

## PureFlo® PES Capsules (SZL) Pharmaceutical Grade PES Filter

The PureFlo® SZL Series PES filter capsule have been designed for improved wettability in processes which require critical integrity validation testing. The filter capsule in its all-polypropylene construction provides excellent chemical compatibility and superior flow per unit area as compared to other membrane capsules. PureFlo® PES Filter Capsules have been specially designed for sterilizing in biopharmaceutical applications. Its hydrophilic PES membrane does not require pre-wetting agents, thereby eliminating a potential source of contamination. The PES membrane is low protein-binding.

The capsules were specially designed with an easy-to-wet-out structure of PES membrane, PET support and internal Nylon end caps. The capsules were designed for simple and efficient filtration of small volumes used in low-flow application, laboratory, and pilot runs. No adhesives, binders, or surfactants are used in the manufacturing process of these capsules. They are rinsed with pyrogen-free water to reduce extractables and downtime. All filter capsules are 100% integrity-tested to ensure filter performance each and every time out of the package. The capsule can be ordered pre-sterilized.



### Specifications:

#### **Regulatory Compliance:**

Manufactured from materials that conform to the requirements of 21 CFR Part 177 of the U.S. Code of Federal Regulations and USP Class VI Biological test for Plastics

#### **Bacterial Retention:**

Complete retention of  $\geq 10^7$  organisms/cm<sup>2</sup> of *Brevundimonas diminuta* in accordance with the current HIMA challenge methodology (ASTM F838-83). Validation guide available upon request.

#### **Autoclavable & Sanitizable:**

Capsules can be autoclaved 25 times at 125 °C (257 °F) for 30 minutes or chemically sanitized in situ using common sanitizing agents or hot water at 90 °C (194 °F) for a limited time (dependent on time and temperature). Capsules must not be in situ steam-sterilized.

#### **Water Bubble Point Specification:**

0.1 µm : 23 psi (0.16 MPa) in IPA  
 0.2 µm : 47 psi (0.32 MPa)

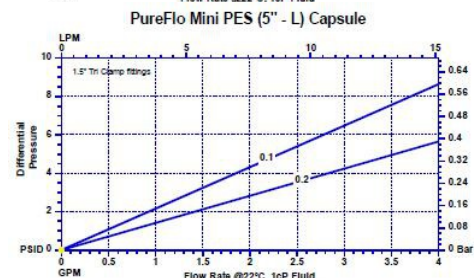
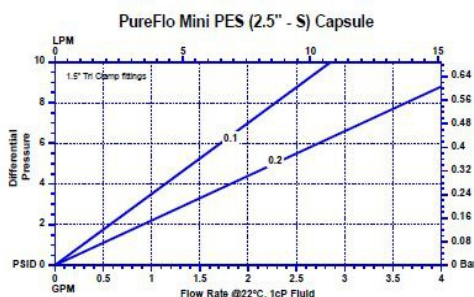
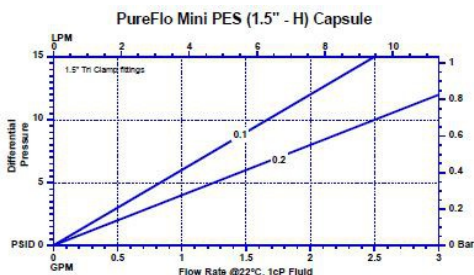
#### **Bacterial Endotoxin:**

Effluent is non-Pyrogenic per USP Bacterial Endotoxin (0.25 EU/ml), determined using Limulus Amebocyte Lysate (LAL) test.

Applications	
Culture Media	Fermentation Broths
Serums	SVP (Small volume parenterals)
Vaccines	Product Sterilization
Reagents & Buffers	Biologics
Antibiotics Beverages	
WFI-POU Scale-up	processes

Features	Benefits
<ul style="list-style-type: none"> <li>Hydrophilic PES Membrane</li> </ul>	<ul style="list-style-type: none"> <li>Inherently hydrophilic for easy wet-ability for integrity testing</li> <li>High flow rate reduces processing time</li> <li>Low protein-binding membrane maximizing yields</li> <li>Biologically inert membrane</li> <li>Bacterially retentive to produce sterile solutions</li> </ul>
<ul style="list-style-type: none"> <li>Small, Compact Design</li> </ul>	<ul style="list-style-type: none"> <li>Simple, quick, and efficient filtration</li> <li>Low hold-up volume reduces product waste</li> </ul>
<ul style="list-style-type: none"> <li>Low Levels of Filter Extractables</li> </ul>	<ul style="list-style-type: none"> <li>No adhesives, binders, or surfactants are used during manufacturing resulting in superior downstream cleanliness</li> <li>All capsules are rinsed with pyrogen-free water</li> </ul>

## PureFlo® PES Filter Capsules



Note - Graphs based on Sanitary

### Materials of Construction

Membrane: Hydrophilic Polyethersulfone  
 Membrane Supports: PET  
 End Caps: Nylon  
 Cage, Core, Shell: Polypropylene

### Fitting Connections

NPT, Sanitary Flange, Hose Barb, Coupling  
 Vent/Drain - Luer Lock, Plug, Bleed Valve

### Dimensions (Nominal)

Length: 1.5 in (38 mm)    Length: 2.5 in (63.5 mm)  
 Length: 5.0 in (127 mm)    Length: 7.5 in (191 mm)  
 Length: 10 in (254 mm)  
 Diameter: 2.88 in (73 mm)

### Effective Filtration Area

1.5 in - 0.77 ft<sup>2</sup> (720 cm<sup>2</sup>)    2.5 in - 1.48 ft<sup>2</sup> (1380 cm<sup>2</sup>)  
 5.0 in - 2.8 ft<sup>2</sup> (2600 cm<sup>2</sup>)    7.5 in - 4.3 ft<sup>2</sup> (3990 cm<sup>2</sup>)  
 10 in - 5.6 ft<sup>2</sup> (5200 cm<sup>2</sup>)

### Operating Conditions

Maximum Operating Pressure:  
 Liquid: 5.5 bar (80 psi) at 22 °C  
 Gas: 4.1 bar (59.5 psi) at 22 °C  
 Minimum Burst Pressure:  
 8.3 bar (120 psi) at 22 °C  
 Maximum Forward Differential Pressure:  
 5 bar (72.5 psi) at 22 °C  
 Maximum Reverse Differential Pressure:  
 2.1 bar (30.5 psi) at 22 °C  
 Maximum Operating Temperature:  
 PP & Gamma PP: 80 °C  
 HDPE: 60 °C

### PureFlo PES Capsule (Pharmaceutical grade) Ordering Guide

PureFlo Capsule Filters	Vent & Drain Fitting	Filter Media	Pore size (Micron)	Length	Input Fitting	Output Fitting	Options	
							Grade	O-Ring for Quick
SZ	L = Female Luer Lock	S = PES	004 = 0.04	H = 1.5"	1C 1C = 1/8" Compression	-PH = Pharma Grade	-OE = O-ring EPDM	
	P = M8 Threaded Plug - Limited options		010 = 0.1	S = 2.5"	1H 1H = 1/8" Hose barbs			-ON = O-ring Nitrile
PP Shell & Nylon end-caps			020 = 0.2	L = 5"	1N 1N = 1/8" MNPT		-OV = O-ring Viton	
Polyester support			045 = 0.45	E = 7.5"	1NF 1NF = 1/8" FNPT	Blank = Gamma stable polypropylene	Blank = O-ring Silicon (Standard)	
Polypropylene Cage & Core			065 = 0.65	K = 10"	1Q 1Q = 1/8" Male Quick Coupling with Metal latch	-NY = Nylon Construction	-G(pore Size) = Glass Fiber PreFilter	
Internal Silicone O-ring			080 = 0.8	1QF 1QF = 1/8" Female Quick Coupling with Metal latch	1QV 1QV = 1/8" Male Valved Quick Coupling with Metal latch			-P(pore Size) = PolyPro Media PreFilter
70mm Diameter Capsule with Bleed Valve			120 = 1.2		2H 2H = 1/4" to 1/2" Hose barbs	-E = Polyethylene shell and HDPE media support for gamma sterilization	-S(pore Size) = PES PreFilter	
					2HS 2HS = 1/4" to 3/8" Hose barbs			
					2LF 2LF = Large Female Luer Lock fitting			
					2N 2N = 1/4" MNPT			
					2NF 2NF = 1/4" FNPT			
					2P 2P = 1/4" Push to Connect			
					2PE 2PE = 1/4" Push to Connect Elbow			
					2Q 2Q = 1/4" Male Quick Coupling for Metal latch			
					2QF 2QF = 1/4" Female Quick Coupling with Metal latch			
					2QFP 2QFP = 1/4" Female Quick Coupling with Plastic latch			
					2QFV 2QFV = 1/4" Female Valved Quick Coupling with Metal latch			
					2QP 2QP = 1/4" Male Quick Coupling for Plastic latch			
					2QV 2QV = 1/4" Male Valved Quick Coupling with Metal latch			
					2V 2V = 1/4" Walther Quick Connect			
					3H 3H = 3/8" Hose Barb			
					3HE 3HE = 3/8" Hose Barb Elbow			
					3H-FB = 3/8" Hose Barb with filling bell or -FC with Cap			
					3NF 3NF = 3/8" FNPT			
					4H 4H = 1/2" Hose Barb			
					4N 4N = 1/2" MNPT			
					4Q 4Q = 1/2" Male Quick Coupling for Plastic latch			
					MT MT = 1/2" Tri clamps			
					TC TC = 1-1/2" Tri clamp			
					TS = Shower Head			
<p>Example - 0.2um PES Pharma Grade, Luer Lock Vent/Drain, 1.5" internal filter, 1/4" MNPT I/O is SZLS020H2N2N-PH</p> <p>Quick Couplings are mated. Female Quick Coupling with Plastic latch will be threaded on compatible with CPC (Coblen) LinkTech and others.</p>								



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