



Graver Technologies

FILTRATION | SEPARATION | PURIFICATION



# ZTEC™ SLWB Series Filter Cartridges

*Serial Layer Pleated TECpore™  
Polyethersulfone (PES) Membrane for  
Critical Filtration in Beverage Applications*

## Product Specifications

**Media:** Serial Layer TECpore Asymmetric Polyethersulfone Membrane

**Inner core, end caps, cage:** Polypropylene

**Support layers:** Spunbonded Polypropylene

**Gaskets/O-Rings:**

Buna-N, EPDM, Silicone, Teflon  
Encapsulated Viton (O-Rings only),  
Teflon (gaskets), Viton

**O-Ring Insert:** PBT

**Micron ratings:** 0.2, 0.45, 0.65  $\mu\text{m}$

## Dimensions

**Nominal lengths:**

9.75" 10" 20" 30" 40"  
24.8 25.4 50.8 76.2 101.6 cm

**Outside diameter:** 2.7" (6.9 cm)

**Inside diameter:** 1.0" (2.54 cm)

**Surface area:** 7.0 ft<sup>2</sup> (0.65 m<sup>2</sup>)  
per 10" element

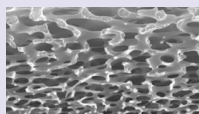
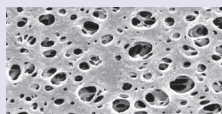
## Operating Parameters

**Maximum sustained  
operating temperature:**  
176°F (80°C) at 20 psid (1.38 bar)

**Maximum differential pressure:**  
80 psid @ 70°F (5.5 bar @ 21°C)  
40 psid @ 160°F (2.8 bar @ 71°C)

**Maximum reverse differential pressure:**  
40 psid @ 70°F (2.8 bar @ 21°C)

**Recommended change-out pressure:**  
35 psid (2.4 bar)



Protect your beverage from spoilage. ZTEC SLWB cartridge filters utilize serial layer TECpore polyethersulfone membrane to provide consistent removal of spoilage organisms and inorganic particulate. The product offers excellent retention efficiency and extended on-stream life making it an ideal filter for the clarification of beer, wine and bottled water. TECpore PES membrane available with 0.2, 0.45 and 0.65  $\mu\text{m}$  pore sizes, is designed to meet and surpass the filtration criteria necessary to maintain product quality and characteristics. Produced in a cleanroom, the cartridges are integrity tested during production to assure performance and consistency.

## FEATURES & BENEFITS

- Manufactured with Graver Technologies' high performance TECpore PES membrane in a Cleanroom Environment
- The Serial Layer PES membrane is two filters in one greatly extending life for greater throughput efficiency
- 100% flushed with ultrapure DI water and integrity tested
- Low adsorption of protein, color and flavor components
- Steamable/sanitizable for cleaning and reuse
- High log reduction values for spoilage organisms
- The serial PES membrane provides high capacity contaminant loading
- Complete qualification guide available
- Quick wet treatment available
- Every 222/226 configuration cartridge comes standard with an embedded O-ring support ring

## CERTIFICATIONS

- USP Class VI: Meets USP Class VI Biological Test for Plastics
- FDA Listed Materials: All materials comply with FDA Title 21 of the Code of Federal Regulations Sections 174.5, 177.1520 (polypropylene), 177.2440 (PES resin) and 177.2600 (rubber) as applicable for food and beverage contact.
- European Directive for Food Contact: European Regulation No. 1935/2004 and European Regulation 10/2011 with amendments and corrections from European reg No2020/1245: Tested for migration behavior and is suitable for contact with all kinds of foodstuffs with minimal rinse-up. Data available upon request.

## TYPICAL APPLICATIONS

- White Wine
- Sparkling Wine
- Champagne
- Bottled Water
- Red Wine
- Wine/Malt Coolers
- Distilled Spirits
- Beer

## PERFORMANCE SPECIFICATIONS

- Hot DI Water: Filter cartridge will withstand temperatures of 185°F (85°C) for up to 30 consecutive minutes.
- Cleaning/Sanitization: Compatible with most common chemical cleaning, sanitizing and sterilizing agents and with pH range from 1–14. Consult factory for specific compatibility information.
- Steam/Autoclave: Cartridges may be steamed or autoclaved for at least 50 thirty-minute cycles @ 275°F (135°C).

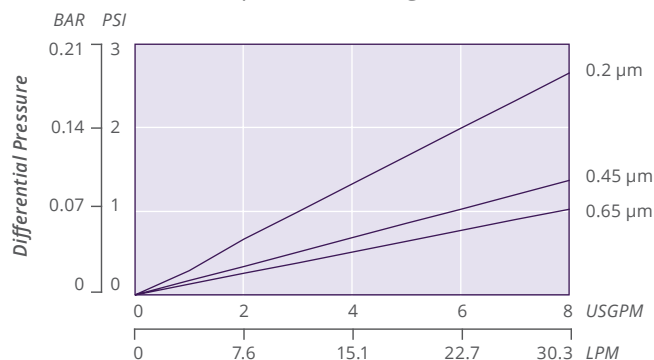
## ZTEC SLWB NOMENCLATURE INFORMATION

| Filter Type                   | Retention Rating (microns) | Nominal Length (inches) |     | End Configuration |                                  | Gasket or O-Ring |                                    |
|-------------------------------|----------------------------|-------------------------|-----|-------------------|----------------------------------|------------------|------------------------------------|
| ZTEC SLWB Series              | 0.2                        | −5                      | −20 | P                 | Double Open End                  | B                | Buna-N                             |
|                               | 0.45                       | −9.75*                  | −30 | P2                | 226/Flat Single Open End         | E                | EPDM                               |
|                               | 0.65                       | −10                     | −40 | P3                | 222/Flat Single Open End         | S                | Silicone                           |
|                               |                            |                         |     | P7                | 226/Fin Single Open End          | T                | Teflon encap. Viton (O-Rings only) |
|                               |                            |                         |     | P8                | 222/Fin Single Open End          | T                | Teflon (gaskets)                   |
| Example: ZTEC SLWB 0.45–20P2E |                            |                         |     | P28               | 222 w/3 tabs/Fin Single Open End | V                | Viton                              |
|                               |                            |                         |     | AM                | Single Open End, Internal O-Ring |                  |                                    |
| ZTEC SLWB                     | 0.45                       | −20                     |     | P2                |                                  | E                |                                    |

\*Available only for DOE (P) configuration

## ZTEC SLWB FLOW RATE

Typical Flow Rate Clean Water at Ambient Temperature  
(per 10" cartridge)



For liquids other than water, multiply pressure drop by the fluid viscosity in centipoise

## TYPICAL BACTERIAL RETENTION

- 0.2 µm      LRV for *Pseudomon aeruginosa* ≥ 8.3
- 0.45 µm      LRV for *Levilactobacillus brevis* ≥ 8.9
- 0.65 µm      LRV for *S. cerevisiae* ≥ 11

Log Reduction value testing was done on a Single Open End configuration with a dual O-Rings Seal (222 or 226)

## INTEGRITY TEST SPECIFICATIONS

Minimum Bubble Point values and maximum Diffusive Air Flow (per 10-inch cartridge) values for ZTEC SLWB filters wet with water:

| Pore Size | Bubble Point        | Diffusive Air Flow              |
|-----------|---------------------|---------------------------------|
| 0.2 µm    | ≥ 26 psig (2.1 bar) | ≤ 35 cc/min @ 21 psig (1.7 bar) |
| 0.45 µm   | ≥ 20 psig (1.4 bar) | ≤ 35 cc/min @ 16 psig (1.1 bar) |
| 0.65 µm   | ≥ 17 psig (1.2 bar) | ≤ 35 cc/min @ 14 psig (1.0 bar) |

## THROUGHPUT TESTING

Uniform test media was allowed to be filtered through test coupons with a single layer WB and the serial layers of the SLWB (Pre-filter and Final layers). The throughput of the media showed an increase up to 93% with the SLWB serial layer media.



## FOR MORE INFORMATION

GTX-381 11-25

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