



# International Filter Products

*Revolutionary systems for your industry*

## LZ Series PES – Dual Layer Full Size Filter Capsules

PureFlo® Z-Series Full-size Capsule Filters are gamma stable and ideally suited for integration into single use applications. These filters feature an asymmetric hydrophilic PES membrane that demonstrates exceptional capacity and flow performance in liquid applications. The Z-Series Full-size Capsule filters offer full-scale filtration in a variety of applications in the biopharmaceutical industry. The Z-Series product family has been designed for easy pre- and post-use integrity testing, assuring easy wetting for quick and accurate integrity test results. The compact design and available inlet and outlet fittings allow efficient integration of Z-Series Full-size Capsule Filters into a wide range of single-use systems. Z-Series Full-size Capsule Filters provide biopharmaceutical manufacturers with a filtration solution configured to meet their process needs.

### Application

- Buffers and Media
- Final Drug Product
- Vaccines
- Scale up processing
- Product Sterilization
- WFI
- Biologics
- Ultra-Pure Water
- Ophthalmic
- Pharmaceuticals
- Antibiotics
- Serums

### Part Number: LZT3ZS020GTCTC



LZ Series [Nominal 10-in Long],  
T-Type Capsule with 1.5" Tri-  
Clamp Inlet and Outlet Connection



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## Technical Data Sheet

### Popular Configuration:

| Catalog Number  | Micron Rating                    | Inlet Connection | Outlet Connection | Vent Connection                    | Gamma Sterilization |
|---|----------------------------------|------------------|-------------------|------------------------------------|---------------------|
| LZT3ZS020GTCTC  | 0.45 µm / 0.2 µm<br>(Dual Layer) | 1.5" Tri-Clamp   | 1.5" Tri-Clamp    | Bleed Valve with<br>1/4" Hose Barb | up to 50kGy         |
| ❖ Find the complete list of available standard inlet and outlet fittings in page 5. |                                  |                  |                   |                                    |                     |

### Micron Rating:

**Final Media:** 0.2 µm PES [Sterilizing Grade Membrane]

**Pre-Filter:** Highly Asymmetric 0.45 µm PES

### Effective Filtration Area:

30-Inch Long; 22.5 ft<sup>2</sup> (2.1 m<sup>2</sup>)

### Materials of Construction:

Membrane: Pharmaceutical Grade PES (Polyethersulfone) Sterilizing Grade

Membrane Feature: Hydrophilic, Low Protein Binding, High Flow Rate

Media Supports: Polyester (PET)

Shell: Gamma Stable Polypropylene

Cage, Core, End Caps: Nylon

Valve O-Rings: Silicon (Standard)

Sealing: Thermally Bonded

### Operating Conditions:

Maximum Forward Differential Pressure: **Liquid:** 5.5 bar (80psi) at 77°F/25°C

**Gas:** 4.1 bar (60psi) at 77°F/25°C

Minimum Burst Pressure: 8.3 bar (120psi) at 77°F/25°C

Maximum Reverse Differential Pressure: 3.0 bar (44psi) at 68°F/20°C

Maximum Operating Temperature: 176°F/80°C

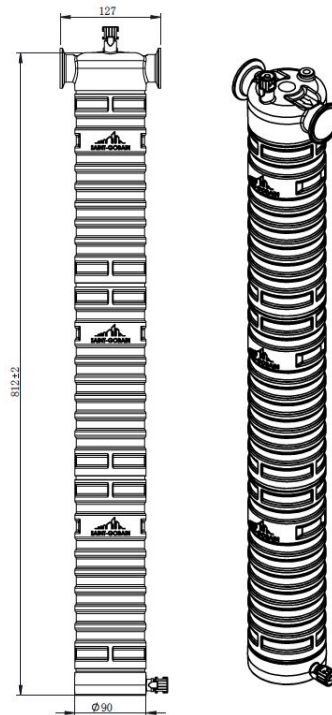


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**Nominal Dimension:** All dimensions are in Millimeter

**Part Number:** LZT3ZS020GTCTC



**Hold-Up Volume (Approx.):**

Upstream Volume: 2.28 L

Downstream Volume: 558.40 mL

**Typical Filtered Volume:**

300.0L – 1,200.0L

**Filter Integrity:**

The finished product was sampled and shown to exhibit a minimum bubble point of  $\geq 18$  psi (1.2 bar) in 60%IPA / 40% water and  $\geq 50$  psi (3.5 bar) in DI Water ( at 22°C ).

**Sterilization:**

Gamma Irradiation: The filters can be Gamma Sterilized up to 50kGy.

Autoclave: The filters can be autoclaved up to 10 cycles at 125°C (257°F) for 30 minutes.

*Warning:* The filters cannot be sterilized by steam-in-place (SIP)

**Shelf Life:**

The LZ capsules have a shelf life of 3 years from the date of manufacture.





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## Regulatory Compliance:

| Category                  | Standard or Reference Test  |
|---------------------------|---|
| Physiochemical            | <ul style="list-style-type: none"> <li>• USP Oxidizable Substances</li> <li>• USP &lt;645&gt; Conductivity</li> <li>• USP &lt;643&gt; Non-Volatile Residue</li> <li>• Total Organic Carbon (TOC) Analysis</li> </ul>  |
| Cleanliness               | <ul style="list-style-type: none"> <li>• USP &lt;85&gt; Bacterial Endotoxin Test</li> <li>• USP &lt;788&gt; Particulate Matter</li> <li>• 21 CFR 210.72 and 210.3 (b) (6) Fiber Shedding</li> </ul>   |
| Biocompatibility          | <ul style="list-style-type: none"> <li>• ASTM F756-17 Hemolysis</li> <li>• USP &lt;88&gt; (USP Class VI Plastics) Biological Reactivity Tests, In Vivo</li> <li>• USP &lt;87&gt; / ISO 10993-5, In Vitro Cytotoxicity</li> <li>• 21 CFR 177 FDA Indirect Food Additive</li> </ul>   |
| Bacterial Retention       | Quantitative retention of $10^7$ CFU/cm <sup>2</sup> <i>Brevundimonas diminuta</i> per ASTM methodology   |
| USP Bacterial Endotoxins  | A representative sample from the lot is tested to confirm that an aqueous extraction of the product contains <0.25 EU/mL as determined by the Limulus Amebocyte Lysate (LAL) Test.  |
| Animal-derived Components | No animal-derived material is intentionally added or used during the manufacture of PureFlo Z Series PES Capsules.  |
| RoHS                      | Restriction of Hazardous Substances (RoHS 3) Directive 2015/863   |
| REACH                     | REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) Article 57, Regulation No. 1907/2006)  |
| Traceability              | <p>For traceability and easy identification:</p> <ul style="list-style-type: none"> <li>• A Certificate of Conformance is provided with each capsule.</li> <li>• Each filter bag and box are labeled with the product part number, lot number, and identifying characteristics.</li> <li>• Each capsule is engraved and labeled with the product part number, lot number, and identifying characteristics.</li> </ul> |







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## LZ- PureFlo® Z Series PES Full-Size Capsules

### Ordering Guide



| [1]  | [2]  | [3]   | [4]   | [5] Inlet and [6] Outlet   |
|--|--|---|---|--|
| Filter Configuration   | Filter Size Code<br>[Filtration Area]  | Micron Rating<br>[Pre-Filter/Final Filter]  | Vent/Drain  | Inlet and Outlet Connection  |
| <ul style="list-style-type: none"> <li>I : I-Line</li> <li>T : T-Line</li> </ul> | <ul style="list-style-type: none"> <li>1 : 10-Inch<br/>[Filtration Area: 0.7 m<sup>2</sup>]</li> <li>2 : 20-Inch<br/>[Filtration Area: 1.4 m<sup>2</sup>]</li> <li>3 : 30-Inch<br/>[Filtration Area: 2.1 m<sup>2</sup>]</li> <li>4 : 40-Inch<br/>[Filtration Area: 2.8 m<sup>2</sup>]</li> </ul> | <ul style="list-style-type: none"> <li>S010 : 0.1 µm</li> <li>S020 : 0.2 µm</li> <li>ZS010 : 0.2/0.1 µm</li> <li>ZS020 : 0.45/0.2 µm</li> <li>XS010 : 0.45/0.1 µm</li> <li>XS020 : 0.65/0.2 µm</li> </ul> | <ul style="list-style-type: none"> <li>G: 1/4" Bleed valve vent and drain</li> <li>J: 1/4" Bleed valve (near inlet only)</li> <li>A: 1/4" Bleed valve (near outlet only)</li> </ul> | <ul style="list-style-type: none"> <li>1H : 1/8" Hose Barb</li> <li>2H : 1/4" Hose Barb</li> <li>3H : 3/8" Hose Barb</li> <li>4H : 1/2" Hose Barb</li> <li>5H : 9/16" Hose Barb</li> <li>MT : 1/2" Tri-Clamp</li> <li>TC : 1-1/2" Tri-Clamp</li> </ul> |

#### Example:

**LZI3XS020G4H4H**

PureFlo LZ Series In-Line Full-Size Capsule, Highly Asymmetric Dual Layer PES 0.65µm / 0.2µm PES Sterilizing Grade Membrane, 30.0", Filtration Area 2.1 m<sup>2</sup>, 1/4" bleed valve vent and drain, 1/2" Hose Barb (Inlet/Outlet)

Part Number

Description



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## Special Configuration:

### Layer Option:

- Single Layer
- Dual Layer

### Micron Rating Option:

- S010 : 0.1  $\mu\text{m}$
- S020 : 0.2  $\mu\text{m}$
- ZS010 : 0.2/0.1  $\mu\text{m}$
- ZS020 : 0.45/0.2  $\mu\text{m}$
- XS010 : 0.45/0.1  $\mu\text{m}$
- XS020 : 0.65/0.2  $\mu\text{m}$

### Vent/Drain Option:

- G: 1/4" Bleed valve vent and drain
- J: 1/4" Bleed valve (near inlet only)
- A: 1/4" Bleed valve (near outlet only)

### Inlet Fitting Option:

- 1H = 1/8" Hose Barb
- 2H = 1/4" Hose Barbs
- 3H = 3/8" Hose Barb
- 4H = 1/2" Hose Barb
- 5H = 5/8" Hose Barb
- MT = 1/2" Tri clamps
- TC = 1-1/2" Tri clamp

### Outlet Fitting Option:

- 1H = 1/8" Hose Barb
- 2H = 1/4" Hose Barbs
- 3H = 3/8" Hose Barb
- 4H = 1/2" Hose Barb
- 5H = 5/8" Hose Barb
- MT = 1/2" Tri clamps
- TC = 1-1/2" Tri clamp

