A high performance polyethersulfone membrane offering exceptional flow rates, superior cleanliness and maximum assurance of removing particulates and microorganisms in critical processes.
## Product Description

The STyLUX® filter cartridge is an absolute rated, pleated polyethersulfone membrane filter designed to provide greater bacteria and particle removal at high flow rates and extremely low pressure drops. It offers the greatest assurance of filtration performance, stability and service life for controlling contaminants in demanding environments.

The exceptional performance of STyLUX® is derived from its unique filtration media. The filter media is made by a patented process which produces an asymmetric polyethersulfone membrane that is inherently hydrophilic. The membrane is a highly porous structure whose pore size decreases progressively through its depth. This highly durable structure maintains consistent porosity and contaminant retention throughout its operational life without shedding or unloading particles. This results in a filter that provides absolute retention and superior flow rates, cleanliness and throughputs, even in severe process conditions.

All components of the STyLUX® filter cartridge comply with FDA regulations for food contact use. By a unique state-of-the-art process, the membrane and polypropylene support components are thermally bonded to the cartridge end caps. This provides an integral filter cartridge that has excellent chemical compatibility and extremely low extractables in a wide range of fluids and applications.

## Applications

STyLUX® meets the critical demand for contamination control in the chemical, microelectronics, aerospace, food and beverage, biologicals, veterinary, pharmaceutical and other industries. STyLUX® may be used as either a prefilter or final filter. It offers the greatest security for bulk and point-of-use filtration.

## Features

- Durable polyethersulfone and polypropylene components
- Absolute ratings of 0.04, 0.1, 0.2, 0.45 and 0.6 micron
- Highly porous asymmetric membrane
- Extremely high flow rates at low pressure drops
- Permanently hydrophilic membrane
- Integrity testable in water
- Contains no binders, adhesives or other extraneous materials
- High thermal and hydrolytic stability
- Resistant to oxidizing agents
- Rugged, thermally bonded construction
- Biologically inert and non-toxic
- High protein transmission
- 100% integrity tested during manufacture

## Benefits

- Wide chemical compatibility through pH range 1-14, permits use in broad range of fluids and applications
- Precise particle retention at rated level, meets HIMA/ASTM bacterial validation standards
- Higher flow rate, greater through-put, extended service life
- Allows faster processing times, smaller filtration systems, reduced operating costs
- Inherently wettable in aqueous solutions without use of additives, surface active agents or post treatments
- Assurance of product integrity and effectiveness in operation
- High chemical stability, extremely low extractables, rapid rinse up in 18 megohm-cm water
- Reliable integrity under severe process conditions, withstands prolonged exposure to high temperature water without breakdown, shedding or loss of integrity
- Compatible with chemical sanitization methods
- Withstands multiple autoclave or inline steam sterilizations
- Meets FDA requirements for food contact use, passes USP Class VI Plastics biological reactivity tests
- Low protein binding, minimizes valuable product adsorption, increases yield
- Assured product reliability and consistency
**Product Specifications**

**Materials of Construction**
Membrane: Polyethersulfone
Upstream Support: Polypropylene
Downstream Support: Polypropylene
Outer Guard: Polypropylene
Core: Polypropylene
End Caps: Polypropylene
Sealing Method: Thermal Bonding
Gaskets and O-Rings: Buna, EPR, Polyethylene, Silicone, Viton® or Teflon®

**Filtration Rating**
Absolute Pore Sizes: 0.04, 0.1, 0.2, 0.45, 0.6 micron

**Bacterial Retention**
HIMA/ASTM Challenge
- 0.2 µm > 10™ LRV/cm²
- 0.45 µm > 10™ LRV/cm²

- Brevundimonas diminuta
- Serratia marcescens

**Integrity Testing**
**Minimum Bubble Point**
- 0.04 µm 115 psi, water
- 0.1 µm 80 psi, water
- 0.2 µm 44 psi, water
- 0.45 µm 32 psi, water
- 0.6 µm 18 psi, water

**Sterilization**
Inline Steam: 121-135°C, 30-60 minutes. Autoclave: 121-125°C, 30-60 minutes. STyLUX® cartridges can withstand repeated sterilization cycles without loss of integrity. For applications requiring autoclave/SIP, a stainless steel reinforcement ring must be ordered. See option “R” under “Gasket or O-Ring Material” within “Ordering Information.”

**Cross section of the STyLUX® membrane**

**Maximum Operating Temperatures and Pressures**
- 100°F @ 80 psid (37°C) (5.6 kg/cm²)
- 150°F @ 60 psid (65°C) (4.2 kg/cm²)
- 180°F @ 30 psid (82°C) (2.1 kg/cm²)

**Cartridge Dimensions**
Diameter: 2.75” (7 cm)
Nominal Lengths:
- 10”, 20”, 30” and 40”
- (25 cm, 50 cm, 75 cm and 100 cm)

**STyLUX® Typical Flow Rates (10” Cartridge)**

- Water
- 0.04 µm
- 0.1 µm
- 0.2 µm
- 0.4 µm
- 0.6 µm

**INITIAL DIFFERENTIAL PRESSURE, psid**

**FLOW RATE, gpm**
End Cap Configurations

1. **Flat Gasket; open end for GS and GL double open end (DOE) configurations**
2. **External -222 O-rings; open end for C2 and F2 single open end (SOE) configurations**
3. **External -226 O-rings with locking tabs for C6 and F6 single open end (SOE) configurations**
4. **Alignment Fin; closed end for F2 and F6 single open end (SOE) configurations**
5. **Button cap; closed end for C2, C6 and SG single open end (SOE) configurations**
6. **Internal O-ring; open end for DN and DA double open end (DOE) configurations**

Ordering Information

<table>
<thead>
<tr>
<th>Filter Grade*</th>
<th>Absolute Rating (µm)</th>
<th>Cartridge Length</th>
<th>End Cap Configuration</th>
<th>Gasket or O-Ring Material</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ST</strong></td>
<td>0.2</td>
<td>3</td>
<td><strong>F2</strong></td>
<td></td>
</tr>
<tr>
<td>ST = Certificate, fully traceable</td>
<td>0.4</td>
<td>1 = 10&quot;</td>
<td>GS = DOE; flat gaskets (9.75&quot;, 19.5&quot;, 29.25&quot;, 39&quot; length filters)</td>
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<tr>
<td></td>
<td>0.1</td>
<td>2 = 20&quot;</td>
<td>GL = DOE; flat gaskets (20&quot;, 30&quot;, 40&quot; length filters)</td>
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<tr>
<td></td>
<td>0.2</td>
<td>3 = 30&quot;</td>
<td>C1 = SOE: -222 nO-Ring™, button cap end</td>
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<tr>
<td></td>
<td>0.4</td>
<td>4 = 40&quot;</td>
<td>C2 = SOE: -222 O-Rings, button cap end</td>
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<tr>
<td><strong>SM</strong></td>
<td>0.6</td>
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<td>F1 = SOE: -222 nO-Ring™, fin end</td>
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<tr>
<td>SM = Standard PES membrane; not integrity tested or flushed</td>
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<td>F2 = SOE: -222 O-Rings, fin end</td>
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<tr>
<td><strong>SL</strong></td>
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<td>C5 = SOE: -226 nO-Ring™, button cap end</td>
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<tr>
<td>SL = PES membrane; not integrity tested or flushed</td>
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<td>F5 = SOE: -226 nO-Ring™, fin end</td>
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<td>C6 = SOE: -226 O-Rings, button cap end</td>
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<td>F6 = SOE: -226 O-Rings, fin end</td>
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<td>SG = SOE; smooth internal -020, button cap end</td>
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<td>DN = DOE; internal -120 O-Rings</td>
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<td>DA = DOE; internal -213 O-Rings</td>
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<td>R = Silicone O-Rings and stainless steel reinforcement ring</td>
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</table>

*Filter Grade: ST = This absolute, microbiobly rated filter meets full traceability requirements for the pharmaceutical industry. It is 100% integrity tested and flushed with DI water during manufacture. Each ST grade filter is shipped with a Certificate of Quality stating exact quality control criteria and test performance results. This is a validated product to meet the stringent requirements of the pharmaceutical industry.

SM = This sterilization grade filter is absolute, microbiobly rated and 100% integrity tested and flushed with DI water during manufacture. It is suited for critical applications when regulatory documentation requirements are minimal. A Certificate of Conformance is available on a lot basis.

SL = This SM grade filter is not 100% integrity tested or flushed with DI water during manufacture. It is offered as an economical prefilter or final filter when sterility assurance and validation are not required.

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