

Sinterflo® F

Cylindrical Sintered Metal Fibre Filter Elements

Porvair Filtration Group manufacture a range of industry standard stainless steel filter elements suitable for use in a wide range of industries, including petrochemical.

The robustness of design, that is provided by a fully welded metallic element or cartridge, is required to resist deterioration in harsh operating environments where the fluids present are aggressive, high temperatures are experienced or where the operating differential pressures are high.

For some filtration applications, the use of a conventional disposable polymeric cartridges may simply be environmentally unacceptable and the use of a re-cleanable element will often give more cost effective filtration.

These filter elements are offered in the following media configurations:

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

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.

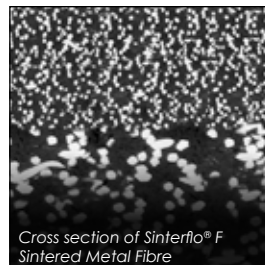
With the feasibility to formulate metal fibres to meet specific application requirements combined with inherent durability, sintered metal fibre filters can be cleaned in-situ without interrupting process flow thereby providing the ultimate in process economics by reducing downtime to a minimum.



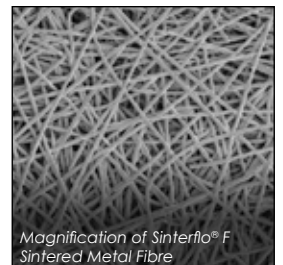
Applications

Typical applications for our Sinterflo® F elements include the following:

- **Catalyst recovery and retention**
For use in the collection of catalyst dust on various catalyst hoppers or FCC regenerator stream on refineries.
- **Gasification and chemical production**
For the clean-up of syngas from pet coke/coal feedstock and for IGCC trains, amongst others, for the production of hydrogen and other chemicals.
- **Vent filters**
For emission control of dust in various industry applications.
- **Agrochemical**
Typically for ammonia systems used on nitric acid and urea plants.
- **Steam**
For applications in the chemical, food, beverage and pharmaceutical industries.
- **Pharmaceutical powder recovery**
For medium pressure applications in dryers and blenders.
- **Polymer melt**
For the filtration of hot polymers used for the manufacture of man-made polymer films, fibres and bottles.



Cross section of Sinterflo® F Sintered Metal Fibre



Magnification of Sinterflo® F Sintered Metal Fibre

Features and Benefits

- Sinterflo® F elements**
 Sinterflo® F is manufactured from random laid metal fibres, sinter bonded to form a uniform high porosity filter medium.
- Resistant to high temperatures and corrosive environments**
 Suitable for aggressive gas and liquid filtration applications.
- High void volume**
 Provides high permeability combined with high efficiency.
- Excellent cleanability and dirt holding capacity**
 Excellent dirt holding capacity for longer on-stream life.
- Minimal maintenance costs**
 Elements can be cleaned and reused, reducing replacement and maintenance costs.
- Other alloys available**
 Available in 316L as standard with other alloys such as Inconel® 601, Hastelloy® X, NiCrMo Alloy 59 and FeCrAlloy® on request.

Element Construction

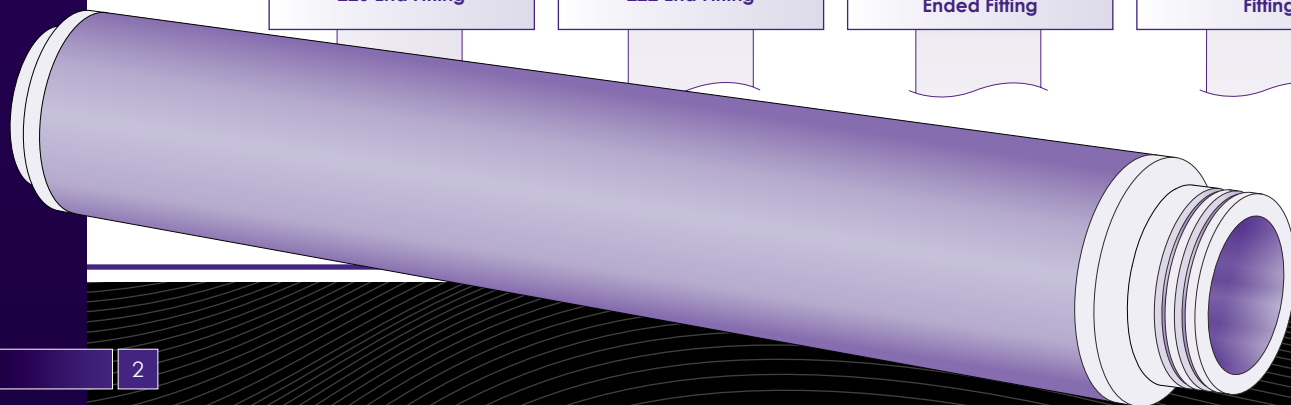
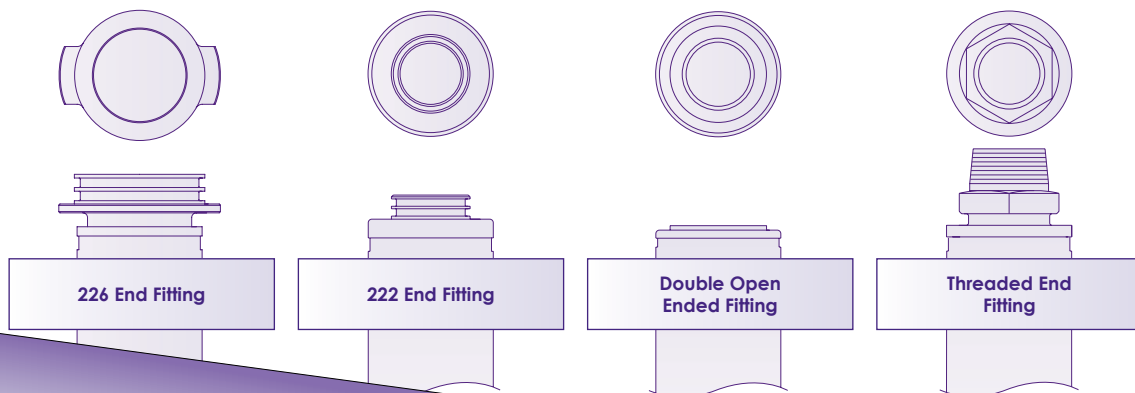
The Sinterflo® range of filter cartridges and elements are constructed in stainless steel 316L as standard. These filters are available in a cylindrical element configuration, giving 0.05m² (0.55ft²) of active filtration area per 10" length.

The cylindrical element design provides a sleeve of filter medium (protected and supported by woven meshes) around a support core.

The filter media and support meshes are either plasma or TiG seam welded and the media support core and end fittings are fully TiG welded together. This method of construction guarantees element integrity, eliminating the risk of bypassing and the presence of extractables derived from bonding agents.

The method of construction and materials used allow for operation from -269°C (-452°F) to 1000°C (1832°F) and up to 25bar (363psi) differential pressure in normal flow direction. Higher operating temperatures and differential pressures can be accommodated by design.

In the double open ended configuration, in addition to the support core, there is a 25mm (1") inner core to assist the location of multiple length units onto tie rods. Our cylindrical elements have optional outer support available for backflow/backflushing protection up to 3bar (44psi) differential.



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") as standard.
 Lengths: 125mm (5"), 250mm (10"), 498mm (20"),
 745mm (30") and 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. Nitrile, PTFE, Silicone, Viton® and PTFE 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

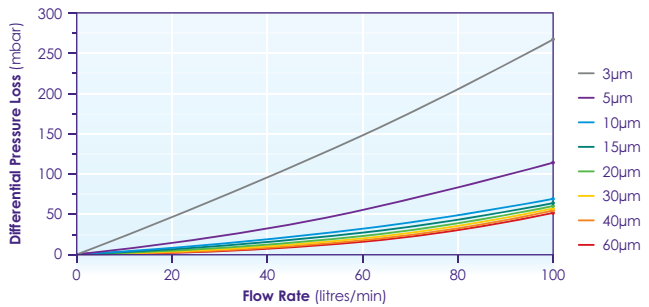
Maximum continuous: From -195°C (-319°F) to 340°C (644°F) seal limiting,
 From -269°C (-452°F) to 1000°C (1832°F) alloy limiting.

Sinterflo® F Stainless Steel Media Grades

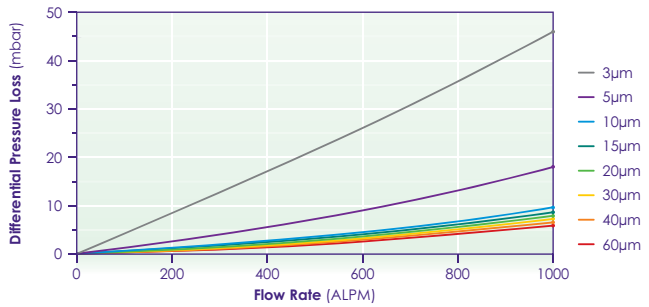
Micron Rating (µm) (micron code)	Liquids (µm)* (99.9% efficiency)	Gases (µm) (99.9% efficiency)
3 (0003)	3	1
5 (0005)	5	1.5
10 (0010)	10	3
15 (0015)	15	4
20 (0020)	20	6
30 (0030)	30	8
40 (0040)	40	11
60 (0060)	60	16

* Single Pass Efficiency Test in accordance with ASTM795 ACFTD.

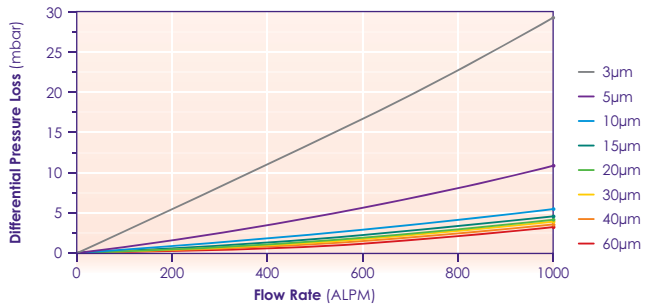
Typical Flow Rates in Water*



Typical Flow Rates in Air*



Typical Flow Rates in Steam*



* Using a 10 inch element, at ambient temperature.

Additional Information

Range

Suitable for use in **Porvair** filter housings and as direct replacements for existing elements, Sinterflo® F elements can be supplied with end fittings to suit most hardware installations without modification. They are available in single or multiple module units in lengths of 10, 20, 30 and 40 inches, and a standard outside diameter of 2.6 inches (66mm). Each element is supplied with all necessary seals or O-rings to ensure chemical compatibility.

Quality Assurance

Quality is at the heart of every stage of our operation and a fundamental part of our culture. We are ISO9001 approved at all of our manufacturing facilities and hold many other accreditations for the various industries we serve.

Product Innovation, Manufacturing and Testing

We understand that product development involves building multidiscipline teams, not only within the company, but often in partnership with our customers, improving project efficiency and ensuring complete customer satisfaction. This continuous development of products and materials is vital, to enable us to offer new and better solutions to applications. **Porvair** has implemented various methodologies to drive out waste and process variance across the company to achieve the ultimate goal of zero defects.

We have a dedicated team of scientists, engineers, production and quality professionals working 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 AutoCAD® technology, with 3D solid modelling, integrated with a finite element analysis system to give full structural assurance capability.

Filter Housings

Please contact a **Porvair Filtration Group** representative for further information on our range of filter housings.

porvair
filtration group

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