porvair
filtration group

Filtration Catalogue

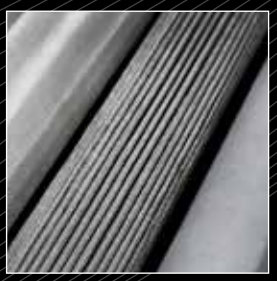
Product Range 2020















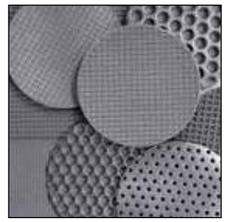


World Class Filtration Solutions

Porvair Filtration Group

Filtration Catalogue

Product Range 2020



www.porvairfiltration.com

Contents by Product

Porvair Filtration Group

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 inerting systems, thrust reversers, coolant systems, braking and steering, power generation and air intakes.

Food and Beverage

Our range of filters are installed to effectively remove particulates, yeast, mould spores and bacteria for use in applications, such as: wineries, 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 technically supported by our qualified scientists and laboratory services.

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 manufactures 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.

Gasification

We are active in a number of areas concerning the generation and safeguarding of energy production.

We are leading innovations 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 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.

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 architechtures.

Inprinta® is our inkjet sales division, responsible for the design and manufacture of a wide range of capsile, in-line and last chance filters to offer solutions for inkjet filtration.

inprinta

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.

Nuclear

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 inerting systems, thrust reversers, coolant systems, braking and steering, power generation and air intakes.

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-slurry oil systems, flue gas emission solutions, filter replacements parts and metal filter elements.

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 treatement, irrigation to residential water.

We also manufacture a range 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.

Contact Information:

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

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India, Mumbai Division
Tel: +91 22 25 976464 / +91 22 25 976465
Email: infoIN@porvairfiltration.com

Our Locations

Segensworth, Hampshire, UK

Porvair Filtration Group's head office is located in Segensworth, UK. The following business units also operate out of Segensworth:

- Aerospace and Defence
- Energy
- Nuclear

ISO9001:2015, AS9100 Rev D, EASA (Part 21 Subpart G) approved.

Porvair Filtration Group Ltd., Segensworth Division
1 Concorde Close
Segensworth
Fareham
Hampshire
PO15 5RT
UK

Tel: +44 (0)1489 864330
Email: info@porvairfiltration.com

New Milton, Hampshire, UK

Our New Milton Division is home to our process departments, which include:

- Food and Beverage
- Pharmaceutical
- Polymer
- Printing
- Process

ISO9001:2008 approved.

Porvair Filtration Group Ltd., New Milton Division
Queensway
Stem Lane
New Milton
Hampshire
BH25 5NN
UK

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

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.

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

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 OEM Materials, Printing, Process, Nuclear and Water.

ISO9001:2008 approved. AS9100 Rev C approved.

Porvair Filtration Group Inc., Ashland Division
301 Business Lane
Ashland, Virginia 23005
USA

Tel: +1 804 550 1600
Email: infoUS@porvairfiltration.com

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

ISO9001:2008 approved.

Porvair Filtration Group Inc., Caribou Division
15 Armco Avenue
Caribou, Maine 04736
USA

Tel: +1 207 493 3027
Email: infoUS@porvairfiltration.com

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 Wafer Manufacturing
- Flat Panel Display and Hard Disk Drive Manufacturing

Porvair Filtration Group Inc., Boise Division
1226 Caldwell Boulevard
Nampa, Idaho 83651
USA

Tel: +1 208 461 2090
Email: infoUS@porvairfiltration.com

Xiaogan, Wuhan, China

Our Wuhan Division in China provides an operational base for marketing our extensive range of products within Asia.

Porvair Filtration Group, Wuhan Division
Chengdong Area
Square Industrial Park, North District
Xiaonan Economic Development Zone
Xiaogan, 432000
China

Tel: +86 25 5758 1600
Sales: +86 151 0101 2510 / +86 189 368 66188
Email: infoCN@porvairfiltration.com

Mumbai, Maharashtra, India

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

Porvair Filtration India PVT. Ltd., Mumbai Division
Gangotri Glacier Annex, Kavesar
Opposite Vijay Nagari
Off Ghodbunder Road
Thane (W), 400607
India

Tel: +91 22 25 976464 / +91 22 25 976465
Email: infoIN@porvairfiltration.com

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 (Sinterflo®), as well as developing a range of filters for fuel tank inerting 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.

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Email: infoIN@porvairfiltration.com

Metal Filter Elements

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 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, 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
- Agrochemical
- Steam filtration
  - Culinary steam
  - Process steam
- Pharmaceutical powder recovery
- Polymer melt

Features and Benefits

- Resistant to high temperatures and corrosive environments
- High void volume
- Excellent cleanability and dirt holding capacity
- Minimal maintenance costs
- Available in 316L as standard with other alloys such as Inconel® 601, Hastelloy® X, NiCrMo Alloy 59 and Fecralloy® on request

Ordering Information

For ordering information please go to page 246.

Specifications

Materials of Manufacture

316L stainless steel standard. Inconel®, Hastelloy®, NiCrMo Alloy 59 and Fecralloy® on request or by process selection. Additional alloys are available on request.

Element Dimensions*

Diameter: 66mm (2.6") 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

0.05m² (0.55ft²) 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* (all lengths)

Normal flow direction: 15bar (218psi)

Reverse flow direction: 3bar (44psi)

** Grade dependant.*

Operating Temperature

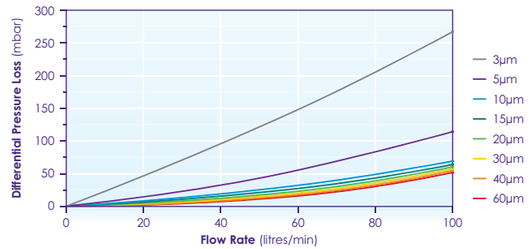
Maximum continuous: From -195°C (-319°F) to 340°C (644°F) seal limiting
From -269°C (-452°F) to 1000°C (1832°F) alloy limiting

Sinterflo® F Stainless Steel Media Grades

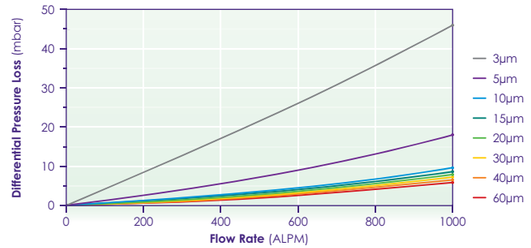
Micron Rating (µm) (micron code)	Liquids (µm)* (99.9% efficiency)	Gases (µm) (99.9% efficiency)
3 (0003)	3	1
5 (0005)	5	1.5
10 (0010)	10	3
15 (0015)	15	4
20 (0020)	20	6
30 (0030)	30	8
40 (0040)	40	11
60 (0060)	60	16

** Single Pass Efficiency Test in accordance with ASTM795 ACFTD.*

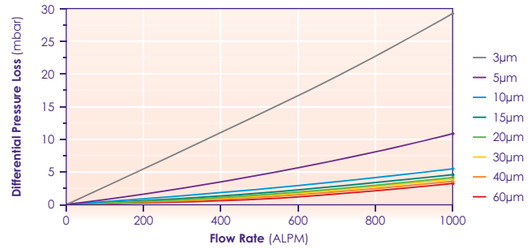
Typical Flow Rates in Water*



Typical Flow Rates in Air*



Typical Flow Rates in Steam*



** Using a 10 inch element, at ambient temperature.*

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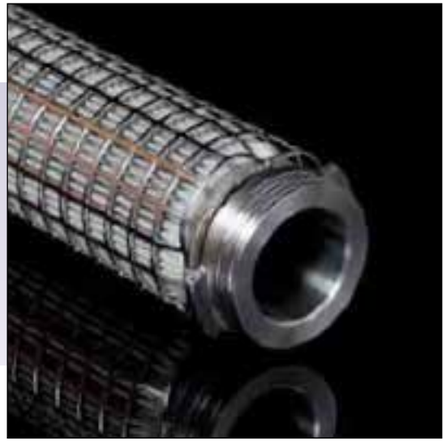
Sinterflo® F

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 fibre 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 steam
  - Process steam
- Pharmaceutical powder recovery
- Polymer melt

Features and Benefits

- Resistant to high temperatures and corrosive environments
- High void volume
- Excellent cleanability 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® on request.

Ordering Information

For ordering information please go to page 246.

Specifications

Materials of Manufacture

316L stainless steel standard. Inconel®, Hastelloy®, NiCrMo Alloy 59 and Fecralloy® available on request or by process selection. Additional alloys are available on request.

Cartridge Dimensions*

Diameter: 66mm (2.6") 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

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

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)

Normal flow direction: 25bar (363psi)

Reverse flow direction: 3bar (44psi)

** Grade dependant.*

Operating Temperature

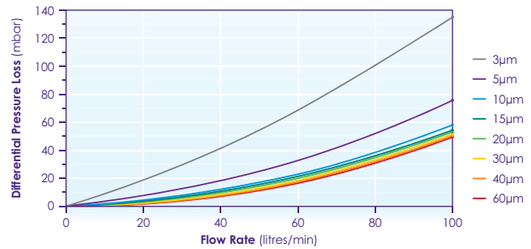
Maximum continuous: From -195°C (-319°F) to 340°C (644°F) seal limiting
From -269°C (-452°F) to 1000°C (1832°F) alloy limiting

Sinterflo® F Stainless Steel Media Grades

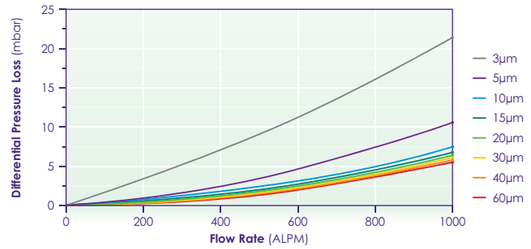
Micron Rating (µm) (micron code)	Liquids (µm)* (99.9% efficiency)	Gases (µm) (99.9% efficiency)
3 (0003)	3	1
5 (0005)	5	1.5
10 (0010)	10	3
15 (0015)	15	4
20 (0020)	20	6
30 (0030)	30	8
40 (0040)	40	11
60 (0060)	60	16

** Single Pass Efficiency Test in accordance with ASTM795 ACFTD.*

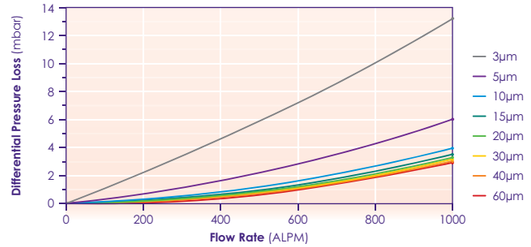
Typical Flow Rates in Water*



Typical Flow Rates in Air*



Typical Flow Rates in Steam*



** Using a 10 inch cartridge, at ambient temperature.*

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Email: infoIN@porvairfiltration.com

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 420ºC (788ºF), 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.

Our isostatic pressing ensures greater media uniformity with no welds, 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 steam
  - Process steam
- 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, 904L stainless steel, 310 stainless steel, Inconel®, Hastelloy® and Monel® on request, as well as sintered powdered bronze.

Ordering Information

For ordering information please go to page 246.

Specifications

Materials of Manufacture

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

Element Dimensions*

Diameter: 66mm (2.6") 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

0.05m² (0.55ft²) 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* (all lengths)

Normal flow direction: 25bar (363psi)

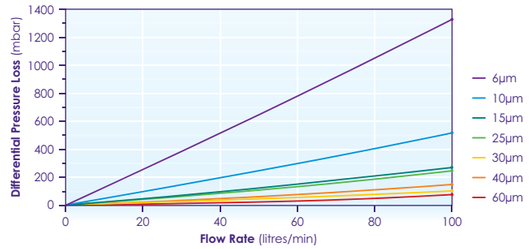
Reverse flow direction: 10bar (145psi)

** Grade dependant.*

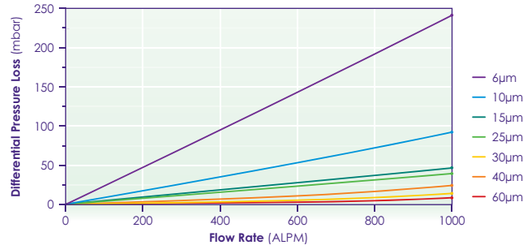
Operating Temperature

Maximum continuous: From -195°C (-319°F) to 340°C (644°F) seal limiting
From -269°C (-452°F) to 925°C (1,697°F) alloy limiting

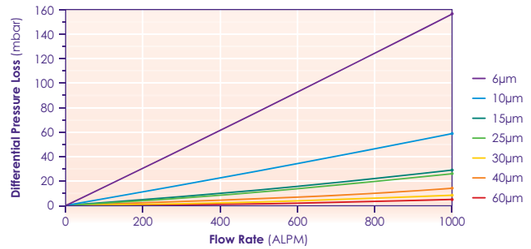
Typical Flow Rates in Water*



Typical Flow Rates in Air*



Typical Flow Rates in Steam*



** Using a 10 inch element, at ambient temperature.*

Sinterflo® P Stainless Steel Media Grades

Stainless Steel Grades	Micron Rating (µm) (micron code)	Liquids (µm)* (99.9% efficiency)	Gases (µm) (99.99% efficiency)
S10	6 (0006)	6	0.7
S20	10 (0010)	10	0.8
S30	15 (0015)	15	4
S36	25 (0025)	25	5
S40	30 (0030)	30	6
S41	40 (0040)	40	8
S50	60 (0060)	60	15

** Single Pass Efficiency Test in accordance with ASTM795 ACFTD.*

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Tel: +91 22 25 976464 / +91 22 25 976465
Email: infoIN@porvairfiltration.com

Sinterflo® M

Cylindrical Metal Mesh Filter Elements

The Sinterflo® M demonstrates good permeability, high tensile strength and is 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.

Typical Applications

- Catalyst recovery and retention
- Gasification and chemical production
- Vent filters
- Agrochemical
- Steam filtration
  - Culinary steam
  - Process steam
- Pharmaceutical powder recovery
- Polymer melt

Features and Benefits

- Manufactured in various types of weaves
- Precise aperture in size and shape
- Good permeability
- All welded, robust construction
- Available from single layered designs to complex multi-layered structures
- Available in the 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.

Ordering Information

For ordering information please go to page 246.

Specifications

Materials of Manufacture

316L stainless steel standard. 304L stainless steel, Inconel®, Hastelloy® and Monel® available on request or by process selection.

Element Dimensions*

Diameter:	66mm (2.6") 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

0.05m² (0.55ft²) 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* (all lengths)

Normal flow direction:	15bar (218psi)
Reverse flow direction:	3bar (44psi)

** Grade dependant.*

Operating Temperature

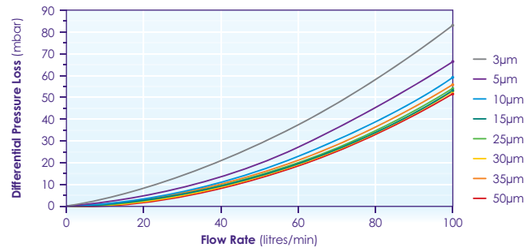
Maximum continuous:	From -195°C (-319°F) to 340°C (644°F) seal limiting From -269°C (-452°F) to 1000°C (1832°F) alloy limiting

Sinterflo® M Stainless Steel Media Grades

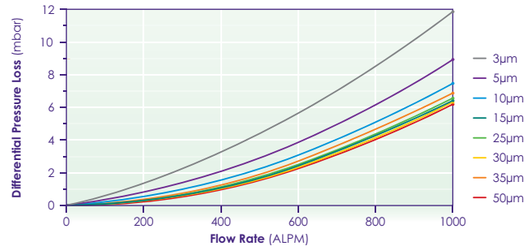
Micron Rating (µm) (micron code)	Liquids (µm)* (99.9% efficiency)	Gases (µm) (99.9% efficiency)
3 (0003)	10	2
5 (0005)	18	13
10 (0010)	25	18
15 (0015)	35	25
20 (0020)	30	20
30 (0030)	40	30
35 (0035)	50	45
70 (0070)	75	60

** Hard spherical particle maximum passed.*

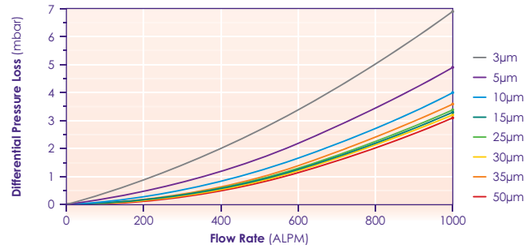
Typical Flow Rates in Water*



Typical Flow Rates in Air*



Typical Flow Rates in Steam*



** Using a 10 inch element, at ambient temperature.*

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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 316L stainless steel as standard with other alloys such as 304L stainless steel, Inconel® and Monel® on request.

Typical Applications

- Catalyst recovery and retention
- Gasification and chemical production
- Vent filters
- Agrochemical
- Steam filtration
  - Culinary steam
  - Process steam
- Pharmaceutical powder recovery
- Polymer melt

Features and Benefits

- Manufactured in various types of weaves
- Precise aperture in size and shape
- Good permeability
- All welded, robust construction
- Available from single layered designs to complex multi-layered structures in pleated constructions to optimise the area available
- Available in the 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.

Ordering Information

For ordering information please go to page 246.

Specifications

Materials of Manufacture

316L 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") 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

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

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)

Normal flow direction: Up to 25bar (363psi)
Reverse flow direction: 3bar (44psi)

** Grade dependant.*

Operating Temperature

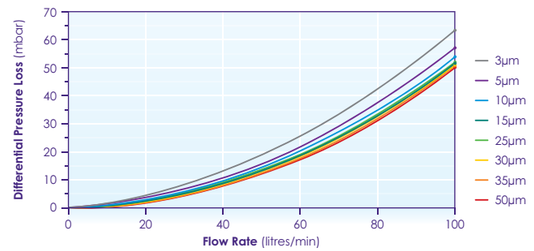
Maximum continuous: From -195°C (-319°F) to 340°C (644°F) seal limiting
From -269°C (-452°F) to 1000°C (1832°F) alloy limiting

Sinterflo® M Stainless Steel Media Grades

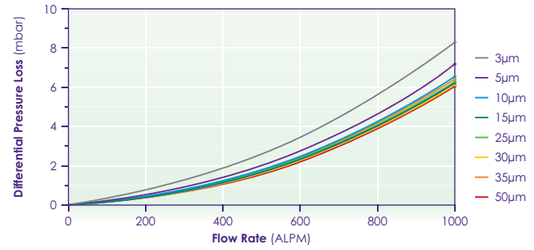
Micron Rating (µm) (micron code)	Liquids (µm)* (99.9% efficiency)	Gases (µm) (99.9% efficiency)
3 (0003)	10	2
5 (0005)	18	13
10 (0010)	25	18
15 (0015)	35	25
20 (0020)	30	20
30 (0030)	40	30
35 (0035)	50	45
70 (0070)	75	60

** Hard spherical particle maximum passed.*

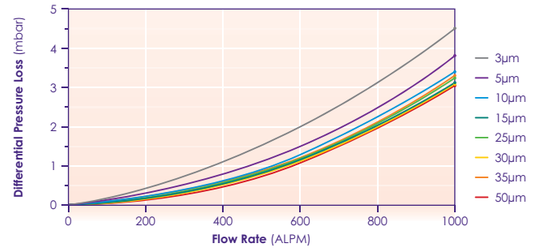
Typical Flow Rates in Water*



Typical Flow Rates in Air*



Typical Flow Rates in Steam*



** Using a 10 inch cartridge, at ambient temperature.*

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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 services 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

Materials of Construction

316L Stainless Steel

Media Grades

FMC16

Gaseous Removal Efficiency[1]

100% at 1.6 µm

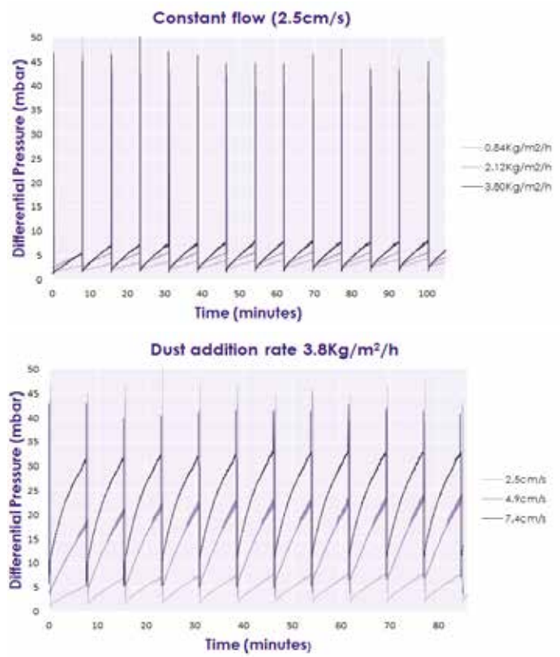
Media Grades

FMC16

Air Permeability (bar (d)-m2/m3/hr)

5.16E-06

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.

1. Fractional gaseous efficiency with SAEJ 726 test dust at 3.5cm/s velocity

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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 reduces 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 fibre
- Cellulose acetate fibre
- Nylon 6 and 66 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.

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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 fibre
- Cellulose acetate fibre
- Nylon 6 and 66 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.

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Sinterflo® MC Septa Filter Elements

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 efficiency, 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: -50°C to 550°C (-65°F to 1,000°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 tubesheet 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.

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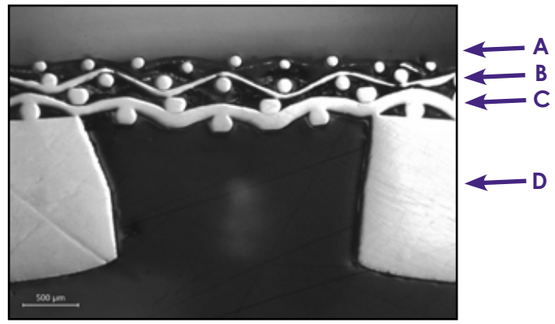
Specifications

Construction

Sinterflo® septa are made from multiple layers of woven wire mesh and perforated metal, which are sintered together into a rigid porous filtration medium.

Each layer is chosen for a particular purpose: filtration, flow distribution, backwash performance, strength and rigidity, etc. This unique material is then formed and welded into filter septa - designed and tested specifically for nuclear applications.

All Sinterflo® septa are GTAW welded using the latest techniques for weld purity and strength. All septa are 100% bubble-point tested (ARP-901) to ensure the desired filtration performance is met.



A - Protective guard mesh on O.D.
B - Precision filtration weave
C - Flow distribution layer
D - Perforated metal inner core

Materials of Manufacture

Filter media: 316L stainless steel wire mesh (various weaves).

End fittings: Stainless steel adapters of various configurations.

Dimensions

Outside diameter: 1-inch, 2-inch, custom.

Operating Temperature

Maximum continuous: -50°C to 550°C (-65°F to 1,000°F).

Other applications for our Sinterflo® MC media include:

- **Cup strainers**
  Cup strainers are underdrain strainer elements used for resin retention in deep bed demineralizers. Our strainer elements provide the required resin retention with high open area for flow, allowing improved flow distribution and ion exchange capacity utilization.
- **Vessel laterals**
  Our Sinterflo® laterals are custom designed to retain ion exchange resin beads while providing more uniform flow distribution throughout a deep bed demineralizer resin bed to optimize resin utilization.
- **Resin trap assemblies**
  Our resin trap (also called post-strainer) assemblies are designed to ensure that the ion exchange resins and precoat media are retained to avoid chemistry transient in reactor coolant and steam generators. Our resin traps are made from Sinterflo® MC media for precise resin capture and to meet flow requirements with low clean pressure drop.

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Pleated Filter Elements

For the Aerospace Industry

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 For more information please refer to page 36.

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.

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Leaf Disc and Solid Plate Filters

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.

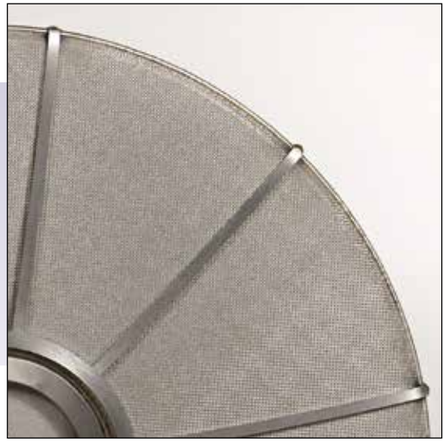
In addition to offering a wide range of filter media, our leaf disc filters offer the latest design features, ensuring lower pressure drops leading to longer on stream life. The robust construction allows for many cleaning cycles, reducing whole life costs.

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
300bar (4351psi) 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.

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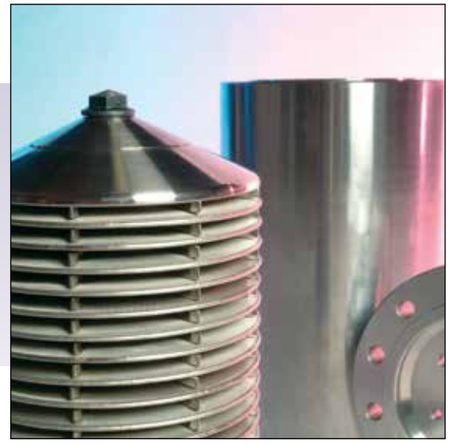
Solid Plate Leaf Disc Filters

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.

Typical Applications

- Polycarbonate films

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

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Disposable Filter Elements and Cartridges

A range of disposable polymeric filters are manufactured in an ISO Class 8, GMP "D" certified cleanroom for 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 precursor, paint, parts washing, powder handling and transmission, cosmetics and toiletries.

Microelectronics

Teffil™ and Teffil™ 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 micron 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 unparallelled 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. For more information, please refer to page 28.

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

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Radial Flow HEPA Filter Inserts

For Nuclear Applications

We manufacture fully compliant radial flow filter inserts for nuclear ventilation applications, qualified to and validated for, all UK nuclear HVAC standards. These HEPA-rated glass fibre pleated filter inserts offer fine levels of filtration efficiency and low differential pressure.

We also manufacture a range of sintered metal fibre, powder and mesh filters for use throughout the nuclear industry; from power generation, through to fuel manufacture, including waste treatment and storage, decommissioning and decontamination activities. We have the expertise and capability to design filtration equipment to meet the most arduous of conditions, including high temperature, aggressive chemicals and high solids environments.

Specifications

Construction

The element filter pack features integrally pleated ribbons to separate and support the pleats. This minimises differential pressure and maximises dirt holding capacity performance.

Materials of Manufacture

End caps, guards, handle:	stainless steel 1.4307 or 1.4404 to BS EN 10088-2
Filter media:	glass fibre
Internal lip seal:	silicone rubber

Dimensions

Outside diameter:	518mm (20.4")
Inside diameter:	340mm (13.4")
Length:	624mm (24.6")

Operating Temperature

Maximum continuous:	80°C (176°F)

Tested in an oven at 500°C (932°F) for 10 minutes to ensure that materials do not contribute to combustion. This does not imply that filters are suitable for operation at the test temperature.

Typical Applications

- **Nuclear Ventilation**
  Radioactive and/or toxic atmospheric air or inert gas handling systems.

Features and Benefits

- **High efficiency**
  Efficiency greater than 99.99% at 950 l/s when tested to
  BS EN ISO 14644-3:2005 Cleanrooms and Associated Controlled Environments – Part 3: Test methods.
- **Temperature and chemical resistance**
  To Type 2 HEPA Insert standards.

Ordering Information

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

Contact Information:

China, Wuhan Division
Tel: +86 25 5758 1600
Email: infoCN@porvairfiltration.com

India, Mumbai Division
Tel: +91 22 25 976464 / +91 22 25 976465
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PolyKey™

Polypropylene Cartridge Filters

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

Features and Benefits

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

Ordering Information

For ordering information please go to page 247.

Contact Information:

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

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

Standard Range

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

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)
2.5" (64mm)
ID 1" (25mm)

Length: 5" (127mm)
10" (254mm)
20" (508mm)
30" (762mm)
40" (1,016mm)

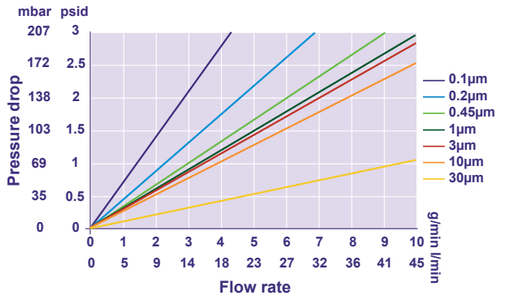
Other lengths available on request.

Filter Retention Specifications*

Liquid Service				
Nominal micron rating	Particulate removal efficiency (Beta ratio)			
	90% (10)	99% (100)	99.9% (1,000)	99.99% (10,000)
0.1	0.1	0.45	0.8	1
0.2	0.2	0.6	1	2
0.45	0.45	1	2	3
1	1	3	7	10
3	3	7	10	15
10	7	10	15	25
30	30	40	50	60

**Data acquired by multi-pass testing. Ratings are based on laboratory tests using ISO ultra-fine test dust for 0.2, 0.45 and 1µ and ISO fine test dust for 5µ. Flow rate l 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.*

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.

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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 10ft² (0.9m²) 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

Ordering Information

For ordering information please go to page 247.

Specifications

Materials of Manufacture

Media: Polypropylene or Polyester

End caps: Polypropylene assembled with Polypropylene hot melt adhesive

Effective Filtration Area

10ft² (0.9m²) per 10" (254mm) length

Nominal Micron Ratings

0.2, 0.45, 1µ in Polypropylene media

5µ in Polyester media

Cartridge Dimensions

Diameter: OD 4.5" (114mm)

Length: 10" (254mm)
20" (508mm)

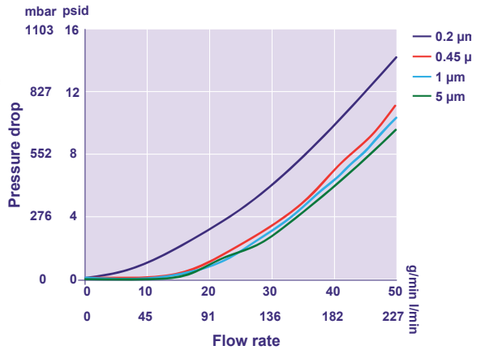
Sized to fit in our 222 GIANT HOUSING® series

Filter Retention Specifications*

Liquid Service				
Nominal micron rating	Particulate removal efficiency (Beta ratio)			
	90% (10)	99% (100)	99.9% (1,000)	99.99% (10,000)
0.2 Polypropylene	0.2	0.6	1.0	2
0.45 Polypropylene	0.45	1	2	3
1 Polypropylene	1	3	7	10
5 Polyester	5	8	10	15

**Data acquired by multi-pass testing. Ratings are based on laboratory tests using ISO ultra-fine test dust for 0.2, 0.45 and 1µ and ISO fine test dust for 5µ. Flow rate l 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.*

Flow / Pressure Drop



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

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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

Ordering Information

For ordering information please go to page 247.

Specifications

Materials of Manufacture

Filter mdia: 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 **Δ**P:

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

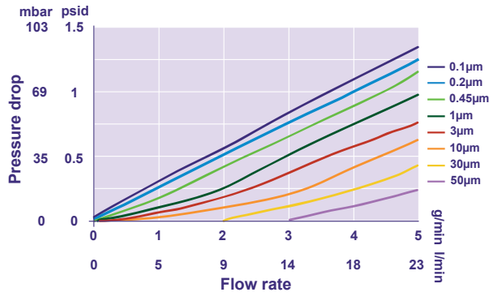
Diameter: OD: 2.75" (70mm), ID 1" (25mm)

Nominal Lengths: 5" (127mm) to 40" (1,016mm)

Filter Retention Specifications

Liquid Service					Gas service
Nominal micron rating	Particulate removal efficiency (Beta ratio)				DOP removal efficiency (%)
	90% (10)	99% (100)	99.9% (1,000)	99.99% (10,000)	
0.1	0.1	0.45	0.6	0.8	99.999
0.2	0.2	0.5	0.7	1	99.99
0.45	0.45	1	2	3	99.985
1	1	3	5	7	93
3	3	7	10	12	65
10	7	10	15	25	50
30	20	30	40	50	15
50	30	40	50	60	---

Flow / Pressure Drop



Microfibreglass media in a pleated construction provides excellent flow rates with minimum pressure drop. Flow rates shown are for a nominal 10" (254mm) cartridge. For fluids other than water, multiply the pressure drop by the fluid viscosity in centipoise.

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Email: infoIN@porvairfiltration.com

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 and also available in Nylon construction for solvent filtration.

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 prefiltration 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.

Ordering Information

For ordering information please go to page 247.

Specifications

Materials of Manufacture

Filter media:	Polypropylene/nylon
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):	3.5 bar (50psi)
60°C (140°F):	1.0 bar (15psi)
80°C (176°F):	0.5 bar (7psi)

Operating Temperature

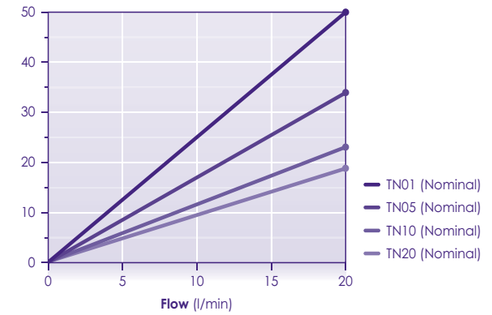
Maximum continuous:	80°C (176°F)

Extractables

Minimum total extractables.

Clean Water Flow Rates

- Typical clean water flow rate:
  A 254mm (10") Tekfil™ single cartridge exhibits the flow-**Δ**P 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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Carbofil™

Activated Carbon Filter Cartridges

The Carbofil™ series is the new generation of carbon cartridges produced by the extrusion process. They provide long service life and superior adsorbtion 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 channelling,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.

The Carbofil™ series activated carbon filter cartridges use premium grade coconut shell extruded carbon blocks and can be supplied in any length and end cap configuration, to meet the requirements of the process application.

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
- 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
- Rapid and high capacity adsorption of contaminants

Ordering Information

For ordering information please go to page 248.

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 40°F (4°C) to 125°F (52°C)

Cartridge Performance

Filter Code	Cartridge Length (mm)	Micron Rating (µm)	Initial Δp (psi) @ flow rate lpm	Chlorine Reduction @ flow rate lpm
CR05-N1	250mm (10")	5	1.4psi @ 4 lpm	>23,000 litres @ 4 lpm
CR05-N2	508mm (20")	5	1.5psi @ 8 lpm	>46,000 litres @ 8 lpm
CR05-N3	762mm (30")	5	1.5psi @ 15 lpm	>69,000 litres @ 15 lpm
CR05-N4	1016mm (40")	5	1.5psi @ 20 lpm	>92,000 litres @ 20 lpm

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.

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Email: infoIN@porvairfiltration.com

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.

This graded density depth filtration mechanism, combined with optimised pleated pack configuration and resultant high surface area, affords high flow capability and exceptional oocyst retention capacity.

Cryptosporidium oocysts removed from the water flow 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

- Mineral water
- Food processing
- Embarkation water supply
- Leisure

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

Ordering Information

For ordering information please go to page 248.

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")
		508mm (20")
	2 modules:	762mm (30")
		1016mm (40")

Effective Filtration Area

Up to 0.6m² per 250mm module

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:

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)

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

In situ steam 60 x 30 minute cycles at 130°C (266°F)
Hot water 200 x 20 minute cycles at 80°C (176°F)

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.

Clean Water Flow Rates

- Typical clean water flow rate:
  A 254mm (10") Cryptofil™ 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.

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Klearfil™

Absolute Rated Pleated Depth Filters

A range of absolute rated cartridge filters are manufactured, featuring the latest developments in melt blown polypropylene filter media technology; Klearfil™ cartridges are based on a robust all polypropylene construction, offering removal ratings from 0.5 to 75 micron absolute.

The combination of up to eight separate filtration layers provides true depth filtration, within a pleated cartridge construction. This design reduces fouling of the filter surface area caused by a broad spectrum of contaminants.

Klearfil™ cartridges are ideally suited for the filtration of process fluids that contain contaminants with a wide range of particle sizes.

The graded multi-layer polypropylene media provides pre-filtration of the process fluid prior to the absolute rated final layer. 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.

Klearfil™ is suitable for applications ranging from bioburden reduction to the clarification of a wide range of process liquids and end products.

Typical Applications

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

Klearfil™ cartridges can also be used as pre-filters or final filters in bulk inkjet filtration, suitable for manufacture with all major ink types:

- Aqueous
- UV
- Solvent
- Dye
- Pigment

Features and Benefits

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

Ordering Information

For ordering information please go to page 248.

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"), 508mm (20")
	2 modules:	762mm (30"), 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 18MΩ.cm

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 (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:

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

In situ steam 80 x 30 minute cycles at 135°C (275°F)
Hot water 200 x 20 minute cycles at 85-90°C (185-194°F)

Extractables

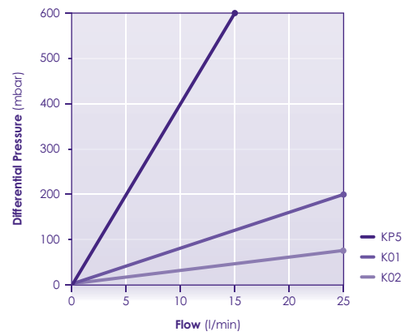
Minimum total extractables. Please refer to the Klearfil™ Validation Guide.

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:
  A 254mm (10") Klearfil™ single cartridge exhibits the flow-**Δ**P 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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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 high dirt capacity glass fibre media. This has the effect of longer service life, improved operating costs and smaller process footprint.

Microfil™ filter cartridges are highly resistant to integrity failure caused by steam sterilisation and have excellent chemical compatibility characteristics.

They are suitable for applications ranging from bioburden reduction to the clarification of a wide range of process liquids and end products.

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

Ordering Information

For ordering information please go to page 248.

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")
	1 module:	254mm (10"), 508mm (20")
	2 modules:	762mm (30"), 1016mm (40")

Effective Filtration Area

Absolute Removal Rating	Effective Filtration Area (each 254mm (10") module)
0.5, 0.8, 1.0, 2.0 and 5.0µm	0.4m² (4.4ft²)

Cartridge Treatment

Standard:	Cleaned without further treatment
Flushed:	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 (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)

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

In situ steam 20 x 30 minute cycles at 130°C (266°F)
Hot water 200 x 20 minute cycles at 85-90°C (185-194°F)

Extractables

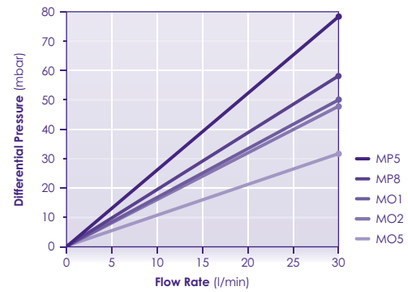
Minimum total extractables. Please refer to the Microfil™ Validation Guide.

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-**Δ**P 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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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 OSU-F2 test procedure with ISO 12103 part 1 A2 Fine and A4 Coarse test dust as appropriate.

Manufactured in the UK using all polypropylene hardware with glass fibre filter media, these filter cartridges have excellent chemical compatibility.

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.

Typical Applications

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

Features and Benefits

- 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 drops 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

Ordering Information

For ordering information please go to page 248.

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	Effective Filtration Area (each 1016mm (40") module)
0.45, 1, 5, 10, 25, 50 0.65 and 100µm	5m² (53.8ft²)

Gaskets and O-Rings

EPDM, FEP encapsulated, Silicone, Viton® and Nitrile

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)

Reverse flow is not recommended.

Recommended Changeout Differential Pressure

20°C (68°F):	1.5bar (22psi)

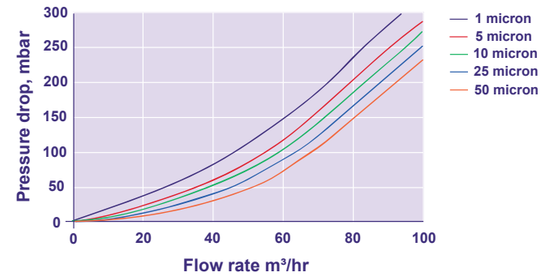
Sanitation

Steam or autoclave:	121°C (250°F) for 15 minutes
Hot water sanitation:	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 flow-ΔP 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:



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Polyfil™ II

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 micron 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.

Polyfil™ II filters are also highly resistant to integrity failure caused by steam sterilisation and have excellent chemical compatibility characteristics.

They are suitable for applications ranging from bioburden reduction to the clarification of a wide range of process liquids and end products.

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 sanitisation
- Full traceability
- Controlled manufacturing environment

Ordering Information

For ordering information please go to page 248.

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"), 508mm (20")
	2 modules:	762mm (30"), 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:

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)

Reverse flow direction at:

20°C (68°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 Temperature

Maximum continuous:	80°C (176°F)

Sterilisation

In situ steam 80 x 30 minute cycles at 135°C (275°F)
Hot water 200 x 20 minute cycles at 85-90°C (185-194°F)

Extractables

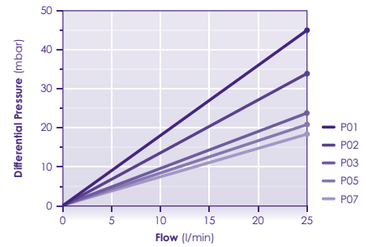
Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

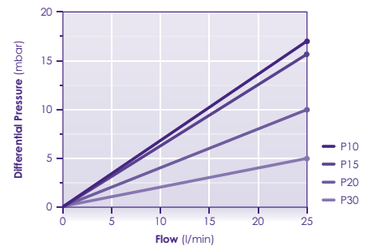
Integrity Testing

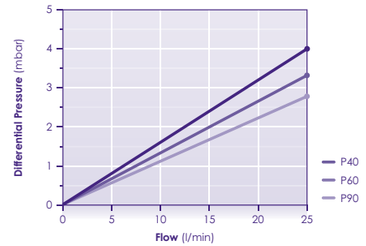
Polyfil™ II filter cartridges are batch tested for integrity using the Bubble Point Test. Please contact us for procedural details.

Clean Water Flow Rates

- Typical clean water flow rate:
  A 254mm (10") Polyfil™ II single cartridge exhibits the flow-**Δ**P 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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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 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 from all polypropylene media and hardware, these filter cartridges have excellent chemical compatibility.

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 177 and cartridges using polypropylene filter media meet the requirements for food contact as detailed in European Regulation 1935/2004.

Typical Applications

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

Features and Benefits

- 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

Ordering Information

For ordering information please go to page 248.

Specifications

Materials of Manufacture

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

Cartridge Dimensions (Nominal)

Outside Diameter:	154mm (6")
Inside Diameter:	75mm (3")
Length:	508mm (20") 1016mm (40") 1524mm (60")

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 1016mm (40") module)
0.45, 1, 5, 10, 25, 50 0.65 and 100µm	5m² (53.8ft²)

Gaskets and O-Rings

EPDM, FEP encapsulated, Silicone, Viton® and Nitrile

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)

Reverse flow is not recommended.

Recommended Changeout Differential Pressure

20°C (68°F):	1.5bar (22psi)

Sanitation

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

Clean Water Flow Rates

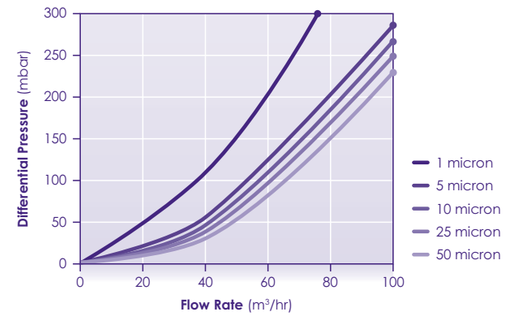
- Typical clean water flow rate:

  A 1016mm (40") Polyfil™ WF cartridge exhibits the flow-ΔP 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.

Polypropylene Media:



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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.

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 prefiltration 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 recognised industry standard test methods.
- **Suitable for steam and hot water sanitisation**
  Tekfil™ A cartridges are resistant to repeat steam sterilisation and hot water cycles.

Ordering Information

For ordering information please go to page 248.

Specifications

Materials of Manufacture

Filter media:	Polypropylene/nylon
End fittings:	Polypropylene/nylon
Seals (if specified):	Silicon or EPDM

Cartridge Dimensions

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):	3.5 bar (50psi)
60°C (140°F):	1.0 bar (15psi)
80°C (176°F):	0.5 bar (7psi)

Operating Temperature

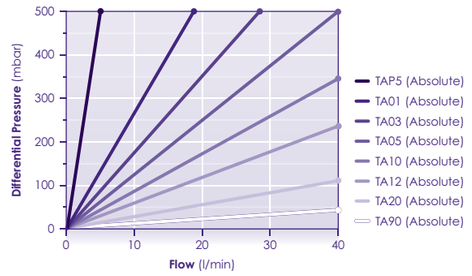
Maximum continuous:	80°C (176°F)

Extractables

Minimum total extractables.

Clean Water Flow Rates

- Typical clean water flow rate:
  A 254mm (10") Tekfil™ single cartridge exhibits the flow-**Δ**P 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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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 all polypropylene and hardware, these filter cartridges have excellent chemical compatibility.

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.

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

- 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 fluids 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 NSF42 and FDA CFR title 21

Ordering Information

For ordering information please go to page 248.

Specifications

Materials of Manufacture

Filter media: Polypropylene or nylon

Cartridge Dimensions (Nominal)

Outside diameter: 152mm (6")
Inside diameter: 114mm (4.5")
Length: 508mm (20")
1016mm (40")

Micron Rating

5µm, 10µm, 25µm, 40µm, 75µm and 100µm

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 1016mm (40") module)
5µm, 10µm, 25µm, 40µm, 75µm and 100µm	5m² (53.8ft²)

Recommended Operating Conditions

	Polypropylene	Nylon
Recommended ΔP @ 20˚C (68˚F)	2 bar (29psi)	2 bar (29psi)
Maximum ΔP @ 20˚C (68˚F)	4 bar (58psi)	4 bar (58psi)
Maximum ΔP @ 80˚C (68˚F)	1 bar (15psi)	2 bar (29psi)
Maximum ΔP @ 135˚C (68˚F)	n/a	0.5 bar (7psi)

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): 1.5bar (22psi)

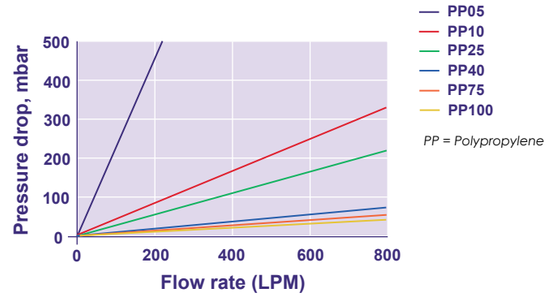
Clean Water Flow Rates

- Typical clean water flow rate:

  A 1016mm (40") MicrofilTM WF cartridge exhibits the flow-ΔP 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.



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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 compatability
- High dirt holding capacity
- Absolute and nominal removal ratings
- Silicone Free

Ordering Information

For ordering information please go to page 248.

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.

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Trapfil™

Polypropylene Guard Filters for Clear, Bright Beverages

The Trapfil™ filter has been specifically developed for the retention of diatomite and polyvinylpolypyrrolidone (PVPP) particles. It is manufactured from materials which are 100% FDA (Food and Drug Administration) approved and fully welded for strength and integrity.

The all-polypropylene construction enables the Trapfil™ filter to be resistant to hot caustic solution and standard CIP practices. It is also compatible with steam and hot water sanitising procedures.

Designed to be backflushed *in situ* to remove diatomite and PVPP particles, it has been industry proven to withstand up to 100 backflush cycles with hot caustic solution at 70-80°C (158-176°F). This backflushing process regenerates the Trapfil™ filter providing improved economics.

The Trapfil™ filter is available in a variety of lengths and industry standard adaptors. Trapfil™ cartridges are available in 5, 10 and 15 micron ratings, validated at Beta 5000.

Each Trapfil™ filter carries a unique serial number to enable full traceability of material components.

Typical Applications

- Stabilisation
- Clarification

Features and Benefits

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

Ordering Information

For ordering information please go to page 248.

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"), 508mm (20")
	2 modules:	762mm (30"), 1016mm (40")

Effective Filtration Area

Absolute Removal Rating	Effective Filtration Area (each 254mm (10") module)
5, 10 and 15µm	0.53m² (5.7ft²)

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)

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)

Operating Temperature

Maximum continuous: 80°C (176°F)

Sterilisation

In situ steam 100 x 30 minute cycles at 125°C (257°F)
Hot water 250 x 20 minute cycles at 85-90°C (185-194°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:
  A 254mm (10") Trapfil™ single cartridge exhibits the flow-**Δ**P 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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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.

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 flange seal and L-style with 4-lug locking end cap with double external O-rings.

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

For ordering information please go to page 250.

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: 56mm (2.2")
Length: 77.5mm (2.5")
136mm (5")

Effective Filtration Area

Absolute Removal Rating	Effective Filtration Area (for 5" cartridge)
0.5, 0.8, 1.0, 2.0 and 5.0µm	0.15m² (1.6ft²)

Cartridge Treatment

Standard: Cleaned without further treatment
Flushed: Flushed with pyrogen-free water

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)

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

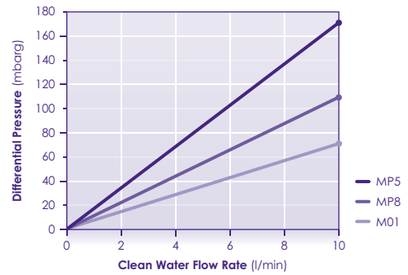
Minimum total extractables. Please refer to the Microfil™ Validation Guide.

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 flow-**Δ**P 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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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 multi-layer 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 sterilisation and have excellent chemical compatibility characteristics.

They are suitable for applications ranging from bioburden reduction to the clarification of a wide range of process liquids and end products.

The Junior range is available in three formats:

- J-style, a single open-ended element with a single internal O-ring seal on the downstream end cap
- L-style with double external O-ring and four locking tabs
- S-style, a single open-ended element incorporating an integral flange on the downstream end cap.

Typical Applications

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

Features and Benefits

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

Ordering Information

For ordering information please go to page 250.

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:	56mm (2.2")
Length:	77.5mm (2.5") 136mm (5")

Effective Filtration Area

Up to 0.15m² (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)

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 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

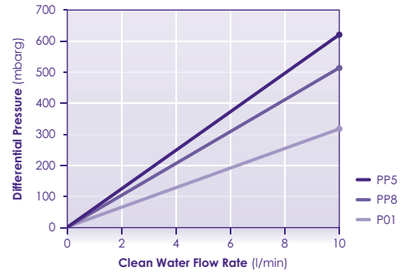
Minimum total extractables. Please refer to the Polyfil™ II Validation Guide.

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-**Δ**P 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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Aquafil™

Single Layer Polyethersulphone Membrane Cartridge Filters

A range of cartridge filters are designed, featuring the latest developments in membrane technology. 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 Aquafil™ cartridges are suited to retention down to 0.2 micron ratings. Aquafil™ cartridges offer high flux rates and low differential pressures, a feature common to polyethersulphone membranes.

Aquafil™ cartridges benefit from the low non-specific protein binding characteristics of polyethersulphone membranes. They are resistant to steam sterilisation and have excellent chemical compatibility characteristics. They do not hydrolyse, making them ideal for use in ultra pure water supply systems (18MΩ. cm).

Aquafil™ cartridges provide a combination of features and benefits that were, until now, unavailable from cartridges based on PVDF, nylon, mixed esters of cellulose or polysulphone membranes. They are suitable for applications ranging from bioburden reduction and the clarification of a wide range of process liquids and end products.

Typical Applications

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

Features and Benefits

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

Ordering Information

For ordering information please go to page 249.

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

Pore Size Rating	Effective Filtration Area (each 254mm (10") module)
0.2, 0.45, 0.65 and 1.2µm	0.69m² (7.4ft²)

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)

Operating Temperature

Maximum continuous: 60°C (140°F)

Sterilisation

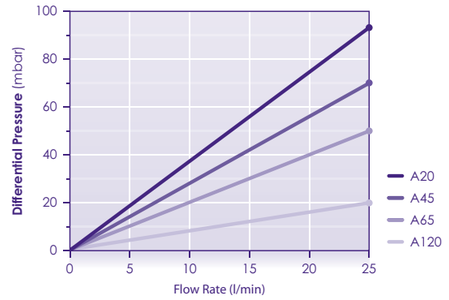
In situ steam 80 x 20 minute cycles at 125°C (257°F)
Hot water 100 x 20 minute cycles at 85-90°C (185-194°F)

Extractables

Minimum total extractables

Clean Water Flow Rates

- Typical clean water flow rate:
  A 254mm (10") Aquafil™ single cartridge exhibits the flow-**Δ**P 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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Biofil™II

Polyethersulphone Membrane Cartridge Filters

A range of microbially rated cartridge filters are manufactured featuring the latest developments in membrane technology. 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 microbial retention.

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 flux rates and low differential pressures, a feature common to polyethersulphone membranes.

Biofil™ II cartridges benefit from the low non-specific protein binding characteristics of polyethersulphone membranes. They are highly resistant to integrity failure caused by steam sterilisation and have excellent chemical compatibility characteristics. As they will not hydrolyse, Biofil™ II cartridges are ideal for use in ultra pure water supply systems (18MΩ.cm).

Biofil™ II cartridges are suitable for applications ranging from sterile filtration, bioburden reduction and the clarification of a wide range of process liquids and end products.

Typical Applications

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

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

Ordering Information

For ordering information please go to page 249.

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

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 254mm (10") module)
0.04, 0.1, 0.2, 0.45, 0.65 and 1.2µm	0.69m² (7.4ft²)

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

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)

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)

Extractables

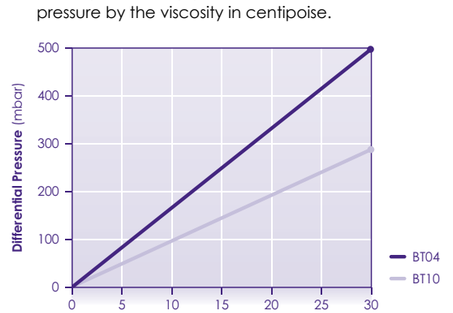
Minimum total extractables. Please refer to the Biofil™ II Validation Guide.

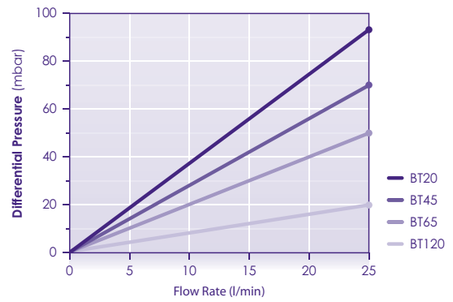
Integrity Testing

Each Biofil™ II 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 detail.

Clean Water Flow Rates

- Typical clean water flow rate:
  A 254mm (10") Biofil™ II single cartridge exhibits the flow-**Δ**P 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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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 quality all-polypropylene components and high integrity manufacturing techniques, the Biofil™ Plus filter cartridge is ideally suited to the most demanding process conditions.

Biofil™ Plus cartridges are constructed in a cleanroom under tightly controlled conditions using advanced, highly specialised machinery. Quality and consistency of product is 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.

Typical Applications

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

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

Ordering Information

For ordering information please go to page 249.

Specifications

Materials of Manufacture

Pre-filter membrane:	Polyethersulphone
Final 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:	70mm (2.8")	
Length:	1 module:	Biofil™ Plus Junior
	1 module:	254mm (10")
	2 modules:	508mm (20")
	3 modules:	762mm (30")
	4 modules:	1016mm (40")

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 254mm (10") module)
0.2 and 0.45µm	0.48m² (5.2ft²)

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

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)

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 85-90°C (185-194°F)

Extractables

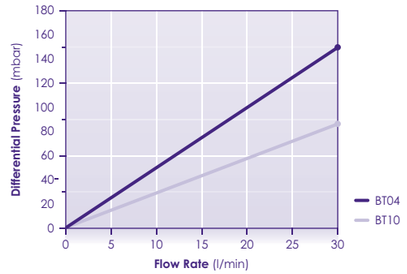
Minimum total extractables. Please refer to the Biofil™ Plus Validation Guide.

Integrity Testing

Each Biofil™ 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:
  A 254mm (10") Biofil™ Plus single cartridge exhibits the flow-**Δ**P 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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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.

Chemifil™ cartridges can also be used for a wide range of sterile venting and gas filtration applications.

Typical Applications

- Fine chemicals and solvents
- Photoresists 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

Ordering Information

For ordering information please go to page 249.

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
	1 module:	254mm (10")
	2 modules:	508mm (20")
	3 modules:	762mm (30")
	4 modules:	1016mm (40")

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 254mm (10") module)
0.1 and 0.2µm	0.66m² (7.1ft²)

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 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)
125°C (257°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 (7psi)

Operating Temperature

Maximum continuous:	80°C (176°F)

Sterilisation

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

Extractables

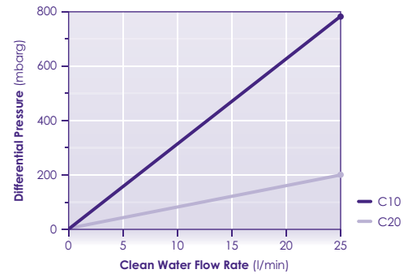
Minimum total extractables. Please refer to the Chemifil™ Validation Guide.

Integrity Testing

Each Chemifil™ 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 Intrusion, Pressure Hold and Bubble Point, can be performed by customers. Please contact us for procedural details.

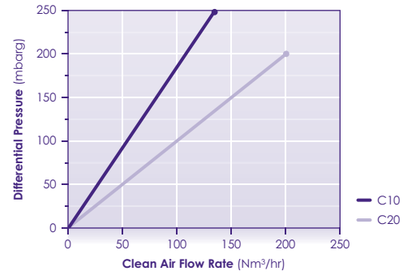
Clean Water Flow Rates

- Typical clean water flow rate:
  A 254mm (10") Chemifil™ single cartridge exhibits the flow-**Δ**P 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-**Δ**P characteristics indicated below.



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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 Fluorofil™ filter 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. 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.

Typical Applications

- Sterile process gases
- Sterile vents
- Fine chemicals and solvents
- Photoresists and developers
- Pure water supply systems

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

Ordering Information

For ordering information please go to page 249.

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

Cartridge Dimensions (Nominal)

Diameter:	70mm (2.8")	
Length:	1 module:	Fluorofil™ Junior
	1 module:	254mm (10")
	2 modules:	508mm (20")
	3 modules:	762mm (30")
	4 modules:	1016mm (40")

Effective Filtration Area

Absolute Microbial Rating (in liquids)	Effective Filtration Area (each 254mm (10") module)
0.02, 0.1, 0.2 and 0.45µm	0.73m² (7.8ft²)

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 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)
125°C (257°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 (7psi)

Operating Temperature

Maximum continuous: 80°C (176°F)

Sterilisation

In situ steam 100 x 20 minute cycles at 135°C (275°F) to 150 x 20 minute cycles at 125°C (257°F).

Extractables

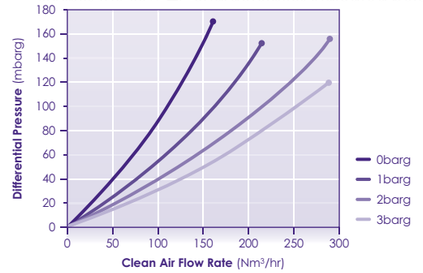
Minimum total extractables. Please refer to the Fluorofil™ Validation Guide.

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 Intrusion, Pressure Hold and Bubble Point, can be performed by customers. Please contact us for procedural details.

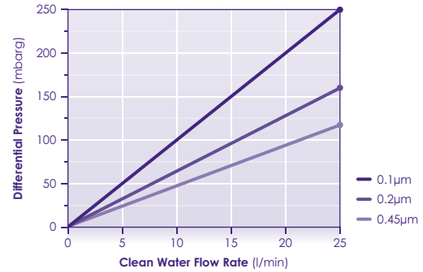
Gas Flow Rates

- Typical clean air flow rate:
  A 254mm (10") Fluorofil™, 0.2µm single cartridge exhibits the flow-ΔP characteristics indicated below.



Clean Water Flow Rates

- Typical clean water flow rate:
  A 254mm (10") Fluorofil™ single cartridge with 0.2µm microbial rating exhibits the flow-**Δ**P 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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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.

Fluorofil™ Plus cartridges are recommended for sterile gas filtration and venting applications. The hydrophobic characteristics of the ePTFE membrane makes the Fluorofil™ Plus filter cartridge particularly suitable for wet gas sterilising applications, such as fermenter air feed.

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.

Typical Applications

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

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

Ordering Information

For ordering information please go to page 249.

Specifications

Materials of Manufacture

Filter membrane:	ePTFE
Membrane support:	Polypropylene
Irrigation mesh (support):	Polypropylene
Drainage layer:	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")
	1 module:	254mm (10")
	2 modules:	508mm (20")
	3 modules:	762mm (30")
	4 modules:	1016mm (40")

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 254mm (10") module)
0.2µm	0.8m² (8.6ft²)

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)
100°C (212°F):	3.0bar (44psi)
120°C (248°F):	2.0bar (29psi)
125°C (257°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 (7psi)

Operating Temperature

Maximum continuous: 80°C (176°F)

Sterilisation

In situ steam 500 x 30 minute cycles at 135°C (275°F).
In situ steam cycles for 200 hours at 142°C (286°F).

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 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. Please contact us for procedural details.

Gas Flow Rates

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

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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 liquid flow rates at low pressure differentials, making Fluorofil™ F100 cartridges ideally suited to solvent filtration.

For solvent and aggressive chemical filtration applications, Fluorofil™ F100 cartridges offer a wide range of chemical compatibility with high thermal 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.

Typical Applications

- Carbon fines removal
- Fine chemical and solvents
- Photoresists and developers

Features and Benefits

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

Ordering Information

For ordering information please go to page 249.

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:

20°C (68°F):	6.0bar (87psi)
80°C (176°F):	4.0bar (58psi)
100°C (212°F):	3.0bar (44psi)

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)

Operating Temperature (in water)

Maximum continuous:	80°C (176°F)

Extractables

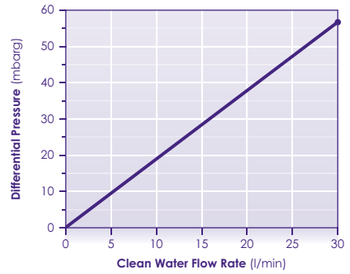
Minimum total extractables. Please refer to the Fluorofil™ F100 Validation Guide.

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 OSU 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

- Typical clean water flow rate:
  A 254mm (10") Fluorofil™ F100 single cartridge with 1.0µm particle retention rating exhibits the flow-**Δ**P 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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Hydrofil™

Nylon 6.6 Membrane Cartridge Filters

Microbially rated cartridge filters featuring the latest developments in membrane technology, Hydrofil™ cartridges, are based on a naturally hydrophilic nylon membrane. When combined with quality all-polypropylene cartridge components and high integrity manufacturing techniques, the nylon membrane provides a high strength, long life cartridge of consistently precise particle retention across a wide range of particle sizes.

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 ratings. These cartridges offer high flux rates and low differential pressures, a feature common to nylon membranes.

Hydrofil™ cartridges benefit from high protein binding characteristics of nylon membranes. They are highly resistant to integrity failure caused by steam sterilisation and have excellent chemical compatibility characteristics.

Hydrofil™ cartridges are ideal for use in ultra pure water supply systems (18MΩ.cm).

Hydrofil™ cartridges provide a combination of features and benefits previously unavailable from cartridges based on PVDF, mixed esters of cellulose or polysulphone membranes. They are suitable for a range of applications including sterile filtration, bioburden reduction and the clarification of a wide range of process liquids and end products.

Typical Applications

- Biopharmaceuticals
- Electronics and semiconductors
- Fine chemicals
- Beverages
- Pure water supply

Features and Benefits

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

Ordering Information

For ordering information please go to page 249.

Specifications

Materials of Manufacture

Filter membrane:	Nylon 6,6
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")

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 254mm (10") module)
0.1, 0.2 and 0.45µm	0.63m² (6.8ft²)

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

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)

Operating Temperature

Maximum continuous:	60°C (140°F)

Sterilisation

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

Extractables

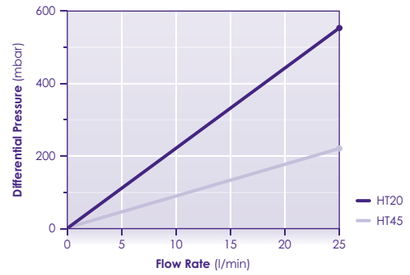
Minimum total extractables. Please refer to the Hydrofil™ Validation Guide.

Integrity Testing

Each Hydrofil™ 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:
  A 254mm (10") Hydrofil™ single cartridge exhibits the flow-**Δ**P 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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Hydrofil™Plus

Dual Nylon 6.6 Layer Membrane Cartridge Filters

Hydrofil™ Plus microbial rated cartridges have been developed and manufactured for the filtration of liquids in the pharmaceutical, biotechnology and other critical applications. Hydrofil™ Plus utilises a naturally hydrophilic Nylon 6.6 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 quality all-polypropylene components and high integrity manufacturing techniques, the Hydrofil™ Plus filter cartridge is ideally suited to the most demanding process conditions.

Hydrofil™ Plus cartridges are constructed in a cleanroom under tightly controlled conditions using advanced, highly specialised machinery. Quality and consistency of product is assured by the quality control and manufacturing procedures, which are in place throughout all stages of manufacture.

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

Typical Applications

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

Features and Benefits

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

Ordering Information

For ordering information please go to page 249.

Specifications

Materials of Manufacture

Pre-filter membrane:	Nylon
Final membrane:	Nylon
Filter membrane:	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")

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 254mm (10") module)
0.2µm	0.63m² (6.8ft²)

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

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)

Operating Temperature

Maximum continuous: 60°C (140°F)

Sterilisation

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

Extractables

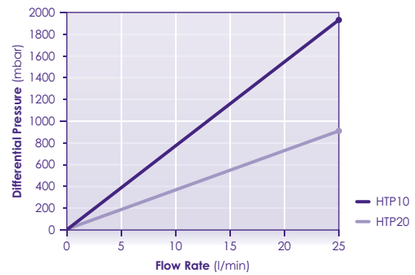
Minimum total extractables. Please refer to the Hydrofil™ Validation Guide.

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:
  A 254mm (10") Hydrofil™ Plus single cartridge exhibits the flow-**Δ**P 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™

Superior PTFE Membrane Filters

Teffil™ is a range of superior pleated PTFE membrane filters with PFA supports. These cartridge filters are suitable for use within a number of microelectronics, 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

- Semiconductor
- Aggressive chemicals
- Photovolliac
- High purity chemicals

Features and Benefits

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

Ordering Information

For ordering information please see page opposite.

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")

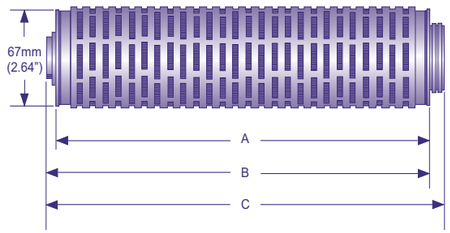
Pore Size Rating

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)

Dimension Specifications



Length (inch)	A	B	C
4	105mm +/-2	110mm +/-2	128mm +/-2
10	237mm +/-2	242mm +/-2	261mm +/-2
20	463mm +/-3	468mm +/-3	486mm +/-3

Recommended Change Out Differential Pressure

2.4bar (34.8psi)

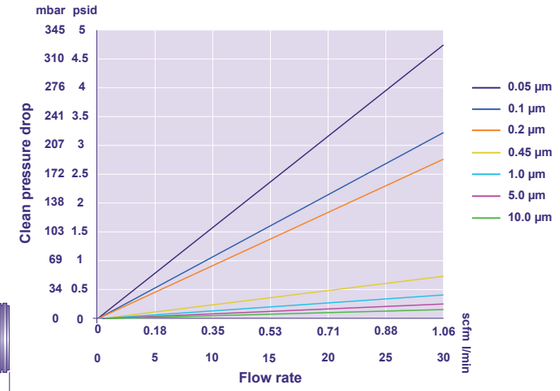
Maximum Operating Temperature

180°C (356°F) at the above conditions.

Metallic Cleanliness

<25µg per device. Ultra-high-purity.

Flow Rates



Total metals (13 elements, ICP-MS)	UHP < 25 ppb / device Ultra Low Metal < 10 ppb / device
Particle shedding cleanliness	< 5 particles / 1ml ≥ 0.15um @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

Ordering Information

Product Code: X - X - X - X - X - X

e.g. PART NUMBER: FL-P5-S-04-A-K

Series	
FL	Teffil™

Pore rating (µm)	
P5	0.05
10	0.1
20	0.2

Version	
S	Standard

Length	
04	102mm (4")
1	250mm (10")
2	510mm (20")

Adaptor	
A	Code 3

**Other options available on request.*

Seals	
A	EPDM
B	Silicone
C	Viton®
K	Kalrez/FKM

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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 within the microelectronics industry, 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

- Microelectronics
  Optimised for a broad range of microelectronics organic stripper, IPA and other solvent recirculation.
- Aggressive chemicals
  Chemical delivery system filtration of strong acid base solution.
- Photovoltaic
  Aggressive chemical processes in the photovoltaic and data storage industries.
- Solvents
  UHP solvent treatment for bumping stripper.
- High purity chemicals

Features and Benefits

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

Ordering Information

For ordering information pleas see page opposite.

Specifications

Materials of Manufacture

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

Cartridge Dimensions (Nominal)

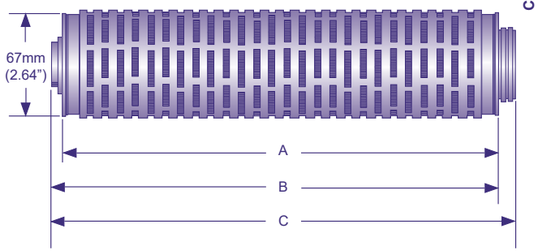
Diameter: 67mm (2.6")
Length: 254mm (10")

Pore Size Rating

0.05, 0.1, 0.2, 0.45, 1 and 5 microns.

Dimension Specifications

Length (inch)	A	B	C
4	105mm +/-2	110mm +/-2	128mm +/-2
10	237mm +/-2	242mm +/-2	261mm +/-2
20	463mm +/-3	468mm +/-3	486mm +/-3



Differential Pressure

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

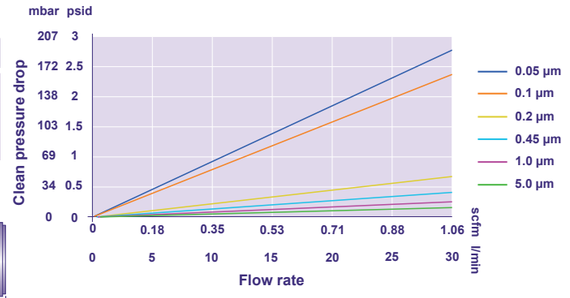
Operating Temperature

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

Metallic Cleanliness

<25µg per device. Ultra-high-purity.

Flow Rates



Total metals (13 elements, ICP-MS)	UHP < 25 ppb / device Ultra low metal < 10 ppb / device
Particle shedding cleanliness	< 5 particles / 1ml ≥ 0.15um @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

Ordering Information

Product Code: X - X - X - X - X - X

e.g. PART NUMBER: FL-P5-H-04-A-A

Series		Pore rating (µm)		Version		Length		Adaptor		Seals	
FL	Teffil™	P5	0.05	H	High Flow	04	102mm (4")	A	Code 3	A	EPDM
		10	0.1			1	250mm (10")	*Other options available on request.*		B	Silicone
		20	0.2			2	510mm (20")			C	Viton®
										K	Kalrez/FKM

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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 stabilisation. Vinofil™ cartridges utilise a double layer of naturally hydrophilic polyethersulphone (PES) membrane with a mirrored asymmetric pore structure, providing graded filtration throughout its depth, resulting in higher throughputs and long service life. When combined with quality all-polypropylene components and high integrity manufacturing techniques, the Vinofil™ filter cartridge is ideally suited to the most demanding process conditions.

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. Careful media selection ensures that Vinofil™ cartridges are suited to critical particle control down to 0.2 micron ratings. These cartridges offer high flux rates and low differential pressures, a feature common to polyethersulphone membranes.

Vinofil™ cartridges benefit from the low binding characteristics of polyethersulphone membranes. They are highly resistant to integrity failure caused by steam sterilisation and have excellent compatibility with CIP sterilising agents.

As a consequence, Vinofil™ cartridges provide a combination of features and benefits previously unavailable from cartridges based on PVDF, nylon, mixed esters of cellulose or polysulphone membranes. They are suitable for a range of applications including sterile filtration, stabilisation and the clarification of a wide range of beverages.

Typical Applications

- Wine and sparkling wine
- Beer
- Mineral water and soft drinks
- Process water supply

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

For ordering information please go to page 249.

Specifications

Materials of Manufacture

Filter membranes:	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 Dimensions (Nominal)

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

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (each 254mm (10") module)
0.2, 0.45 and 0.65µm	0.48m² (5.2ft²)

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)

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)

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 85-90°C (185-194°F)

Extractables

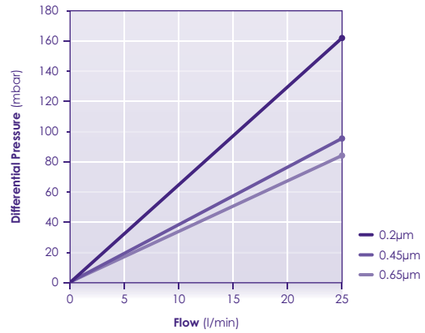
Minimum total extractables. Please refer to the Vinofil™ Validation Guide.

Integrity Testing

Each Vinofil™ 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:
  A 254mm (10") Vinofil™ single cartridge exhibits the flow-**Δ**P 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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Biofil™ Junior

Polyethersulphone Membrane Cartridge Filters for Small-Scale Applications

A range of microbially rated cartridge filters are designed for retrofitting into existing junior-style housings. Biofil™ Junior 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, the polyethersulphone membrane provides a high strength, long life cartridge of consistently precise microbial retention.

Biofil™ Junior 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 Biofil™ Junior cartridges are suited to critical particle control down to 0.01 micron ratings. These cartridges offer high flux rates and low differential pressures, a feature common to polyethersulphone membranes.

The Junior range is available in three formats:

- J-style, a single open-ended element with a single internal O-ring seal on the downstream end cap
- L-style with double external O-ring and four locking tabs
- S-style, a single open-ended element incorporating an integral flange on the downstream end cap.

Biofil™ Junior cartridges benefit from the low non-specific protein binding characteristics of polyethersulphone membranes. They are highly resistant to integrity failure caused by steam sterilisation and have excellent chemical compatibility characteristics. As they will not hydrolyse, Biofil™ Junior cartridges are ideal for use in ultra pure water supply systems (18MΩ.cm).

Typical Applications

- Small-scale biopharmaceuticals
- Ophthalmic solutions
- Electronics and semiconductors
- Small-scale fine chemicals
- Pilot-scale studies
- Point-of-use water supply

Features and Benefits

- Guaranteed removal 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

Ordering Information

For ordering information please go to page 250.

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: 56mm (2.2")
Length: 77.5mm (2.5")
136mm (5")

Effective Filtration Area

Absolute Microbial Rating	Effective Filtration Area (for each 5" cartridge)
0.1, 0.2, 0.45, 0.65 and 1.2µm	0.19m² (2.05ft²)

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

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):	6.0bar (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)

Operating Temperature

Maximum continuous: 85-90°C (185-194°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

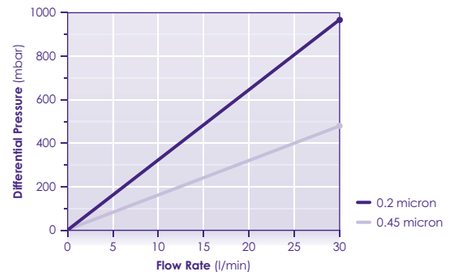
Minimum total extractables. Please refer to the Biofil™ II Validation Guide.

Integrity Testing

Each Biofil™ Junior 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:
  A 136mm (5") Biofil™ Junior cartridge exhibits the flow-**Δ**P 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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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.

The Junior range is available in three formats:

- J-style, a single open-ended element with a single internal O-ring seal on the downstream end cap
- L-style with double external O-ring and four locking tabs
- S-style, a single open-ended element incorporating an integral flange on the downstream end cap.

Fluorofil™ Junior cartridges are recommended for small-scale sterile gas filtration and venting applications. The hydrophobic characteristics of the ePTFE membrane makes the Fluorofil™ Junior filter cartridge particularly suitable for wet gas sterilising applications, such as small-scale fermenter air feed.

For small-scale solvent and aggressive chemical filtration applications, Fluorofil™ Junior cartridges offer a wide range of chemical compatibility with high thermal stability. Suitable for the most demanding microfiltration applications, the cartridges can be used for the small-scale filtration of 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 photoresists and developers

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

For ordering information please go to page 250.

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 support ring:	Stainless steel

Cartridge Dimensions (Nominal)

Diameter: 56mm (2.2")
Lengths: 77.5mm (2.5")
136mm (5")

Effective Filtration Area

Absolute Microbial Rating (in liquids)	Effective Filtration Area (for 5" cartridge)
0.2µm	0.19m² (2.05ft²)

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 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)
125°C (257°F):	1.5bar (22psi)

Operating Temperature

Maximum continuous: 80°C (176°F)

Sterilisation

Autoclave 70 x 25 minute cycles at 135°C (275°F)

Extractables

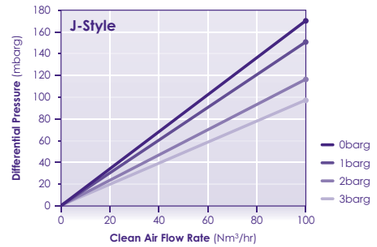
Minimum total extractables. Please refer to the Fluorofil™ Validation Guide.

Integrity Testing

Each Fluorofil™ Junior cartridge is individually integrity tested using the Diffusive Flow Test, which 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**.

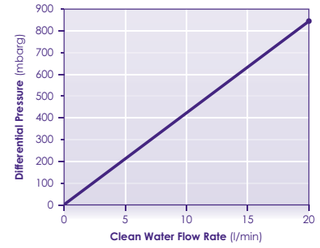
Gas Flow Rates

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



Clean Water Flow Rates

- Typical clean water flow rate:
  A 136mm (5") Fluorofil™ Junior cartridge (J-style) with 0.2µm microbial rating exhibits the flow-**Δ**P 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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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.

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

Ordering Information

For ordering information please go to page 250.

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

Cartridge Dimensions (Nominal)

Diameter:	70mm (2.8")
Length:	64mm (2.5")
	136mm (5")

Effective Filtration Area

Absolute Microbial Rating (in liquids)	Effective Filtration Area (for 5" cartridge)
0.2µm	0.37m² (4.0ft²)

Cartridge Treatment

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

Adaptor and O-Ring

Silicone (other materials are available on request)
¼" and ½" BSP male thread.

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)
125°C (257°F):	1.5bar (22psi)

Sterilisation

In situ steam 70 x 25 minute cycles at 135°C (275°F)

Extractables

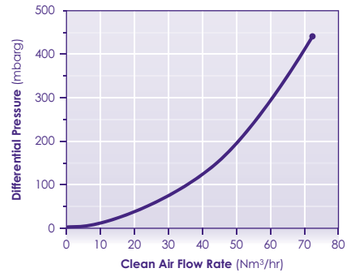
Minimum total extractables. Please refer to the Fluorofil™ Validation Guide.

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**.

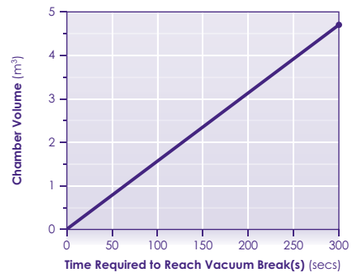
Clean Air Flow Rates

- Typical clean air flow rate:
  A 136mm (5") Ventafil™ cartridge exhibits the flow-**Δ**P characteristics indicated below.



Clean Air Flow Rates

- Vacuum break application:
  If the initial vacuum is at -980 mbarg, the time required before the vacuum break conditions required to safely open the autoclave door (at -20mbarg) are achieved, is indicated below.



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Compressed Air Filters

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 a materials to the highest standards, our Compfil™ range of compressed air filters prvides a comprehensive solution to you compressed are and culinary steam filtration needs.

Compfil™DF

Compressed Air Depth Filter for Sterile Process Air and Gases

The Compfil™ DF filter is a wounded depth filter, with end caps, inner and outer guard made from stainless steel. Consisting of a 3 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.

The Compfil™ DF is manufactured in accordance with cGMP requirements and to DIN EN ISO:9001. All components meet the FDA requirements for contact with food in accordance with the CFR requirements (Code of Federal Regulations) title 21.

Typical Applications

- Aseptic packing
- Biotechnology
- Breweries
- Chemical Industry
- Dairies
- Fermentation processes
- Food and beverage
- Pharmaceutical
- Water treatment systems

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

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media:	Borosilicate
Membrane support:	Polyester
Inner core: 1.4301/304.	Stainless steel
Outer core: 1.4301/304.	Stainless steel
End caps: 1.4301/304.	Stainless steel
Bonding materials:	Silicone
O-rings:	Silicone (standard), Buna N, EPDM, Viton®

Filtration Surface

494cm² (5,317ft²) per 10" element

Maximum Differential Pressure

5bar (73psi), independent of operation pressure of flow direction

Dimensions

Element size	A mm (in)	B mm (in)	C Ø mm (in)	D Ø mm (in)	CF Flange
03/10	76 (3)	12 (0.47)	19 (3/4)	42 (1.65)	0,12
04/10	104 (4.09)	12 (0.47)	19 (3/4)	42 (1.65)	0,17
04/20	104 (4.09)	14 (0.55)	25.1 (1)	52 (2.05)	0.19
05/20	104 (4.09)	14 (0.55)	25.1 (1)	62 (2.44)	0,19
05/25	128 (5.03)	14 (0.55)	25.1 (1)	62 (2.44)	0,32
07/25	180 (7.09)	16 (0.63)	25.1 (1)	86 (3.39)	0,47
05/30	128 (5.03)	16 (0.63)	50.8 (2)	86 (3.39)	0,46
07/30	180 (7.09)	16 (0.63)	50.8 (2)	86 (3.39)	0,68
10/30	254 (10)	16 (0.63)	50.8 (2)	86 (3.39)	1,00
15/30	381 (15)	16 (0.63)	50.8 (2)	86 (3.39)	1,55
20/30	508 (20)	16 (0.63)	50.8 (2)	86 (3.39)	2,10
30/30	762 (30)	16 (0.63)	50.8 (2)	86 (3.39)	3,28
30/50	762 (30)	16 (0.63)	50.8 (2)	140 (5.51)	5,89

Operating Temperature

-20 to 200 °C (-4 to 392°F)

Sterilisation

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

In-line sterilisation with slow speed saturated steam:
- max. 121°C (250°F) for 30 minutes
- max. 131°C (268°F) for 20 minute
- max. 141°C (286°F) for 10 minutes

Autoclave:
- 125°C (257°F) for 30 minutes

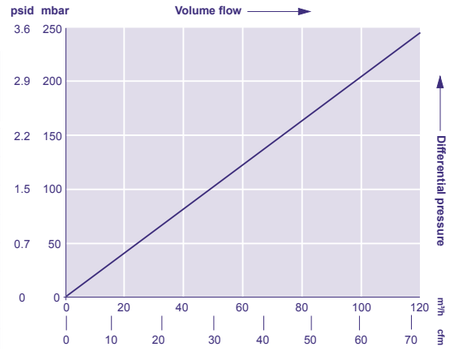
Bacterial Retention

LRV > 7/cm² (1.09in²) for T1 Coliform

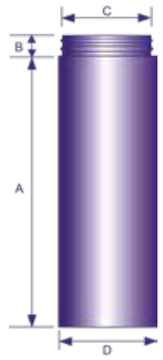
Absolute Retention Rate

99.99998 % related to 0.01µm

Flow rates



Flow rate of a 10" SRF element at 1bar.



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Compfil™AC

Activated Carbon Filter

Compfil™ AC absolute-rated activated carbon filters 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

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

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

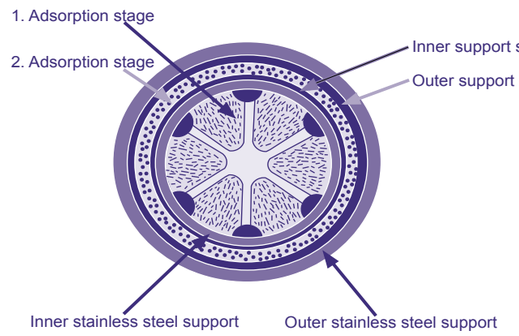
Residual oil content < 0,01 mg/m³,
e.g. by sub-nanofilter IA-S

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
Freon	Poor
Ammonia	Poor
Citrus fruits	Very good
Perfumes	Very good

Adsorption filter (oil free / odourless)



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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.

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

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media:	Binder-free nanofibres
Support sleeves inner/outer: 1.4301/304.	Stainless steel
Pre-and after filter medium:	Pleated Cerex
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:	Stainless steel
O-rings:	Perbunan®, Silicone free and free from parting compounds

Maximum Differential Pressure

5bar at 20°C (72.5psi at 68°F), independent from operation pressure

Type	Residual oil content at 3 mg/m³	Residual oil content at 10 mg/m³	Oil retention rate acc. to ISO 12500-1
IA-F	<0.1 ppm	0,2 ppm	99.6%
IA-M	<0.03 ppm	0,03 ppm	99.7%
IA-S	<0.01 ppm	0,02 ppm	99.8%

Element	Correction factor
02/05	0.04
03/05	0.08
03/10	0.12
04/10	0.17
04/20	0.19
05/20	0.25
05/25	0.32
07/25	0.47
07/30	0.68
10/30	1.0
15/30	1.55
20/30	2.10
30/30	3.28
30/50	5.89

Operating Temperature

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

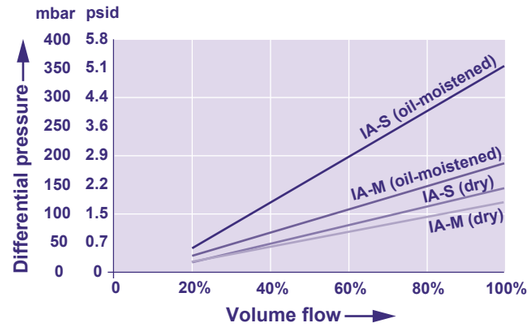
Start-up Differential Pressure

IA-F: 0.04bar (0.58psi)
IA-M: 0.08bar (1.16psi)
IA-S: 0.09bar (1.31psi)

Retention rate at a particle size of 0,01µm (ISO 8573-1)

IA-F: 99,999%
IA-M: 99,99998%
IA-S: 99,99999%

Flow Rates



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Compfil™VY

Polythene Pre-filter

The Compfil™ VY polyethylene pre-filters are designed to retain particles from compressed air and gas streams.

Compfil™ VY filters are made of a sintered polyethylene filter media and guarantee absolute retention rates.

By using various filtration mechanisms, such as direct impact and sieve effect, the filter can retain contaminants down to 25µm.

Typical Applications

- Machinery industry
- Chemical and petrochemical industry
- Pharmaceutical industry
- Food and beverage industry
- Plastics industry
- Process industry
- Instrumentation and control air
- Climate control

Features and Benefits

- Robust construction
- Contaminant removal
- Large filter surface available
- High volume
- Wide operating temperature

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media:	Pure, highly molecular polyethylene Vyon®
Membrane support:	Polyester
End caps:	Aluminium
Bonding materials:	Perbunan®
	Silicone free and free from parting compounds

Maximum Differential Pressure

2bar ar 20°C (29psi at 68°F), independent from operating pressure

Initial differential pressure at nominal flow

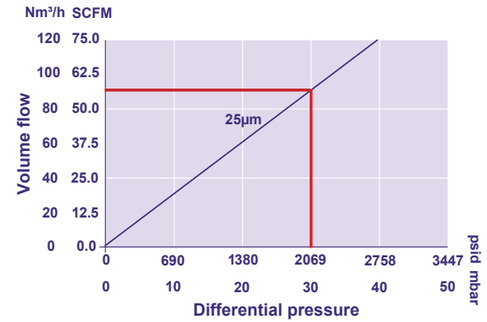
0.03bar (0.44psi)

Retention Rate

100% in gases

Flow rates

Element type	Correction factor filter surface
02/05	0,08
03/05	0,10
03/10	0,12
04/10	0,17
04/20	0,19
05/20	0,25
05/25	0,32
07/25	0,47
07/30	0,68
10/30	1,0
15/30	1,55
20/30	2,10
30/30	3,20
30/50	5,65



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Compfil™UF

High Performance Depth Filter

Compfil™ UF filters are high performance depth 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 ultra fibre filter media and pleating technology, these high performance filters can achieve a 70% reduction in energy costs with improved filtration, when compared with a conventional element.

The ultra fibre material is naturally oleophobic. Oil and water are actively rejected, minimising pressure drop and operating costs.

Typical Applications

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

Features and Benefits

- Binder free, thermally welded ultra filter media
- Oleophobic filter media
- Pleated media filter
- Stainless steel inner and outer core
- 70% less energy costs

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media:	Binder-free ultra fibres of borosilicate
Support sleeves inner/outer:	Stainless steel 304
Pre-and after filter medium:	Pleated Cerex
Outer foam sock:	Blue polyurethane foam sock up to 80°C (176°F) HT/CR sock up to 120°C (248°F) HT/NX sock up to 180°C (356°F)
Bonding:	Polyurethane
End caps:	Aluminium
O-rings:	Perbunan®, silicone free and free from parting compounds

Maximum Differential Pressure

5bar at 20°C (72.5psi at 68°F), independent from operation pressure

Start-up Differential Pressure

UF-F:	0.04bar (0.58psi)
UF-M:	0.08bar (1.16psi)
UF-S:	0.09bar (1.31psi)

Retention rate at a particle size of 0,01µm

UF-F:	99,999%
UF-M:	99,99998%
UF-S:	99,99999%

Type	Residual oil content at 3 mg/m³	Residual oil content at 10 mg/m³	Oil retention rate acc. to ISO 12500-1
UF-F	<0.1 ppm	0,2 ppm	99.6%
UF-M	<0.03 ppm	0,03 ppm	99.7%

Element	Correction factor
02/05	0.04
03/05	0.08
03/10	0.12
04/10	0.17
04/20	0.19
05/20	0.25
05/25	0.32
07/25	0.47
07/30	0.68
10/30	1.0
15/30	1.55
20/30	2.10
30/30	3.28
30/50	5.90

Flow Rate

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Compfil™ DF-P

Sterile Depth Filter for Process Air and Gases

The Compfil™ DF-P filter is a 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.

The Compfil™ DF-P is manufactured in accordance with cGMP requirements and to DIN EN ISO:9001. All components meet the FDA requirements for contact with food in accordance with the CFR requirements (Code of Federal Regulations) title 21.

All components meet the FDA requirements for contact with food in accordance with the CFR requirements (Code of Federal Regulations) title 21.

Typical Applications:

- Aseptic packing
- Biotechnology
- Breweries
- Chemical industry
- Dairies
- Fermentation processes
- Food and beverage
- Pharmaceutical
- Water treatment systems

Features and Benefits

- **Robust construction**
  Due to the outer guard and end caps' stainless steel construction, the filter exhibits high mechanical and thermal stability, proving an excellent choice for chemical and numerous aggressive gases.
- **Non fibre releasing element**
  Manufactured without the use of binders or other chemical additives.
- **Absolute retention rate of 99.99998% related to 0.01µm**
  Validated retention rate, integrity testable with DOP test according to HIMA.
- **Three-dimensional borosilicate depth filter media**
  High waste containment capacity, low differential pressure and high flow rate.
- **Biologically and chemically inert**
  No breeding ground for separated microorganism.
- **200 sterilisation cycles guaranteed**
  High economical efficiency and low filtration costs.
- **Available in 13 size**s
  Optimum filter size for individual application.
- **Stainless steel core and end-caps**
  Temperature range from -20 to 200°C (-4 to 392°F).
- **Meets industry standards**
  Corresponds to cGMP requirements and is manufactured according to DIN EN ISO:9001.
  DF has passed the toxicological test according to USP XX Class VU for plastics.

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media:	Borosilicate
Membrane support:	Polyester
Inner core: 1.4301/304	Stainless steel
Outer core:	Stainless steel 1.4301/304
End caps:	Stainless steel 1.4301/304
Bonding materials:	Silicone
O-rings:	Silicone (standard), Buna N, EPDM, Viton®

Filtration Surface

494cm² (5,317ft²) per 10" element

Maximum Differential Pressure

5bar (73psi), independent of operation pressure of flow direction

Operating Temperature

-20 to 200 °C (-4 to 392°F)

Sterilisation

DF-P filter elements are guaranteed for 200 sterilisation cycles without loss of integrity.

In-line sterilisation with slow speed saturated steam:
- max. 121°C (250°F) for 30 minutes
- max. 131°C (268°F) for 20 minutes
- max. 141°C (286°F) for 10 minutes

Autoclave:
- 125°C (257°F) for 30 minutes

Bacterial Retention

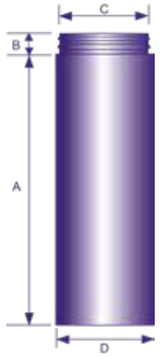
LRV > 7/cm² (1.09in²) for T1 Coliform

Absolute Retention Rate

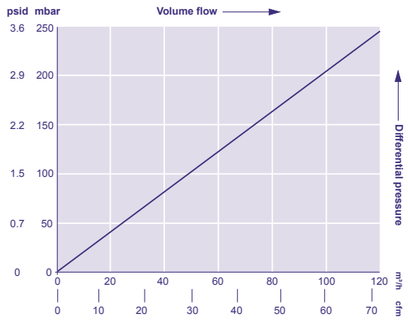
99.99998 % related to 0.01µm

Dimensions

Element size	A mm (in)	B mm (in)	C Ø mm (in)	D Ø mm (in)	CF Flange
03/10	76 (3)	12 (0.47)	19 (3/4)	42 (1.65)	0,12
04/10	104 (4.09)	12 (0.47)	19 (3/4)	42 (1.65)	0,17
04/20	104 (4.09)	14 (0.55)	25.1 (1)	52 (2.05)	0.19
05/20	104 (4.09)	14 (0.55)	25.1 (1)	62 (2.44)	0,19
05/25	128 (5.03)	14 (0.55)	25.1 (1)	62 (2.44)	0,32
07/25	180 (7.09)	16 (0.63)	25.1 (1)	86 (3.39)	0,47
05/30	128 (5.03)	16 (0.63)	50.8 (2)	86 (3.39)	0,46
07/30	180 (7.09)	16 (0.63)	50.8 (2)	86 (3.39)	0,68
10/30	254 (10)	16 (0.63)	50.8 (2)	86 (3.39)	1,00
15/30	381 (15)	16 (0.63)	50.8 (2)	86 (3.39)	1,55
20/30	508 (20)	16 (0.63)	50.8 (2)	86 (3.39)	2,10
30/30	762 (30)	16 (0.63)	50.8 (2)	86 (3.39)	3,28
30/50	762 (30)	16 (0.63)	50.8 (2)	140 (5.51)	5,89



Flow Rates



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Compfil™ PD

Sterile Depth Filter for Process Air and Gases

Compfil™ PD 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 PD achieves a void volume of 95%, ensuring a high containment capacity at high flow rates and low differential pressure. A retention rate of >99.99998% related to 0.2µm is achieved during operation.

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

Typical Applications

- Aseptic packing
- Biotechnology
- Fermentation
- Pharmaceutical
- Chemical industry
- Breweries
- Dairies

Features and Benefits

- **Outer guard and end caps 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).
- **Absolute retention rate of 99.99998% related to 0.2µm**
  Validated retention rate, intergrity testable with DOP test according to HIMA.
- **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**
  Guaranteed quality.
- **Available in 13 sizes**
  Optimum filter size for individual application. sterilisation and hot water cycles.

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media	Borosilicate
Outer core	SS 1.4301
Inner core	SS 1.4301
Inner layer	Polyester
End caps	SS 1.4301
Bonding material	Silicone
Seals	EPM as standard, FEP(Fluoraz) on request.

Bacterial retention

LRV > 7/cm² viruses and phages.

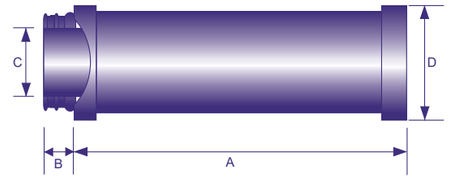
Temperature range

-20°C (-4°F) up to 200°C (392°F).

Filtration surface

8,600cm² per 10" element (10/30) (254mm).

Dimensions



Sterilisation

In-line sterilisation with slow speed saturated steam:
- max. 121°C (250°F) for 30 minutes
- max. 131°C (277°F) for 20 minutes
- max. 141°C (286°F) for 10 minutes

Autoclave: 125°C (257°F) for 30 minutes

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

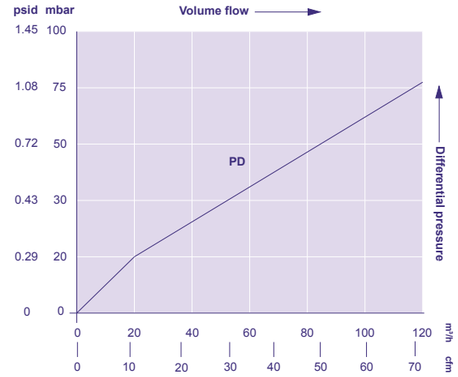
Absolute retention rate

99.99998% related to 0.2µm.

Max. differential pressure

5bar (73psi), independent of operating pressure of flow direction.

Flow rate of a 10" WV element at 8 bar absolute.



Element size (inch)	A mm (in)	B mm (in)	CØ mm (in)	DØ mm (in)	Correction factor
03/10	76mm (3")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,12
04/10	104mm (4")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,17
04/20	104mm (4")	14mm (0.55")	25mm (1")	52mm (2.0")	0,19
05/20	104mm (4")	14mm (0.55")	25mm (1")	52mm (2.0")	0,19
05/25	128mm (5")	14mm (0.55")	25mm (1")	62mm (2.5")	0,32
05/30	128mm (5")	16mm (0.62")	51mm (2")	86mm (3.4")	0,46
07/25	180mm (7")	14mm (0.55")	25mm (1")	62mm (2.5")	0,47
07/30	180mm (7")	16mm (0.62")	51mm (2")	86mm (3.4")	0,68
10/30	254mm (10")	16mm (0.62")	51mm (2")	86mm (3.4")	1,00
15/30	381mm (15")	16mm (0.62")	51mm (2")	86mm (3.4")	1,55
20/30	508mm (20")	16mm (0.62")	51mm (2")	86mm (3.4")	2,10
30/30	762mm (30")	16mm (0.62")	51mm (2")	86mm (3.4")	3,28
30/50	762mm (30")	16mm (0.62")	51mm (2")	140mm (5.5")	5,89

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Compfil™ WD

Sterile Depth Filter for Process Air and Gases

Compfil™ WD is a wound depth filter with inner and outer guard and end caps made of stainless steel. Consisting of a three-dimensional borosilicate depth media, the WD achieves a void volume of 95%, ensuring a high containment capacity at high flow rates and low differential pressure. A retention rate of >99.99998% related to 0.2µm is achieved during operation.

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

Typical Applications

- Aseptic packing
- Water treatment
- Pharmaceutical
- Food and beverage
- Fermentation
- Biotechnology
- Dairies
- Chemicals

Features and Benefits

- **Outer guard and end caps 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).
- **Absolute retention rate of 99.99998% related to 0.2µm**
  Validated retention rate, intergrity testable with DOP test according to HIMA.
- **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 guaranteedsterilisation and hot water cycles.

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media	Borosilicate
Outer core	SS 1.4301
Inner core	SS 1.4301
Inner layer	Polyester
End caps	SS 1.4301
Bonding material	Silicone
Seals	EPM as standard, FEP (Fluoraz) on request.

Bacterial retention

LRV > 7/cm² viruses and phages

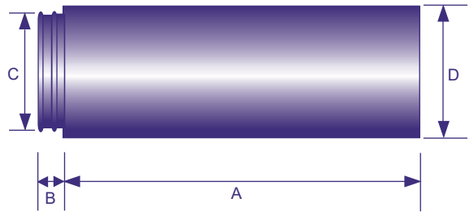
Temperature range

-20°C (-4°F) up to 200°C (392°F).

Filtration surface

494 cm² per 10“ Element (10/30) (250 mm)

Dimensions



Sterilisation

In-line sterilisation with slow speed saturated steam:
- max. 121°C (250°F) for 30 minutes
- max. 131°C (277°F) for 20 minutes
- max. 141°C (286°F) for 10 minutes

Autoclave: 125°C (257°F) for 30 minutes
WD filter elements are guaranteed for 200 sterilisation cycles without loss of integrity.

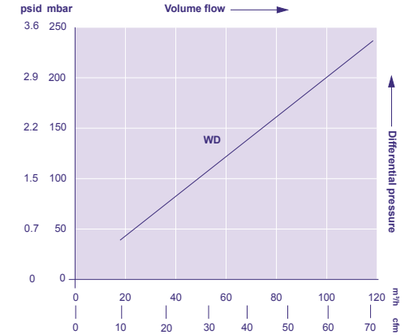
Absolute retention rate

99.99998% related to 0.2µm

Max. differential pressure

5bar (73psi), independent of operating pressure of flow direction.

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



Element size (inch)	A mm (in)	B mm (in)	C Ø mm (in)	DØ mm (in)	Correction factor
03/10	76mm (3")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,12
04/10	104mm (4")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,17
04/20	104mm (4")	14mm (0.55")	25mm (1")	52mm (2.0")	0,19
05/20	104mm (4")	14mm (0.55")	25mm (1")	52mm (2.0")	0,19
05/25	128mm (5")	14mm (0.55")	25mm (1")	62mm (2.5")	0,32
05/30	128mm (5")	16mm (0.62")	51mm (2")	86mm (3.4")	0,46
07/25	180mm (7")	14mm (0.55")	25mm (1")	62mm (2.5")	0,47
07/30	180mm (7")	16mm (0.62")	51mm (2")	86mm (3.4")	0,68
10/30	254mm (10")	16mm (0.62")	51mm (2")	86mm (3.4")	1,00
15/30	381mm (15")	16mm (0.62")	51mm (2")	86mm (3.4")	1,55
20/30	508mm (20")	16mm (0.62")	51mm (2")	86mm (3.4")	2,10
30/30	762mm (30")	16mm (0.62")	51mm (2")	86mm (3.4")	3,28
30/50	762mm (30")	16mm (0.62")	51mm (2")	140mm (5.5")	5,89

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Compfil™ WV

Sterile Depth Filter for Process Air and Gases

Compfil™ WV 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 WV achieves a void volume of 95%, ensuring a high containment capacity at high flow rates and low differential pressure. A retention rate of >99.99999995% related to 0.2µm >99.99999995% related to 0.02µm 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
- Pharmaceutical
- Chemical industry
- Breweries
- Dairies

Features and Benefits

- **Outer guard and end caps 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**
  Guaranteed quality.
- **Available in 13 sizes**
  Optimum filter size for individual application.

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

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

Bacterial retention

LRV > 9/cm² viruses and phages.

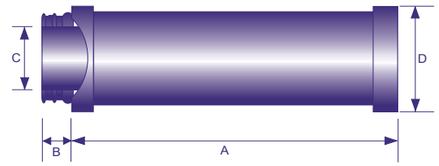
Temperature range

-20°C (-4°F) to 200°C (392°F).

Filtration surface

8,400cm² per 10" element (10/30) (254mm).

Dimensions



Sterilisation

In-line sterilisation with slow speed saturated steam:
- max. 121°C (250°F) for 30 minutes
- max. 131°C (277°F) for 20 minutes
- max. 141°C (286°F) for 10 minutes

Autoclave: 125°C (257°F) for 30 minutes
WV filter elements are guaranteed for 200 sterilisation cycles without loss of integrity.

Absolute retention rate

99.99999995% related to 0.2µm

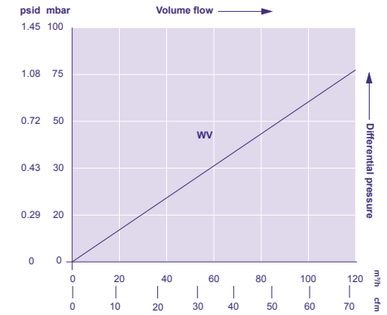
99.99999995% related to 0.02µm

99.999999991% related to 0.003µm

Max. differential pressure

5bar (73psi), independent of operating pressure of flow direction

Flow rate of a 10" WV element at 8 bar absolute.



Element size (inch)	A mm (in)	B mm (in)	C Ø mm (in)	DØ mm (in)	Correction factor
03/10	76mm (3")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,12
04/10	104mm (4")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,17
04/20	104mm (4")	14mm (0.55")	25mm (1")	52mm (2.0")	0,19
05/20	104mm (4")	14mm (0.55")	25mm (1")	52mm (2.0")	0,19
05/25	128mm (5")	14mm (0.55")	25mm (1")	62mm (2.5")	0,32
05/30	128mm (5")	16mm (0.62")	51mm (2")	86mm (3.4")	0,46
07/25	180mm (7")	14mm (0.55")	25mm (1")	62mm (2.5")	0,47
07/30	180mm (7")	16mm (0.62")	51mm (2")	86mm (3.4")	0,68
10/30	254mm (10")	16mm (0.62")	51mm (2")	86mm (3.4")	1,00
15/30	381mm (15")	16mm (0.62")	51mm (2")	86mm (3.4")	1,55
20/30	508mm (20")	16mm (0.62")	51mm (2")	86mm (3.4")	2,10
30/30	762mm (30")	16mm (0.62")	51mm (2")	86mm (3.4")	3,28
30/50	762mm (30")	16mm (0.62")	51mm (2")	140mm (5.5")	5,89

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Compfil™ ST

Sterile Depth Filter for Storage Tanks

Compfil™ ST is a wound depth filter with inner and outer guard and end caps made of stainless steel. Consisting of a three-dimensional borosilicate depth media, the ST achieves a void volume of 95%, ensuring a high containment capacity at high flow rates and low differential pressure. A retention rate of >99.999% related to 0.01µm is achieved during operation.

All components meet the FDA requirements for contact with food in accordance with the CFR requirements (code of federal regulations) title 21.

Typical Applications

- Petrochemical industry
- Pharmaceutical industry
- Food and beverages
- Water treatment systems
- Chemical industry
- Breweries
- Dairies
- Biotechnology

Features and Benefits

- **Outer guard and end caps 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).
- **Absolute retention rate of 99.999% related to 0.1µm**
  Validated retention rate, intergrity testable with DOP test according to HIMA.
- **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.
- **100 sterilisation cycles guaranteed**
  High economical efficiency and low filtration costs.
- **100% integrity tested**
  Guaranteed quality.

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media	Borosilicate
Outer core	SS 1.4301
Inner core	SS 1.4301
Supporting fabric	Polyester
End caps	SS 1.4301
Bonding material	Silicone
O-Rings	Silicone (stand.), Buna N, EPM or Viton®

Bacterial retention

LRV > 7/cm² for T1 Coliphagen

Temperature range

-20°C (-4°F) up to 200°C (392°F).

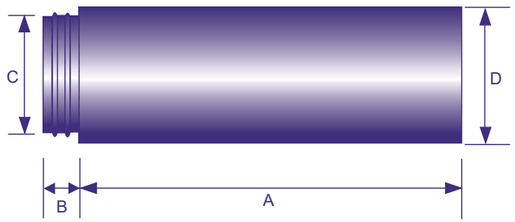
Filtration surface

494 cm² per 10" element (10/30) (250 mm)

Absolute retention rate

99.999% related to 0.1µm

Dimensions



Sterilisation

In-line sterilisation with slow speed saturated steam:
- max. 121°C (250°F) for 30 minutes
- max. 131°C (277°F) for 20 minutes
- max. 141°C (286°F) for 10 minutes

Autoclave: 125°C (257°F) for 30 minutes

ST filter elements are guaranteed for 100 sterilisation cycles without loss of integrity.

Max. differential pressure

5bar (73psi), independent of operating pressure of flow direction

Flow rate of a 10" WD element at 8 bar absolute

Element size (inch)	A mm (in)	B mm (in)	C Ø mm (in)	DØ mm (in)	Correction factor
03/10	76mm (3")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,12
05/25	128mm (5")	14mm (0.55")	25mm (1")	62mm (2.5")	0,32
05/30	128mm (5")	16mm (0.62")	51mm (2")	86mm (3.4")	0,46
10/30	254mm (10")	16mm (0.62")	51mm (2")	86mm (3.4")	1,00
20/30	508mm (20")	16mm (0.62")	51mm (2")	86mm (3.4")	2,10
30/30	762mm (30")	16mm (0.62")	51mm (2")	86mm (3.4")	3,28

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Compfil™ SF

Sintered Steel Sterile Filter for Gases, Liquids and Steam

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 steams. 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 particluar for high dirt load.
- **Stainless steel sintering technology**
  No use of additives or other chemical binders needed.
- **Available in 13 sizes.**

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media	Borosilicate
Outer core	SS 1.4301
Inner core	SS 1.4301
Inner layer	Polyester
End caps	SS 1.4301
Bonding material	Silicone
Seals	EPM as standard, FEP(Fluoraz) on request.

Bacterial retention

LRV > 7/cm² viruses and phages

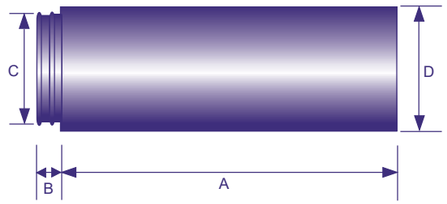
Temperature range

-20°C (-4°F) up to 200°C (392°F).

Filtration surface

494 cm² per 10“ Element (10/30) (250 mm)

Dimensions



Sterilisation

In-line sterilisation with slow speed saturated steam:
- max. 121°C (250°F) for 30 minutes
- max. 131°C (277°F) for 20 minutes
- max. 141°C (286°F) for 10 minutes

Autoclave: 125°C (257°F) for 30 minutes
WD filter elements are guaranteed for 200 sterilisation cycles without loss of integrity.

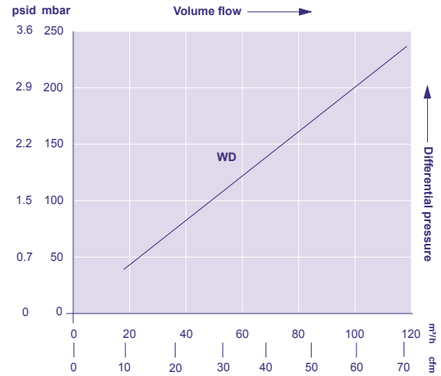
Absolute retention rate

99.99998% related to 0.2µm

Max. differential pressure

5bar (73psi), independent of operating pressure of flow direction

Flow rate of a 10’’ WD element at 8 bar absolute



Element size (inch)	A mm (in)	B mm (in)	C Ø mm (in)	DØ mm (in)	Correction factor
03/10	76mm (3”)	12mm (0.47”)	19mm (0.75”)	42mm (1.6”)	0,12
04/10	104mm (4”)	12mm (0.47”)	19mm (0.75”)	42mm (1.6”)	0,17
04/20	104mm (4”)	14mm (0.55”)	25mm (1”)	52mm (2.0”)	0,19
05/20	104mm (4”)	14mm (0.55”)	25mm (1”)	52mm (2.0”)	0,19
05/25	128mm (5”)	14mm (0.55”)	25mm (1”)	62mm (2.5”)	0,32
05/30	128mm (5”)	16mm (0.62”)	51mm (2”)	86mm (3.4”)	0,46
07/25	180mm (7”)	14mm (0.55”)	25mm (1”)	62mm (2.5”)	0,47
07/30	180mm (7”)	16mm (0.62”)	51mm (2”)	86mm (3.4”)	0,68
10/30	254mm (10”)	16mm (0.62”)	51mm (2”)	86mm (3.4”)	1,00
15/30	381mm (15”)	16mm (0.62”)	51mm (2”)	86mm (3.4”)	1,55
20/30	508mm (20”)	16mm (0.62”)	51mm (2”)	86mm (3.4”)	2,10
30/30	762mm (30”)	16mm (0.62”)	51mm (2”)	86mm (3.4”)	3,28
30/50	762mm (30”)	16mm (0.62”)	51mm (2”)	140mm (5.5”)	5,89

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Compfil™ AR

Pre and Final Filter with Absolute Retention Rate

Pre and final filter with absolute retention rate for particle removal from aqueous solutions, water and other liquids, as well as gases. The AR consists of a regenerable stainless steel mesh, with stainless steel outer guard and end caps. The retention rate ranges from 5µm up to 250µm.

Typical Applications

- Water filtration
- Pharmaceuticals
- Food and beverages
- Cosmetics
- Biological liquids
- Chemicals
- Solvents
- Coolants

Features and Benefits

- **Filter media, outer guard and end caps are made of stainless steel**
  Good durability against most liquids and gases. Temperature range from –50°C (-58°F) up to 200°C (392°F).
- **Heavy-duty construction**
  Can also be used for high-viscosity liquids.
- **Welded contact points of the filter media**
  Constant pore size under all operating and process conditions.
- **Multi layered stainless steel mesh media**
  Absolute retention rate from 5µm up to 250µm.
- **Multiple regeneration with ultrasonic bath**
  Minimum filtration costs, especially at high contaminant load.
- **Backflushable**
  In-line-installation, ease of operation.
- **Available in 13 sizes**
  Optimum filter size for individual application. sterilisation and hot water cycles.

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media	Sintered mesh 1.4301
End caps	SS 1.4301
Bonding material	Plastic Steel*
O-Rings	EPM as standard. Silicone, Buna N, Viton®, FEP (Fluoraz) on request

** > 150 °C welded endcaps*

Filtration surface

494cm² per 10" element (10/30) (250mm)

Temperature range

-20°C (-4°F) to 200°C (392°F)*

** >150°C (302°F) welded end caps*

>200°C (392°F) on request

Regeneration

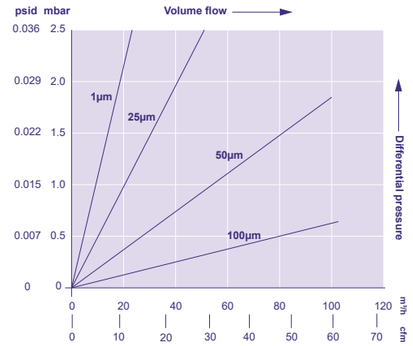
Ultrasonic bath

Absolute retention rate

5µm, 25µm, 50µm, 100µm, 250µm

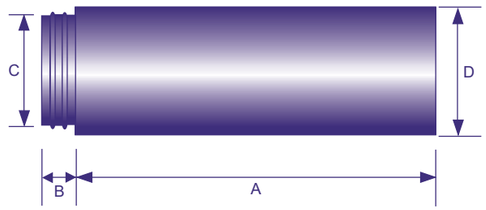
Max. differential pressure

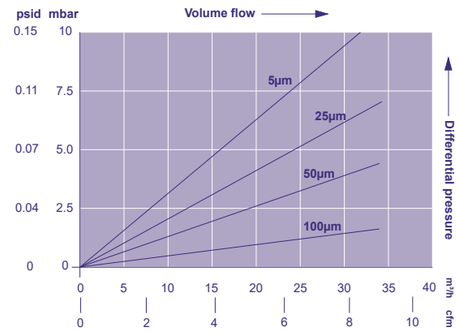
5bar (73psi)



Flow rate of a 10" AR element - water

Dimensions





Element size (inch)	A mm (in)	B mm (in)	C Ø mm (in)	DØ mm (in)	Correction factor
03/10	76mm (3")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,12
04/10	104mm (4")	12mm (0.47")	19mm (0.75")	42mm (1.6")	0,17
04/20	104mm (4")	14mm (0.55")	25mm (1")	52mm (2.0")	0,19
05/20	104mm (4")	14mm (0.55")	25mm (1")	52mm (2.0")	0,19
05/25	128mm (5")	14mm (0.55")	25mm (1")	62mm (2.5")	0,32
05/30	128mm (5")	16mm (0.62")	51mm (2")	86mm (3.4")	0,46
07/25	180mm (7")	14mm (0.55")	25mm (1")	62mm (2.5")	0,47
07/30	180mm (7")	16mm (0.62")	51mm (2")	86mm (3.4")	0,68
10/30	254mm (10")	16mm (0.62")	51mm (2")	86mm (3.4")	1,00
15/30	381mm (15")	16mm (0.62")	51mm (2")	86mm (3.4")	1,55
20/30	508mm (20")	16mm (0.62")	51mm (2")	86mm (3.4")	2,10
30/30	762mm (30")	16mm (0.62")	51mm (2")	86mm (3.4")	3,28
30/50	762mm (30")	16mm (0.62")	51mm (2")	140mm (5.5")	5,89

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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 >99.99999995% related to 0.2µm > 99.99999995% related to 0.02µm 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
- Pharmaceutical
- 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**
  Guaranteed quality
- **Available in 13 sizes**
  Optimum filter size for individual application.

Ordering Information

For prices including volume discounts, please contact a member of the sales team.

Specifications

Materials of Manufacture

Filter media	Borosilicate
Impregnation	PTFE
Outer core	SS 1.4301
Inner core	SS 1.4301
Inner layer	SS 1.4301
End caps	SS 1.4301
Bonding material	Silicone

Bacterial retention

LRV > 9/cm² for viruses and phages.

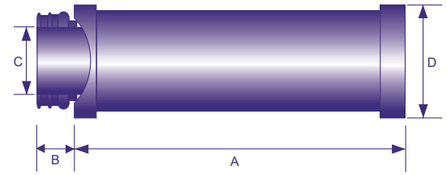
Temperature range

-20°C (-4°F) up to 200°C (392°F).

Filtration surface

8,400cm² per 10" element (10/30) (254mm).

Dimensions



Sterilisation

In-line sterilisation with slow speed saturated steam:
- max. 121°C (250°F) for 30 minutes
- max. 131°C (277°F) for 20 minutes
- max. 141°C (286°F) for 10 minutes

Autoclave: 125°C (257°F) for 30 minutes
PC filter elements are guaranteed for 200 sterilisation cycles without loss of integrity.

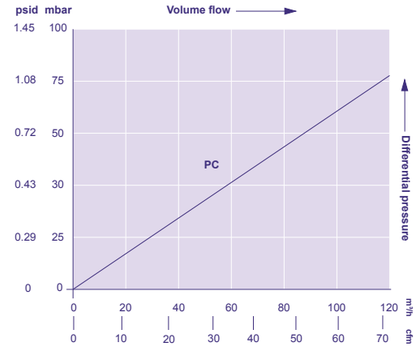
Retention rate

99.99999995% related to 0.2µm
99.99999995% related to 0.02µm
99.999999991% related to 0.003µm

Max. differential pressure

5bar (73psi), independent of operating pressure of flow direction.

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



Element size (inch)	A mm (in)	B mm (in)	C Ø mm (in)	DØ mm (in)	Correction factor
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Filter Housings

We manufacture a full range of stainless steel industrial and sanitary housings, to the highest standards, in single and multi-element configurations suitable for industrial and sanitary applications.

With a catalogue range from single round, 10" to 30-round 40", Porvair housings have a wide range of connections to suit customer needs, including tri-clover and weld connections. All cartridge designs are catered for.

Jacketed, heated and lined housings can be supplied on request as can be larger housings or special requirements.

Stainless Steel Filter Housings

Industrial and Sanitary Housings

A full range of stainless steel industrial and sanitary housings are available from 10 to 20bar (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 350bar (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.

Typical Applications

- Metal filter elements
- Disposable filter cartridges

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

Ordering Information

For ordering information please go to page 252.

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 BS5500, ASME VIII U'Stamp, ADM-TÜV. Other standards are available upon request.

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

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High-Pressure Filter Housings

Polished Stainless Steel Housings

High-pressure filter housings are designed for high efficiency filtration of gases and liquids in critical applications.

Available in alternative materials such as Monel® or Hastelloy® for applications that require a higher level of resistance to aggressive gases and liquids. BSPP pipe connections as standard and other connections are available. Manufactured from solid steel bar stock, in accordance with NACE MR-01-75 specification, they can be used in the pressure range from full vacuum to 350barg (5000psig).

These stainless steel high pressure filter housings can be ordered on their own or supplied with filter inserts as a complete assembly. These are available in Sinterflo® F Fibre, Sinterflo® M Mesh or Sinterflo® P Powder stainless steel. A variety of filtration ratings are available, please contact us for details.

Typical Applications

- High purity bottled gas
- Liquid or gas samples to process analysers
- Liquid or gas samples with minimum response time
- High pressure or vacuum filtration
- Sterile gas
- Precision in-line valves and equipment protection

Features and Benefits

- Resistant to high temperatures and corrosive environments
- Robust and durable construction
- Cleanable and reusable
- Suitable for use in acidic gases
- Ideal for stack sampling
- Low cost, long life unit
- Can be installed in permanent analysis equipment

Specifications

Maximum pressure drop
50bar (725psi)

Maximum pressure loss
25bar (360psi)

Temperature range
-250°C to 500°C (-425°F to 930°F)

Ordering Information

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

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Plastic Filter Housings

For a range of liquid applications

Our plastic filter housings are ideal for use within a wide range of industries where filtered liquids must remain free of contamination. These housings are particularly effective in the process water, food and beverage and chemical processing industries.

In critical applications, all-natural housings guarantee the cost-effective filtration of a variety of solvents, acids, alcohols and chemicals without leaching or bacterial build up.

Our 100% polypropylene filter housings, without color, adders, fillers, reinforcements or lubricants, provide an inexpensive alternative to Teflon™ or fluoropolymer housings.

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 Styrene Acrylonitrile (SAN), High Strength Glass Reinforced Nylon (for high temperature applications) and Pure Polypropylene.
- **Cannot be Over Tightenend**
  Plastic housings feature a unique bowl to 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

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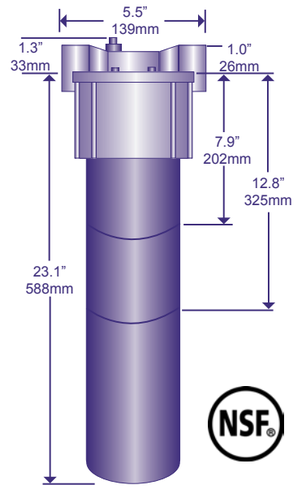
Standard Plastic Filter Housings

For liquid applications

Standard housings offer the following:

- White talc reinforced polypropylene head with blue talc reinforced or clear styrene acrylonitrile (SAN) bowl
- Standard $^{3}/_{4}$" NPT or $^{3}/_{4}$" 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 vent button
- Custom colors available by special order
- Mounting bosses in head for available bracket
- Accepts industry standard cartridge size:
  - OD: 2 $^{3}/_{4}$" (70mm)
    2 $^{1}/_{2}$" (64mm)
  - ID: 1" (25mm)
  - Length: Half: 4 $^{7}/_{8}$" (124mm)
    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



The model 11N, 21N, and 23N filter housings are tested and certified by NSF International under ANSI/NSF Standard 42 for material and structural integrity requirements.

Specifications

Model number*†	Max. operating temperature °F (°C)	Max. operating pressure psi (bar)**	Shipping weight lb (kg)***	Cartridge size	Housing material and style (all have white polypropylene head)
11N	125 (52)	150 (10)	3.3 (1.50)	10" (254mm)	Blue polypropylene bowl
12N	125 (52)	150 (10)	2.6 (1.18)	5" (127mm)	Blue polypropylene bowl
13N	125 (52)	150 (10)	4.5 (2.04)	20" (508mm)	Blue polypropylene bowl
21N	125 (52)	150 (10)	3.3 (1.50)	10" (255mm)	Clear styrene bowl
22N	125 (52)	150 (10)	2.6 (1.18)	5" (127mm)	Clear styrene bowl
23N	125 (52)	150 (10)	4.5 (2.04)	20" (508mm)	Clear styrene bowl

** 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. ** At 70°F (21°C) ***Multiply by 12 to obtain weight per case.*

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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 $^{3}/_{4}$" NPT or $^{3}/_{4}$" 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 vent button.

Specifications

Model number*	Max. operating temperature °F (°C)	Max. operating pressure psi (bar)*	Shipping weight lb (kg)**	Cartridge size	Housing material and style
31	165 (74)	100 (6.9)	3.2 (1.45)	10" (254mm)	Red reinforced nylon head and bowl
32	165 (74)	100 (6.9)	2.3 (1.04)	5" (127mm)	Red reinforced nylon head and bowl

Ordering Information

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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, adders, 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.

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 bacteria and dirt buildup
- Includes a non-lubricated silicone O-ring as standard
- Standard $^{3}/_{4}$" NPT or $^{3}/_{4}$" BSP connections

Specifications

Model number*†	Max. operating temperature °F (°C)	Max. operating pressure psi (bar)**	Shipping weight kg (lb)***	Cartridge Size	Housing style
51NX	125 (52)	150 (10)	2.4 (1.09)	10" (254mm)	w/o pressure relief button
51NXD	125 (52)	150 (10)	2.4 (1.09)	10" (254mm)	w/ tapped drain
51NX-222	125 (52)	150 (10)	2.4 (1.09)	10" (254mm)	w/ 222 O-ring configuration
51NXD-222	125 (52)	150 (10)	2.4 (1.09)	10" (254mm)	w/ 222 O-ring configuration and drain
52NX	125 (52)	150 (10)	1.2 (0.54)	5" (127mm)	w/o pressure relief button
53NX	125 (52)	150 (10)	3.4 (1.54)	20" (508mm)	w/o pressure relief button
53NXD	125 (52)	150 (10)	3.4 (1.54)	20" (508mm)	w/ tapped drain
53NX-222	125 (52)	150 (10)	3.4 (1.54)	20" (508mm)	w/ 222 O-ring configuration
53NXD-222	125 (52)	150 (10)	3.4 (1.54)	20" (508mm)	w/ 222 O-ring configuration and drain

** Housings can be ordered with a differential pressure gauge by adding the letter "G" after the model number.*
† NPT fittings as standard. Add a B after the model number to order BSP fittings.
***At 70°F (21°C). ***Multiply by 12 to obtain weight per case. ¼" NPT vent and drain.*

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Porvair's GIANT HOUSING® Series

The GIANT HOUSING® series offers maximum filtration capacity in a compact unit. These housings feature:

- Talc polypropylene, clear styrene, pure polypropylene and glass reinforced nylon construction
- Unique 'stacked threads' - both 1" and 1-$^{1}/_{2}$" NPT or BSP connections in the same head
- Bag housings in all materials, (bags are also available)
- Optional differential pressure gauge available

The GIANT HOUSING® series, with a 222 fitting in the head will only take 222 style GIANT cartridges. These are available with white talc polypropylene heads and white talk polypropylene or clear styrene bowls.

Ordering Information

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

Specifications - for cold liquid applications

Model number*†	Max. operating temperature °F (°C)	Max. operating pressure psi (bar)*	Shipping weight lb (kg)**	Cartridge size	Housing material and style
BG10	125 (52)	100 (6.9)	5.10 (2.31)	10" (254mm)	White polypropylene head, blue polypropylene bowl
BG20	125 (52)	100 (6.9)	7.13 (3.23)	20" (508mm)	White polypropylene head, blue polypropylene bowl
CG10	125 (52)	100 (6.9)	4.13 (1.87)	10" (254mm)	White polypropylene head, clear styrene bowl
CG20	125 (52)	100 (6.9)	7.12 (3.23)	20" (508mm)	White polypropylene head, clear styrene bowl
NPGX10	125 (52)	100 (6.9)	3.13 (1.42)	10" (254mm)	Pure polypropylene w/o pressure relief button
NPGXD10	125 (52)	100 (6.9)	3.13 (1.42)	10" (254mm)	Pure polypropylene w/ tapped drain
NPGX20	125 (52)	100 (6.9)	5.15 (2.34)	20" (508mm)	Pure polypropylene w/o pressure relief button
NPGXD20	125 (52)	100 (6.9)	5.15 (2.34)	20" (508mm)	Pure polypropylene w/ tapped drain

** At 70°F (21°C). † NPT fittings as standard. Add a B after the model number to order BSP fittings.*
***Multiply by 12 to obtain weight per case. ¼" NPT vent and drain.*

Specifications - for high temperature applications

Model number*	Max. operating temperature °F (°C)	Max. operating pressure psi (bar)*	Shipping weight lb (kg)**	Cartridge size	Housing material and style
HTGX10	180 (82)	100 (6.9)	5.88 (2.67)	Full	Reinforced nylon head and bowl
HTGX20	180 (82)	100 (6.9)	8.25 (3.74)	Double	Reinforced nylon head and bowl

** NPT fittings as standard. Add a B after the model number to order BSP fittings. ** Multiply by 12 to obtain weight per case.*

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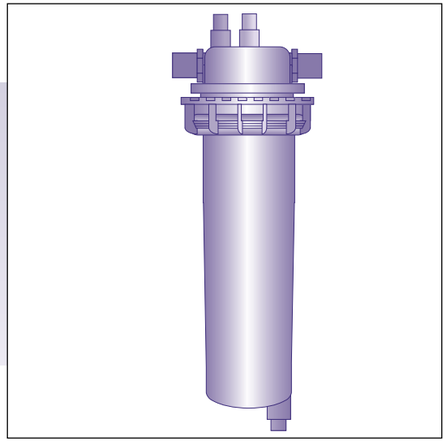
Quicklok™ PFA Housings



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.

Applications

- **Semiconductor**
  Chemical delivery system filtration of strong acid and base solution at 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

Features and Benefits

- **Easy filter installation**
  The Quicklok™ cartridge housing bowl 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 sing-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

Pillar S300 1", Super Pillar 3/4", Flare 1" and 3/4" Inlet/Outlet fittings available to meet semiconductor application requirements.

Dimensions

Inlet/Outlet	Vent/Drain	B	A (10" housing)	A (20" housing)	A (30" housing)
1" Flaretek	1/2" Flaretek	202mm (8")	481mm (18.9")	710mm (28")	957mm (37.7")
1" S300*	1/2" 300*	182mm (7.2")	459mm (18")	688mm (27")	935mm (36.8")
3/4" Super Pillar	1/2 Super Pillar	180mm (7.1")	458mm (18")	687mm (27")	934mm (36.8")
3/4" Flaretek	1/2" Flaretek	192.4mm (7.6")	481mm (18.9")	710mm (28mm)	957mm (37.7")

Operating Conditions

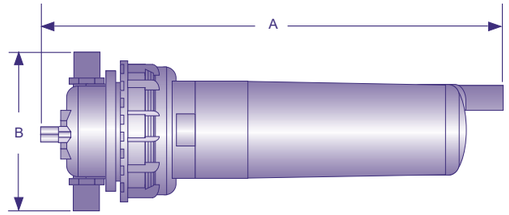
Maximum inlet pressure:
3.4bar (49psi) @100˚C (212˚F)
7.5bar (110psi) @ 25˚C (77˚F)
Maximum operating temperature:
110˚C (212˚F).

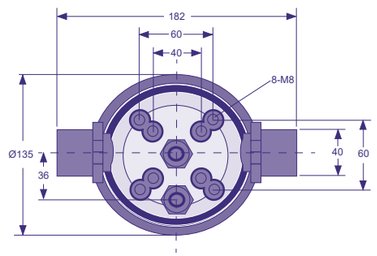
Qualification NSF/ANSI 42

Hydrostatic pressure tested 7.5bar (110psi) at room temperature.

Cyclic pressure tested from 5bar (72psi) for 1000,000 times at room temperature.

100˚C (212˚F) temperature leak test at 4.3bar (62psi).





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Compfil™ AH

Industrial Filter Housing for Compressed Air

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.

Applications

- Industrial
- Process

Features and Benefits

- **Three-part and optimised filter housing for ease of maintenance**
  Push and turn technology ensures easy exchange of the filter elements, whilst the optimised 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.

Specifications

Materials of Manufacture

Material housing:	Aluminium
Surface finish:	Epoxy resin
Sealing:	Perbunan®
Screw locking ring:	Aluminium
Energy cost monitor:	Plastic

Maxiumum Operating Pressure

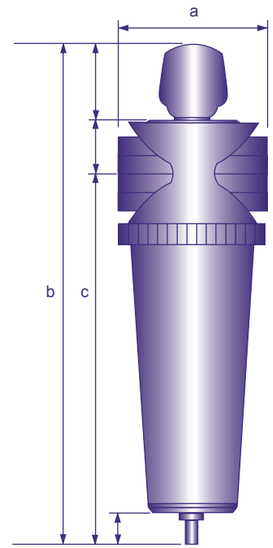
6bar (232psi)

Operating Temperature

120°C (48°F)

Dimensions

Type	Volume flow		G/DN	Dimensions mm (in)			Filter element	
	Nom. m³/h (ft³/h)	Max. m³/h (ft³/h)		a	b	c	Size	Qty.
0002	20 (706)	40 (1,413)	G 1/4	95 (3.74)	289 (11.38)	211 (8.3)	02/05	1
0004	40 (1,413)	60 (2,119)	G 3/8	95 (3.74)	289 (11.38)	211 (8.3)	03/05	1
0006	60 (2,119)	90 (3,178)	G 3/8	95 (3.74)	289 (11.38)	211 (8.3)	03/10	1
0009	90 (3,178)	120 (4,238)	G 1/2	95 (3.74)	317 (12.47	239 (9.4)	04/10	1
0012	120 (4,238)	180 (6,357)	G 1/2	125 (4.92)	369 (14.5)	277 (10.9)	04/20	1
0018	180 (6,357)	270 (9,535)	G 3/4	125 (4.92)	369 (14.5)	277 (10.9)	05/20	1
0027	270 (9,535)	360 (12,713)	G 1	125 (4.92)	369 (14.5)	277 (10.9)	05/25	1
0036	360 (12,713)	480 (16,951)	G 1 1/4	125 (4.92)	427 (16.8)	335 (13.2)	07/25	1
0048	480 (16,951)	720 (25,427)	G 1 1/2	175 (6.89)	509 (20)	401 (15.8)	07/30	1
0072	720 (25,427)	1,080 (38,140)	G2	175 (6.89)	509 (20)	401 (15.8)	10/30	1
0108	1,080 (38,140)	1,440 (50,853)	G2	175 (6.89)	650 (25.6)	401 (15.8)	15/30	1
0144	1,440 (50,853)	1,920 (67,804)	G 2 1/2	210 (8.27)	811 (31.9)	690 (27.2)	20/30	1
0192	1,920 (67,804)	2,880 (101,706)	G3	210 (8.27)	1,061 (41.8)	940 (37)	30/30	1
0288	2,880 (101,706)	4,320 (152,559)	G3	210 (8.27)	1,068 (42)	940 (37)	30/50	1



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Compfil™ SH

Stainess Steel Filter Housing for Sterile Air and Gas Filtration

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
- Dairies
- Food and beverages
- Water treatment systems
- Fermentation processes

Features and Benefits

- **Various size options available**
  18 different sizes for operating volumes from 60 Nm^3/h (38 SCFM) to 23,040 Nm^3/h (14,554 SCFM) related to 7barg (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.

Maximum Operating Pressure

0006 - 0192: 16barg (232psig)
0288: 12barg (174psig)
0432 - 1920: 10barg (145psig)

Maximum Operating Temperature

200°C (392°F)

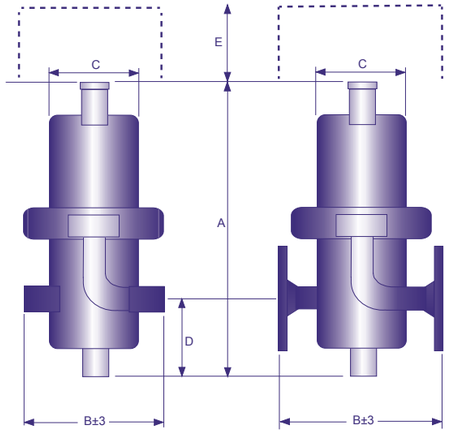
Surface Finish

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

Threaded BSP Socket

Flanged DN2633



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Type SH	Volume flow Nm3/hr at 7 barg operating pressure (SCFM at 101.5psig)		Connections		Filter element	
	Nom.	Max.	Threaded	DIN2633	Gr.	Anz.
0006	60 (38)	90 (57)	R 1/4"	DN 10	03/10	1
0009	90 (57)	120 (76)	R 3/8"	DN 10	04/10	1
0012	120 (76)	180 (114)	R 1/2"	DN 15	04/20	1
0018	180 (114)	270 (171)	R 3/4"	DN 20	05/20	1
0027	270 (171)	360 (227)	R 1"	DN 25	05/25	1
0036	360 (227)	480 (303)	R1 1/4"	DN 32	07/25	1
0048	480 (303)	720 (455)	R1 1/2"	DN 40	07/30	1
0072	720 (455)	1,080 (682)	R 2"	DN 50	10/30	1
0108	1,080 (682)	1,440 (910)	R 2"	DN 50	15/30	1
0144	1,440 (910)	1,920 (1,213)	R2 1/2"	DN 65	20/30	1
0192	1,920 (1,213)	2,880 (1,819)	R 3"	DN 80	30/30	1
0288	2,880 (1,819)	4,320 (2,729)	R 3"	DN 80	30/50	1
0432	4,320 (2,729)	5,760 (3,639)		DN 100	20/30	3
0576	5,760 (3,639)	7,680 (4,851)		DN 100	30/30	3
0768	7,680 (4,851)	11,520 (7,277)		DN 150	30/30	4
1152	11,520 (7,277)	15,360 (9,703)		DN 150	30/30	6
1536	15,360 (9,703)	19,200 (12,029)		DN 200	30/30	8
1920	19,200 (12,129)	23,040 (14,554)		DN 200	30/30	10

Conversion table and note

Operating pressure (bar)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Conversion factor	0.25	0.36	0.50	0.60	0.75	0.90	1.00	1.10	1.20	1.40	1.50	1.60	1.75	1.90	2.00	2.10

Multiply volume shown by the conversion factor to obtain the volume flow (Nm^3/hr) at other operating pressures.

Weight and Dimensions

Type P-EG	Dimensions in mm (in)						Weight in kg (lb)
	A	B (Threaded)	B (DIN2633)	C	D	E	
0006	215 (8.46)	105 (4.13)	180 (7.1)	70 (2.76)	55 (2.16)	90 (3.54)	1.7 (3.7)
0009	243 (9.57)	105 (4.13)	180 (7.1)	70 (2.76)	55 (2.16)	120 (4.72)	1.9 (4.2)
0012	243 (9.57)	108 (4.25)	180 (7.1)	70 (2.76)	55 (2.16)	120 (4.72)	1.9 (4.2)
0018	266 (10.5)	125 (4.92)	202 (7.95)	70 (2.76)	55 (2.16)	150 (5.90)	2.0 (4.4)
0027	293 (11.5)	125 (4.92)	212 (8.34)	85 (3.35)	74 (2.91)	150 (5.90)	2.6 (5.7)
0036	344 (13.5)	140 (5.51)	220 (8.66)	85 (3.35)	74 (2.91)	200 (7.87)	3.0 (6.6)
0048	386 (15.2)	170 (6.69)	254 (10)	104 (4.09)	94 (3.70)	200 (7.87)	4.3 (9.5)
0072	460 (18.1)	170 (6.69)	260 (10.24)	104 (4.09)	94 (3.70)	280 (11.0)	4.8 (10.6)
0108	587 (23.1)	170 (6.69)	260 (10.24)	104 (4.09)	94 (3.70)	450 (17.7)	5.3 (11.7)
0144	732 (28.8)	216 (8.50)	290 (11.42)	129 (5.08)	106 (4.17)	580 (22.8)	9 (19.8)
0192	987 (38.9)	216 (8.50)	300 (11.81)	129 (5.08)	106 (4.17)	850 (33.5)	10.8 (23.8)
0288	1,026 (40.4)	240 (9.45)	340 (13.39)	154 (6.06)	119 (4.68)	850 (33.5)	16.2 (35.7)
0432	1,090 (42.9)	410 (16.1)	410 (16.14)	219 (8.62)	200 (7.87)	580 (22.8)	43 (94.8)
0576	1,350 (53.1)	410 (16.1)	410 (16.14)	219 (8.62)	200 (7.87)	850 (33.5)	44 (97)
0768	1,410 (55.5)	480 (18.9)	480 (18.9)	273 (10.7)	240 (9.45)	850 (33.5)	70 (154.3)
1152	1,460 (57.5)	540 (21.3)	540 (21.26)	324 (12.8)	250 (9.84)	850 (33.5)	80 (176.4)
1536	1,600 (63.0)	660 (26.0)	660 (25.98)	406 (16.0)	300 (11.8)	850 (33.5)	135 (297.6)
1920	1,600 (63.0)	660 (26.0)	660 (25.98)	406 (16.0)	300 (11.8)	850 (33.5)	135 (297.6)

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In-Line and Last Chance Filters

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:

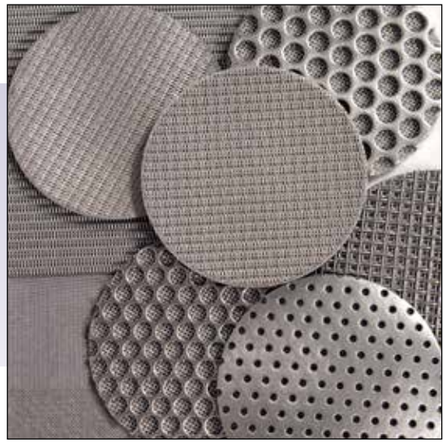
- Sinterflo® F sintered metal fibre
- Sinterflo® P sintered metal powder
- Sinterflo® M metal mesh
- Sinterflo® MC sintered metal mesh composite
- Laser drilled
- Polymers: polypropylene, acetal, peek, nylon, PTFE.

Inprinta® is the Inkjet sales division of **Porvair Filtration Group. Inprinta®** designs and manufactures a wide range of in-line 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.

Metal Mesh Filter Discs

Flat and Pleated



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 (-454-842°F), and with differential pressures up to 3bar (43psi).

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.

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Metal Fibre Filter Discs

Flat and Pleated

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.

Please note, this product is custom made to meet specific project requirements and cannot be ordered through this catalogue's ordering guides. For further information, please contact a member of the Sales Team.

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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 35% 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

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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

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

Ordering Information

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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.

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
1.9cm^2 (0.29in^2)

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Ordering Information

For ordering information please go to page 254.

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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.

Typical Applications

- Inkjet

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
7cm^2 (1.08in^2)

Connectors
2.6mm O/D barb

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Ordering Information

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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.

Typical Applications

- Inkjet

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 0°C to 50°C (32°F to 122°F)

Ordering Information

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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.

Typical Applications

- Inkjet

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 (0.76in²)

Connectors
Barb: 2.6mm O/D barb
4.9mm O/D barb

Maximum Operating Pressure
6.5bar (94psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Ordering Information

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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.

Typical Applications

- Inkjet

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
	6.5mm O/D barb
Jaco®:	3mm
NPT:	¼" NPT

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Ordering Information

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Grid Filters and O-Rings

A small pre-head filter is manufactured from stainless steel mesh.

The filter comes complete with a compatible O-ring and is designed as a last chance filter, giving excellent protection to the printhead.

Typical Applications

- Inkjet

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)

Maximum Operating Pressure
5bar (72.5psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Ordering Information

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Union Filters

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

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Last Chance Filters

for the Inkjet Industry

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 0°C to 50°C (32°F to 122°F)

Ordering Information

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Microdisc™1PA

15mm S-Vent Disc Filters

Air filters with a hydrophobic filter membrane act as a barrier to all contaminants.

Typical Applications

- Inkjet

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 0°C to 50°C (32°F to 122°F)

Ordering Information

For ordering information please go to page 256.

Microdisc™2PA

25mm S-Vent Disc Filters

Air filters with a hydrophobic filter membrane act as a barrier to all contaminants.

Typical Applications

- Inkjet

Specifications

Filter Code
8164

Materials of Manufacture
Filter media: PTFE
Housing material: Polypropylene

Micron Rating
0.2µm

Dimensions
Disc diameter: 25mm (0.98")
Disc width: 19mm (0.74")

Connectors
Female luer / male syringe

Maximum Operating Pressure
5bar (72.5psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

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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 inkjet 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 inkjet solvents. The inner mesh ensures precise filter specification to the required absolute micron rating.

Typical Applications

- Inkjet

Specifications

Filter Code
8159

Materials of Manufacture

Filter media:	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®:	3mm Jaco®
Luer:	Female luer

Maximum Operating Pressure
5bar (72.5psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Ordering Information

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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.

Typical Applications

- Inkjet

Specifications

Filter Code
8111

Materials of Manufacture

Filter media:	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 0°C to 50°C (32°F to 122°F)

Ordering Information

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Microdisc™ 4PV

45mm Polymeric Volume Disc Filters

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.

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)

Ordering Information

For ordering information please go to page 256.

Microdisc™ 7PS

74mm Polymeric Disc Filters

Inprinta®'s Microdisc™ 7PS is a large over-moulded polypropylene disc filter that gives excellent flow rates.

The Microdisc™ 7PS also ensures complete chemical compatibility for all UV and solvent inkjet applications.

Typical Applications

- Inkjet

Specifications

Filter Code
8169

Materials of Manufacture
Filter media: Polypropylene
Housing material: Polypropylene
Housing colour: Opaque black and natural

Micron Rating
5µm, 10µm, 20µm, 50µm

Dimensions
Disc diameter: 74mm (2.91")
Disc width: 47mm (1.85")

Filter Area
19cm² (2.95in²)

Connectors
¼" Jaco® and 6mm Jaco®

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Ordering Information

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Bullet Filters

A fully integrated polypropylene filter media precision manufactured into a polypropylene housing.

This in-line filter has excellent chemical compatibility to inkjet fluids. The high efficiency filters give long service life and are bonded for minimal extractables.

Typical Applications

- Inkjet

Specifications

Filter Code

6612

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 0°C to 50°C (32°F to 122°F)

Ordering Information

For ordering information please go to page 256.

Contact Information:

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US, Ashland Division
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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.

Typical Applications

- Inkjet

Specifications

Filter Code

8098

Materials of Manufacture

Filter media: Stainless steel mesh
Housing material: PEEK
Housing Colour: Opaque black or natural

Micron Rating

3µm, 5µm

Dimensions

Filter length: 44mm (1.73")
Filter width: 15mm (0.59")

Filter Area

3.5cm^2 (0.54in^2)

Connectors

3mm Jaco®

Maximum Operating Pressure

6bar (87psi)

Operating Temperature

From 0°C to 50°C (32°F to 122°F)

Ordering Information

For ordering information please go to page 256.

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Disposable Capsule Filters

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.

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.

Available for standard or UV inks, this unit also has a wide range of connectors and filter ratings.

Typical Applications

- Inkjet

Specifications

Filter Code
8089

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

Filter diameter:	65mm (2.56")
Filter height:	88mm (3.46") (plus connectors)

Filter Area
500cm² (77.5in²)

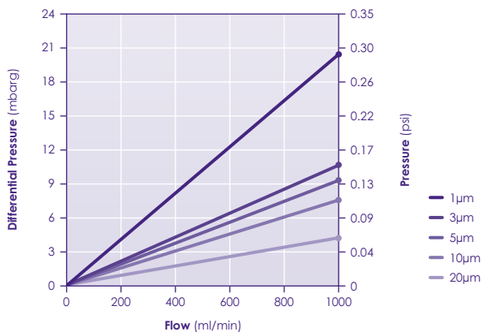
Connectors

Barb:	¼" barb
NPT:	¼" NPT male
Jaco®:	¼" Jaco® ¼" Jaco® 90° 6mm Jaco® 90° 6mm Jaco®
QRC:	Quick Release Connector
Luer:	Luer Luer 90°

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Flow Rate



Ordering Information

For ordering information please go to page 258.

Microprint™II

Capsule 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. Available in both natural and black opaque for UV based inks, the Microprint™ II is made from materials free from binding agents, to give low extractables and protection from fibre release downstream, so ensuring a clean fluid system.

Microprint™ II capsule is available with a choice of our proprietary Polyfil™ and Klearfil™ filter media to suit solvent, aqueous and UV based inks. The different option of fluid inlet and outlet connectors allows the capsule to fit the majority of inkjet printer systems.

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.

Ordering Information

For ordering information please go to page 258.

Specifications

Filter Code
8022

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 available on request)

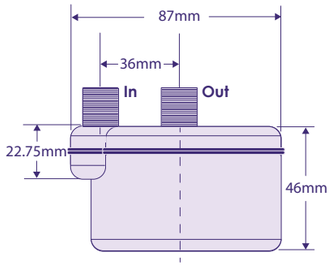
Connectors

Jaco®:	¼" Jaco® 6mm Jaco®
QRC:	Quick Release Connector ¼" NPT thread

Maximum Operating Pressure
<6.5bar (94psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Dimensions



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Microjet™

Main System Filters

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

Specifications

Filter Code
8131

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
500cm^2 (77.5in^2)

Connectors
Luer / hose barb

Maximum Operating Pressure
6bar (87psi)

Operating Temperature
From 0°C to 50°C (32°F to 122°F)

Ordering Information

For ordering information please go to page 258.

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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, SVPs, 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 preservatives and proteins. The lower binding characteristics of PES make it a good choice for the filtration of valuable protein solutions such as vaccines and biologicals as well as ophthalmic solutions.

Microcap™ PES capsule elements are 100% integrity tested during production.

Typical Applications

- Diagnostics
- Vaccines
- LVPs and SVPs
- Biologicals
- 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.

Ordering Information

For ordering information please go to page 251

Specifications

Materials of Manufacture

Housing:	Polypropylene
Filtration media:	Double layered polyethersulfone (PES) membrane
Media support:	Polypropylene
End caps:	Polypropylene
Centre core:	Polypropylene
Outer support cage:	Polypropylene
Sealing method:	Thermal bonding

Sanitisation/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:	PES capsules are not to be used in steam.
Pre-Sterilised:	PES capsules are offered in both non- and pre-sterilised forms.

Maximum Operating Parameters

Liquid operational pressure:	5.5bar (80psi) at 20°C (68°F)
Gases operational pressure:	4.1bar (60psi) 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 (40 psi) at 20°C (68 °F)
Recommended changeout pressure:	2.4bar (35psi)

Flow Rate

The following table represents typical water flow at a 69mbar (one psi) pressure differential across a single 2 inch capsule with 1.0ft² (0.09m²) of media with 1/2" FNPT ports. The test fluid is water at ambient temperature. Higher pressure drops are acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore size (µm)	0.03	0.10	0.22	0.45	0.65	0.8	1.0	1.2
GPM	0.16	0.26	0.46	0.71	0.86	0.91	0.97	1.0
LPM	0.61	0.98	1.74	2.69	3.26	3.44	3.67	3.78

Filtration Area

Media	Capsule length				
	2"	5"	10"	20"	30"
PES Membrane	1.0ft² (0.09m²)	3.0ft² (0.29m²)	6.2ft² (0.58m²)	12.4ft² (1.16m²)	18.6ft² (1.74m²)

Integrity Test Specifications - Diffusion

Pore size (µm)	Test pressure (psi)	Max Diffusion Rate (cc/min - water wetted membrane)				
		2"	5"	10"	20"	30"
0.03	60	2.1	6.3	15	30	45
0.10	48	2.1	6.3	15	30	45
0.22	35	2.1	6.3	15	30	45
0.45	20	2.1	6.3	15	30	45
0.65	15	2.1	6.3	15	30	45
0.8	12	2.1	6.3	15	30	45
1.0	8	2.1	6.3	15	30	45
1.2	7	2.1	6.3	15	30	45

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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.

Microcap™ PPP capsules protect critical membrane filters downstream by removing 99.9% (β ratio = 1000) of contaminants at the rated pore size.

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.

Typical Applications

- Bulk pharmaceutical chemicals
- Buffers and other media
- LVPs and SVPs
- Biologicals
- Water
- Ophthalmics
- Diagnostics

Features and Benefits

- Protect's critical membrane filters downstream.
- Wide range of high efficiency retention ratings
- High capacity for long life.
- USP Class VI approved.
- Uses FDA compliant materials.

Ordering Information

For ordering information please go to page 251

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

Sanitisation/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™ 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.

Pore size (µm)	0.10	0.22	0.45	0.65	1.0	3.0	5.0	10	20	30	40	60	100
GPM	0.20	0.60	1.0	1.2	1.6	2.4	3.2	3.6	4.0	>4.0	>4.0	>4.0	>4.0
LPM	0.76	2.27	3.78	4.54	6.05	9.08	12.11	13.62	15.14	>15.14	>15.14	>15.14	>15.14

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

Maximum Operating Parameters

Liquid operational pressure:	5.5bar (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:	Polypropylene
Recommended changeout pressure:	2.4bar (35psi)

Filtration Area

Media	Capsule length				
	2"	5"	10"	20"	30"
Pleated polypropylene depth	1.0ft² (0.09m²)	2.8ft² (0.26m²)	5.8ft² (0.54m²)	11.6ft² (1.08m²)	17.4ft² (1.62m²)

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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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 speciality 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 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 membrane filters used downstream. Polypropylene depth media capsule filters are rinsed during production to remove manufacturing debris from the capsules.

Typical Applications

- Chemicals
- Acids and bases
- Cosmetics
- Process water
- Inks and dyes

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.

Ordering Information

For ordering information please go to page 251

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

Sanitisation/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 (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.

Pore size (µm)	0.10	0.22	0.45	0.65	1.0	3.0	5.0	10	20	30	40	60	100
GPM	0.20	0.60	1.0	1.2	1.6	2.4	3.2	3.6	4.0	>4.0	>4.0	>4.0	>4.0
LPM	0.76	2.27	3.78	4.54	6.05	9.08	12.11	13.62	15.14	>15.14	>15.14	>15.14	>15.14

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

Maximum Operating Parameters

Liquid operational pressure:	5.5bar (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:	Polypropylene
Recommended changeout pressure:	2.4bar (35psi)

Filtration Area

Media	Capsule length				
	2"	5"	10"	20"	30"
Pleated polypropylene depth	1.0ft² (0.09m²)	2.8ft² (0.26m²)	5.8ft² (0.54m²)	11.6ft² (1.08m²)	17.4ft² (1.62m²)

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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Microcap™ PFE

PTFE Pleated Membrane Capsules

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 configuration and pleat packing density have been optimised to provide increased life resulting in lower filtration operating costs.

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.
- Maximized bio-burden reduction.
- Integrity at low TOC levels.

Ordering Information

For ordering information please go to page 251

Specifications

Materials of Manufacture

Housing:	Polypropylene
Filtration media:	PTFE membane (absolute rated)
Media support:	Polypropylene
End caps:	Polypropylene
Centre core:	Polypropylene
Outer support cage:	Polypropylene
Sealing method:	Thermal bonding

Sanitisation/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™ PFE capsules are not to be used in steam.

Flow Rate

The following tables represent 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. The gas test fluid is compressed 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						
µm rating	0.10	0.22	0.45	1.0	3.0	5.0
SCFM	3.0	4.9	9	11	>11	>11

Liquid flow rates						
µm rating	0.10	0.22	0.45	1.0	3.0	5.0
GPM	0.15	0.24	0.76	1.2	1.4	1.6
LPM	0.57	0.91	2.87	4.54	5.30	6.06

Maximum Operating Parameters

Liquid operational pressure:	5.5bar (80psi) at 20°C (68°F)
Gases operational pressure:	4.1bar (60psi) 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)
Recommended changeout pressure:	2.4bar (35psi)

Filtration Area

Media	Capsule length				
	2"	5"	10"	20"	30"
PTFE membrane	1.0ft² (0.09m²)	3.0ft² (0.28m²)	8.2ft² (0.76m²)	16.4ft² (1.53m²)	24.6ft² (2.29m²)

Integrity Test Specifications

(per 1.0 ft2 (930 cm2) 60/40 IPA/water wetted membrane)

Pore size (µm)	Bubble point
0.10	1.52bar (22psi)
0.22	1.2bar (18psi)
0.45	621bar (9psi)
1.0	414bar (6psi)
3.0	138bar (2psi)
5.0	69bar (1psi)

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;

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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 fill applications in SVPs and as bioburden management filters in LVPs. 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 it's broad compatibility and low level of extractables.

Typical Applications

- Bulk pharmaceutical chemicals
- SVPs and LVPs
- 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.

Ordering Information

For ordering information please to go page 215.

Specifications

Materials of Manufacture

Housing:	Polypropylene
Filtration media:	Nylon 6,6 membrane (absolute rated)
Media support:	Polypropylene
End caps:	Polypropylene
Centre core:	Polypropylene
Outer support cage:	Polypropylene
Sealing method:	Thermal bonding

Sanitisation/Sterilisation

Autoclave:	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 manufacturers instructions for use on nylon filter devices.
Note:	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 at a one psi (69bar) pressure differential across a single 2 inch capsule with 1.0 ft ² (0.093 m²) of media with 1/2" FNPT ports. The test fluid is water at ambient temperature. Higher pressure drops are acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Maximum Operating Parameters

Liquid operational pressure:	5.5bar (80psi) at 20°C (68°F)
Gases operational pressure:	4.1bar (60psi) at 20°C(68°F)
Operating temperature:	110°F (43°C) at 30psi (2.1bar) in water Forward differential pressure: 3.4bar (50psi) at 20°C (68°F)
Reverse differential pressure:	2.7bar (40psi) at 20°C (68°F)
Recommended changeout pressure:	2.4bar (35psi)

Filtration Area

Media	Capsule length				
	2"	5"	10"	20"	30"
Nylon, 6,6 membrane	1.0ft² (0.09m²)	3.0ft² (0.28m²)	7.0ft² (0.65m²)	14.0ft² (1.30m²)	21.0ft² (1.95m²)

Integrity Test Specifications

Pore size	Test pressure (psi)	Max. diffusion rate (cc/min -water wetted membrane)				
		2"	5"	10"	20"	30"
0.10	48	2.1	6.3	15	30	45
0.22	35	2.1	6.3	15	30	45
0.45	20	2.1	6.3	15	30	45
0.65	15	2.1	6.3	15	30	45

Pore size (µm)	0.10	0.22	0.45	0.65
GPM	0.14	0.25	0.43	0.60
LPM	0.53	0.95	1.63	2.27

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

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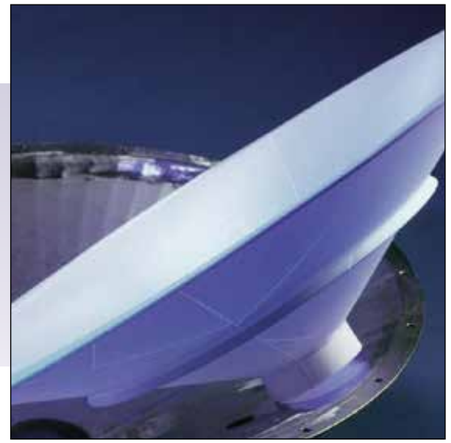
Fluidisation and Powder Handling Units



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.

Sinterflo® P Metal Powder Aeration Units

For Powder Handling

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 600°C (1,112°F) 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 600°C (1,112°F).
- **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

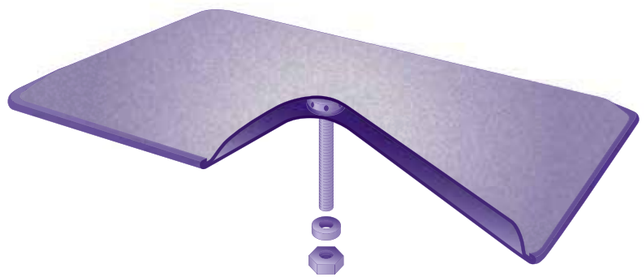
For ordering information please contact a member of the sales team.

Sinterflo® P Stainless Steel Aeration Unit

Stainless steel Sinterflo® units have been specifically designed for use in the food and pharmaceutical industries and where resistance to chemical attack or high temperature (up to 600°C (1,112°F)) is required.

Sinterflo® P Bronze Aeration Unit

Available as sheets up to 600mm (23.62") long and 350mm (13.78") wide or as a finished unit as illustrated below, the Sinterflo® Bronze sheet and aeration unit exhibits excellent strength and rigidity, and can be used in higher temperature applications (up to 300°C (572°F)) such as conveyors and air slides for hot fly ash and gypsum powders.



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Sinterflo® MC Fluidising Media

For Powder Handling

Multi-layered, diffusion-bonded stainless steel mesh is available in 316L and other alloys. This precision fluidising media is available in both Lo Flow and Hi Flow 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 100cm 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.

For fluidising applications where a tightly controlled efficiency rating is required, a precision fine filter mesh (down to 2 microns nominal) sintered to the fluidising media is available; effective in reducing particulate bypass, clogging and when fluidising gas is not flowing constantly.

Sinterflo® MC fluidising media is particularly suited to demanding applications where high operating temperatures of up to 540°C (1,000°F), increased chemical or high abrasion resistance is essential, such as silo discharge cones, fluidised reactors and fluidised dryers.

This material is easily custom engineered to meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment.

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.

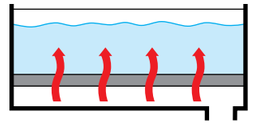
Ordering Information

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

Typical Applications

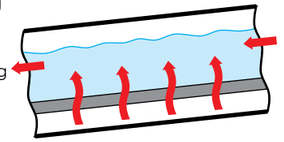
Fluidised Beds

Air is pumped through a horizontal or inclined section of Sinterflo® MC media, levitating 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.



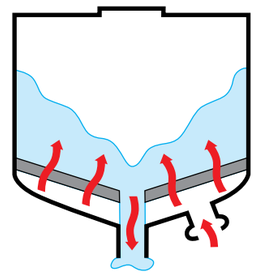
Fluidised Gravity Conveyors

A second flow of air is introduced at a 90 degree angle to the fluidising media to move the product forward for secondary processing (ie roasting) or transportation.



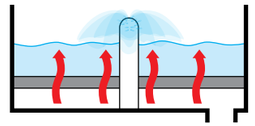
Fluidised Hoppers

Formed in to conical shapes, Sinterflo® MC media will prevent 'bridging' of particles/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 electro-plating, fermentation and water treatment industries.



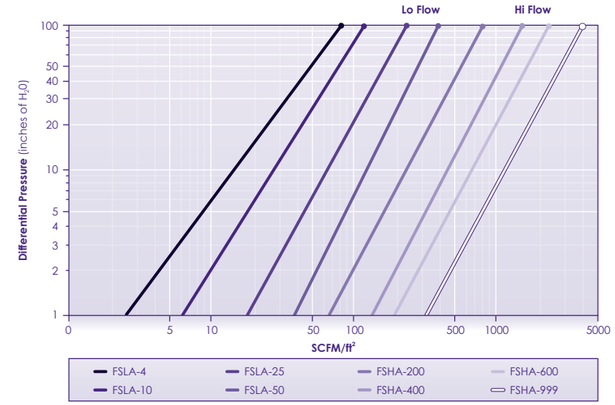
Specifications

FSLA Standard Lo Flow Fluidising Media Grades

Grade	Airflow (SCFM/ft²@2 in of H_2O)	Nominal Thickness mm (in)
FSLA-0005	5	1.37mm (0.054")
FSLA-0010	10	1.47mm (0.058")
FSLA-0025	25	1.57mm (0.062")
FSLA-0050	50	1.65mm (0.065")

FSHA Standard Hi Flow Fluidising Media Grades

Grade	Airflow (SCFM/ft²@6 in of H_2O)	Nominal Thickness mm (in)
FSHA-0200	200	1.02mm (0.040")
FSHA-0400	400	1.19mm (0.047")
FSHA-0600	600	1.32mm (0.052")
FSHA-1000	1000	1.63mm (0.064")



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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 the 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
- Paracetamol
- Vitamins

Industrial and construction
- Cement
- Gypsum
- Soda/fly ash
- Coal dust

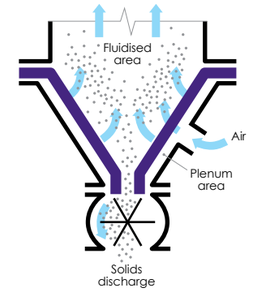
Chemical and plastics
- Titanium dioxide
- Carbon black
- Calcium carbonate
- Polyethylene powder
- Epoxy and polyester paint powders

Ordering Information

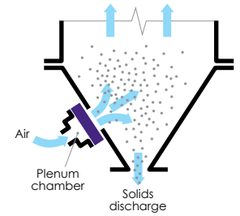
For ordering information please contact a member of the sales team.

Typical Applications

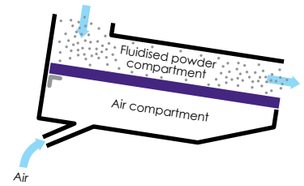
Gravity discharge



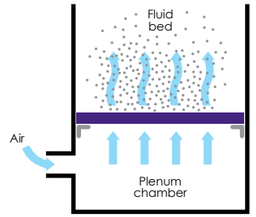
Anti-bridging and aeration pads



Air assisted gravity conveying



Dip coating



Specifications

Mean Pore Size
12-16µm

Air Flow at 10mbar
2-3$m^3/min/m^2$ (71$ft^3/min/ft^2$)

Removal Efficiency (Air)
6µm

Elongation at Break
10%

Tensile Strength
70 kgf/cm^2 (12.8lbf-ft)

Temperature Range*
-70°C to 110°C* (-92°F to 230°F)

** Depending on material type.*

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High Purity Filters

We manufacture a wide range of products suitable for use within the microelectronics and semiconductor industries.

These ranges are manufactured at our plant in Boise, and provide industry leading products to meet the urgent needs of microelectronics' end users, OEMs and process material suppliers.

GasPro™ Gasket Filters

High purity gasket filtration products are optimised for the protection of critical valves, pressure regulators, mass flow controllers and other components used in semiconductor gas delivery systems.

These gasket filtration products install into ¼" face vacuum seal 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**
  99.95% 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 (100psid@68°F (20°C)) and elevated temperature resistance (850°F (455°C)) for inert gas applications.

Ordering Information

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GasPro™

High Purity Sinterflo® P Metal Powder Filters

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)@ 20°C (68°F)).

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 5Ra, 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.

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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 fibre metal in-line 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

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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.

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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 andother temperature and corrosion resistant materials.
- **Fitting connections**
  10Ra or better, electro polished hardware made from 316L stainless steel VAR, nickel, Hastelloy® C22, Hastelloy® C276 and other temperature and corrosion resistant materials.
- **Flow range**
  1 to 60,000sccm 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.
- **Test gases**
  Clean dry air, nitrogen, hydrogen, helium, argon and CO_2 are commonly used. Other gases such as AsH_3, Br_2, BF_3, CCl_4, C_2H_2, CH_4, Cl_2, NF_3, NH_3, PH_3, SF_6 and SiH_4 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 IS0 9001 certified quality system.

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Flow and Sound Control

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.

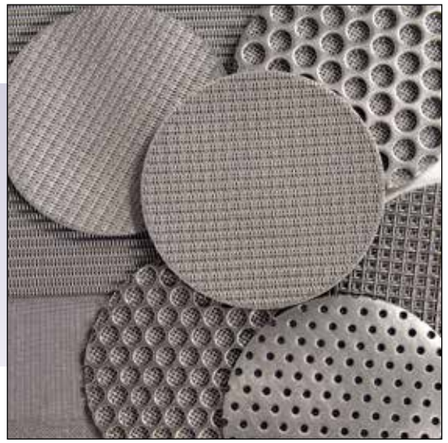
Many specialised applications have been developed to take advantage of the unique characteristics of porous materials. Applications such as filtration, flow control, flame arrestors and self-lubricating bearings are some of the largest commercial applications.

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

Metal Composite 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 540°C (1,000°F), 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

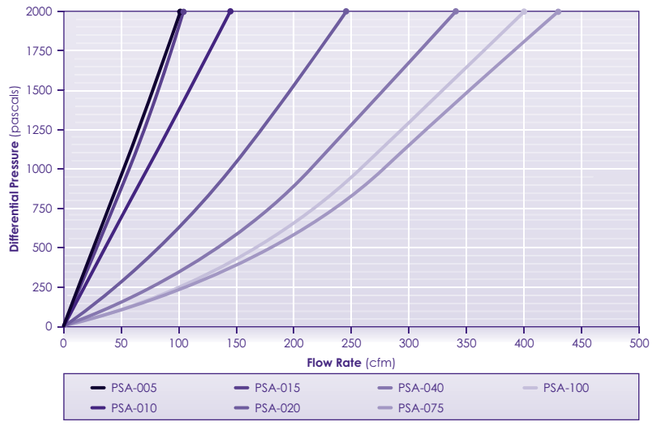
For ordering information please contact a member of the sales team.

Specifications

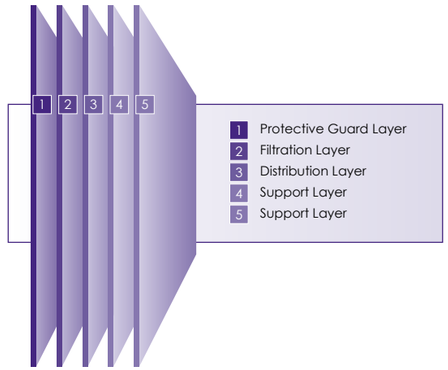
Standard Filter Plate Grades

Grade	Nominal Rating (microns)	Partical Control Mesh (wires per inch)	Nominal Thickness (inch (mm))
PSA-0005	5	325 x 2300	0.066" (1.68mm)
PSA-0010	10	200 x 1400	0.066" (1.68mm)
PSA-0015	15	165 x 1400	0.066" (1.68mm)
PSA-0020	20	165 x 800	0.069" (1.75mm)
PSA-0040	40	325 x 325	0.073" (1.85mm)
PSA-0075	75	250 x 250	0.074" (1.88mm)
PSA-0100	100	150 x 150	0.074" (1.88mm)

Flow Versus Pressure Drop



Sinterflo® MC Filter Plate Configuration



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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-metering valves and mass flow controllers (MFC) 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 anaesthesia, limiting gas flow.
- **Food and beverage**
  Nitrogen blanketing for preservation during packaging extending shelf life.
- **Micro CO^2 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 bi-directional gas flow applications.
- **Robust Construction**
  Sinterflo® P sinterbonded 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 fowling 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 0.2sccm.
Other gas flow rates available.

Standard Test Gas Pressure

2,068mbar (30.0psig) to atmosphere.
Maximum test gas pressure 68,950mbar (1,000psig).
Specific gas pressure required.

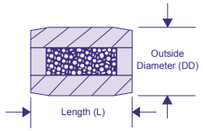
Standard Test Gas Type Nitrogen

Available test gases:

- Air
- Argon
- Carbon Dioxide
- Helium
- Hydrogen
- Oxygen
- Gas Mixtures
- Exotics

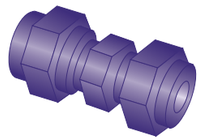
Standard Hardware

Two standard RFP sleeve sizes:
1/8" x 1/8"
1/4" x 1/4"



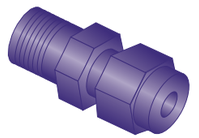
Two Standard RFP T ube Union Types

Tube Union:
Tube 1/8" x 1/8"
Tube 1/4" x 1/4"



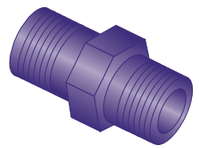
Three Standard RFP Male Connector Types

Tube 1/8" x NPT 1/8"
Tube 1/4" x NPT 1/8"
Tube 1/4" x NPT 1/4"

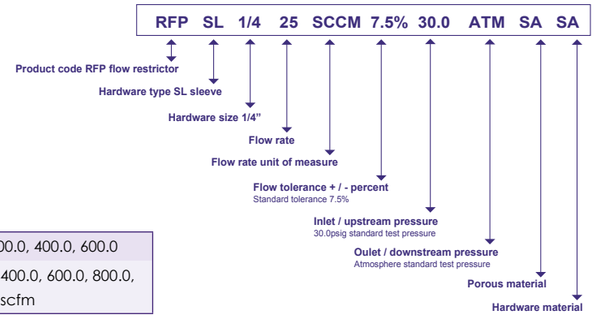


Two Standard Hex Nipple Types

NPT 1/8" x NPT 1/8"
NPT 1/4" x NPT 1/4"



RFP: Restrictive Flow Product Configurator Build your RFP



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
1/4" - Porous	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	Hardware sizes	Hardware material	Porous material	Material codes: Porous material & hardware
RFPSL - Sleeve	0.125' x 0.125", 0.250" x 0.250"	**Standard Material** 316L SS **Special Order** Hastelloy-C22 Hastelloy-C276 Monel-400 Inconel-600	**Standard Material** 316L SS **Special Order** Hastelloy-C22 Hastelloy-C276 Monel-400 Inconel-600	**SA:** 316L Stainless Steel **HA:** Hastelloy-C22 **HC:** Hatelloy-C276 **HX:** Hastelloy-X **IA:** Inconel-600 **ML:** Monel-400
RFPTU - Tube Union	1/8" x 1/8", 1/4" x 1/4", 3/8" x 3/8"			
RFPMC - Male Connector	1/8" Tube x 1/8" MNPT, 1/8" Tube x 1/4" MNPT, 1/4" Tube x 1/8" MNPT, 1/4" Tube x 1/4" MNPT			
RFPHN - Hex Nipple	1/8" x 1/8", 1/4" x 1/4", 3/8" x 3/8"			
RFPVU - VCR Union	1/4" x 1/4"			

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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 Æ Determination of Bubble Point Pore Size in Porous Sintered Metal
- ISO 4022 Æ Determination of Permeability
- ISO 2738 Æ 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

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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 4.9bar (71psi) 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 gasses

Steam Filtration

- Breweries
- Chemicals
- Dairies
- Food and beverage
- Pharmaceuticals

Liquid Filtration

- Chemicals
- Food and beverage
- Pharmaceuticals and cosmetics
- Solvents

Standard Sizes for Sinterflo® P Stainless Steel Cylinders

Stainless Steel Grade	Gas, Air, Steam (µm)	Liquid (µm)	OD (mm)	ID (mm)	Length (mm)	Wall Thickness
10	1	6	34	28	75	3
20	5	15	34	28	75	3
40	25	30	34	28	75	3
10	1	6	34	28	100	3
30	5	25	34	28	100	3
40	25	30	34	28	100	3
10	1	6	44	38	500	3
30	5	15	44	38	500	3
40	25	30	44	38	500	3
10	1	6	54	48	530	3
30	5	15	54	48	530	3
40	25	30	54	48	530	3
10	1	6	76	70	760	3
30	5	15	76	70	760	3
40	25	30	130	124	760	3
10	1	6	130	124	760	3
30	5	15	130	124	760	3
40	25	30	130	124	760	3

For size required, specify: outside diameter x inside diameter x length.

** Other grades of stainless steel powders and lengths and diameters are available.*

Please note, this product is custom made to meet specific project requirements and cannot be ordered through this catalogue's ordering guides. For further information, please contact a member of the Sales Team.

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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 un-silenced 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.

Specifications

Materials of Manufacture

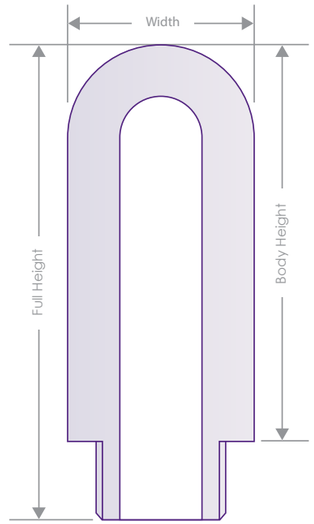
Body: Vyon® Sintered porous HDPE
Adaptor: Injection moulded solid HDPE

Fitting

BSP (British Standard Pipe)

Fitting Guide

Fitting size (Inches)	Full Height (mm)	Body Height (mm)	Width (mm)
⅛"	35.5 (1.36")	27.8 (1.09")	12.9 (0.51")
¼"	42.6 (1.68")	35.7 (1.04")	16.6 (0.65")
⅜"	67.5 (2.66")	57.4 (2.26")	24.4 (0.96")
½"	78.5 (3.09")	68 (2.68")	24.8 (0.98")
¾"	139.8 (5.5")	124.8 (4.91")	37.6 (1.14")
1"	154 (6.06")	135.5 (5.33")	47.8 (1.22")
1"	115 (4.53")	95.6 (3.76")	47.8 (1.88")



Maximum Working Pressure

10bar (150psi)

Noise Reduction

Up to 30dB

Operating Temperature Range

-70°C to +80°C (-94°F to 176°F)

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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

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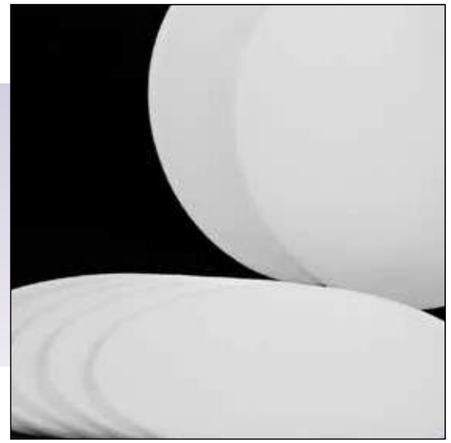
Diffused Aeration and Degassing



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) nom
Bubble Size:	2-4mm (0.08"-0.16")
Recommended Air Flow:	1-5m^2 (10.8 - 53.8ft$^{2)}$/hr/ 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 thigh 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.

Specifications

Materials of Manufacture

Tube:	High Density Polyethylene (HDPE)
Adapter:	High Density Polyethylene (HDPE)
Gasket:	EDPM

Technical Information

Approximate Weight:	0.3kg (0.7lb) per 500mm (19.67") diffuser
Dry Permeability:	94m^3 (24,832gal)/ hr/500mm diffuser @ 15mbar (218psi) Δp
Diffuser surface area:	0.1175m^2 (1.26ft^2) 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)

Typical Applications

- Water treatment
- Potable water filtration
- Ponds
- Rivers
- Fish farms

Features and Benefits

- Robust and rigid

Typical SOTE %/m depth: 6.8%

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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

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Speciality Products

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 operates 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™

Resin Bonded Grooved Filters

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.

- Organic chemicals
- Process water
- Inks and paints (not for electrophoretic paints)
- Emulsions
- Adhesives
- Lacquers and varnishes
- Epoxy resins and waxes
- Plasticisers
- 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.

Ordering Information

For ordering information please see page adjacent.

Typical Applications

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

Formulation code	Fibre	Resin	Removal rating (µm)
EP	Polyester	Phenolic resin	1 to 150 micron
AP	Acrylic	Phenolic resin	1 to 150 micron

Part Number/Ordering Guide for Resin Bonded Filters

Product Code: D - XX - XX - XX - X - X *e.g. PART NUMBER: D75-AP-19-NN*

Micron Rating (µm)

01	1
02	2
03	3
05	5
10	10
25	25
50	50
75	75
100	100
125	125
150	150

Method of Construction

EP	Polyester fibres Phenolic resin
AP	Acrylic fibres Phenolic resin

Length (in)

09	9.75
10	10
19	19.5
20	20
29	29.25
30	30
39	39
40	40

Adapter Options

Code	Type	Open End	Closed End
A	Code 3	222	Flat
B	Code 7	Lugged 226	Fin
C	Code 8	222	Fin
K	Code 2	Lugged 226	Flat
M	DOE	Gasket	Gasket
N	No end fitting	Open	Open
P	Code 18	222	Flat

Seals

A	EPDM
B	Silicone
C	Viton®
E	FEP Encapsulated Viton®
G	FEP Encapsulated Silicone
N	None

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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 to be easily incorporated into any process where beverage stabilisation is required.

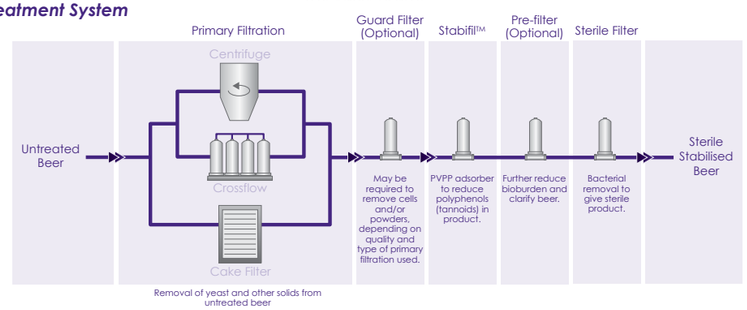
Typical Applications

- **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
- **Spirits**
  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, coconut juice and grapefruit juice are typical applications
- **Ice Tea**
  To remove astringency and improve the product's taste in 'real' iced teas.

Ordering Information

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

Stabifil™ within the Treatment System



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 dosage 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.

Specifications

Materials of Manufacture

Filter media:	Vyon® porous polyethylene cosintered 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)

Cartridge Construction

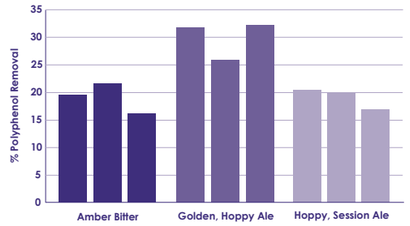
Stabifil™ cartridges are constructed from FDA CFR Title 21 tested materials that are proven to be food-safe and meet EC 10/2011. Stabifil™ cartridges do not contain 'soluble additives' and hence meet the requirements of German 'Beer Purity Laws'.

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.

Product Evaluation

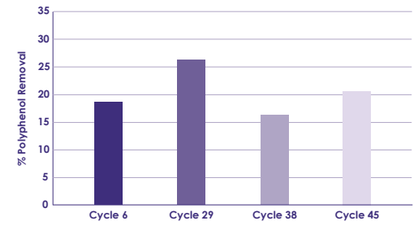
The chart below shows polyphenol removal from various types of beer by the same Stabifil™ unit, at an equivalent dosing rate of 26 g/hL.

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™ unit.

Polyphenol removal- specific beer after 'x' cycles



The tests used a Stabifil™ in the form of our J-type module. The selected flow rate gave an adsorbent/beer contact time of 25 seconds. After every processing cycle, the 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 beer or effluent stream.

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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 endotoxis.

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**
  Purer water produces 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 prefiltering 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

Model #	Micron Rating	Cartridge Length	Cartridge Width	Max. Flow Rate gpm (lpm)	Applications
CNKS10D	Nano Range	9 3/4" (248mm)	2 ¾" (70mm)	5 (22.7)	Single Faucet (Kitchen)
CNKS20D	Nano Range	20" (508mm)	2 ¾" (70mm)	10 (45.5)	Single Faucet (High Capacity)
GCNKS10D	Nano Range	9 3/4" (248mm)	4 ½" (108mm)	11 (50)	House
GCNKS20D	Nano Range	20" (508mm)	4 ½" (108mm)	22 (100)	House (High Capacity)

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.

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Differential Pressure Indicators

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.

Differential Pressure Indicators

For the Aerospace Industry

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

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Media and Materials

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

Sinterflo® F

Sintered Metal Fibre

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.

Sinterflo® P

Sintered Metal Powder

A robust material is manufactured from sinter-bonded metal powders. Primarily produced in 316L grade for use in temperatures up to 540°C (1,004°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. 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

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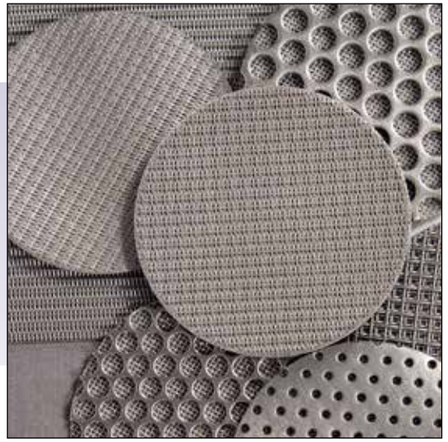
Sinterflo® M

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
- Agrochemical applications
- Liquid and gaseous ammonia
- Steam 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 versions 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 540°C (1,004°F), with intermittent operating peaks up to 650°C (1,202°F), 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 oils
- Steam filtration
  - Culinary steam
  - Process steam

Features and Benefits

- **Fabricated shapes without expensive support structures or joining strips**
  Offers robust and self-supporting structures
- **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

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Vyon®

Sintered Porous Plastics

Excellent chemical compatibility, exceptional strength and resistant to most acids, bases, many organic chemicals and temperatures up to 110ºC (230ºF).

Produced in both sintered porous 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 eminators
- Vacuum platens and cones
- Vacuum hold down table 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.

Vyon® Material Range

Through a range of proprietry 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

Name	Filtration Grades Liquids (µm)*	Gases (µm)
Vyon® T	10	2
Vyon® M	6	1
Vyon® D	15	6
Vyon® F	35	10
Vyon® HP	70	30

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.

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Ordering Guide

Many standard products for the process industries can be ordered using the applicable ordering guides from this section of the catalogue. Please follow the step-by-step guide on each relevant page.

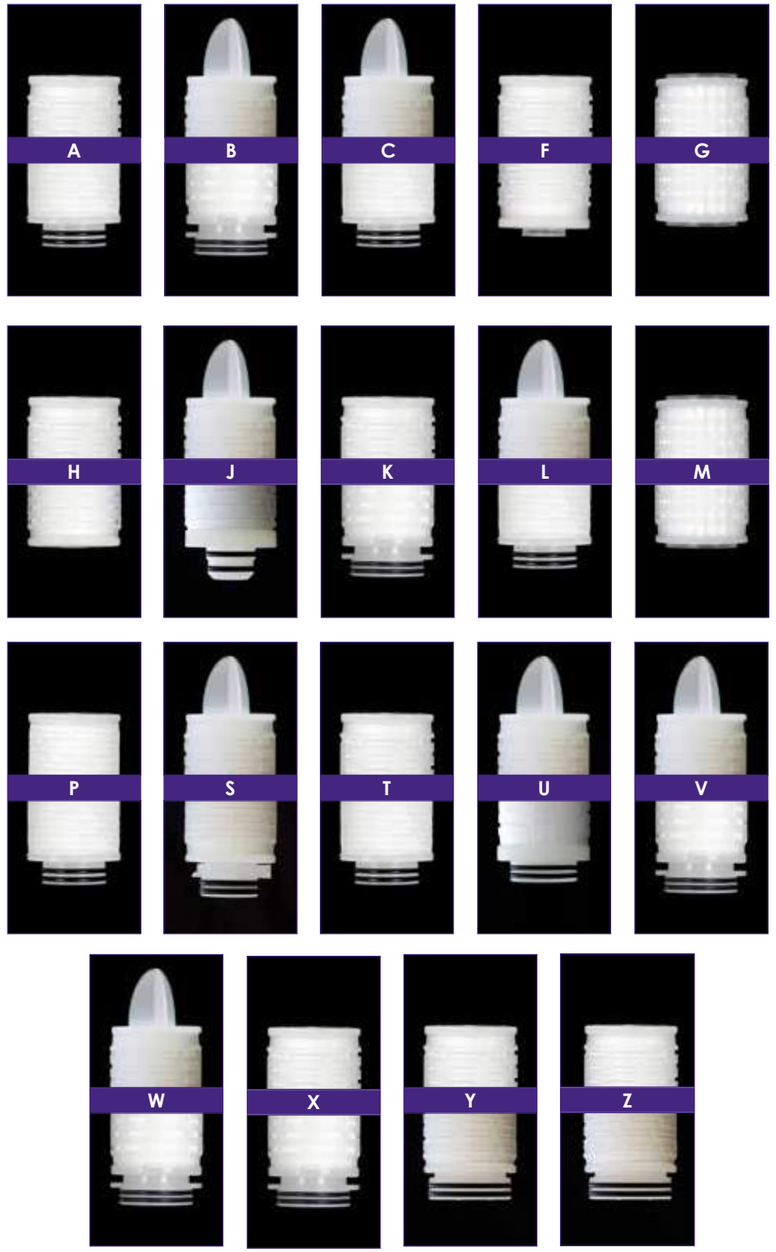
Custom made products to meet specific project requirements cannot be ordered through this catalogue.

For further information, please contact a member of the Sales Team.

End Cap Adapters

Disposable Cartridges

Cartridge		Top End			Outlet End		
Code	Description	End Fitting	Seal	Quantity	End Fitting	Seal	Quantity
A	Code 3	Flat	None		Open	O-ring 222	2
B	Code 7	Fin	None		Open	O-ring 226	2
C	Code 8	Fin	None		Open	O-ring 222	2
F	N SOE	Recess	None		Flat open	O-ring 213	1
G	G DOE (short length)	Flat open	Flat gasket	1	Flat open	Flat gasket	1
H	G SOE	Flat	None		Flat open	O-ring BS118 (fit into filter housing)	2
J	216 (218), fin	Fin	None		Open	O-ring 216	1
						O-ring 218	1
K	Code 2	Flat	None		Open	O-ring 226	2
L	223, fin (no lugs)	Fin	None		Open	O-ring 223	2
M	DOE	Flat open	Flat gasket	1	Flat open	Flat gasket	1
P	Code 18 (retro fit)	Flat	None		Open	O-ring 222	2
S	Code 28, fin (3 lugs)	Fin	None		Open	O-ring 222	2
T	223, flat (no lugs)	Flat	None		Open	O-ring 223	2
U	224, fin	Fin	None		Open	O-ring 224	2
V	226, fin	Fin	None		Open	O-ring 226	2
W	F 20+ Code 7 (stainless steel core)	Fin	None		Open	O-ring BS226	2
X	F 20+ Code 2 (stainless steel core)	Flat	None		Open	O-ring BS226	2
Y	BS832, flat	Flat	None		Open	O-ring BS832	2
Z	F 20+ Code Y (stainless steel core)	Flat	None		Open	O-ring BS832	2



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Sinterflo® F/P/M

Metallic Cartridge and Elements

Sinterflo® F Product Code: 250 Table 1 - Table 2 - Table 3 C - Table 4 Table 5 Table 6

Sinterflo® P Product Code: 405 Table 1 - Table 2 - Table 3 - Table 4 Table 6

Sinterflo® M Product Code: 250 Table 1 - Table 2 - Table 3 B - Table 4 Table 5 Table 6

Table 1 End Fittings

		F	P	M
0	DOE fitting/pleated	●		●
1	DOE fitting/cylindrical	●	●	●
2	SOE 226 fitting/pleated	●		●
3	SOE 226 fitting/cylindrical	●		●
	SOE 222 fitting/cylindrical		●	
4	SOE 222 fitting/pleated	●		●
	SOE 226 fitting/cylindrical		●	
5	SOE 222 fitting/cylindrical	●		●
	SOE threaded/cylindrical		●	
6	DOE fitting / cylindrical		●	
7	SOE threaded/pleated	●		●
8	SOE threaded/cylindrical	●		●

DOE: Double Open Ended fitting.
SOE: Single Open Ended fitting.

Table 2 Nominal Cartridge Length*

05	125 mm (5")
10	250mm (10")
20	498mm (20")
30	745mm (30")
40	1012mm (40")

** Other non-standard lengths are available on request.*

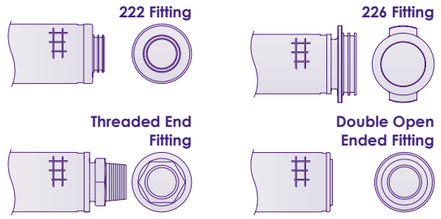

Table 3 Micron Rating (liquid)

e.g.: 0040 = 40 micron
Sinterflo® F & P: 3µm to 60µm available, specify 'Absolute' rating
Sinterflo® M: 3µm to 1000µm available, specify 'Nominal' rating

Table 4 Seal Material*

C	Chemraz®
E	EPDM
N	Nitrile
P	PTFE (DOE only)
S	Silicone
F	FEP coated Viton® (SOE only)
T	FEP coated silicone (SOE only)
Y	FEP coated EPDM (SOE only)
V	Viton®
X	No seal

** Omit 'Table 4' for the threaded option.*

Table 5 Guard/Support Option

G	Guard (pleated only)
S	Backflush support (cylindrical only)
N	None

** Omit 'Table 5' for Sinterflo® P options.*

Table 6 Options*

Fin Option
(SOE 226 and SOE 222)

F	Fin
N	No fin

Threaded Option

Pleated	
1	1" NPT
2	1.5" NPT
3	1" BSPT
4	2" BSPT
5	1.5" BSPT
6	2" NPT
7	1.25" BSPT

Cylindrical**		F	P	M
1	1" NPT	●	●	●
2	1.5" NPT	●	●	●
3	1.5" BSPP	●		●
4	2" BSPT	●	●	●
5	1" BSPT	●	●	●
6	1.5" BSPT	●	●	●

** Omit 'Table 6' for the DOE option.*
***Sinterflo® P only available in Cylindrical options*

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Nominal

Disposable Cartridges

Product Code: Table 1 Table 2 Table 3 Table 4 Table 5 Table 6 Table 7

Example part number: PK 045 S 3 A B PolyKeyTM , with nominal pore size 0.45µm, standard hard cage, 760mm (30") long, Code 3, silicone seals.

Please refer to the individual product datasheets within this catalogue for nominal pore ratings (Table 2) and filter versions (Table 3) available for each filter.

Table 1 Nominal

PK	PolyKey™
MK	MicroKey™
TN	Tekfil™ Nominal

Table 2 Pore Rating

		PK	MK	TN
P1	0.1µm	●	●	
P2	0.2µm	●	●	
P45	0.45µm	●	●	
P5	0.5µm			●
P6	0.6µm			●
P8	0.8µm			●
01	1µm	●	●	●
02	2µm			●
03	3µm	●	●	●
05	5µm	●		●
07	7µm			●
10	10µm	●	●	●
15	15µm			●
20	20µm			●
30	30µm	●	●	●
40	40µm			●
50	50µm		●	
60	60µm			●
75	75µm			●
90	90µm			●
105	105µm			●

Table 3 Version

R	Rinsed
S	Standard Hard Cage
G	GIANT

Table 4 Length (Nominal)

1	250mm (10")
2	510mm (20")
3	760mm (30")
4	1020mm (40")
5	125mm (5")

Table 5 Adapters

A	Code 3
B	Code 7
C	Code 8
F	N SOE
G	G DOE (short length)
H	G SOE
J	216 (218), fin
K	Code 2
L	223, fin (no lugs)
M	DOE
S	Code 28, fin (3 lugs)
T	223, flat (no lugs)
U	224, fin
V	226, fin
Y	BS832, flat

SOE: Single Open Ended.
DOE: Double Open Ended.

Table 6 Seals

A	Ethylene Propylene
B	Silicone
C	Viton®
D	Nitrile
E	FEP Encapsulated Viton®
G	FEP Encapsulated Silicone
J	DOE PTFE

Table 7 Additional Options

A	N+U
N	Non-steamable (no insert)
P	Pharmaceutical grade**
U	Unbranded

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

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Pre-Filters

Disposable Cartridges

Product Code: Table 1 | Table 2 | Table 3 | Table 4 | Table 5 | Table 6 | Table 7

Example part number: K 01 S 2 B B P *Klearfil™, 1µm, Standard hard cage, 510mm (20") long, Code 7, silicone seals, pharmaceutical grade.*

Please refer to the individual product datasheets within this catalogue for absolute pore ratings (Table 2) and filter versions (Table 3) available for each pre-filter. For WF please refer to individual datasheets for available pore sizes.

Table 1 Pre-Filter

CR	Carbofil™
CP	Cryptofil™
K	Klearfil™
M	Microfil™
P	Polyfil™ II
TA	Tekfil™ Absolute
GV	Tekfil™ GV
R	Trapfil™

Table 2 Absolute Pore Rating*

P5	0.5µm
P6	0.6µm
P8	0.8µm
01	1µm
02	2µm
03	3µm
05	5µm
07	7µm
10	10µm
15	15µm
20	20µm
30	30µm
40	40µm
60	60µm
75	75µm
90	90µm
105	105µm

** For the Carbofil™ filter select the 05 (5µm) option only.*
***Polyfil™ II can go up to 150µm.*

Table 3 Version

R	Rinsed
S	Standard Hard Cage
W*	Wide format

**Only available in Microfil™, Polyfil™ II and Tekfil™ Absolute.*

Table 4 Length (Nominal)

1	250mm (10")
2	510mm (20")
3	760mm (30")
4	1020mm (40")
5	125mm (5")

Table 5 Adapters

A	Code 3
B	Code 7
C	Code 8
F	N SOE
G	G DOE (short length)
H	G SOE
J	216 (218), fin
K	Code 2
L	223, fin (no lugs)
M	DOE
S	Code 28, fin (3 lugs)
T	223, flat (no lugs)
U	224, fin
V	226, fin
Y	BS832, flat

SOE: Single Open Ended.
DOE: Double Open Ended.

Table 6 Seals**

A	Ethylene Propylene
B	Silicone
C	Viton®
D	Nitrile
E	FEP Encapsulated Viton®
G	FEP Encapsulated Silicone
J	DOE PTFE

***Porvair seals are FDA compliant for food contact (CFR, Title 21). USP Class VI complaint seals are only fitted to "P" suffix products (Table 7).*

Table 7 Additional Options

A	N+U
N	Non-steamable (no insert)
P	Pharmaceutical grade***
U	Unbranded

**** Porvair 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 Pharmacopeia 788 'Particulate Matter in Injections'. These products contain a stainless steel insert.*

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Membrane Filters

Disposable Cartridges

Product Code: Table 1 | Table 2 | Table 3 | Table 4 | Table 5 | Table 6 | Table 7

Example part number: BT 20 S 2 B B P *Biofil™, 0.2µm, Standard hard cage, 510mm (20") long, Code 7, silicone seals, pharmaceutical grade.*

Please refer to the individual product datasheets within this catalogue for absolute pore ratings (Table 2) and filter versions (Table 3) available for each membrane filter.

Table 1 Membrane Filter

A	Aquafil™
BT	Biofil™
BTP	Biofil™ Plus
C	Chemifil™
F	Fluorofil™*
HT	Hydrofil™
HTP	Hydrofil™ Plus
VT	Vinofil™

** Includes the Fluorofil™, Fluorofil™ Plus and Fluorofil™ F100.*

Table 2 Absolute Pore Rating

02	0.02µm
04	0.04µm
10	0.1µm
20	0.2µm
45	0.45µm
65	0.65µm
100	1.0µm
120	1.2µm

Table 3 Version

L	Economy*
R	Rinsed
S	Standard
W	Stainless Steel Core**

** Biofil™ only.*
*** Fluorofil™ Plus only.*

Table 4 Length (Nominal)

1	250mm (10")
2	510mm (20")
3	760mm (30")
4	1020mm (40")
5	125mm (5")

Table 5 Adapters

A	Code 3
B	Code 7
C	Code 8
F	N SOE
G	G DOE (short length)
H	G SOE
J	216 (218), fin
K	Code 2
L	223, fin (no lugs)
M	DOE
S	Code 28, fin (3 lugs)
T	223, flat (no lugs)
U	224, fin
V	226, fin
W	F20+ Code 7 (stainless steel core)
X	F20+ Code 2 (stainless steel core)
Y	BS832, flat
Z	F20+ Code Y (stainless steel core)

SOE: Single Open Ended.
DOE: Double Open Ended.

Table 6 Seals

A	Ethylene Propylene
B	Silicone
C	Viton®
D	Nitrile
E	FEP Encapsulated Viton®
G	FEP Encapsulated Silicone
J	DOE PTFE

Porvair seals are FDA compliant for food contact (CFR, Title 21). USP Class VI complaint seals are only fitted to "P" suffix products (Table 7).

Table 7 Additional Options

A	N+U
N	Non-steamable (no insert)
P	Pharmaceutical grade*
U	Unbranded

** Porvair 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 Pharmacopeia 788 'Particulate Matter in Injections'. These products contain a stainless steel insert.*

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Junior Filters

Disposable Cartridges

Product Code: Table 1 | Table 2 | Table 3 | Table 4

Example part number: JB 20 50 B *Biofil™, J-Style, 0.2µm, 136mm (5") long, silicone seal.*

Please refer to the individual product datasheets within this catalogue for absolute pore ratings (Table 2) available for each junior filter.

Table 1 Junior Filter

J-Style

JB	Biofil™
JF	Fluorofil™
JM	Microfil™
JP	Polyfil™
F20VENT	Ventafil™

S-Style

SB	Biofil™
SF	Fluorofil™
SM	Microfil™
SP	Polyfil™

L-Style

LB	Biofil™
LF	Fluorofil™
LM	Microfil™
LP	Polyfil™

Table 2 Absolute Pore Rating

20	0.2µm
45	0.45µm
P5	0.5µm
P8	0.8µm
01	1µm
02	2µm
05	5µm

Table 3 Length (Nominal)

25	77.5mm (2.5")
50	136mm (5")

Table 4 Options

Threaded

B	½" BSP
X	¼" BSP

Seals (J-Style)

A	Ethylene Propylene
B	Silicone
C	Viton®
D	Nitrile
E	FEP Encapsulated Viton®
G	FEP Encapsulated Silicone

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Microcap™

Disposable Capsules

Product Code: 7018- X - XXX - X - XX - X - X *e.g. PART NUMBER: 7018-4-P10-S-02-AA*

Type

1	Microcap™ PPP
2	Microcap™ GPP
3	Microcap™ PFE
4	Microcap™ PES
5	Microcap™ PNY

Micron Rating (µm)

PO3	0.03
P10	0.1
P22	0.22
P45	0.45
P65	0.65
P80	0.8
001	1
120	1.2

Pre-sterilised

S	Pre-sterile
N	Non-sterile

** S option is only avaliable for Type 3 and 4.*

Length (in)

02	2
05	5
10	10
20	20
30	30

Inlet

A	1/4" Female NPT
B	1/4" Male NPT
C	3/8" Female NPT
D	1/2" Female NPT
E	1/2" Male NPT
F	1" - 1 1/2" Sanitary
G	Hose Barb

Outlet

A	1/4" Female NPT
B	1/4" Male NPT
C	3/8" Female NPT
D	1/2" Female NPT
E	1/2" Male NPT
F	1" - 1 1/2" Sanitary
G	Hose Barb

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Stainless Steel Filter Housings

Single and Multiple Round Housings

FIA 2110 Single Round Housing

Product Code: FIA2110 - Table 1 - Table 2 - Table 3 - Table 4 - Table 5 - Table 6

Table 1 Bowl Length

1	310mm (12.2")	Nominal
2	580mm (22.8")	Nominal
3	800mm (31.5")	Nominal
4	187mm (7.4")	Nominal
5	1080mm (42.5")	Nominal

** Add 45mm to the bowl length for 226 style elements.*

Table 2 Connection Option

1	1" BSP female para. in/out standard
2	¾" BSP female para. in/out via adapter
3	2" ASA 150lb flanges in/out
4	1" RJT fittings in/out
5	1" Tri-clover in/out
6	¼" BSPP female in/out via adapter
7	1½" ASA 150lb flanges in/out
8	1" NPT in/out

Table 3 Element Option

1	222
2	DDE
3	226p

Table 4 Indicator/Vent Fitted

N	None fitted
G	Indicator fitted
V	Vent fitted (2 way)
S	Vent fitted (3 way)

Table 5 Drain Tap

N	None fitted (plug only)
D	Tap fitted

Table 6 Bowl Seal

V	Viton®	Standard
N	Nitrile	
S	Silicone	
E	Epom	
F	PTFE coated Viton®	Standard

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

FIA 2600 Multiple Round Housing

Product Code: FIA2600 - Table 1 - Table 2 - Table 3 - Table 4 - Table 5 - Table 6 - Table 7 - Table 8 - Table 9 - Table 10 - Table 11 - Table 11 - Table 12 - Table 13

Table 1: Type

91	T-style (zero hold up)
92	Plenum chamber
93	In-line
94	Vent
95	Off-line
96	Square body
97	Full sanitary

Table 2: No. of Cartridges

1	1 R
2	2 R
3	3 R
4	4 R
5	5 R
6	6 R
7	7 R
8	8 R
9	9 R
A	10 R
B	12 R
C	14 R
D	16 R
E	18 R
F	20 R
G	22 R
H	24 R
J	26 R
K	28 R
L	30 R

Table 3: Length

A	1.5"
B	2.5"
C	5"
1	10"
2	20"
3	30"
4	40"

Table 4: Adaptor

B	Code 7 / 226 / B
C	Code 8 / 222
D	DOE
E	Code 28
I	Internal O-Ring
M	Code M
T	BSP Thread

Table 5: Adaptor

A	EPDM
B	Silicone
C	Viton®
D	Nitrile
G	PTFE encap. silicone

Table 6: Housing Material

S1	SS 304
S2	SS 316
S3	SS 316L
S4	SS Halar coating
S5	SS PTFE lined
H1	Hastelloy

Table 7: Inlet / Outlet

B	BSP male thread
C	ASA 300# RF flange
D	Union DIN 11851
F	ASA 150# RF flange
H	Tri-clover with hose barb
P	Plain pipe
S	BSP female socket
T	Tri-clover DIN 32676
W	ASA 150# RFWN flange

Table 8: Connection size (BSP)

1	¼"
2	½"
3	¾"
4	1"
5	1 ½"
6	2"
7	3"
8	4"

Table 9: Pressure Guage

0	Not required
1	Tri-clover diaphragm
2	BSP threaded

Table 10: Jacket

0	Not required
1	Steam jacket
2	Electric heat tracing

Table 11: Drain / Vent*

A	Tri-clover DIN 32676
B	BSP male thread
C	ASA 150# RF flange
D	Tri-clover diaphragm valve
E	Staubli with tri-clover
F	Hose barb with tri-clover
G	DIN connection
H	Hosetail valve
I	BSP valve
J	TC diaphragm with staubli
K	TC diaphragm with hosetail
L	BSP plug
M	Tri-clover ball valve
S	Socket
T	BSPT plug
D	Not required

** Chose option for each drain and vent. E.g. socket with BSPT plug = ST.*

Table 12: Diaphragm valve seal

1	Viton®
2	EPDM
3	PTFE coated EPDM
4	Silicone
0	No diaphragm value

Table 13: Supports

1	Removal pipe
2	Removal rod
3	Angle type
4	Adjustable legs
5	Welded legs
0	No support

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Metallic Last Chance Filters

for the Printing Industry

Minimum order quantity for each filter is 20 units.

Final Ink Filter

Product Code: 8069 - Table 1

Table 1	Micron Ratings
0005B	5µm
0015B	15µm
0025B	25µm
0040B	40µm

In-Line Filter (30mm Stainless Steel)

Product Code: 8073 - 11 - 02 - 0010B

Pleated Unrimmed Disc Filter

Product Code: 8071 - 01 - Table 1

Table 1	Micron Ratings
0002B	2µm
0005B	5µm
0010B	10µm
0020B	20µm

Microdisc™ 3SS (30mm Stainless Steel Disc Filter)

Product Code: 8067 - Table 1 - Table 2

Table 1	Connectors
11	2.6mm O/D barb
22	4.9mm O/D barb

Table 2	Micron Ratings
0005B	5µm
0010B	10µm
0020B	20µm

Microdisc™ 4SS (47mm Stainless Steel Disc Filter)

Product Code: 8077 - Table 1 - Table 2

Table 1	Connectors
11	2.6mm O/D barb
22	4.9mm O/D barb
33	3mm Jaco®
44	6.5mm O/D barb
66	¼" NPT

Table 2	Micron Ratings
0005B	5µm
0010B	10µm
0020B	20µm

Other connections available upon request.

Grid Filter

Product Code: 8156 - Table 1 - Table 2

Table 1	Micron Ratings Nominal for Mesh
0003	3µm
0005	5µm
0010	10µm

Table 2	Filter Media
B	St. Steel 316

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Disposable Air and Last Chance Filters

For the Printing Industry

Minimum order quantity for each filter is 20 units.

Microdisc™ 1PA (15mm S-Vent Disc Filter) 0-2µm

Product Code: 8163

Microdisc™ 2PA (25mm S-Vent Disc Filter) 0-2µm

Product Code: 8164

Microdisc™ 3PS (33mm Disc Filter)

Product Code: 8159 - Table 1 - Table 2 - Table 3

Table 1	Connectors
11	3mm Jaco®
22	Female luer

Table 2	Micron Ratings
0005B	5µm
0010B	10µm
0020B	20µm
0050B	50µm

Table 3	Housings
12	White acetal
13	Black acetal

Microdisc™ 4PS (45mm Standard Disc Filter)

Product Code: 8111 - Table 1 - Table 2 - Table 3

Table 1	Connectors
33	Luer
11	CPC

Table 2	Micron Ratings
0005B	5µm
0010B	10µm
0020B	20µm
0050B	50µm

Table 3	Housings
22	White acetal
33	Black acetal

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Microdisc™ 4PV (45mm Pre-Pump Disc Filter)

Product Code: 8074 - Table 1 - Table 2 - 23

Table 1	Connectors
221	¼" Jaco®
222	6mm Jaco®

Table 2	Micron Ratings*
0005B	5µm
0010B	10µm
0015B	15µm
0020B	20µm
0050B	50µm

**Other micron ratings available, up to 250 micron.*

Microdisc™ 7PS (74mm Disc Filter)

Product Code: 8169 - Table 1 - Table 2 - Table 3

Table 1	Connectors
221	¼" Jaco®
222	6mm Jaco®

Table 2	Micron Ratings
0005B	5µm
0010B	10µm
0020B	20µm
0050B	50µm

Table 3	Housings
11	Natural
13	Opaque black

Bullet Filter (5µm and 10µm)

Product Codes: 6122 - Table 1 - Table 2

Table 1	Micron Rating (Nominal)
0005	5µm
0020	20µm

Table 2	Tube Fitting
1	Slip taper
2	Barbed

In-Line Filter (PEEK)

Product Code: 8098 - 6 - Table 1 - Table 2

Table 1	Micron Ratings
0003B	3µm
0005B	5µm

Table 2	Colour
Black	
Natural	

Last Chance Inkjet Filter

Product Code: 8087 - Table 1 - Table 2

Table 1	Micron Ratings
0003B	3µm
0005B	5µm
0050B	50µm

Table 2	Connectors
23	2.6mm barb

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Capsule Filters

For the Printing Industry

Minimum order quantity for each filter is 20 units.

Microcap™ (Fully Moulded)

Product Code: 8089 - Table 1 - Table 2 - Table 3 - Table 4

Table 1	Micron Ratings
0050	0.5µm
0100	1µm
0300	3µm
0500	5µm
1000	10µm
2000	20µm
4000	40µm
6000	60µm

Table 2	Filter Media
1	Polyfil™
5	Klearfil™

Table 3	Connectors
AA	¼" barb
DD	¼" NPT (male)
FF	QRC
GG1	¼" Jaco® 90°
GG2	6mm Jaco® 90°
JJ1	¼" Jaco®
JJ2	6mm Jaco®
PP	Luer
QQ	Luer 90°

Table 4	Housings
N	Natural
C	Opaque black

Microprint™

Product Code: 8096 - Table 1 - Table 2 - Table 3 - Table 4

Table 1	Micron Ratings
0050	0.5µm
0100	1µm
0300	3µm
0500	5µm
1000	10µm
2000	20µm
4000	40µm
6000	60µm

Table 2	Filter Media
1	Polyfil™
2	Klearfil™

Table 3	Connectors
FF	QRC
JJ1	¼" Jaco®
JJ2	6mm Jaco®

Table 4	Housings
N	Natural
C	Opaque black

Microjet™

Product Code: 8131 - Table 1 - 1 - LL - Table 2

Table 1	Micron Ratings
0500	5µm
1000	10µm

Table 2	Housings
N	Natural
C	Opaque black

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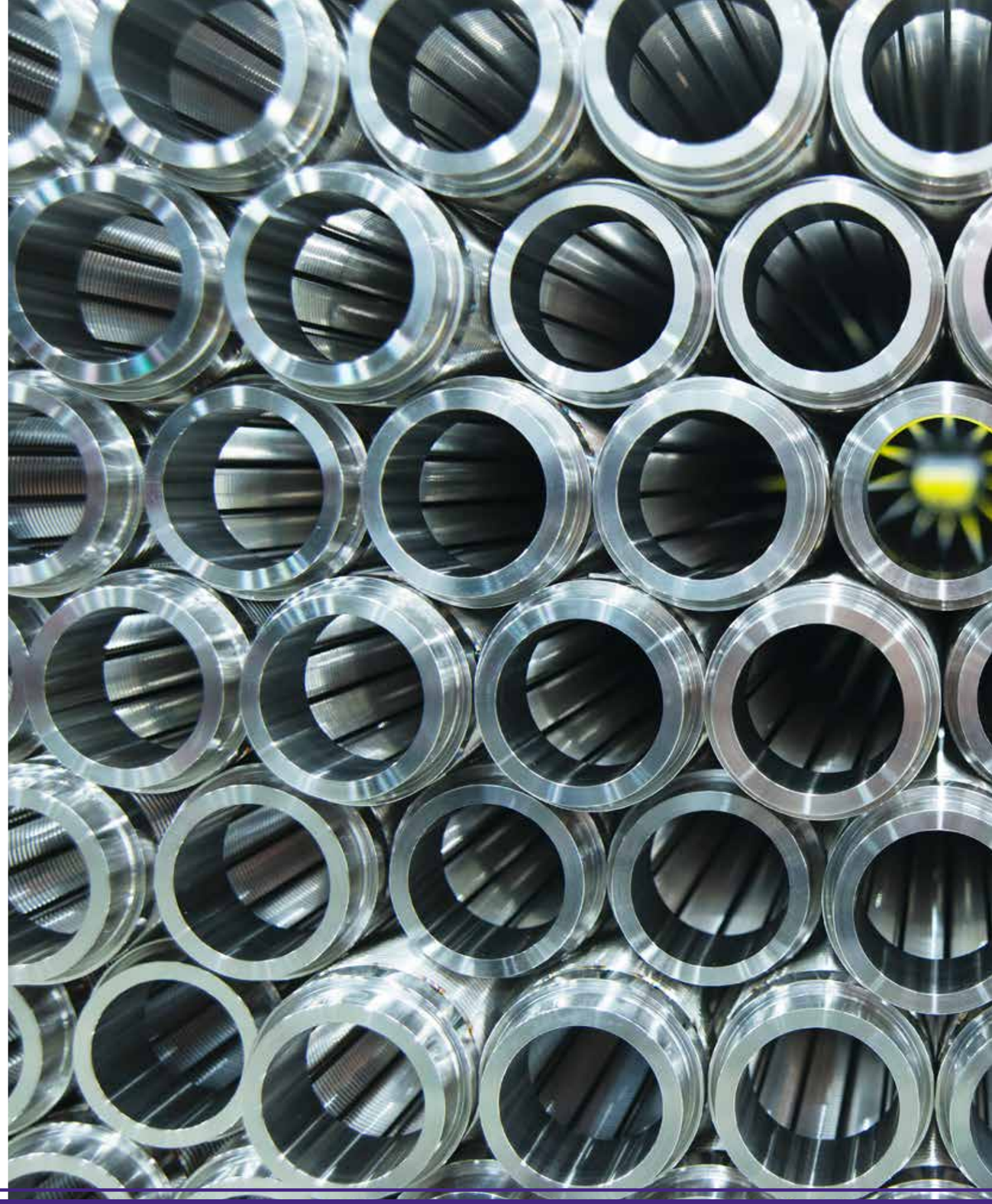

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