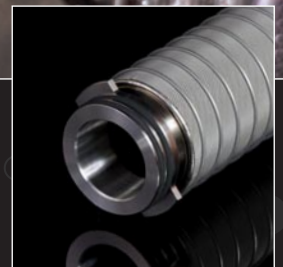


Sinterflo®

Sintered Metal Filter Cartridges and Elements



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 manufacture in both the UK and USA and have an extensive network of sales offices and distribution channels throughout the world. Our expertise is wide and varied spanning over 30 years, with products used in markets such as:

- Aerospace and Defence
- Nuclear
- Energy
- Process
- Food and Beverage
- Printing
- Water Treatment
- Pharmaceutical
- Biosciences and Scientific
- Porous Media and Materials

Our ongoing success is based on a dedication to technical excellence and superior customer service. Our future will 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 that they face.



Sinterflo® Sintered Metal Filter Cartridges and Elements

Porvair Filtration Group manufacture a range of industry standard stainless steel filter cartridges 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 cartridge may simply be environmentally unacceptable and the use of a re-cleanable cartridge 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 Sintered Metal Mesh
- Sinterflo® MC Sintered Metal Composite



Cartridge and Element Construction

The Sinterflo® range of filter cartridges and elements is 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) and pleated cartridge configuration (giving 0.13m² (1.40ft²) of filtration area).



The cylindrical element design provides a sleeve of filter medium (protected and supported by woven meshes) around a support core. The pleated cartridge design uses a precision pleated pack (again comprising protection and support meshes either side of the filter medium) around a support core to provide nearly three times the effective filtration area of the cylindrical element.

In both designs 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 cartridge 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 (367psi) 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. Both pleated cartridge and cylindrical elements have optional outer guards available for backflow/backflushing protection up to 3bar (44psi) differential.



Sinterflo® F Sintered Metal Fibre

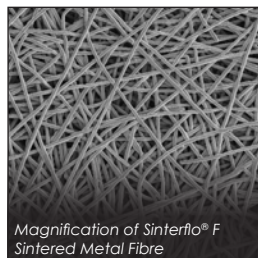


Manufactured from random laid metal fibres, sinter bonded to form a uniform high porosity filter medium, Sinterflo® F offers:

- high permeability
- low clean and operating pressure drops
- excellent cleanability and dirt holding capacity
- long life
- minimal maintenance costs
- Pleatable, offering higher filtration area per element
- available in 316L as standard with other alloys such as 304L stainless steel, Inconel® 601, Hastelloy® X, NiCrMo Alloy 59 and FeCrAl Alloy on request.



Magnification of Sinterflo® F Sintered Metal Fibre



Sinterflo® P Sintered Metal Powder

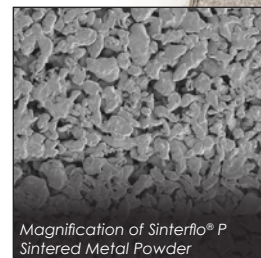


A robust filter material manufactured from sinter bonded metal powders, Sinterflo® P offers:

- low permeability, but extremely robust construction
- depth filtration
- high resistance to corrosion
- self supporting construction eliminating the need for additional hardware
- efficient and cost effective
- available in 316L as standard with other alloys such as 304L stainless steel, Inconel® 600, Hastelloy® X and Monel® on request, as well as sintered powdered bronze.



Magnification of Sinterflo® P Sintered Metal Powder

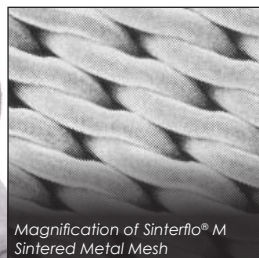


Sinterflo® M Sintered Metal Mesh



Precision woven meshes in various types of weaves from plain square mesh to Dutch (Hollander) Twill Weave to give the most defined absolute rating. Sinterflo M offers:

- 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.
- 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, Inconel®, Hastelloy® and Monel® on request.



Magnification of Sinterflo® M Sintered Metal Mesh

Sinterflo® MC Sintered Metal Composite



A multi-layer precision filter mesh that is produced using a novel sintering process, Sinterflo® MC offers:

- a superior, mechanically strong structure
- fabricated shapes without expensive support structures or joining strips
- can be reused as the structure allows repeated cleaning, providing an economical choice.
- non-shedding media that provides resistance to mechanical abrasion
- easily custom-engineered to meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment
- depending on atmospheric conditions, it can be used in temperatures up to 540°C (1004°F), with intermittent operating peaks up to 650°C (1202°F)
- primarily made from 316L stainless steel, it is also available in Inconel®, Hastelloy® and Monel® materials for use in the most aggressive environments
- resistance to most chemicals.



Cross section of Sinterflo® MC Sintered Metal Mesh Composite

Technical Specifications

Materials of Manufacture

316L stainless steel standard. 304L stainless steel, Incone®, Hastelloy®, Monel®, NiCrMo Alloy 59 and FeCrAl Alloy on request or by process selection. Additional alloys are available on request.

Cartridge Dimensions

Diameter*: 66mm (2.6") as standard.
 Lengths*: 125mm (5"), 250mm (10"), 498mm (20"), 745mm (30") and 1012mm (40").

*Other diameters and non-standard lengths available on request.

Effective Filtration Area (per 10" length)

Pleated cartridge: 0.13m² (1.40ft²)
 Cylindrical cartridge: 0.05m² (0.55ft²)

Cartridge Ordering Codes

Sinterflo® F and M (Pleated or Cylindrical):

250 [Table 1](#) - [Table 2](#) - [Table 3](#) [Table 4](#) - [Table 5](#) [Table 6](#) [Table 7](#) [Table 8](#)

Example part number: [2505 - 10 - 0020B - PGF4](#) SOE 222 fitting/cylindrical, 10" cartridge, 20µm rating, Sinterflo® M, PTFE seal, guard, fin option, 2" BSPT thread option.

Sinterflo® P:

405 [Table 1](#) - [Table 2](#) - [Table 3](#) - [Table 5](#) [Table 8](#)

Example part number: [4056 - 05 - 0040 - E - 2](#) DOE fitting, 5" cartridge, 40µm rating, EPDM seal, 1.5" NPT thread option.

Gaskets and O-Rings

EPDM as standard. Nitrile, PTFE, Silicone, Viton® and PTFE coated Viton® available on request or by process selection.

Typical Maximum Differential Pressure* (all lengths)

Normal flow direction: 15 to 25bar (218 to 367psi)
 Reverse flow direction: 3 to 10bar (44 to 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 1000°C (1832°F) alloy dependant.

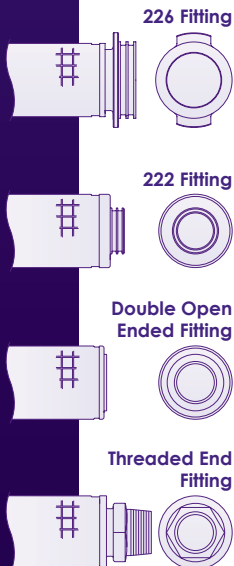


Table 1	250 Part Number
0	DOE fitting/pleated
1	DOE fitting/cylindrical
2	SOE 226 fitting/pleated
3	SOE 226 fitting/cylindrical
4	SOE 222 fitting/pleated
5	SOE 222 fitting/cylindrical
7	SOE threaded/pleated
8	SOE threaded/cylindrical

	405 Part Number
3	SOE 222 fitting
4	SOE 226 fitting
5	SOE threaded
6	DOE fitting

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

Table 2	Nominal Cartridge Length
05	5" (125mm)
10	10" (250mm)
20	20" (498mm)
30	30" (745mm)
40	40" (1012mm)

Note: Other non-standard lengths are available on request.

Table 3	Micron Rating (liquid)
e.g: 0040 = 40 micron	
Sinterflo® F: 3µm to 60µm available, specify 'Absolute' rating.	
For Sinterflo® M: 3µm to 1000µm available, specify 'Nominal' rating.	
Sinterflo® P: 6µm to 60µm available, specify 'Absolute' rating.	

Table 4	Media Option
C	Sinterflo® F (fibre)
B	Sinterflo® M (mesh)

Table 5	Seal Material
C	Chemraz®
E	EPDM
N	Nitrile
P	PTFE
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

Table 6	Guard/Support Option
G	Guard
S	Backflush support
N	None

Table 7	Fin Option
F	Fin
N	No fin

Table 8	Thread Option (Sinterflo® F/M)	
	Pleated	Cylindrical
1	1" NPT	1 1" NPT
2	1.5" NPT	2 1.5" NPT
6	2" NPT	3 1.5" BSPP
3	1" BSPT	4 2" BSPT
7	1.25" BSPT	5 1" BSPT
5	1.5" BSPT	6 1.5" BSPT
4	2" BSPT	

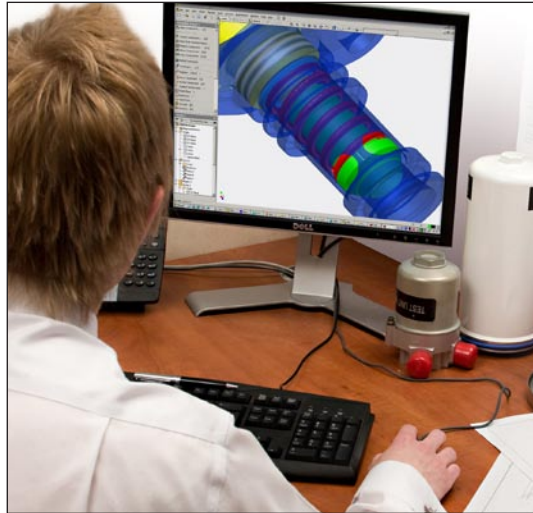
	Thread Option (Sinterflo® P)
1	1" NPT
2	1.5" NPT
4	1" BSPT
3	1.5" BSPT
5	2" BSPT

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.

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.

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.





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