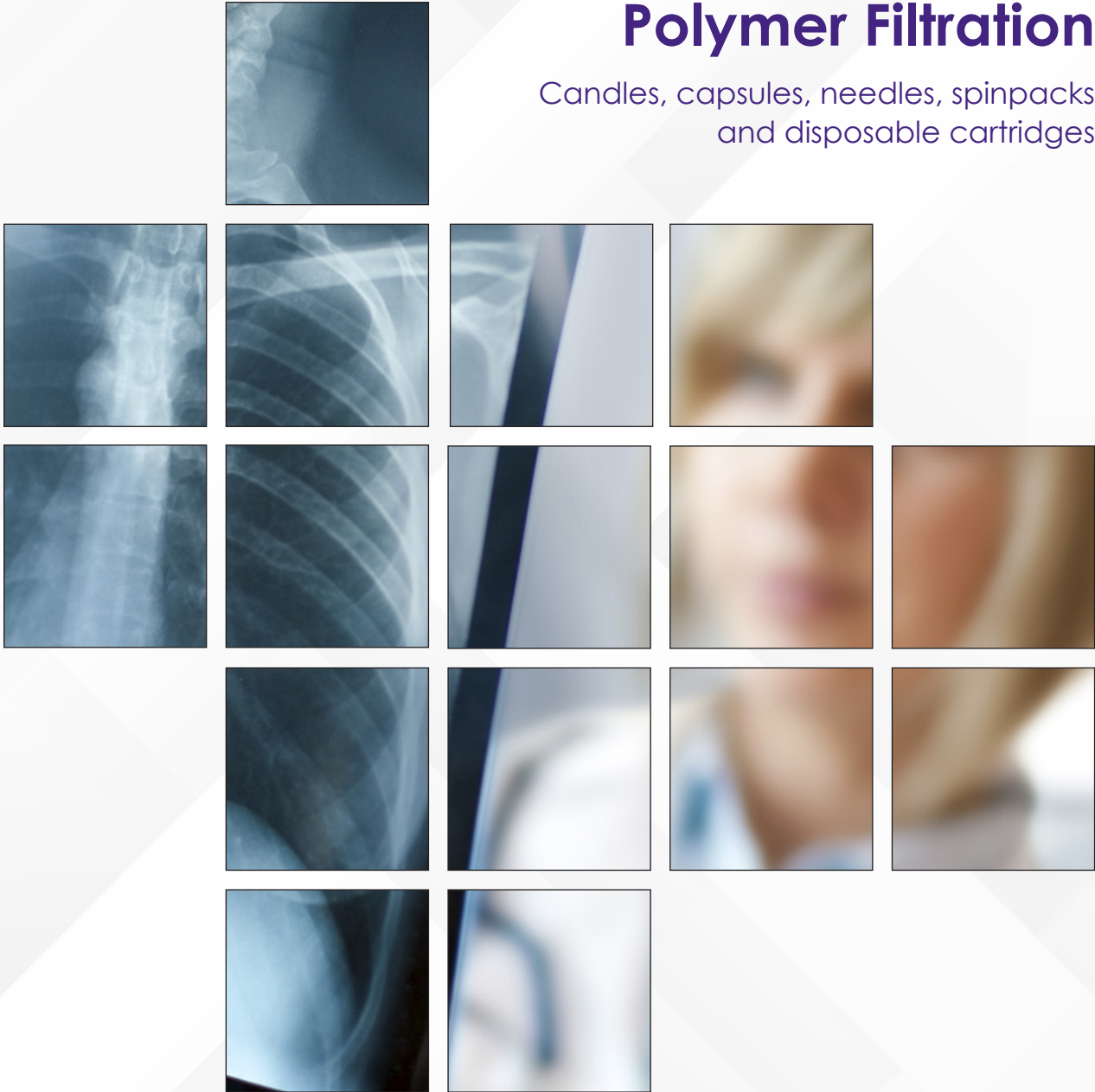


Polymer Filtration

Candles, capsules, needles, spinpacks
and disposable cartridges



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 provides a complete range of filters for the polymer industry, including candles, capsules, needles and spinpacks for polymer melt and disposable cartridges for monomer and precursor applications.

In addition to polymer melt and solution filtration we have the expertise to address other gas and liquid filtration applications offering improvements in products and processes in terms of economic and /or environmental factors.

Our existing polymer applications include:

- Polypropylene film
- Polyester film, fibre and bottle resin
- Polyamide fibres
- Polyethylene fibres
- Aramid fibres
- Carbon fibre precursors
- PEEK resin
- Elastane fibres
- Polyurethane resin
- Polycarbonate resin
- Cellulose acetate fibre

With our wide experience and our broad range of filter media, our applications and design engineers can custom design the optimum filtration products for each product and process. Our technical laboratory services include facilities where we can characterise our media and elements' performance by the use of flow tests, porosimetry, microscopy, chemical analysis, tensile testing, metallography and the quantification of polymer contaminant with image analysis.

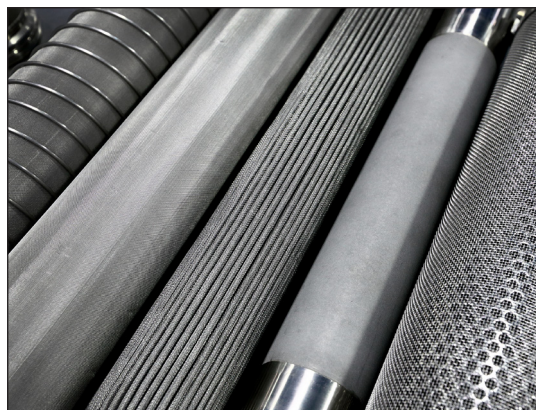


Candle Filters

Polymer candles are the processor's choice when it is important to have the lowest capital cost combined with ease of replacement, fewer downtimes and reduced overheads.

Candles are available in pleated stainless steel fibre (e.g. for PET film and fibre) or cylindrical woven meshes (e.g. for BOPP film) utilising stainless or speciality steels. Our designs encompass the fully welded REMPLAK and recoverable versions, both enable reuse of valuable hardware when the media life is finite resulting in a lower cost product overall.

Our candles are available in industry standard designs, or can be custom designed to fit any particular housing. Available in filtration ratings from 3 to 100 microns, our candles 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). Using our range of high strength, highly permeable stainless steel fibre media, results in candles with low initial pressure drops and long on-stream life.



Polymer Capsules

Disc Capsules

Stacked disc capsules are preferred when it is important to maximise the available filtration area for a given housing volume, leading to a low residence time which is important 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.

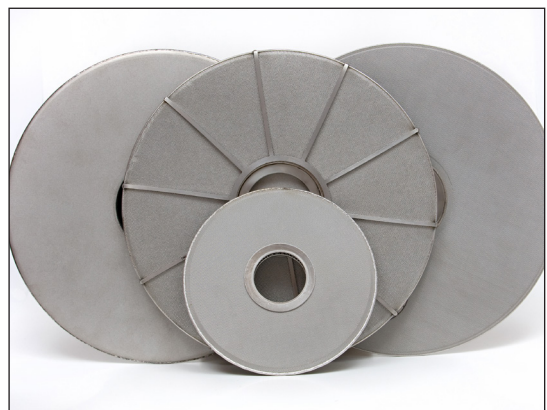
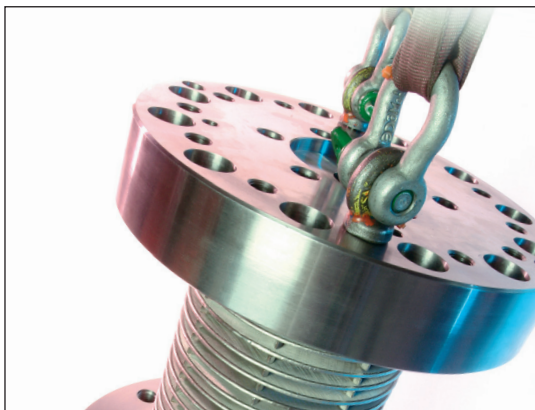
Capsules are available with diameters of 7", 10" and 12", all industry standard hub designs and dimensions, with optional loose or welded spiders. A wide range of efficiencies is available including 3 to 10 microns in sintered steel fibre media and 10 to 40 microns in sintered steel powder media using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

Solid Plate Capsules

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.

With ProLog tracking, each filter is uniquely identified and certified by weight and bubblepoint at manufacture to allow for precise verification of the cleaning process.





Spinpacks

The synthetic fibre industry has always used a 'last chance' filter immediately before the spinneret, both to remove final traces of contaminant and often to impart shear to the melt. Such spinpack filters often consist of a disc, or other non-circular shape, of sintered steel powder, sintered steel fibre or woven mesh, and we can supply spinpacks in all of these media.

Steel fibre media are available down to 3 microns, and will operate to 300bar (4351psi) and 400°C (752°F). Steel powder media are rugged in use, impart a high degree of shear, and are often used in conjunction with a loose fill pack material such as shattered metal. All spinpack filters can be supplied with an integral sealing gasket. Steel fibre media and mesh media can be supplied in a flat form or can be pleated to increase the effective filtration area.

An alternative disposable filter can consist of needles or cones manufactured from sintered bronze powder, which are push-fitted into a suitable tubeplate. Standard sizes are 5" and 12" long, but other sizes can be customised to suit any particular pack housing.

Disposables

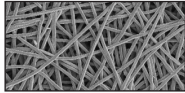
For the filtration of feedstock additives and precursors, we have available a range of polymeric disposable cartridges, utilising depth or pleated media supported by a heavy duty inner core, designed to operate at up to 4bar (58psi) differential pressure at 80°C (176°F). The cartridges are fitted with a robust outer handling cage and have a full range of industry standard fittings. Efficiencies in the range 0,5 to 100 microns are available.



Polymer Filter Media and Housings

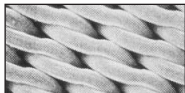
We offer the widest range of filter media used in the polymer industry including sintered metal fibre, sintered metal powder (cleanable steel or disposable bronze) and sintered woven mesh.

We have Research and Development facilities capable of many forms of customer support, including the enhancement of our standard media to suit a particular application.



Sinterflo® F Sintered Metal Fibre

Sintered metal fibre is the most widely used medium in the filtration of polymer melt. It is a depth medium with up to 85% void space, leading to very low pressure drops and long on-stream life.



Sinterflo® M Sintered Metal Mesh

Woven meshes are typically inexpensive and robust, and are used in capsules and candles.



Sinterflo® P Sintered Metal Powder

Sintered metal powder is a very robust depth filter medium with long on-stream life. Sintered metal powder exhibits a low permeability and a high shear level, the latter making it extremely effective at breaking up gels which is important in the manufacture of thin films.

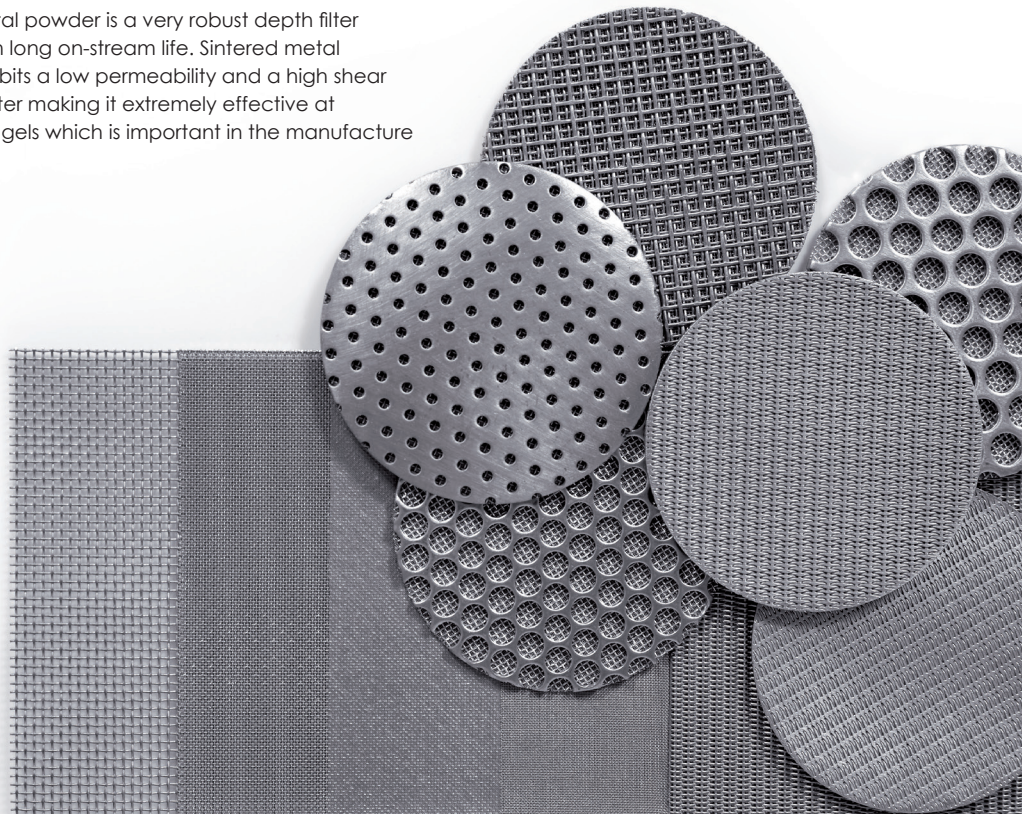
Filter Cleaning

All of our capsules are cleanable with established procedures, and the use of our high strength, non-compressible sintered fibre media will produce the maximum cleaning cycle life for this type of media.

Our engineers have a detailed knowledge of all polymer filter cleaning technologies and can give advice on the best route for application. We also have good working relationships with similar firms in the US and Europe.

Filter Housings

Porvair are able to offer filter housings ranging from industry standard low pressure housings to custom designed high pressure melt housings.



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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