High Flow Rate Capability With Polyethersulfone Membrane Filter Cartridges

Mega-Pure polyethersulfone membrane cartridges provide superior flow rates over the competition. The unique construction features a high-surface area design that allows for excellent flow rates and high particle removal efficiency. Hydrophilic polyethersulfone membrane cartridges require no prewetting and are ready to use. The Mega-Pure Polyethersulfone Membrane Series of filter cartridges meets or exceeds requirements for the filtration of UHP liquids used in the fabrication of state-of-the-art microelectronic devices.

The Mega-Pure Polyethersulfone Membrane Series is available in 0.03µm, 0.1µm and 0.2µm pore sizes.

Applications

- **UHP Water**
  - Central PAD
  - Polishing Stations
  - Point-of-Use

- **UHP Chemical**
  - Specialty Chemicals
  - Point-of-Use
  - Bulk Photoresists and Solvents

- **Microelectronics**
  - Semiconductor
  - Optical Disks
  - Printed Circuits
  - Hard Disks

Features and Benefits

**Superior Polyethersulfone Membrane Yields Maximum Filtration Results**

- High surface area design provides excellent flow rates and extended filter life while maintaining high particle removal efficiency.
- Rinsed to 18 megohm-cm resistivity with UHP water.
- Spunbonded polypropylene support materials eliminate sites for potential shedding and increased particle counts.
- Provides broad chemical compatibility.

Parker’s TQM System Assures Consistent Performance and Reliable Filtration

- Strict quality control measures include rigorous testing for rinse up, shedding, flow rate and extractable levels.
- Integrity-tested and testable *in situ*.
- Thermally welded, eliminating adhesive extractables.
- Biosafe in accordance with USP Class VI-121° Plastics Tests.
- Specifically designed to ensure cleanliness.
- All materials of construction are FDA listed as acceptable for potable and edible liquid contact according to CFR Title 21.
**Specifications**

**Materials of Construction:**
- Membrane: hydrophilic polyethersulfone
- Membrane Support/Drainage: polypropylene
- Core/Cage: polypropylene
- End Fittings: polyester
- O-Ring Material: various
- Sealing Method: thermal welding

**Dimensions:**
- Diameter: 2.7 in (6.8 cm)
- Lengths: 10-40 in (25-102 cm)

**Surface Area (10 in cartridge):**
- Minimum 6.5 ft² (0.6 m²)

**Integrity Test:**
- Bubble Point (in UHP water):
  - 0.03µm ≥ 90 psig (6.2 bar)
  - 0.1µm ≥ 70 psig (4.8 bar)
  - 0.2µm ≥ 45 psig (3.1 bar)
- Diffusion Rate (10 in cartridge):
  - 0.03µm ≤ 20cc/min at 50 psig (3.4 bar)
  - 0.1µm ≤ 50cc/min at 50 psig (3.4 bar)
  - 0.2µm ≤ 50cc/min at 30 psig (2.1 bar)

**Recommended Operating Conditions:**
- Maximum Temperature:
  - 176°F (80°C) @ 30 ΔP (2.1 bar)
- Maximum Differential Pressure:
  - Forward: 70 psi (4.8 bar) @ 77°F (25°C)
  - Reverse: 50 psi (3.4 bar) @ 77°F (25°C)

**Sterilization/Sanitization Methods:**
- Isopropyl Alcohol
- Sodium Hydroxide
- Hydrogen Peroxide
- 176°F (80°C) Water

**Polyethersulfone Cartridges:**
Flow rate vs. ΔP for a 1 cps liquid @ 73°F (23°C)**

**Flow Factors:**

<table>
<thead>
<tr>
<th>Pore Size (µm)</th>
<th>GPM/1PSID</th>
<th>LPM/1Bar</th>
<th>PSID/1GPM</th>
<th>Bar/1LPM</th>
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</thead>
<tbody>
<tr>
<td>0.03</td>
<td>1.2</td>
<td>66</td>
<td>0.85</td>
<td>0.015</td>
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<tr>
<td>0.1</td>
<td>1.8</td>
<td>99</td>
<td>0.56</td>
<td>0.010</td>
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<tr>
<td>0.2</td>
<td>3.5</td>
<td>192</td>
<td>0.29</td>
<td>0.005</td>
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**Ordering Information**

<table>
<thead>
<tr>
<th>Cartridge Code</th>
<th>Pore Size (µm)</th>
<th>Diameter (in)</th>
<th>Length (in)</th>
<th>O-Ring Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS = Polypropylene/Polyethersulfone</td>
<td>T = 0.03</td>
<td>B = 2.7</td>
<td>10</td>
<td>B = Buna N</td>
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<tr>
<td></td>
<td>S = 0.1</td>
<td></td>
<td>20</td>
<td>C = CR 503</td>
</tr>
<tr>
<td></td>
<td>F = 0.2</td>
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<td>30</td>
<td>D = CR 570</td>
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<td>40</td>
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<td>L = KR 8201</td>
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<td></td>
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<td>S = Silicone</td>
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<td></td>
<td></td>
<td>T = PFA/Viton*</td>
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<td></td>
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<td></td>
<td></td>
<td>V = Viton*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X = No O-Ring</td>
</tr>
</tbody>
</table>

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**Consult Process Filtration Division for gas flow data.

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