Zebragard™
Hydrophilic/Hydrophobic PVDF Membrane Barrier Filter
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Zebragard™ PVDF membrane barrier filter is a convenient, ready-to-use device designed to facilitate in-line pre-use, post sterilization integrity testing (PUPSIT) of single or redundant sterile process filter systems.

The filter features a uniquely patterned sterilizing grade PVDF membrane having dual hydrophilic and hydrophobic characteristics to enable effective passage of both liquids and gases. This unique feature coupled with pleated membrane technology affords high flow rates and faster air flow recovery at low pressures.

Zebragard™ membrane barrier filters are available sterile (irradiated), or nonsterile, and feature broad chemical compatibility and minimal extractables.

**Design Features**
- Individually serialized for optimum traceability in critical applications
- Unique striped pleated membrane technology offers rapid air flow recovery
- Materials of construction are identical to Meissner’s existing capsule portfolio
- Irradiation stable and animal component free (ACF)
- Available with sterile hose barb and sanitary flange process connections
- Biologically inert and nontoxic
- Contains no adhesives or surfactants ensuring low extractables and rapid rinse-ups
- 100% integrity tested during manufacture

**Applications**
- Pre-use post sterilization integrity testing (PUPSIT) of single or redundant sterile filtration systems
- Aseptic processing
**Materials of Construction**
Filter Membrane: Polyvinylidene Fluoride (PVDF)
Support Components: Polypropylene (PP)
Capsule Housing: Polypropylene (PP)
Sealing Method: Thermal bonding

Filters comply with European Commission Regulation No. 10/2011. The filters meet the requirements as specified in the current USP <88> Class VI plastics, pyrogen, and USP <87> cytotoxicity tests. No binders or adhesives are used in the construction. Capsule filters are non-fiber-releasing as defined in 21 CFR 210.3(B)(6) and 211.72. All materials of construction meet FDA standards for food contact per CFR 177.

**Filtration Ratings (Absolute)**
0.2 µm

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

**Filter Connections**
Inlet/Outlet: Sanitary flange or hose barb fittings

**Effective Filtration Area**
3.3 ft² (0.31 m²)

**Typical Air Flow Rates**

**Typical Water Flow Rates**

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**Bacterial Retention**
> 10⁷ cfu/cm² retention of Brevundimonas diminuta per ASTM F838
(Zebragard™ filters meet the FDA definition of a sterilizing grade filter)

**Operating Characteristics**
Operating temperature range:
32 °F to 100 °F (0 °C to 38 °C)
Maximum temperature rating:
160°F @ 35 psig (71°C @ 2.4 bar)
Maximum operating pressure, liquid:
75 psig @ 32°F (5.2 bar @ 38°C)
Maximum operating pressure, gas:
50 psig @ 100°F (3.4 bar @ 38°C)
Reverse operating pressure:
15 psig @ 100 °F (1 bar @ 38 °C)

**Sterilization**
Irradiation: 25 to 40 kGy once. Do not autoclave irradiated capsules.
Autoclave: 121°C to 135°C (15 to 30 psi, 1 to 2 bar), 30 to 60 minutes, ≥ 3 cycles.
Capsules must not be in-line steam sterilized.

**Dimensions (Nominal)**
Diameter: 2.75” (7.0 cm)
Length: 6.90” (17.5 cm)
## Ordering Information

<table>
<thead>
<tr>
<th>Capsule Options</th>
<th>Material Code</th>
<th>Grade</th>
<th>Retention Grade (µm)</th>
<th>Inlet/Outlet Connections</th>
<th>Vent/Drain Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL = Standard (non-sterile)</td>
<td>2 = Animal component free polypropylene capsule shell material, optimized for gamma irradiation compatibility</td>
<td>VTZ</td>
<td>0.2</td>
<td>00 = 1&quot; sanitary flange</td>
<td>40 = No vent/drain ports</td>
</tr>
<tr>
<td>GL = Gamma irradiated</td>
<td>22 = ¼&quot; hose barb</td>
<td>02 = 1&quot; sanitary flange In; ⅜&quot; hose barb out</td>
<td>77 = ¾&quot; sanitary flange</td>
<td>4 = Two sanitary valves with hose barbs</td>
<td></td>
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<tr>
<td></td>
<td>99 = ½&quot; hose barb (flexible tubing)</td>
<td>09 = 1&quot; sanitary flange In; ½&quot; hose barb out</td>
<td>72 = ¾&quot; sanitary flange In; ⅜&quot; hose barb out</td>
<td>5 = One sanitary valve with hose barb, outlet side</td>
<td></td>
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<tr>
<td></td>
<td>88 = ¾&quot; hose barb</td>
<td>LL = 1&quot; sanitary flange, long neck</td>
<td></td>
<td>6 = One sanitary valve with hose barb, inlet side</td>
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