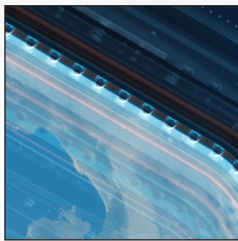
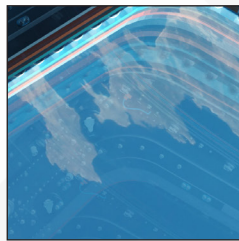
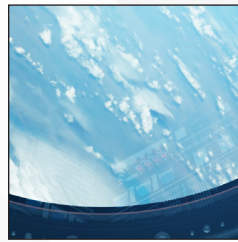
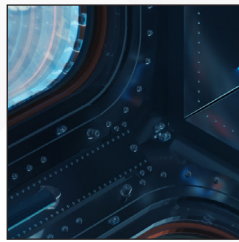
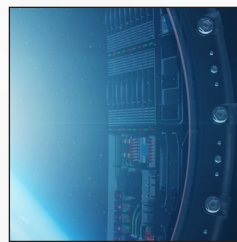
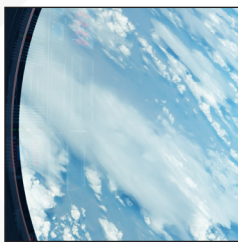
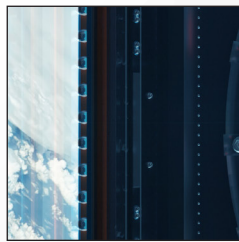
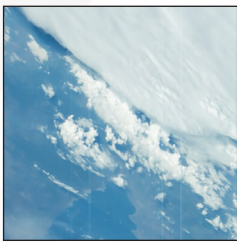
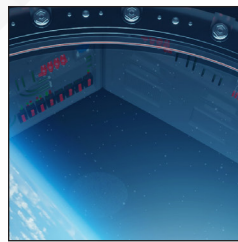
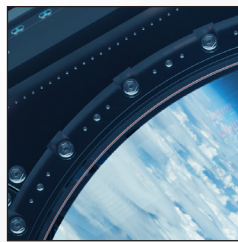
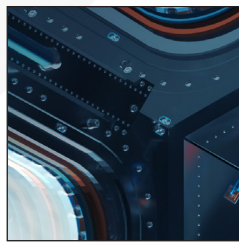
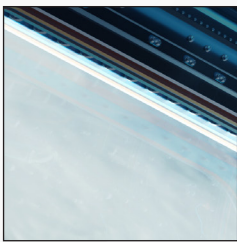
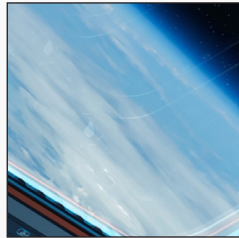


Filtration Systems for the Space Industry

Solutions for all Mission Requirements



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
- 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.



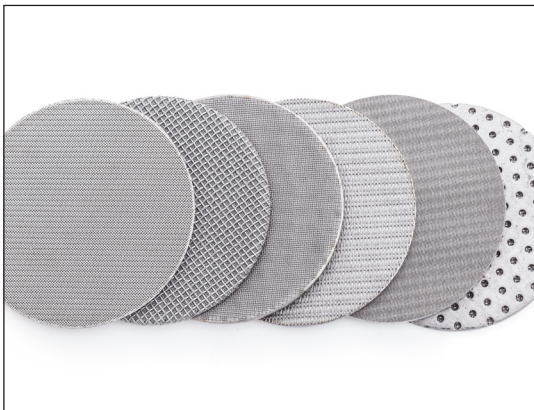
We supply a comprehensive range of filter elements and assemblies for use within the Space Industry. Applications include:

- Vehicle launch propulsion
- Orbit-insertion
- Station-keeping
- Environmental control systems
- Composite manufacture

Effective filtration and material compatibility is vital to ensure that all systems are free from contaminants. High performance is essential to meet and exceed expectations, guaranteeing safety, long service life, reliability and cost effectiveness in the most demanding of situations.

Our unrivalled experience and extensive material range ensures that we can supply a fully engineered solution for vehicle launch, control and manufacturing applications.

We can custom engineer solutions for the most demanding applications using filtration / separation medias, such as: porous PTFE membrane, Sinterflo® F sintered metal fibre, Sinterflo® M sintered metal mesh and Sinterflo® P sintered powder metal media and Vyon® porous plastics.



Core Competencies

- **Material selection and manufacturing**

Our experience in separation and filtration materials, fluid/gas dynamics and manufacturing ensure fit-for purpose materials and fabricated products.

- **Design and engineering**

Our strength in design, engineering and prototyping enables us to provide the optimum custom-designed solution for any application.

- **Project management**

Our understanding of regulatory requirements, deliverables and timescales means your product will meet market demand, placing you ahead of the competition.

- **Quality and reliability**

Our high expectation for quality, coupled with our commitment to continuous improvement, ensures that our raw materials are carefully selected and our manufacturing processes are optimally controlled to regulatory standards.



Launch Vehicle Propulsion Systems - Engines

We manufacture elements to filter the propellant used to fuel the engines and thrusters, providing protection from particulate contamination ingestion.

The filters are manufactured using a composite of multi-layers of woven stainless steel mesh, fabricated and welded to supporting hardware provide an assembly to suit the required application.

Features and benefits:

- Reduced space envelope
- Optimised performance characteristics (flow differential pressure)
- Low mass

Products

Last Chance Filters and Screens

These filters and screens can be built into a variety of fittings, valves and as stand alone assemblies.

Materials of construction

- Sintered woven wire
- Sintered metal powder
- Sintered metal fibre
- Stainless steel or nickel-based alloys

Methods of construction

- Resistance welding
- Fusion welding
- Electron beam/laser welding lab
- Vacuum brazing
- Laser drilled



Satellites

Servo controls, orbit-insertion, station-keeping and attitude control.

For orbit-insertion, station-keeping, or attitude control where critical filtration protection is required for flow control and restriction on stored gas energy sources, Porvair Filtration Group provides a range of filters and filter housings.

These assemblies feature fine levels of filtration and high levels of build level cleanliness, to ensure reliable operation of the system.

Overview

These products protect the flow from the stored (gas) energy supplies to ensure that any contamination cannot cause degradation of other system components leading to leakage and reduction in satellite operating life and or malfunction.

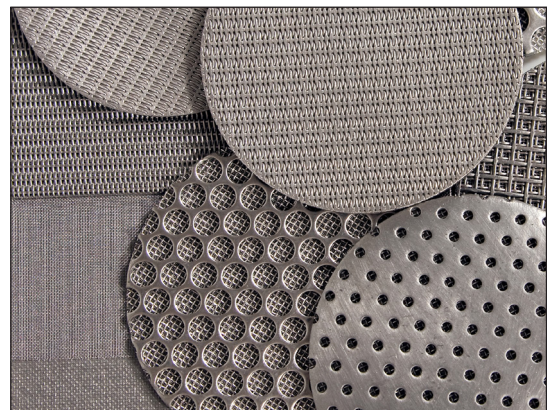
Features and benefits

Porvair components are designed to suit specific customer requirements, providing:

- low mass
- controlled filtration within a minimised installation envelope

Products

- Sinterflo® sintered woven wire
- Sinterflo® P sintered metal powder
- Sinterflo® F sintered metal fibre



Environmental Control Systems

We manufacture products used in manned space flight systems, protecting and controlling the internal atmosphere. These include:

- Space exploration vehicles
- Space stations and capsules
- Robotic probes

Structural Component Manufacture

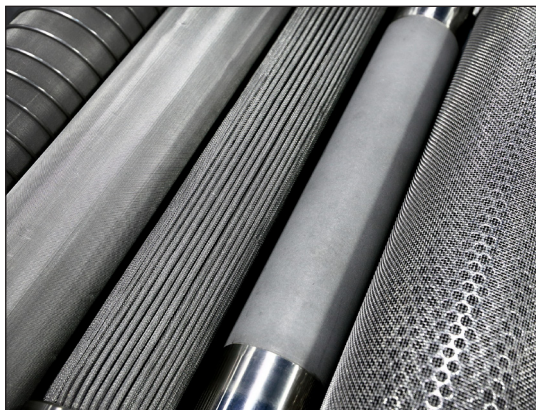
Our Vyon® material is used on composite cutting vacuum hold down tables as a sacrificial component in the manufacturing process, protecting the table. The material was originally developed in this application for civil aircraft manufacture.

Features and benefits

- Minimised surface contamination of composite
- Manufacturing cost reduction
- Strong lightweight and self-supporting
- High and even porosity
 - Low pressure drop and even flow
- Chemically inert
 - Resistant to many chemicals making it suitable for many applications

Forms

Produced in both sintered porous polyethylene and polypropylene, materials are available in roll, sheet and cut shapes.



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 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 housings and 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.

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.





Porvair Filtration Group Ltd.

1 Concorde Close
Segensworth, Fareham
Hampshire, PO15 5RT, UK
Tel: +44 (0)1489 864330
Email: info@porvairfiltration.com

Porvair Filtration Group Inc.

301 Business Lane
Ashland, Virginia 23005, USA
Tel: +1 804 550 1600
Email: infoUS@porvairfiltration.com

Porvair Filtration India PVT. Ltd.

401, 4th floor, Plot No C-3, Centrum
IT Park, Wagle Estate, Near Mulund
Checknaka, S.G. Barve Road, Thane
West, Maharashtra, 400604
Tel: +91 22 25 976464 /65
Email: infoIN@porvairfiltration.com

www.porvairfiltration.com

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