GPS Capsule Filters
Polyethersulfone (PES) Membrane

Excellent flow rates with high efficiency retention
High quality filtration of process water, specialty chemicals, inks and dyes
Optimized membrane design for high throughput

Applications

- Process Water
- Inks & Dyes
- DI Water
- Specialty Chemicals

GPS Capsules are hydrophilic and manufactured with polyethersulfone (PES) membrane. PES membrane exhibits excellent flow rates with high efficiency retention.

GPS capsule filters are used for removal of particulates from process water, and for final filtration of DI water, inks, dyes and specialty chemicals.

Polyethersulfone is particularly suited for high flow rate filtration of product streams that contain high contaminant loads and have elements that can adsorb to the media, such as preservatives. The lower binding characteristics of PES membrane make it a good choice for inks, dyes, specialty chemicals and service fluids.

GPS Capsule Filters - Filtration Area

<table>
<thead>
<tr>
<th>Media</th>
<th>Capsule Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>PES Membrane</td>
<td>2”  5”  10”  20”  30”</td>
</tr>
<tr>
<td></td>
<td>1.0 ft² (930cm²) 3.0 ft² (2788cm²) 7.0 ft² (6503cm²) 14.0 ft² (13006cm²) 21.0 ft² (19509cm²)</td>
</tr>
</tbody>
</table>

Flow Rate / Filtration Area

The following table represents typical water flow at a one psi (69 mbar) pressure differential across a single 2 inch capsule with 1.0 ft² (930 cm²) of media with 1/2” FNPT ports. The test fluid is water at ambient temperature. Higher pressure drops are acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

<table>
<thead>
<tr>
<th>Pore Size</th>
<th>0.03 μm</th>
<th>0.10 μm</th>
<th>0.22 μm</th>
<th>0.45 μm</th>
<th>0.65 μm</th>
<th>0.80 μm</th>
<th>1.0 μm</th>
<th>1.2 μm</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPM</td>
<td>0.21</td>
<td>0.36</td>
<td>0.64</td>
<td>1.0</td>
<td>1.2</td>
<td>1.3</td>
<td>1.36</td>
<td>1.4</td>
</tr>
<tr>
<td>LPM</td>
<td>0.79</td>
<td>1.36</td>
<td>2.42</td>
<td>3.79</td>
<td>4.54</td>
<td>4.92</td>
<td>5.15</td>
<td>5.30</td>
</tr>
</tbody>
</table>

* For approximate flow rates for 5” through 30” capsules, refer to the appropriate cartridge data sheet

Construction Materials

- Housing: Polypropylene
- Filtration Media: Polyethersulfone (PES) Membrane
- Media Support: Polypropylene
- End Caps: Polypropylene
- Center Core: Polypropylene
- Outer Support Cage: Polypropylene
- Sealing Method: Thermal Bonding

Maximum Operating Parameters

- Liquid Operational Pressure: 80 psi (5.5 bar) at 20 °C (68 °F)
- Gases Operational Pressure: 60 psi (4.1 bar) at 20 °C (68 °F)
- Operating Temperature: 43 °C (110 °F) at 30 psi (2.1 bar) in water
- Forward Differential Pressure: 50 psid (3.4 bard) at 20 °C (68 °F)
- Reverse Differential Pressure: 40 psid (2.7 bard) at 20 °C (68 °F)
- Recommended Changeout Pressure: 35 psid (2.4 bard)
Sanitization/Sterilization

**Autoclave**.................. 250°F (121°C), 30 min, multiple cycles

**Chemical Sanitization** ........ Industry standard concentrations of hydrogen peroxide, paracetic acid, sodium hypochlorite and other selected chemicals.

**Note**.............................GPS capsules are not to be used in steam.

FDA and EC Compliance

All Critical Process Filtration capsule filters are designed to meet the FDA requirements for processing food and beverage products. The materials used to construct GPS capsule filters are listed by the FDA as appropriate for use in articles intended for repeated food contact as specified in Title 21 CFR sections 174.5, 177.1500, 177.1520, 177.1630, 177.2440 and 177.2600 as appropriate. Membrane filters comply with Title 21 CFR sections 210.3 (b)(6) and 211.72, for non-fiber releasing filters. All materials used to make the filters are listed in European Commission Regulation EU/10/2011, Annex 1.

Extractables

GPS capsule filters generally exhibit low levels of non-volatile residues.

Quality Assurance and Standards

Critical Process Filtration uses state of the art computer controlled equipment to consistently produce high quality products as well as significantly reduce hand operations that can compromise quality. All manufacturing and testing is continuously monitored in real time so that data can be quickly and easily analyzed to facilitate improvements in both quality and cost.

The Critical Process Filtration manufacturing and quality systems meet rigorous ISO 9001:2008 standards. Each operation, including assembly, testing, cleaning, drying and packaging, is done in an appropriately rated clean room. Manufacturing is controlled using a sophisticated manufacturing system that networks work stations, manufacturing centers and inspection points. During the manufacturing and inspection processes, data is collected in real time to allow continuous quality monitoring and full traceability of all materials and processes.

Total Performance

Critical Process Filtration, Inc. is a vertically integrated manufacturer of filtration products to industries in which filtration is considered a critical part of the manufacturing process. We supply a complete line of products and services to help you cost effectively satisfy all your filtration requirements from a single source.

Ordering Information

Capsule order number example: General Service Grade PES Membrane, 0.22 Micron Rating, Non-Sterile, 10” Length, Sanitary Inlet, Sanitary Outlet = CPGPS-20N0001FF.

<table>
<thead>
<tr>
<th>Micron Rating</th>
<th>Length</th>
<th>Inlet</th>
<th>Outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>-03 - .03</td>
<td>A - 2”</td>
<td>A - 1/4” Female NPT</td>
<td>Inner Diameters</td>
</tr>
<tr>
<td>-10 - .10</td>
<td>B - 5”</td>
<td>B - 1/4” Male NPT</td>
<td>5/32” (4.0mm)</td>
</tr>
<tr>
<td>-20 - .22</td>
<td>1 - 10”</td>
<td>C - 3/8” Female NPT</td>
<td>Outer Diameters</td>
</tr>
<tr>
<td>-40 - .45</td>
<td>2 - 20”</td>
<td>D - 1/2” Female NPT</td>
<td>11/32” (8.6mm)</td>
</tr>
<tr>
<td></td>
<td>3 - 30”</td>
<td>E - 1/2” Male NPT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F - Sanitary</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>G - Hose Barb*</td>
<td></td>
</tr>
</tbody>
</table>

**N** - Non-Sterile

**000**

**CP**

**GPS**

Hose Barb Diameter Ranges*

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
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<td>11/32” (8.6mm)</td>
</tr>
<tr>
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<td>5/32” (4.0mm)</td>
</tr>
</tbody>
</table>

**Request a QUOTE** from your area representative