Porvair Filtration Group

Filtration Catalogue
Product Range

www.porvairfiltration.com
Our Industries

Aerospace and Defence

We design and manufacture specialist filtration equipment to meet the exceptional technical challenges of the aerospace and defence industry, for contamination control and condition monitoring in hydraulic, fuel, lubrication, coolant and air systems. Our filters protect vital sub-systems in aircraft, helicopters, military vehicles, missiles and spacecraft such as flight controls, fuel management and steering systems, thrust reversers, coolant systems, braking and steering, power generation and air intakes.

Food and Beverage

Our range of filters is installed to effectively remove particulates, yeast, mould spores and bacteria for use in applications, such as: wines, breweries, cider, mineral water, soft drinks, food and dairy, culinary steam sterilisation and sanitisation, powder handling, sparging and dairy. Our products are manufactured under strict quality process controls and are fully validated and technologically supported by our qualified scientists and laboratory services.

Gasification

We are active in a number of areas concerning the generation and safeguarding of energy production. We are leading innovators in gasification technologies to enable the production of synthetic natural gas (syngas or biogas) as part of alternative clean energy techniques.

Microelectronics

We offer a range of high purity gas and liquid filtration products to the semiconductor market, as well as to OEM suppliers in the microelectronics industry. Applications for this product range include gas safety management, exhaust venting systems, flow control, mass flow control, needle valve replacement, laminar flow diffusing, pressure snubbing and flame arresting.

Nuclear

Working across the field, designing and supplying filtration and other equipment, we offer solutions to the power generation, fuel production, reprocessing, desalination and decommissioning and waste packaging sectors. We have the capability to provide everything from a single, specialized, retrofit element to a complete, packaged system to meet the precise needs of a complex application, together with on-site support and a complete after sales service.

Oil and Gas

We offer a variety of engineered gas and liquid filtration systems to the oil, gas, and petrochemical markets. Our experienced team of project managers, engineers and quality inspectors provide custom engineered solutions for automatic self-cleaning filtration systems, amine filtration systems, FCC-sky oil systems, flue gas emission solutions, filter replacements parts and metal filter elements.

Pharmaceutical

Our range of filters are used throughout the pharmaceutical manufacturing process. Applications for these products include sterile filtration for parenteral drugs, sterile air for fermenter feeds, sterile vent filters, solvent extraction, vaccines, ophthalmic solutions, cell culture media and sera products.

Porous Media and OEM Materials

We manufacture an extensive range of porous materials to provide optimum solutions for a wide variety of applications. These materials can be purchased for OEM products or integrated and packaged into finished products.

Printing

We custom design solutions for inkjet systems, providing full technical support to OEM partners for the conception, engineering and manufacture of solutions for all inkjet system architectures. Inprinta® is our inkjet sales division, responsible for the design and manufacture of a wide range of capsule, in-line and last chance filters to offer solutions for inkjet filtration.

Process

We supply the process industries with innovative and performance driven filtration equipment (elements, cartridges and vessels). We provide highly specialised filtration solutions for use throughout the manufacturing process, offering proven filtration solutions for the production of a vast range of chemicals including: nitric acid, maleic anhydride, ether, sulphuric acid, phosphoric acid, sodium chlorate, solvents as well as HDPE and LLDPE.

Transportation

Our experience and comprehensive product offering covers everything from some of the world’s largest internal combustion engines to intricate inline hydraulic filters used for the protection of actuators and valves.

Water

We supply a range of filtration and separation products for use throughout the process water industries, from municipal water treatment, irrigation to residential water. We also manufacture a range of products to eliminate organic, chemical and other debris to meet stringent regulations for drinking water, as well as for the chemical, industrial, pharmaceutical and science markets.

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PO15 8RT
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New Milton, Hampshire, UK

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BH25 9NN
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ISO9001:2015 approved.

Caribou, Maine, USA

Caribou, Maine, focuses on the manufacture of custom engineered porous sintered metal powder components and assemblies for use in a wide range of filtration and flow applications:
• Process and Analytical Instruments
• Porous Media and OEM Materials
ISO9001:2015 approved.

Boise, Idaho, USA

Boise, Idaho, focuses on the manufacture of custom metal filtration components and assemblies with porous sintered metal and PTFE media for use in a range of applications within:
• Semiconductor, Solar/Photovoltaic, HBLED, and Water Manufacturing
• Flat Panel Display and Hard Disk Drive Manufacturing
ISO9001:2015 approved.

Mumbai, Maharashtra, India

Our Mumbai Division in India provides an operational base for marketing our extensive range of products within India.

Europe

We have a number of sales representatives working throughout Europe.
We also have a large network of distributors within Europe who distribute our products.
For more information, please contact our New Milton Office.

Ashland, Virginia, USA

Ashland Division in Virginia is our USA head office, as well as the USA manufacturer for many of the industries we are involved with.
This includes Aerospace and Defence, Biosciences and Scientific, Energy, Food and Beverage, Pharmaceutical, Porous Media and QMB Materials, Printing, Process, Nuclear and Water.
Product Innovation, Manufacturing, Testing and Quality

We have a policy of continuous improvement in all areas of our business: listening to customers’ present and future requirements is a vital part of our operations and a key part of driving change.

We understand that product development involves building multidisciplinary teams, both within our company, and in partnership with our customers. This continuous development of products and materials is vital to enable us to offer new and better solutions. We have implemented various methodologies to drive out waste and process variance across the company to achieve our goal of zero defects.

Our dedicated team of scientists, engineers, production and quality professionals work towards the best possible filtration solutions for our customers. We have a fully equipped test house and laboratory, and our experienced design engineers use the latest technologies to give full structural assurance capability.

Research and Development
Development plays a fundamental part in our operations and has resulted in us developing a number of custom-designed products based on our established porous polymeric materials (Vyon®) and sintered metal media (Sinterfoam®), as well as developing a range of filters for fuel tank inletting applications.

We operate across many filtration and separation markets and there is significant interaction between each division in terms of product research and development. Our new product development team is drawn from scientists and engineers from across all divisions, encouraging new ideas and new solutions. The success of this approach has been in the interaction of chemists and engineers working together to find practical solutions to some extremely complex scientific challenges identified in the chosen market areas.

Manufacturing
Our filters, filtration systems and a range of porous materials are produced at our sites worldwide.

Our production capabilities include the complete element or cartridge construction, along with the build of entire tubeplate and vessel assemblies. We boast specialist fabrication skills and techniques in all of our manufacturing sites around the world and extensive ISO cleanroom facilities.

Engineering
From initial design concept through to manufacture and validation to in-service support, our highly experienced team of dedicated engineers work to develop the optimal filtration solution. Our knowledge and strong ethos of working closely with our customers, ensures that we supply filtration solutions that meet specific market requirements.

Testing and Laboratory
Our dedicated test, development and laboratory services underpin our design and development activity, from filtration media and material characterisation, product verification testing to customer system simulation trials and in-service performance evaluation. Our capabilities include filtration characterisation, environmental testing and analysis.

Technical Support Services

- Validation services:
  - Process specific validation
  - Filter compatibility
  - Retention studies
  - Microbial challenge tests
  - Endotoxin and particulate testing
  - Extractables testing

- On-site services:
  - Customer plant surveys
  - Process filter optimisation
  - Trouble-shooting
  - Pre-inspection review

- Training:
  - Integrity testing
  - SIP and CIP methods

Quality
Our policy is to provide products and services that consistently satisfy the commitments made to our customers by complying with their requirements, working together as a team and achieving continual improvement in our skills, systems, processes and performance.

We have a dedicated team of quality professionals with many years’ experience in the definition, implementation and maintenance of quality management systems meeting multiple industry requirements. This extends across the workforce through a strong quality culture and a philosophy of ‘getting it right first time’ driven from the top of our organisation.
Cleanable metallic filter cartridges and elements are used in the following industries:

- Aerospace and Defence
- Nuclear
- Food and Beverage
- Pharmaceutical
- Industrial Process
- Chemical Process
- Polymer

The robustness of design that is provided by a fully welded metallic element or cartridge is required to resist deterioration in harsh operating environments, including aggressive conditions, high temperatures, and where operating differential pressures are high.
Sinterflo® F
Cylindrical Sintered Metal Fibre Filter Elements

Manufactured from randomly laid metal fibres and sinter-bonded to form a uniform high porosity filter medium, Sinterflo® F demonstrates a significantly low pressure drop, high permeability and excellent dirt holding capacity.

Sintered metal fibre can be pleated to increase the available filtration area of a filter element, further increasing dirt holding capacity, minimising maintenance and maintaining on-stream processing. With the feasibility to formulate metal fibres to meet specific application requirements, combined with inherent durability, sintered metal fibre filters can be cleaned in situ without interrupting process flow, so providing the ultimate in process economics by reducing downtime to a minimum.

Typical Applications
- Catalyst recovery and retention
- Gasification and chemical production
- Vent filters
- Petrochemicals
- Steam filtration (cylindrical and process)
- Pharmaceutical powder recovery
- Polymeric melt

Features and Benefits
- Resistant to high-temperature and corrosive environments
- High void volume
- Excellent cleanliness and dirt holding capacity
- Minimal maintenance costs
- Available in 316L stainless steel standard, Inconel®, Hastelloy®, NiCrMo Alloy 59 and Fecralloy® on request.

Ordering Information

Table 1: Media Type
<table>
<thead>
<tr>
<th>Sinterflo® F</th>
<th>Media Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sinterflo® F (flow)</td>
</tr>
</tbody>
</table>

Table 2: End Fitting
| 226          | 226 fitting |
| 222          | 222 fitting |
| DOE          | Double open-ended fitting |
| NFI          | 1" NPT |
| NPS          | 1.5" NPT |
| NPS2         | 2" NPT |

Table 3: Cartridge Length
| OTS®         | F (125mm) |
| 10           | 10" (250mm) |
| 20           | 20" (494mm) |
| 30           | 30" (745mm) |
| 40           | 40" (1012mm) |

Table 4: Micron Rating
| 0040        | 4µm |
| 0025        | 25µm |
| 0020        | 20µm |
| 0018        | 18µm |
| 0016        | 16µm |
| 0015        | 15µm |
| 0014        | 14µm |
| 0013        | 13µm |
| 0012        | 12µm |
| 0010        | 10µm |
| 0005        | 5µm |
| 0003        | 3µm |

Table 5: Seal Material
| 1            | EPDM |
| 2            | Nitrile |
| 3            | Silicone |
| 4            | PTFE |
| 5            | Viton® |

Table 6: Guard/Support Option
| G           | Guard |
| S           | Support |
| N           | None |

Table 7: Fin Option
| F           | Pin |
| N           | No fin |

Table 8: Specifications
- Materials of Manufacture
- 316L stainless steel standard, Inconel®, Hastelloy®, NiCrMo Alloy 59 and Fecralloy® on request.
- Element Dimensions
  - Diameter: 66mm (2.64") standard
  - Length: 05: 125mm (5")
  - 10: 250mm (10")
  - 20: 498mm (20")
  - 30: 745mm (30")
  - 40: 1012mm (40")

* Other diameters and lengths available on request.

Effective Filtration Area
0.25m² (0.99 ft²) per 250mm (10") element

Gaskets and O-Rings
EPDM as standard. Chemraz, nitrile, PTFE, silicone, Viton®, FEP coated EPDM, FEP coated silicone, FEP coated Viton® available on request or by process selection.

* FDA approved seals are available.

Typical Maximum Differential Pressure
- Normal flow direction: 13bar (188psi)
- Reverse flow direction: 35bar (516psi)

* Grade dependent.

Operating Temperature
- Maximum continuous: From -195°C (-319°F) to 280°C (536°F)
- Normal flow direction: 200°C (392°F)
- Reverse flow direction: 400°C (752°F)
- Maximum Continuous: 340°C (644°F) seal limiting

* Available on request or by process selection.

Sinterflo® F Stainless Steel Media Grades
- Micron Rating (µm)
- Cartridge Length (mm)
- CAS (µm)
- Pressure (psi)
- Efficiency

<table>
<thead>
<tr>
<th>Micron Rating (µm)</th>
<th>Cartridge Length (mm)</th>
<th>CAS (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>20</td>
</tr>
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<td>10</td>
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<td>15</td>
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<td>40</td>
<td>50</td>
</tr>
<tr>
<td>30</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

* Single Phase Efficiency Test in accordance with ASTM793-7C07.

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Note: Other non-standard lengths and ratings are available on request.
Sinterflo® F
Pleated Sintered Metal Fibre Filter Cartridges

Manufactured from randomly laid metal fibres and sinter-bonded to form a uniform high porosity filter medium. Sinterflo® F demonstrates a significantly low pressure drop, high permeability and excellent dirt holding capacity.

Pleated sintered metal filters increases the available filtration area of a filter element, further increasing dirt holding capacity, so minimising maintenance and maximising on-stream processing.

With the feasibility to formulate metal fibres to meet specific application requirements combined with inherent durability, sintered metal fibre filters can be cleaned in situ without interrupting process flow. This will provide the ultimate in process economics by reducing downtime to a minimum.

Typical Applications
- Catalyst recovery and retention
- Gasification and chemical production
- Vent filters
- Agrochemical
- Steam filtration (culinary and process)
- Pharmaceutical powder recovery
- Polymer melt

Features and Benefits
- Resistant to high temperatures and corrosive environments
- High void volume
- Excellent cleanliness and dirt holding capacity
- Minimal maintenance costs
- Pleatable structure, offering higher filtration area per cartridge
- Available in 316L as standard with other alloys such as Inconel® 601, Hastelloy® X, NiCrMo Alloy 59 and Fecralloy® available on request.

Ordering Information

<table>
<thead>
<tr>
<th>Media Type</th>
<th>226</th>
<th>222</th>
<th>DOE</th>
<th>NP1</th>
<th>NP2</th>
<th>Fitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>0003</td>
<td>0005</td>
<td>0010</td>
<td>0015</td>
<td>0020</td>
<td>0030</td>
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<tr>
<td></td>
<td>0040</td>
<td>0045</td>
<td>0050</td>
<td>0060</td>
<td>0070</td>
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</table>

<table>
<thead>
<tr>
<th>Micron Rating</th>
<th>060µm</th>
<th>120µm</th>
<th>150µm</th>
<th>200µm</th>
<th>250µm</th>
<th>300µm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Code</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cartridge Length</th>
<th>05&quot; (125mm)</th>
<th>10&quot; (250mm)</th>
<th>20&quot; (498mm)</th>
<th>30&quot; (740mm)</th>
<th>40&quot; (1012mm)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Seal Material</th>
<th>EPDM®</th>
<th>Nitrile</th>
<th>Silicone</th>
<th>TFE</th>
<th>Viton</th>
<th>T/P</th>
<th>PTFE</th>
<th>Nitrile</th>
<th>EPDM*</th>
</tr>
</thead>
</table>

Effective Filtration Area
0.13m² (1.40ft²) per 250mm (10") cartridge

Gaskets and O-Rings
- EPDM as standard.
- Chemraz, Viton, PTFE, silicone, Viton® FEP coated EPDM, PTFE coated silicone, FEP coated Viton® available on request or by process selection.
- FDA approved seals are available.

Specifications

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Micron Rating</th>
<th>Maximum continuous pressure drop (mbar)</th>
<th>Flow Rate (litres/min)</th>
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</thead>
<tbody>
<tr>
<td>0003</td>
<td>5µm</td>
<td>120</td>
<td>0.05</td>
</tr>
<tr>
<td>0005</td>
<td>10µm</td>
<td>140</td>
<td>0.10</td>
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<td>0010</td>
<td>15µm</td>
<td>160</td>
<td>0.15</td>
</tr>
<tr>
<td>0015</td>
<td>20µm</td>
<td>180</td>
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</tr>
<tr>
<td>0020</td>
<td>25µm</td>
<td>200</td>
<td>0.25</td>
</tr>
<tr>
<td>0030</td>
<td>30µm</td>
<td>220</td>
<td>0.30</td>
</tr>
<tr>
<td>0040</td>
<td>40µm</td>
<td>240</td>
<td>0.40</td>
</tr>
<tr>
<td>0045</td>
<td>45µm</td>
<td>260</td>
<td>0.50</td>
</tr>
<tr>
<td>0050</td>
<td>50µm</td>
<td>280</td>
<td>0.60</td>
</tr>
<tr>
<td>0060</td>
<td>60µm</td>
<td>300</td>
<td>0.70</td>
</tr>
</tbody>
</table>

Typical Flow Rates in Water*

<table>
<thead>
<tr>
<th>Flow Rate (litres/min)</th>
<th>0.05</th>
<th>0.10</th>
<th>0.15</th>
<th>0.20</th>
<th>0.25</th>
<th>0.30</th>
<th>0.40</th>
<th>0.50</th>
<th>0.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential Pressure Loss (mbar)</td>
<td>0.00</td>
<td>0.04</td>
<td>0.06</td>
<td>0.08</td>
<td>0.10</td>
<td>0.12</td>
<td>0.14</td>
<td>0.16</td>
<td>0.18</td>
</tr>
</tbody>
</table>

* Using a 10 inch cartridge, at ambient temperature.

Technical Details:
- * Single Pass Efficiency Test in accordance with ASTM 795 ACFTD.
- Maximum continuous temperature: -195°C (-319°F)
- Operating Temperature: 120°C (248°F) limit
- Reverse flow direction: 3 bar (44psi)
- Flow Rate: 100 GPM (400 l/min)
- Effective Filtration Area: 0.12m² (1.76ft²)

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<th>EPDM®</th>
<th>Nitrile</th>
<th>Silicone</th>
<th>TFE</th>
<th>Viton</th>
<th>T/P</th>
<th>PTFE</th>
<th>Nitrile</th>
<th>EPDM*</th>
</tr>
</thead>
</table>

* Table 2: Media Fitting
* Table 3: Cartridge Type
* Table 4: Micron Rating
* Table 5: Cartridge Length
* Table 6: Seal Material
* Table 7: Guard/Support Option
* Table 8: Fin Option

**Figure 1: Flow Rate vs. Flow Rate in Water**
- Flow Rate (litres/min): 0.05 to 0.60
- Differential Pressure Loss (mbar): 0.00 to 0.60

**Figure 2: Flow Rate vs. Flow Rate in Air**
- Flow Rate (litres/min): 0.05 to 0.60
- Differential Pressure Loss (mbar): 0.00 to 0.60

**Figure 3: Flow Rate vs. Flow Rate in Steam**
- Flow Rate (litres/min): 0.05 to 0.60
- Differential Pressure Loss (mbar): 0.00 to 0.60

* Typical Flow Rates in Water*
* Typical Flow Rates in Air*
* Typical Flow Rates in Steam*
Sinterflo® P
Cylindrical Sintered Metal Powder Filter Elements

Sinterflo® P is a robust material manufactured from sinterbonded metal powders. Primarily produced in 316L grade for use in temperatures up to 20°C (71°F), depending on process conditions, and offering resistance to most chemicals. Sinterflo® P media can also be produced in other grades of stainless steel and alloys such as Inconel®, Hastelloy® and Monel®. Sinterflo® P powder media can be manufactured in both disc format or in cylinder format.

Our elastostatic pressing ensures greater media uniformity with no warps, leading to increased corrosion resistance.

Available in wall thickness of 1.6mm (0.07") and 3mm (0.12”).

Typical Applications
- Catalyst recovery and retention
- Polymer melt
- Chemical production
- Steam filtration (culinary and process)
- Liquids and liquid backwash

Features and Benefits
- Extremely robust construction
- Smooth surface finish preferable for backwash applications
- Self supporting construction eliminating the need for additional hardware
- Broad range of fixed, uniform pore sizes
- Ability to withstand varying process conditions
- Available in 316L stainless steel as standard with other alloys such as 304L stainless steel, 904, stainless steel, 310 stainless steel, Inconel®, Hastelloy® and Monel® on request, as well as sintered powdered bronze.

Ordering Information

Sinterflo® P Stainless Steel Media Grades

<table>
<thead>
<tr>
<th>Stainless Steel Grades</th>
<th>Micron Rating (µm)</th>
<th>Single Pass Efficiency (%)</th>
<th>99.9% Efficiency</th>
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<tbody>
<tr>
<td>310</td>
<td>0.010</td>
<td>6</td>
<td>6.7</td>
</tr>
<tr>
<td>320</td>
<td>0.015</td>
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<td>6.8</td>
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<tr>
<td>330</td>
<td>0.020</td>
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<tr>
<td>340</td>
<td>0.025</td>
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<td>360</td>
<td>0.030</td>
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<tr>
<td>410</td>
<td>0.040</td>
<td>40</td>
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</tr>
<tr>
<td>420</td>
<td>0.060</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

* Single Pass Efficiency Test in accordance with ASTM795 ACFTD.

Typical Flow Rates in Water*

<table>
<thead>
<tr>
<th>Micron Rating (µm)</th>
<th>Flow Rate (ACFM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6µm</td>
<td>51</td>
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<tr>
<td>15µm</td>
<td>53</td>
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<tr>
<td>25µm</td>
<td>50</td>
</tr>
<tr>
<td>10µm</td>
<td>10</td>
</tr>
<tr>
<td>40µm</td>
<td>25</td>
</tr>
<tr>
<td>60µm</td>
<td>30</td>
</tr>
</tbody>
</table>

* Using a 10 inch element, at ambient temperature.

Typical Flow Rates in Steam*

<table>
<thead>
<tr>
<th>Micron Rating (µm)</th>
<th>Flow Rate (ACFM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6µm</td>
<td>51</td>
</tr>
<tr>
<td>15µm</td>
<td>53</td>
</tr>
<tr>
<td>25µm</td>
<td>50</td>
</tr>
<tr>
<td>10µm</td>
<td>10</td>
</tr>
<tr>
<td>40µm</td>
<td>25</td>
</tr>
<tr>
<td>60µm</td>
<td>30</td>
</tr>
</tbody>
</table>

* Using a 10 inch element, at ambient temperature.

Contact Information:
UK, New Milton Division
Tel: +44 (0) 1425 612010
info@sinterflofiltration.com
US, Ashland Division
Tel: +1 804 550 1600
infoUS@sinterflofiltration.com
India, Mumbai Division
Tel: +91 22 25 976464 / 95
infoIndia@sinterflofiltration.com
Sinterflo® M Cylindrical Metal Mesh Filter Elements

The Sinterflo® M demonstrates good permeability, high tensile strength and is available from single wrap media designs through to complex multi-layered structures in pleated constructions to optimise the area available. These meshes can be manufactured in diffusion bonded versions to increase performance security of pore shape and size and have the broadest range of pore sizes of any filter media type.

Sinterflo® M precision woven meshes are manufactured in various types of weave. Plain square weave is available for simple sieving duties through various weave patterns (Reverse Plain Dutch, Broad Mesh Twill and Single Plain Weave). Dutch Twill Weave is provided for the most comprehensive selection of surface and Single Plain Weave). Dutch Twill Weave is provided for the most comprehensive selection of surface and Single Plain Weave). Dutch Twill Weave is provided for the most comprehensive selection of surface and Single Plain Weave). Dutch Twill Weave is provided for the most comprehensive selection of surface and Single Plain Weave). Dutch Twill Weave is provided for the most comprehensive selection of surface.

Features and Benefits
- Precise aperture in size and shape
- Good permeability
- All welded, robust construction
- Available in this broadest range of pore sizes of any filter media type
- Smooth surface variant preferable for backwash applications
- Available in 316L stainless steel as standard with other alloys such as 304L stainless steel, Inconel®, Hastelloy® and Monel® on request.

Typical Applications
- Catalysed recovery and retention
- Gasification and chemical production
- Vent filters
- Oil and fuel purification
- Steam filtration (industrial and process)
- Pharmaceutical powder recovery
- Precise aperture in size and shape
- Catalyst recovery and retention
- Pharmaceutical powder recovery
- Polymer melt

Ordering Information

<table>
<thead>
<tr>
<th>Media Type</th>
<th>Diameter</th>
<th>Length</th>
<th>Cartridge</th>
<th>Cartridge Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>65mm</td>
<td>125mm</td>
<td>Ø 5</td>
<td>5 (125mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ø 10</td>
<td>10 (250mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20’</td>
<td>20’ (498mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30’</td>
<td>30’ (745mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40’</td>
<td>40’ (1012mm)</td>
</tr>
</tbody>
</table>

Note: Other non-standard lengths and ratings are available on request.

Typical Flow Rates in Water*

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>Liquid Rating (µm)</th>
<th>Gas Rating (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.005</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>0.010</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>0.020</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>0.040</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Typical Flow Rates in Air*

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>Liquid Rating (µm)</th>
<th>Gas Rating (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.005</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>0.010</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>0.020</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>0.040</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Typical Flow Rates in Steam*

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>Liquid Rating (µm)</th>
<th>Gas Rating (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.005</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>0.010</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>0.020</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>0.040</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

* Using a 0.1 inch element, at ambient temperature.

Effective Filtration Area

<table>
<thead>
<tr>
<th>Micron Rating</th>
<th>Liquid Rating (µm)</th>
<th>Gas Rating (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 (0.00µm)</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>10 (0.01µm)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>15 (0.02µm)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>20 (0.03µm)</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Materials of Manufacture
- Stainless steel standard
- 304L stainless steel, Inconel®, Hastelloy® and Monel® on request by process selection.

Gaskets and O-Rings*
- EPDM as standard. Chemraz®, nitrile, PTFE, silicone, Viton®, FEP coated EPDM, FEP coated silicone, FEP coated Viton® available on request or by process selection.

* FDA approved seals are available.

Typical Maximum Differential Pressure* (all lengths)

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>Liquid Rating (µm)</th>
<th>Gas Rating (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15bar (218psi)</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3bar (44psi)</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

* FDA approved seals are available.

Operating Temperature

<table>
<thead>
<tr>
<th>Maximum continuous:</th>
<th>- From -195°C (-319°F) to 340°C (644°F) seal limiting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- From 269°C (-452°F) to 1000°C (1832°F) alloy limiting</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Cartridge Type</th>
<th>Seal Material</th>
<th>Guard/Support Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Eniar®</td>
<td>Coarse</td>
</tr>
<tr>
<td>J</td>
<td>Viton®</td>
<td>Fine</td>
</tr>
</tbody>
</table>

* Other diameters and lengths available on request.

Typical Flow Rates in Air*
Sinterflo® M Pleated Metal Mesh Filter Cartridges

Pleated metal mesh filter cartridges demonstrate good permeability, high tensile strength and are available from single wrap designs through to complex multi-layered structures in pleated constructions to optimise the area available. These meshes can be manufactured in diffusion bonded versions to increase performance security of pore shape and size and have the broadest range of pore sizes of any filter media type.

Sinterflo® M precision woven meshes are manufactured in various types of weaves. Plain square weave is available for simple sieving duties through various weave patterns (Reverse Plain Dutch, Broad Mesh Twill and Single Plain Weave). Dutch Twill Weave is provided for the most comprehensive selection of surface filtration duties.

Sinterflo® M is available in 316 stainless steel as standard with other alloys such as 304L stainless steel, Inconel®, Hastelloy® and Monel® on request.

Typical Applications
- Catalyst recovery and retention
- Gasification and chemical production
- Vent filters
- Agrochemical
- Steam filtration (culinary and process)
- Pharmaceutical powder recovery
- Polymer melt

Features and Benefits
- Precise aperture in size and shape
- Good permeability
- All welded, robust construction
- Pleated media offers higher filtration area per cartridge
- Available in the broadest range of pore sizes of any filter media type
- Smooth surface variant preferable for backwash applications

Specifications

Materials of Manufacture
- 316 stainless steel standard, 304L stainless steel, Inconel®, Hastelloy® and Monel® on request or by process selection. Additional alloys are available on request.

Cartridge Dimensions*
- Diameter: 66mm (2.6-inch) standard
- Length: 05: 125mm (5"
 10: 250mm (10"
 20: 490mm (20"
 30: 740mm (30"
 40: 1012mm (40"
* Other diameters and lengths available on request.

Effective Filtration Area

Gaskets and O-Rings*
- EPDM as standard. Chemflex® nitrile, FEP, silicone, Viton®, FEP coated EPDM, FEP coated silicone, FEP coated Viton® available on request or by process selection.
- * FDA approved seals are available.

Typical Maximum Differential Pressure* (all lengths)
- Normal flow direction: up to 250µm (34psi)
- Reverse flow direction: 3xbar (44psi)
- * Orifice dependent.

Operating Temperature
- Maximum continuous: From -196°C (319°F) to 340°C (644°F) sealing limiting
- From 269°C (-402°F) to 1000°C (1832°F) alloy limiting

Sinterflo® M Stainless Steel Media Grades

| Micron Rating (micron code) | Liquid Rating* (psi) | PP 30% Efficiency | PP 50% Efficiency
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5 (0010) 5 10 12 3</td>
<td>5 10 12 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 (0015) 10 15 3</td>
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</tr>
<tr>
<td>15 (0015) 15 15 18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 (0025) 25 25 20</td>
<td></td>
<td></td>
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<tr>
<td>30 (0030) 30 30 20</td>
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<tr>
<td>40 (0040) 40 40 18</td>
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<td></td>
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<tr>
<td>50 (0050) 50 50 15</td>
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</tr>
<tr>
<td>70 (0070) 70 70 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 (0100) 100 100 6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Hard spherical particle maximum passed.
Sinterflo® FMC Fibre Mesh Composite Media for Custom Filter Elements

Sinterflo® FMC sintered fibre mesh composite material is specifically designed for the removal of particulate from challenging gaseous environments. The media provides an asymmetrical pore structure, designed to facilitate surface filtration capturing particulate on the outer surface for an ‘out-to-in’ flow design. This makes Sinterflo® FMC elements, which can be manufactured to a wide range of designs to suit each application, ideal for continuous on stream reverse jet cleaning applications and where optimum product recovery is required.

We provide a complete fabrication service for this material, including custom sized filter elements and blowback bags. Sinterflo® FMC media is particularly suited to challenging environments where high operating temperatures reach up to 340°C, such as mineral, chemical and alternative energy processing. This material is easily custom engineered to meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment.

Features and Benefits

- Resistant to high temperatures and corrosive environments
  Suitable for aggressive gas and liquid filtration applications.
- Low capital cost
  Robust and self-supporting, fabricated elements usually do not require complex and expensive support structures or joining strips.
- Minimal maintenance costs
  Cartridges can be cleaned and reused, reducing replacement and maintenance costs.
- Enhanced chemical resistance
  Can be constructed from a wide range of materials including 316L stainless steel, Hastelloy® and Inconel® 601.
- Uniform pore distribution
  Provides high permeability combined with high efficiency.
- Design and engineering versatility
  Easily custom engineered to meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment.

Ordering Information

For ordering information please contact a member of the sales team.

Example Specification for 316L for a Rotary Kiln Application

<table>
<thead>
<tr>
<th>Materials of Construction</th>
<th>316L Stainless Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Grades</td>
<td>FM C16</td>
</tr>
<tr>
<td>Gaseous Removal Efficiency</td>
<td>100% at 1.6 µm</td>
</tr>
<tr>
<td>Media Grades</td>
<td>FM C16</td>
</tr>
<tr>
<td>Air Permeability (bar (d)-m²/m³/hr)</td>
<td>5.16E-06</td>
</tr>
</tbody>
</table>

Pulse jet testing data of FMC16 media filter under varied face velocities and dust challenges.

Thickness
1.17mm (0.05”)

Maximum Operating Temperature
340°C (644°F)

Element Dimensions
Diameter: 80mm to 120mm (3.15” to 4.72”)
Length: up to 4500mm (177”)

Ordering
This is an example specification for this material. This material is selected, engineered and manufactured specifically for each unique application. Please contact us to have your application reviewed for suitability and to have a fully costed design solution provided.
Candle Filters
For the Polymer Melt Industry

Candle filters are available in both cylindrical and pleated formats, in industry standard designs, and can be custom designed to fit any particular housing. These are available in both sintered metal fibre and woven wire mesh.

Available in filtration ratings from 3 to 100 microns, our candle filters are normally supplied with an outer guard, both to protect the media and to allow reverse flow during cleaning. Our candles are readily cleanable with current technology.

All candles are provided with internal volume reducers to avoid stagnant flow regions within the candle design. Flow diverter features within the volume reducer provide good distribution over the candles as the polymer enters the housing.

Using our range of high strength, highly permeable stainless steel fibre media, results in candle filters with low initial pressure drops and long on-stream life.

Typical Applications
- Polyester bottle chip
- Polyester film and fibre
- Cellulose acetate film and fibre
- Nylon 6 and Nylon 6-6 fibre

Features and Benefits
- Proven robustness for cleaning and repeat use
- Long filter life
- Operate in high temperature environments
- High carbon resistance
- High filtration area for pleated candle version
- Easily cleanable.

Ordering Information
For ordering information please contact a member of the sales team.

Rempak™ Candle Filters
For the Polymer Melt Industry

Rempak™ candle filters are manufactured with removable hardware fittings and replaceable media, resulting in lower operating costs.

Available in both cylindrical and pleated formats, in industry standard designs, and can be custom designed to fit any particular housing. These are available in both sintered metal fibre and woven wire mesh.

All candles are provided with internal volume reducers to avoid stagnant flow regions within the candle design. Flow diverter features within the volume reducer provide good distribution over the candles as the polymer enters the housing.

Typical Applications
- Polyester bottle chip
- Polyester film and fibre
- Cellulose acetate film and fibre
- Nylon 6 and Nylon 6-6 fibre

Features and Benefits
- Proven robustness for cleaning and repeat use
- Long filter life
- Operate in high temperature environments
- High carbon resistance

Ordering Information
For ordering information please contact a member of the sales team.
Our septa filter elements are made from Sinterflo® mesh composite (MC) filter media. This unique material is made from wire mesh and perforated metal, sintered together into a durable porous filtration medium. The various layers of woven wire mesh and/or perforated metal are chosen to achieve the filtration, pre-coat, backwash and flow requirements of the application. Manufactured from 316L stainless steel, these can be retrofitted into existing applications. All of our septa filter elements are designed and tested to exceed the industry standards for resin retention, mechanical integrity, pre-coatability and backwash efficiencies, to extend run times and maximize ion exchange performance. Custom configurations can be provided.

### Typical Applications
- Reactor water clean-up
- Fuel pool clean-up
- Radwaste processing
- Condensate polishing

### Features and Benefits
- **High strength**
  Sinterflo® septa are designed and tested to withstand the torque, tensile and collapse pressures specified by the application. Complete test reports are available upon request.
- **Temperature resistance**
  Continuous operating temperature range: -40°C to 300°C (-40°F to 672°F).
- **Custom configurations**
  Sinterflo® septa are available in 1”, 2” and custom diameters. Lengths are provided as specified for the application. A variety of hardware options are also available. Our septa are available individually or as complete bundle assemblies (for top tube sheet vessels).
  End fittings and adapters are provided for proper sealing to permanent vessel internal connections.
- **Range of pore sizes**
  From 1 to 200µm.
- **Corrosion resistance**
  Sinterflo® septa are made from 316L stainless steel media. Other alloys are available upon request.

### Ordering Information
For ordering information please contact a member of the sales team.
A range of pleated filter elements, for the aerospace and defence industries, are used for critical contamination control in a variety of aircraft systems.

The filter media for pleated elements can be polymeric, glass fibre or sintered metal fibre used in combination with a variety of support and drain meshes to optimise cost and performance. Typical absolute filtration ratings are 5, 10, 15 and 25 micron with a Beta ratio greater than 200.

**Sinterflo® M Sintered Metal Mesh**

Our Sinterflo® M metal mesh pleated filters demonstrate good permeability, high tensile strength and are available in complex multi-layered structures; these filters are cleanable under specific conditions, which can be defined by a member of our Sales Team. We also supply a range of sintered metal fibre, glass fibre, polymeric or resin-impregnated cellulose pleated elements.

### Typical Applications

- Hydraulic
- Lubricant
- Coolant
- Fuel
- Air
- Environmental control

### Features and Benefits

- High filtration efficiency
- Lightweight
- Enhanced operating life

### Filter Assemblies

Filter assemblies for hydraulic, fuel, lubrication and air systems. Applications include:

- Hydraulic pressure, return and case drain
- Thrust reverser actuation systems
- Fuel supply for both main engine and APUs
- Fuel inerting systems
- Gearbox lubrication

### Ordering Information

For ordering information please contact a member of the sales team.
Leaf disc and solid plate filters are designed for critical hot melt polymer filtration applications, such as the manufacture of PET packaging film, PEEK chip and film.

These filters are designed to achieve greater gel control by providing smoother flow and therefore greater gel retention on the filter.

In addition to offering a wide range of filter media, our leaf disc filters offer the latest design features, ensuring lower pressure drops leading to longer on stream life. The robust construction allows for many cleaning cycles, reducing whole life costs.

With our wide experience and broad range of filter media, our application and design engineers can custom design optimum filtration products for each product and process. This includes support during the design process in order to achieve on-line performance.

Our technical laboratory services have facilities to characterise our media and elements’ performance using flow tests, porosimetry, microscopy, chemical analysis, tensile testing, metallography and the quantification of polymer contaminant with image analysis.
Leaf Disc Filters
For the Polymer Melt Industry

A range of stainless steel fibre and powder leaf disc filters are manufactured for use within the polymer melt industry.

Stacked disc capsules are preferred when low residence time and uniform flow are important, and where degradation is a concern. Capsules also produce a singular downstream flow path, which eliminates the need for mixers to prevent flow lines in finished film.

Capsules are available with diameters of 178mm (7”), 254mm (10”) and 305mm (12”), all industry standard hub designs and dimensions, with optional loose or welded spiders. A wide range of efficiencies are available including 3 to 40 microns in sintered steel fibre media and 10 to 40 microns in sintered steel powder media using stainless or speciality steels.

These stainless steel fibre media filters have the following features and benefits:

- **Photo etched plate support**
  The non-perforated edge improves welding strength at the edge of the disc, increasing the strength and rigidity of the filter
- **Mesh separator**
  Precision 316L alloy stainless steel mesh increases the overall strength and rigidity of the filter
- **Advanced hard hub**
  Maximum strength and 35% more open area, reducing pressure drop without compromising disc strength

Features and Benefits

- Optimum strength and performance
- Readily cleanable
- Long on-stream life
- Constant pore size distribution during manufacture

Typical Applications

- Polyester film
- PEEK material

Specifications

- **Materials of Manufacture**
  304L / 316L stainless steel standard

- **Method of Construction**
  Fusion welded

- **Method of Sealing**
  Metal fibre gasket

Dimensions

- 305mm (12") x 63.5mm (2.5”)
- 305mm (12") x 85.1mm (3.35”)
- 178mm (7") x 47.75mm (1.88”)

Minimum Differential Pressure

- 300 bar (4351 psi) at 350°C (662°F)

Operating Temperature

- Maximum continuous: up to 400°C (752°F)
- Disc Stack Sealing Load
  8 tonne maximum

Ordering Information

For ordering information please contact a member of the sales team.

Solid Plate Leaf Disc Filters
For the Polymer Melt Industry

Solid plate leaf disc filters are manufactured for use within the polymer melt industry.

Our solid plate capsule filter is designed for high performance film and fibre production, with a rugged construction offering increased strength and durability and minimal residence time.

The solid plate greatly improves the appearance and performance of thin film products and limits the creation of gels and degraded polymer at high temperatures.

Features and Benefits

- Easy to clean
- Inherent strength
- Low interference drainage channels
- No filter support material required
- Can be re-clothed
- Low residence time

Ordering Information

For ordering information please contact a member of the sales team.
A range of disposable polymeric filters are manufactured in an ISO Class 8, GMP “D” certified cleanroom for use within the following industries:

**Biopharmaceutical**
Our disposable polymeric cartridge filters are constructed from FDA approved materials carrying the CFR 21 number for biological safety and our materials of construction meet USP Class VI-121°C plastics.

**Food and Beverage**
Our range of filters are installed to effectively remove particulates, yeast, mould spores and bacteria for use in wineries, breweries, cider, mineral water, soft drinks, food and dairy products, culinary steam, powder handling and sparging applications.

**Industrial and Chemical Process**
Our filter range can be used in process applications such as specialist inks, UV curable inks, laminates, coatings and lacquers, electronics grade chemicals, water treatment, carbon fibre precursors, paint, parts washing, powder handling and transmission, cosmetics and toiletries.

**Microelectronics**
Tefil™ and Tefil™ HF are a range of superior pleated PTFE membrane filters with PFA supports. This chemically inert filter range offers the removal of fine particulate from 0.05-10 micron in challenging operating conditions.

**Printing**
Our extended range of filters offers solutions for inkjet requirements including capsule, in-line, last chance and bulk ink filtration.
Pleated Filter Elements
For the Aerospace Industry

Our range of pleated filter elements for the aerospace and defence industries are used for critical contamination control in a variety of aircraft systems. The filter media for disposable pleated elements can be polymeric, glass fibre or sintered metal fibre, used in combination with a variety of support and drain meshes to optimise cost and performance. Typical absolute filtration ratings are 5, 10, 15 and 25 microns with a Beta ratio greater than 200.

**Polymeric or Resin-Impregnated Cellulose**
Moderate dirt-holding capacity and lightweight. Offer a cost-effective solution for low pressure and temperature fuel filtration.

**Glass Fibre**
Reduced pressure drop, increased dirt-holding capacity and can withstand greater pressures and temperatures than cellulose filters.

**Sinterflo® F Sintered Metal Fibre**
Sinterflo® F sintered metal fibre filters offer unparalleled performance and can withstand extremes of temperature and pressure. Studies indicate a superior resistance to the downstream deposit of contamination and maintaining integrity during dynamic flow conditions.

We also supply a range of sintered metal mesh pleated elements.

**Typical Applications**
- Hydraulic
- Lubricant
- Coolant
- Fuel
- Air
- Environmental control

**Features and Benefits**
- High filtration efficiency
- Lightweight
- Enhanced operating life

**Filter Assemblies**
Filter assemblies for hydraulic, fuel, lubrication and air systems. Applications include:
- Hydraulic pressure, return and case drain
- Thrust reverser actuation systems
- Fuel supply for both main engine and APU’s
- Fuel inerting systems
- Gearbox lubrication

**Ordering Information**
For ordering information please contact a member of the sales team.
## End Cap Adapters
### Disposable Cartridges

Our pharmaceutical-grade filters are designed for use in cGMP manufacturing, processing or packaging facilities for injectable drug products and comply with the Federal Drug Administration’s regulations CFR Title 21, parts 211.72 ‘Filters’ and 210.3 (b) (6), and United States Pharmacopoeia 788 ‘Particulate Matter in Injections’. These products contain a stainless steel insert.

Porvair seals are FDA compliant for food contact (CFR, Title 21). USP Class VI compliant seals are only fitted to “P” suffix products (Table 7) on the corresponding ordering guides.

### Ordering Guide

<table>
<thead>
<tr>
<th>Cartridge Code</th>
<th>Description</th>
<th>End Fitting</th>
<th>Quantity</th>
<th>Outlet Fitting</th>
<th>Seal</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Code 3</td>
<td>Flat</td>
<td>None</td>
<td>Open</td>
<td>O-ring 222</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>Code 7</td>
<td>Flat</td>
<td>None</td>
<td>Open</td>
<td>O-ring 226</td>
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</tr>
<tr>
<td>C</td>
<td>Code 8</td>
<td>Flat</td>
<td>None</td>
<td>Open</td>
<td>O-ring 222</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>SOE</td>
<td>Fin</td>
<td>None</td>
<td>Flat open</td>
<td>O-ring 213</td>
<td>1</td>
</tr>
<tr>
<td>G</td>
<td>SOE (short length)</td>
<td>Flat open</td>
<td>Flat gasket</td>
<td>Flat open</td>
<td>Flat gasket</td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td>SOE</td>
<td>Flat</td>
<td>None</td>
<td>Flat open</td>
<td>O-ring 8118 (fit into filter housing)</td>
<td>2</td>
</tr>
<tr>
<td>J</td>
<td>216 (218), 8 in</td>
<td>Fin</td>
<td>None</td>
<td>Open</td>
<td>O-ring 214</td>
<td>1</td>
</tr>
<tr>
<td>K</td>
<td>Code 2</td>
<td>Flat</td>
<td>None</td>
<td>Open</td>
<td>O-ring 218</td>
<td>1</td>
</tr>
<tr>
<td>L</td>
<td>222, 8 in (no lugs)</td>
<td>Fin</td>
<td>None</td>
<td>Open</td>
<td>O-ring 222</td>
<td>2</td>
</tr>
<tr>
<td>M</td>
<td>SOE</td>
<td>Flat open</td>
<td>Flat gasket</td>
<td>Flat open</td>
<td>Flat gasket</td>
<td>1</td>
</tr>
<tr>
<td>S</td>
<td>Code 28, 8 in (3 lugs)</td>
<td>Fin</td>
<td>None</td>
<td>Open</td>
<td>O-ring 224</td>
<td>2</td>
</tr>
<tr>
<td>U</td>
<td>Code 224, 8 in</td>
<td>Fin</td>
<td>None</td>
<td>Open</td>
<td>O-ring 224</td>
<td>2</td>
</tr>
<tr>
<td>V</td>
<td>226, 8 in</td>
<td>Fin</td>
<td>None</td>
<td>Open</td>
<td>O-ring 226</td>
<td>2</td>
</tr>
<tr>
<td>W</td>
<td>F+20 Code 7 (stainless steel core)</td>
<td>Flat</td>
<td>None</td>
<td>Open</td>
<td>O-ring 8118</td>
<td>2</td>
</tr>
<tr>
<td>X</td>
<td>F+20 Code 2 (stainless steel core)</td>
<td>Flat</td>
<td>None</td>
<td>Open</td>
<td>O-ring 8118</td>
<td>2</td>
</tr>
<tr>
<td>Y</td>
<td>BS322, flat</td>
<td>Flat</td>
<td>None</td>
<td>Open</td>
<td>O-ring 8118</td>
<td>2</td>
</tr>
<tr>
<td>Z</td>
<td>F+20 Code Y (stainless steel core)</td>
<td>Flat</td>
<td>None</td>
<td>Open</td>
<td>O-ring 8118</td>
<td>2</td>
</tr>
</tbody>
</table>

*Our pharmaceutical-grade filters are designed for use in cGMP manufacturing, processing or packaging facilities for injectable drug products and comply with the Federal Drug Administration’s regulations CFR Title 21, parts 211.72 ‘Filters’ and 210.3 (b) (6), and United States Pharmacopoeia 788 ‘Particulate Matter in Injections’. These products contain a stainless steel insert.*

*Porvair seals are FDA compliant for food contact (CFR, Title 21). USP Class VI compliant seals are only fitted to “P” suffix products (Table 7) on the corresponding ordering guides.*
A range of high-quality nominally-rated pleated polypropylene cartridge filters, suitable for challenging filtration environments, including chemical processing, process water and food and beverage.

PolyKey™ filter cartridges are manufactured from melt-blown and spun-bonded pleated polypropylene media, ensuring a highly efficient media with excellent particulate removal as well as low pressure drops.

**Typical Applications**
- Food and beverage
- Reverse osmosis pre-filtration
- Potable and de-ionised water
- Process water
- Chemical processing
- Coatings
- Oils

**Specifications**

**Materials of Manufacture**
- Filter media: Polypropylene
- Membrane support: Polypropylene
- End caps: Polypropylene (thermal bonded)

**Effective Filtration Area**
4.5ft² (0.4m²) per 10” (254mm) length

**Ordering Information**

### PolyKey™ Disposable Filter Elements and Cartridges

#### 1: Nominal
- PK: PolyKey™

#### 2: Pore Rating
- P1: 0.1µm
- P2: 0.2µm
- P45: 0.45µm
- P1: 1µm
- P3: 3µm
- P8: 10µm
- P10: 30µm

#### 3: Version
- S: Standard
- H: Hard Cage
- N: Netted

#### 4: Length (Nominal)
- 1: 10” (254mm)
- 2: 20” (508mm)
- 3: 30” (762mm)
- 4: 40” (1016mm)
- 5: 5” (127mm)

#### 5: End Fitting
- A: Code 3
- B: Code 7
- C: Code 8
- D: Plastisol / PVC (double open end)
- K: Code 2
- M: DOE

#### 6: Seals
- A: Ethylene Propylene
- B: Silicone
- C: Viton®
- D: Nitrile
- J: DOE PTFE

**Flow / Pressure Drop**

- Flow rates shown are for a nominal 10” (254mm) long cartridge. For fluids other than water, multiply the pressure drop by the fluid viscosity in centipoise.

**Flow / Pressure Drop**
- Flow rate in gpm/sq.ft. at room temperature.

**Operating Characteristics**
- Maximum ΔP: 60psid (4.1bar) @ 140°F (60°C)
- Changeout recommended at 30psid (2.1bar)

**Cartridge Dimensions (Nominal)**
- Diameter: OD 2.75” (70mm)
- ID 1” (25mm)
- Length: 5” (127mm)
- 10” (254mm)
- 20” (508mm)
- 30” (762mm)
- 40” (1016mm)

**Standard Range**

**Features and Benefits**
- Excellent chemical compatibility
- Variety of end caps
- High-efficiency design
- Outer guard in a single module
- Wide range of options

**Effective Filtration Area**
4.5ft² (0.4m²) per 10” (254mm) length

**Ordering Information**

### PolyKey™ Polypropylene Cartridge Filters

**Ordering Information**

### PolyKey™ Polypropylene Cartridge Filters

**Ordering Information**

### PolyKey™ Polypropylene Cartridge Filters

**Ordering Information**
**PolyKey™ GIANT**

GIANT Wide Diameter Cartridges

High Efficiency GIANT Pleated Cartridges

GIANT 222 and DOE wide diameter cartridges offer maximum filtration capacity within a compact unit, featuring a 4.5" (114mm) diameter with differing length options. These cartridges are composed of 10¹⁰ (0.9µm) of effective surface area per 10" (254mm) cartridge, used in conjunction with our GIANT HOUSING® Series 222 Polypropylene filter housings, these systems offer an economical alternative to multi-cartridge stainless steel housings with standard diameter filter cartridges. These are also suitable to retrofit into most industry standard wide diameter housings.

**Typical Applications**

- Food and beverage
- Reverse osmosis pre-filtration
- Potable and de-ionised water
- Process water
- Chemical processing
- Coatings
- Oils

**Features and Benefits**

- Excellent chemical compatibility
- Variety of end caps
- High-efficiency design
- Outer guard in a single module
- Wide range of options

**Specifications**

**Materials of Manufacture**

<table>
<thead>
<tr>
<th>Media</th>
<th>Polypropylene or Polyester</th>
</tr>
</thead>
<tbody>
<tr>
<td>End caps</td>
<td>Polypropylene assembled with Polypropylene hot melt adhesive</td>
</tr>
</tbody>
</table>

**Effective Filtration Area**

10¹⁰ (0.9µm) per 10" (254mm) length

**Nominal Micron Ratings**

0.2, 0.45, 1µ in Polypropylene media
3µ in Polyester media

**Cartridge Dimensions**

<table>
<thead>
<tr>
<th>Diameter</th>
<th>4.5&quot; (114mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>10&quot; (254mm)</td>
</tr>
<tr>
<td>20&quot; (508mm)</td>
<td></td>
</tr>
</tbody>
</table>

Sized to fit in our 222 GIANT HOUSING® series

**Ordering Information**

<table>
<thead>
<tr>
<th>Code</th>
<th>1: Nominal</th>
<th>2: Pore Rating</th>
<th>3: Version</th>
<th>4: Length (Nominal)</th>
<th>5: End Fitting</th>
<th>6: Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>PK</td>
<td>1</td>
<td>0.2µm</td>
<td>A</td>
<td>10&quot; (254mm)</td>
<td>Code 3</td>
<td>A: Ethylene Propylene</td>
</tr>
<tr>
<td>PK</td>
<td>2</td>
<td>0.4µm</td>
<td>A</td>
<td>10&quot; (254mm)</td>
<td>Code 4</td>
<td>B: Silicone</td>
</tr>
<tr>
<td>PK</td>
<td>3</td>
<td>1µm</td>
<td>A</td>
<td>10&quot; (254mm)</td>
<td>Code 5</td>
<td>C: Viton®</td>
</tr>
<tr>
<td>PK</td>
<td>4</td>
<td>5µm</td>
<td>A</td>
<td>10&quot; (254mm)</td>
<td>Code 6</td>
<td>D: Nitrile</td>
</tr>
</tbody>
</table>

*All GIANT filters are 4.5" (114mm) diameter and available in length 1 and 2, with code A and M end caps.

**Flow / Pressure Drop**

Flow rates shown are based on an extrapolation of results taken from the standard range.

**Filter Retention Specifications**

<table>
<thead>
<tr>
<th>Liquid Service</th>
<th>Particulate removal efficiency (Beta ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal micron rating</td>
<td>90% (10)</td>
</tr>
<tr>
<td>0.2 Polypropylene</td>
<td>0.6</td>
</tr>
<tr>
<td>0.45 Polypropylene</td>
<td>1</td>
</tr>
<tr>
<td>1 Polypropylene</td>
<td>3</td>
</tr>
<tr>
<td>3 Polyester</td>
<td>8</td>
</tr>
</tbody>
</table>

* Data acquired by multi-pass testing. Ratings are based on laboratory tests using ISO ultra-fine test dust for 0.2, 0.45 and 1µm and ISO fine test dust for 3µ. Flow rate is gpm/sq.ft. at room temperature. Field results will be influenced by the type of fluid and contaminant as well as the flow rate and temperature.
MicroKey™ Microfibreglass Cartridge Filters

A range of high quality pleated microfibreglass cartridge filters, suitable for challenging filtration environments.

MicroKey™ cartridge filters are manufactured from microfibreglass layered with spun-bonded polyester, to produce a highly efficient media with excellent particulate removal as well as low pressure drops.

Typical Applications

- High temperature
- Process water
- Produced water
- Coatings
- Printing
- Reverse osmosis pre-filtration
- Oils

Features and Benefits

- Excellent compatibility at high temperature
- Maximum processing
- High-efficiency

Specifications

Materials of Manufacture
Filter media: Microfibreglass layered with spun-bonded polyester; 50 micron is 100% polyester
Membrane support: Polypropylene or polyester/Nylon

Nominal Micron Ratings
0.1, 0.2, 0.45, 1, 3, 10, 30, 50
Ratings derived from independent laboratory tests using latex bead suspensions and particle counter readings.

Effective Filtration Area
4ft² per layer per 10" length (0.37m² per 254mm length)

Operating Characteristics

Maximum ΔP:
75 psid (5.2 bar) @ 68°F (20°C)
40 psid (2.8 bar) @ 150°F (66°C)

Maximum Operating Temperature:
140°F (60°C) for standard version (S)
200°F (93°C) for high temperature version (H)

Cartridge Dimensions
Diameter: OD: 2.75" (70mm), ID 1" (25mm)
Nominal Lengths: 5" (127mm) to 40" (1,016mm)

Filter Retention Specifications

<table>
<thead>
<tr>
<th>Liquid Service</th>
<th>Gas Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porosity</td>
<td>β ratio</td>
</tr>
<tr>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>0.45</td>
<td>0.45</td>
</tr>
<tr>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>0.45</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Product Code:

1: Nominal
2: Pore Rating
3: Version
4: Length (Nominal)
5: End Fitting
6: Seats

A: Code 3
B: Code 7
C: Code 8
D: Polypropylene / PVC (shrinkable)
E: Code 2
F: Code 4
G: Code 5
H: Code 6
I: Code 9
J: Code 10
K: Code 11
L: Code 12
M: Code 13
N: Code 14
O: Code 15
P: Code 16
Q: Code 17
R: Code 18
S: Code 19
T: Code 20
U: Code 21
V: Code 22
W: Code 23
X: Code 24
Y: Code 25
Z: Code 26

Ordering Information

Product Code: 1 2 3 4 5 6

1: Nominal
2: Pore Rating
3: Version
4: Length (Nominal)
5: End Fitting
6: Seats

A: Ethylene
B: Propylene
C: Silicone
D: PTFE
E: Viton®
F: Nitrile
G: DOE
H: Silastic
I: PTFE
Tekfil™ N
Nominal Rated Polypropylene Depth Cartridge Filters

Tekfil™ N is a high flow, graded depth filter with high contaminant capacity for long life. Constructed from FDA approved polypropylene with excellent performance characteristics, it is an economic choice for a wide range of applications. Tekfil™ is available in a range of industrial standard lengths.

Ordering Information

<table>
<thead>
<tr>
<th>1: Nominal</th>
<th>2: Pore Rating</th>
<th>3: Length (Nominal)</th>
<th>4: End Fitting</th>
<th>5: Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5</td>
<td>0.5µm</td>
<td>10” (254mm)</td>
<td>A</td>
<td>Ethylene Propylene</td>
</tr>
<tr>
<td>P6</td>
<td>0.4µm</td>
<td>20” (508mm)</td>
<td>B</td>
<td>Silicone</td>
</tr>
<tr>
<td>P8</td>
<td>0.8µm</td>
<td>30” (762mm)</td>
<td>C</td>
<td>Viton®</td>
</tr>
<tr>
<td>01</td>
<td>1µm</td>
<td>40” (1016mm)</td>
<td>D</td>
<td>Nitrile</td>
</tr>
<tr>
<td>02</td>
<td>3µm</td>
<td>5” (127mm)</td>
<td>E</td>
<td>FEP Encap. Viton®</td>
</tr>
<tr>
<td>03</td>
<td>3µm</td>
<td></td>
<td>F</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>05</td>
<td>5µm</td>
<td></td>
<td>G</td>
<td>FEP Encap. Silicone</td>
</tr>
<tr>
<td>07</td>
<td>7µm</td>
<td></td>
<td>H</td>
<td>ZDO F35</td>
</tr>
<tr>
<td>10</td>
<td>10µm</td>
<td></td>
<td>I</td>
<td>ZDO F70</td>
</tr>
<tr>
<td>15</td>
<td>15µm</td>
<td></td>
<td>J</td>
<td>ZDO F75</td>
</tr>
<tr>
<td>20</td>
<td>20µm</td>
<td></td>
<td>K</td>
<td>ZDO F100</td>
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<tr>
<td>30</td>
<td>30µm</td>
<td></td>
<td>L</td>
<td>ZDO F200</td>
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<tr>
<td>40</td>
<td>40µm</td>
<td></td>
<td>M</td>
<td>ZDO F300</td>
</tr>
<tr>
<td>50</td>
<td>50µm</td>
<td></td>
<td>N</td>
<td>ZDO F400</td>
</tr>
<tr>
<td>60</td>
<td>60µm</td>
<td></td>
<td>O</td>
<td>ZDO F500</td>
</tr>
<tr>
<td>75</td>
<td>75µm</td>
<td></td>
<td>P</td>
<td>ZDO F600</td>
</tr>
<tr>
<td>100</td>
<td>100µm</td>
<td></td>
<td>Q</td>
<td>ZDO F700</td>
</tr>
</tbody>
</table>

Typical Applications
- Food and beverage
- Pharmaceuticals
- Fine chemicals and solvents
- Coatings
- Photographic chemicals
- Metal finishing electroplating
- Water treatment prior to reverse osmosis
- Cosmetics product filling

Features and Benefits
- Graded depth media
  The graded structure of the media provides pretreatment of the process fluid prior to the nominal rated final layer. This combination provides economy of use and a smaller process footprint.
- High degree of chemical compatibility
  Constructed entirely of polypropylene and/or nylon.
- Nominal removal ratings
  Tekfil™ N cartridges are validated using recognised industry standard test methods.
- Suitable for steam and hot water sanitisation
  Tekfil™ N cartridges are resistant to repeat steam sterilisation and hot water cycles.

Specifications

Filter media: Polypropylene
End fittings: Polypropylene

Cartridge Dimensions (Nominal)
- Diameter: 63mm (2.5”)
- Length: 254mm (10”), 508mm (20”), 762mm (30”), 1016mm (40”)

Gaskets and O-Rings
Ethylene Propylene, FEP encapsulated, Silicone, Viton®, Nitrile or Polypropylene felt available for non-crush-fit end adapters.

Maximum Differential Pressure
- Normal flow direction: 20°C (68°F): 3.5 bar (50psi)
  60°C (140°F): 1.0 bar (15psi)
  80°C (176°F): 0.5 bar (7psi)

Operating Temperature
- Maximum continuous: 80°C (176°F)

Extractables
- Minimum total extractables.
The Carbofil™ series is the new generation of carbon cartridges produced by the extrusion process. They provide long service life and superior adsorption performance compared to conventional granular activated carbon cartridges together with minimum fines. With a high mechanical strength and low ash content, the carbon block structure prevents channeling, bypassing, fluidizing or unloading of carbon fines.

To prevent premature blocking of the activated carbon layer, the Carbofil™ filters incorporate an effective pre-filtration layer designed to intercept gels and large particles.

**Typical Applications**
- PCB solutions
- Plating and coating solutions
- Industrial water treatment
- Drinking water treatment
- Chlorine and VOC removal
- Tastes, odours and organic pigments
- Chlorinated compounds reduction
- Chlorinated compounds reduction
- Oils and aromatic compounds removal

**Features and Benefits**
- Safe handling without any loose powder
- Sanitary installation and removal
- Fits into a variety of standard filter housings
- Rigid and high capacity adsorption of contaminants

**Specifications**
- **Materials of Manufacture**
  - Filter media: PAC impregnated cellulose
  - Netting: Polyethylene
  - Reinforcement backing: Cellulose polyester
  - Core: Polypropylene
  - Outer support: Polypropylene
  - End caps: Polypropylene
- **Cartridge Dimensions (Nominal)**
  - Outside diameter: 70mm (2.8”)
  - Inside diameter: 27mm (1.1”)
  - Length: 254mm (10”)
  - 508mm (20”)
  - 762mm (30”)
  - 1016mm (40”)

**Gaskets and O-Rings**
- Ethylene Propylene

**Operating Temperature**
- From 40ºF (4ºC) to 125ºF (52ºC)

**Cartridge Performance**

<table>
<thead>
<tr>
<th>Filter Code</th>
<th>Cartridge Length (Nominal)</th>
<th>Micron Rating (µm)</th>
<th>Initial (at 2 psig) Flow Rate (lpm)</th>
<th>Chlorine Reduction (at 2 psig) Flow Rate (lpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR05-N1</td>
<td>250mm (10”)</td>
<td>5</td>
<td>1.4 psi @ 4 lpm</td>
<td>&gt;23,000 litres @ 4 lpm</td>
</tr>
<tr>
<td>CR05-N2</td>
<td>508mm (20”)</td>
<td>5</td>
<td>1.5 psi @ 8 lpm</td>
<td>&gt;46,000 litres @ 8 lpm</td>
</tr>
<tr>
<td>CR05-N3</td>
<td>762mm (30”)</td>
<td>5</td>
<td>1.5 psi @ 15 lpm</td>
<td>&gt;69,000 litres @ 15 lpm</td>
</tr>
<tr>
<td>CR05-N4</td>
<td>1016mm (40”)</td>
<td>5</td>
<td>1.5 psi @ 20 lpm</td>
<td>&gt;92,000 litres @ 20 lpm</td>
</tr>
</tbody>
</table>

**Additional Information**
- The Carbofil™ cartridge contains a very small amount of carbon fines (very fine black powder): a new cartridge after installation should be flushed with sufficient water to remove traces of the fines from your water system before using the water. It is recommended that you run (flush) for at least 20 seconds prior to using water.
- Estimated capacity tested at given flow rate using 2ppm free available chlorine at continuous flow to with greater than 90% reduction, increased flow rates may result in less effective chlorine reduction.
- Micron ratings are based on 85% removal of given particle size.

**WARNING**
- For drinking water applications, do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.
**Cryptofil™**

For the Removal of Cryptosporidium Oocysts

Cryptofil™ filter cartridges are used for the control of Cryptosporidium oocysts in water used in the food, beverage and ultrapure water industries.

The Cryptofil™ cartridge has been developed following extensive research and has resulted in filter media with continuously graded fibre density. This yields progressively finer oocyst retention through the depth of the media. The graded density-depth filtration mechanism, combined with optimised pleated pack configuration and resilient high surface area, affords high flow capability and exceptional oocyst retention capacity.

**Typical Applications**
- Mineral water
- Food processing
- Embarkation water supply
- Leisure

**Ordering Information**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>1: Nominal</th>
<th>2: Pore Rating</th>
<th>3: Version</th>
<th>4: Length (Nominal)</th>
<th>5: End Fitting</th>
<th>6: Seats</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP</td>
<td>P6</td>
<td>R</td>
<td>S</td>
<td>10 (254mm)</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20&quot; (508mm)</td>
<td>C, Code 7</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30&quot; (762mm)</td>
<td>F, GDOE</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40&quot; (1016mm)</td>
<td>H GSOE</td>
<td>F, G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5&quot; (125mm)</td>
<td>J K Code 2</td>
<td>J</td>
</tr>
</tbody>
</table>

**Cryptofil™**

Disposable Filter Elements and Cartridges

**INTRODUCTION**

**PRODUCTS**

**Features and Benefits**
- Graded multi-layer media
- Guaranteed removal ratings
- High filtration area
- Cartridge integrity and low TOC levels
- Suitable for steam and hot water sanitisation
- Full traceability
- Controlled manufacturing environment

**Cryptofil™** has been developed to release by system fluctuations. The voids volume are captured within the media and are not subject to release by system fluctuations. The voids volume of Cryptofil™ combined with advanced cartridge construction results in a filter capable of retaining high concentrations of oocysts ensuring extended service life and reduced filtration costs.

**Typical Applications**
- Leisure
- Embarkation water supply
- Food processing
- Mineral water

**Typical clean water flow rate:**

For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

**Maximum Differential Pressure**

Normal flow direction at:
- 20°C (68°F): 6.0 bar (87 psi)
- 80°C (176°F): 4.0 bar (58 psi)
- 100°C (212°F): 3.0 bar (44 psi)
- 120°C (248°F): 2.0 bar (29 psi)
- 125°C (257°F): 1.5 bar (22 psi)

Reverse flow direction at:
- 20°C (68°F): 2.1 bar (30 psi)
- 80°C (176°F): 1.0 bar (15 psi)
- 100°C (212°F): 0.5 bar (7 psi)

**Extractables**

Minimum total extractables. Please refer to the Cryptofil™ Validation Guide.

**Integrity Testing**

Each Cryptofil™ module of every cartridge is individually integrity tested using the Bubble Point Test. Please contact us for procedural details.

**Operating Temperature**

Maximum continuous:
- 80°C (176°F)

**Sterilisation**

In situ steam 60 x 30 minute cycles at 130°C (266°F)
- Hot water 20 x 20 minute cycles at 80°C (176°F)

**Clean Water Flow Rates**

For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

**Effective Filtration Area**

Up to 0.6m² per 250mm module

**Materials of Manufacture**

Filter media: Polypropylene
- Support layers: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support rings: Stainless steel

**Specification**

**Cryptofil™ Cartridge Dimensions (Nominal)**

Diameter: 70mm (2.8”)
Length:
- 1 module: 254mm (10”)
- 2 modules: 508mm (20”)
- 1016mm (40”)

**Ordering Information**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>1: Nominal</th>
<th>2: Pore Rating</th>
<th>3: Version</th>
<th>4: Length (Nominal)</th>
<th>5: End Fitting</th>
<th>6: Seats</th>
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<td>5&quot; (125mm)</td>
<td>J K Code 2</td>
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</tbody>
</table>

**Contact Information:**

UK, New Milton Division
Tel: +44 (0)1425 612010
info@porvairfiltration.com

US, Ashland Division
Tel: +1 804 550 1600
infoUS@porvairfiltration.com

India, Mumbai Division
Tel: +91 22 25 97644 / 65
infoIN@porvairfiltration.com
The unique design of the Klearfil® cartridge helps to achieve lower running costs and a smaller process footprint. Klearfil® is highly resistant to integrity failure caused by steam sterilisation and has excellent chemical compatibility characteristics.

Typical Applications
- Pharmaceuticals and bio-processing
- Foods and beverages
- Process water systems
- Fine chemicals
- Cosmetics
- Inks

Features and Benefits
- Graded multi-layer media
- Guaranteed removal ratings
- Suitable for steam and hot water sanitisation
- Full traceability
- Controlled manufacturing environment

Specifications

Materials of Manufacture
- Filter media: Polypropylene
- Support layers: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

Cartridge Dimensions (Nominal)
- Diameter: 70mm (2.8”)
- Length: 1 module (short): 125mm [5”]
  1 module: 254mm [10”]
  2 modules: 508mm [20”]
  2 modules: 762mm [30”]
  2 modules: 1016mm [40”]

Cartridge Treatment
- Standard: Cleaned without further treatment
- Flushed: Flushed with pyrogen-free water
- Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 10^15Ω.cm

Gaskets and O-Rings
- Ethylene Propylene, FEP encapsulated, Silicone, Viton®, Nitrile or Polypropylene felt

Maximum Differential Pressure
- Normal flow direction:
  - 20°C [68°F]: 6.0 bar [87psi]
  - 80°C [176°F]: 4.0 bar [58psi]
  - 100°C [212°F]: 3.0 bar [44psi]
  - 120°C [248°F]: 2.0 bar [29psi]
  - 125°C [257°F]: 1.3 bar [19psi]

- Reverse flow direction:
  - 20°C [68°F]: 2.1 bar [30psi]
  - 80°C [176°F]: 1.0 bar [15psi]
  - 100°C [212°F]: 0.5 bar [7psi]

Operating Temperature
- Maximum continuous: 80°C [176°F]
- Minimum: -5°C [23°F]

Sterilisation
- Hot water 120°C [248°F] 20 minute cycles
- Steam 130°C [266°F] 30 minute cycles

Extractables
- Minimum total extractables, please refer to the Klearfil® Validation Guide.

Integrity Testing
- Klearfil® filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: 2.84 m³/hr (100 USGPM) for 0.25 µm (100 USGPM) for 0.25 µm
- Other solutions: Multiply the indicated differential pressure by the viscosity in centipoise.

Contact Information:
- UK, New Milton Division: Tel: +44 (0)1425 612010
  Contact: info@parvafiltration.com
- US, Ashland Division: Tel: +1 804 550 1600
  Contact: infoUS@parvafiltration.com
- India, Mumbai Division: Tel: +91 22 25 976446 /65
  Contact: infoIN@parvafiltration.com
Microfil™ Absolute Rated Pleated Glass Fibre Cartridge Filters

A range of absolute rated cartridge filters are manufactured, featuring the latest developments in borosilicate glass fibre filter media technology.

Microfil™ cartridges are constructed from robust glass fibre and polypropylene filtration layers, offering removal ratings from 0.5 to 5 micron absolute. Microfil™ cartridges are suitable for absolute removal of unwanted particulates and for pre-filtration to membrane filters. Microfil™ cartridges incorporate a polypropylene pre-filtration layer, combined with a membrane filters. Microfil™ in borosilicate glass fibre filter media technology; manufactured, featuring the latest developments in chemical compatibility characteristics.

High viscosity Microfil™ HV versions of this range are available upon request.

Typical Applications
- Foods and beverages
- Process water systems
- Pharmaceuticals and bio-processing
- Fine chemicals
- Cosmetics

Features and Benefits
- Zeta potential
- High filtration area
- Guaranteed removal ratings
- Suitable for steam and hot water sanitisation
- Resistance to Cleaning-in-Place (CIP) regimes
- Full traceability
- Controlled manufacturing environment

Specifications
Materials of Manufacture
- Filter media: Glass fibre
- Pre-filtration layer: Polypropylene
- Support layers: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

Cartridge Dimensions (Nominal)
- Diameter: 70mm (2.8”)
- Length: 1 module (short): 125mm (5”)
- 2 modules: 250mm (10”)
- 3 modules: 375mm (15”)
- 5 modules: 625mm (25”)

Effective Filtration Area
- Absolute Removal Rating: 1.0µm (each 254mm (10”) module)
- 0.5, 0.8, 1.0, 2.0 and 5.0µm

Cartridge Treatment
- Standard: Cleaned without further treatment
- Flushable: flushed with pyrogen-free water

Gaskets and O-Rings
- Ethylene Propylene, FEP encapsulated, Silicone, Viton®, Nitrile or Polypropylene felt

Maximum Differential Pressure
- Normal flow direction at: 20°C (68°F): 6.0 bar (85psi)
  80°C (176°F): 4.0 bar (58psi)
  100°C (212°F): 3.0 bar (44psi)
  120°C (248°F): 2.0 bar (29psi)
- Reverse flow direction at: 20°C (68°F): 2.1 bar (30psi)
  80°C (176°F): 1.0 bar (14psi)
  100°C (212°F): 0.5 bar (7psi)

Operating Temperature
- Maximum continuous: 80°C (176°F)

Sterilisation
- In situ steam 20 x 30 minute cycles at 130°C (266°F)
  Hot water 20 x 20 minute cycles at 65-90°C (185-194°F)

Extractables
- Minimum total extractables. Please refer to the Microfil™ Validation Guide.

Integrity Testing
- Microfil™ filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10”) Microfil™ single cartridge exhibits the flow-ΔP characteristics indicated below, for solutions with a viscosity of 1 centipoise.
- Other solutions:
  - For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Effective Filtration Area

Contact Information:
UK, New Milton Division
Tel: +44 (0)1425 620100
info@porvairfiltration.com

US, Ashland Division
Tel: +1 804 530 1600
infoUS@porvairfiltration.com

India, Mumbai Division
Tel: +91 22 25 976446 / 65
infoIN@porvairfiltration.com
**Microfil™ WF**

**Pleated Depth Filter or Final Polishing Filter**

Microfil™ wide format (WF) filter cartridges are designed for applications requiring a very high flow rate. They are equally suitable for use as pre-filters or final polishing filters in applications that do not require membrane filtration. The use of a spacer mesh as an upstream pleat support means that fluid flow is uniform across the entire surface of the filter medium. The mesh holds the flow channels open thereby maximising dirt holding capacity and minimising pressure drop across the filter.

Our filter cartridges are absolute rated, tested to Beta 5000 using the industry standard single pass ISO 12103 part 1 A2 Fine and A4 Coarse test dust as appropriate. Manufacturing in the UK using all polypropylene hardware with glass fibre filter media, these filter cartridges have excellent chemical compatibility.

**Features and Benefits**

- Available with 304 stainless steel outer cage for high temperature and differential pressure applications.
- Absolute micron ratings to ensure consistent, repeatable performance.
- Inside to out flow ensures that contamination is collected inside the filter cartridge for easy disposal.
- Manufactured in the UK.
- Large surface area, typically 5 metres per 40”, and pleat spacing mesh on the inner layer ensures low initial pressure drop and high dirt holding capacity, for extended service life.
- All polypropylene hardware with glass fibre filter media, thermally bonded, means wide chemical compatibility and a minimum level of extractables.
- Suitable for steam sterilisation, autoclaving and hot water sanitisation.
- Available in 20”, 40” and 60” lengths to retrofit into most existing installations.

**Typical Applications**

- Foods and beverages
- Process water systems
- Pharmaceuticals and bio-processing
- Fine chemicals
- Cosmetics

Thermal bonded construction eliminates the requirement for adhesives, maintaining product integrity in demanding applications and minimising the level of extractables in the filtrate. All the materials conform to the relevant requirements of FDA CFR21 part 117.

Available with 304 stainless steel outer cage for high temperature and differential pressure applications.

**Specifications**

**Materials of Manufacture**

- Filter medium: Glass fibre
- Drainage layers: Polypropylene
- Support mesh: Polypropylene
- Outer core: Polypropylene
- End caps: Polypropylene

**Cartridge Dimensions**

- Outside Diameter: 154mm [6”]
- Inside Diameter: 75mm (3”)
- Length: 508mm (20”)
- 1016mm (40”)
- 1524mm (60”)

**Pore Sizes**

- 0.5µm, 1.0µm, 5.0µm and 10µm

**Effective Filtration Area**

- Absolute Rating: 0.45, 1, 5, 10, 25, 50µm
- Effective Filtration Area [each 1016mm (40”) module]
- 0.45: 5m²
- 5: 10m²
- 10: 20m²
- 25: 40m²
- 50: 80m²

**Gaskets and O-Rings**

- EPDM, FEP, Capsule, Silicone, Viton®, and Nitrile

**Maximum Differential Pressure**

- Normal flow direction at:
  - 20°C (68°F): 3.3 bar (48 psi)
  - 65°C (149°F): 1.8 bar (26 psi)
  - 80°C (176°F): 1.0 bar (15 psi)

- Reverse flow is not recommended.

**Recommended Changeout Differential Pressure**

- 20°C (68°F): 1.5 bar (22 psi)

**Sanitation**

- Steam or autoclave: 121°C (250°F) for 15 minutes
- Hot water sanitisation: 90°C (194°F) for 30 minutes repeatedly

**Clean Water Flow Rates**

- Typical clean water flow rate: A 1016mm (40”) Microfil™ WF cartridge exhibits the flowrate characteristics indicated below, for solutions with a viscosity of 1 centipoise.
- Other solutions: For solutions with a different viscosity, multiply the indicated differential pressure by the viscosity in centipoise.

**Glass Fibre Media**

- 1 micron
- 3 microns
- 5 microns
- 10 microns
- 25 microns
- 50 microns

**Ordering Information**

- Product Code: GF
- WF Microfil™ WF
- 2: Pore rating
- 3: Length (Nominal)
- 4: Seals

**Other micron ratings available upon request**

**Contact Information:**

- UK, New Milton Division: Tel: +44 (0)1425 612010
  info@porvairfiltration.com
- US, Ashland Division: Tel: +1 804 550 1600
  infoUS@porvairfiltration.com
- India, Mumbai Division: Tel: +91 22 25 97644 / 65
  infoIN@porvairfiltration.com

**Grid:**

- Pressure drop mbar
- Flow rate m³/hr

**Graph:**

- Flow rate m³/hr against Pressure drop mbar for different pore sizes.
Absolute Rated Pleated Polypropylene Cartridge Filters

A range of absolute rated cartridge filters are created, featuring the latest developments in meltblown polypropylene filter media technology. Polyfil™ II cartridges are based on a robust all polypropylene construction, offering removal ratings from 0.5 to 150 microns absolute.

Polyfil™ II cartridges are suitable for absolute removal of unwanted particulates and for pre-filtration to membrane filters. The graded multi-layer polypropylene media provide pre-filtration of the process fluid prior to the absolute rated final layer. The unique design of the Polyfil™ II cartridges helps to achieve lower running costs and a smaller process footprint.

Typical Applications
- Pharmaceuticals and bio-processing
- Foods and beverages
- Inks and coatings
- Fine chemicals
- Cosmetics
- Process water systems

Features and Benefits
- Graded multi-layer media
- High filtration area
- Guaranteed removal ratings
- Suitable for steam and hot water sanitation
- Full traceability
- Controlled manufacturing environment

Specifications
Materials of Manufacture
- Filter media: Polypropylene
- Support layers: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

Cartridge Dimensions (Nominal)
- Diameter: 70mm (2.8"
- Length: 1 module (short): 125mm (5"
- 1 module: 254mm (10"
- 2 modules: 508mm (20"
- 1 module: 762mm (30"
- 2 modules: 1016mm (40"

Effective Filtration Area
Up to 0.6m² per 250mm module (depending on pore rating).

Cartridge Treatment
- Standard: Cleaned without further treatment
- Flushed: Flushed with pyrogen-free water
- Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

Gaskets and O-Rings
- Ethylene Propylene, FEP encapsulated, Silicone, Viton®, Nitrile or Polypropylene felt

Maximum Differential Pressure
- Normal flow direction at:
  - 30°C (86°F): 6.0 bar (87psi)
  - 80°C (176°F): 4.0 bar (58psi)
  - 100°C (212°F): 3.0 bar (44psi)
  - 120°C (248°F): 2.0 bar (29psi)
  - 125°C (257°F): 1.5 bar (22psi)

Reverse flow direction at:
- 30°C (86°F): 2.1 bar (30lb/in²)
- 80°C (176°F): 1.0 bar (15lb/in²)
- 100°C (212°F): 0.5 bar (7lb/in²)

Operating Maximum
- Maximum continuous: 80°C (176°F)
- Maximum burst: 130°C (265°F)

Sterilisation
- In situ steam 80 x 30 minute cycles at 130°C (265°F)
- Hot water 200 x 20 minute cycles at 85°C (185°F)

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10"
- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10"
- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10"
- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10"
- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10"
- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10"
- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10"
- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10"
- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.
Polyfil™WF
Pleated Depth Filter or Final Polishing Filter

Polyfil™ wide format (WF) filter cartridges are designed for applications requiring a very high flow rate. They are equally suitable for use as pre-filters or final polishing filters in applications that do not require membrane filtration. The use of a spacer mesh as an upstream pleat support means that fluid flow is uniform across the entire surface of the filter medium. The mesh holds the flow channels open thereby maximising dirt holding capacity and minimising pressure drop across the filter.

Our filter cartridges are absolute rated, tested to Beta 1000 using the industry standard single pass OSU-F2 test procedure with ISO 12103 part 1 A2 Fine and A4 Coarse test dust as appropriate. Manufactured in the UK from all polypropylene media and hardware, these filter cartridges have excellent chemical compatibility.

Ordering Information

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<th>Product Code</th>
<th>1: Pre-Filter</th>
<th>2: Pore rating</th>
<th>3: Length (Nominal)</th>
<th>4: Seals</th>
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<td>W2</td>
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<td>W3</td>
<td>10 μm</td>
<td>100-5000 (150mm-20&quot;&quot;)</td>
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<td>W4</td>
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<td>W5</td>
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<td>W6</td>
<td>75 μm</td>
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<td>W7</td>
<td>100 μm</td>
<td>1000-40000 (400mm-96&quot;&quot;)</td>
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*Other micron ratings available upon request

Features and Benefits
- Available with 304 stainless steel outer cage for high temperature and differential pressure applications.
- Absolute micron ratings to ensure consistent, repeatable performance.
- Inside to out flow ensures that contamination is collected inside the filter cartridge, for easy disposal.
- Our Polyfil™WF filters meet the requirements for food contact as detailed in EC 1935/2004.
- Manufactured in the UK.
- Large surface area, typically 5 metres per 40", and pleat spacing mesh on the inner layer ensures low initial pressure drops and high dirt holding capacity, for extended service life.
- 100% Polypropylene construction (PP only) and thermal bonding mean wide chemical compatibility and a minimum level of extractables.
- Suitable for steam sterilisation, autoclaving and hot water sanitisation.
- Available in 20", 40" and 60" lengths to retrofit into most existing installations.

Typical Applications
- Pharmaceuticals and bio-processing
- Foods and beverages
- Inks and coatings
- Fine chemicals
- Cosmetics
- Process water systems
- Other solutions: A 10.6μm (40") Polyfil™WF cartridge exhibits the flow-kP characteristics indicated below, for solutions with a viscosity of 1 centipoise.
- Other solutions: For solutions with a different viscosity, multiply the indicated differential pressure by the viscosity in centipoise.

Specifications
- Materials of Manufacture
  - Filter medium: Polypropylene
  - Drainage layers: Polypropylene
  - Support mesh: Polypropylene
  - End caps: Polypropylene
- Cartridge Dimensions (Nominal)
  - Outside Diameter: 154mm (6"")
  - Inside Diameter: 75mm (3"")
  - Length: 508mm (20")
  - 101.6mm (40")
  - 152.4mm (60")

Absolute Microparticle Rating

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<tr>
<th>Absolute Microparticle Rating</th>
<th>Effective Filtration Area</th>
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<td>5.5m² (33.8flm²)</td>
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<td>5 μm</td>
<td>22m² (136flm²)</td>
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<tr>
<td>10 μm</td>
<td>88m² (533flm²)</td>
</tr>
<tr>
<td>25 μm</td>
<td>347m² (2069flm²)</td>
</tr>
<tr>
<td>50 μm</td>
<td>1380m² (8339flm²)</td>
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</table>

Gaskets and O-Rings
- EPDM, FEP encapsulated, Silicone, Viton® and Nitrile

Maximum Differential Pressure
- Normal flow direction:
  - 20°C (68°F): 3.5 bar (51psi)
  - 60°C (140°F): 1.8 bar (26psi)
  - 80°C (176°F): 1.0 bar (15psi)
- Reverse flow not recommended.

Recommended Changeout Differential Pressure
- 20°C (68°F): 1.3bar (19psi)
- Sanitation
  - Steam or autoclave: 121°C (250°F) for 15 minutes
  - Hot water sanitisation: 90°C (194°F) for 30 minutes repeatedly

Clean Water Flow Rates
- Typical clean water flow rate:
  - A 10.6μm (40") Polyfil™WF cartridge exhibits the flow-kP characteristics indicated below, for solutions with a viscosity of 1 centipoise.

---

Contact Information:
UK, New Milton Division
Tel: +44 (0)1425 612010
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Tel: +1 804 530 1600
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India, Mumbai Division
Tel: +91 22 25 976464 / 65
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Tekfil™ A

Absolute Rated Polypropylene Depth Cartridge Filters

Tekfil™ A is a high flow, graded depth filter with high contaminant capacity for long life. Constructed from FDA approved polypropylene with excellent performance characteristics, it is an economic choice for a wide range of applications. Tekfil™ A is available in a range of industrial standard lengths and is also available in Nylon construction for solvent filtration.

Ordering Information

- Use the provided chart to select the desired filter type and characteristics.
- For more information, contact the provided contact information.

Typical Applications

- Food and beverage
- Pharmaceuticals
- Fine chemicals and solvents
- Coatings
- Photographic chemicals
- Metal finishing electroplating
- Water treatment prior to reverse osmosis
- Cosmetics product filling
- Pharmaceuticals
- Fine chemicals and solvents
- Food and beverage
- Metal finishing electroplating
- Water treatment prior to reverse osmosis
- Cosmetics product filling

Features and Benefits

- Graded depth media
  - The graded structure of the media provides prediffusion of the process fluid prior to the absolute rated final layer. This combination provides economy of use and a smaller process footprint.
  - High degree of chemical compatibility
  - Constructed entirely of polypropylene and/or nylon.
- Absolute removal ratings
  - Tekfil™ A cartridges are validated using recognized industry standard test methods.
- Suitable for steam and hot water sanitation
  - Tekfil™ A cartridges are resistant to repeat steam sterilization and hot water cycles.

Specifications

- Materials of Manufacture
  - Polypropylene/nylon

- End fittings
  - Polypropylene/nylon

- Filter media
  - Polypropylene/nylon

Gaskets and O-Rings

- Ethylene Propylene, FEP encapsulated, Silicone, Viton®, Nitrile or Polypropylene felt available for non crush-fit end adapters.

Maximum Differential Pressure

- Normal flow direction at:
  - 20°C (68°F): 3.5 bar (50psi)
  - 40°C (140°F): 1.0 bar (15psi)
  - 80°C (176°F): 0.5 bar (7psi)

- Operating Temperature
  - Maximum continuous: 80°C (176°F)

Extractables

- Minimum total extractables.
Tekfil™ WF
Melt Blown Pre-Filter or Final Polishing Filter

Tekfil™ wide format (WF) filter cartridges are designed for applications requiring a very high flow rate. They are equally suitable for use as pre-filters or final polishing filters in applications that do not require membrane filtration.

The use of a spacer mesh as an upstream pleat support means that fluid flow is uniform across the entire surface of the filter medium. The mesh holds the flow channels open thereby maximising dirt holding capacity and minimising pressure drop across the filter.

Our filter cartridges are absolute rated, tested to Beta 5000 using the industry standard single pass OSU-F2 test procedure with ISO 12103 part 1 A2 Fine and A4 Coarse test dust as appropriate. Manufactured in the UK using a spacer mesh as an upstream pleat support means that fluid flow is uniform across the entire surface of the filter medium. The mesh holds the flow channels open thereby maximising dirt holding capacity and minimising pressure drop across the filter.

Features and Benefits
- Absolute micron ratings to ensure consistent, repeatable performance
- Multi layer graded density structure gives high contaminant holding capacity resulting in a longer filter service life
- Available with or without a core
- Manufactured in the UK
- Formed by thermal bonding with no resins, binders or adhesives
- 100% polypropylene or nylon construction, provides wide process fluid compatibility and a minimum level of extractables
- Suitable for high flow applications as the large surface area and high void volume media result in low pressure drops and high contaminant capacity
- Available in 20° and 40° lengths to retrofit into most existing installations
- Compliant with NSF 42 and FDA CFR title 21 part 117.

Typical Applications
- Food and beverage
- Pharmaceuticals
- Fine chemicals and solvents
- Photographic chemicals
- Metal finishing electropolishing
- Water treatment prior to reverse osmosis
- Cosmetics product filling

Ordering Information

Product Code: 1 2 3

<table>
<thead>
<tr>
<th>Product Code</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pre-filter</td>
<td>65</td>
<td>10</td>
<td>1016mm (40&quot;)</td>
</tr>
<tr>
<td>2. Pore rating</td>
<td>9µm</td>
<td>10µm</td>
<td>25µm</td>
</tr>
<tr>
<td>3. Length (Nominal)</td>
<td>20° (508mm)</td>
<td>40° (1016mm)</td>
<td></td>
</tr>
</tbody>
</table>

Material: Polypropylene or nylon

Thermal bonded construction eliminates the requirement for adhesives, maintaining product integrity in demanding applications and minimising the level of extractables in the filtrate. All the materials conform to the relevant requirements of FDA CFR21 part 117.

Maximum Differential Pressure
Normal flow direction at:
- 20°C (68°F): 3.5 bar (51psi)
- 65°C (149°F): 1.8 bar (26psi)
- 80°C (176°F): 1.0 bar (15psi)

Recommended Changeout Differential Pressure
20°C (68°F): 1.5 bar (22ps)

Clean Water Flow Rates
- Typical clean water flow rate: A 1016mm (40") Microfil™ WF cartridge exhibits the flow-Ap characteristics indicated below, for solutions with a viscosity of 1 centipoise.
- Other solutions: For solutions with a different viscosity, multiply the indicated differential pressure by the viscosity in centipoise.

Specifications

Materials of Manufacture
Filter media: Polypropylene or nylon

Cartridge Dimensions (Nominal)
Outside diameter: 152mm [6”]
Inner diameter: 114mm [4.5”]
Length: 508mm [20”]
1016mm (40”)

Micron Rating
5µm, 10µm, 25µm, 40µm, 75µm and 100µm

Effective Filtration Area
Absolute Micron Rating: 5µm, 10µm, 25µm, 75µm and 100µm

Recommended Operating Conditions

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Polypropylene</th>
<th>Nylon</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°C (68°F)</td>
<td>2 bar (29psi)</td>
<td>2 bar (29psi)</td>
</tr>
<tr>
<td>40°C (104°F)</td>
<td>4 bar (58psi)</td>
<td>4 bar (58psi)</td>
</tr>
<tr>
<td>80°C (176°F)</td>
<td>1 bar (15psi)</td>
<td>2 bar (29psi)</td>
</tr>
<tr>
<td>135°C (275°F)</td>
<td>n/a</td>
<td>0.5 bar (7psi)</td>
</tr>
</tbody>
</table>

Contact Information:
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info@porvairfiltration.com

US, Ashland Division
Tel: +1 804 530 1600
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UK, New Milton Division                   US, Ashland Division  India, Mumbai Division

Tekfil™ HV
High Viscosity Filter Cartridge for the Filtration of Gels and Viscous Fluids

Tekfil™ HV meltblown filter cartridges are designed specifically for the filtration of high viscosity fluids, such as paints, inks and resins. The graded density of depth filters is highly suited for the retention of gels and other deformable particles.

The Tekfil™ HV filters are manufactured by controlling the fibre diameters which maintain high tensile strength, high void volume and higher differential pressure than conventional meltblown filters.

The all-polypropylene construction of the filters are free from silicone and binders and ensures zero fibre mitigation during the recommended process conditions. All Tekfil™ HV filters are available with a wide range of thermally welded endcaps.

Typical Applications
- High Viscosity Fluids
- Paints
- Inks
- Coatings
- Resins

Features and Benefits
- Graded depth media
- High degree of chemical compatibility
- High dirt holding capacity
- Absolute and nominal removal ratings
- Silicone Free

Specifications
- Materials of Manufacture
  - Filter media: Polypropylene
  - End fittings: Polypropylene

- Cartridge Dimensions (Nominal)
  - Diameter: 63mm (2.5”)
  - Length: 254mm (10”), 508mm (20”), 762mm (30”), 1016mm (40”)

- Gaskets and O-Rings
  - Ethylene Propylene, FEP encapsulated, Silicone, Viton®
  - Nitrile or Polypropylene felt available for non crush-fit end adapters.

- Maximum Differential Pressure
  - Normal flow direction at: 20°C (68°F): 5 bar (73psi)
  - Recommended Changeout Pressure: 2.5 bar (36psi)

- Operating Temperature
  - Maximum continuous: 80°C (176°F)

Extractables
- Minimum total extractables.

Ordering Information

<table>
<thead>
<tr>
<th>Product Code</th>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tr>
<td>1: Pre-Filter</td>
<td>DGV Tekfil™</td>
<td>Code 3</td>
<td>10 µm (254mm)</td>
<td>Code 7</td>
<td>Code 3</td>
<td>A Ethylene Propylene</td>
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<tr>
<td>2: Pore rating*</td>
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<td>Code 8</td>
<td>20 µm (508mm)</td>
<td>H SOE</td>
<td>G G SOE (short)</td>
<td>B Silicone</td>
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<td>3: Version</td>
<td></td>
<td>Code 2</td>
<td>30 µm (762mm)</td>
<td>G SOE</td>
<td>F G SOE</td>
<td>C Viton®</td>
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<td>4: Length (Nominal)</td>
<td></td>
<td>Code 2</td>
<td>40 µm (1016mm)</td>
<td>J 216 (218), fin</td>
<td>K 223, fin (no lugs)</td>
<td>D Nitrile</td>
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<td>5: End Fitting</td>
<td></td>
<td>Code 2</td>
<td></td>
<td></td>
<td>J DOE PTFE</td>
<td>E FEP Encap, Viton®</td>
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<tr>
<td>6: Seals</td>
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<td>Code 22, fin (3 lugs)</td>
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<td></td>
<td></td>
<td>F G FE PC, Silicone</td>
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<tr>
<td></td>
<td></td>
<td>Code 22, flat (no lugs)</td>
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<td></td>
<td></td>
<td>J DOE PTFE</td>
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<tr>
<td></td>
<td></td>
<td>Code 22, flat (no lugs)</td>
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<td></td>
<td></td>
<td>J DOE PTFE</td>
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<tr>
<td></td>
<td></td>
<td>Code 24, fin</td>
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</table>

* Pore rating: 01 1µm, 03 3µm, 20 20µm
**Product Code:**

TRAPFIL™

**Differential Pressure**

<table>
<thead>
<tr>
<th>Flow (l/min)</th>
<th>ΔP (bar)</th>
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<tbody>
<tr>
<td>0</td>
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<tr>
<td>10</td>
<td>0.5</td>
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<tr>
<td>20</td>
<td>1.0</td>
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<td>30</td>
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<tr>
<td>90</td>
<td>4.5</td>
</tr>
<tr>
<td>100</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Features and Benefits**

- Backflushing
- Chemical regeneration
- Suitable for steam and hot water sanitisation
- Guaranteed removal ratings
- Full traceability
- Controlled manufacturing environment

**Specifications**

- **Materials of Manufacture**
  - Filter media: Polypropylene
  - Support layers: Polypropylene
  - Inner core: Polypropylene
  - Outer support: Polypropylene
  - End fittings: Polypropylene
  - Support ring: Stainless steel

- **Cartridge Dimensions (Nominal)**
  - Diameter: 70mm (2.8”)
  - Length: 1 module: 254mm (10”), 2 modules: 762mm (30”), 3 modules: 101.6mm (40”)

- **Effective Filtration Area**
  - S: 10 and 15μm: 0.53m² (5.79 ft²)

- **Cartridge Treatment**
  - Standard: Cleaned and flushed with pyrogen-free water

- **Gaskets and O-Rings**
  - FDA approved Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

- **Maximum Differential Pressure**
  - Normal flow direction at:
    - 20°C (68°F): 2.5bar (36psi)
    - 80°C (176°F): 4.0bar (58psi)
    - 100°C (212°F): 5.0bar (73psi)
  - Reverse flow direction at:
    - 20°C (68°F): 2.0bar (29psi)
    - 80°C (176°F): 1.0bar (14psi)
    - 100°C (212°F): 0.5bar (7psi)

- **Operating Temperature**
  - Maximum continuous: 80°C (176°F)

**Extractables**

- Minimum total extractables.
- Please refer to the Trapfil™ Validation Guide.

**Integrity Testing**

- Trapfil™ filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

**Clean Water Flow Rates**

- **Typical clean water flow rate:** After a 254mm (10”) Trapfil™ single cartridge exhibits the flow-ΔP characteristics indicated below, for solutions with a viscosity of 1 centipoise.
- **Other solutions:**
  - For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.
Microfil™ Junior

Absolute Rated Pleated Glass Fibre Cartridge Filters for Small-Scale Applications

A range of absolute rated cartridge filters are designed for retrofitting into existing junior-style housings. Featuring the latest developments in borosilicate glass fibre filter media technology, Microfil™ Junior cartridges are constructed from robust glass fibre and polypropylene filtration layers, offering removal ratings from 0.5 to 5 micron absolute.

Microfil™ Junior cartridges are suitable for absolute removal of unwanted particulates and for pre-filtration to membrane filters. Microfil™ Junior cartridges incorporate a polypropylene pre-filtration layer, combined with a high dirt capacity glass fibre media, resulting in longer service life, improved operating costs and smaller process footprint. The Microfil™ Junior filter cartridges are highly resistant to integrity failure caused by steam sterilisation and have excellent chemical compatibility characteristics.

Typical Applications
- Small-scale pharmaceuticals and bio-processing
- Pilot-scale studies
- Batch processing

Features and Benefits
- Zeta potential
- High filtration area
- Guaranteed removal ratings
- Suitable for steam and hot water sanitisation
- Full traceability
- Controlled manufacturing environment

Ordering Information

<table>
<thead>
<tr>
<th>Product Code</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-Style</td>
<td>Biol®</td>
<td>0.1μm</td>
<td>25</td>
<td>B</td>
</tr>
<tr>
<td>JF</td>
<td>Fluorol®</td>
<td>0.1μm</td>
<td>25</td>
<td>B</td>
</tr>
<tr>
<td>JM</td>
<td>Microfil®</td>
<td>0.1μm</td>
<td>25</td>
<td>B</td>
</tr>
<tr>
<td>JP</td>
<td>Polyfil®</td>
<td>0.1μm</td>
<td>25</td>
<td>B</td>
</tr>
<tr>
<td>S-Style</td>
<td>Biol®</td>
<td>0.5μm</td>
<td>136</td>
<td>D</td>
</tr>
<tr>
<td>SF</td>
<td>Fluorol®</td>
<td>0.5μm</td>
<td>136</td>
<td>D</td>
</tr>
<tr>
<td>SM</td>
<td>Microfil®</td>
<td>0.5μm</td>
<td>136</td>
<td>D</td>
</tr>
<tr>
<td>SP</td>
<td>Polyfil®</td>
<td>0.5μm</td>
<td>136</td>
<td>D</td>
</tr>
<tr>
<td>L-Style</td>
<td>Biol®</td>
<td>0.8μm</td>
<td>136</td>
<td>D</td>
</tr>
<tr>
<td>LB</td>
<td>Fluorol®</td>
<td>0.8μm</td>
<td>136</td>
<td>D</td>
</tr>
<tr>
<td>LM</td>
<td>Microfil®</td>
<td>0.8μm</td>
<td>136</td>
<td>D</td>
</tr>
<tr>
<td>LP</td>
<td>Polyfil®</td>
<td>0.8μm</td>
<td>136</td>
<td>D</td>
</tr>
</tbody>
</table>

They are suitable for applications ranging from bioburden reduction to the clarification of a wide range of process liquids and end products. Available in J-style with internal O-ring, S-style with moulded range seal and L-style with 4-lug locking end cap with double external O-rings.

Specifications

Materials of Manufacture
- Glass fibre
- Polypropylene

Pre-filtration layer: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

Dimensions (Nominal)
- Diameter: 56mm (2.2")
- Length: 77.5mm (2.5")
- Cartridge Dimensions:
  - 25mm (1")
  - 136mm (5")

Effective Filtration Area
- 100°C (212°F): 0.5 bar (7psi)
- 80°C (176°F): 1.0 bar (15psi)
- 20°C (68°F): 2.1 bar (30psi)

Maximum Differential Pressure
- 20°C (68°F): 6.0 bar (87psi)
- 80°C (176°F): 4.0 bar (58psi)
- 100°C (212°F): 3.0 bar (44psi)
- 132°C (266°F): 2.0 bar (29psi)

Reverse flow direction at:
- 20°C (68°F): 2.1 bar (30psi)
- 80°C (176°F): 1.0 bar (15psi)
- 100°C (212°F): 0.5 bar (7psi)

Operating Temperature
- Maximum continuous: 80°C (176°F)

Sterilisation
- J-style: In situ steam 70 x 25 minute cycles at 130°C (266°F)
- S-style: Autoclave 100 x 25 minute cycles at 125°C (257°F)
- L-style: In situ steam 70 x 25 minute cycles at 130°C (266°F)

Extractables
- Minimum total extractables. Please refer to the Microfil® Validation Guide.

Integrity Testing
- Microfil™ Junior filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 136mm (5") Microfil™ Junior cartridge exhibits the following flow characteristics indicated below, for solutions with a viscosity of 1 centipoise.

  - Other solutions:
    - For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

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  - Tel: +1 804 550 1600
  - infoUS@porvairfiltration.com
- India, Mumbai Division
  - Tel: +91 22 25 97646 / 65
  - infoIN@porvairfiltration.com

Specifications

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
<th>Specifications</th>
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</thead>
<tbody>
<tr>
<td>Glass fibre</td>
<td>Prefiltration</td>
<td>- Minimum total extractables. Please refer to the Microfil® Validation Guide.</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>Support layer</td>
<td>- Maximum continuous: 80°C (176°F)</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>Inner core</td>
<td>- Typical clean water flow rate: A 136mm (5&quot;) Microfil™ Junior cartridge exhibits the following flow characteristics indicated below, for solutions with a viscosity of 1 centipoise.</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>Outer support</td>
<td>- Other solutions:</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>End fittings</td>
<td>- For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>Support ring</td>
<td>- Maximum continuous: 80°C (176°F)</td>
</tr>
</tbody>
</table>

Gaskets and O-Rings

- J-style: Silicone (other materials are available on request)
- S-style: Not supplied
- L-style: Silicone (other materials are available on request)

Clean Water Flow Rates

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Flow Rate (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°C (68°F)</td>
<td>4.0</td>
</tr>
<tr>
<td>80°C (176°F)</td>
<td>3.7</td>
</tr>
<tr>
<td>100°C (212°F)</td>
<td>2.9</td>
</tr>
<tr>
<td>132°C (266°F)</td>
<td>2.0</td>
</tr>
</tbody>
</table>
Polyfil™ Junior

Absolute Rated Pleated Polypropylene Cartridge Filters Small-Scale Applications

A range of absolute rated cartridge filters are designed for retrofitting into existing junior-style housings. Featuring the latest developments in meltblown polypropylene filter media technology, Polyfil™ Junior cartridges are based on a robust all polypropylene construction, offering removal ratings from 0.5 to 5 micron absolute.

Polyfil™ Junior cartridges are suitable for absolute removal of unwanted particulates and for pre-filtration to membrane filters. The graded multilayer polypropylene media provide pre-filtration of the process fluid prior to the absolute rated final layer. The unique design of the Polyfil™ Junior cartridges helps to achieve lower running costs and a smaller process footprint. Polyfil™ Junior cartridges are resistant to integrity failure caused by steam sterilization and have excellent chemical compatibility characteristics.

Ordering Information

<table>
<thead>
<tr>
<th>1: J-Style</th>
<th>2: Porosity</th>
<th>3: Length</th>
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</thead>
<tbody>
<tr>
<td>JR</td>
<td>0.2µm</td>
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<td>JP</td>
<td>0.4µm</td>
<td>77.5mm</td>
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<tr>
<td>JM</td>
<td>0.8µm</td>
<td>136mm</td>
</tr>
<tr>
<td>JF</td>
<td>1.0µm</td>
<td>136mm</td>
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</table>

<table>
<thead>
<tr>
<th>4: Options Threaded</th>
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</thead>
<tbody>
<tr>
<td>B</td>
</tr>
<tr>
<td>K</td>
</tr>
</tbody>
</table>

S-Style

| SB         | 0.06µm     | 77.5mm    |
| SP         | 0.1µm      | 77.5mm    |
| SM         | 0.2µm      | 136mm     |
| SP         | 0.4µm      | 136mm     |

L-Style

| LB         | 0.5µm      | 77.5mm    |
| LL         | 0.8µm      | 77.5mm    |
| LM         | 1.0µm      | 77.5mm    |
| LP         | 1.6µm      | 77.5mm    |

Typical Applications

• Small-scale pharmaceuticals
• Ophthalmic solutions
• Electronics and semiconductors
• Small scale fine chemicals
• Pilot-scale studies
• Inks and coatings

Features and Benefits

• Graded multilayer media
• High filtration area
• Guaranteed removal ratings
• Suitable for steam and hot water sanitisation
• Full traceability
• Controlled manufacturing environment

Specifications

Materials of Manufacture
- Filter media: Polypropylene
- Support layers: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

Cartridge Dimensions (Nominal)
- Diameter: 75mm (2.5”)
- Length: 136mm (5”)

Effective Filtration Area
- Up to 0.5µm (1.6ft²) per 136mm module (depending on pore rating)

Cartridge Treatment
- Standard: Cleaned without further treatment
- Flushed: Flushed with pyrogen-free water
- Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

Gaskets and O-Rings
- J-style: Silicone (other materials are available on request)
- S-style: Not supplied
- L-style: Silicone (other materials are available on request)

Maximum Differential Pressure
- Normal flow direction at:
  - 20°C (68°F): 6.0 bar (87psi)
  - 80°C (176°F): 4.0 bar (58psi)
  - 100°C (212°F): 3.0 bar (44psi)
  - 120°C (248°F): 2.0 bar (29psi)
  - 125°C (257°F): 1.5 bar (22psi)
  - 120°C (248°F): 2.0 bar (29psi)
  - 125°C (257°F): 1.5 bar (22psi)
- Reverse flow direction at:
  - 20°C (68°F): 2.1 bar (30psi)
  - 80°C (176°F): 1.0 bar (15psi)
  - 100°C (212°F): 0.8 bar (12psi)

Operating Temperature
- Maximum continuous: 80°C (176°F)

Sterilisation
- J-style: In situ steam 70 x 25 minute cycles at 125°C (257°F)
- S-style: Autoclave 100 x 25 minute cycles at 125°C (257°F)
- L-style: In situ steam 70 x 25 minute cycles at 125°C (257°F)

Extractables
- Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

Integrity Testing
- Polyfil™ Junior filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate:
  - A 136mm (5”) Polyfil™ Junior cartridge exhibits the flow characteristics indicated below, for solutions with a viscosity of 1 centipoise.
- Other solutions:
  - For solutions with a viscosity other than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Differential Pressure
- Normal Flow Direction

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Aquafil™ Disposable Filter Elements and Cartridges

**INTRODUCTION**

Aquafil™ cartridges are based on a naturally hydrophilic polyethersulphone membrane with a mirrored asymmetric pore structure. When combined with quality all-polypropylene cartridge components and high integrity manufacturing techniques common to all Porvair cartridge filters, the polyethersulphone membrane provides a high strength, long life cartridge.

Aquafil™ cartridges exploit the narrow pore size distribution and high void volume of the media to provide a choice of cartridges capable of meeting the requirements of most applications. Careful media selection ensures that they are suited to retention down to 0.2 micron ratings. Offering high flux rates selection ensures that they are suited to retention the requirements of most applications. Careful media provide a choice of cartridges capable of meeting distribution and high void volume of the media.

**Ordering Information**

**Product Code:**

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<thead>
<tr>
<th>Membrane</th>
<th>Pore rating</th>
<th>Version</th>
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</thead>
<tbody>
<tr>
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<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>120</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>254 (10”)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>762 (30”)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>508 (20”)</td>
<td></td>
</tr>
</tbody>
</table>

**Features and Benefits**

- **Removal ratings**
- **Low protein binding**
- **Will not hydrolyse**
- **Excellent chemical compatibility**
- **Suitable for steam sterilising**
- **Full traceability**
- **Controlled manufacturing environment**

**Materials of Manufacture**

Filter membrane: Polyethersulphone

**Filter Cartridges**

- Membrane: Polyethersulphone
- Drainage layer: Polypropylene
- Inner core: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

**Cartridge Dimensions (Nominal)**

- Diameter: 70mm (2.8”)
- Length:
  - 1 module: 254mm (10”)
  - 2 modules: 508mm (20”)
  - 3 modules: 762mm (30”)
  - 4 modules: 1016mm (40”)

**Effective Filtration Area**

<table>
<thead>
<tr>
<th>Pore Size Rating</th>
<th>Effective Filtration Area (m²)</th>
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<tbody>
<tr>
<td>0.2, 0.45, 0.65</td>
<td>0.69m² (7.4ft²)</td>
</tr>
</tbody>
</table>

**Flow Rate**

- Normal flow direction at: 100°C (212°F): 6.0bar (87psi)
- Normal flow direction at: 80°C (176°F): 4.0bar (58psi)
- Reverse flow direction at: 20°C (68°F): 2.1bar (30psi)
- Reverse flow direction at: 100°C (212°F): 0.5bar (7psi)

**Operating Temperature**

- Maximum continuous: 60°C (140°F)

**Gaskets and O-Rings**

- FDA approved Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

**Maximum Differential Pressure**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Differential Pressure (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°C (68°F)</td>
<td>6.0bar (87psi)</td>
</tr>
<tr>
<td>80°C (176°F)</td>
<td>4.0bar (58psi)</td>
</tr>
<tr>
<td>100°C (212°F)</td>
<td>3.0bar (44psi)</td>
</tr>
<tr>
<td>120°C (248°F)</td>
<td>2.0bar (29psi)</td>
</tr>
</tbody>
</table>

**Extractables**

- Hot water 100°C (212°F): 0.5bar (7psi)
- In situ steam 100°C (212°F): 3.0bar (44psi)
- Sterilisation 120°C (248°F): 2.0bar (29psi)

**Contact Information:**

- **UK, New Milton Division**
  - Tel: +44 (0)1425 612010
  - info@porvairfiltration.com
- **US, Ashland Division**
  - Tel: +1 804 550 1600
  - infoUS@porvairfiltration.com
- **India, Mumbai Division**
  - Tel: +91 22 25 97644 / 65
  - infoIN@porvairfiltration.com
Biofil™ II cartridges are based on a naturally hydrophilic polyethersulphone (PES) membrane with a mirrored asymmetric pore structure. When combined with quality all-polypropylene cartridge components and high integrity manufacturing techniques, the polyethersulphone membrane provides a high strength, long life cartridge of consistently precise polyethersulphone membrane filters.

Biofil™ II cartridges exploit the narrow pore size distribution and high void volume of the media to provide a choice of cartridges capable of meeting the requirements of most applications. Biofil™ II cartridges offer high flow rates and low differential pressures, a feature common to polyethersulphone membrane filters.

**Typical Applications**
- Biopharmaceuticals
- Ophthalmic solutions
- Electronics and semiconductors
- Fine chemicals
- Beverages
- Pure water supply

**Ordering Information**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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</thead>
<tbody>
<tr>
<td>Cartridge</td>
<td>Membrane</td>
<td>Free Capacity</td>
<td>Version</td>
<td>Length (Nominal)</td>
<td>End Fitting</td>
<td>Seals</td>
<td>Additional</td>
</tr>
<tr>
<td>A Code 3</td>
<td>Ethylene Propylene</td>
<td>Silicone</td>
<td>Viton®</td>
<td>Nitrile</td>
<td>Non-stickable (no insert)</td>
<td>PharmaGrade</td>
<td>Unbranded</td>
</tr>
</tbody>
</table>

**Features and Benefits**
- Guaranteed microbial ratings
- Low protein binding
- Will not hydrolyse
- Excellent chemical compatibility
- Cartridge integrity and low TOC levels
- Suitable for steam sterilising
- Full traceability
- Controlled manufacturing environment

**Specifications**

**Materials of Manufacture**
- Filter membrane: Polyethersulphone
- Membrane support: Polypropylene
- Irrigation mesh (support): Polypropylene
- Drainage layer: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

**Cartridge Dimensions (Nominal)**
- Diameter: 70 mm (2.8")
- Length: 1 module: Biofil™ II Junior
  - 1 module: 254 mm (10")
  - 2 modules: 508 mm (20")
  - 3 modules: 762 mm (30")
  - 4 modules: 1016 mm (40")

**Effective Filtration Area**
- Absolute Microbial Effective Filtration Area: 0.65 m² (7.4 ft²)

**Cartridge Treatment**
- Standard: Cleaned and flushed with pyrogen-free water
- Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18 MΩ.cm

**Extractables**
- FDA approved Ethylene Propylene, FEP encapsulated, silicone, Viton® or Nitrile.

**Maximum Differential Pressure**
- Normal flow direction: 20°C (68°F): 6.0 bar (87 psi)
  - 80°C (176°F): 4.0 bar (58 psi)
  - 100°C (212°F): 3.0 bar (44 psi)
  - 120°C (248°F): 2.0 bar (29 psi)

**Reverse flow direction at:**
- 20°C (68°F): 2.1 bar (30 psi)
- 80°C (176°F): 1.0 bar (15 psi)
- 100°C (212°F): 0.8 bar (12 psi)

**Operating Temperature**
- Maximum continuous: 85-90°C (185-194°F)
- Sterilisation
  - In situ steam 80 x 20 minute cycles at 125°C (257°F)
  - Hot water 100 x 20 minute cycles at 90°C (194°F)

**Clean Water Flow Rates**
- Typical clean water flow rate: A 254 mm (10") Biofil™ II single cartridge exhibits the flow characteristics indicated below, for solutions with a viscosity of 1 centipoise.

**Additional**
- Reverse flow direction: at temperatures above 80°C (176°F) and below 20°C (68°F).
- Differential Pressure (mbar)
- Flow Rate (l/min)

**Contact Information**
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- India, Mumbai Division: Tel: +91 22 25 976464 /65
  info@pallfiltration.com
Biofil™ Plus

Double Layer Polyethersulphone Membrane Cartridge Filters

A Biofil™ Plus microbial rated cartridge has been developed and manufactured for the filtration of liquids within pharmaceutical, biotechnology and other critical applications.

Biofil™ Plus utilises a naturally hydrophilic polyethersulphone (PES) membrane with a mirrored asymmetric pore structure. The cartridge’s unique built-in pre-filtration membrane layer provides longer life and higher throughput. When combined with an asymmetric pore structure, the cartridge’s unique polyethersulphone (PES) membrane with a mirrored pore size distribution assures quality all-polypropylene components and high integrity manufacturing techniques, the Biofil™ Plus filter cartridge is ideally suited to the most demanding process conditions.

Ordering Information

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10&quot; (254mm)</td>
<td>B Code 3</td>
<td>Code 2</td>
<td>10&quot; (254mm)</td>
<td>Ethylene</td>
<td>Viton®</td>
<td>DOE PIPE</td>
</tr>
<tr>
<td>B</td>
<td>20&quot; (508mm)</td>
<td>Code 7</td>
<td>Code 8</td>
<td>20&quot; (508mm)</td>
<td>Propylene</td>
<td>Silicone</td>
<td>Nitrile</td>
</tr>
</tbody>
</table>
| C            | 30" (762mm) | Code 4        | Code 9     | 30" (762mm)        | Silicone     | Nitrile   | Non- 
| D            | 40" (1016mm)| Code 1        | Code 10    | 40" (1016mm)       | Silicone     | Nitrile   | Nitrile      |
| E            | 5" (125mm)  | Code 11       | Code 11    | 5" (125mm)         | Silicone     | Nitrile   | Nitrile      |

Biofil™ Plus

Physical and Chemical Properties

- Pure water supply
- Beverages
- APIs
- Fermentation
- Biopharmaceuticals
- Typical Applications

Typical Applications

- Biopharmaceuticals
- Fermentation
- Ophthalmic solutions
- APIs
- LVPs
- Beverages
- Pure water supply

Quality and consistency of product are assured by the quality control and manufacturing procedures which are in place throughout all stages of manufacture. Biofil™ Plus membrane cartridges are 100% integrity tested during manufacture by the forward flow diffusion test method.

Features and Benefits

- Guaranteed microbial ratings
- Low protein binding
- Will not hydrolyse
- Excellent chemical compatibility
- Cartridge integrity and low TOC levels
- Suitable for steam sterilising
- Full traceability
- Controlled manufacturing environment

Specifications

- Materials of Manufacture
- Pre-filter membrane: Polyethersulphone
- Final membrane: Polyethersulphone
- Membrane support: Polypropylene
- Irrigation mesh (support): Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

- Cartridge Dimensions (Nominal)
  - Length: 70mm (2.8")
  - Diameter: 70mm (2.8")
  - Support ring: Stainless steel

- Integrity Testing
  - Standard: Cleaned and flushed with pyrogen-free water
  - Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

- Extractables
  - Minimum total extractables. Please refer to the Biofil™ Plus Validation Guide.

- Operating Temperature
  - Maximum continuous: 85°C-90°C (185°F-194°F)
  - Sterilisation
    - In situ steam 80 x 20 minute cycles at 125°C (257°F)
    - Hot water 100 x 20 minute cycles at 85-90°C (185-194°F)

- Clean Water Flow Rates
  - Normal flow direction at: 10°C (50°F)
    - 20°C (68°F): 6.0bpm (870psig)
    - 80°C (176°F): 4.0bpm (580psig)
    - 100°C (212°F): 3.0bpm (440psig)
    - 120°C (248°F): 2.0bpm (290psig)
  - Reverse flow direction at: 20°C (68°F)
    - 80°C (176°F): 2.1bpm (300psig)
    - 100°C (212°F): 0.9bpm (70psig)

- Maximum Differential Pressure
  - Normal flow direction at: 20°C (68°F)
    - 80°C (176°F)
    - 100°C (212°F)
    - 120°C (248°F)
  - Reverse flow direction at: 20°C (68°F)
    - 80°C (176°F)
    - 100°C (212°F)

- Other solutions: For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.
Chemifil™
Polypropylene Membrane Cartridge Filters

Chemifil™ cartridges are manufactured using a polypropylene membrane of uniform thickness and high voids, with a homogeneous structure and controlled pore size. Designed for the removal of sub-micron organic and inorganic particulate matter, the inherent structural stability of the membrane eliminates any risk of media migration and minimises the release of particles. For solvent and aggressive chemical filtration applications, Chemifil™ cartridges offer a wide range of chemical compatibility. Suitable for the most demanding microfiltration applications, the cartridges can be used for the filtration of aggressive chemical solutions including acids, alkalis, solvents and etchants.

Ordering Information

Product Code:

1. Membrane
2. Flow rating
3. Version
4. Length (Nominal)
5. End Fitting
6. Seals
7. Additional

Typical Applications
- Fine chemicals and solvents
- Photoreists and developers
- Pure water supply systems
- Sterile process gases
- Sterile vents

Features and Benefits
- Guaranteed microbial ratings
- Steam sterilisation
- Cartridge integrity and low TOC levels
- Solvents and aggressive chemicals
- Full traceability
- Controlled manufacturing environment

Specifications

Materials of Manufacture
- Filter membrane: Polypropylene
- Membrane support: Polypropylene
- Irrigation mesh [support]: Polypropylene
- Drainage layer: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Sealing: Fusion bonding

Cartridge Dimensions (Nominal)
- Diameter: 70mm (2.8")
- Length:
  - 1 module: Chemifil™ Junior
  - 2 modules: 254mm (10")
  - 3 modules: 508mm (20")
  - 4 modules: 762mm (30")
  - 5 modules: 1016mm (40")

Effective Filtration Area

<table>
<thead>
<tr>
<th>Absolute Microbial Rating</th>
<th>Effective Filtration Area (each 254mm (10&quot;) module)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 and 0.2μm</td>
<td>0.66m² (7.1&quot;)</td>
</tr>
</tbody>
</table>

Cartridge Treatment
- Standard: Cleaned and flushed with pyrogen-free water
- Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

Gaskets and O-Rings
- Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

Maximum Differential Pressure
- Normal flow direction:
  - 20°C (68°F): 4.0bar (58psi)
  - 80°C (176°F): 4.0bar (58psi)
  - 100°C (212°F): 4.0bar (58psi)
- Reverse flow direction:
  - 20°C (68°F): 2.0bar (29psi)
  - 80°C (176°F): 1.0bar (15psi)
  - 100°C (212°F): 0.5bar (7psi)

Operating Temperature
- Maximum continuous: 80°C (176°F)

Sterilisation
- In situ steam 100 x 30 minute cycles at 125°C (257°F)

Integrity Testing
- Each Chemifil™ module of every cartridge is individually integrity tested using the Diffusive Flow Test, which correlates to the HAWA and ASTM F838-93 bacterial challenge test. Non-destructive integrity tests, such as Diffusive Flow, Water Intrusion, Pressure Hold and Bubble Point, can be performed by customers. Please contact us for procedural details.

Clean Water Flow Rates
- [after Solvent Pre-wet and Water Flush]
  - Typical clean water flow rate: A 254mm (10") Chemifil™ single cartridge exhibits the flow characteristics indicated below for solutions with a viscosity of 1 centipoise.
  - Other solutions:
    - For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Gas Flow Rates
- Typical clean air flow rate: A 254mm (10") Chemifil™ single cartridge exhibits the flow characteristics indicated below.

Extractables
- Minimum total extractables. Please refer to the Chemifil™ Validation Guide.

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- US, Ashland Division: Tel: +1 804 550 1600 infoUS@porvairfiltration.com
- India, Mumbai Division: Tel: +91 22 25 976464 / 65 infoIN@porvairfiltration.com
Fluorofil™
ePTFE Membrane Cartridge Filters

Fluorofil™ cartridges are manufactured using a highly hydrophobic ePTFE membrane offering exceptionally high gas flow rates at low pressure differentials. Fluorofil™ cartridges are recommended for sterile gas filtration and venting applications. The hydrophobic characteristics of the ePTFE membrane makes the FluorofilTM cartridge particularly suitable for wet gas sterilising applications, such as fermenter air feed. For solvent and aggressive chemical filtration applications, these cartridges offer a wide range of chemical compatibility with high thermal stability.

Ordering Information

Product Code:  
1. Membrane Code
2. Pore rating
3. Version
4. Length (Nominal)
5. End Fitting
6. Seals
7. Additional

FluorofilTM cartridges are recommended for sterile gas filtration and venting applications. The hydrophobic characteristics of the ePTFE membrane membrane makes the Fluorofil™ cartridge particularly suitable for wet gas sterilising applications, such as fermenter air feed. For solvent and aggressive chemical filtration applications, these cartridges offer a wide range of chemical compatibility with high thermal stability.

Features and Benefits
- Guaranteed microbial ratings
- Bacterial spores and viruses
- Steam sterilisation
- Cartridge integrity and low TOC levels
- Solvents and aggressive chemicals
- Full traceability
- Controlled manufacturing environment

Specifications

Materials of Manufacture
Filter membrane: ePTFE
Irrigation mesh support: Polypropylene
Membrane support: Polypropylene
Inner core: Polypropylene
Outer support: Polypropylene
End fittings: Polypropylene
Sealing: Fusion bonding

Cartridge Dimensions (Nominal)
Diameter: 70mm (2.8”)
Length: 254mm (10”)

Effective Filtration Area
Absolute filtration rating: 0.2μm
Effluent filtration area: 254mm (10”)

Cartridge Treatment
Standard: Cleaned and flushed, without further treatment
Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

Gaskets and O-Rings
Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

Maximum Differential Pressure
Normal flow direction:
- 20°C (68°F): 6.0bar (87psi)
- 80°C (176°F): 4.0bar (58psi)
- 100°C (212°F): 1.0bar (15psi)
- 125°C (257°F): 0.5bar (7psi)
Reverse flow direction:
- 20°C (68°F): 2.1bar (30psi)
- 80°C (176°F): 1.0bar (15psi)
- 100°C (212°F): 0.5bar (7psi)

Operating Temperature
Maximum continuous: 80°C (176°F)

Sterilisation
In situ clean 150 x 20 minute cycles at 135°C (275°F) to 150 x 20 minute cycles at 125°C (257°F).

Extractables
Minimum total extractables. Please refer to the Fluorofil™ Validation Guide.

Integrity Testing
Each Fluorofil™ module of every cartridge is individually integrity tested using the Diffusive Flow Test, which correlates to the HIMA and ASTM F838-05 bacterial challenge tests. Non-destructive integrity tests, such as Diffusive Flow, Water Invasion, Pressure Hold and Bubble Point, can be performed by customers. Please contact us for procedural details.

Gas Flow Rates
- Typical clean gas flow rate: A 254mm (10”) Fluorofil™, 0.2μm single cartridge exhibits the flow-DP characteristics indicated below.

Clean Water Flow Rates
- Typical clean water flow rate: A 254mm (10”) Fluorofil™ clean water flow rate is 150 x 20 minute cycles at 125°C (257°F).

Other solutions:
For solutions with a viscosity other than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Contact Information:
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India, Mumbai Division
Tel: +91 22 25 976464 / 65
infoIN@porvairfiltration.com
Fluorofil™ Plus
High Flow Sterile Gas Filters with ePTFE Membrane

Fluorofil™ Plus cartridges are manufactured using a highly hydrophobic ePTFE membrane. The enhanced ePTFE membrane offers exceptionally high gas flow rates at low pressure differentials.

Ordering Information

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<thead>
<tr>
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<tbody>
<tr>
<td>F Fluorofil™</td>
<td>0.1µm</td>
<td>Standard</td>
<td>1/2 (254mm)</td>
<td>Code 3</td>
<td>Ethylene</td>
<td>N/NDU</td>
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<tr>
<td>G FEP Encaps.</td>
<td>0.2µm</td>
<td>Standard</td>
<td>3/4 (191mm)</td>
<td>Code 8</td>
<td>Silicone</td>
<td>N/NDU</td>
</tr>
<tr>
<td>H FEP Encaps. Viton®</td>
<td>0.2µm</td>
<td>Standard</td>
<td>4/5 (101mm)</td>
<td>Code 8</td>
<td>Viton®</td>
<td>N/NDU</td>
</tr>
<tr>
<td>J FEP Encaps. Silicone</td>
<td>0.2µm</td>
<td>Standard</td>
<td>5/6 (125mm)</td>
<td>Code 8</td>
<td>Silicone</td>
<td>N/NDU</td>
</tr>
</tbody>
</table>

Typical Applications
- Sterile process gases
- Sterile vents
- Biotechnology
- Powder handling and tabletting

Specifications

Materials of Manufacture
- Filter membranes: ePTFE
- Irrigation mesh (support): Polypropylene
- Inner core: 316L stainless steel
- Outer support: Polypropylene
- End fittings: Polypropylene
- Sealing: Fusion bonding

Cartridge Dimensions (Nominal)
- Diameter: 70mm (2.8")
- Length:
  - 1 module: 127mm (5")
  - 2 modules: 254mm (10")
  - 3 modules: 381mm (15")
  - 4 modules: 508mm (20")

Effective Filtration Area
- Appropriable microbial rating: 0.8µm
- Absolute microbial effective filtration area
- 5µm: 0.8m²
- 0.2µm: 0.8m²

Cartridge Treatment
- Standard: Cleaned and flushed, without further treatment
- Gaskets and O-Rings: Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

Maximum Differential Pressure
- Normal flow direction at:
  - 20°C (68°F): 6.0bar (87psi)
  - 80°C (176°F): 4.0bar (58psi)
  - 120°C (248°F): 3.0bar (44psi)
  - 150°C (288°F): 2.0bar (29psi)
  - 180°C (356°F): 1.5bar (22psi)
- Reverse flow direction at:
  - 20°C (68°F): 2.1bar (30psi)
  - 80°C (176°F): 1.0bar (15psi)
  - 100°C (212°F): 0.5bar (75psi)

Contact Information:
- Tel: +44 (0)1425 612010
- Tel: +1 804 550 1600
- Tel: +91 22 25 976464 /65

Extractables
- Minimum total extractables. Please refer to the Fluorofil™ Plus Validation Guide.

Integrity Testing
- Each Fluorofil™ Plus module of every cartridge is individually integrity tested using the Diffusive Flow Test, which correlates to the HWA and ASTM F838-05 bacterial challenge tests. Non-destructive integrity tests, such as Diffusive Flow, Water Intrusion, Pressure Hold and Bubble Point, can be performed by customers. Please contact us for procedural details.

Gas Flow Rates
- Typical clean air flow rate:
  - A 254mm (10") Fluorofil™ Plus single cartridge exhibits the flow characteristics indicated below.

Features and Benefits
- Guaranteed microbial ratings
- Bacterial spores and viruses
- Mechanical strength
- Steam sterilisation
- Cartridge integrity and low TOC levels
- Full traceability
- Controlled manufacturing environment

Operating Temperature
- Maximum continuous: 80°C (176°F)

Sterilisation
- In situ steam 500 x 30 minute cycles at 130°C (266°F).
- In situ steam cycles for 200 hours at 140°C (284°F).

The construction of the Fluorofil™ Plus cartridge has design features that allow higher membrane surface area, lower pressure drops and incorporates a stainless steel core for greater mechanical strength when operated at higher temperatures.

High Flow Sterile Gas Filters with ePTFE Membrane

The enhanced hydrophobic ePTFE membrane makes the Fluorofil™ Plus filter cartridge particularly suitable for wet gas sterilising applications, such as fermentor air feed.

Integrity Testing
- Each Fluorofil™ Plus module of every cartridge is individually integrity tested using the Diffusive Flow Test, which correlates to the HWA and ASTM F838-05 bacterial challenge tests. Non-destructive integrity tests, such as Diffusive Flow, Water Intrusion, Pressure Hold and Bubble Point, can be performed by customers. Please contact us for procedural details.

Gas Flow Rates
- Typical clean air flow rate:
  - A 254mm (10") Fluorofil™ Plus single cartridge exhibits the flow characteristics indicated below.
Fluorofil™ F100
PTFE Membrane Cartridges for Solvent Filtration

Fluorofil™ F100 cartridges are manufactured using a highly hydrophobic 1 micron PTFE membrane. The enhanced PTFE membrane offers exceptionally high stability. Suitable for the most demanding microfiltration applications, the cartridges can be used for the filtration of aggressive chemical solutions including acids, alkalis, solvents and etchants.

Ordering Information
Product Code: 1 2 3 4 5 6 7 8 9 10

1: Membrane [Fluorofil™] 2: Pore rating [µm] 3: Version [Standard] 4: Length (Nominal) [254mm (10”), 508mm (20”), 762mm (30”), 1016mm (40”)] 5: End Fitting [A 223, F 216, G 214, H 216, J 216 (218)] 6: Seats [A Ethylene Propylene, B Silicone, C Viton®, D FEP Encapsul., E Nitrile, F Viton®, G FEP Encapsul. Silicone, H DOE PTFE] 7: Additional [A NHU, B Non-sorbable (no insert), C Pharma, D Grade, E Unbranded]

Typical Applications
- Guaranteed particle retention in a liquid challenge
- Cartridge integrity and low TOC levels
- Solvents and aggressive chemicals
- Full traceability
- Controlled manufacturing environment

Features and Benefits
- Carbon fines removal
- Fine chemical and solvents
- Carbon fines removal
- Full integrity
- Controlled manufacturing environment

Specifications
Materials of Manufacture
Filter membrane: PTFE
Membrane support: Polypropylene
Irrigation mesh [support]: Polypropylene
Drainage layer: Polypropylene
Inner core: Polypropylene
Outer support: Polypropylene
End fittings: Polypropylene
Sealing: Fusion bonding

Cartridge Dimensions (Nominal)
Diameter: 70mm (2.8”)
Length: 1 module: 254mm (10”) 2 modules: 508mm (20”) 3 modules: 762mm (30”) 4 modules: 1016mm (40”)

Effective Filtration Area
Absolute Micron Rating (in water) Effective Filtration Area (each 254mm (10”) module)
1.0µm (β5000, 99.98%) 0.68m² (7.3ft²)

Cartridge Treatment
Standard: Cleaned and flushed, without further treatment
Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

Gaskets and O-Rings
FEP encapsulated, Viton®, Ethylene Propylene, Nitrile or Silicone

Maximum Differential Pressure
Normal flow direction at:
20ºC (68ºF): 6.0bar (87psi) 80ºC (176ºF): 4.0bar (58psi) 100ºC (212ºF): 3.0bar (44psi)
Reverse flow direction at:
20ºC (68ºF): 2.1bar (30psi) 80ºC (176ºF): 1.0bar (15psi) 100ºC (212ºF): 0.8bar (12psi)

Operating Temperature (in water)
Maximum Continuous: 80ºC (176ºF)

Integrity Testing
Each Fluorofil™ F100 module of every cartridge is individually integrity tested using the Reverse Bubble Point Test, which correlates to the particle retention rating determined by the modified OSI F-2 Single Pass Challenge Test. Non-destructive integrity testing, using the Reverse Bubble Point Test, can be performed by the end user. Please contact us for procedural details.

Clean Water Flow Rates
(after Solvent Pre-wet and Water Flush)
- Typical clean water flow rate: A 254mm (10”) Fluorofil™ F100 single cartridge with 1.0µm particle retention rating exhibits the flow ΔP characteristics indicated below, for solutions with a viscosity of 1 centipoise.
- Other solutions: For solutions with a viscosity other than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

Extractables
Minimum total extractables. Please refer to the Fluorofil™ F100 Validation Guide.

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India, Mumbai Division
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infoIN@porvairfiltration.com
Hydrofil™
Nylon 6.6 Membrane Cartridge Filters

Micron-rated cartridge filters featuring the latest developments in membrane technology, Hydrofil™ cartridges, are based on a naturally hydrophilic nylon membrane.

Hydrofil™ cartridges exploit the narrow pore size distribution and high void volume of the media to provide a choice of cartridges capable of meeting the requirements of most applications. Careful media selection ensures that Hydrofil™ cartridges are very suited to critical particle control down to 0.01 micron selection ensures that Hydrofil™ the requirements of most applications. Careful media distribution and high void volume of the media to

Ordering Information

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>HT</td>
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<td>HT</td>
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</tbody>
</table>

Typical Applications

- Biopharmaceuticals: sterile filtration, bioburden reduction and the clarification
- Electronics and semiconductors
- Fine chemicals
- Beverages
- Pure water supply (18MΩ cm)

Features and Benefits

- Guaranteed microbial ratings
- Excellent chemical compatibility
- Cartridge integrity and low TOC levels
- Suitable for steam sterilising
- Full traceability
- Controlled manufacturing environment

Specifications

- Materials of Manufacture
  - Filter membrane: Nylon 6,6
  - Membrane support: Polypropylene
  - Drainage layer: Polypropylene
  - Inner core: Polypropylene
  - Support ring: Stainless steel
- Cartridge Dimensions (Nominal)
  - Diameter: 70mm (2.8")
  - Length: 1 module: 254mm (10")
- Effective Filtration Area
  - Absolute microbial: 2 (6.8 ft²)

Cartridge Dimensions

- Other size formats (including juniors) are available upon request.

Effective Filtration Area

- Absolute microbial: 0.1, 0.2 and 0.45μm
- Effective Filtration Area: 0.03m²

Cartridge Treatment

- Standard: Cleaned and flushed with pyrogen-free water
- Rinsed: Ultra-clean, pulse flushed to give a system resistance of 18MΩ cm

Gaskets and O-Rings

- FDA approved Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

Maximum Differential Pressure

- Normal flow direction at:
  - 20°C (68°F): 6.0bar (87psi)
  - 80°C (176°F): 4.0bar (58psi)
  - 100°C (212°F): 3.0bar (44psi)
  - 120°C (248°F): 2.0bar (29psi)

- Reverse flow direction at:
  - 20°C (68°F): 2.1bar (30psi)
  - 80°C (176°F): 1.0bar (15psi)
  - 100°C (212°F): 0.5bar (7psi)

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Hydrofil™ Plus

Dual Nylon 6.6 Layer Membrane Cartridge Filters

Hydrofil™ Plus membrane cartridges are 100% integrity tested during manufacture by the forward flow diffusion test method.

Features and Benefits

- Guaranteed microbial ratings
- Excellent chemical compatibility
- Cartridge integrity and low TOC levels
- Suitable for steam sterilising
- Full traceability
- Controlled manufacturing environment

Specifications

- Materials of Manufacture
  - Pre-filter membrane: Nylon
  - Final membranes: Nylon
  - Filter membranes: Nylon
  - Membrane support: Polypropylene
  - Irrigation mesh (support): Polypropylene
  - Drainage layer: Polypropylene
  - Inner core: Polypropylene
  - Outer support: Polypropylene
  - End fittings: Polypropylene
  - Support ring: Stainless steel

- Cartridge Dimensions (Nominal)
  - Diameter: 70mm (2.8”)
  - Length: 1 module: 254mm (10”)
  - 2 modules: 508mm (20”)
  - 3 modules: 762mm (30”)
  - 4 modules: 1016mm (40”)

- Other size formats (including juniors) are available upon request.

Effective Filtration Area

<table>
<thead>
<tr>
<th>Absolute Microbial Rating</th>
<th>Effective Filtration Area</th>
<th>Absolute Microbial Rating</th>
<th>Effective Filtration Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1µm and 0.2µm</td>
<td>0.43m² (6.6ft²)</td>
<td>0.1µm and 0.2µm</td>
<td>0.43m² (6.6ft²)</td>
</tr>
</tbody>
</table>

- Cartridge Treatment
  - Standard: Cleaned and flushed with pyrogen-free water
  - Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

- Gaskets and O-Rings
  - FDA approved Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

Maximum Differential Pressure

<table>
<thead>
<tr>
<th>Normal flow direction at:</th>
<th>20°C (68°F):</th>
<th>80°C (176°F):</th>
<th>100°C (212°F):</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0bar (87psi)</td>
<td>4.0bar (58psi)</td>
<td>3.0bar (44psi)</td>
<td>2.0bar (29psi)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reverse flow direction at:</th>
<th>20°C (68°F):</th>
<th>80°C (176°F):</th>
<th>100°C (212°F):</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1bar (30psi)</td>
<td>1.0bar (15psi)</td>
<td>0.9bar (7psi)</td>
<td></td>
</tr>
</tbody>
</table>

Operating Temperature

Maximum continuous: 60°C (140°F)

Sterilisation

in situ steam 40 x 25 min cycles at 121°C (250°F).

Extractables

Minimum total extractables. Please refer to the Hydrofil™ Validation Guide.

Integrity Testing

Each Hydrofil™ Plus module of every cartridge is individually integrity tested using the Diffusive Flow Test, which correlates to the HIMA and ASTM F838-05 bacterial challenge tests. Non-destructive integrity tests, such as Pressure Hold, Diffusive Flow and Bubble Point, can be performed by customers. Please contact us for procedural details.

Clean Water Flow Rates

- Typical clean water flow rate: 254mm (10”) Hydrofil™ Plus single cartridge exhibits the flow & pressure characteristics indicated below, for solutions with a viscosity of 1 centipoise.
- Other solutions: For solutions with a viscosity other than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.

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Teffil™ is a range of superior pleated PTFE membrane filters with PFA supports. These cartridge filters are suitable for use within a number of process and chemical applications. This chemically inert filter range offers the removal of fine particulate from 0.05-10 micron in challenging operating conditions.

Typical Applications
- Aggressive chemicals
- High purity chemicals

Features and Benefits
- Excellent flow characteristics
- Full traceability
- Controlled manufacturing environment
- Fast rinse up time
- Low binding and fouling

Ordering Information

<table>
<thead>
<tr>
<th>Series</th>
<th>Pore rating (µm)</th>
<th>Version</th>
<th>Length (inch)</th>
<th>Adaptor Code</th>
<th>Seals</th>
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<tbody>
<tr>
<td>FL</td>
<td>75 0.05</td>
<td></td>
<td></td>
<td>A Code 3</td>
<td>EPDM</td>
</tr>
<tr>
<td></td>
<td>10 0.1</td>
<td></td>
<td>258mm (10”)</td>
<td>A Code 3</td>
<td>Silicone</td>
</tr>
<tr>
<td></td>
<td>20 0.2</td>
<td></td>
<td>510mm (20”)</td>
<td>A Code 3</td>
<td>Viton®</td>
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</table>

Specifications

Materials of Manufacture
- Filtration media: Hydrophobic PTFE membrane
- End caps: PFA
- Centre core: PFA
- Outer hardware: PFA
- Gaskets/O-rings: PFA encapsulated FKM

Cartridge Dimensions (Nominal)
- Diameter: 67mm (2.6")
- Length: 254mm (10")

Pore Size Rating
- 0.05, 0.1, 0.2, 0.45, 1, 5 and 10 microns.

Differential Pressure
- Maximum forward differential pressure: 5bar (72.5psi) @ 25°C (77°F)

Differential Pressure
- Recommended Change Out Differential Pressure: 2.4bar (34.8psi)
- Maximum Operating Temperature: 180°C (356°F) at the above conditions.
- Metallic Cleanliness: <25µg per device. Ultra-high-purity.

Dimension Specifications

<table>
<thead>
<tr>
<th>Length (inch)</th>
<th>A</th>
<th>B</th>
<th>C</th>
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<tbody>
<tr>
<td>4</td>
<td>105mm ±2</td>
<td>210mm ±2</td>
<td>315mm ±2</td>
</tr>
<tr>
<td>10</td>
<td>257mm ±2</td>
<td>432mm ±2</td>
<td>527mm ±2</td>
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<tr>
<td>20</td>
<td>463mm ±3</td>
<td>638mm ±3</td>
<td>813mm ±3</td>
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</table>

Adaptor Code
- A: EPDM
- B: Silicone
- C: Viton®
- J: Kalrez/FKM
- K: FPM Silicone

Flow Rates

<table>
<thead>
<tr>
<th>Flow rate (l/min scfm)</th>
<th>Clean pressure drop (mbar psid)</th>
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</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.5</td>
<td>0.8</td>
</tr>
<tr>
<td>1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Total metals (13 elements, ICP-MS)
- UHP < 25 ppb / device
- Ultra Low Metal < 10 ppb / device
- Particle shedding cleanliness: < 5 particles / litre @ 0.1µm @ 10LPM UPW Flow
- TOC recovery (per 10" equivalent): < 5ppb of feed DI water after 120L @ 3LPM
- Resistivity recovery (per 10" equivalent): < 0.5MQ of feed DI water after 120L @ 1LPM
Teffil™ HF
High Flow PTFE Membrane Filters

Teffil™ HF is a range of fully optimised high flow PTFE membrane filters with PFA supports. These cartridge filters are suitable for use within a number of chemical applications including organic stripper, IPA and other solvent recirculation bath applications.

This chemically inert filter range offers the removal of fine particulate from 0.05-5 micron in challenging operating conditions.

Typical Applications
- Aggressive chemicals
- Chemical delivery system filtration of strong acid base solution.
- Solvents
- UHP solvent treatment for bumping stripper.
- High purity chemicals

Features and Benefits
- Excellent flow characteristics
- Full traceability
- Controlled manufacturing environment
- Fast rise up time
- Low binding and fouling

Ordering Information

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<th>Product Code:</th>
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<tbody>
<tr>
<td>Series</td>
<td>Pore rating (µm)</td>
<td>Version</td>
<td>Length</td>
<td>Adaptor</td>
<td>Seals</td>
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<tr>
<td>FL Teffil™</td>
<td>0.05</td>
<td>HI: High Flow</td>
<td>102mm (4&quot;)</td>
<td>A: Code 3</td>
<td>A: EPDM</td>
</tr>
<tr>
<td></td>
<td>0.1</td>
<td></td>
<td>250mm (10&quot;)</td>
<td>B: Silicone</td>
<td>B: Viton®</td>
</tr>
<tr>
<td></td>
<td>0.2</td>
<td></td>
<td>518mm (20&quot;)</td>
<td>C: Kalrez/FKM</td>
<td></td>
</tr>
</tbody>
</table>

Specifications
- **Materials of Manufacture**
  - Filtration media: Hydrophobic PTFE membrane
  - End caps: PFA
  - Centre core: PFA
  - Outer hardware: PFA
  - Gaskets/O-rings: PFA encapsulated FKM
- **Cartridge Dimensions (Nominal)**
  - Diameter: 67mm (2.6")
  - Length: 254mm (10")
- **Pore Size Rating**
  0.05, 0.1, 0.2, 0.45, 1 and 5 microns.
- **Dimension Specifications**
- **Total metals**
  (13 elements, ICP-MS)
  - UHP < 25 ppb / device
  - Ultra low metal < 10 ppb / device
- **Particle shedding cleanliness**
  - < 5 particles / 1 ml @ 0.15µm @ 10LPM UPW flow
- **TOC recovery**
  (per 10" equivalent)
  - < 5ppb of feed DI water after 120L @ 5LPM
- **Resistivity recovery**
  (per 10" equivalent)
  - > 0.5MΩ of feed DI water after 120L @ 5LPM

Differential Pressure
- Maximum forward differential pressure:
  - 5.1bar (75psi) @ 25°C (77°F)
  - 5.1bar (75psi) @ 120°C (248°F)

Operating Temperature
- Maximum operating temperature:
  - 180°C (356°F) at the above conditions.

Metallic Cleanliness
- <25µg per device. Ultra-high-purity.

Flow Rates

<table>
<thead>
<tr>
<th>Flow rate (l/min scfm)</th>
<th>0.18</th>
<th>0.35</th>
<th>0.530</th>
<th>0.88</th>
<th>1.5</th>
<th>2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential Pressure (mbar psid)</td>
<td>0</td>
<td>5</td>
<td>30</td>
<td>69</td>
<td>103</td>
<td>138</td>
</tr>
</tbody>
</table>

- **Total metals**
  (13 elements, ICP-MS)
  - UHP < 25 ppb / device
  - Ultra low metal < 10 ppb / device
- **Particle shedding cleanliness**
  - < 5 particles / 1 ml @ 0.15µm @ 10LPM UPW flow
- **TOC recovery**
  (per 10" equivalent)
  - < 5ppb of feed DI water after 120L @ 5LPM
- **Resistivity recovery**
  (per 10" equivalent)
  - > 0.5MΩ of feed DI water after 120L @ 5LPM
Vinofil™

Double Layer Membrane Filters for Wine and Beer Filtration

Vinofil™ membrane cartridges are specifically designed for wine and beer filtration, as a final filter for cold biological stabilization. Vinofil™ cartridges utilize a double layer of naturally hydrophilic polyethersulphone (PES) membrane with a micro-porous asymmetric pore structure, providing graded filtration throughout its depth, resulting in higher throughputs and longer service life.

Vinofil™ cartridges exploit the narrow pore size distribution and high void volume of the media to provide a choice of cartridges capable of meeting the requirements of most applications. These cartridges offer high flux rates and low differential pressures, a feature common to polyethersulphone membranes.

Features and Benefits

- Guaranteed microbial ratings
- Low binding and fouling
- Will not hydrolyse
- Excellent chemical compatibility
- Cartridge integrity and low TOC levels
- Suitable for steam sterilising
- Full traceability
- Controlled manufacturing environment

Ordering Information

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Membrane</th>
<th>Pore rating</th>
<th>Version</th>
<th>Length</th>
<th>5&quot; Dia.</th>
<th>Absolute Microbial Effective Filtration Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>F20 + Code 7</td>
<td>HTP Hyd.™ Plus</td>
<td>0.65μm</td>
<td>4x254mm (10&quot;)</td>
<td>1256mm² (0.125m²)</td>
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</tr>
<tr>
<td>F20 + Code 8</td>
<td>HTP Hyd.™ Plus</td>
<td>0.45μm</td>
<td>4x254mm (10&quot;)</td>
<td>648mm² (0.065m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F20 + Code 9</td>
<td>HTP Hyd.™ Plus</td>
<td>0.20μm</td>
<td>4x254mm (10&quot;)</td>
<td>162mm² (0.016m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F20 + Code 10</td>
<td>HTP Hyd.™ Plus</td>
<td>0.10μm</td>
<td>4x254mm (10&quot;)</td>
<td>81mm² (0.008m²)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specifications

- Materials of Manufacture: Dual Polyethersulphone
- Membrane support: Polypropylene
- Irrigation mesh (support): Polypropylene
- Drainage layer: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Polypropylene
- Support ring: Stainless steel

Cartridge Treatment

Standard: Cleaned and flushed with pyrogen-free water

Gaskets and O-Rings

FDA approved Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

Maximum Differential Pressure

- Normal flow direction at:
  - 20°C (68°F): 6.0bar (87psi)
  - 80°C (176°F): 4.0bar (58psi)
  - 100°C (212°F): 3.0bar (44psi)
  - 120°C (248°F): 2.0bar (29psi)

- Reversal flow direction at:
  - 20°C (68°F): 2.1bar (30psi)
  - 80°C (176°F): 1.0bar (15psi)
  - 100°C (212°F): 0.5bar (7psi)

Cartridge Treatment

Standard: Cleaned and flushed with pyrogen-free water

Effective Filtration Area

- Absolute microbial rating: 0.2, 0.45 and 0.65μm
- Effective filtration area: 0.44m² (4.71ft²)

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Biofil™ Junior cartridges are based on a naturally hydrophilic polyethersulphone membrane with a mirror-smooth pore structure. When combined with quality all-polypropylene cartridge components and high integrity manufacturing techniques, the polyethersulphone membrane provides a high strength, long life cartridge of consistently precise performance. A high integrity manufacturing techniques, the cartridge is ideal for ultra-pure water supply systems (18 MΩ.cm resistivity) and point-of-use water supply.

Typical Applications
- Small-scale biopharmaceuticals
- Ophthalmic solutions
- Small-scale fine chemicals
- Biopharmaceuticals
- Electronic and semiconductor applications
- Ophthalmic solutions
- Ultra-pure water supply systems (18 MΩ.cm resistivity)
- Pilot scale studies
- Cartridge integrity and low TOC levels
- Controlled manufacturing environment

Features and Benefits
- Guaranteed removal ratings
- Low protein binding
- Will not hydrolyse
- Excellent chemical compatibility
- Cartridge integrity and low TOC levels
- Suitable for steam sterilisation
- Full traceability
- Controlled manufacturing environment

Cartridge Dimensions (Nominal)
- Diameter: 56 mm (2.5")
- Length: 77.5 mm (3.0")

Effective Filtration Area
- Absolute Microbial Rating: 0.1, 0.2, 0.45, 0.65 and 1.2 μm
- Effective Filtration Area (after each 5" cartridge): 0.19 m² (0.20 SF)

Cartridge Treatment
- Standard: Cleaned and flushed with pyrogen-free water
- Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18 MΩ.cm

Gaskets and O-Rings
- J-style: Silicone (other materials are available on request)
- S-style: Not supplied
- L-style: Silicone (other materials are available on request)

Maximum Differential Pressure
- Normal flow direction at:
  - 20°C (68°F): 6.0 barg (87 psi)
  - 80°C (176°F): 4.0 barg (58 psi)
  - 100°C (212°F): 3.0 barg (44 psi)
  - 120°C (248°F): 2.0 barg (29 psi)
- Reverse flow direction at:
  - 20°C (68°F): 2.1 barg (30 psi)
  - 80°C (176°F): 1.0 barg (15 psi)
  - 100°C (212°F): 0.5 barg (7 psi)

Operating Temperature
- Maximum continuous: 85-90°C (185-194°F)

Sterilisation
- J-style: In situ steam 70 x 25 minute cycles at 120°C (250°F)
- S-style: Autoclave 100 x 25 minute cycles at 125°C (257°F)
- L-style: In situ steam 70 x 25 minute cycles at 125°C (257°F)

Extractables
- Minimum total extractables. Please refer to the Biofil™ Validation Guide.

Integrity Testing
- Each Biofil™ Junior module of every cartridge is individually integrity tested using the Diffusive Flow Test, which correlates to the HMA and ASTM F838-05 bacterial challenge tests. Non-destructive integrity tests, such as Pressure Hold, Diffusive Flow, and Bubble Point, can be performed by customers. Please contact us for procedural details.

Clean Water Flow Rates
- Typical clean water flow rate: A 136 mm (5") Biofil™ Junior cartridge exhibits the flow characteristics indicated below, for solutions with a viscosity of 1 centistoke.
  - Other solutions: For solutions with a viscosity other than 1 centistoke, multiply the indicated differential pressure by the viscosity in centistokes.

<table>
<thead>
<tr>
<th>Differential Pressure (mbar)</th>
<th>Flow Rate (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td>200</td>
<td>25</td>
</tr>
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<td>300</td>
<td>25</td>
</tr>
<tr>
<td>400</td>
<td>25</td>
</tr>
<tr>
<td>500</td>
<td>25</td>
</tr>
</tbody>
</table>

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Fluorofil™ Junior
ePTFE Membrane Cartridge Filters for Small-Scale Applications

Fluorofil™ Junior cartridges are manufactured using a highly hydrophobic ePTFE membrane and are designed for retrofitting into existing Junior-style housings. The enhanced ePTFE membrane offers exceptionally high gas flow rates at low pressure differentials.

Fluorofil™ Junior cartridges are recommended for small-scale sterile process gases, small-scale fine chemicals and solvents, small-scale photoreactors and developers. Aggressive chemical solutions including acids, alkalis, solvents and etchants.

Typical Applications
- Sterile vents
- Small-scale sterile process gases
- Small-scale fine chemicals and solvents
- Small-scale photoreactors and developers
- Aggressive chemical solutions including acids, alkalis, solvents and etchants.

Features and Benefits
- Zeta potential
- High filtration area
- Guaranteed removal ratings
- Suitable for steam and hot water sanitisation
- Full traceability
- Controlled manufacturing environment

Ordering Information

<table>
<thead>
<tr>
<th>Product Code</th>
<th>J-Style</th>
<th>L-Style</th>
<th>S-Style</th>
</tr>
</thead>
<tbody>
<tr>
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<td>J8</td>
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<td>JF</td>
<td>JF</td>
</tr>
<tr>
<td>JB</td>
<td>JB</td>
<td>JB</td>
<td>JB</td>
</tr>
<tr>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
</tr>
<tr>
<td>SB</td>
<td>SB</td>
<td>SB</td>
<td>SB</td>
</tr>
<tr>
<td>SM</td>
<td>SM</td>
<td>SM</td>
<td>SM</td>
</tr>
<tr>
<td>SP</td>
<td>SP</td>
<td>SP</td>
<td>SP</td>
</tr>
</tbody>
</table>

Specifications

- Materials of Manufacture:
  - Filter membrane: ePTFE
  - Membrane support: Polypropylene
  - Irrigation mesh (support): Polypropylene
  - Drainage layer: Polypropylene
  - Inner core: Polypropylene
  - Outer support: Polypropylene
  - End fittings: Polypropylene
  - Sealing: Fusion bonding
  - Internal adaptor supporting: Stainless steel

- Cartridge Dimensions (Nominal):
  - Diameter: 56mm (2.2’’)
  - Lengths: 77.5mm (3")
  - 93.5mm (3.7")
  - 102mm (4")

- Effective Filtration Area:
  - Absolute Microbial Rating: 0.2µm
  - Effective Filtration Area: 0.19m²

- Cartridge Treatment:
  - Standard: Cleaned and flushed, without further treatment
  - Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm

- Gaskets and O-Rings:
  - J-Style: Silicone (other materials are available on request)
  - S-Style: Not supplied
  - L-Style: Silicone (other materials are available on request)

- Maximum Differential Pressure:
  - Normal flow direction:
    - 20°C (68°F): 6.0bar (87psi)
    - 80°C (176°F): 4.0bar (58psi)
    - 100°C (212°F): 3.0bar (44psi)
    - 120°C (248°F): 2.0bar (29psi)
    - 150°C (292°F): 1.3bar (19psi)

- Operating Temperature:
  - Maximum continuous: 80°C (176°F)

- Sterilisation:
  - Autoclave: 70 x 25 minute cycles at 135°C (277°F)

Extractables
Minimum total extractables. Please refer to the Fluorofil™ Validation Guide.

Integrity Testing
Each Fluorofil™ Junior cartridge is individually integrity tested using the Diffusive Flow Test, which complies to the HIMA and ASTM F838-05 bacterial challenge tests. Non-destructive integrity tests, such as Diffusive Flow, Water Intrusion, Pressure Hold and Bubble Point, can be performed by customers. Procedural details are available from Purvair.

Gas Flow Rates
- Typical clean air flow rate: A 136mm (5") Fluorofil™ Junior cartridge exhibits the flow characteristics indicated below.

- Clean Air Flow Rate (Nm³/hr):
  - J-Style, L-Style, N-Style

- Clean Water Flow Rates (after solvent pre-wet and water flush):
  - J-Style, L-Style, N-Style
  - Clean Water Flow Rate (after solvent pre-wet and water flush):

- Extractable Tests:
  - Typical clean water flow rate: A 136mm (5") Fluorofil™ Junior cartridge exhibits the flow characteristics indicated below for solutions with a viscosity of 1 centipoise.
  - Other solutions: For solutions with a viscosity other than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.
Ventafil™
ePTFE Membrane Cartridge Filters for Autoclave Venting

Ventafil™ cartridges are manufactured using a highly hydrophobic ePTFE membrane and are designed for autoclave venting. The enhanced ePTFE membrane offers exceptionally high gas flow rates at low pressure differentials.

Ventafil™ cartridges are designed with either a ¼" or ½" BSP male thread for autoclave and small tank venting applications. The hydrophobic characteristics of the ePTFE membrane makes the Ventafil™ filter cartridge particularly suitable for rapid vacuum break in autoclaves.

Ordering Information

<table>
<thead>
<tr>
<th>Product Code</th>
<th>1: J-Style</th>
<th>2: Length</th>
<th>3: Options Threaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F20VENT</td>
<td>77.5 mm (3&quot;)</td>
<td>1/2&quot; BSP</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>136 mm (5&quot;)</td>
<td>1/4&quot; BSP</td>
</tr>
</tbody>
</table>

Typical Applications
- Autoclave vents
- Sterile product storage vessels

Features and Benefits
- Guaranteed microbial ratings in a liquid challenge
- Bacterial spores and viruses
- Steam sterilisation
- Cartridge integrity and low TOC levels
- Full traceability
- Controlled manufacturing environment

Specifications

Materials of Manufacture
- Filter membrane: ePTFE
- Membrane support: Polypropylene
- Drainage layer: Polypropylene
- Inner core: Polypropylene
- Outer support: Polypropylene
- End fittings: Fusion bonding

Effective Filtration Area

<table>
<thead>
<tr>
<th>Absolute Microbial Rating (in liquids)</th>
<th>Effective Filtration Area (in square meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2 μm</td>
<td>0.37 m² (4.0 ft²)</td>
</tr>
</tbody>
</table>

Cartridge Treatment
- Standard: Cleaned and flushed, without further treatment
- Rinsed: Ultra-clean, pulse flushed to give a system resistivity of 18 MΩ cm

Adaptor and O-Ring
- Silicone (other materials are available on request)
- 1/8" and 1/4" BSP male thread

Maximum Differential Pressure
- Normal flow direction at:
  - 20°C (68°F): 6.0 bar (87 psi)
  - 80°C (176°F): 4.0 bar (58 psi)
  - 100°C (212°F): 3.0 bar (44 psi)
  - 120°C (248°F): 2.0 bar (29 psi)
  - 125°C (257°F): 1.5 bar (22 psi)

Sterilisation
- In situ steam 70 x 25 minute cycles at 130°C (273°F)

Extractables
- Minimum total extractables. Please refer to the Fluorofil™ Validation Guide.

Clean Air Flow Rates
- Typical clean air flow rate: A 136mm (5") Ventafil™ cartridge exhibits the flow-ΔP characteristics indicated below.

Integrity Testing
- Each Ventafil™ cartridge is individually integrity tested using the Diffusive Flow Test, which correlates to the HIMA and ASTM F838-05 bacterial challenge tests. Non-destructive integrity tests, such as Diffusive Flow, Water Intrusion, Pressure Hold and Bubble Point, can be performed by customers. Procedural details are available from Porvair.

Clean Air Flow Rate (Nm³/hr)

<table>
<thead>
<tr>
<th>Differential Pressure (mbarg)</th>
<th>Clean Air Flow Rate (Nm³/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>100</td>
<td>120</td>
</tr>
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<td>120</td>
<td>140</td>
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<td>140</td>
<td>160</td>
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<td>160</td>
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<tr>
<td>180</td>
<td>200</td>
</tr>
<tr>
<td>200</td>
<td>220</td>
</tr>
</tbody>
</table>

Time Required to Reach Vacuum Break(s) (m³)

<table>
<thead>
<tr>
<th>Chamber Volume (m³)</th>
<th>Time Required to Reach Vacuum Break(s) (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>

Product Code: 1: J-Style 2: Options 3: Length
Stainless Steel Filter Housings

Industrial and Sanitary Housings

A full range of stainless steel industrial and sanitary housings are available from 10 to 20 bar (145-290psi), with both single and multi-element housings to suit every application. The housings have in-line BSP port connections for ease of installation. Tri-clover and weld connections are available.

Our current range of filter housings are available in rounds from 1-30.

A special range of high-pressure 350 bar (5,076psi) rated housings are available on request.

Housings manufactured from other alloys and made to other design codes are available on request. Please contact us for further details.

Features and Benefits

- Resistant to high temperatures and corrosive environments
- Suitable for aggressive air and liquid filtration applications
- Inherent strength for long service life in arduous applications
- Controlled pore size, ensures optimum repeat performance

Optional Material and Surface Treatments

- Stainless steel 316L
- Hastelloy®
- Internal welds ground flush and smooth
- Electro polished
- Mirror finished
- Surface finish 240 grit
- Various coatings

Control Systems

Some of the control options available are:

- Solenoid operated valve
- Control timer

Coded Vessels

Vessels can be supplied to BS5530, ASME VIII U’Stamp, AD-M-10V. Other standards are available upon request.

The systems are designed and built to individual customer’s specifications and needs. A tailored pulsation jet supply system is vital to a good performance of the filter assembly.

Ordering Information

FIA 2110 Single Round Housing

<table>
<thead>
<tr>
<th>Product Code: FIA2110</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1 Bowl Length</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>100mm (4&quot;)</td>
<td>1080mm (42.5&quot;) Nominal</td>
<td>1080mm (42.5&quot;) Nominal</td>
<td>800mm (31.5&quot;) Nominal</td>
<td>800mm (31.5&quot;) Nominal</td>
<td>540mm (22&quot;) Nominal</td>
</tr>
<tr>
<td>100mm (4&quot;)</td>
<td>1080mm (42.5&quot;) Nominal</td>
<td>1080mm (42.5&quot;) Nominal</td>
<td>800mm (31.5&quot;) Nominal</td>
<td>800mm (31.5&quot;) Nominal</td>
<td>540mm (22&quot;) Nominal</td>
</tr>
</tbody>
</table>

Note: Other sizes and special housings can also be accommodated on request.

For Multiple Round Housings Please See Next Page
### Ordering Information: FIA 2600 Multiple Round Housings

**Product Code:** FIA2600

<table>
<thead>
<tr>
<th>Table 1: Type</th>
<th>Table 3: Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>91 T-style (zero hold up)</td>
<td>A 1.5”</td>
</tr>
<tr>
<td>92 Plenum chamber</td>
<td>B 2.5”</td>
</tr>
<tr>
<td>93 In-line</td>
<td>C 3”</td>
</tr>
<tr>
<td>94 Vient</td>
<td>D 3.5”</td>
</tr>
<tr>
<td>95 Off-line</td>
<td>E 4”</td>
</tr>
<tr>
<td>96 Square body</td>
<td>F 4.5”</td>
</tr>
<tr>
<td>97 Full sanitary</td>
<td>G 5”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: No. of Cartridges</th>
<th>Table 4: Adaptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 R 1</td>
<td>A EPDM</td>
</tr>
<tr>
<td>2 R 2</td>
<td>B Silicone</td>
</tr>
<tr>
<td>3 R 3</td>
<td>C Viton®</td>
</tr>
<tr>
<td>4 R 4</td>
<td>D Nitrile</td>
</tr>
<tr>
<td>5 R 5</td>
<td>E PTFE encap. Silicone</td>
</tr>
<tr>
<td>6 R 6</td>
<td>F Stainless Steel</td>
</tr>
<tr>
<td>7 R 7</td>
<td>G Glass</td>
</tr>
<tr>
<td>8 R 8</td>
<td>H Acrylic</td>
</tr>
<tr>
<td>9 R 9</td>
<td>I Brass</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 5: Adaptor</th>
<th>Table 6: Housing Material (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A EPDM</td>
<td>SS 304</td>
</tr>
<tr>
<td>B Silicone</td>
<td>SS 316</td>
</tr>
<tr>
<td>C Viton®</td>
<td>SS 316L</td>
</tr>
<tr>
<td>D Nitrile</td>
<td>SS Halar coating</td>
</tr>
<tr>
<td>E PTFE encap. Silicone</td>
<td>SS PTFE lined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 7: Inlet / Outlet</th>
<th>Table 8: Connection size (BSP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B BSP male thread</td>
<td>A 1”</td>
</tr>
<tr>
<td>C ASA 304 RF flange</td>
<td>B 1.5”</td>
</tr>
<tr>
<td>D ASA 304 RF flange</td>
<td>2”</td>
</tr>
<tr>
<td>E ASA 304 RF flange</td>
<td>3”</td>
</tr>
<tr>
<td>F ASA 304 RF flange</td>
<td>4”</td>
</tr>
<tr>
<td>G ASA 304 RF flange</td>
<td>6”</td>
</tr>
<tr>
<td>H ASA 304 RF flange</td>
<td>8”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 9: Pressure Gauge</th>
<th>Table 10: Jacket</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 No required</td>
<td>1 Not required</td>
</tr>
<tr>
<td>1 Tri-clover diaphragm</td>
<td>2 PTFE coated EPDM</td>
</tr>
<tr>
<td>2 BSP threaded</td>
<td>3 Silicone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 11: Drain / Vent*</th>
<th>Table 12: Diaphragm valve seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>A T-clamp DIN 32676</td>
<td>1 Viton®</td>
</tr>
<tr>
<td>B BSP male thread</td>
<td>2 PTFE coated EPDM</td>
</tr>
<tr>
<td>C ASA 150A RF flange</td>
<td>3 Silicone</td>
</tr>
<tr>
<td>D ASA 150A RF flange</td>
<td>4 No diaphragm valve</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 13: Supports</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Removal pipe</td>
<td>1 Removal rod</td>
</tr>
<tr>
<td>2 Removal rod</td>
<td>2 Angle type</td>
</tr>
<tr>
<td>3 Adjustable legs</td>
<td>3 Welded legs</td>
</tr>
<tr>
<td>4 No support</td>
<td>4 Support</td>
</tr>
</tbody>
</table>

---

**Plastic Filter Housings**

For a range of liquid applications

**Features and Benefits**

- **Excellent Chemical Compatibility**
  Suitable for use with a variety of solvents, acids, alcohols and chemicals.

- **Flexible Options**
  Plastic filter housings are available for use with industry standard 2-1/2” and 4-1/2” diameter filter cartridges. Available in a wide variety of materials and pipe connections to match application requirements: FDA Grade Polypropylene, Clear Acrylic (Acrylonitrile/SAN), High Strength Glass Reinforced Nylon (for high temperature applications) and Pure Polypropylene.

- **Cannot be Over Tightened**
  Plastic housings feature a unique bolt head thread design which prevents overtightening, reducing the risk of water leakage.

- **Fully Tested**
  Full testing to industry standards to the Water Quality Association for burst pressure, water tightness and fatigue resistance.

**Applications**

Our plastic filter housings are suitable for a wide range of process liquids. Typical applications include:

- **Food and Beverage**
  Process waters, polishing lines and clarification.
- **Process and Potable Water**
  The filtration of process water installations for removal of general contamination and resin fines.
- **Semi-conductor**
  High-purity and fine chemical filtration.
- **Reverse Osmosis Pre-filtration**
  Particulate removal prior to reverse osmosis polishing.
- **De-ionised Water**
  For use in de-mineralised and de-ionised water systems, for the supply of ultra pure water.
- **Chemical Processing**
  For the clarification and sterilisation of a wide range of process chemicals.
- **Coatings**
  Coating lines, solvents, inks and dyes.
- **Printing**
  For bulk ink and chemical filtration, as well as the clarification of fountain and wash solutions.
- **Oils**
  Including lubricating, hydraulic and cutting fluids.

**Ordering Information**

For ordering information please contact a member of the sales team.
Standard Plastic Filter Housings
For liquid applications

Standard housings offer the following:

- White talc reinforced polypropylene head with blue talc reinforced or clear styrene acrylonitrile (SAN) bowl
- Standard 1/2” NPT or 1/2” BSP connections
- Securely retained Buna “N” O-ring to ensure effective static sealing
- Positive head to bowl “stop” to prevent bowl over tightening
- Available from stock with or without pressure relief button
- Custom colors available by special order
- Mounting bosses in head for available bracket
- Accepts industry standard cartridge size:
- OD: 2 3/4” (70mm)
- ID: 2 1/2” (64mm)
- Length: Half: 4 1/2” (114mm)
- Full: 9 3/4” (248mm)
- Double: 20” (508mm)

- Full testing to industry standards of the Water Quality Association for burst pressure, water tightness and fatigue resistance

Specifications

<table>
<thead>
<tr>
<th>Model number</th>
<th>Max. operating temperature ℃</th>
<th>Max. operating pressure psi (bar)</th>
<th>Shipping weight lb (kg)***</th>
<th>Cartridge size</th>
<th>Housing material and style (all have white polypropylene head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11N</td>
<td>125 (52)</td>
<td>150 (10)</td>
<td>3.3 (1.50)</td>
<td>10” (254mm) Blue polypropylene bowl</td>
<td></td>
</tr>
<tr>
<td>12N</td>
<td>125 (52)</td>
<td>150 (10)</td>
<td>2.6 (1.18)</td>
<td>5” (127mm) Blue polypropylene bowl</td>
<td></td>
</tr>
<tr>
<td>13N</td>
<td>125 (52)</td>
<td>150 (10)</td>
<td>4.5 (2.04)</td>
<td>20” (508mm) Blue polypropylene bowl</td>
<td></td>
</tr>
<tr>
<td>21N</td>
<td>125 (52)</td>
<td>150 (10)</td>
<td>3.3 (1.50)</td>
<td>10” (255mm) Clear styrene bowl</td>
<td></td>
</tr>
<tr>
<td>22N</td>
<td>125 (52)</td>
<td>150 (10)</td>
<td>2.6 (1.18)</td>
<td>5” (127mm) Clear styrene bowl</td>
<td></td>
</tr>
<tr>
<td>23N</td>
<td>125 (52)</td>
<td>150 (10)</td>
<td>4.5 (2.04)</td>
<td>20” (508mm) Clear styrene bowl</td>
<td></td>
</tr>
</tbody>
</table>

* Housings can be ordered with a differential pressure gauge by adding the letter “G” after the model number. Housings can be ordered without a relief button by adding the letter “X” after the model number.

** NPT fittings as standard. Add a “B” after the model number to order BSP fittings. **

*** Multiply by 12 to obtain weight per case.

High Temperature Nylon Housings
For liquid applications

This range of filter housings is suitable for high temperature applications. Features include:

- High strength glass reinforced nylon head and bowl
- Securely retained Buna “N” O-ring to ensure effective static sealing
- Distinctive red color
- Standard 1/2” NPT or 1/2” BSP connections
- Full testing to industry standards of the Water Quality Association for burst pressure, water tightness and fatigue resistance
- Not available with pressure relief button.

Specifications

<table>
<thead>
<tr>
<th>Model number</th>
<th>Max. operating temperature ℃</th>
<th>Max. operating pressure psi (bar)</th>
<th>Shipping weight lb (kg)***</th>
<th>Cartridge size</th>
<th>Housing material and style</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>165 (74)</td>
<td>100 (6.9)</td>
<td>3.2 (1.45)</td>
<td>10” (254mm) Red reinforced nylon head and bowl</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>165 (74)</td>
<td>100 (6.9)</td>
<td>2.3 (1.04)</td>
<td>5” (127mm) Red reinforced nylon head and bowl</td>
<td></td>
</tr>
</tbody>
</table>

Ordering Information

For ordering information please contact a member of the sales team.

Plastic Filter Housings
**Pure Polypropylene Housings**

Our pure polypropylene filter housings are ideal for use in all industries where filtered liquids must remain totally free of contamination. These housings are especially essential in the semi-conductor, pharmaceutical and chemical processing industries. They are constructed entirely of virgin polypropylene without color, additives, fillers, reinforcements or lubricants.

In critical applications, these all-natural housings ensure pure, cost-effective filtration of a variety of solvents, acids, alcohols and chemicals without leaching or chemical processing industries. They are constructed entirely of virgin polypropylene without color, additives, fillers, reinforcements or lubricants.

**Applications include:**
- De-ionised water
- Laboratory instrumentation and equipment
- Pharmaceutical (cosmetic) solvents
- Electronic solutions and chemicals
- Post filter for reverse osmosis or ultrafiltration

Features include:
- 100% polypropylene construction
- Smooth contact surfaces to prevent bacterial and drift buildup
- Includes a non-lubricated silicone O-ring as standard
- Standard ‘½” NPT or ‘½” BSP connections

**Specifications**

<table>
<thead>
<tr>
<th>Model number</th>
<th>Max. operating temperature °C</th>
<th>Max. operating pressure psi (bar)</th>
<th>Shipping weight kg (lb)</th>
<th>Cartridge size</th>
<th>Housing style</th>
</tr>
</thead>
<tbody>
<tr>
<td>51NX 125</td>
<td>150 (10)</td>
<td>2.4 (1.09)</td>
<td>w/o pressure relief button</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51NXD 125</td>
<td>150 (10)</td>
<td>2.4 (1.09)</td>
<td>w/o pressure relief button</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51NX-222 125</td>
<td>150 (10)</td>
<td>2.4 (1.09)</td>
<td>w/o pressure relief button</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52NX 125</td>
<td>150 (10)</td>
<td>1.2 (0.54)</td>
<td>w/o pressure relief button</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53NX 125</td>
<td>150 (10)</td>
<td>3.4 (1.4)</td>
<td>w/o pressure relief button</td>
<td></td>
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<tr>
<td>53NXD 125</td>
<td>150 (10)</td>
<td>3.4 (1.4)</td>
<td>w/o pressure relief button</td>
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<td></td>
</tr>
<tr>
<td>53NX-222 125</td>
<td>150 (10)</td>
<td>3.4 (1.4)</td>
<td>w/o pressure relief button</td>
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<tr>
<td>53NXD-222 125</td>
<td>150 (10)</td>
<td>3.4 (1.4)</td>
<td>w/o pressure relief button</td>
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<td></td>
</tr>
</tbody>
</table>

**Note:**
- * NPT fittings as standard. Add a B after the model number to order BSP fittings.
- ** Multiply by 12 to obtain weight per case. ‘½” NPT vent and drain.
- **At 70ºF (21ºC).
- ***Multiply by 12 to obtain weight per case.

**Ordering Information**

For ordering please contact a member of the sales team.
Quicklok™ PFA Housings

A range of PFA filter cartridge housings, offering an excellent space saving solution. The Quicklok™ housing locks into the bowl, allowing the bowl and cartridge to be installed or removed as a single unit, therefore ensuring that contamination and chemical contact is minimised.

This chemically inert filter range offers the removal of fine particulate from 0.05-10 micron in challenging operating conditions.

Compatible with Teffil™ and Teffil™ HF products.

Applications
- Semiconductor
  Chemical delivery system filtration of strong acid and base solution of room temperature for semiconductor manufacturing.
- Aggressive chemicals
  Chemical delivery system filtration of strong acid base solution.
- Photovoltaic
  Aggressive chemical processes in the photovoltaic and data storage industries.
- Microelectronics
  Optimised for a broad range of microelectronics applications.

Features and Benefits
- Easy filter installation
  The Quicklok™ cartridge housing is used as a tool when installing and removing the cartridge. By turning the locking ring, the cartridge is pushed vertically into the housing head, ensuring perfect alignment and double O-ring engagement.
- Minimal contact required
  Operators do not have to touch the cartridge body during cartridge changeout, minimising exposure to chemicals for maximum safety and reducing the risk of contamination.
- Easy to retrofit
  Compatible with industry standard 2-222/flat single-open-end filter cartridges.
- Space-saving
  Saves a minimum of 20-40cm of vertical space during changeout.
- Ultra-clean manufacturing
  Assembled, cleaned and tested in class 1000 and 100 cleanroom.

Ordering Information
For ordering information please contact a member of the sales team.

Specifications
- Materials of Manufacture
  Head, moulded fittings, bowl: PFA
  O-ring: E-FKM
  Locking ring: PVDF or PP
  Mounting hardware: PVDF or PFA Coated SS
- Cartridge Connections
  Code 0 (dual 2-222 O-rings) Teffil™ (70mm diameter).
- Cartridge Lengths
  125mm (5”), 250mm (10”), 498mm (20”) and 745mm (30”).
- Fittings
  Filter 5300 1”, Super Filter 3/4”, Flare 1” and 3/4” Inlet/Outlet fittings available to meet semiconductor application requirements.
- Dimensions
  Inlet/Outlet Vent/Drain
  1” Flaretek 1/2” Flaretek 202mm (8”) 481mm (18.9”) 710mm (28”) 957mm (37.7”)
  1” X300° 1/2” 300° 182mm (7.2”) 459mm (18”) 687mm (27”) 934mm (36.8”)
  3/4” Super Pillar 1/2” Super Pillar 192mm (7.6”) 481mm (18.9”) 710mm (28”) 957mm (37.7”)
  3/4” Flaretek 1/2” Flaretek 182mm (7.2”) 459mm (18”) 687mm (27”) 934mm (36.8”)

Operating Conditions
- Maximum inlet pressure:
  3.4bar (49psi) @ 100°C (212°F)
  7.5bar (110psi) @ 25°C (77°F)
- Maximum operating temperature:
  110°C (212°F)
- Qualification NSF/ANSI 42
  Hydrostatic pressure tested 7.5bar (110psi) at room temperature.
  Cyclic pressure tested from 5bar (72psi) for 100,000 times at room temperature.
  100°C (212°F) temperature leak test at 4.3bar (62psi).
We manufacture a range of bag filters and complimentary housings to suit a wide range of process applications.

Typical applications include:

- **Food and Beverage**
  Process water, polishing lines and clarification.
- **General Industrial and Process Water Pretreatment**
  Particulate removal prior to reverse osmosis polishing.
- **Fine Chemicals (polypropylene housings)**
  For the clarification and sterilization of a wide range of process chemicals.
- **Coatings**
  Coating lines, solvents, inks and dyes.
Our GIANT bag filters have a unique seal ring that ensures the most efficient means of bag filtration. All bags are 100% polypropylene or polyester with plastisol (PVC) seal ring and are available in micron ratings from 1 to 200.

These filter bag filters are designed to fit Porvair’s exclusive line of 10” and 20” plastic filter housings. Polyester bags are recommended for hot water applications to 180°F (82°C) when used in conjunction with Porvair’s Nylon bag housings.

The maximum operating temperatures of these polypropylene and polyester bags are 140°F (60°C) and 180°F (82°C), respectively. When using these polypropylene bags in our GIANT talc polypropylene, styrene acrylonitrile (SAN) and/or natural polypropylene housings, the maximum operating temperature should not exceed 125°F (52°C).

Features and Benefits
- Unique Plastic seal ring designed to eliminate process bypass.
- These filter bags offer high solids collection with low pressure drop which reduces operating costs.
- When used with Porvair’s bag housings, the systems offer a compact, cost-effective lightweight alternatives to metal bag housing systems.

Applications
GIANT bag filters are suitable for the filtration of a wide range of process liquids.
Typical applications include:
- Food and Beverage
- Process water, polishing lines and clarification.
- General Industrial and Process Water Prefiltration
- Particulate removal prior to reverse osmosis polishing.
- Fine Chemicals (polypropylene housings)
- For the clarification and sterilization of a wide range of process chemicals.
- Coatings
- Coating lines, solvents, inks and dyes.

For other size bag filters, please contact a member of the sales team.

### Ordering Guide

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### GIANT Bag Pressure Drop (20” bags at 40gpm) Vs Viscosity

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<td>3.0</td>
<td>1.9</td>
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<td>12.7</td>
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<td>5.1</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Contents

- INTRODUCTION
- PRODUCTS
GIANT Series Bag Filter Housings

This cost-effective range of lightweight molded plastic bag housings are supplied in a variety of options:

- Clear styrene bowls.
- Corrosion resistant blue polypropylene.
- Natural polypropylene (for high purity water).
- Glass reinforced Nylon materials for high temperature applications.

Ideal for low flow and operating pressures up to 100psi (6.9bar), these housings feature our unique dual thread connections that accommodate either 1” or 1-1/2” pipe sizes. Available in either 10” or 20” housings, all units are supplied with a pressure gauge and filter wrench. Polypropylene housings include a hatched bottom drain with plug and drain valve. Filter bags are available in both polypropylene and polyester and feature our unique positive seal to minimize liquid bypass. Features and Benefits

- High-Efficiency Design
  Head and sump threads incorporate our positive seal feature to prevent over tightening. O-ring is securely retained in groove at top of bowl so that it stays in place even during bag replacement.
- Fully Compliant
  Full testing to industry standards of the Water Quality Association for burst pressure, water tightness and fatigue resistance. Polypropylene and clear housing models manufactured from FDA grade materials for potable water.
- Cost effective
  Economical alternative to bulky, heavy metal housings.

Applications

GIANT Series bag filter housings are suitable for the filtration of a wide range of process liquids. Typical applications include:

- Food and Beverage
- Process water, polishing lines and clarification.
- General Industrial and Process Water Pretreatment
- Particulate removal prior to reverse osmosis treatment.
- Fine Chemicals (polypropylene housings)
- For the clarification of a wide range of process chemicals.
- Coatings
  Coating lines, solvents, inks and dyes.

Features include:

- 100% polypropylene construction.
- Smooth contact surfaces to prevent bacteria and dirt buildup.
- Utilises a non-lubricated silicone O-ring as standard.
- Comes complete with pressure gauge, drain plugs, basket support, ball valve and wrench.

General Service Parameters

GIANT Clear Bowl with Talc Reinforced Head - CGB10 and CGB20. This unique clear vessel is rugged enough to handle cold water applications to 100 psi. It is a perfect solution for pilot plant and start-up processes where direct visual observation is desirable.

Pressure Drop Vs Flow Rate

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>GPM</th>
<th>PSI</th>
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<tr>
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<td>4.7</td>
</tr>
<tr>
<td>40</td>
<td>6.1</td>
<td>7.8</td>
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</table>

Ordering Guide - GIANT Series Acrylic Body

<table>
<thead>
<tr>
<th>Part number Model No.</th>
<th>Materials</th>
<th>Nominal Length</th>
<th>Max Operating Temperature</th>
<th>Max Operating Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>052639</td>
<td>CGB10</td>
<td>White polypropylene head, “Clear SAN bowl”</td>
<td>10”</td>
<td>125°F (52°C)</td>
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<td>052640</td>
<td>CGB20</td>
<td>White polypropylene head, “Clear SAN bowl”</td>
<td>20”</td>
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<tr>
<td>052657</td>
<td>BGB10</td>
<td>White polypropylene head, Blue polypropylene Bowl</td>
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<td>125°F (52°C)</td>
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<td>052638</td>
<td>BGB20</td>
<td>White polypropylene head, Blue polypropylene Bowl</td>
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<td>NGB10</td>
<td>Natural polypropylene head and bowl</td>
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<td>125°F (52°C)</td>
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<td>NGB20</td>
<td>Natural polypropylene head and bowl</td>
<td>10”</td>
<td>125°F (52°C)</td>
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</table>

GIANT Pure Polypropylene Bag Housings

Our GIANT pure polypropylene bag housings are ideal for use in all industries where filtered liquids must remain free of contamination.

These housings are especially essential in the semi-conductor and chemical processing industries. They are constructed of virgin polypropylene without color, additives, fillers, reinforcements or lubricants. In critical applications, these all natural housings ensure pure, cost effective filtration of a variety of solvents, acids, alcohols and chemicals without leaching or bacterial build up. Our 100% polypropylene housings provide an inexpensive alternative to Teflon® or fluoropolymer housings.

Features include:

- 100% polypropylene construction.
- Smooth contact surfaces to prevent bacteria and dirt buildup.
- Utilises a non-lubricated silicone O-ring as standard.
- Comes complete with pressure gauge, drain plugs, basket support, ball valve and wrench.

Ordering Guide - GIANT Series Acrylic Body

<table>
<thead>
<tr>
<th>Part number Model No.</th>
<th>Materials</th>
<th>Nominal Length</th>
<th>Max Operating Temperature</th>
<th>Max Operating Pressure</th>
</tr>
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<tr>
<td>053019</td>
<td>HTGB10</td>
<td>Reinforced Nylon head and bowl</td>
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<td>180°F (82°C)</td>
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<tr>
<td>053020</td>
<td>HTGB20</td>
<td>Reinforced Nylon head and bowl</td>
<td>20”</td>
<td>180°F (82°C)</td>
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</tbody>
</table>
We manufacture a range of products for the filtration of compressed air and steam. This range includes sterile air filtration and covers many industrial processes for the removal of particulates from compressed gas and air streams. Manufactured using the best materials to the highest standards, our Comfil® range of compressed air filters provides a comprehensive solution for your compressed air and culinary steam filtration needs.
Compfil™ DF
Compressed Air Depth Filter for Sterile Process Air and Gases

The Compfil™ DF filter is a wound depth filter or pleated depth filter, with stainless steel end caps, inner and outer guard. Consisting of a three dimensional borosilicate depth media, the DF achieves a void volume of 95%, ensuring a high containment capacity at high flow rates and low differential pressure. During operation, the filter achieves a retention rate of > 99.99998% related to 0.01 µm.

Features and Benefits
- 100 sterilisation cycles guaranteed
- Robust construction
- Non fibre releasing element
- Absolute retention rate of 99.99998% related to 0.01µm
- Three-dimensional borosilicate depth filter media
- Biologically and chemically inert
- Available in 13 sizes
- Stainless steel core and end-caps
- Meets industry standards

Ordering Information
Product Code: 1 2 3 4
Connection: B Code 7 K Code 2 M DOE S 3-Lug U Plug

Specifications
- Materials of Manufacture
  - Filter media: Borosilicate
  - Membrane support: Polyester
  - Inner core: Stainless steel
  - Outer core: Stainless steel
  - Bonding materials: Silicone
- Filters and Media:
  - Absolute retention rate of 99.99998% related to 0.01µm
  - Three-dimensional borosilicate depth filter media
  - Biologically and chemically inert
  - Available in 13 sizes
  - Stainless steel core and end-caps
  - Meets industry standards

Flow rates
- Flow rates of a 10" SRF element at 1bar.
- Flow rates of a 20" SRF element at 1bar.
- Flow rates of a 30" SRF element at 1bar.

Operating Temperature
- -20 to 200 ºC (-4 to 392ºF)
- Sterilisation
  - DF filter elements are guaranteed for 200 sterilisation cycles without loss of integrity.
  - In-line sterilisation with high-speed saturated steam:
    - max. 121ºC (250ºF) for 30 minutes
    - max. 131ºC (268ºF) for 20 minutes
    - max. 141ºC (286ºF) for 10 minutes
  - Autoclave:
    - 125ºC (257ºF) for 30 minutes

Bacterial Retention
- LRV > 7/cm² (1.09in²) for 10 Coliform
- Absolute Retention Rate
  - 99.99998% related to 0.01µm

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<thead>
<tr>
<th>Element Size</th>
<th>A (mm/in)</th>
<th>B (mm/in)</th>
<th>C (mm/in)</th>
<th>D (mm/in)</th>
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<td>381 (15)</td>
<td>16 (0.63)</td>
<td>50.8 (2)</td>
<td>86 (3.39)</td>
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</table>
Compfil™ AC are designed for the removal of oil vapour and other hydrocarbons. These filter elements consist of a two-stage filtration process. All particles are retained within the nanofibre depth filter media, while the activated carbon adsorbs all oil vapours and gaseous hydrocarbons. The filter can achieve residual oil content of <0.003 mg/m³ with appropriate pre-filtration.

Typical Applications
- Chemical and petrochemical
- Pharmaceutical
- Breathing air
- Prefiltration of sterile filters
- Filling machines
- Food and beverage
- Packing machines
- Industrial process

Features and Benefits
- High load of activated carbon
- Flow distribution at the air inlet
- Embedded activated carbon
- Depth filter stage of binder-free woven nanofibres

Specifications
- Materials of Manufacture
  - Filter membranes: Borosilicate nanofibres
  - Membrane support: Polyamide
  - Support sleeves: Stainless steel 1.4301/304
  - Adsorption stage: Ground activated carbon embedded in PUR foam
  - Bonding: Polyurethane
  - O-rings: Perbunan®, silicone free and free from parting compounds
  - Support ring: Stainless steel 1.4301/304
- Operating Temperature: 10 to 40°C (50 to 104°F)
- Retention Rate: Residual oil content of <0.003 mg/m³, with pre-filtration
- Recommended Pre-Filtration: Residual oil content < 0.01 mg/m³, e.g. by sub-nanofilter IA-S
- Initial differential pressure at nominal flow: 0.07bar (1.02psi)

Adsorption efficiency of AC:
- Ethane: Slight
- Toluene: Very good
- Acetic acid: Very good
- Methanol: Good
- Acetone: Good
- Isopropyl ether: Very good
- Methyl acetate: Good
- Sulphuric acid: Very good
- Hydrogen sulfide: Poor
- Chlorine: Good
- Flour: Poor
- Ammonia: Poor
- Citrus fruits: Very good
- Perfumes: Very good

Product Code:
- Compfil™ type: AC
- Element size:
  - 0310
  - 0410
  - 0420
  - 0510
  - 0525
  - 0725
  - 0730
  - 1030
  - 0530
  - 2030
  - 3030
  - 3050
- Media construction:
  - P: Pleated
  - C: Cylindrical
- Connection:
  - B: Code 7
  - K: Code 2
  - M: DOE
  - S: 3-Lug
  - U: Plug

Adsorption filter (oil free / odourless)

1. Adsorption stage
2. Adsorption stage
Compfil™IA
High Performance Industrial Air Filters

Compfil™IA filters are high performance industrial air filters, designed to remove water and oil aerosols as well as particulates from compressed air and gas streams. Thanks to the unique combination of binder-free, non-woven nanofibre filter and pleating technology, these high performance filters can achieve a 70% reduction in energy costs, as well as improve filtration performance.

The nanofibre material is naturally oleophobic. Oil and water are actively rejected, so the differential pressure drop and therefore operational costs are reduced to a minimum compared with a conventional filter element.

Ordering Information

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<td>M</td>
<td>DOE</td>
<td>S</td>
<td>3-lug</td>
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<td>Plug</td>
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</table>

**Typical Applications**
- Chemical and petrochemical industry
- Pharmaceutical industry
- Food and beverage
- Plastic industry
- Process filtration
- Instrument air

**Features and Benefits**
- Binder free, thermally welded nanofilter media
- Oleophobic filter media
- Pleated media filter
- Support sleeves of stainless steel (316L)
- 70% less energy costs

**Specifications**

**Materials of Manufacture**
- Filter media: Binder-free nanofibres
- Support sleeves inner/outer: Stainless steel
- Pre-and after filter medium: Pleated Carex
- Outer foam sock: HT/CR sock up to 120°C (248°F)
- HT/NX sock up to 180°C (356°F)
- Bonding: Polyurethane
- End caps: Perbunan®, Silicone free and free from parting compounds

**Maximum Differential Pressure**

<table>
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<tr>
<th>Type</th>
<th>Residual oil content at 3 mg/m³</th>
<th>10 mg/m³</th>
<th>Oil retention rate acc. to ISO 12500-1</th>
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<tbody>
<tr>
<td>IA-F</td>
<td>&lt;0.1 ppm</td>
<td>0.2 ppm</td>
<td>99.6%</td>
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<tr>
<td>IA-M</td>
<td>&lt;0.03 ppm</td>
<td>0.03 ppm</td>
<td>99.7%</td>
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<td>IA-S</td>
<td>&lt;0.01 ppm</td>
<td>0.02 ppm</td>
<td>99.8%</td>
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**Flow Rates**

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<td>0.04</td>
<td>250</td>
</tr>
<tr>
<td>IA-M</td>
<td>0.08</td>
<td>350</td>
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<tr>
<td>IA-S</td>
<td>0.12</td>
<td>450</td>
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</table>

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**Ordering Information**

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<tr>
<td>IA-S</td>
<td>0630</td>
<td>3-Lug</td>
<td>Plug</td>
</tr>
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</table>
The Compfil™ SF filter is designed for removal of particles from gases, liquids and steam. The SF consists of a re-generable isostatically pressed filter cylinder made from sintered stainless steel. The retention rate ranges from 1μm to 25μm.

**Typical Applications**
- Aseptic packing
- Electronics
- Pharmaceutical
- Food and beverages
- Fermentation
- Plastics
- Breweries
- Dairy
- Chemicals

**Features and Benefits**
- Filter media and end-caps made of stainless steel
- Good durability against most liquids, gases and aggressive steam. Temperature range from -20°C (-4°F) up to 210°C (410°F).
- Retention rate of 1μm, 5μm and 25μm (98% efficiency for steam and 100% efficiency for gases)
- Exactly defined particle retention rate at given pore size.
- Sintered stainless steel filter medium with a porosity level of more than 50%
- High dirt holding capacity, good flow rate at low differential pressure.
- Regenerable with ultrasonic bath
- Filtration costs reduced to a minimum, in particular for high dirt loading.
- Stainless steel sintering technology
- No use of additives or other chemical binders needed.
- Available in 13 sizes.

**Specifications**
- **Materials of Manufacture**
  - Filter media: Borosilicate
  - Outer core: SS 1.4301
  - Inner core: SS 1.4301
  - Inner layer: Polyurethane
  - End caps: SS 1.4301
  - Bonding material: Silicone
  - Seals: EPDM as standard, FEP/Fluoro on request.
- **Bacterial retention**
  - LRV > 7/cm² viruses and phages
- **Temperature range**
  - -20°C (-4°F) up to 200°C (392°F).
- **Filtration surface**
  - 494 cm² per 10” Element (10/30) (250 mm)
- **Dimensions**
  - Element size (inch)
    - 03/10
    - 04/10
    - 04/20
    - 05/20
    - 05/25
    - 07/25
    - 07/30
    - 10/30
    - 10/40
    - 15/30
    - 20/30
    - 30/30
    - 30/50
  - A: B Code 7
  - B: K Code 2
  - C: DOE
  - D: S 3-Lug
  - E: U Plug
- **Absolute retention rate**
  - 99.99998% related to 0.2μm
- **Max. differential pressure**
  - 2.9 bar (43 psi), independent of operating pressure of flow direction

**Flow rate of a 10” WD element at 8 bar absolute**

<table>
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<tr>
<th>A (in)</th>
<th>B (in)</th>
<th>C (in)</th>
<th>D (in)</th>
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<tr>
<td>30/30</td>
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<td>51mm</td>
<td>86mm</td>
<td>3.28</td>
</tr>
<tr>
<td>30/50</td>
<td>762mm</td>
<td>16mm</td>
<td>51mm</td>
<td>140mm</td>
<td>5.89</td>
</tr>
</tbody>
</table>

**Flow Rate**

- 0.5 to 200 m³/h (75 to 3000 cfm)
- 0 to 3 bar absolute (0 to 45 psid)
- Temperature range: -20°C (-4°F) up to 200°C (392°F)

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  - Tel: +1 804 550 1600
  - infoUS@porvairfiltration.com
- India, Mumbai Division
  - Tel: +91 22 25 976464 / 65
  - info@porvairfiltration.com

**Compfil™ SF**

**Compressed Air Filters**
Compfil™ PC
Sterile Depth Filter for Process Air and Gases

Compfil™ PC is a pleated depth filter with inner and outer guard and end caps made of stainless steel. Consisting of a three-dimensional borosilicate depth media, the PC achieves a void volume of 95%, ensuring a high containment capacity at high flow rates and low differential pressure. A retention rate of >99.999999991% related to 0.003μm is achieved during operation. The retention for nano-sized particles (0.003μm) is larger than 99.999999991% as verified in a DIN EN 1822 adopted test.

All components meet the FDA requirements for indirect contact with food in accordance with the CFR requirements (code of federal regulations) Title 21 and EC/1935/2004 for indirect food contact use.

Typical Applications
• Aseptic packing
• Biotechnology
• Fermentation
• Chemicals
• Pharmaceuticals
• Food and beverage (brewery, dairies)

Features and Benefits
• Outer guard and endcaps made of stainless steel
• High mechanical and thermal stability, good durability against chemicals and numerous aggressive gases. Temperature range from -20°C (-4°F) up to 200°C (392°F).
• Three-dimensional borosilicate depth filter media
• High waste containment capacity, low differential pressure, High flow rate.
• Biologically and chemically inert
• No breeding ground for separated microorganism.
• 200 sterilisation cycles guaranteed
• High economical efficiency and low filtration costs. 100% integrity tested

Compfil™ PC Sterilisation
In-line sterilization with slow speed saturated steam:
max. 125°C (257°F) for 30 minutes
max. 131°C (266°F) for 10 minutes
max. 141°C (289°F) for 10 minutes
Autoclave: 129°C (264°F) for 30 minutes

PC filter elements are guaranteed for 200 sterilisation cycles without loss of integrity.

Retention rate
99.99999995% related to 0.3μm
99.99999995% related to 0.02μm
99.99999995% related to 0.03μm

Max. differential pressure
Stab (73psig), independent of operating pressure of flow direction.

Flow rate of a 10” PC element at 8 bar abs

 Specifications

Materials of Manufacture
Filter media: Borosilicate
Impregnation: PTFE
Outer casing: SS 1.4301
Inner core: SS 1.4301
Inner layer: SS 1.4301
End caps: SS 1.4301
Bonding material: Silicone

Bacterial retention
LPV > 9/cm² for viruses and phages.

Temperature range
-20°C (-4°F) up to 200°C (392°F).

Filtration surface
8.400cm² per 10” element (10/30) (254mm).

Features

• Aseptic packing
• Biotechnology
• Fermentation
• Chemicals
• Pharmaceutical
• Food and beverage (brewery, dairies)

• Optimum filter size for individual application.
• High economical efficiency and low filtration costs.
• High waste containment capacity, low differential pressure.
• Three-dimensional borosilicate depth filter media.
• High mechanical and thermal stability, good durability against chemicals and numerous aggressive gases. Temperature range from -20°C (-4°F) up to 200°C (392°F).
• Outer guard and endcaps made of stainless steel
• Food and beverage (brewery, dairies)

Ordering Information

Product Code: Compfil™ PC

Ordering Information:

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<td>M DOE</td>
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</table>

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infoIN@porvairfiltration.com

Dimensions

<table>
<thead>
<tr>
<th>Element size (inch)</th>
<th>A mm (in)</th>
<th>B mm (in)</th>
<th>C Ø mm (in)</th>
<th>D Ø mm (in)</th>
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Compfil™ PF

Pleated Steel Particle Filter for Gases, Liquids and Steam

The Compfil™ PF filter consists of a regenerable, pleated filter tube made of stainless steel. Due to its robust construction, the Compfil™ pleated filter tube made of stainless steel. Due to its chemical additives manufactured without the use of binders or other chemicals.

The separation efficiency ranges from 1.25μm to 0.1μm in order to reliably retain impurities. The improved steam quality not only extends the service life of the filters to be sterilized, but also increases the cost-effectiveness of the entire process. All filter elements have been manufactured without the use of binders or other chemical additives.

Applications
- Aseptic packing
- Plastics
- Electronics
- Dairy
- Pharmaceutical
- Breweries
- Food and beverages
- Chemicals
- Fermentation

Features and Benefits
- Filter media and end caps made of stainless steel Good durability against most liquids, gases and aggressive steam. Temperature range from -20°C to 210°C (410°F).
- Retention rate of 1, 5 and 25μm (95% efficiency for steam and 100% efficiency for gases)
- Exact particle retention rate at given pore size.
- Sintered stainless steel filter medium with a porosity size.
- Regenerable with ultrasound and backwashing Filtration costs reduced to a minimum, in particular for high load.
- Stainless steel sintering technology No use of additives or other chemical binders needed.

Ordering Information

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<tr>
<td>0730</td>
<td>U</td>
<td>Plug Connections</td>
<td></td>
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</table>

Specifications

Materials of Manufacture
- Filter media: SS 1.4404/316L
- Support caps: SS 1.4404/316L
- End caps: EPDM as standard, Silicone, Buna N, Viton®, FEP (Fluoroz) on request

Filtration surface
0.18 m² per 10” element (10/30) (250 mm)

Temperature range
-20°C (-4°F) to 210°C (410°F)
- > 180°C only with special O-rings

Conversion factor for steam temperature
Steam temperature °C 110, 121, 140, 160
Steam temperature °F 210, 250, 285, 320
Conversion factor 0,5, 1, 2, 3

Dimensions

Absolute separation rates
1-25μm
Max. differential pressure
10bar (145psi)

Contact Information:
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Tel: +44 (0)1425 612010  
info@porvairfiltration.com

US, Ashland Division  
Tel: +1 804 550 1600  
infoUS@porvairfiltration.com

India, Mumbra Division  
Tel: +91 22 976644 / 65  
infoIN@porvairfiltration.com
The Compfil™ SH stainless steel filter housings, which are available in 18 different sizes, are used for the purification of compressed air and other gases. The optimised construction of the Compfil™ SH offers low differential pressure at high flow rates.

**Typical Applications**
- Chemical
- Aseptic packing
- Pharmaceutical
- Biotechnology
- Cosmetics
- Breweries
- Dairy
- Food and beverages
- Water treatment systems
- Fermentation processes

**Features and Benefits**
- Various size options available
- 18 different sizes for operating volumes from 60 Nm³/h (38 SCFM) to 23,040 Nm³/h (14,554 SCFM) related to 7bar (1015 psig).
- Compliant
  - Complies to the requirements of the European directive 2014/68/EU for pressure vessels.
- Safe installation
  - Plug connection guarantees that the elements remain safely fixed at all times.
- Filter flexibility
  - Different element sizes can be installed due to the modular design.

**Ordering Information**
For ordering information please contact a member of the sales team.

**Specifications**

**Materials of Manufacture**
- Filter housing: Stainless steel 1.4301 (304) or 1.4404 (316L)
- Coupling nut: Stainless steel 1.4301 (304)
- Plug: Stainless steel 1.4301 (304)
- Housing gasket: EPDM (other gasket upon request)

**Connection Types**
- BSP thread connection: Standard for 0006 - 0288 single housing
- DIN Flange: Standard, starting at 0432 multiple housing

Welded ends, other connections and larger housings are available on request.

**Threaded BSP Socket**

**Flanged DN2633**

**Maximum Operating Pressure**
- 0006 - 0192: 16 barg (232 psig)
- 0288: 12 barg (174 psig)
- 0432 - 1920: 10 barg (145 psig)

**Maximum Operating Temperature**
- 200°C (392°F)

**Surface Finish**
- Inner: Etched and passivated
  - Ra 1.6: 0006 - 0288 / 0432 - 1920
- Outer: Etched, passivated and polished
  - Ra 1.6: 0006 - 0288
  - Etched and passivated (not polished) 0432 - 1920

**Compfil™ SH Specifications**

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter housing</td>
<td>Stainless steel 1.4301 (304)</td>
</tr>
<tr>
<td>Coupling nut</td>
<td>Stainless steel 1.4301 (304)</td>
</tr>
<tr>
<td>Plug</td>
<td>Stainless steel 1.4301 (304)</td>
</tr>
<tr>
<td>Housing gasket</td>
<td>EPDM (other gasket upon request)</td>
</tr>
</tbody>
</table>

**Connection Types**

- **BSP thread connection**: Standard for 0006 - 0288 single housing
- **DIN Flange**: Standard, starting at 0432 multiple housing

Welded ends, other connections and larger housings are available on request.

**Surface Finish**

- **Inner**: Etched and passivated
  - Ra 1.6: 0006 - 0288 / 0432 - 1920
- **Outer**: Etched, passivated and polished
  - Ra 1.6: 0006 - 0288
  - Etched and passivated (not polished) 0432 - 1920
## Compfil™ SH Filter Housings

### Volume Flow Nm³/hr at 7 barg operating pressure (SCFM at 101.5 psig)

<table>
<thead>
<tr>
<th>Type</th>
<th>Volume flow Nm³/hr at 7 barg operating pressure (SCFM at 101.5 psig)</th>
<th>Connections</th>
<th>Filter element</th>
</tr>
</thead>
<tbody>
<tr>
<td>0006</td>
<td>40 (48) 70 (81)</td>
<td>R 1/4&quot;</td>
<td>Din 10  03/16 1</td>
</tr>
<tr>
<td>0009</td>
<td>90 (107)</td>
<td>R 3/8&quot;</td>
<td>Din 10  04/16 1</td>
</tr>
<tr>
<td>0012</td>
<td>120 (143)</td>
<td>R 1/2&quot;</td>
<td>Din 15  04/20 1</td>
</tr>
<tr>
<td>0018</td>
<td>180 (214)</td>
<td>R 3/4&quot;</td>
<td>Din 20  05/20 1</td>
</tr>
<tr>
<td>0027</td>
<td>270 (315)</td>
<td>R 1&quot;</td>
<td>Din 25  05/25 1</td>
</tr>
<tr>
<td>0036</td>
<td>360 (420)</td>
<td>R 1 1/4&quot;</td>
<td>Din 30  07/25 1</td>
</tr>
<tr>
<td>0048</td>
<td>480 (552)</td>
<td>R 1 1/2&quot;</td>
<td>Din 40  07/30 1</td>
</tr>
<tr>
<td>0072</td>
<td>720 (828)</td>
<td>R 2&quot;</td>
<td>Din 50  10/30 1</td>
</tr>
<tr>
<td>0108</td>
<td>1,080 (1,216)</td>
<td>R 2&quot;</td>
<td>Din 50  15/30 1</td>
</tr>
<tr>
<td>0144</td>
<td>1,440 (1,664)</td>
<td>R 2 1/2&quot;</td>
<td>Din 65  20/30 1</td>
</tr>
<tr>
<td>0192</td>
<td>1,920 (2,216)</td>
<td>R 3&quot;</td>
<td>Din 80  30/30 1</td>
</tr>
<tr>
<td>0288</td>
<td>2,880 (3,316)</td>
<td>R 3&quot;</td>
<td>Din 80  30/30 1</td>
</tr>
<tr>
<td>0432</td>
<td>4,320 (4,896)</td>
<td>R 3&quot;</td>
<td>Din 100 20/30 3</td>
</tr>
<tr>
<td>0576</td>
<td>5,760 (6,480)</td>
<td>R 4&quot;</td>
<td>Din 100 30/30 3</td>
</tr>
<tr>
<td>0788</td>
<td>7,880 (8,784)</td>
<td>R 5&quot;</td>
<td>Din 150 40/30 4</td>
</tr>
<tr>
<td>1102</td>
<td>11,520 (12,976)</td>
<td>R 6&quot;</td>
<td>Din 150 30/30 6</td>
</tr>
<tr>
<td>1536</td>
<td>15,360 (17,072)</td>
<td>R 6&quot;</td>
<td>Din 200 30/30 8</td>
</tr>
<tr>
<td>1920</td>
<td>19,200 (21,288)</td>
<td>R 6&quot;</td>
<td>Din 200 30/30 10</td>
</tr>
</tbody>
</table>

### Conversion table and note

Operating pressure (bar) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16
---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
0.25 | 0.28 | 0.30 | 0.30 | 0.75 | 0.75 | 1.00 | 1.10 | 1.20 | 1.40 | 1.50 | 1.60 | 1.75 | 1.90 | 2.00 | 2.10

Conversion factor

Multiply volume shown by the conversion factor to obtain the volume flow (Nm³/hr) at other operating pressures.

### Weight and Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions in mm (in)</th>
<th>Weight in kg (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nom.</td>
<td>A</td>
<td>B (Threaded)</td>
</tr>
<tr>
<td>0006</td>
<td>215 (8.46)</td>
<td>105 (4.13)</td>
</tr>
<tr>
<td>0009</td>
<td>240 (9.45)</td>
<td>110 (4.33)</td>
</tr>
<tr>
<td>0012</td>
<td>240 (9.45)</td>
<td>110 (4.33)</td>
</tr>
<tr>
<td>0018</td>
<td>266 (10.5)</td>
<td>125 (4.92)</td>
</tr>
<tr>
<td>0027</td>
<td>293 (11.5)</td>
<td>125 (4.92)</td>
</tr>
<tr>
<td>0036</td>
<td>344 (13.5)</td>
<td>140 (5.51)</td>
</tr>
<tr>
<td>0048</td>
<td>386 (15.2)</td>
<td>170 (6.69)</td>
</tr>
<tr>
<td>0072</td>
<td>440 (17.3)</td>
<td>170 (6.69)</td>
</tr>
<tr>
<td>0108</td>
<td>587 (23.1)</td>
<td>170 (6.69)</td>
</tr>
<tr>
<td>0144</td>
<td>732 (28.8)</td>
<td>216 (8.50)</td>
</tr>
<tr>
<td>0192</td>
<td>897 (35.9)</td>
<td>216 (8.50)</td>
</tr>
<tr>
<td>0288</td>
<td>1,026 (40.4)</td>
<td>240 (9.45)</td>
</tr>
<tr>
<td>0432</td>
<td>1,300 (51.2)</td>
<td>410 (16.1)</td>
</tr>
<tr>
<td>0576</td>
<td>1,350 (53.1)</td>
<td>410 (16.1)</td>
</tr>
<tr>
<td>0768</td>
<td>1,410 (55.5)</td>
<td>480 (18.9)</td>
</tr>
<tr>
<td>1152</td>
<td>1,460 (57.5)</td>
<td>540 (21.3)</td>
</tr>
<tr>
<td>1536</td>
<td>1,600 (63.0)</td>
<td>600 (23.6)</td>
</tr>
<tr>
<td>1920</td>
<td>1,600 (63.0)</td>
<td>600 (23.6)</td>
</tr>
</tbody>
</table>
Compfil™ AH
High Performance Industrial Filter Housing

Compfil™ AH standard filter housings are designed for the purification of compressed air and gases in an industrial operation. This product series offers housings ranging from a volume flow of 20 m³/h to 2880 m³/h (related to 1 bar and 20°C). The housings are designed to offer low differential pressures at high flow rates.

The filter housing also includes an energy cost monitor, which indicates the most efficient time to replace the filter to achieve optimum performance and maximum filter life. Optionally, a transmitter can be fitted to indicate this remotely.

Features and Benefits

- **Three-part and optimized filter housing**
  Push and turn technology ensures easy exchange of the filter elements, whilst the optimized housing guarantees minimal pressure loss due to improved flow technology.

- **Modular concept**
  Robust flange connection enables secure and simple combination of filter housings with one sealing surface.

- **High filtration efficiency and longer life**
  Ultra air high performance filters provide better efficiency, and thanks to epoxy resin coating, a longer life. The energy cost monitor shows the best time to change the filter, which has a 10-year working guarantee.

- **Optimised design**
  Easy and safe connection of filter housings and flexible wall mounting with robust wall brackets. The conical design and smooth lower filter zone ensures no condensate is transferred.

- **Acoustic alarm signal**
  Provides maximum safety for element maintenance.

- **Float drain**
  Integral float helps prevent blockages, for reduced maintenance.

Ordering Information

For ordering information please contact a member of the sales team.
We manufacture a range of capsule filters in sizes suitable for small to medium industrial and sanitary applications.

These filters exhibit a range of different properties and are used within many industries including pharmaceutical, water and chemical processes.

Our capsules are self-contained, ready to use, disposable devices. The filter body is constructed with natural or opaque black housing and available with a wide range of connector configurations to suit different systems.
Microcap™ PR
Main System Capsule Filters

Main system filter, specifically designed for the requirement of graphics printer filtration.

Typical Applications
- Inkjet

Specifications
- Filter Code: BD99
- Materials of Manufacture:
  - Filter media: Polypropylene
  - Housing material: Polypropylene
  - Housing colour: Opaque black and natural
  - Housing material: Polypropylene
  - Micron Rating:
    - 0.5μm, 1μm, 3μm, 5μm, 10μm, 20μm, 40μm and 60μm (additional ratings are available on request)
- Dimensions:
  - Filter diameter: 65mm (2.56")
- Connections:
  - Barb: 1/4" barb
  - NPT: 1/4" NPT male
  - Jaco®:
    - 1/4" Jaco®
    - 6mm Jaco®
    - 6mm Jaco®
- Connectors:
  - QRC: Quick Release Connector
  - Luer: Luer 90°

Ordering Information
- Product Code: BD99
- Table 1
  - Micron Ratings
  - Connectors
- Table 2
  - Walls

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Flow Rate

Microprint™ II
Capstone Filters

The Microprint™ II filter capsule has been specifically designed to offer maximum protection of print heads on digital printers. The self-contained unit is designed from a robust fully welded polypropylene construction.

Typical Applications
- Inkjet

Features
- Industry standard and custom engineered filters
- Compatible with aqueous, UV and solvent based inks
- Clean, zero filter shedding and validated filters
- Multiple connectors and micron ratings

Specifications
- Filter Code: BB99
- Materials of Manufacture:
  - Filter media: Polypropylene
  - Housing material: Polypropylene
  - Housing colour: Opaque black and natural
  - Micron Rating:
    - 0.5μm, 1μm, 3μm, 5μm, 10μm, 20μm, 40μm and 60μm (additional ratings are available on request)
- Dimensions:

Ordering Information
- Product Code: BB99
- Table 1
  - Micron Ratings
  - Connectors
- Table 3
  - Walls

Contact Information:
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- US, Ashland Division: Tel: +1 804 550 1600
- India, Mumbai Division: Tel: +91 22 97646 /65

Email: info@porvairfiltration.com infoUS@porvairfiltration.com infoIN@porvairfiltration.com
A main system filter is specifically designed for the requirement of the wide and superwide format graphics printer market.

The inkjet specific self-contained unit is designed around an all polypropylene construction, with no binding agents, to give low extractables and ensure 100% compatibility with inkjet fluids. These filters are suitable for solvent or UV ink systems.

Typical Applications

- Inkjet

Ordering Information

<table>
<thead>
<tr>
<th>Product Code: B131</th>
<th></th>
</tr>
</thead>
</table>

**Specifications**

**Filter Code**

B131

**Materials of Manufacture**

Filter media: Polypropylene
Housing material: Polypropylene
Housing colour: Opaque black and natural

**Micron Rating**

5μm, 10μm

**Dimensions**

Filter length: 100mm (3.94") (plus connectors)
Filter width: 27mm (1.06")

**Filter Area**

500cm² (77.5in²)

**Connectors**

Luer / hose barb

**Maximum Operating Pressure**

6bar (87psi)

**Operating Temperature**

From 0°C to 50°C (32°F to 122°F)
Microcap™ PES
Polyethersulfone Pleated Membrane Capsules

Microcap™ PES capsules are used for sterile filtration in the most critical pharmaceutical applications, such as: sterilising filtration of USP Water for Injection (WFI), diagnostic solutions, vaccines, ophthalmics, SVFs, LVPs, and biological products.

Our hydrophilic, double-layered polyethersulfone membrane filters exhibit excellent flow rates with high throughput, thereby ensuring optimum protection. Polyethersulfone (PES) is particularly suited for the filtration of products which contain elements that can adsorb to the media, such as vaccines and biologicals as well as ophthalmics.

Microcap™ PES capsule elements are 100% integrity tested during production.

**Ordering Information**

<table>
<thead>
<tr>
<th>Type</th>
<th>Micron Rating (µm)</th>
<th>Pre-sterilised</th>
<th>Length (in)</th>
<th>Inlet</th>
<th>Outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microcap™ PFP</td>
<td>P03 0.03</td>
<td>02</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>Microcap™ GPP</td>
<td>P10 0.1</td>
<td>05 5</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>Microcap™ SHE</td>
<td>P22 0.22</td>
<td>10 10</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>Microcap™ PPE</td>
<td>P45 0.45</td>
<td>20 20</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>5</td>
<td>Microcap™ PES</td>
<td>P65 0.65</td>
<td>30 30</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>6</td>
<td>Microcap™ PPS</td>
<td>P80 0.8</td>
<td></td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>7</td>
<td>Microcap™ PHS</td>
<td>001 1</td>
<td></td>
<td>G</td>
<td>G</td>
</tr>
</tbody>
</table>

* *Option is only available for Type 3 and 4.*

**Typical Applications**

- Diagnostics
- Vaccines
- LVIs and SVPs
- Biologics
- WFI water
- Ophthalmics

**Features and Benefits**

- Validated for use in multiple pharmaceutical applications
- Excellent flow rates with high throughput
- Integrity testable
- Designed for minimal leachables and extractables
- Low adsorption of proteins and preservatives
- USP Class VI approved
- Uses FDA compliant materials

**Chemical Sanitisation**

- Sodium hypochlorite and other selected chemicals.

**Flow Rate**

The following table represents typical water flow at a 3.4 bar (50 psi) pressure differential across a single 2 inch capsule with 1.0 ft² (0.09 m²) of media with a 1/2” FNPT port. The test fluid is water at ambient temperature.

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>Membrane</th>
<th>2&quot;</th>
<th>5&quot;</th>
<th>10&quot;</th>
<th>15&quot;</th>
<th>20&quot;</th>
<th>30&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPM</td>
<td></td>
<td>0.61</td>
<td>0.98</td>
<td>1.97</td>
<td>2.69</td>
<td>3.26</td>
<td>3.44</td>
</tr>
<tr>
<td>GPM</td>
<td></td>
<td>0.16</td>
<td>0.26</td>
<td>0.46</td>
<td>0.71</td>
<td>0.86</td>
<td>0.91</td>
</tr>
</tbody>
</table>

**Filtration Area**

<table>
<thead>
<tr>
<th>Media</th>
<th>2&quot;</th>
<th>5&quot;</th>
<th>10&quot;</th>
<th>15&quot;</th>
<th>20&quot;</th>
<th>30&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>PES Membrane</td>
<td>1.08</td>
<td>0.40</td>
<td>2.60</td>
<td>0.28</td>
<td>2.15</td>
<td>0.01</td>
</tr>
<tr>
<td>1.08</td>
<td>0.28</td>
<td>1.00</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
<td></td>
</tr>
</tbody>
</table>

**Integrity Test Specifications - Diffusion**

<table>
<thead>
<tr>
<th>Pore size (µm)</th>
<th>Test pressure (psi)</th>
<th>Max Diffusion Rate (cc/min - water wetted membrane)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03</td>
<td>0.06</td>
<td>2.1</td>
</tr>
<tr>
<td>0.10</td>
<td>0.48</td>
<td>2.1</td>
</tr>
<tr>
<td>0.22</td>
<td>0.71</td>
<td>2.1</td>
</tr>
<tr>
<td>0.45</td>
<td>1.0</td>
<td>2.1</td>
</tr>
<tr>
<td>0.65</td>
<td>1.5</td>
<td>2.1</td>
</tr>
<tr>
<td>0.8</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>1.0</td>
<td>3.0</td>
<td>2.1</td>
</tr>
<tr>
<td>1.2</td>
<td>3.5</td>
<td>2.1</td>
</tr>
</tbody>
</table>

**Contact Information:**

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Tel: +91 22 25 976464 / 65
infoIN@porvairfiltration.com
Microcap™ PPP
Pharmaceutical Grade Pleated Polypropylene Capsules

Microcap™ PPP capsules are used for the pre-filtration of bulk pharmaceutical chemicals, water, buffers, solvents, alcohols and other liquids. They are also designed to protect membrane filters in filling applications for SVPs, LVPs, diagnostics, ophthalmics, biologicals and other products. Made with polypropylene microfibre media, and designed with the optimal filtration area, these filters remove large amounts of particulate and other contaminants. Polypropylene exhibits broad chemical compatibility, so it is particularly suited for the filtration of chemicals and solvents used in the drug making processes. Microcap™ PPP capsules are integrity tested during manufacture and are flushed to ensure cleanliness in critical process applications.

Features and Benefits
- Protects critical membrane filter downstream.
- Wide range of high efficiency retention ratings.
- High capacity for long life.
- USP Class VI approved.
- Uses FDA compliant materials.

Typical Applications
- Bulk pharmaceutical chemicals
- Buffers and other media
- LVPs and SVPs
- Biologicals
- Water
- Ophthalmics
- Diagnostics

Specifications

Materials of Manufacture
- Housing: Polypropylene
- Filtration media: Pleated polypropylene depth media
- Media support: Polypropylene
- End caps: Polypropylene
- Centre core: Polypropylene
- Outer support cage: Polypropylene
- Sealing method: Thermal bonding

Sanitation/Sterilisation
- Autoclave: 120°C (250°F), 30 min, 5+ cycles
- Chemical sanitisation: Industry standard concentrations of hydrogen peroxide, peracetic acid, sodium hypochlorite and other selected chemicals.

Microcap™ PPP capsules are not to be used in steam.

Flow Rate
The following table represents typical water flow at a one psi (69bar) pressure differential across a single 2 inch capsule with 1.0 ft² (0.093 m²) of media with 1/2" FNPT ports. The liquid 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>Micron Rating (µm)</th>
<th>GPM</th>
<th>GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>0.20</td>
<td>0.60</td>
</tr>
<tr>
<td>0.45</td>
<td>0.45</td>
<td>1.0</td>
</tr>
<tr>
<td>0.60</td>
<td>0.60</td>
<td>1.2</td>
</tr>
<tr>
<td>1.0</td>
<td>1.0</td>
<td>1.6</td>
</tr>
<tr>
<td>2.0</td>
<td>2.0</td>
<td>2.4</td>
</tr>
<tr>
<td>3.0</td>
<td>3.0</td>
<td>3.6</td>
</tr>
<tr>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

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

Maximum Operating Parameters
- Liquid operational pressure: 5.3bar (80psi) at 20°C (68°F)
- Gases operational pressure: 60psi (4.1bar) at 20°C (68°F)
- Operating temperature: 43°C (110°F) at 2.1bar (30psi) in water
- Forward differential pressure: 3.4bar (50psi) at 20°C (68°F)
- Reverse differential pressure: 2.7bar (40psi) at 20°C (68°F)
- Outer support cage: Recommended changeout pressure: 2.4bar (35psi)

Filtration Area

<table>
<thead>
<tr>
<th>Media</th>
<th>Capsule length</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>1.08ft² (0.09m²)</td>
</tr>
<tr>
<td>5&quot;</td>
<td>2.8ft² (0.26m²)</td>
</tr>
<tr>
<td>10&quot;</td>
<td>5.8ft² (0.54m²)</td>
</tr>
<tr>
<td>30&quot;</td>
<td>11.6ft² (1.08m²)</td>
</tr>
<tr>
<td>60&quot;</td>
<td>17.4ft² (1.62m²)</td>
</tr>
</tbody>
</table>

Average – Filtration area varies with media thickness and porosity.

Integrity Test Information
Each capsule assembly is integrity tested before release. Field duplication of these tests is not practical because of the absence of commercial portable testing equipment.

Ordering Information

<table>
<thead>
<tr>
<th>Product Code: 7018</th>
<th>2</th>
<th>10</th>
<th>20</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Micron Rating (µm)</td>
<td>0.20</td>
<td>0.45</td>
<td>0.65</td>
<td>0.80</td>
</tr>
<tr>
<td>Pre-sterilised</td>
<td>S</td>
<td>P</td>
<td>M</td>
<td>N</td>
</tr>
<tr>
<td>Length (ln)</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Inlet</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Outlet</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

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

Contact Information:
UK, New Milton Division
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infoIN@porvairfiltration.com
Microcap™ GPP
General Pleated Polypropylene Capsule Filters

Microcap™ GPP general service grade capsules are used for the removal of particulate contaminants from water, inks, dyes and specialty chemicals.

Made with polypropylene microfibre media and designed with the maximum filtration area, these filters can remove large amounts of particulate and other contaminants over a long filter life. Microcap™ GPP can remove large amounts of particulate and other chemicals.

Microcap™ GPP capsules protect critical membrane filters downstream by removing 99.9% of contaminants at the rated pore size. Polypropylene depth media filters perform the critical upstream clarification of products. When used in final filtration systems, the filters protect the high-value products. When used in final filtration systems, the filters protect the high-value products.

Features and Benefits
- 99.9% efficiency at the rated pore size.
- Protect critical membrane filters downstream.
- Wide range of high efficiency retention ratings.
- High capacity for long life.

Typical Applications
- Chemicals
- Acids and bases
- Cosmetics
- Process water
- Inks and dyes

Ordering Information

Product Code: 2018

<table>
<thead>
<tr>
<th>Type</th>
<th>Micron Rating (µm)</th>
<th>Pre-sterilised</th>
<th>Length (in)</th>
<th>Filter</th>
<th>Outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Microcap™ PPD</td>
<td>0.03</td>
<td>S</td>
<td>02</td>
<td>4</td>
<td>A</td>
</tr>
<tr>
<td>2 Microcap™ GPP</td>
<td>0.1</td>
<td>P10</td>
<td>05</td>
<td>1</td>
<td>B</td>
</tr>
<tr>
<td>3 Microcap™ PPE</td>
<td>0.2 uncover</td>
<td>P22</td>
<td>10</td>
<td>10</td>
<td>C</td>
</tr>
<tr>
<td>4 Microcap™ PED</td>
<td>0.45</td>
<td>P45</td>
<td>20</td>
<td>20</td>
<td>D</td>
</tr>
<tr>
<td>5 Microcap™ PNP</td>
<td>0.65</td>
<td>P65</td>
<td>30</td>
<td>40</td>
<td>E</td>
</tr>
<tr>
<td>6 Microcap™ PNP</td>
<td>0.8</td>
<td>P80</td>
<td>60</td>
<td>60</td>
<td>F</td>
</tr>
<tr>
<td>7 Microcap™ PNP</td>
<td>1.0</td>
<td>P100</td>
<td>100</td>
<td>100</td>
<td>G</td>
</tr>
</tbody>
</table>

*1 option is only available for Type 3 and 4.

Specifications

Materials of Manufacture
- Housing: Polypropylene
- Filtration media: Pleated polypropylene
- Media support: Polypropylene
- Outer support cage: Polypropylene
- Sealing method: Thermal bonding

Sanitation/Sterilisation
- Autoclave: 120°C (250°F), 30 min, 5 cycles
- Chemical sanitisation: Industry standard concentrations of hydrogen peroxide, peracetic acid, sodium hypochlorite and other selected chemicals.

Note: Microcap™ GPP capsules are not to be used in steam.

Flow Rate
The following table represents typical water flow at a one psi (68kPa) pressure differential across a single 2 inch capsule with 1.0 ft² (0.093 m²) of media with 1/2” FNPT ports. The liquid test fluid is water at ambient temperature. Higher pressure drops are acceptable, as they increase the pressure drop of the housing becomes more apparent.

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>Flow Rate (LPM)</th>
<th>Flow Rate (GPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.76</td>
<td>0.20</td>
</tr>
<tr>
<td>0.2</td>
<td>2.27</td>
<td>0.60</td>
</tr>
<tr>
<td>0.3</td>
<td>3.78</td>
<td>1.0</td>
</tr>
<tr>
<td>0.4</td>
<td>4.60</td>
<td>1.6</td>
</tr>
<tr>
<td>0.5</td>
<td>5.40</td>
<td>2.4</td>
</tr>
<tr>
<td>0.6</td>
<td>6.08</td>
<td>3.6</td>
</tr>
<tr>
<td>0.7</td>
<td>6.88</td>
<td>4.0</td>
</tr>
<tr>
<td>0.8</td>
<td>7.62</td>
<td>4.6</td>
</tr>
<tr>
<td>0.9</td>
<td>8.08</td>
<td>5.0</td>
</tr>
<tr>
<td>1.0</td>
<td>8.72</td>
<td>5.4</td>
</tr>
<tr>
<td>1.1</td>
<td>9.40</td>
<td>6.0</td>
</tr>
<tr>
<td>1.2</td>
<td>10.11</td>
<td>6.8</td>
</tr>
<tr>
<td>1.3</td>
<td>11.14</td>
<td>7.4</td>
</tr>
<tr>
<td>1.4</td>
<td>12.11</td>
<td>8.0</td>
</tr>
<tr>
<td>1.5</td>
<td>13.12</td>
<td>8.6</td>
</tr>
<tr>
<td>1.6</td>
<td>14.14</td>
<td>9.2</td>
</tr>
<tr>
<td>1.7</td>
<td>15.14</td>
<td>9.8</td>
</tr>
</tbody>
</table>

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

Maximum Operating Parameters
- Liquid operational pressure: 5.9bar (80psi) at 20°C (68°F)
- Gases operational pressure: 60psi (4.1bar) at 20°C (68°F)
- Operating temperature: 43°C (110°F) at 2.1bar (30psi) in water
- Forward differential pressure: 3.4bar (50psi) at 20°C (68°F)
- Reverse differential pressure: 2.7bar (40psi) at 20°C (68°F)
- Outer support cage: Polypolyene
- Recommended changeout pressure: 2.4bar (35psi)

Filtration Area

<table>
<thead>
<tr>
<th>Media</th>
<th>Capsule length</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>1.08m² (49in²)</td>
</tr>
<tr>
<td>5&quot;</td>
<td>2.61m² (56in²)</td>
</tr>
<tr>
<td>10&quot;</td>
<td>5.81m² (91in²)</td>
</tr>
<tr>
<td>20&quot;</td>
<td>11.61m² (192in²)</td>
</tr>
<tr>
<td>30&quot;</td>
<td>17.41m² (212in²)</td>
</tr>
</tbody>
</table>

Average - Filtration area varies with media thickness and porosity.

Integrity Test Information
Each capsule assembly is integrity tested before release. Field duplication of these tests is not practical because of the absence of commercial portable testing equipment.

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India, Mumbai Division Tel: +91 22 25 976464 /65 infoIN@porvairfiltration.com
Microcap™ PFE
Disposable Capsule Filters

Microcap™ PFE capsules are manufactured for the critical needs of the pharmaceutical industry.

Made with highly hydrophobic polytetrafluoroethylene (PTFE) membrane, these capsules are used for the filtration of non-aqueous liquids, aggressive solvents, compressed gases and as vent filters. Each module is individually tested using the water intrusion method before it is released from manufacture.

The capsule media surface area, filter core design, pleat packing density have been manufacture.

The capsule media surface area, filter core design, pleat packing density have been optimised to provide increased life resulting in lower filtration operating costs.

Microcap™ PFE capsules are manufactured for the critical needs of the pharmaceutical industry.

Features and Benefits
- Optimised for maximum filter life.
- Guaranteed microbial ratings.
- Optimised for maximum filter life.
- Integrity at low TOC levels.

Features and Benefits
- Optimised for maximum filter life.
- Guaranteed microbial ratings.
- Optimised for maximum filter life.
- Integrity at low TOC levels.

Ordering Information

Product Code: 7018

Type | Micron Rating (µm) | Length (in) | Pre-sterile | Outlet |
--- | --- | --- | --- | --- |
1 Microcap™ PFP | PD1 | 52 | 0.03 | A 1/4" Female NPT |
2 Microcap™ GPF | P40 | 0.22 | 10 | B 1/4" Male NPT |
3 Microcap™ PFE | P4S | 0.45 | 20 | C 3/8" Female NPT |
4 Microcap™ PFP | PR8 | 0.65 | 0.8 | D 1/2" Female NPT |
5 Microcap™ PNY | 360 | 0.1 | E 1/2" Male NPT |

Typical Applications
- Solvent filtration
- Fermentation air
- Tank vent filters
- Process gas
- Compressed air filtration

Features and Benefits
- Optimised for maximum filter life.
- Guaranteed microbial ratings.
- Optimised for maximum filter life.
- Integrity at low TOC levels.

Typical Applications
- Solvent filtration
- Fermentation air
- Tank vent filters
- Process gas
- Compressed air filtration

Specifications

Materials of Manufacture
- Housing: Polypropylene
- Filtration media: PTFE membrane
- Media support: Polypropylene
- End caps: Polypropylene

Media推薦
- Hollow Fiber Diameter: 0.22 μm
- Challenge level: 10^7 organisms per cm² of filter media

Media Capsule length
- 2" Pore size (µm): 0.10
  - Flow rate: 1.32 LPM (0.24 GPM)
  - Bubble point: 65 psi
- 0.22
  - Flow rate: 1.14 LPM (0.20 GPM)
  - Bubble point: 65 psi
- 0.45
  - Flow rate: 1.46 LPM (0.25 GPM)
  - Bubble point: 65 psi
- 1.0
  - Flow rate: 1.78 LPM (0.31 GPM)
  - Bubble point: 65 psi
- 3.0
  - Flow rate: 2.36 LPM (0.41 GPM)
  - Bubble point: 65 psi
- 10.0
  - Flow rate: 5.28 LPM (0.90 GPM)
  - Bubble point: 65 psi

Flow Rate
The following tables represent typical water flow at a one psi (68kPa) pressure differential across a single 2 inch capsule with 1.0 ft² (930 cm²) media area. The gas test fluid is air at ambient temperature. Higher pressure drops are acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Air/Gas flow rates
- 0.10
  - Flow rate: 0.10 LPM (0.018 GPM)
  - Bubble point: 0.28 bar (4 psi)
- 0.22
  - Flow rate: 0.22 LPM (0.036 GPM)
  - Bubble point: 0.45 bar (6.5 psi)
- 0.45
  - Flow rate: 0.45 LPM (0.076 GPM)
  - Bubble point: 1.0 bar (14.5 psi)
- 1.0
  - Flow rate: 1.0 LPM (0.17 GPM)
  - Bubble point: 4.9 bar (70 psi)
- 3.0
  - Flow rate: 3.0 LPM (0.52 GPM)
  - Bubble point: 9.2 bar (135 psi)
- 5.0
  - Flow rate: 5.0 LPM (0.86 GPM)
  - Bubble point: 15.6 bar (230 psi)

Integrity Test Specifications
(pore size > 0.1 µm & 60/40 IPA/water wetted membrane)

Product Code: 7018

Maximum Operating Parameters
- Liquid operational pressure: 10 bar (150 psi) at 20°C (68°F)
- Gases operational pressure: 4.1 bar (60 psi) at 30°C (86°F)
- Operating temperature: 49°C (119°F) at 2.1 bar (30 psi) in water
- Reverse differential pressure: 3.4 bar (50 psi) at 20°C (68°F)

Microcap™ PFE capsules are not to be used in steam.

Validation
Our biopharmaceutical grade capsules are validated using test procedures based on ASTM Method F838-05 and HIMA protocols.

The challenge level is 107 organisms per cm² of filter media: 0.22 µm challenged with Brevundimonas diminuta.

Filtration Area

<table>
<thead>
<tr>
<th>Media</th>
<th>2&quot;</th>
<th>5&quot;</th>
<th>10&quot;</th>
<th>20&quot;</th>
<th>30&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTFE membrane</td>
<td>1.00&quot; (0.26m²)</td>
<td>3.09&quot; (0.56m²)</td>
<td>6.29&quot; (0.97m²)</td>
<td>14.91&quot; (2.54m²)</td>
<td>24.66&quot; (3.99m²)</td>
</tr>
</tbody>
</table>

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- US, Ashland Division
  - Tel: +1 804 550 1600
  - infoUS@porvairfiltration.com
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  - Tel: +91 22 25 976440 / 65
  - infoIN@porvairfiltration.com
Microcap™ PNY

Pleated Nylon Membrane Capsules

Microcap™ PNY capsules are designed to be used for sterilising grade filtration. The high quality nylon membrane is optimised for retention. PNY capsule filter elements are 100% integrity tested during production.

Nylon capsules see broad service in sterile filtration. In SVFs and as bioburden management filters in LVFs. Media and service liquid filtration are other common applications for this membrane.

Additional applications for Microcap™ PNY capsule filters include the final filtration of bulk pharmaceutical chemicals, USP Purified Water, Water for Injection (WFI), buffers, solvents, alcohols and other excipients. Nylon is particularly suited for the filtration of solvents because of its broad compatibility and low level of extractables.

Ordering Information

<table>
<thead>
<tr>
<th>Type</th>
<th>Micron Rating (µm)</th>
<th>Length (in)</th>
<th>Pre-sterilised</th>
<th>Inlet</th>
<th>Outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Microcap™ PP</td>
<td>0.03</td>
<td>02 - 30</td>
<td>Pre-sterile 2 - 10</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>2 Microcap™ OPP</td>
<td>0.1</td>
<td>05 - 30</td>
<td>Non-sterile</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>3 Microcap™ PFE</td>
<td>0.22</td>
<td>10 - 30</td>
<td></td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>4 Microcap™ PES</td>
<td>0.45</td>
<td>20 - 30</td>
<td></td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>5 Microcap™ PNY</td>
<td>0.65</td>
<td>30</td>
<td></td>
<td>E</td>
<td>E</td>
</tr>
</tbody>
</table>

Typical Applications
- Bulk pharmaceutical chemicals
- SVFs and LVFs
- Buffers and other media
- Solvents
- WFI water
- Feedstock

Features and Benefits
- Optimised for retention.
- Broad solvent compatibility.
- Guaranteed microbial ratings.
- Excellent chemical compatibility.
- Integrity at low TOC levels.
- USP Class VI approved.
- Uses FDA compliant materials.

Specifications

<table>
<thead>
<tr>
<th>Materials of Manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing: Polypropylene</td>
</tr>
<tr>
<td>Filtration media: Nylon 6,6 membrane (absolute rated)</td>
</tr>
<tr>
<td>Media support: Polypropylene</td>
</tr>
<tr>
<td>End caps: Polypropylene</td>
</tr>
<tr>
<td>Centre core: Polypropylene</td>
</tr>
<tr>
<td>Outer support cage: Polypropylene</td>
</tr>
<tr>
<td>Sealing method: Thermal bonding</td>
</tr>
</tbody>
</table>

Sanitisation/Sterilisation
- Autoclave cycles: 121°C (250°F), 30 min, 5* cycles.
- Chemical sanitisation: Nylon does not tolerate aggressive chemical sanitisation protocols. Nylon membrane cartridges are best sanitised with 1% hydrogen peroxide or 1% hydrogen peroxide and peracetic acid. Follow the manufacturer’s instructions for use on nylon filter devices. Microcap™ PNY capsules are not to be used in steam.
- Pre-Sterilised: PNY capsules are offered in both non- and pre-sterilised forms.

Flow Rate
The following table represents typical water flow of a one psi (68°F) pressure differential across a single 2 inch capsule with 1.0 ft² (0.093 m²) of media with 1/2” NPT ports. The test fluid is water at ambient temperature. Higher pressures drops are acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

<table>
<thead>
<tr>
<th>Length</th>
<th>QPM</th>
<th>LPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0.14</td>
<td>0.53</td>
</tr>
<tr>
<td>10</td>
<td>0.25</td>
<td>0.95</td>
</tr>
<tr>
<td>20</td>
<td>0.43</td>
<td>1.63</td>
</tr>
<tr>
<td>30</td>
<td>0.60</td>
<td>2.27</td>
</tr>
</tbody>
</table>

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

Maximum Operating Parameters
- Liquid operational pressure: 5.9bar (85psi) at 20°C (68°F)
- Gas operational pressure: 4.1bar (60psi) at 20°C (68°F)
- Operating temperature: 110°F (43°C) at 30psi (2.1 bar) in water.
- Reverse differential pressure: 2.7bar (40psi) at 20°C (68°F)

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

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infoIN@porvairfiltration.com
Last chance filters perform a complimentary role to main system filters. These are designed to remove and retain contamination such as machining chips, burrs, wear debris and fluid breakdown products induced during operation or built in downstream of the main system filters.

This range of filters, all designed to specific performance and installation requirements, are available in the following media configurations:

- Sinterflo® F sintered metal fibre
- Sinterflo® P sintered metal powder
- Sinterflo® M metal mesh
- Sinterflo® MC sintered metal mesh composite
- Laser drilled
- Polymers: polypropylene, acetal, peek, nylon, PTFE

Inprinta® is the inkjet sales division of Porvair Filtration Group. Inprinta® designs and manufactures a wide range of inline and last chance filters to offer solutions for inkjet filtration throughout the body of the printer.

These self-contained filter assemblies are provided for varied types of inkjet applications including CIJ coding, textile, ceramics and graphics.
A comprehensive range of filters are designed for complete system protection. These include metal mesh filter discs, available in both pleated and flat versions, to suit specific application requirements.

The metal mesh filter discs are designed and manufactured to provide filtration protection in liquid and gas flow systems.

These cost-effective mesh filter discs provide a significant increase in filtration area for a similar installation.

These lightweight stainless steel filter discs are capable of operating with a variety of fluids at temperatures from -270-450°C (-454-842ºF), and with differential pressures up to 3 bar (43 psi).

Metal mesh filters are available in two distinct types, rimmed and unrimmed.

Typical applications include spin pack filters used in the manufacture of man-made polymer fibre materials for textile products.

**Typical Applications**
- Liquid filtration
- Air filtration
- Hydraulics
- Spin pack filters

**Features and Benefits**
- Low pressure drop
- Easily cleanable
- High operating temperatures

**Ordering Information**
For ordering information please contact a member of the sales team.

---

A comprehensive range of fibre disc filters for complete system protection in both gaseous and liquid applications. These can be supplied in either flat or pleated versions to suit requirements.

Inexpensive flat discs are suited to applications where space is a premium, and where limited contaminant is expected.

For systems where a larger filtration area or lower pressure drop is required, but still within a limited footprint, we offer a pleated disc. Both designs are available with or without a sealing rim and in a comprehensive range of filtration ratings to suit a variety of operating conditions.

Typical applications include spin pack filters used in the manufacture of man made polymer fibre materials for textile products.

**Typical Applications**
- Liquid filtration
- Air filtration
- Hydraulics
- Spin pack filters

**Features and Benefits**
- Low pressure drop
- Easily cleanable
- Wide range of operating temperatures
- Variety of filtration ratings available
- Lightweight and robust construction
- Suitable for gaseous and liquid applications

**Ordering Information**
For ordering information please contact a member of the sales team.
Metal Powder Filter Discs

Flat Discs

A wide range of metal powder filter discs are available in diameters from 0.5mm (0.02”) to over 203mm (8”) with a wide range of thicknesses. Powder metallurgy techniques are used to produce porous discs with interconnected porosity and densities ranging from 33% to 75%. The porosity of the disc consists of a wide pore size distribution centred around a mean pore size. Porous sintered metal discs are available in 15 different standard micron grades with pore sizes ranging from a 0.003 to 200 micrometres. Disc sizes and tolerances are dependent on the material, micron grade and the density requirements.

Typical Applications
- Liquid and gas filtration
- Frits
- Pressure snubbers
- Aerators
- Support for chromatography columns
- Base components or assemblies

Features and Benefits
- Low pressure drop
- Easily cleanable
- High operating temperatures

Ordering Information
For ordering information please contact a member of the sales team.

In-Line Elements and Screens

To enhance performance capabilities, we produce a vast range of tubular last chance filters and screens.

Designed to be fully integrated into customer systems, these filters are manufactured using a number of techniques including micro resistance welding, fusion welding, laser drilling and injection moulding. These elements are designed for long on-stream life and can be designed and constructed to withstand full system pressure.

Materials of construction
- Stainless steel or nickel-based alloys
- Sinterflo® F sintered metal fibre
- Sinterflo® P sintered metal powder
- Sinterflo® M metal mesh

Features and Benefits
- Available in pleated or cylindrical element designs
- Variety of filtration ratings available to suit a wide range of applications

Ordering Information
For ordering information please contact a member of the sales team.
Final Ink Filters

A final, or last chance, filter is manufactured from stainless steel and is 100% chemically compatible to volatile inkjet materials.

This fully welded filter gives excellent structural integrity for the filter mesh and effective removal of any remaining contaminants before they reach the printhead.

Ordering Information

Product Code: 8069

Table 1

<table>
<thead>
<tr>
<th>Micron Rating</th>
<th>Filter Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5µm</td>
<td>8069</td>
</tr>
<tr>
<td>1.0µm</td>
<td></td>
</tr>
<tr>
<td>2.5µm</td>
<td></td>
</tr>
<tr>
<td>5.0µm</td>
<td></td>
</tr>
</tbody>
</table>

Typical Applications

- Inkjet

Specifications

Filter Code
8069

Materials of Manufacture
Filter media: Stainless steel mesh
Housing material: Stainless steel

Micron Rating
5µm, 15µm, 25µm, 40µm

Dimensions
Filter length: 50mm (1.98")
Filter width: 12mm (0.47")

Filter Area
1.9cm² (0.29in²)

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0ºC to 50ºC (32ºF to 122ºF)

In-Line Filters

For the Printing Industry

A small in-line filter manufactured for digital inkjet printers.

The stainless steel construction provides a filter with low extractables and 100% compatibility with all inkjet fluids to ensure an extended life span.

Ordering Information

Product Code: 8073

Specifications

Filter Code
8073

Materials of Manufacture
Filter media: Stainless steel mesh
Housing material: Stainless steel

Micron Rating
10µm

Dimensions
Filter length: 35mm (1.38")
Filter width: 8mm (0.31")

Filter Area
7cm² (1.13in²)

Connectors
2.6mm O/D barb

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0ºC to 50ºC (32ºF to 122ºF)
Pleated Unrimmed Disc Filters

A small unrimmed stainless steel disc filter is designed for use on inkjet printers.

A fully welded self-contained filter with an integrated mesh media in a range of micron ratings. Complete chemical compatibility gives the filter an extended life span.

Ordering Information

| Product Code: 8071 - 01 - | Table 1 |
|---------------------------|--|---|
| Micron Ratings            |     |
| 0002B                     | 2µm|   |
| 0005B                     | 5µm|   |
| 0010B                     | 10µm|  |
| 0020B                     | 20µm|  |

**Specifications**

- **Filter Code**: 8071
- **Materials of Manufacture**
  - Filter media: Stainless steel mesh
  - Housing material: Stainless steel
- **Micron Rating**: 2µm, 5µm, 10µm, 20µm
- **Dimensions**
  - Disc diameter: 9.5mm (0.37”)
  - Disc width: 2.2mm (0.08”)
- **Filter Area**: 1.1cm² (0.17in²)
- **Maximum Operating Pressure**: 6bar (87psi)
- **Operating Temperature**: From 0ºC to 50ºC (32ºF to 122ºF)

Microdisc™ 3SS 30mm Stainless Steel Disc Filters

A stainless steel in-line filter is designed to meet all digital inkjet requirements.

Superior filtration integrity is achieved through a fully welded housing incorporating a stainless steel mesh filter. Full chemical compatibility gives the filter an extended life span.

Ordering Information

<table>
<thead>
<tr>
<th>Product Code: 8067 -</th>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectors</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>2.6mm O/D barb</td>
</tr>
<tr>
<td>22</td>
<td>4.9mm O/D barb</td>
</tr>
</tbody>
</table>

**Specifications**

- **Filter Code**: 8067
- **Materials of Manufacture**
  - Filter media: Stainless steel mesh
  - Housing material: Stainless steel
- **Micron Rating**: 5µm, 10µm, 20µm
- **Dimensions**
  - Disc diameter: 30mm (1.18”)
  - Disc width: 22mm (0.87”)
- **Filter Area**: 5cm² (0.77in²)
- **Connectors**
  - Barb: 2.6mm O/D barb
  - 4.9mm O/D barb
- **Maximum Operating Pressure**: 6.5bar (94psi)
- **Operating Temperature**: From 0ºC to 50ºC (32ºF to 122ºF)
**Microdisc™ 4SS**

47mm Stainless Steel Disc Filters

A stainless steel in-line filter, designed for graphics printers and fully welded for complete filtration integrity.

With excellent flow rates, this filter is 100% chemically compatible with all inkjet fluids giving an extended life span and reduced printer service requirements.

### Ordering Information

<table>
<thead>
<tr>
<th>Product Code: 8077</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>2.6mm O/D barb</td>
</tr>
<tr>
<td>22</td>
<td>4.9mm O/D barb</td>
</tr>
<tr>
<td>33</td>
<td>3mm Jaco®</td>
</tr>
<tr>
<td>44</td>
<td>6.3mm O/D barb</td>
</tr>
<tr>
<td>66</td>
<td>¼&quot; NPT</td>
</tr>
</tbody>
</table>

**Table 2** Micron Ratings

<table>
<thead>
<tr>
<th>Micron Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3µm</td>
<td>B: Stainless steel 316</td>
</tr>
</tbody>
</table>

**Table 1** Connectors

- 2.6mm O/D barb
- 4.9mm O/D barb
- 3mm Jaco®
- 6.3mm O/D barb
- ¼" NPT

**Table 2** Filter Media

- B: Stainless steel 316

**Specifications**

**Filter Code**

8077

**Materials of Manufacture**

Filter media: Stainless steel mesh
Housing material: Stainless steel

**Micron Rating**

5µm, 10µm, 20µm

**Dimensions**

Disc diameter: 47mm (1.85"
Disc width: 30mm (1.18"

**Filter Area**

13cm² (2.01in²)

**Connectors**

Barb:
- 2.6mm O/D barb
- 4.9mm O/D barb
- 6.3mm O/D barb

Jaco®:
- 3mm

NPT:
- ¼"

**Maximum Operating Pressure**

5bar (72.5psi)

**Operating Temperature**

From 0°C to 50°C (32°F to 122°F)

---

**Grid Filters and O-Rings**

A small pre-head filter is manufactured from stainless steel mesh. This filter comes complete with a compatible O-ring and is designed as a last chance filter, giving excellent protection to the printhead.

### Ordering Information

<table>
<thead>
<tr>
<th>Product Code: 8156</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0003</td>
<td>3µm</td>
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<tr>
<td>0005</td>
<td>5µm</td>
</tr>
<tr>
<td>0010</td>
<td>10µm</td>
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</tbody>
</table>

**Table 2** Micron Ratings

<table>
<thead>
<tr>
<th>Nominal for Mesh</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3µm</td>
</tr>
</tbody>
</table>

**Specifications**

**Filter Code**

8156

**Materials of Manufacture**

Filter media: Stainless steel mesh

**Micron Rating**

See ordering guide

**Dimensions**

Disc diameter: 23mm (0.9"
Disc width: 2mm (0.08"

**Filter Area**

4.2cm² (0.65in²)

**Connectors**

Barb:
- 2.6mm O/D barb
- 4.9mm O/D barb
- 6.5mm O/D barb

Jaco®:
- 3mm

NPT:
- ¼"

**Maximum Operating Pressure**

5bar (72.5psi)

**Operating Temperature**

From 0°C to 50°C (32°F to 122°F)
In applications where the filter assembly is to be fitted for life, or when it is not practical to handle the filter after use, we can supply fully welded assemblies for direct installation into various systems. These are available in both metallic and polymeric forms, depending upon the system requirement.

In many applications the filter discs or tubular inserts are supplied fully integrated into a miniature housing, which forms part of the customer’s system, allowing easy replacement of the filter. Filters can be integrated within a variety of standard industry fittings. Housings can be made from a variety of materials including aluminium alloy, stainless steel, titanium and engineering thermoplastics.

**Typical Applications**
- Hydraulics
- Pneumatics
- Oil and lubrication systems
- Fuel systems
- Printing inks

**Features and Benefits**
- Available in pleated or cylindrical element designs
- Variety of filtration ratings available to suit a wide range of applications
- Variety of end fittings available including threaded and push-fit barbed connectors

**Ordering Information**
For ordering information please contact a member of the sales team.

---

**Last Chance Filters**

This filter is manufactured in black acetal and designed to be used on inkjet equipment in conjunction with an *Inprinta*® main (capsule) filter.

Situated close to the printhead, this filter is designed to capture any particles before damage can be caused to the printhead. This filter is 100% chemically compatible to all inkjet fluids giving an extended life span.

**Typical Applications**
- Inkjet

**Specifications**

**Filter Code**
8087

**Materials of Manufacture**
- Filter media: Stainless steel mesh
- Housing material: Acetal

**Micron Rating**
- 3µm
- 5µm
- 50µm

**Dimensions**
- Filter length: 21mm (0.83")
- Filter width: 8mm (0.31")
- Filter Area: 12cm² (1.86in²)

**Connectors**
- 2.6mm barb

**Maximum Operating Pressure**
- 1bar (14.5psi)

**Operating Temperature**
- From 0ºC to 50ºC (32ºF to 122ºF)
Air filters with a hydrophobic filter membrane act as a barrier to all contaminants.

**Ordering Information**

**Product Code:** 8163

**Specifications**

**Filter Code**
8163

**Materials of Manufacture**
Filter media: PTFE
Housing material: Polypropylene

**Micron Rating**
0.2µm

**Dimensions**
Disc diameter: 15mm (0.59”)
Disc width: 16mm (0.62”)

**Connectors**
Female luer / male syringe

**Maximum Operating Pressure**
5bar (72.5psi)

**Operating Temperature**
From 0ºC to 50ºC (32ºF to 122ºF)

**Typical Applications**
- Inkjet
Microdisc™ 3PS
33mm Polymeric In-Line Disc Filters

A filter of superior quality and design, the 33mm in-line disc filter is manufactured to the highest specifications for the super-wide format graphics market.

This filter specific self-contained unit is designed around an all Acetal or construction and is available in standard white housing, or black housing for UV applications.

Ultrasonically welded with no binding agents for low extractables, the filter ensures complete compatibility with inksolvents. The inner mesh ensures precise filter specification to the required absolute micron rating.

Ordering Information

<table>
<thead>
<tr>
<th>Product Code: 8159</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1 Connectors</td>
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<tr>
<td>22</td>
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<tr>
<td>Table 2 Micron Ratings</td>
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<td>0020B</td>
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<tr>
<td>0050B</td>
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<tr>
<td>Table 3 Housings</td>
</tr>
<tr>
<td>12</td>
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<tr>
<td>13</td>
</tr>
</tbody>
</table>

Typical Applications
- Inkjet

Specifications
- Filter Code: 8159
- Materials of Manufacture: Stainless steel mesh
- Housing material: Acetal
- Housing colour: White or black
- Micron Rating: 5µm, 10µm, 20µm, 50µm
- Dimensions: Disc diameter: 33mm (1.3”); Disc width: 8mm (0.31”); Overall width: Connector dependant
- Filter Area: 12.5cm² (1.94in²)
- Connectors: Jaco®, Female luer
- Maximum Operating Pressure: 5bar (72.5psi)
- Operating Temperature: From 0ºC to 50ºC (32ºF to 122ºF)

Microdisc™ 4PS
45mm Polymeric Standard Disc Filters

A filter of superior quality and design, the 45mm in-line disc filter is manufactured to the highest specifications for the super-wide format graphics market.

Ultrasonically welded with no binding agents for low extractables, the filter ensures complete compatibility with inkjet solvents. The inner mesh ensures precise filter specification to the required absolute micron rating.

Ordering Information

<table>
<thead>
<tr>
<th>Product Code: 8111</th>
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<tbody>
<tr>
<td>Table 1 Connectors</td>
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<td>0050B</td>
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<td>Table 3 Housings</td>
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<tr>
<td>22</td>
</tr>
<tr>
<td>33</td>
</tr>
</tbody>
</table>

Typical Applications
- Inkjet

Specifications
- Filter Code: 8111
- Materials of Manufacture: Stainless steel mesh
- Housing material: Acetal
- Housing colour: White or black
- Micron Rating: 5µm, 10µm, 20µm, 50µm
- Dimensions: Disc diameter: 45mm (1.77”); Disc width: 9mm (0.35”); Overall width: Connector dependant
- Filter Area: 12.5cm² (1.94in²)
- Connectors: Luer and CPC
- Maximum Operating Pressure: 5bar (72.5psi)
- Operating Temperature: From 0ºC to 50ºC (32ºF to 122ºF)
Inprinta’s black acetal pre-pump filter is manufactured specifically for use with Digital Inkjet equipment.

The high-grade materials give good flow rates and complete chemical compatibility under all required conditions for extended life span.

**Ordering Information**

**Typical Applications**
- Inkjet

**Specifications**

- **Filter Code**: 8074
- **Materials of Manufacture**:
  - Filter media: Stainless steel mesh
  - Housing material: Acetal
- **Micron Rating**: 5µm, 10µm, 15µm, 20µm, 50µm
- **Dimensions**:
  - Disc diameter: 45mm (1.77”)
  - Disc width: 37mm (1.46”)
- **Filter Area**: 12.5cm² (1.94in²)
- **Connectors**:
  - ¼” Jaco® and 6mm Jaco®
- **Maximum Operating Pressure**: 5bar (72.5psi)
- **Operating Temperature**:
  - From 0°C to 50°C (32°F to 122°F)

*Other micron ratings available, up to 250 micron.*
In-Line Porous Plastic Filter

A fully integrated polypropylene filter media precision manufactured into a polypropylene housing.

This in-line porous plastic filter has excellent chemical compatibility to inkjet fluids. The high efficiency filters give long service life and are bonded for minimal extractables.

Ordering Information

<table>
<thead>
<tr>
<th>Product Codes</th>
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<th>8098</th>
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<tbody>
<tr>
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<td>3µm, 5µm</td>
</tr>
<tr>
<td>Table 1</td>
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<tr>
<td>Table 2</td>
<td>Tube Fitting</td>
<td>Natural</td>
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<td>1</td>
<td>Slip taper</td>
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</tr>
<tr>
<td>2</td>
<td>Barbed</td>
<td></td>
</tr>
</tbody>
</table>

Typical Applications

• Inkjet

Specifications

Filter Code
6122

Materials of Manufacture
Filter media: Polypropylene
Housing material: Polypropylene

Micron Rating
5µm, 10µm

Dimensions
Filter length: 61mm (2.4")
Filter width: 11mm (0.43")

Connectors
Slip taper

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0ºC to 50ºC (32ºF to 122ºF)

In-Line Filters

PEEK

This filter is an inkjet in-line filter manufactured from PEEK material and a stainless steel mesh. These materials make it a superior product with extended life in your inkjet printer. Available in black and natural colours.

Ordering Information

<table>
<thead>
<tr>
<th>Product Code</th>
<th>8098</th>
<th>6122</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micron Rating</td>
<td>3µm, 5µm</td>
<td></td>
</tr>
<tr>
<td>Table 1</td>
<td></td>
<td></td>
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<tr>
<td>Table 2</td>
<td>Colour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Natural</td>
<td></td>
</tr>
</tbody>
</table>

Typical Applications

• Inkjet

Specifications

Filter Code
8098

Materials of Manufacture
Filter media: Stainless steel mesh
Housing material: PEEK
Housing Colour: Natural

Micron Rating
3µm, 5µm

Dimensions
Filter length: 44mm (1.73")
Filter width: 15mm (0.59")

Connectors
3mm Jaco®

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0ºC to 50ºC (32ºF to 122ºF)
Porvair manufactures a wide range of high purity porous media and reliable, high efficiency filtration products for both gas and liquid applications.

Gas Handling
The GasPro™ range of products ensure extreme cleanliness in critical semiconductor and microelectronics gas handling and delivery applications, including:
- Gas safety management
- Exhaust venting systems
- Flow control
- Mass flow control
- Needle valve replacement
- Laminar flow diffusing
- Pressure isolating

High Purity Chemical Filtration
Our LiquiPro™ range focuses on the delivering improved performance within the semiconductor industries, by reducing process defects and to achieve an increased lifespan of the filter. The products are suitable for the following applications:
- CMP
- PVD copper plating
- Wet etch clean
- Photolitho
- Chemical delivery system
- General filtration
- Final cleaning and DI water filtration
- Plating, etching, stripper chemicals
- Chemicals of acids, bases and solvents (selected applications)
- Engineering or equipment companies requiring cartridge housings.
Porvair’s GasPro™ high purity gas filtration products are optimized for the protection of critical valves, pressure regulators, mass flow controllers and other gas panel components used in microelectronics gas delivery equipment.

GasPro™ cleanroom-packaged compact gasket filters are designed to handle high pressure (up to 100psig@68°F (20°C)) and high temperature (850°F (455°C)), safeguarding critical components against particle damage. These install into ¼" face vacuum seal (VCR®) fittings.

**Typical Applications**
- Microelectronics gas delivery equipment
- Protection of silicon precursor delivery pumps and componentry
- Protection of gas panel components, including valves and regulators

**Features and Benefits**
- Compact, in-line design
- Suitable for retrofitting into gas panels without changing the overall gas panel footprint.
- Economical
  - No filter housing is required.
- Removal ratings
  - PP-95% efficiency at 0.4μm.
- Robust construction
  - Gaskets have a 10Ra surface finish. Porous sintered powder metal filters are available in 316L stainless steel.
- Service in severe environments
  - Excellent compatibility with a wide range of processing gases. Superior mechanical strength for high pressure (100psig@68°F (20°C)) and elevated temperature resistance (850°F (455°C)) for inert gas applications.

**Ordering Information**
For ordering information please contact a member of the sales team.

---

High purity Sinterflo® P sintered powder metal media for OEM filters is used in critical Semiconductor and other Microelectronics gas handling applications. The GasPro™ porous Sinterflo-P sintered powder metal filter media consists of a rigid, 3-dimensional network of extremely fine pores. These high efficiency filters are offered in 316L stainless steel and nickel media.

The filter media will withstand a pressure differential of 68bar (1000psi). The mechanical strength of the 316L stainless steel filter housings will provide reliable service for over 100,000 cycles in high pressure service (up to 206.8bar [3000 psig] at 20°C (68°F), subject to CE marking approval).

GasPro™ high purity filter welding is performed in an ultra-high purity inert atmosphere to ensure the best weld quality. All filters are 100% integrity tested. 100% helium leak checked, cleaned and dried, then double bagged in a Class 100 Cleanroom to ensure the highest out-of-box quality and cleanliness.

**Typical Applications**
- Semiconductor and other microelectronics gas distribution applications
- Semiconductor point-of-use process filtration

**Features and Benefits**
- Superior filter efficiency
  - Porous sintered powder metal point-of-use filters are proven to provide greater than 9 LRV (99.9999999%) particle retention efficiency at 0.003μm (3 nanometres), and at the most penetrating particle size of 0.08μm per SEMI F38-0699 in gas filtration applications.
- Service in severe environments
  - Porous Sinterflo® P sintered powder metal media provides excellent mechanical strength, enhanced corrosion resistance and elevated temperature service in challenging environments.
- Temperature resistance
  - The all 316L stainless steel or nickel construction provides elevated temperature service up to 500°C (930°F) in reducing or inert gas applications.
- Corrosion resistance
  - Our GasPro™ point-of-use filter hardware features Sls® electro polished surfaces to prevent corrosion and particle formation for reliable service. Robust construction and excellent corrosion resistance allow for service in a wide range of etch and CVD processing gases.

**Ordering Information**
For ordering information please contact a member of the sales team.
GasPro™ High Purity Sinterflo® F Metal Fibre and Photovoltaic Filters

High purity Sinterflo® F sintered fibre metal media is used in critical Semiconductor, Photovoltaic and other Microelectronics gas handling applications.

GasPro™ high purity filter welding is performed in an ultra-high purity inert atmosphere to ensure the best weld quality. All filters are 100% helium leak checked, 100% integrity tested, cleaned and dried, then bagged in a cleanroom to ensure the highest out-of-box quality and cleanliness.

Typical Applications
- Semiconductor, photovoltaic, and other microelectronics gas handling applications
- Competitive filter replacements

Features and Benefits
- Superior filter efficiency
  Porous sintered metal fibres filters are proven to provide highly efficient particle retention efficiency at 0.003μm (3 nanometres), tested and verified at the most penetrating particle size of 0.08μm.
- Service in severe environments
  Porous Sinterflo® F-sintered fibre metal media provides excellent mechanical strength, enhanced corrosion resistance, and elevated temperature service operation.
- Corrosion resistance
  Our GasPro™ point-of-use filter hardware features electro polished surfaces to prevent corrosion and particle formation for reliable service. Robust construction and excellent corrosion resistance allow for service in a wide range of etching and CVD processing gases.

Ordering Information
For ordering information please contact a member of the sales team.

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GasPro™ High Purity PTFE Filters

High purity PTFE filters are used in critical Semiconductor and Microelectronics gas handling applications.

GasPro™ TEM filters, with a hydrophobic PTFE membrane, are ideal for applications that require the highest gas compatibility. PFA, FEP, or PTFE membrane supports provide the highest degree of cleanliness and gas compatibility while polypropylene supported PTFE is available for high purity inert gas and CDA applications.

These filters offer an outstanding cost-flux rate value compared to all-metal filters, maintaining High 3nm particle removal efficiency.

Manufacturing is done in a cleanroom using ISO 9001 Certified Quality System. A DI water flush, followed by a high pressure, 0.003μm filtered nitrogen flush removes particles and prevents particle shedding. Filters are vacuum dried to ppb out-of-box moisture levels. All filters are 100% helium leak checked, 100% integrity tested, cleaned and dried, then bagged in a cleanroom to ensure the highest out-of-box quality and cleanliness.

Typical Applications
- Semiconductor, flat panel display, photovoltaic, and other microelectronics gas handling applications

Features and Benefits
- Superior filter efficiency
  Tested to provide particle retention efficiency at 0.003μm (3 nanometres) in gas filtration applications.
- Service environment
  Media provides excellent permeability and chemical resistance. The assemblies have an electro polished 316L stainless steel housing and a temperature resistance up to 100°C (212°F) in reducing or inert gas applications.
- Corrosion resistance
  Point-of-use filter hardware features 10Ra, electro polished surfaces to improve corrosion resistance and reduce particle formation for long reliable service.
- Cleanliness
  Point-of-use filters are manufactured in a cleanroom with organic free handling and bagging to maximise the out-of-package cleanliness.
- Best in class quality
  100% integrity tested and helium leak checked to 1 x 10^-9 atm cc/sec.

Ordering Information
For ordering information please contact a member of the sales team.
GasPro™
Sintered Metal Flow Restrictors

Sintered metal flow restrictors are manufactured with hundreds of small, micron sized passageways. These are flow limiting devices used to provide highly accurate flow rates and prevent an uncontrolled flow of high purity semiconductor process gases.

Installed into compressed gas supply systems, or in gas distribution manifolds, to provide highly controlled gas flow rates. These restrictors are highly reliable, low cost, flow control parts that will provide a quick return.

Typical Applications
- Improved gas safety management
  RFPs are in-line devices that precisely limit the gas flow in case of catastrophic failure of a valve, pressure regulator, distribution manifold or gas supply line. For use in a wide range of inert, highly toxic and pyrophoric gases to reduce the handling risk.
- Cost reduction of exhaust venting systems
  Toxic gas delivery systems with RFPs installed can be designed with smaller, lower flow exhaust systems therefore saving significant capital investment.
- Tamper proof flow control
  For providing fixed flow without the requirement of adjustments, moving parts or power. With hundreds of small flow channels, these restrictors will resist clogging from particles in the gas supply.
- Replacement of needle valves and mass flow controllers
  For fixed pressure, steady flow gas delivery and flow splitting applications.
- Laminar flow diffusers
  For low velocity gas pressurisation or venting of vacuum chambers.
- Pressure snubbers
  For the prevention of pressure surges and pressure shock.
- Flame arrestors
  For creating a barrier to flames travelling in a combustible gas service. Can be certified by independent lab testing.

Ordering Information
For ordering information please contact a member of the sales team.

Features and Benefits
- Semiconductor industry, building and fire code compliance
  RFPs can assist in complying with SEMI S5-0310 Safety Guidelines for sizing and identifying flow limiting devices for gas cylinder valves, NFPA 318 Standard for Protection of Semiconductor Fabrication Facilities, CGA G-13 Storage and Handling of Silane and other gas safety standards.
- Porous materials of construction
  316L stainless steel, nickel, Hastelloy® C22, Hastelloy® C276 and other temperature and corrosion resistant materials.
- Fitting connections
  10Ra or better, electropolished hardware made from 316L stainless steel VAR, nickel, Hastelloy® C22, Hastelloy® C276 and other temperature and corrosion resistant materials.
- Flow range
  1 to 60,000scm N2 @ 30psig equivalent, calibrated to +/-7.5% flow tolerance typically, but can be offered as low as +/-1% on request. Standard products can be used in a full vacuum and in pressures up to 150psig. Custom designed products can be manufactured to withstand pressures up to 3000psig subject to CE marking approval.
- Test gases
  Clean dry air, nitrogen, hydrogen, helium, argon and CO₂ are commonly used. Other gases such as AsH₃, Br₂, BF₃, CCl₄, C₂H₂, CH₄, NF₃, NH₃, P₂ and SF₆ can be correlated to an equivalent N₂ flow using viscosity conversions.
- Class 100 cleanroom processing
  Particle free, chemically clean, organic free handling and bagging of RFPs for out-of-package cleanliness.
- Manufactured in the USA
  Our restrictive flow products are manufactured in the USA using an ISO 9001 certified quality system.

Contact Information:
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Tel: +91 22 5 976646 / 65
infoIN@porvairfiltration.com
LiquiPro™ BU

High Purity Hydrophilic PES Membrane Filters

LiquiPro™ BU is a superior advanced duo-retention filtration mechanism for dilute high flow and BOE cleaning applications. Final assembly is purged with filtered nitrogen for initial cleanliness. A variety of end fittings are offered for easy installation.

Features and Benefits
- Optimized highly asymmetric polyethersulfone (HAPES) high flow, low pressure drop membrane provides sieving and absorption particle retention mechanisms down to 50nm.
- LiquiPro™ BU filter is hydrophilic and can be used without pre-wetting to maximize process up-time.
- LiquiPro™ BU eliminates pre-wetting and micro-bubbles to reduce downtime. Manufactured from HAPES membrane which has superior wetting properties compared with polyethylene. If spontaneously wet, it remains fully wet and eliminates micro-bubble generation which is critical for advanced node processing.
- Fast rinse up time as filters have been pre-flushed with Ultrapure DI water (18.2 Megaohm-cm, TOC less than 100 ppb).
- Certificate of quality enclosed with each product lot for quality assurance that ensures filter-to-filter and lot-to-lot performance. Manufactured in clean room environment.

Typical Applications
- BOE (Buffered-Oxide Etch) and DI/De HF recirculation bath applications.
- Megasonic cleaning DIHF, NH4OH filtration.
- CDI Water cleaning application in semiconductor water fabs.

Performance Specifications

Flow Rates: LiquiPro™ BU

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pore size rating</td>
<td>0.03, 0.05, 0.1, 0.2, 0.45 and 1.0μm</td>
</tr>
<tr>
<td>Maximum differential pressure:</td>
<td>5.2bar (75.4psi) @ 25°C (77°F)</td>
</tr>
<tr>
<td>1.9bar (27.5psi) @ 80°C (176°F)</td>
<td></td>
</tr>
</tbody>
</table>

Compatibility and purity
Filters do not use any binders, surfactants and adhesives for broad usage compatibilities. Only HAPES membrane and 100% virgin polypropylene.

Materials of construction
Filter media: Highly asymmetric polyethersulfone (HAPES) hydrophilic membrane
Support: Polypropylene (PP)
End caps, core, cage: Polypropylene (PP)
O-rings: EPDM, FKM, E-FKM, F-FKM.

Flow Rates: LiquiPro™ BUH

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Code-A</th>
<th>Code-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>10in (Dia 80mm)</td>
<td>Code A = 240mm +/- 2</td>
<td>Code M = 254mm +/- 2 default. Customer to specify length</td>
</tr>
<tr>
<td>20in (Dia 69mm)</td>
<td>Code A = 506mm +/- 4</td>
<td>Code M = 508mm +/- 2 default. Customer to specify length</td>
</tr>
<tr>
<td>30in (Dia 69mm)</td>
<td>Code A = 750mm +/- 4</td>
<td></td>
</tr>
<tr>
<td>40in (Dia 69mm)</td>
<td>Code A = 122mm +/- 2</td>
<td></td>
</tr>
</tbody>
</table>

Ordering Information
To form a part number, please chose one option from each column below.

Product Name | Micron Rating | Adaptor Code | Seals | Cleanliness | Length | Key Option |
--------------|---------------|--------------|-------|-------------|--------|------------|
BU            | 003: 0.03μm   | A: 222/F     | E-FKM | E-Grade     | 4in    | K: EZ key compatible to use with alternative cartridge housing |
BUH           | 005: 0.05μm   | A: 240/F     | EPDM  | E-Grade     | 10in   |            |
BUH           | 010: 0.1μm    | A: 266/F     | F-FKM | Ultra High Purity (< 40 ppb) | 20in   |            |
BUH           | 020: 0.2μm    | A: 406/F     | E-FKM | E-Grade     | 30in   |            |
BUH           | 045: 0.45μm   | A: 506/F     | EPDM  | E-Grade     | 40in   |            |
LiquiPro™ CO is a highly hydrophilic, high flow PTFE membrane with excellent particle removal and low extractables for electro-copper plating applications. Final assembly is purged with filtered nitrogen for initial cleanliness. A variety of end fittings are offered for easy installation. LiquiPro™ CO is specially designed for LAM SABRE SCD Tools.

**Features and Benefits**

- LiquiPro™ CO is highly effective and economical in electro-copper plating applications. The proprietary PTFE membrane is non-interactive with plating chemistry. The E-grade extraction treatment ensures an extremely low level of organics and metallic contamination control to prevent pitting or poor adhesion. A high purity performance and reliable Cu plating processes is assured.
- The optimised PTFE high-flow, low pressure drop membrane provides sieving particle retention mechanisms.
- The highly hydrophilic surface can be used without prewetting to maximise process uptime, whilst reducing the potential for micro-bubble generation, in order to prevent streaks and other related defects.
- Certificate of quality enclosed with each product lot for quality assurance that ensures filter-to-filter and lot-to-lot performance.
- Fast rinse-up time as filters have been pre-flushed with Ultrapure DI water (>18.2 Megaohm-cm, TOC less than 50 ppb).

**Typical Applications**

- Electro-copper plating filtration.

**Performance Specifications**

- **Pore size rating**: 0.1, 0.05μm
- **Maximum differential pressure**: 4.9bar (71.1psi) @ 25°C (77°F)
  2.2bar (31.9psi) @ 80°C (176°F)

**Compatibility and purity**

Filters do not use any binders, surfactants and adhesives for broad usage compatibilities. Only 100% high purity virgin polypropylene is used.

**Materials of construction**

- **Filter media**: PTFE hydrophilic membrane
- **Support**: Polypropylene (PP)
- **End caps, core, cage**: Polypropylene (PP)
- **O-rings**: EPDM, FKM, E-FKM

**Ordering Information**

To form a part number, please chose one option from each column below.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Micron Rating</th>
<th>Adapter Code</th>
<th>Seals</th>
<th>Cleanliness</th>
<th>Length</th>
<th>Key Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>0.05μm</td>
<td>A: 222/flat</td>
<td>E-FKM</td>
<td>E-Grade</td>
<td>10in</td>
<td>EZ</td>
</tr>
<tr>
<td>COH</td>
<td>0.1μm</td>
<td>UH: Ultra High Purity (&lt;40 ppb)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Flow rate is for a 25.4 cm (10 in) cartridge. For liquids other than water, multiply differential pressure by fluid viscosity (cP).
LiquiPro™ F2 are superior pleated PTFE membrane filters with PFA support for chemical inertness across a broad range of microelectronics process chemical applications.

Final assembly is purged with filtered nitrogen for initial cleanliness. A variety of end fittings are offered for easy installation.

Superior advanced duo-retention filtration mechanisms for dilute HF and BOE cleaning, high purity application filters manufactured in a clean room environment.

Fast rinse-up time as filters have been pre-flushed with UltraPure DI water (18.2 Megaohm-cm, TOC less than 50ppb).

Features and Benefits
- Optimised 80-95% porosity, uniform pore size distribution and filtration area with low pressure drop, high flow rate and long service life.
- Manufactured without the use of additives, surface modification agents or post-treatments, to ensure purity performance is not compromised.
- Certificate of quality enclosed with each product lot for quality assurance that ensures filter-to-filter lot-to-lot performance.
- High purity application filters manufactured in a clean room environment.
- Fast rinse-up time as filters have been pre-flushed with UltraPure DI water (18.2 Megaohm-cm, TOC less than 50ppb).

Performance Specifications

Pore size rating
- 0.05, 0.1, 0.2, 0.45, 1, 5, 10μm

Maximum differential pressure:
- 5.0 bar (72.5 psid) @ 25°C (68°F)
- 2.0 bar (29 psid) @ 120°C (248°F)

Compatibility and purity
- Filters do not use any binders, surfactants and adhesives for broad usage compatibilities. Only 100% high purity virgin polypropylene is used.

Materials of construction
- Filter media: PTFE hydrophilic membrane
- Support: PFA
- End caps, case, cage: PFA
- O-rings: EPDM, FKM, E-FKM

AT Cartridge Dimension
- ø71.0 mm (2.8”) diameter and 10” nominal length.

Metallic Cleanliness
- <25μg per device. UltraHigh-Purity.

Maximum operating temperature
- 180°C (356°F) at the above conditions.
LiquiPro™ F3
Hydrophobic PTFE Membrane Filters

LiquiPro™ F3 is recommended for a wide range of chemical filtration. LiquiPro™ F3 series filters have enhanced cleanliness and are made of Hydrophobic PTFE membrane for high chemical inertness. Suitable for strong acidic and base solutions.

Features and Benefits
- Enhanced cleanliness from cleanroom manufacturing, cleaning technologies with on-line process QC monitoring and class 100 cleanroom packaging to achieve a cleanliness level previously only achievable with all-Teflon filters.
- Optimised high-porosity, uniform pore-size distribution, large filtration area, low pressure-drop, high flow-rate and long service life.
- LiquiPro™ F3 are made with thermal bonding of PTFE membrane with virgin grade polypropylene support and hardware without adhesives or binders.
- Certificate of quality enclosed with each product lot for quality assurance that ensures filter-to-filter, lot-to-lot performance.
- Fast rinse up time of UHP and E-Grade filters, which has been pre-flushed with UHP DI water (18.2 Megaohm-cm, TOC <10ppb).

Flow Rates: LiquiPro™ F3 Flow dP chart

Typical Applications
- Advanced water bumping, ultra-high-purity chemical manufacturing and OEM using ultra high-purity strong acidic and base solutions filtration.
- Solvent, photo chemical and DI water filtration.
- Hot DI Water < =80°C for facility or cleaning bath in semiconductor wafer fabs.
- Etch chemical applications in TFT-LCD and data storage manufacturing.
- Stripper filtration application.
- Electroless copper plating solutions.

Performance Specifications
Flow rate is for a 25.4 cm (10 in) cartridge. For liquids other than water, multiply differential pressure by fluid viscosity (cP).

Diameter         Code A Code M
4in            Code A = 127mm +/- 2 Code M = 254mm +/- 2 default. Customer to specify length
10in          Code A = 266mm +/- 2 Code M = 508mm +/- 2 default. Customer to specify length
20in          Code A = 506mm +/- 4 Code M = 508mm +/- 2 default. Customer to specify length
30in          Code A = 750mm +/- 4
10in          Code A or Code K = 240mm +/- 2
20in          Code K = 380mm +/- 2

Ordering Information
To form a part number, please choose one option from each column below.

Flow Rates: LiquiPro™ F3 Flow dP chart

Diameter         Code A Code M
4in            Code A = 127mm +/- 2 Code M = 254mm +/- 2 default. Customer to specify length
10in          Code A = 266mm +/- 2 Code M = 508mm +/- 2 default. Customer to specify length
20in          Code A = 506mm +/- 4 Code M = 508mm +/- 2 default. Customer to specify length
30in          Code A = 750mm +/- 4
10in          Code A or Code K = 240mm +/- 2
20in          Code K = 380mm +/- 2

LiquiPro™ F3 Hydrophobic PTFE Membrane Filters

Contact Information:
UK, New Milton Division
Tel: +44 (0)1425 612010
info@porvairfiltration.com

US, Ashland Division
Tel: +1 804 550 1600
infoUS@porvairfiltration.com

India, Mumbai Division
Tel: +91 22 25 97644 /65
infoIN@porvairfiltration.com
LiquiPro™ SH
Superior pleated PTFE membrane filters

LiquiPro™ SH are superior pleated PTFE (Polytetrafluoroethylene) membrane filters with PFA support for chemical inertness across a broad range of microelectronics process and chemical applications.

Features and Benefits
• Ultra Clean PFP Grade. LiquiPro™ SH all PTFE filters are manufactured from the highest purity grade PFA for support hardware, in order to achieve superior total metal extractables <30 PPB per device.
• LiquiPro™ EZ key option available and universally compatible with industry standard 2-222 filter housings.
• Ultra clean manufacturing. Assembled, cleaned, tested in class 1000 and 100 manufacturing centre.
• PFOA-Free PFOA is not used in the PFA resins or in the manufacturing process.
• 100% Successful Cartridge installation. The cartridge locking feature prevents the cartridge from falling out or being pushed out by back pressure. Vertical installation ensures that O-rings will not roll.

Typical Applications
• Chemical delivery system for the filtration of strong acid and base solutions at room temperature for semiconductor manufacturing.
• Solvent filtration.
• Aggressive chemical processes in the photovoltaic and data storage industries.

Performance Specifications
Pore size rating 0.05, 0.1, 0.2, 0.5, 1.0, 5.0, 10.0μm

Maximum differential pressure:
5.1 bar (74 psid) @ 25°C (77°F)
2.0 bar (29 psid) @ 120°C (248°F)

Compatibility and purity
Filters do not use any binders, surfactants and adhesives for broad usage compatibilities. Only 100% high purity virgin polypropylene is used.

Materials of construction

ATT Cartridge Dimension
83mm (3.25") diameter and 10" nominal length.

Metallic Cleanliness
<30μg per device. Ultra-High-Purity, Cleaner and lower than semi industry benchmark filters.

Maximum operating temperature
180°C (356°F) at the above conditions

Flow Rates: LiquiPro™ SH-ATT (0.8m²) series
Flow Rates: LiquiPro™ SH-ATM (1.8 m²) series

Ordering Information
To form a part number, please choose one option from each column below:

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Micron Rating</th>
<th>Adaptor Code</th>
<th>Seats</th>
<th>Cleanliness</th>
<th>Length</th>
<th>Key Option</th>
<th>Packing Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH</td>
<td>0.05μm</td>
<td>005</td>
<td>E</td>
<td>A</td>
<td>0.15m</td>
<td>-</td>
<td>Standard Dry</td>
</tr>
<tr>
<td>SH-ATT</td>
<td>0.1μm</td>
<td>010</td>
<td>F</td>
<td>U</td>
<td>10in</td>
<td>12 Key compatible to use with alternative cartridge housings</td>
<td></td>
</tr>
<tr>
<td>SH-ATX</td>
<td>0.2μm</td>
<td>020</td>
<td>M</td>
<td>Ultra low metal&lt; 10ppb</td>
<td>20in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH-ATM</td>
<td>0.45μm</td>
<td>045</td>
<td>N</td>
<td>Ultra high purity&lt;30ppb</td>
<td>30in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH-A TE</td>
<td>1.0μm</td>
<td>100</td>
<td>E</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Pre-wetted</td>
</tr>
</tbody>
</table>

Type Filter Area (m²) Nominal Length (in) Diameter (mm) Length (mm)
ATT 0.35 4 83.0 +/- 0.5 125.0 +/- 2
ATT 0.80 10 83.0 +/- 0.5 248.0 +/- 2
ATE 1.80 10 83.0 +/- 0.5 248.0 +/- 2
ATE 2.20 10 83.0 +/- 0.5 248.0 +/- 2

†: Available upon request. Request technical support.

*Flow rate is at 20°C, and for a 24 cm (10 in) cartridge. For liquids other than water, multiply differential pressure by fluid viscosity (cP).
LiquiPro™ FG
Gas Cartridge Filters

LiquiPro™ FG is designed to remove particles from process and bulk gas filtration for flow rates up to 7000slpm (247scfm) per 10-inch cartridge filter. Made of high quality PTFE media with low pressure drop, high flow rate and long service life.

Features and Benefits
- Proprietary expanded PTFE media used within the LiquiPro™ FG filter ensures a high-purity gas filter with a large surface area to ensure high flow rate and high dirt-holding capacity.
- Certificate of quality enclosed with each product lot for quality assurance that ensures filter-to-filter and lot-to-lot performance.
- Reuse, Reduce, Recycle. Customer may return LiquiPro™ FG for sterilization by autoclave at 121°C and re-used up to 20 times. For filter sterilization request a certificate of decontamination must be completed and signed off by the customer.
- Only for CDA, bulk and inert gas filters
- MOQ 25-100pcs preferred
- Additional flow-DP check service may be requested
- Manufactured in a facility with class 1000 and 100 clean room with ISO9000 certification to ensure high-purity performance.

Typical Applications
- Flat panel manufacturing CDA, bulk and process gas applications.
- Ultra-high-purity tank venting (to ensure sterility or contamination control).
- Advanced water level packaging.
- Photovoltaic, water, chemical and gas applications.
- Data storage industries.

Performance Specifications
- Pore size rating: 0.01, 0.02, 0.1, 0.2, 0.5, 1.0, 5.0 and 10.0 μm
- Maximum differential pressure: 4.1barr (69.69 psid) @ 20°C (68°F)
- 2.75barr (39.83 psid) @ 60°C (140°F)
- Compatibility and purity: Filters do not use any binders, surfactants and adhesives for broad usage compatibilities. Only 100% high-purity virgin polypropylene is used.
- Materials of construction: Filter media: PTFE membrane
  Support: Polypropylene
  End caps, core, cage: Polypropylene
  O-rings: EPDM, FKM and E-FKM
- Recommended change-out differential pressure: 1barr (14.5 psid)
- Maximum operating temperature: 70°C (158°F)

Flow Rates: LiquiPro™ FG

Ordering Information: LiquiPro™ FG
To form a part number, please choose one option from each column below.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Micron Rating</th>
<th>Adaptors</th>
<th>Seals</th>
<th>Cleanliness</th>
<th>Length</th>
<th>Key Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG</td>
<td>0.01μm</td>
<td>A</td>
<td>EPDM</td>
<td>- N/A</td>
<td>10in</td>
<td>- N/A</td>
</tr>
<tr>
<td>FG</td>
<td>0.02μm</td>
<td>K</td>
<td>E-FKM</td>
<td>T</td>
<td>-</td>
<td>20in</td>
</tr>
<tr>
<td>FG</td>
<td>0.1μm</td>
<td>M</td>
<td>FKM</td>
<td>V</td>
<td>-</td>
<td>20in</td>
</tr>
<tr>
<td>FG</td>
<td>0.2μm</td>
<td>N</td>
<td>EPDM</td>
<td>E-FKM</td>
<td>10in</td>
<td>- N/A</td>
</tr>
</tbody>
</table>

Diameter Code-A Code-M
10in Code A = 254mm +/- 2 Code M = 254mm +/- 2 default: 250mm avail., customer to specify length.
20in Code A = 512mm +/- 4 Code M = 508mm +/- 4 default: 500mm, 504mm avail.
Customer to specify length
LiquiPro™ DI
PES Membrane Cartridge Filters

Superior filters made of high quality PES (Polyethersulfone) membrane with low pressure drop, high flow rate and long service life for direct DI water, TMAH developer, weak acids and base solutions.

Features and Benefits
- Optimised mirrored asymmetric PES membrane structure and support materials that ensure low pressure drop, high flow rate and long service life.
- Permanent hydrophilic membrane without the use of additives, surface modification agents or post-treatments to ensure purity performance is not compromised.
- Certificate of purity enclosed with each lot of product for quality assurance that ensures filter-to-filter, lot-to-lot performance.
- High purity application filters with double-bag packaging and manufactured in clean room environment.
- 100% virgin polypropylene support material construction without the use of binders, adhesive or surfactants to ensure purity performance is not compromised.
- Fast rinse up time as filters have been pre-flushed with Ultrapure DI water (18.2 Megaohm-cm, TOC less than 40ppb).

Typical Applications
- General direct DI and recirculation DI water bath applications.
- Direct DI Water application for fat panel display manufacturing.
- Direct DI water application for solar and water bumping.
- Recommended for TMAH 2.38%

Performance Specifications

<table>
<thead>
<tr>
<th>Micron Rating</th>
<th>Adapter Code</th>
<th>Seals</th>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05µm</td>
<td>A: 222/Flat</td>
<td>EPDM</td>
<td>70mm</td>
<td>5in</td>
</tr>
<tr>
<td>0.1µm</td>
<td>K: 226/Flat</td>
<td>EFKM</td>
<td>80mm</td>
<td>10in</td>
</tr>
<tr>
<td>0.2µm</td>
<td>M: 213/Flat</td>
<td>FKM</td>
<td>130mm</td>
<td>20in</td>
</tr>
<tr>
<td>0.45µm</td>
<td>R: 334/Flat</td>
<td>Silicone</td>
<td>30in</td>
<td></td>
</tr>
<tr>
<td>1.2µm</td>
<td>J: 213 internal</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Customer to specify length if different from the above.

Flow Rates: LiquiPro™ DI (DG) 222 series
Flow Rates: LiquiPro™ DI (DGX) 222 series
Flow Rates: LiquiPro™ DI (DGXW) 226 series
Flow Rates: LiquiPro™ DI (DGU) 226 series

Typical Applications
- General direct DI and recirculation DI water bath applications.
- Direct DI Water application for fat panel display manufacturing.
- Direct DI water application for solar and water bumping.
- Recommended for TMAH 2.38%
LiquiPro™ PH
UHP Hydrophilic PVDF Membrane Filter

LiquiPro™ PH is a proprietary high-performance hydrophilic PVDF membrane with high efficiency and high capacity to remove particles and microorganisms.

Features and Benefits
- Optimised high-flow hydrophilic PVDF membrane structure and support materials that ensure high particle retention efficiency along with low pressure drop, high flow rate and long service life.
- Permanent hydrophilic membrane without the use of additives, surface modification agents or post-treatment to ensure purity is not compromised.
- Certificate of quality enclosed with each lot of product for quality assurance that filter-to-filter, lot-to-lot performance.
- High purity application filters manufactured in cleanroom environment.
- Fast rinse up time as filters have been preflushed with Ultrapure DI water (18.2 MΩ-cm, TOC less than 15ppb).

Performance Specifications
- Pore size rating: 0.1, 0.2, 0.45μm
- Maximum differential pressure: 5.39 bar (78 psi) @ 20°C (68°F)
  1.7 bar (24 psi) @ 80°C (176°F)
- Recommended change-out differential pressure: 2.0 bar (30 psi)

Compatibility and purity
Filters do not use any binders, surfactants and adhesives for broad usage compatibilities. Only 100% virgin polypropylene is used.

Food, Drug and Water Contact Use
Meets the requirement of FDA Title 21 of the Code of Federal Regulations, Comply with EU Directive 2002/72/EC for plastic in food contact.

Materials of construction
Filter media: Hydrophilic PVDF membrane with PET support
Support: Polypropylene
End cap, core, cage: Polypropylene
O-rings: EPDM, Viton®, Silicone, Buna-N, PTFE encap. Viton®, Polyethylene

Typical Applications
- Ultrapure DI water facilities.
- Dilute acids and DI water cleaning bath in semiconductor wafer fabs.
- Detergent, DI water cleaning bath in hard disk, media and substrate manufacturing.
- Cleaning and rinsing processes in the photo-electric and flat panel display.
- Point of use food and beverage filtration.

Flow Rates: LiquiPro™ PH series

*Flow rate is for a 25.4 cm (10 in) cartridge. For liquids other than water, multiply differential pressure by fluid viscosity (η).

Ordering Information
To form a part number, please choose one option from each column below.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Micron Rating</th>
<th>Adapter Code</th>
<th>Seals</th>
<th>Cleanliness</th>
<th>Length</th>
<th>Key Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV: LiquiPro™ PH</td>
<td>010: 0.1µm</td>
<td>A: 222/flat</td>
<td>E: FKM</td>
<td>Class 100 Cleanroom</td>
<td>5in*</td>
<td>– / N/A</td>
</tr>
<tr>
<td></td>
<td>020: 0.2µm</td>
<td>C: 222/fin</td>
<td>EPDM</td>
<td>E: Grade TOC &lt;50ppb</td>
<td>10in</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>045: 0.45µm</td>
<td>K: 226/flat</td>
<td>FKM</td>
<td>U: Ultra High Purity &lt;40ppb</td>
<td>20in</td>
<td>20</td>
</tr>
</tbody>
</table>

* Non-standard request.

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Code M</th>
<th>Code L</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 = 10in (Dia: 80mm)</td>
<td>Code M = 354mm ± 2</td>
<td>Code L = 246mm ± 2</td>
</tr>
<tr>
<td>20 = 10in (Dia: 80mm)</td>
<td>Code M = 508mm ± 2</td>
<td>Code L = 304mm ± 2</td>
</tr>
<tr>
<td>05 = 5in (Dia: 70mm)</td>
<td>Code M = 133mm ± 2</td>
<td>Code L = 101mm ± 2</td>
</tr>
</tbody>
</table>

*Non-standard request.
LiquiPro™ PA
Polypropylene Pleated Cartridge Filters

Superior high retention performance filters made of high quality Polypropylene (PP) media with low pressure drop, high flow rate and long service life.

Features and Benefits
- Optimized graded density with fine pore sizes in inner layers and larger pore sizes in the outer layers for high removal efficiency for improved protection of downstream final filters or for improved effluent quality with excellent long service life.
- LiquiPro™ PA technology - Patented, proprietary and continuous co-located precision pore formation technology that ensures filter-to-filter, lot-to-lot performance.
- Certificate of quality enclosed.
- 100% virgin polypropylene construction without the use of binders, adhesive or surfactants to ensure purity performance is not compromised.

Performance Specifications
- **Pore size rating**: 0.1, 0.2, 0.45, 1, 2, 3, 5, 10, 20, 30, 40μm
- **Maximum forward differential pressure**:
  - 4.81 bar (69.69 psid) @ 20°C (68°F)
  - 2.75 bar (39.83 psid) @ 60°C (140°F)
  - 1.37 bar (19.91 psid) @ 90°C (194°F)
- **Recommended change-out differential pressure**: 2.45 bar (35.56 psid)
- **Material compatibility and purity**: Filters do not use any binders, surfactants and adhesives for broad usage compatibilities. Only 100% virgin polypropylene is used.

Materials of construction
- Filter media: LiquiPro™ PA Polypropylene (PP)
- Support: Polypropylene
- O-rings: EPDM, FKM and E-FKM
- Maximum operating temperature: 90°C (194°F)

**Typical Applications**
- Electro-Copper plating filtration.
- Silica and Ceria slurries filtration at facilities, point of tool.
- DI water cleaning, developing, wet etching and stripping process for flat panel.
- Advanced PCB manufacturing.
- Photovoltaic water, chemical and gas applications.
- Chemical manufacturing.
- Data storage industries.

**Ordering Information**
To form a part number, please choose one option from each column below.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Micron Rating</th>
<th>Adaptor Code</th>
<th>Seals</th>
<th>Cleanliness</th>
<th>Length</th>
<th>Key Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA LiquiPro™ PA</td>
<td>010</td>
<td>0.1 µm</td>
<td>A-222/flat</td>
<td>E-EPDM</td>
<td>10-20in</td>
<td>-10/10</td>
</tr>
<tr>
<td>PAL</td>
<td>020</td>
<td>0.2 µm</td>
<td>A-226/flat</td>
<td>E-FKM</td>
<td>20-30in</td>
<td>-20/30</td>
</tr>
<tr>
<td>PAX</td>
<td>045</td>
<td>0.45 µm</td>
<td>A-334/flat</td>
<td>V-FKM</td>
<td>30-60in</td>
<td>-30/60</td>
</tr>
</tbody>
</table>

Diameter Code-A Code-M
- 10in (Dia: 70mm): Code A = 284mm +/- 2
- 20in (Dia: 70mm): Code A = 588mm +/- 4
- 30in (Dia: 70mm): Code A = 892mm +/- 4
- 10in (Dia: 80mm): Code A = 246mm +/- 2
- 10in (Dia: 130mm): Code R = 270mm +/- 2

*Flow rate is for a 25.4 cm (10 in) cartridge. For liquids other than water, multiply differential pressure by fluid viscosity (cP).
LiquiPro™ SL
Chemical Mechanical Polishing (CMP) Filters

LiquiPro™ SL filters are the next generation of pre-cleaned slurry filters designed for advanced chemical mechanical polishing (CMP).

Features and Benefits
LiquiPro™ SL
• The series filter removes particles, aggregates, and contaminants that are disruptive to the CMP process. The particle size distribution of the desired slurry particles does not change after filtration.

Patented SL DT Series
• A continuous melt blown media as the outer layers and Nano fibre wrapped media as the inner layers.

Patented Pleated SL PDT Series
• A pleated 3D-melt blown type of media as the upstream outer layers and nano fibre media as the inner layers.
• Both series provide excellent capacity and a sharp filtration cut-off curve. Nano-fibre media for reliable and high performance with colloidal, ceria and alumina slurries.

Patented IPWET™ Technology
• For pore size below 0.5µm, patented IPWET packed LiquiPro™ filters provide quick start-up, slurry saving and improved filtration performance. Autoclave and disinfecting packaging enables bacteria free and best use <12 months.
• Applicable for Si, Copper, Oxide or Tungsten slurry CMP process for point of use (POU) or bulk slurries.

Specifications
Pore size rating for SL Series: (µm)
0.05, 0.07, 0.1, 0.2, 0.3, 0.5, 0.7, 1.0, 1.5, 3, 5, 7, 9, 10, 11µm

Maximum differential pressure:
2.4 bar (35 psi) @ 21°C (70°F)
4.0 bar (58 psi) @ 80°C (176°F)

Maximum operating temperature
80°C (176°F)

Materials of construction:
Polypropylene construction
Filter Media:
PP
Filter Core/Cage/Endcap:
EPDM
Endcap Fitting:
222/Flat
Connection Fitting:
Disposable:
5": ⅜" I/O with ⅛" V/D NPT
Cartridge Ordering Information
Product Name | Pore Rating | Connections | O-Ring | Cleanliness | Length | Packing Option
--- | --- | --- | --- | --- | --- | ---
SL: LiquiPro™ SL PDT Disposable | 0.05µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | Class 100 Cleanroom | 10in | Standard Dry
SLA: LiquiPro™ SL DTA | 0.07µm | ⅜" I/O with ¼" V/D Flaretek | EPDM | Pre-wetted | 20in |
SL: LiquiPro™ SL DTA | 0.1µm | ⅜" I/O with ¼" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 0.2µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 0.3µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 0.5µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 0.7µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 1.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 1.5µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 3.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 5.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 7.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 9.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SL: LiquiPro™ SL DTA | 11µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |

Disposable Capsule Ordering Information
Product Name | Length | Pore Rating | Connections | O-Ring | Cleaning | Length | Packing Option
--- | --- | --- | --- | --- | --- | --- | ---
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 0.05µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | 10in | Standard Dry
SLDS: LiquiPro™ SL PSB Disposable | 5in | 0.07µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | 20in | Pre-wetted
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 0.1µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 0.2µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 0.3µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 0.5µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 0.7µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 1.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 1.5µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 3.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 5.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 7.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 9.0µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |
SLD: LiquiPro™ SL PDT Disposable | 2.5in | 11µm | ⅜" I/O with ⅛" V/D Flaretek | EPDM | | |

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Tel: +1 804 550 1600
infoUS@porvairfiltration.com

India, Mumbai Division
Tel: +91 22 25 97646 /65
infoIN@porvairfiltration.com
LiquiPro™ MI are high purity disposable filters offered with 3 different types of high-performance membranes: hydrophobic PTFE membrane; Nylon membrane and PES membrane with UHP virgin grade PP support materials for critical high purity photochemical point-of-use filtration applications.

Features and Benefits

- Ultra-clean filter design. Filter design, materials selection and UHP decontamination procedure are optimised to eliminate shedding and extractables to ensure reliable downstream cleanliness.
- LiquiPro™ MI provide excellent chemical compatibility to make these filters ideal for point-of-use photochemical filtration applications, including a broad range of photoresists and solvents.
- Designed for the removal of microgel, soft gel and particles present in most advanced photolithography systems. Eliminates pre-wetting and reduces downtime.
- Advanced filter system consists of typically of solvent, photo acid generator (PAG), acid quenchers, additives and surfactants. Pre-wetting is not required.
- LiquiPro™ MI D PN series helps to eliminate micro-bonding defects in photoresist and cone defects in the anti-reflective coatings.
- This disposable series uses the highest quality PES membrane which is hydrophilic to positive developers such as TMAH and DI to eliminate the formation of bubbles and micro-bubbles during the spin rinse process.

Typical Applications

- Ultra-high-purity version for advanced DUV - 157nm and 193nm pre-flushed version for DUV-KrF and DUV-XeF2 248nm photomask filtration.
- Class 10000 clean room version for general photochemical and solvent filtration.
- Point-of-use solvent, IPA, acetone and others.
- Point-of-Use Developer and DI water.

Performance Specifications

- Pore size rating: 0.05, 0.1, 0.2, 0.5, 1.0, 5.0, 10.0μm
- Maximum operating pressure: 60 bar (875 psi) @ 25°C (77°F)
- Membrane area:
  - Short Series: PTFE/Nylon 1000-1150 cm² (155-178 in²)
  - Long Series: PTFE/Nylon 2000-2300 cm² (310-356 in²)
- Maximum operating temperature: 60°C (140°F)

Capsule Dimensions

<table>
<thead>
<tr>
<th>Length Code</th>
<th>Meeting</th>
<th>Diameter (Max) mm/inch</th>
<th>Diameter (Min) mm/inch</th>
<th>Length mm/inch +/- 1mm</th>
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<tbody>
<tr>
<td>Short S44</td>
<td>M6</td>
<td>67.5 / 2.66</td>
<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
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<td>61.0 / 2.40</td>
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<td>61.0 / 2.40</td>
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<td>61.0 / 2.40</td>
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<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
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<td>71.0 / 2.79</td>
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<tr>
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<td>M6</td>
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<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
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<td>M6</td>
<td>67.5 / 2.66</td>
<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
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<td>M6</td>
<td>67.5 / 2.66</td>
<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
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<td>Short P144</td>
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<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
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<td>67.5 / 2.66</td>
<td>61.0 / 2.40</td>
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<td>Short P184</td>
<td>M6</td>
<td>67.5 / 2.66</td>
<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
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<td>Short P204</td>
<td>M6</td>
<td>67.5 / 2.66</td>
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<td>71.0 / 2.79</td>
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<td>Short P224</td>
<td>M6</td>
<td>67.5 / 2.66</td>
<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
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<tr>
<td>Short P244</td>
<td>M6</td>
<td>67.5 / 2.66</td>
<td>61.0 / 2.40</td>
<td>71.0 / 2.79</td>
</tr>
</tbody>
</table>
Ultra-High-Purity and Patented LiquiPro™ EZ PFA Cartridge Housing offers an excellent space-saving solution. This housing locks the cartridge into the bowl, allowing the bowl and cartridge to be installed or removed as a single unit. Thus ensuring that contamination and chemical contact is minimised.

Features and Benefits

- LiquiPro™ EZ PFA Housing utilises the highest purity grade PFA resin, high precision moulded with superior total metal extractions < 250 PPF.
- The LiquiPro™ bowl and cartridge filter can be installed into a LiquiPro™ EZ head quickly and easily. And ensures perfect alignment and double O-ring engagement every time.
- Operators do not have to touch the cartridge body during cartridge changeout, which minimises exposure to chemicals for maximum safety and eliminates possibility of process contamination.
- Compatible with industry standard 2-222/Flat single-open-end filter cartridges from all major filter makers. In addition, LiquiPro™ EZ PFA housing fits both Chemlock® and LiquiPro™ EZ key filter elements.
- Tremendous tool space savings over traditional housings: saves a minimum of 20cm to 45cm of vertical space for cartridge changeout.
- Hydrostatic pressure tested 0.75MPa (110 psi) at 25°C, 3.0 bar (43 psi) @100°C, 7.5 bar (110 psi) @ 25°C.
- Maximum operating temperature 100°C (212°F).
- Good resistance to weak acids, detergents, fair to poor resistance to solvents and tanhydrous ammonia.
- Excellent: avoid amines, steam and ethylene.
- Excellent compatibility: avoid polar solvents, amines and anhydrous ammonia.

Performance Specifications

- Materials of construction:
  - Mounting hardware: PVDF or PFA Coated Stainless Steel
  - Locking ring: PVDF or PP*
  - Head: Molded-on fittings, bowl: Dupont PFA 440 HFJ
  - O-rings: E-FKM

- Fluid connections:
  - See ordering Information

- Cartridge connections:
  - Dual 2-222 O-rings
  - ATX: 79mm dia.
  - ATX: 83mm dia

- Maximum inlet pressure:
  - 3.0 bar (43 psi) @ 100°C
  - 7.5 bar (110 psi) @ 25°C

- Maximum operating temperature
  - 100°C (212°F)

Accessories

- Part Number Descriptions
  - YYES-OR-344-1: Spare O-ring, 2-344, E-FKM, 1/PK
  - YYES-OR-344-E-1: Spare O-ring, 2-344, ETP, 1/PK
  - YYES-OR-344-V: Spare O-ring, 2-344, Viton® equivalent, 1/PK
  - YYES-WH-1: Wrench head, 1/PK
  - YYES-UEM-1: U-Clamp Mounting, PVDF, 2/PK
  - YYES-SC-HS-30: Screw, Hex, 120mm, PVDF, 4/PK
  - YYES-SC-HS-35: Screw, Hex Socket, L35mm, PVDF, 4/PK

- Ordering Information
  - To form a part number, please choose one option from each column below.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>O-Ring</th>
<th>Torque (N•m)</th>
<th>Solvents</th>
<th>Acid</th>
<th>Base</th>
<th>Oxidizers</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Z-OR-344-1</td>
<td>E-FKM</td>
<td>45 &lt;100</td>
<td>C</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>Telflex encapsulation provides better excellent cleanliness and compatibility. Due to diffusion, avoid polar solvents, amines and anhydrous ammonia.</td>
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<tr>
<td>E-Z-OR-344-K4</td>
<td>Kalrez®</td>
<td>28.5 &lt;100</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>Excellent: avoid amines, steam and ethylene.</td>
</tr>
<tr>
<td>E-Z-OR-344-K6</td>
<td>Viton®</td>
<td>28.5 &lt;100</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>Excellent compatibility: avoid polar solvents, amines and anhydrous ammonia.</td>
</tr>
<tr>
<td>E-Z-OR-344-E</td>
<td>EPDM</td>
<td>28.5 &lt;100</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>Good resistance to weak acids, detergents, fair to poor resistance to solvents.</td>
</tr>
</tbody>
</table>

- Other options available upon request. Ask technical specialist.
LiquiPro™ YS
High Quality Stainless Steel Filter Housing

LiquiPro™ YS stainless steel housing is a high quality and cost effective for demanding chemical filtration applications, and for semiconductor “conductive” solvent filtration applications.

Features and Benefits
- Designed to use with LiquiPro™ F2, LiquiPro™ P.A. LiquiPro™ D1. LiquiPro™ SL as well as most compatible 70mm diameter and 83mm diameter cartridge filters available in the market.
- High grades stainless steel 316L, 316 or 304.
- Available in PM grade: Interior and exterior of filter housing bowl mechanical polished to achieve matted non-directional finish with low Ra for the most demanding advanced semiconductor solvent and chemical filtration applications.
- Available options to use with SOE (single open end) with 2.222 O-ring adaptor filter, and DOE (double open end) filters.
- Easy to operate clamp design. No tool is required to change filter.

Typical Applications
- Semiconductor and wafer bumping industry, solvent, stripper, etching, plating fluids.
- Pre-filtration for Reverse Osmosis for F&B, pharmaceutical and high purity industries.
- Water filtration.
- Filtration of low and up to medium viscosity fluids (up to 200 centipoises).
- Semiconductor and wafer bumping industry, solvent, stripper, etching, plating fluids.

Performance Specifications
- Maximum operating pressure: 10.50 bar (10 kg/cm², 152 psi) @25°C (77°F)
- 21.72 bar (22 kg/cm², 315 psi) @25°C (77°F)
- Maximum operating temperature: 75°C (167°F)
- Materials of construction:
  - Clamps (1):304, Head (2), Rod (3), Nut (4), Bowl (6): 316L, 316 or 304
  - O-ring: EPDM, FKM (Viton®) or FPA Encapsulated FKM (Viton®), Diameter 9.6 x 5.7mm
  - Finish: Inside/outside 400 mesh polish, PM grade: Interior and exterior mechanical polish.
  - Inlet/Outlet: 3/4” or 1” NPTF 3/4” or 1” TC fitting

Flow Specifications
- Model: YS-1
- Housing Length: 392mm
- Diameter: 106mm
- Filter Length: 10in
- Typical Flow Rate: 1.1m³/hr

Accessories
- Part Number: EZ-OR-344-E-5
- Description: Spare O-ring, 2-344, EPDM, 5/PK

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infoIN@porvairfiltration.com
**LiquiPro™ YP**

**Polypropylene and UPVC Filter Housing**

**YP and YPH pure virgin grade polypropylene or UPVC filter housing is high quality and cost effective for demanding chemical filtration applications, and for DIW and moderate aggressive chemical filtration applications.**

**Features and Benefits**

**Series PP Housing**
- Pure Virgin Polypropylene - No Talc, Fillers, Colorants, Plasticizers or Lubricants – Suits for High Purity Water Applications.
- Suitable for 10” or 20” Cartridges.
- 222 O-rings Filter Cartridge – Excellent for demanding microelectronics applications.
- All Materials are FDA Listed and Safe for Food and Beverage.
- Economical Alternative to Fluoropolymer Filter Housings.

**334 Type UPVC Housing**
- UPVC material is rigid, durable and compatible with acid and alkaline chemical.
- The Inlet/Outlet offers 50A Union to assure high flow needs.

---

**Top-Flow Series Filter Housing**
- Designed for 222 or 226 O-rings Filter Cartridge, 100% Pure Virgin Polypropylene - No Talc, Fillers, Colorants, Plasticizers and Lubricants.
- JIS 25A and 40A Inlet/Outlet Connection – Assures High Flow Rates – Additional Inlet/Outlet Connection Types Available on Request.
- Suitable for Generation 6 and 7 TFT-LCD Glass Cleaning and High End Process Filtration Applications.
- Can Accommodate Competitive Filter Cartridges of Similar Dimensions.
- All Materials are FDA Listed for Food and Beverage.
- Economical Alternative to Fluoropolymer Filter Housings.

**Specifications**

**Materials of construction**
- Head/Bowl: Pure virgin polypropylene - no Talc, Fillers, plasticizers, lubricants
- Mounting Bracket: Stainless steel
- O-rings: Viton®, EPDM, Buna-N

**Dimensions**
- Inlet/Outlet: 10P: 3/4” FNPT
  20P: 3/4”, 1” FNPT
- Vent/Gauge: 1/4” Female NPT
- Drain: 1/4” Female NPT

**Maximum Operation Pressure**
125 psi (8.6 bar) @ 77°F (25°C) in liquid service

**FDA Listed Materials**
Manufactured from materials which are FDA listed for food contact applications in Title 21 of the U.S. Code of Federal Regulations.

---

**Dimensions**

<table>
<thead>
<tr>
<th>Model</th>
<th>Max Flow Rate GPM (LPM)</th>
<th>A</th>
<th>B</th>
<th>Dimensions inch (mm)</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
<th>N5</th>
<th>Weight lbs (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YP-10</td>
<td>10 (37.9 LPM)</td>
<td>13.9” (355mm)</td>
<td>6.6” (168mm)</td>
<td>3/4”</td>
<td>1/4”</td>
<td>1/4”</td>
<td>3/4”</td>
<td>1/4”</td>
<td>2.1lbs (0.97kg)</td>
<td></td>
</tr>
<tr>
<td>YP-10</td>
<td>10 (37.9 LPM)</td>
<td>13.9” (355mm)</td>
<td>6.6” (168mm)</td>
<td>1”</td>
<td>1/4”</td>
<td>1/4”</td>
<td>3/4”</td>
<td>1/4”</td>
<td>2.1lbs (0.97kg)</td>
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<tr>
<td>YP-20</td>
<td>20 (75.7 LPM)</td>
<td>23.7” (604mm)</td>
<td>6.6” (168mm)</td>
<td>3/4”</td>
<td>1/4”</td>
<td>1/4”</td>
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<td>1/4”</td>
<td>3.2lbs (1.47kg)</td>
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<td>YP-20</td>
<td>20 (75.7 LPM)</td>
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<td>1/4”</td>
<td>1/4”</td>
<td>3/4”</td>
<td>1/4”</td>
<td>3.2lbs (1.47kg)</td>
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</tr>
</tbody>
</table>

**Operational Information**

To form a part number, please choose one option from each column below.

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Length</th>
<th>Materials</th>
<th>Inlet/Outlet Fitting</th>
<th>Cart Adapter O-Ring</th>
</tr>
</thead>
<tbody>
<tr>
<td>LiquiPro™ PP Cartridge Housing</td>
<td>10in</td>
<td>PP</td>
<td>3/4”</td>
<td>A: 222/Flat (Viton® [V is default])</td>
</tr>
<tr>
<td></td>
<td>20in</td>
<td>PP</td>
<td>3/4”</td>
<td>B: Buna-N</td>
</tr>
</tbody>
</table>

*Non-Standard Request, longer lead time may be required. Ask Technical Specialist.*
Top-Flow Series Filter Housing

Specifications

Materials of construction
Head/Shell: Unplasticized Polyvinylchloride (UPVC)
O-rings: Viton®, EPDM

Dimensions
Inlet/Outlet: YPHFU10P: 3/4" FNPT
Vent/ Gauge: 1/4" Female NPT
Drain: 1/4" Female NPT

Maximum Operation Pressure
72 psi (5 bar) @ 122°F (50°C) in liquid service

FDA Listed Materials
Manufactured from materials which are FDA listed for food contact applications in Title 21 of the U.S. Code of Federal Regulations.

Ordering Information
To form a part number, please choose one option from each column below.

<table>
<thead>
<tr>
<th>Model</th>
<th>Max Flow Rate GPM (LPM)</th>
<th>Dimensions inch (mm)</th>
<th>Weight lbs (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPHFU-10-25A-R</td>
<td>66 (300 LPM)</td>
<td>17&quot; (438.7mm)</td>
<td>13.6&quot; (347mm)</td>
</tr>
</tbody>
</table>

334 Type UPVC Housing

Specifications

Materials of construction
Head/Bowl: Pure Virgin Polypropylene - No Talc, Fillers, Plasticizers, Lubricants
Mounting Bracket: Stainless Steel
O-rings: Viton®, EPDM, Buna-N

Dimensions
Inlet/Outlet: YPHFU10P: 3/4" FNPT
Vent/ Gauge: 1/4" Female NPT
Drain: 1/4" Female NPT

Maximum Operation Pressure
125 psi (8.6 bar) @ 77°F (25°C) in liquid service

FDA Listed Materials
Manufactured from materials which are FDA listed for food contact applications in Title 21 of the U.S. Code of Federal Regulations. Contact for more details.

Ordering Information
To form a part number, please choose one option from each column below.

<table>
<thead>
<tr>
<th>Model</th>
<th>Max Flow Rate GPM (LPM)</th>
<th>Dimensions inch (mm)</th>
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<tbody>
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<td>YPHFU-10-25A-R</td>
<td>66 (300 LPM)</td>
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</tr>
</tbody>
</table>

* Non-Standard Request, longer lead time may be required. Ask Technical Specialist.
We manufacture a range of media and materials for fluidisation and powder handling units. The three types of materials that are ideal for these applications are:

- **Sinterflo® P** sintered metal powder,
- **Sinterflo® M** porous sintered mesh and
- **Vyon®** sintered porous plastic.

These materials are extremely strong and free standing and can be fabricated into shapes as complex as fluidising cones for use in silos, for example.
For applications requiring localised fluidisation and aeration or for retrofitting into existing silos or hoppers, the Sinterflo™ P aeration units can offer a simple ready-made solution to powder handling problems. Fluidisation is the introduction of a compressed gas, via porous media, into a bulk powder, to enable the powder to behave like a liquid for ease of movement. In general, the smaller the powder particle size, the more cohesive it becomes and the more difficult it is to move. With our extensive range of fluidising media, we can tailor optimal solutions to solve most fluidisation challenges. Available in various sizes, Sinterflo™ units introduce low pressure fluidising air into the material at or before its point of exit or movement.

**Typical Applications**

Sinterflo™ P sintered metal powder aeration pads can be used where tolerance of high operating temperatures of up to 600ºC (1,112ºF) and high corrosion resistance is required.

- Localised fluidisation
- Silo construction
- Gypsum and fly ash aeration or drying

**Features and Benefits**

- High operating temperatures up to 600ºC (1,112ºF).
- High corrosion resistance
- Easy installation
  - Aeration pads complete with compressed air supply adapter with BSP thread.
  - Multiple sizes available ideal for retrofitting into existing hoppers or silos that have failed to perform effectively.

**Ordering Information**

For ordering information please contact a member of the sales team.
Sinterflo® MC Fluidising Media
For Powder Handling

Typical Applications
- Fluidising beds
- Fluidised gravity conveyors
- Fluidised hoppers
- Gas spargers

Features and Benefits
- High operating temperatures
- Robust and self supporting
- Fabricated shapes do not require complex and expensive support structures or joining strips
- Application and material versatility
- Enhanced chemical resistance
- Can be constructed from a wide range of materials including 304 and 316L stainless steel, Hastelloy®, Inconel® and Monel®
- Cleanability
- A wide range of cleaning methods can be used meaning the media can be sterilised for use in the food and pharmaceutical industries.
- Abrasion resistance
- Non-shedding media, highly resistant to mechanical abrasion.
- Design and engineering versatility
- Easily custom engineered to meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment.

Ordering Information
For ordering information please contact a member of the sales team.

Typical Applications
Fluidised Beds
Air is pumped through a horizontal or inclined section of Sinterflo® MC media, lifting a wide range of materials such as flour, cement, or paint particles. The air in this application can also be used for drying the product, and in some cases imparting additives.

Fluidised Gravity Conveyors
A second flow of air is introduced at a 90 degree angle to the fluidising media to move the product forward for secondary processing (e.g. roasting) or transportation.

Fluidised Hoppers
Formed in to conical shapes, Sinterflo® MC media will prevent ‘bridging’ of particle/powders and increase the speed of discharge. This is especially critical in the unloading of railcars.

Gas Spargers
Submerged in a liquid environment, the air passed through Sinterflo® MC media creates a fine bubble field that increases oxygenation efficiency. This process is used in the electroplating, fermentation and water treatment industries.

Specifications
FSHA Standard Lo Flow Fluidising Media Grades

<table>
<thead>
<tr>
<th>Grade</th>
<th>Airflow (SCFM/ft²@6 in of H2O)</th>
<th>Nominal Thickness (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSLA-005</td>
<td>5</td>
<td>1.37mm (0.054”)</td>
</tr>
<tr>
<td>FSLA-010</td>
<td>10</td>
<td>1.47mm (0.058”)</td>
</tr>
<tr>
<td>FSLA-025</td>
<td>25</td>
<td>1.57mm (0.062”)</td>
</tr>
<tr>
<td>FSLA-050</td>
<td>50</td>
<td>1.65mm (0.065”)</td>
</tr>
</tbody>
</table>

FSLA Standard Hi Flow Fluidising Media Grades

<table>
<thead>
<tr>
<th>Grade</th>
<th>Airflow (SCFM/ft²@2 in of H2O)</th>
<th>Nominal Thickness (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSHA-0200</td>
<td>200</td>
<td>1.02mm (0.040”)</td>
</tr>
<tr>
<td>FSHA-0400</td>
<td>400</td>
<td>1.19mm (0.047”)</td>
</tr>
<tr>
<td>FSHA-0600</td>
<td>600</td>
<td>1.32mm (0.052”)</td>
</tr>
<tr>
<td>FSHA-1000</td>
<td>1000</td>
<td>1.63mm (0.064”)</td>
</tr>
</tbody>
</table>

Multi-layered, diffusion-bonded stainless steel mesh is available in 316L and other alloys. This precision fabrication service for this material, including custom sizes, shapes, mounting holes and welding to end fittings or rings. We can also fabricate into tubes or fluidisation cones for hopper bottoms.

For fluidising applications where a tightly controlled efficiency rating is required, a precision filter mesh (down to 2 microns nominal) is inserted into the fluidising media is available; effective in reducing particulate rates to suit your application requirements.

Usually available in stock, for immediate delivery, the media is supplied as flat-panels, up to a seamless size of 150cm x 150cm (40” x 60”) and in an unlimited size in butt-welded sheets.

We provide complete fabrication services for this material, including custom sizes, shapes, mounting holes and welding to end fittings or rings. We can also fabricate into tubes or fluidisation cones for hopper bottoms.

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Vyon® Porous Polymer Fluidising Media
For Powder Handling

Manufactured from USP Class VI approved HDPE or PP materials, this is particularly suitable for both food and pharmaceutical applications. It has a uniform pore structure giving an even total area fluidisation. It is self-supporting due to its semi-rigid nature, reducing the need for external support structures that are required with canvas and felt media.

This material can be supplied as a ready fabricated fluidising cone liner or in flat sheet form, 1000mm x 750mm (40” x 30”), for use as a tank liner or in an end user secondary fabrication.

Vyon® porous polymers are the most economical choice where temperatures are in the range of -70°C to 80°C [-94°F to 176°F]. Vyon® is fully cleanable for multiple re-uses, however, its affordability compared to stainless steel will aid more frequent replacement where a disposal fabrication is preferred to cleaning.

Features and Benefits
- Light weight and self supporting
- Even air flow
- Non fibre shedding
- Low extractables
- Naturally hydrophobic
- Chemically inert
- Material versatility
- Easy to clean

Typical Applications
Food and pharmaceutical
- Sugar
- Flour
- Milk powder
- Panadol
- Vitamins

Industrial and construction
- Cement
- Gypsum
- Soda/fly ash
- Coal dust

Chemical and plastics
- Titanium dioxide
- Carbon black
- Calcium carbonate
- Polyethylene powder
- Epoxy and polyester paint powders

Ordering Information
For ordering information please contact a member of the sales team.

Specifications
- Mean Pore Size
  12-14µm
- Air Flow at 10mbar
  2.3m³/min/m² (711ft³/min/ft²)
- Removal Efficiency (Air)
  6µm
- Elongation at Break
  10%
- Tensile Strength
  70 kgf/cm² (12.8lbf-ft)
- Temperature Range
  -70°C to 110°C [-94°F to 230°F]
  * Depending on material type
We manufacture a range of flow and sound control units for the process industries. Using both metallic and polymeric materials, our flow and sound control units are suitable for air, gas, liquid and silencing applications.

Many specialised applications have been developed to take advantage of the unique characteristics of porous materials. Applications such as filtration, flow control, flame arrestors and self-lubricating bearings are some of the largest commercial applications.

The porous technology offers a cost-effective solution to diverse engineering challenges in the industrial marketplace.

Our range of flow control units present the application with multiple benefits, including: high corrosion resistance, application and material versatility, abrasion resistance and design and engineering flexibility.
Sinterflo® MC Filter Plates

Multi-layered, diffusion-bonded, stainless steel mesh is available in 316L and other alloys. This precision filter mesh, also known as a porous plate, is available in a range of different pore sizes ranging from 2 to 100 micron in diameter.

Fabricated Sinterflo® MC sintered mesh is available in a standard flat plate format, up to a seamless size of 1,000mm x 1,500mm (40” x 60”) and an unlimited size in butt-welded sheets.

This material is easily custom engineered for non-standard applications and can be formed into tubes and small discs or large scale circular plates.

Particularly well suited to demanding applications where high operating temperatures up to 540ºC (1,000ºF), increased chemical resistance and/or high abrasion resistance is essential. These applications include flame arrestors, nutsche filter plates and polymer melt filters.

Typical Applications

- Well water filtration for crop irrigation
- Sand filtration in offshore oil and gas recovery
- Sea water filtration in desalination plants
- Marine life filtration from ballast water

Features and Benefits

- High operating temperatures
- Robust and self supporting
- Application and material versatility
- Enhanced chemical resistance
- Cleanability
- Abrasion resistance
- Design and engineering versatility

Ordering Information

For ordering information please contact a member of the sales team.
Restrictive Flow Products
For OEM and Custom Applications

Our restrictive flow products (RFPs) are a cost-effective alternative for gas flow control and limiting in dynamic and static gas flow applications. Our RFPs, manufactured using our Sinterflo® P sintered metal powder media, can replace costly single orifice flow restrictors, capillary tubes, flow limiters, micro-meshing valves and mass flow controllers (MFCs) with an effective high performance solution in demanding conditions.

Sinterflo® P metal media can withstand heavily particulate-laden gas streams without any loss in performance or the need for re-calibration or cleaning.

Typical Applications
- Medical gas
- Flow control anesthesiats, limiting gas flow.
- Food and beverage
- Nitrogen blanketing for preservation during packaging extending shelf life.
- Micro CO₂ injection
- For precise control of carbonation.
- Safety
- Limiting maximum gas flow from a damaged valve, regulator or broken gas line.
- Gas venting
- Precise controlled gas venting of diaphragm and line bleed regulators.
- Gas panels
- Process control eliminating MPFC no electrical or mechanical moving parts.
- Analytical equipment
- GC & LC and mass spectrometer equipment for gas and liquid flow control.

Features and Benefits
- Consistent Reliability
  - Specific Sinterflo® P sintered metal powder media developed for restrictive flow products.
  - Individually calibrated for gas type, pressure and flow rate.
  - Flow data traceability provided for each individual part or lot size.
- Sinterflo® P media can be used in bidirectional gas flow applications.
- Robust Construction
  - Sinterflo® P sinter-based construction ensures there is no particle shedding within the apparatus.
- Zero Maintenance
  - No built-in moving parts; the parts can withstand heavily particulate-laden gas streams without any loss in performance or the need for re-calibration or cleaning.
- Corrosion Resistant
  - As standard, flow restrictive products and their hardware are manufactured from 316 and 316L stainless steel. Other materials are available on request.
- Porous Media
  - Multiple pathways are more resistant to particulate fouling and erosion.
- Flexible Options
  - Custom fittings and assemblies available, as well as the option to use customer supplied hardware assemblies.

Ordering Information
For ordering information please contact a member of the sales team.

Specifications
Materials of Manufacture
Standard restrictive flow products are manufactured from:
- Media: 316L stainless steel
- Hardware: 316 stainless steel
- Other available materials:
  • Hastelloy®-C276
  • Hastelloy®-C22
  • Inconel®-600
  • Titanium

Standard Gas Flow Rates
Standard gas flow rates from 0.25ccm. Other gas flow rates available.

Standard Test Gas Pressure
2.66mbar (0.03psig) to atmosphere.
- Maximum test gas pressure 68.950mbar (1,000psig).
- Specific gas pressure required.

Standard Test Gas Type
NITROGEN
- Available test gases:
  • Air
  • Argon
  • Carbon Dioxide
  • Helium
  • Hydrogen
  • Oxygen
  • Gas Mixtures
  • Exotics

Standard flow rates SCCM nitrogen 30 psig to atmosphere
1/8“ - Porous
0.2, 0.5, 2.0, 5.0, 10.0, 25.0, 50.0, 100.0, 200.0, 400.0, 600.0, 800.0, 1200.0, 1500.0, 2000.0, 5000.0, 10000.0, 1 scfm
1/4“ - Porous
0.2, 0.5, 2.0, 5.0, 10.0, 25.0, 50.0, 100.0, 200.0, 400.0, 600.0, 800.0, 1200.0, 1500.0, 2000.0, 5000.0, 10000.0, 1 scfm

Hardware types
- RFP: Restrictive Flow Product Configurator
- Build your RFP
- Three Standard RFP Male Connector Types
  - Tube Union
  - Tube Union: 1/8“ x 1/8” to 1/4“ x 1/4”
  - Tube Union: 1/4“ x 1/4”
- Three Standard RFP Male Connector Types
  - Tube Union
  - Tube Union: 1/8“ x 1/8” to 1/4“ x 1/4”
  - Tube Union: 1/4“ x 1/4”

Material codes
- Porous media 316L stainless steel
- Porous media Hastelloy-C22
- Porous media Inconel-600
- Porous media Monel-400
- Porous media Hastelloy-X
- Porous media Hastelloy-C276
- Porous media Monel-400
Flame Arrestors
For Process and Analytical Instrument Applications

A wide range of flame arrestors are manufactured from sintered metal powder and porous plastics.

Used in many process and analytical instrument applications as safety devices for handling combustible gases for gas analysers.

The high thermal conductivity of these flame arrestor cools the flame front or combustion wave by absorbing and dissipating the heat of the flame.

Sintered Metal Flame Arrestors
Comply with the ATEX Directive and the associated International Standards Organisation (ISO) testing guidelines:
• ISO 4003: Determination of Bubble Point Pore Size in Porous Sintered Metals
• ISO 4022: Determination of Permeability
• ISO 2738: Determination of Density in Porous Materials

Typical Applications
• Flame arresting
• Ignition prevention in flue gas stacks
• Explosion proof enclosure venting
• Flashback prevention for welding torches
• Battery vents
• Sensor protection

Features and Benefits
• Excellent flame-arresting properties due to tortuous path within the sintered porous materials
• For sound systems such as loudspeakers, the stainless steel mesh has excellent flame-arresting properties, but with reduced sound attenuation
• Robust and easy to assemble
• Our products undergo SPC inspection and conform to all the leading test authorities such as EECS, UL, FM, CAS and BASEEFA

Ordering Information
For ordering information please contact a member of the sales team.

Sinterflo® P Porous Powder Cylinders
For Gas, Steam and Liquid

We manufacture wide range of Sinterflo® P porous sintered stainless steel powder cylinders.

These cylinders are used for fabrication into filters for applications in aggressive environments. Made by isostatic pressing, these cylinders have no seam weld, leading to uniform filtration and less corrosion. Other materials such as Monel®, Hastelloy® and Inconel® are also available.

Features and Benefits
• Withstand a maximum differential pressure of up to 4.9 bar (71 psi) and an operating temperature of -41°C to 204°C (-40°F to 399°F)
• High dirt holding capacity
• Easily re-cleanable, allowing for long filter life and reduced operating costs

Features and Benefits
• Withstand a maximum differential pressure of up to 4.9 bar (71 psi) and an operating temperature of -51°C to 204°C (-60°F to 399°F)
• High dirt holding capacity
• Easily re-cleanable, allowing for long filter life and reduced operating costs

Typical Applications
Gas Filtration
• Highly aggressive gases

Steam Filtration
• Breweries
• Chemicals
• Dairies
• Food and beverage
• Pharmaceuticals

Liquid Filtration
• Chemicals
• Food and beverage
• Pharmaceuticals and cosmetics
• Solvents

Ordering Information
For ordering information please contact a member of the sales team.
Vyon® Silencers

Pneumatic Equipment Silencing

Vyon® is a porous permeable plastic material made from high density polyethylene by a modern powder sintering process.

The Vyon® silencer is a sintered polyethylene body moulded to a high density polyethylene adapter. The silencer screws directly into the exhaust port of a control valve. The exhausting air escapes to the atmosphere by expanding through the porous body.

The noise from a single unsilenced exhaust port is reduced from about 90 decibels to between 60 and 70 decibels when fitted with a Vyon® silencer. 90 decibels corresponds to the noise produced by a heavy truck or underground train passing at a distance of a few feet and represents the acknowledged danger level to which people should not be exposed for any length of time. By comparison, 60 decibels corresponds to normal conversation at a distance of 1 metre (3 feet).

This is available directly to pneumatic equipment manufacturers in our exclusive grey body/black adaptor colour combination.

Typical Applications
- Silencing
- Filtration for pneumatic equipment
- Sound attenuation

Features and Benefits
- Significant noise reduction
  Up to 30 decibels, the difference between an underground train and normal conversation.
- Easy installation
  Available with BSP thread connections, they screw directly into, and must always match the size of the exhaust port.
- Operating conditions
  For application on systems with working pressures up to 10bar (150psi).
- Minimal flow loss
  Effectively zero in a vast number of applications.
- Minimal maintenance costs
  Elements can be cleaned and reused, reducing replacement and maintenance costs.
- Maintenance free
  Unaffected by water or oil. Do not be allow to become blocked or blinded with debris.

Ordering Information
For ordering information please contact a member of the sales team.
Porous Cups and Bushings

A wide range of cups and bushings are manufactured for the process and industrial markets. They provide additional porous surface area for longer filter service life or for increased permeability when compared to porous sintered metal discs of the same diameter.

For the best pore size uniformity and quality, porous sintered cups and bushings are recommended when the length to diameter ratio is less than 3:1. When the length to diameter ratio of a part is more than 3:1, a porous sintered metal tube is the preferred option for the best pore size uniformity.

Typical Applications
- Filters
- Aerators

Features and Benefits
- Large surface area
- Increased permeability
- High operating temperatures

Ordering Information
For ordering information please contact a member of the sales team.
A range of diffused aeration products for the treatment of both industrial and municipal effluent.

Our strong research and development teams, technical expertise and capability ensures we are at the forefront of clean water filter technology, enabling delivery of cost effective, reliable clean water solutions tailored to customers’ requirements.

Aeration is an effective method for breaking down the organic components of effluents. Sewage aeration systems have two functions:

- provide oxygen to feed the oxygen breathing aerobic bacteria that decomposes organic matter
- stir the effluent to ensure that it is homogeneous for efficient oxygenation

Our diffused aeration products have been designed to optimise these functions and provide:

- Easy fitting into new installations
- Easy retrofitting into existing installations
- High oxygen transfer efficiency
- Low operating costs
- Low maintenance costs

Included in the range are both Vyon® sintered porous polyethylene and EPDM membrane products:

- Vyon® disc diffusers
- Vyon® tubular diffusers
Vyon® Disc Diffusers
High Density Polyethylene Disc Diffusers

Disc diffusers are used in the breaking down of pollutants in sewage and industrial waste water, by the highly efficient transfer of oxygenated air. Porous polyethylene disc diffusers are available in a range of pore sizes and permeabilities, ensuring a correct match to exacting process requirements. This diffuser is a direct replacement for the Degrémont® 230mm (9.05") Ceramic Disc. Diffusers can be supplied as disc only, with or without seal, or as a complete diffuser assembly, and are easily retrofitted into existing installations.

Typical Applications
- Water treatment

Features and Benefits
- High oxygen transfer efficiency
- Low operating costs
- Low back pressure
- Resistant to chemical attack
- Easily retrofitted to existing installations
- Lightweight and resistant to damage

Specifications
Materials of Manufacture
- Disc: High Density Polyethylene
- Gasket: Waste water approved EPDM
- Fixings: Stainless steel ring and Rilsan® Coated Clips

Technical Information
- Diameter: 230mm (9.05")
- Wall Thickness: 6mm (0.24")
- Weight: 0.38kg (2.2lb)
- Bubble Size: 2-4mm (0.08”-0.16”)
- Recommended Air Flow: 1-5m²/HR/500mm diffuser

Ordering Information
For ordering information please contact a member of the sales team.

Vyon® Tubular Diffusers
High Density Polyethylene Tubular Diffusers

A range of high density polyethylene tubular diffusers are made with regulatory approved materials for potable water applications. Can be used over a large pH range and for a variety of organic chemicals, acids and alkalis, these are highly chemical resistant. They can be custom made in a variety of diameters and lengths. Highly robust and produce uniform bubble size and pattern to ensure effective oxygenation and long service life. The tubular diffusers are produced over a large range of efficiencies for effective particle removal.

Typical Applications
- Water treatment
- Potable water filtration
- Ponds
- Rivers
- Fish farms

Features and Benefits
- Robust and rigid
- Typical SOTE %/m depth: 6.8%

Specifications
Materials of Manufacture
- Tube: High Density Polyethylene (HDPE)
- Adapter: High Density Polyethylene (HDPE)
- Gasket: EPDM

Technical Information
- Approximate Weight: 0.3kg (0.7lb) per 500mm (19.67") diffuser
- Dry Permeability: 45m³/(24,832gal)/hr/500mm diffuser at 15mbar (218psi) ∆p
- Diffuser surface area: 0.1175m² (1.26ft²) for 500mm (19.67") diffuser
- Design pressure: 10-90 kPa (0.1-0.9 bar)
- Design temperature: 1°C to 50°C (34°F to 122°F)

Ordering Information
For ordering information please contact a member of the sales team.
Spargers
For Liquid and Gas Contact Applications

A complete range of porous materials for gas/liquid contact applications across a variety of industries.

The key to efficient gas transfer is to generate very high volumes of fine bubbles. A 1mm (0.04") bubble has 6 times the gas/liquid contact than that of a 6mm (0.24") bubble. Bubble size is essential to optimise mass transfer and reduce gas consumption and energy costs.

Elements are available in Sinterflo® sintered porous stainless steel or Vyon® sintered porous polyethylene or Polypropylene. Stainless steel spargers are supplied in stainless 316L and higher alloys such as Inconel® and Hastelloy® for very aggressive applications. Being manufactured from such resistant materials, these spargers are cleanable and if necessary can be heat or steam sterilised.

The elements are designed and manufactured from uniform, fine, controlled pore size media to achieve excellent performance in the distribution of a large number of small gas bubbles for a higher interfacial area.

Typical Applications
Intrusive and non-intrusive tangential pipeline spargers:
- Treatment of wastewater
- Volatile stripping
- Steam injection
Tank spargers:
- Fermentation
- Agitation
- Bioremediation
- Oxygen stripping
- De-watering
- Dissolved air flotation processes used by major oil companies

Features and Benefits
- Rugged, fixed pore media
- Bubble size can be controlled by a wide range of available media pore sizes
- Temperature and corrosion resistant materials of construction
- High quality, all-welded, robust construction
- Higher diffusion rates from smaller sparging elements
- Cleanable
- Sparger diameter and connector designed to meet application requirements

Ordering Information
For ordering information please contact a member of the sales team.
We continue to research new materials for filtration and separation. Examples are the development of metallic membranes and the use of specialist surface modification, to provide chemical or physical properties that are beneficial to the separation activity or the longevity of the filtration equipment.

Although we operate across many filtration and separation markets there is significant interaction between each division in terms of product research and development. The new product development team is drawn from scientists and engineers from across all divisions to meet up for monthly peer and management reviews in an environment that encourages new ideas and new solutions.

The success of this approach has been in the interaction of chemists and engineers working together to find practical solutions to some extremely complex scientific challenges identified in the chosen market areas.
Bonfil™ is a resin bonded filter that is constructed using an advanced manufacturing process producing a rigid graded density filter. The rigid phenolic resin structure ensures that our Bonfil™ filters can withstand high viscosities and temperatures without deformation or collapse of the pores.

The structure prevents the off-loading of particles captured, as the differential pressure rises across the filter.

Having a castellated outer surface increases the effective surface area, thereby lowering the differential pressure and increasing the dirt holding capacity of the filter.

Overall, Bonfil™ is an effective filter for removal of gels, deformable agglomerates, and other process by-products in conditions where high viscosity, high temperatures and aggressive liquids are present.

**Typical Applications**
- Organic chemicals
- Process water
- Inks and paints (not for electrophoretic paints)
- Emulsions
- Adhesives
- Lacquers and varnishes
- Epoxy resins and waxes
- Plastics
- Coolants, machine oils and manufacturing fluids
- Fertilisers and pesticides

**Features and Benefits**
- Graded pore density: Consistent filtration with lower differential pressure drop across the cartridge ensures longer filter life.
- Castellated: Increased surface area for greater dirt holding capacity.
- Resin bonded rigid structure: Prevents off-loading of contaminant during pressure surges and high differential pressure.
- Broad chemical compatibility: Suitable for aggressive chemical applications.
- Low disposable costs: Coreless filter, does not contain plastics or metals and easily crushed or shredded.
- Broad range of micron sizes (1µm to 150µm): Suitable for clarification and removal of gels and deformable agglomerates.

**Specifications**

**Operating Characteristics**
- Maximum change out differential pressure: 50 psid (3.45 bar).
- Recommended change out differential pressure: 35 psid (2.41 bar).
- Maximum operating temperature: 121°C (250°F).

**Materials of Manufacture**
- Polyester Fibre Resin 1 to 150 micron
- Acrylic Fibre Resin 1 to 150 micron

**Part Number/Ordering Guide for Resin Bonded Filters**

<table>
<thead>
<tr>
<th>Micron Rating (µm)</th>
<th>Method of Construction</th>
<th>Length (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>EP Polyester fibres</td>
<td>9.75</td>
</tr>
<tr>
<td>0.2</td>
<td>EP Polyester fibres</td>
<td>10</td>
</tr>
<tr>
<td>0.5</td>
<td>EP Polyester fibres</td>
<td>19.5</td>
</tr>
<tr>
<td>1.0</td>
<td>EP Polyester fibres</td>
<td>20</td>
</tr>
<tr>
<td>2.5</td>
<td>EP Polyester fibres</td>
<td>29.25</td>
</tr>
<tr>
<td>5.0</td>
<td>EP Polyester fibres</td>
<td>30</td>
</tr>
<tr>
<td>10.0</td>
<td>EP Polyester fibres</td>
<td>39</td>
</tr>
<tr>
<td>25.0</td>
<td>EP Polyester fibres</td>
<td>40</td>
</tr>
<tr>
<td>75.0</td>
<td>EP Polyester fibres</td>
<td>40</td>
</tr>
<tr>
<td>100.0</td>
<td>EP Polyester fibres</td>
<td>40</td>
</tr>
<tr>
<td>125.0</td>
<td>EP Polyester fibres</td>
<td>40</td>
</tr>
</tbody>
</table>

E.g.: D10AP09 = 10µm Acrylic 9.75" long
**Stabifil™**

Convenient, Robust and Economic Stabilisation of Beverages

We are a leading manufacturer of porous polymeric materials and filter cartridges. Stabifil™ has been developed as a unique technology that is at the interface of Porvair’s filtration and porous material technology. The unique manufacturing process allows contact between the adsorbent and the beverage to be at its optimal.

This process suffers no loss of PVPP in process and therefore protects the quality of the beverage and integrity of the process.

The module design maximises performance and packing density. These serviceable modules are supplied in purpose designed modular housings, sized around common industry standards. The length and number of these units can be configured to meet flow rate and batch size requirements.

Stabifil™ is highly flexible due to the robustness of the composite material, which enables it to be be easily incorporated into any process where beverage stabilisation is required.

### Typical Applications

- **Beer Stabilisation**
  - Removal of haze-active polyphenols to allow beer to be stored and minimise reduction in clarity.
  - Reduce chill haze in beers that are served extra-cold.

- **Wine Stabilisation**
  - For the elimination of haze, to enhance clarity
  - Spills
  - Reduction of haze caused by trace amounts of polyphenols prevalent in raw materials e.g. brandy

- **Vinegar**
  - To ensure a clear and stable product by removing trace amounts of haze-active polyphenols

- **Fruit Juice**
  - To enable a clear product to be manufactured and stored; apple juice, concord grape juice and grapefruit juice are typical applications

- **Ice Tea**
  - To remove astrignency and improve the product’s taste in ‘real’ iced teas.

### Features and Benefits

- **Easy regeneration**
  - Hot caustic regeneration can be performed in-situ and with material fully enclosed, making integration and operation safer and easier.

- **Robust characteristics**
  - Higher pressure drops are feasible with no hysteresis and damage as compared to powder beds.

- **Clean and safe process**
  - No requirement to handle loose powder with associated risks to operators, equipment damage and loss of adsorbent.

- **Flexible and dynamic stabilisation**
  - Degree of stabilisation required can easily be altered by changing the flow rate to increase or decrease the contact time between the adsorbent and the beverage at any stage during the process.

- **Capacity is easily increased at minimal cost**
  - More processing capacity or higher stabilisation are achieved by increasing the number of modules.

- **Accurate and reproducible**
  - Polymer matrix and adsorbent are precisely manufactured to ensure the doseage is accurate to minimise batch-to-batch variation.

- **Minimal loss of beverage in adsorbent media**
  - The beverage is easily expelled from the matrix, which has low liquid retention properties.

- **Low capital cost and investment**
  - Low cost filter housings available to facilitate each module. A minimal amount of technical training is required prior to operation.

### Ordering Information

For ordering information please contact a member of the sales team.

### Stabifil™ within the Treatment System

- **Untreated Beer**
  - Pre-filter

- **Stabifil™ TEH™**
  - Cartridge media

- **Cartridge Construction**

  - Stabifil™ cartridges are constructed from FDA CFR Title 21 tested materials that are proven to be food-safe and meet EC 10/2011. Stabifil™ cartridges do not contain ‘soluble additives’ and hence meet the requirements of German ‘Beer Purity Laws’.

  - Stabifil™ cartridges are built using technology that is unique to our filter cartridges and porous polymers.

  - No glues or resins are used to bond the adsorbent, polymer or cartridge hardware.

### Cartridge Construction

- **Polyphenol removal - various beers**

  - For every beer type, effective and consistent removal was achieved. The second chart shows how polyphenol removal for a particular beer type changed throughout the life of the Stabifil™ cartridge. Polyphenol removal - Beer 2 after ‘x’ cycles

### Specifications

- **Materials of Manufacture**
  - Filter media: Vycom® porous polyethylene co-injected with Polyvinylpolypyrrolidone (PVPP)

  - End fittings: Polypropylene

  - Hardware: Stainless Steel 316 or 316L

- **Cartridge Dimensions (Nominal)**

  - Diameter: 180mm (7.09”)

  - Length: 1000mm (39.37”)

- **Gaskets and O-Rings**

  - FDA approved Ethylene Propylene, Silicone, Viton® or Nitrile

- **Operating Temperature**

  - Maximum Continuous: 80°C (176°F)

  - The tests used a Stabifil™ in the form of a J-type module. The selected flow rate gave an adsorbent/beverage contact time of 25 seconds. After every processing cycle, this system underwent in-situ regeneration with caustic and reverse-osmosis water. A nitric acid wash was added every 3rd regeneration cycle to negate any effects of beer stone formation.

  - No loss in performance was seen after 50 processing and regeneration cycles. Circulation of hot caustic was used to simulate a further 150 regenerations with no adverse effects. Furthermore, no powder was present in any processed beverage or effluent stream.
NanoKey™
High Efficiency Electro-Adsorptive Cartridge Filters

A range of sub-micronic filter cartridges for the removal of contaminants from mainstream water supply, including viruses, bacteria, cysts and endotoxins. NanoKey™ cartridge filters are manufactured from nanoalumina fibres on glass fibre, with a polypropylene core support, meaning that every 1m² of filter media has a greater surface area than 42,000m².

The NanoKey™ is also available as a carbon option, which has the ability to remove humic and total organic compounds (TOCs).

Features and Benefits
- Efficiency greater than or equal to polymeric UF/MF membranes with higher flow and pressure drop
- > 50 millivolt streaming zeta potential
- Removes “small” materials not captured by conventional filters
- Captures organic/microbial macromolecules
- Mean pore size 1.25 microns
- Cartridge pressure drop < 0.1 bar
- Standard or carbon versions of Nanomedia are available

Typical Applications
NanoKey™ cartridge filters are suitable for the sub-micronic filtration of a wide range of process liquids.
- Reverse Osmosis Prefiltration
  - Reduces biofouling by reducing virus, bacteria, cysts, endotoxin, colloidal silica and iron
- Beverage bottling
  - Improves the taste, odor, clarity and safety of potable water
- Agriculture
  - Purifies water producing healthier animals with less medication and reduces bacteria for washing fruits and vegetables
- Industrial Water
  - Protects cooling towers, boilers and chillers
- Semi-Conductor
  - Metals recovery and transient PAC removal from carbon bed
- Pharmaceutical
  - Membrane pretreatment and endotoxin reduction in water
- Wastewater
  - Metals removal, pathogen and the reduction of TOCs

Ordering Information
For ordering information please contact a member of the sales team.

Specifications
Materials of Manufacture
- Filter media: Nano-Alumina coated Microglass fibres
- Powdered activated carbon
- Membrane support: Polypropylene

Micron Ratings
1.25µm

Effective Filtration Area
1m² of filter media = 42,000m² of surface area

Selection Guide

<table>
<thead>
<tr>
<th>Model #</th>
<th>Micron Rating</th>
<th>Cartridge Length</th>
<th>Cartridge Width</th>
<th>Max. Flow Rate gpm (lpm)</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNKS10D</td>
<td>Nano Range</td>
<td>9 3/4&quot; (248mm)</td>
<td>2 3/4&quot; (70mm)</td>
<td>5 (22.7)</td>
<td>Single Faucet (Kitchen)</td>
</tr>
<tr>
<td>CNKS20D</td>
<td>Nano Range</td>
<td>20&quot; (508mm)</td>
<td>2 3/4&quot; (70mm)</td>
<td>10 (45.9)</td>
<td>Single Faucet (High Capacity)</td>
</tr>
<tr>
<td>GCNKS10D</td>
<td>Nano Range</td>
<td>9 3/4&quot; (248mm)</td>
<td>4 1/2&quot; (108mm)</td>
<td>11 (45)</td>
<td>House</td>
</tr>
<tr>
<td>GCNKS20D</td>
<td>Nano Range</td>
<td>20&quot; (508mm)</td>
<td>4 1/2&quot; (108mm)</td>
<td>22 (100)</td>
<td>House (High Capacity)</td>
</tr>
</tbody>
</table>

Cartridge Dimensions (Nominal)
- Diameter: 180mm (7.09")
- Length: 1000mm (39.37")

The retention/adsorption of the NanoKey™ products may be determined/optimised through changes in filtration conditions.
Our range of auxiliary products are manufactured to provide supplementary system support.

Differential pressure indicators (DPIs) provide indication of increasing differential pressure, filter blockage or by-pass by both visual and electrical signal. A DPI can be set to provide a signal of decreasing differential pressure in the system and, in some instances, signal that the system has been operated.

These are lightweight, robust and reliable for use in hydraulic, fuel and lube oil systems.
A wide range of differential pressure indicators (DPIs), which help protect critical aircraft systems, providing an indication of impending or actual blockage when the filter element has become blocked and requires maintenance or replacement.

These components monitor the pressure differential between the upstream and downstream of a filter element, providing condition monitoring and an alert to potentially dangerous system conditions, such as drastic flow restrictions, filter element damage, line blockage or upstream release of contaminants.

Designed and manufactured using proven robust techniques to ensure resistance against the most severe pressure and vibration environments.

Indication can be by a visual or electrical output, or a combination of both. Visual indication is provided by a red coloured pop-up button that remains in the actuated position until manually reset. Electrical outputs can be provided by flying lead or a wide variety of standard and bespoke electrical connectors.

In addition to standard differential pressure indicators and dependent on specification requirements, we can incorporate additional design features such as:

- **Thermal lockout**
  Preventing false actuations during expected high viscosity pressure conditions such as cold system start-up

- **Non-reset mechanisms**
  Requiring removal of the DPI and a specific orientation in order to reset, preventing a fail-safe against

- **Surge damping**
  Providing resistance against false actuations during inadvertent system pressure spikes.

**Typical Applications**
- Fuel
- Lubricant
- Hydraulic
- Coolant
- Pneumatic

**Features and Benefits**
- Lightweight
- Robust structure

**Options**
- Visual
- Electrical

**Ordering Information**
For ordering information please contact a member of the sales team.

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**Ordering Information**
For ordering information please contact a member of the sales team.
An extensive range of porous metal and polymeric materials are manufactured to provide optimum solutions for a wide variety of applications. These materials can be purchased for OEM products or be integrated and package into finished products. Core materials are:

- **Sinterflo®** sintered porous metal materials
  - Mainly sintered porous stainless steel and bronze materials, sintered metal fibre and multi-layer stainless steel meshes
- **Vyon®** sintered porous plastic materials
  - Mainly sintered porous polyethylene and polypropylene materials

The applications for these materials include:

- Filtration, many and diverse applications including air, water, steam and aggressive chemicals
- Battery vents and flame arrestor plugs
- Flame arrestors for gas sensor protection
- Powder fluidisation and solids handling
- Silencing
- Vacuum tables
- Sensor protection
- Sparging
- Fragrance emanation and chemical controlled release
Manufactured from randomly laid metal fibres, sinter-bonded to form a uniform high porosity filter medium. Sinterflo® F demonstrates a significantly low pressure drop, high permeability and excellent dirt holding capacity.

With the feasibility to formulate metal fibres to meet specific application requirements, combined with inherent durability, sintered metal fibre filters can be cleaned in-situ without interrupting process flow, this provides the ultimate in process economics by minimising downtime.

**Typical Applications**
- Catalyst recovery and retention
- Gasification
- Chemical production
- Vent filters
- Agrochemical applications
- Liquid and gaseous ammonia
- Pharmaceutical powder recovery
- Steam filtration
- Culinary steam
- Process steam

**Features and Benefits**
- Resistant to high temperatures and corrosive environments
  Suitable for aggressive air and liquid filtration applications
- Can be cleaned in-situ
  Reduces downtime to a minimum, providing excellent process economics
- Pleatable structure
  Higher surface area with excellent dirt holding capacity for longer on-stream life
- High void volume
  High permeability combined with low pressure drop

**Ordering Information**
For ordering information please contact a member of the sales team.

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A robust material is manufactured from sinter-bonded metal powders. Primarily produced in 314L grade for use in temperatures up to 540ºC (1,004ºF) depending on process conditions and offering resistance to most chemicals. Sinterflo® P media can also be produced in other grades of stainless steel and alloys such as Inconel®, Hastelloy® and Monel®.

Sinterflo® P powder media can be manufactured in both disc format or in cylinder format. For cylinders, our isostatic pressing ensures greater media uniformity with no welds, leading to increased corrosion resistance.

**Typical Applications**
- Catalyst recovery
- Polymer melt
- Gasification
- Chemical production
- Slurry oils
- Steam filtration
- Culinary steam
- Process steam

**Features and Benefits**
- Resistant to high temperatures and corrosive environments
  Suitable for aggressive air and liquid filtration applications
- Strength and Robustness
  Ensures reliability and longer on-stream service life
- Excellent media uniformity
  Allows consistent filtration and effective loading
- Seamless structure
  Weld free, giving increased corrosion resistance

**Ordering Information**
For ordering information please contact a member of the sales team.
Sinterflo® M
Metal Mesh

Precision woven meshes in various types of weaves, from plain square mesh to Dutch (Hollander) Twill Weave, to give the most defined absolute rating. Plain square weave for simple sieving duties through various weave patterns (Reverse Plain Dutch, Broad Mesh Twill and Single Plain Weave) to Dutch Twill Weave to provide for the most comprehensive selection of surface filtration duties.

Typical Applications
- Catalyst recovery and retention
- Gasification
- Chemical production
- Vent filters
- Aqueous and gaseous applications
- Liquid filtration
- Culinary steam
- Process steam

Features and Benefits
- Good permeability
- High tensile strength
- Available from single wrap designs through to complex multi-layered structures in pleated constructions to optimise the area available
- Some meshes available in a diffusion bonded version to increased performance security of pore shape and size
- Available in the broadest range of pore sizes of any filter media type
- Available in 316L stainless steel as standard with other alloys such as 304L, stainless steel, 904L stainless steel, Inconel®, Hastelloy®, Monel® and Fecralloy® on request

Ordering Information
For ordering information please contact a member of the sales team.

Sinterflo® MC
Sintered Metal Mesh Composite

Multi-layer precision filters, produced using a novel sintering process resulting in superior mechanically strong structures.

Primarily made from 316L stainless steel, also available in Inconel®, Hastelloy®, and Monel® materials for use in the most aggressive environments. Depending on atmospheric conditions, our stainless steel option can be used in temperatures up to 540ºC (1,004ºF), with intermittent operating peaks up to 650ºC (1,202ºF), and are resistant to most chemicals.

Formats available include flat sheet, custom shapes, welded cones and welded cylinders, and the materials can be manufactured in a variety of layer combinations depending on your specific application.

Standard material combinations can include perforated plates for additional support.

Sinterflo® MC is available in a range of filtration grades from 2 micron.

Typical Applications
- Powder fluidisation
- Liquid applications
- Slurry oil
- Steam filtration
- Culinary steam
- Process steam

Features and Benefits
- Fabricated shapes without expensive support structures or joining strips
- Can be cleaned repeatedly
- Suitable for reuse; providing an economical choice
- Non-shedding media
- Provides resistance to mechanical abrasion
- Easily custom-engineered
- To meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment

Ordering Information
For ordering information please contact a member of the sales team.
 Excellent chemical compatibility, exceptional strength and resistant to most acids, bases, many organic chemicals and temperatures up to 110ºC (230ºF).

Produced in both sintered polyethylene and polypropylene, materials are available in:

- Roll
- Sheet
- Cut shapes
- Cones
- Moulded formats

**Typical Applications**

- Domestic water filters
- Activated carbon filters
- Chemical filters
- Air and dust filters
- Fluidisation and aeration of bulk solids
- Battery vents
- Pneumatic silencers
- Water and effluent aeration
- Fragrance emitters
- Vacuum platens and cones
- Vacuum hold down tables covers

**Features and Benefits**

- Strong lightweight and self supporting
- Versatile material that can be manufactured in a variety of shapes and sizes
- Narrow controlled pore size distribution
- Very efficient and effective filtration material
- High and even porosity
- Low pressure drop and even flow
- Chemically inert
- Resistant to many chemicals making it suitable for many applications.

**Ordering Information**

For ordering information please contact a member of the sales team.

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**Vyon® Material Range**

Through a range of propriety techniques, our advanced Vyon® materials deliver enhanced performance techniques. Below are the media grades and the standard and specialist treated materials available:

**Vyon® Media Grades**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Liquids (µm)</th>
<th>Gases (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>M</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>F</td>
<td>35</td>
<td>10</td>
</tr>
<tr>
<td>HP</td>
<td>70</td>
<td>30</td>
</tr>
</tbody>
</table>

All Vyon® grades are available in polyethylene. Only Vyon® D, F and HP grades are available in Polypropylene.

**Vyon® Hydrophobic**

Our hydrophobic Vyon® is permanently treated to prevent the material from wetting-out in many organic solvents.