TETPOR AIR sterilization filter cartridges offer exceptional filtration performance while providing the highest levels of biosecurity throughout the process industry.

Operating at ambient temperature conditions, TETPOR AIR filter cartridges provide a cost-effective filtration solution. A unique polypropylene prefilter layer extends service life in heavily contaminated environments.

TETPOR AIR filter cartridges also utilize a well-proven, inherently hydrophobic expanded PTFE membrane validated as sterilizing grade in liquid in accordance with ASTM F838-05. This ensures the removal of all airborne bacteria, viruses and bacteriophage.

Features and Benefits

- Assured biosecurity with absolute rated filtration
- High flow rates with low pressure drops
- High voids volume PTFE membrane
- Steam sterilizable to 142 °C (287.6 °F)
- Unique prefilter layer

Performance Characteristics

Note: TETPOR is a registered trademark of Parker Hannifin Corporation.
Specifications

Materials of Construction

- Filtration Membrane: Expanded PTFE
- Upstream Support: Polypropylene
- Downstream Support: Polypropylene

Filter Cartridges

- Inner Support Core: Polypropylene
- Outer Protection Cage: Polypropylene
- End Caps: Polypropylene
- End Caps Insert: 316L Stainless Steel
- Standard o-rings/gaskets: Silicone

MURUS Disposable Filter Capsules

- Core: Polypropylene
- Sleeve: Polypropylene
- Standard o-rings: Viton
- Capsule Body: Polypropylene
- Capsules Vent Seals: Silicone

DEMICAP Filter Capsules

- Core: Polypropylene
- Sleeve: Polypropylene
- End Caps: Polypropylene
- Capsule Body: Polypropylene
- Capsules Vent Seals: Silicone
- Filling Bell: Polycarbonate

Syringe Filters

- Body: Polypropylene

Effective Filtration Area (EFA)

- 10" (250 mm): 0.77 m² (8.28 ft²)
- K Size: 0.36 m² (3.87 ft²)
- A Size: 0.25 m² (2.69 ft²)
- B Size: 0.12 m² (1.29 ft²)
- E Size: 0.06 m² (0.64 ft²)
- Syringe ø50 mm: 14.50 cm² (2.25 in²)

Sterilization

<table>
<thead>
<tr>
<th>Autoclave</th>
<th>Steam-in-Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycles</td>
<td>Cycles</td>
</tr>
<tr>
<td>Temp</td>
<td>Temp</td>
</tr>
<tr>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>bar</td>
<td>psi</td>
</tr>
<tr>
<td>Cartridges</td>
<td>120</td>
</tr>
<tr>
<td>162 °C (287.6 °F)</td>
<td>120</td>
</tr>
<tr>
<td>MURUS</td>
<td>5</td>
</tr>
<tr>
<td>130 °C (266 °F)</td>
<td>-</td>
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<tr>
<td>DEMICAP</td>
<td>100</td>
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<tr>
<td>135 °C (275 °F)</td>
<td>-</td>
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<tr>
<td>Syringe</td>
<td>1</td>
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<tr>
<td>130 °C (266 °F)</td>
<td>-</td>
</tr>
</tbody>
</table>

For detailed operational procedures and advice on cleaning and sterilization, please contact the Technical Support Group through your usual Parker Hannifin contact.

Biological Safety

Materials conform to the relevant requirements of 21CFR Part 177 and current USP Plastics Class VI - 121 °C and ISO10993 equivalents.

Quality Standards

Pharmaceutical grade products are manufactured in accordance with cGMP, 100% flushed with pharmaceutical grade purified water and integrity tested prior to despatch. A sample of each lot is tested to demonstrate conformity to validated claims.

Recommended Operating Conditions

Filter Cartridges

Up to 60 °C (140 °F) continuous operating temperature and higher short-term temperatures during CIP to the following limits:

<table>
<thead>
<tr>
<th>Temperature °C</th>
<th>°F</th>
<th>Max. Forward dP °C (bar) (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>68</td>
<td>5.0 72.5</td>
</tr>
<tr>
<td>40</td>
<td>104</td>
<td>4.0 58.0</td>
</tr>
<tr>
<td>60</td>
<td>140</td>
<td>3.0 43.5</td>
</tr>
<tr>
<td>80</td>
<td>176</td>
<td>2.0 29.0</td>
</tr>
<tr>
<td>90</td>
<td>194</td>
<td>1.7 24.6</td>
</tr>
</tbody>
</table>

MURUS Disposable Filter Capsules

Up to 25 °C (77 °F) @ 5.5 barg (79.7 psig)
Up to 60 °C (140 °F) @ 2.8 barg (40.6 psig)

Parker Hannifin certify that this product complies with the European Council Pressure Equipment Directive (PED) 97/23/EC Article 3, Paragraph 3 - Sound Engineering Practice (SEP). This product is intended for use with Group 1 & 2 Dangerous and Harmless Liquids and Group 2 Harmless Gases at the operating conditions stated in this document. In compliance with PED Article 3, Paragraph 3, SEP, this product does not bear the CE mark.

DEMICAP Filter Capsules

Up to 40 °C (104 °F) at line pressures up to 5.0 barg (72 psig).
Performance Characteristics

TOC / Conductivity
The filtrate quality from a 10” (250 mm) TETPOR AIR conforms to the requirements of current USP <643> (TOC) and USP <645> (conductivity).

Endotoxins
Aqueous extracts from the 10” (250 mm) TETPOR AIR contain < 0.25 EU / ml when tested in accordance with the Limulus Amoeobocyte Lysate test.

Non-Volatile Extractables (NVE)
Total NVEs extracted in the first 5 litre flush of purified water for a 10” (250 mm) cartridge are <5 mg.

Pharmaceutical Validation
A full validation guide is available upon request from Laboratory Services Group (LSG).

Oxidizable Substances
TETPOR AIR filter cartridges meet current USP and EP quality standards for sterile purified water for oxidizable substances following a <1 litre water flush.

Integrity Test Data
All filters are integrity testable to the following limits when wet with 60 / 40 IPA/water and using air as the test gas.

<table>
<thead>
<tr>
<th>Cartridge</th>
<th>Test Pressure</th>
<th>Cartridge Flow</th>
<th>Intradial Flow</th>
<th>Intradial Test Pressure</th>
<th>Flow Rate</th>
<th>Test Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>0.8</td>
<td>11.6</td>
<td>1.5</td>
<td>2.5</td>
<td>36.3</td>
<td>1.3</td>
</tr>
<tr>
<td>B</td>
<td>0.8</td>
<td>11.6</td>
<td>3.0</td>
<td>2.5</td>
<td>36.3</td>
<td>2.4</td>
</tr>
<tr>
<td>A</td>
<td>0.8</td>
<td>11.6</td>
<td>6.0</td>
<td>2.5</td>
<td>36.3</td>
<td>5.3</td>
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<tr>
<td>K</td>
<td>0.8</td>
<td>11.6</td>
<td>8.5</td>
<td>2.5</td>
<td>36.3</td>
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<tr>
<td>10”</td>
<td>0.8</td>
<td>11.6</td>
<td>18.0</td>
<td>2.5</td>
<td>36.3</td>
<td>16.0</td>
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</tbody>
</table>

Retention Characteristics
TETPOR AIR filter cartridges are validated by bacterial challenge testing with Brevundimonas diminuta to current ASTM F838-05 methodology (10¹⁰ organisms / cm² EFA minimum) with typical in-house challenge levels being 10⁷ organisms per 10” (250 mm) filter cartridge.
Ordering Information

Cartridges

**ZCMT**

<table>
<thead>
<tr>
<th>Code</th>
<th>Length (Nominal)</th>
<th>Code</th>
<th>Micron</th>
<th>Code</th>
<th>Endcap (10&quot;)</th>
<th>Code</th>
<th>O-rings</th>
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<tbody>
<tr>
<td>B*</td>
<td>2.5&quot; (65 mm)</td>
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<td>A</td>
<td>5&quot; (125 mm)</td>
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<td>K</td>
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<td>10&quot; (250 mm)</td>
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<td>2</td>
<td>20&quot; (500 mm)</td>
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<tr>
<td>3</td>
<td>30&quot; (750 mm)</td>
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* Supplied in packs of 3.

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**DEMICAP Capsules**

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<tbody>
<tr>
<td>E</td>
<td>4.4&quot; (113 mm)</td>
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<td>B</td>
<td>5.5&quot; (140 mm)</td>
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<tr>
<td>A</td>
<td>7.9&quot; (200 mm)</td>
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**Syringe Filters**

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<td>525</td>
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</tbody>
</table>

* Silicone o-ring supplied as standard without having to specify the ‘S’ code.

Parker domnick hunter has a continuous policy of product development and although the Company reserves the right to change specifications, it attempts to keep customers informed of any alterations. This publication is for general information only and customers are requested to contact our Process Filtration Sales Department for detailed information and advice on a product’s suitability for specific applications. All products are sold subject to the company’s Standard conditions of sale.

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