85	0.45 µm	20 ml/min @ 0.7 bar (10.15 psi)



Dimensions (CODE 2 connection)

Size	a		b		c	
	mm	inch	mm	inch	mm	inch
10"	253	10.0	274	10.8	56	2.2
20"	495	19.5	516	20.3	56	2.2
30"	737	29.0	758	29.8	56	2.2
40"	979	38.5	1000	39.4	56	2.2

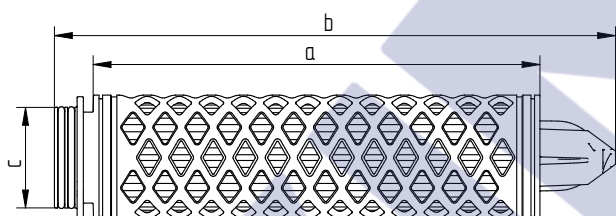
CODE 2: 2 x 226 o-rings, bayonet 2 locking tabs, flat end cap, integrated reinforcement ring



Dimensions (CODE 3 connection)

Size	a		b		c	
	mm	inch	mm	inch	mm	inch
10"	256	10.1	271	10.7	44	1.7
20"	498	19.6	513	20.2	44	1.7
30"	740	29.1	755	29.7	44	1.7
40"	982	38.7	997	39.3	44	1.7

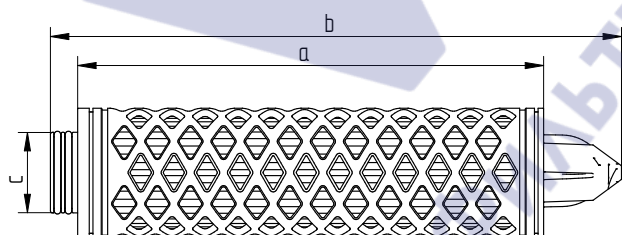
CODE 3: 2 x 222 o-rings, plug connection, flat end cap, integrated reinforcement ring



Dimensions (CODE 7 connection)

Size	a		b		c	
	mm	inch	mm	inch	mm	inch
10"	251	9.9	315	12.4	56	2.2
20"	493	19.4	557	21.9	56	2.2
30"	735	28.9	799	31.5	56	2.2
40"	977	38.5	1041	41.0	56	2.2

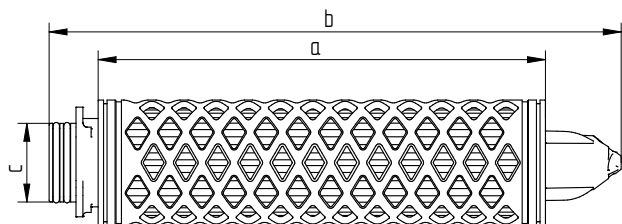
CODE 7: 2 x 226 o-rings, bayonet 2 locking tabs, locating fin, integrated reinforcement ring



Dimensions (CODE 8 connection)

Size	a		b		c	
	mm	inch	mm	inch	mm	inch
10"	254	10.0	311	12.2	44	1.7
20"	496	19.5	553	21.8	44	1.7
30"	738	29.1	795	31.3	44	1.7
40"	980	38.6	1037	40.8	44	1.7

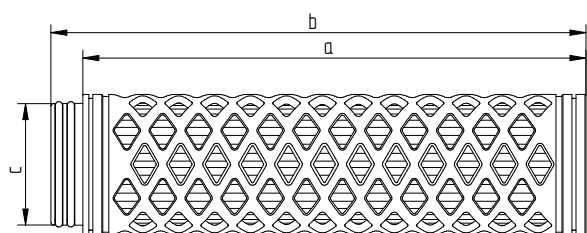
CODE 8: 2 x 222 o-rings, plug connection, locating fin, integrated reinforcement ring



Dimensions (CODE 9 connection)

Size	a		b		c	
	mm	inch	mm	inch	mm	inch
10"	250	9.8	320	12.6	44	1.7
20"	492	19.4	562	22.1	44	1.7
30"	734	28.9	804	31.7	44	1.7
40"	976	38.4	1046	41.2	44	1.7

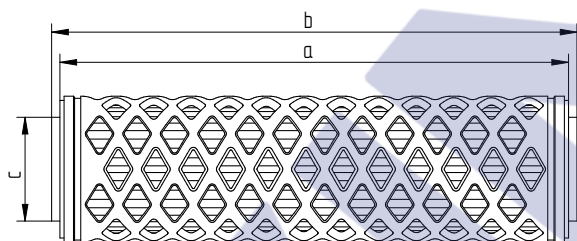
CODE 9: 2 x 222 o-rings, bayonet 3 locking tabs, locating fin, integrated reinforcement ring



Dimensions (UF connection)

Size	a		b		c	
	mm	inch	mm	inch	mm	inch
10"	252	9.9	268	10.6	61	2.4
20"	494	19.4	510	20.1	61	2.4
30"	736	29.0	752	29.6	61	2.4

CODE UF: 2 x 226 o-rings, plug connection, flat end cap, integrated reinforcement ring



Dimensions (DOE connection)

Size	a		b		c	
	mm	inch	mm	inch	mm	inch
10"	244	9.6	250	9.8	50	2.0
20"	500	19.7	506	19.9	50	2.0
30"	754	29.7	760	29.9	50	2.0
40"	1008	39.7	1014	39.9	50	2.0

DOE: Double open end with EPDM gaskets

**Other end cap configurations on request**

- 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.donaldson.com](http://www.donaldson.com)!