

ultra.fiber SF

Cylindrical Sintered Metal Fibre Filter Elements

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:

- ultra.fiber SF Sintered Metal Fibre
- ultra.steam GS Sintered Metal Powder
- ultra.mesh SM Metal Mesh

Manufactured from randomly laid metal fibres, sinter-bonded to form a uniform high porosity filter medium, ultra.fiber SF 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, ultra.fiber SF 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 ultra.fiber SF 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.

Features and Benefits

- ultra.fiber SF element**
 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 ultra.fiber SF 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.

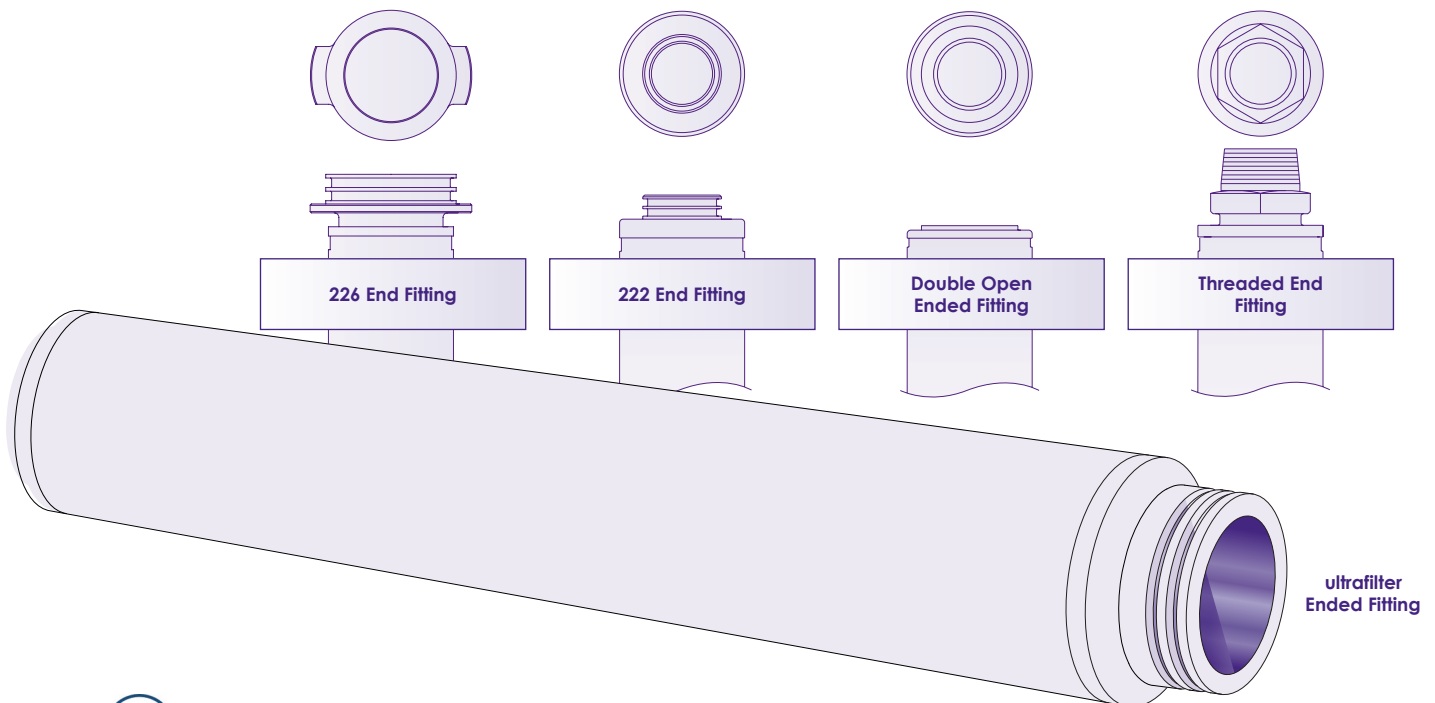
The cylindrical element design provides a sleeve of filter media (protected and supported by woven meshes) around a support core.

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

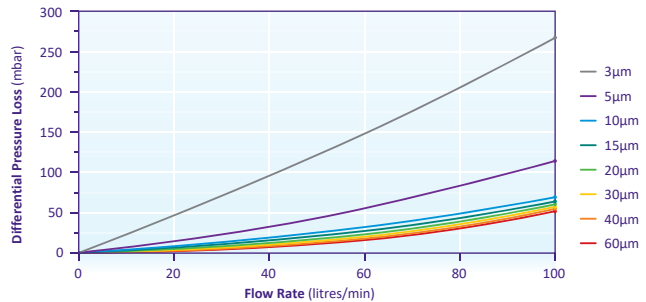
Maximum continuous: From -195°C (-319°F) to 340°C (644°F)
 seal limiting.
 From -269°C (-452°F) to 1000°C (1832°F)
 alloy limiting.

ultra.fiber SF Stainless Steel Metal Fiber Media Grades

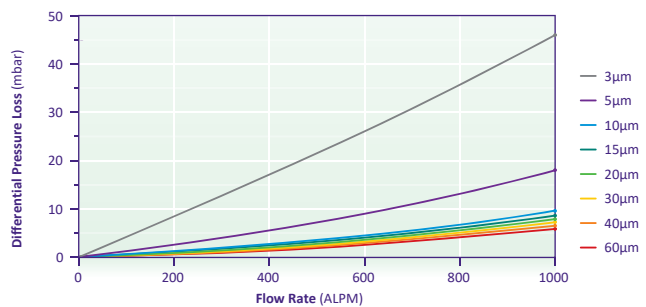
Micron Rating (µm) (micron code)	Liquids (µm)* (99.9% efficiency)	Gases (µm) (99.9% efficiency)
3 (0003)	3	1
5 (0005)	5	1.5
10 (0010)	10	3
15 (0015)	15	4
20 (0020)	20	6
30 (0030)	30	8
40 (0040)	40	11
60 (0060)	60	16

*Single Pass Efficiency Test in accordance with ASTM795 ACFTD.

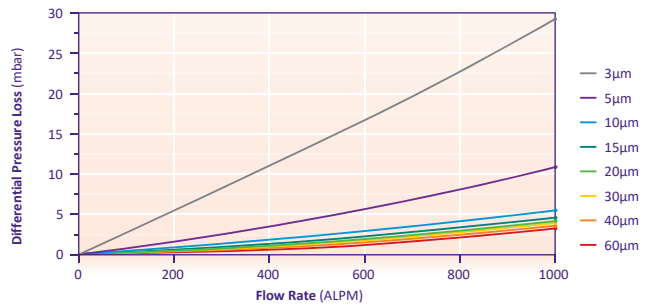
Typical Flow Rates in Water*



Typical Flow Rates in Air*



Typical Flow Rates in Steam*



*Using a 10 inch element, at ambient temperature.