**Steridyne®**

**0.2 µm VTV-grade Small Filter Cartridge (L model)**

**Description**
Steridyne® VTV0.2 is a hydrophobic PVDF membrane filter optimized for critical air and gas applications. Designed for bidirectional flow, this sterilizing grade filter is well suited for applications requiring complete removal of bacteria and viruses from air and gas streams, such as fermenter inlet air and exhaust, sterile process air, and sterile venting of carboys, filling vessels, bioreactors and small product or intermediate tanks.

The Steridyne® VTV0.2 small filter cartridge, or small flow element (SFE), is 100% integrity tested during manufacture and has the added benefit of quality certification that meets the critical demands of the pharmaceutical, biotechnology and related industries.

**Materials of Construction**
All components of the Steridyne® filter are either animal component free or in compliance with EMEA/410/01 Rev. 3 (EDQM 5.2.8 07/2011:50208), and US Code of Federal Regulations 9 CFR 94.18 and 21 CFR 189.5. These materials are listed for food contact use in the Code of Federal Regulations (CFR), Title 21, as below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>CFR Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membrane:</td>
<td>Polyvinylidene fluoride</td>
<td>21, 177.2510</td>
</tr>
<tr>
<td>Upstream support</td>
<td>Polypropylene</td>
<td>21, 177.1520</td>
</tr>
<tr>
<td>Downstream support</td>
<td>Polypropylene</td>
<td>21, 177.1520</td>
</tr>
<tr>
<td>Outer guard:</td>
<td>Polypropylene</td>
<td>21, 177.1520</td>
</tr>
<tr>
<td>Core:</td>
<td>Polypropylene</td>
<td>21, 177.1520</td>
</tr>
<tr>
<td>End caps:</td>
<td>Polypropylene</td>
<td>21, 177.1520</td>
</tr>
<tr>
<td>O-rings:</td>
<td>Typically Silicone</td>
<td>21, 177.2600</td>
</tr>
<tr>
<td>Sealing method:</td>
<td>Thermal bonding</td>
<td></td>
</tr>
</tbody>
</table>

**Gas Retention Rating**
≥ 0.003 µm

**Minimum Bubble Point**
18 psi (1.24 bar), 60% IPA/40% water
17 psi (1.17 bar), 70% IPA/30% water

**Maximum Diffusion Rate**
2.5" (7 cm): 3.0 mL/min @ 15 psid (1.03 bar), 60% IPA/40% water
5.0" (13 cm): 6.4 mL/min @ 15 psid (1.03 bar), 60% IPA/40% water

**Maximum WIT Rate**
2.5" (7 cm): 0.1 mL/min water @ 20 psi (1.38 bar)
5.0" (13 cm): 0.2 mL/min water @ 20 psi (1.38 bar)
*Specification can vary by instrumentation; consult Meissner.*

**Typical Air Flow Rate**
2.5" (7 cm): 3.85 scfm/psid (4.7 Nm³/hr @ Δp 50 mbar)
5.0" (13 cm): 8.33 scfm/psid (10.3 Nm³/hr @ Δp 50 mbar)

**Bacterial Retention**
>10⁷ per cm² removal of *Brevundimonas diminuta* per ASTM F838

**Operating Characteristics**
- Operating temperature range: 32 °F to 100 °F (0 °C to 38 °C)
- Maximum temperature rating: 180 °F @ 30 psid (82 °C @ 2.1 bar)
- Maximum operating pressure: 80 psid @ 100 °F (5.5 bar @ 38 °C)
- Maximum reverse pressure: 15 psid @ 100 °F (1.0 bar @ 38 °C)

**Sterilization**
- Autoclave: 121 °C to 135 °C (15 to 30 psi, 1 to 2 bar), 30 to 60 minutes, ≥ 3 cycles.
- In-line steam sterilized: 121 °C to 135 °C (15 to 30 psi, 1 to 2 bar), 30 to 60 minutes, ≥ 3 cycles.

**Biological Safety**
Steridyne® filters meet the requirements as specified in the current USP <88> Class VI plastics, physicochemical, oxidizable substances, and USP <87> cytotoxicity. No binders, adhesives or surfactants are used in the construction of Steridyne® filters. Filters comply with European Commission Regulation No 10/2011.
Quality Assurance
Each Steridyne® VTV0.2 is supplied with a Certificate of Quality verifying the high standards and superior performance of the product. Steridyne® filters comply with the Food and Drug Administration Code of Federal Regulations, Title 21, Parts 210 and 211. Product is manufactured and packaged in a cleanroom facility that, through voluntary compliance, meets or exceeds FDA Good Manufacturing Practice Standards. To ensure product reliability, Meissner’s Quality Assurance staff continually audits the manufacturing process for conformance to its Quality Management System. Each Steridyne® filter is integrity tested during manufacture and is clearly marked with filter type and lot number.

Ordering Guide

Model
Small Flow Element (SFE) L

O-ring Seal Material
B Buna
E EPR
S Silicone
T Teflon® over Silicone
V Viton®
X Teflon® over Viton®

Reinforcement Ring Option
(blank) Standard - no reinforcement ring
R Reinforcement ring - required only for the 222 and 226 adapter when autoclaving or steam sterilizing

Cartridge Configuration
P SOE, internal 116 O-ring, button cap end
2 SOE, 222 O-rings, button cap end
6 SOE, 226 O-rings, button cap end
SK SOE, Skirt-flange adapter (reinforcement or O-ring not required)
L 116 O-ring with Mini Lock

Cartridge Length
2 2.5" (7 cm) 5 5.0" (13 cm)

Product Grade Pore Size
Steridyne® hydrophobic PVDF membrane VTV 0.2 µm

Additional information about this filter product is available in the Steridyne® Green Docs document at www.meissner.com/green-docs.

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