ENM Filters
Nylon 6,6 Membrane

ENM cartridge and capsule filters are made with Nylon 6,6 membrane. These long-proven filters are used for ultrafine particle removal in ultrapure water, chemicals, solvents and other aqueous solutions. Pore sizes range from 0.10 to 0.65 µm and the filter sizes scale from laboratory to full production using identical materials to ensure consistent results.

The ENM filters have high retention and throughput as well as broad chemical compatibility making them well suited for the filtration of solvents and other harsh chemicals. They are used to as part of particle contamination control systems and remove ultrafine particles.

ENM filters are pulse power flushed until the rinse effluent reaches 18+ Megohm-cm and less than 3ppb TOC. Each filter is individually tested to ensure integrity.

Critical Process provides unrivaled delivery times, technical consulting before purchasing, and very competitively priced high-performance products. Our comprehensive testing & analysis and validation services support your team whenever they need it. Your process experts partnering with our filtration experts is how we deliver your company’s solution right the first time.

ENM filters are recommended for:
- Ultrapure Water
- Chemicals
- Solvents
- Photoresists
- Developers

CARTRIDGES – Nominal Dimensions
Length: 5 to 40 in. (12.7 to 101.6 cm)
Outside Diameter: 2.75 in. (7.0 cm)

CAPSULES – Nominal Dimensions
Length: 2 to 30 in. (5.1 to 76.2 cm)
Outside Diameter: 3.50 in. (8.9 cm)
Maximum Operating Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CARTRIDGES</th>
<th>CAPSULES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid Operational Pressure</td>
<td>N/A</td>
<td>80 psi at 68 °F (5.52 bard at 20 °C)</td>
</tr>
<tr>
<td>Gases Operational Pressure</td>
<td>N/A</td>
<td>60 psi at 68 °F (4.14 bar at 20 °C)</td>
</tr>
<tr>
<td>Operating Temperature (water)</td>
<td>180 °F at 30 psid (82 °C at 2.07 barg)</td>
<td>110 °F at 30 psid (43 °C at 2.07 barg)</td>
</tr>
<tr>
<td>Forward Differential Pressure</td>
<td>80 psid at 68 °F (5.52 bard at 20 °C)</td>
<td>Liquid - 80 psid at 68 °F (5.52 bard at 20 °C)</td>
</tr>
<tr>
<td></td>
<td>(Liquid and Gas)</td>
<td>Gas - 60 psi at 68 °F (4.14 bar at 20 °C)</td>
</tr>
<tr>
<td>Reverse Differential Pressure</td>
<td>50 psid at 68 °F (3.45 bard at 20 °C)</td>
<td>50 psid at 68 °F (3.45 bard at 20 °C)</td>
</tr>
<tr>
<td>Recommended Changeout Pressure</td>
<td>35 psid (2.41 bard)</td>
<td>35 psid (2.41 bard)</td>
</tr>
</tbody>
</table>

Sanitization & Sterilization

<table>
<thead>
<tr>
<th>Sanitization Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Filtered Hot Water</strong></td>
<td>90 °C (194 °F), 30 minutes, multiple cycles, max 3 psid forward flow</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Inline Steam</strong></td>
<td>275 °F (135 °C), 30 min, 25+ cycles</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Autoclave</strong></td>
<td>250 °F (121 °C), 30 min, 25+ cycles</td>
<td>250 °F (121 °C), 30 min, 25+ cycles</td>
<td></td>
</tr>
</tbody>
</table>

Chemical Sanitization

Performed using industry standard concentrations of hydrogen peroxide, peracetic acid, and other selected chemicals.

*Cartridge Filters – For all elevated temperature procedures above, a stainless-steel support ring is required.

Filtration Area (Nominal)

<table>
<thead>
<tr>
<th>Length</th>
<th>CAPSULES</th>
<th>CARTRIDGES AND CAPSULES</th>
<th>CARTRIDGES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2”</td>
<td>5”</td>
<td>10”</td>
</tr>
<tr>
<td></td>
<td>5.08cm</td>
<td>12.7cm</td>
<td>25.4cm</td>
</tr>
<tr>
<td>Area</td>
<td>1.2 ft²</td>
<td>3.3 ft²</td>
<td>7.0 ft²</td>
</tr>
<tr>
<td></td>
<td>0.11m²</td>
<td>0.30m²</td>
<td>0.65m²</td>
</tr>
</tbody>
</table>

Integrity Testing

<table>
<thead>
<tr>
<th>PORE SIZE</th>
<th>DIFFUSION TEST PRESSURE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>µm</td>
<td>PSIG</td>
</tr>
<tr>
<td>0.10</td>
<td>48</td>
</tr>
<tr>
<td>0.22</td>
<td>35</td>
</tr>
<tr>
<td>0.45</td>
<td>20</td>
</tr>
<tr>
<td>0.65</td>
<td>15</td>
</tr>
</tbody>
</table>

Construction Materials

<table>
<thead>
<tr>
<th>Filtration Media</th>
<th>Nylon 6,6 Membrane with polyester support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Support</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>End Caps, Center Core, Outer Support Cage, Capsule Housing</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>Sealing Method</td>
<td>Thermal Bonding</td>
</tr>
<tr>
<td>O-Rings/Gaskets Cartridges only</td>
<td>Buna, Viton® (or FKM), EPDM, Silicone, FEP Encapsulated Silicone, FEP Encapsulated Viton (or FKM)</td>
</tr>
</tbody>
</table>

Extractables

ENM filters typically exhibit low levels of non-volatile residues.

TOC and Conductivity

ENM filter water effluent conforms with the TOC and water conductivity standards of SEMI Standard F63 after an appropriate flush with ultrapure water.

Non-Fiber Releasing

ENM filters comply with Title 21 CFR sections 210.3 (b)(6) and 211.72, for non-fiber releasing filters.
Flow rates for Cartridge filters are per 10-inch length. The test fluid is water at ambient temperature.

Flow rates for Capsule filters are tested using a 2” capsule filter with 1” sanitary inlet and outlet ports. The test fluid is water at ambient temperature. Flow rates for larger capsules will scale with filtration area. Rates will vary based on end configuration of the capsule.
ENM Filters Ordering Information

Fill in the corresponding codes in the boxes below to build your Part Number.

To consult with one of our technical team members, request a quote or place an order:
call (603) 880-4420 or contact us here.

Cartridge Filters

- Pore Size Code
  - -10 = 0.10 μm
  - -20 = 0.22 μm
  - -40 = 0.45 μm
  - -60 = 0.65 μm

- SS Ring
  - S = Ring
  - N = No Ring

- Length
  - 05 = 5 in. (12.7 cm)
  - 97 = 9.75 in. (24.8 cm)
  - 01 = 10 in. (25.4 cm)
  - 02 = 20 in. (50.8 cm)
  - 03 = 30 in. (76.2 cm)
  - 04 = 40 in. (101.6 cm)

- O-Ring/Gasket Code
  - S = Silicone
  - B = Buna
  - V = Viton (or FKM)
  - T = FEP Encapsulated Viton (or FKM)
  - E = EP
  - R = FEP Encapsulated Silicone

- End Cap Code*
  - 0 = Flat Gasket, DOE
  - 2 = 2-222 O-ring/Plug
  - 4 = 213/119 Internal O-ring/Plug
  - 5 = 2-222 O-ring/Flat
  - 6 = 2-226 O-ring/Flat
  - 8 = 2-222 O-ring/Spear
  - 9 = 2-226 O-ring/Spear

*Additional End Configurations Available

Capsule Filters

- Pore Size Code
  - -10 = 0.10 μm
  - -20 = 0.22 μm
  - -40 = 0.45 μm
  - -60 = 0.65 μm

- Length
  - A = 2”
  - B = 5”
  - 1 = 10”
  - 2 = 20”
  - 3 = 30”

- SS Ring
  - S = Ring
  - N = No Ring

- O-Ring
  - S = Silicone
  - B = Buna
  - V = Viton
  - E = EP
  - K = FFKM

- Side Vent Options
  - 1 = Luer Lock
  - 2 = Bleed Valve

*Fits hoses/tubes with inner diameter 11/32 to 9/16 inches

Pre-Sterilized

- S = Pre-Sterilized
- G = Gamma Stable
- N = Not Sterilized

- Inlet
  - A = 1/4” Female NPT
  - B = 1/4” Male NPT
  - C = 3/8” Female NPT
  - D = 1/2” Female NPT
  - E = 1/2” Male NPT
  - F = 1” Sanitary
  - G = Hose Barb*
  - H = 1 ½” Sanitary with side vent
  - I = ½ Single Stepped Barb with side vent

- Outlet
  - A = 1/4” Female NPT
  - B = 1/4” Male NPT
  - C = 3/8” Female NPT
  - D = 1/2” Female NPT
  - E = 1/2” Male NPT
  - F = 1” Sanitary
  - G = Hose Barb*
  - H = 1 ½” Sanitary with side vent
  - I = ½ Single Stepped Barb with side vent
  - IB = ½” Single Stepped Barb with filling bell and side vent

*Additional End Configurations Available

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