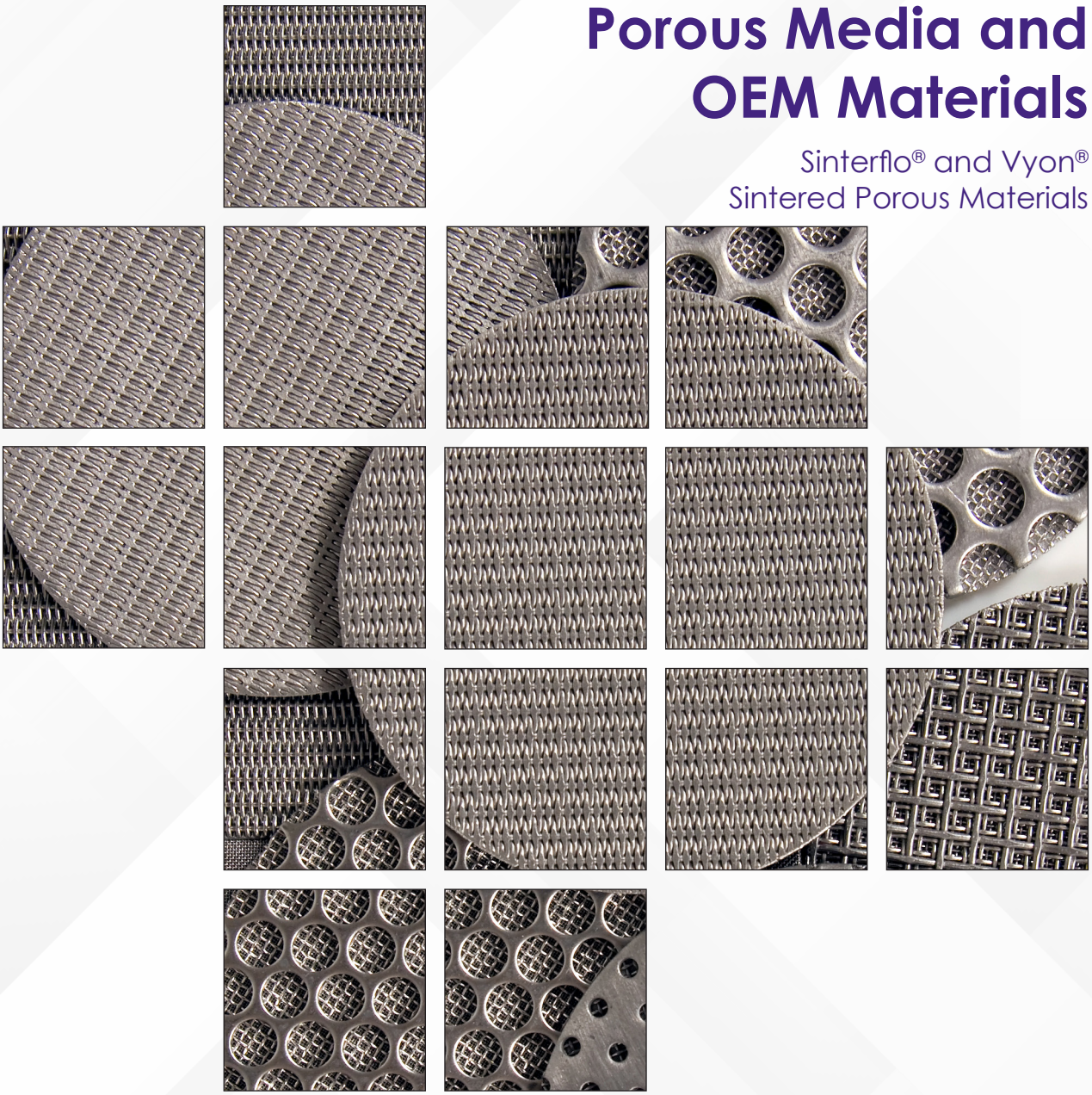
porvair
filtration group

Porous Media and OEM Materials

Sinterflo® and Vyon®
Sintered Porous Materials



World Class Filtration Solutions

Porvair Filtration Group

Porvair Filtration Group is an international leader in the development and supply of materials and products for applications in filtration and separation.

Porvair manufactures in the UK and USA and has an extensive network of sales offices and distribution channels throughout the world. Our expertise is broad and deep, with products used in markets such as:

- Aerospace and Defence
- Food and Beverage
- Gasification
- Microelectronics
- Nuclear
- Oil and gas
- Pharmaceutical
- Porous Media and OEM Materials
- Printing
- Process
- Transportation
- Water

Our ongoing success is based on a dedication to technical excellence and superior customer service. Our future will continue to be built on our investment in research and development to provide innovative new products that exceed the expectations of our customers in solving the challenges they face.

Porvair Filtration Group is a major manufacturer and developer of sintered porous materials, offering optimum solutions in a wide range of applications.

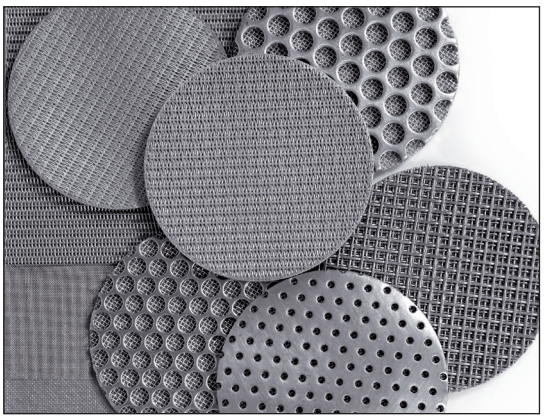
Whether used in finished products or supplied for OEM manufacture, our materials span industries as diverse as pharmaceuticals, healthcare, chemical processing and engineering.

Applications are also varied and include filtration, aeration of liquids, fluidisation of powders, vacuum table covers, support media in chromatography columns, sound attenuation and fragrance emanation.

Our extensive range of polymeric and metallic materials allows us to select the fit-for-purpose option gained through understanding the customers' requirements and our in-depth knowledge of the material's properties.

Our core materials are:

- **Sinterflo® sintered porous metal materials**
  Sintered porous metal powder, sintered metal fibre and multilayer mesh and fibre composites available in stainless steel, bronze (Sinterflo® P only), and other specialist alloys eg. Hastelloy®, Inconel® and Monel®.
- **Vyon® sintered porous plastic materials**
  Mainly sintered porous polyethylene and polypropylene materials.



Sinterflo® Sintered Porous Metal Materials

Sinterflo® sintered porous metal materials are ideal for applications that involve aggressive chemical environments, high temperatures and high pressures.

Available for OEM producers or as fabricated products designed to meet your needs, our advanced welding and assembly capability, supported by a high quality ethos, ensures total satisfaction.

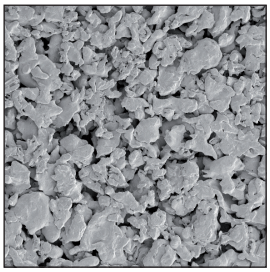
Both mechanically and chemically robust, these materials allow for effective cleaning for reuse thereby delivering cost-effective solutions for difficult applications. The range of Sinterflo® porous metal materials are availiable in stainless steel and other exotic alloys such as Inconel®, Hastelloy®, Monel® and bronze (Sinterflo® P only), and include:

- Sinterflo® F Sintered Metal Fibre
- Sinterflo® FMC Sintered Fibre Mesh Composite
- Sinterflo® M Sintered Metal Mesh
- Sinterflo® MC Metal Mesh Composite
- Sinterflo® P Sintered Metal Powder

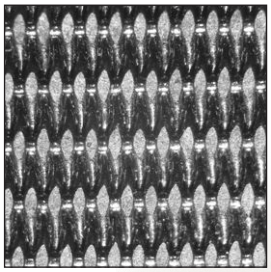
Applications

The scope of applications for sintered porous metal materials is diverse and includes:

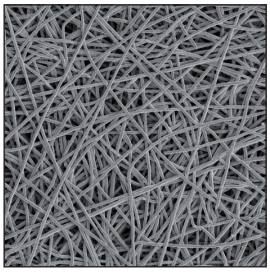
- General chemical processing
- Catalyst recovery
- Corrosive liquid and gas filtration
- Solvent filtration
- Nuclear processing and waste treatment
- Process steam filtration
- Polymer melt filtration
- Flame arresting
- Sensor protection
- Sparging and aeration
- Silencers for pneumatic tools
- Chromatography column supports
- Powder handling fluidisation



Sinterflo® P
Sintered Metal Powder



Sinterflo® M
Sintered Metal Mesh



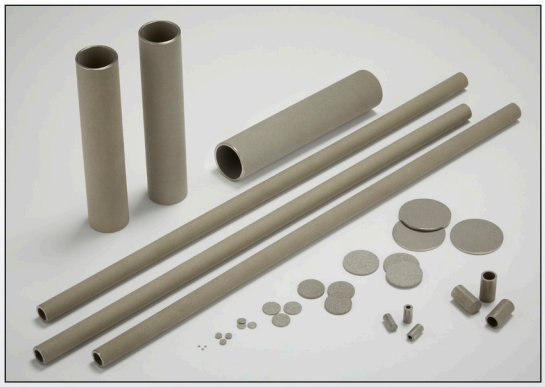
Sinterflo® F
Sintered Metal Fibre

Sinterflo® FMC
Fibre Mesh Composite Media

Sinterflo® P Sintered Metal Powder

A robust material manufactured from sinter-bonded metal powders. Primarily produced in 316L grade for use in temperatures up to 540°C (1004°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® 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.



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**
  No welds provide increased corrosion resistance.

Sinterflo® P Sintered Porous Bronze

A flexible, strong and aesthetically appealing material manufactured from pre-alloyed bronze. Sinterflo® P, available in any mouldable shape and offering resistance to temperatures of up to 300°C (572°F) with good chemical resistance, makes it the preferred medium for many filtration applications.

Features and Benefits

- **Inherent strength**
  For long service life in arduous applications.
- **Resistant to high temperatures and corrosive environments**
  Suitable for aggressive air and liquid filtration.
- **Controlled pore distribution**
  Ensures optimum repeat performance.

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.

Moreover, sintered metal fibre may be pleated to increase the available filtration area of a filter element, thereby further increasing dirt holding capacity and so minimising maintenance and maximising on-stream processing.

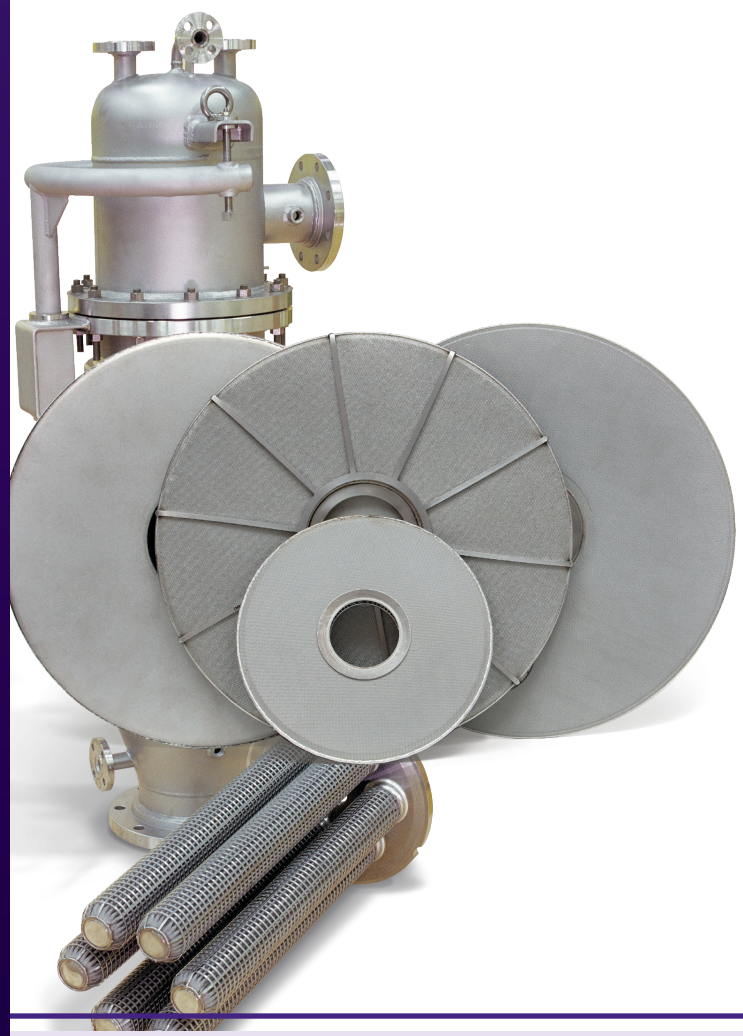
With the feasibility to formulate metal fibres to meet specific application requirements combined with inherent durability, sintered metal fibre filters can be cleaned in-situ without interrupting process flow thereby providing the ultimate in process economics by reducing downtime to a minimum.

Available alloys include 316L stainless steel, Inconel®, Hastelloy® and Monel®.

A list of grades and specifications are available on request.

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**
  Offers higher surface area with excellent dirt holding capacity for longer on-stream life.
- **High void volume**
  Provides high permeability combined with low pressure drop.



Sinterflo® FMC Fibre Mesh Composite Media

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.

Features and Benefits

- **Resistant to high temperatures and corrosive environments**
  Suitable for aggressive gas and liquid filtration applications.
- **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.

These multi-layer precision filter meshes are produced using a novel sintering process resulting in superior mechanically strong structures. Primarily made from 316L stainless steel, they are 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 (1004°F), with intermittent operating peaks up to 650°C (1202°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.

Features and Benefits

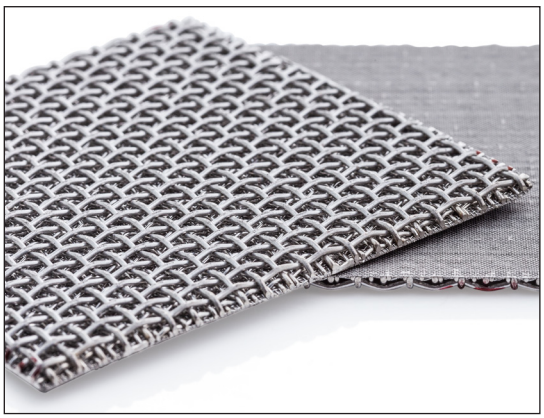
- **Robust and self supporting**
  Offers robust and self-supporting structures.
- **Cleanability**
  Suitable for reuse; providing an economical choice.
- **Non-shedding media**
  Provides resistance to mechanical abrasion.
- **Easily custom-engineered**
  To meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment.

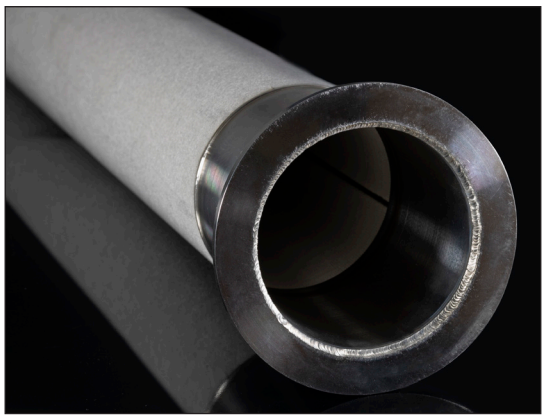
Sinterflo® MC Mesh Composite Media

Sinterflo® MC Fluidising Media, 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 meet your application requirements.

Features and Benefits

- **High operating temperatures**
  Continuously up to 1000°F (540°C) with intermittent operating peaks up to 1200°F (650°C).
- **Robust and self supporting**
  Fabricated shapes usually do not require complex and expensive support structures or joining strips.
- **Application and material versatility**
  Can be easily sheared, formed, punched and welded, using standard manufacturing methods, ino cones, tubes, custom shapes or flat panel, up to a seamless panel size of 40" x 60" (1000mm x 1500mm).
- **Enhanced chemical resistance**
  Can be constructed from a wide range of materials including 304 and 316L stainless steel, Hasteloy®, Inconel® and Monel®.
- **Cleanability**
  A wide range of cleaning methods can be used; as a result the media can be sterilized for use within the food and pharmaceutical industries.
- **Design and engineering versatility**
  Easily custom engineered to meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment.





Vyon® Sintered Porous Plastic

Our Vyon® sintered porous plastic materials offer excellent chemical compatibility, exceptional strength and are 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, cutshapes and moulded formats. The materials can also be fabricated into cylinders, cones and other three dimensional shapes.

Features and Benefits

- **Strong lightweight and self supporting**
  A versatile material that can be manufactured in a variety of shapes and sizes.
- **Narrow Controlled Pore Size Distribution**
  A 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.

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 emanators
- Vacuum platens and cones
- Medical device filtration

Porvair Filtration Group has a policy of continuous improvement in all areas of its business. Listening to the customers' present and future requirements is a vital part of our operations and a key part of driving change.

Research and Development

Although we operate across many filtration and separation markets there is significant interaction between each division in terms of product research and development. The new product development team is drawn from scientists and engineers from across all divisions 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.

Engineering

From initial concept design through manufacture and validation to in service support, our highly experienced team of dedicated engineers work to develop the optimal filtration solution.

Manufacturing

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 as well as extensive ISO certified cleanroom facilities.

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 systems simulation trials and in service performance evaluation. Our capabilities include filtration characterisation, environmental testing and analysis.

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 by achieving continual improvement in our skills, systems, processes and performance.

We have a dedicated team of quality professionals with many years experience in 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 the organisation.

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