

# ultra.mesh SMp

Pleated Metal Mesh Filter Cartridges

# ultra.mesh SMp pleated stainless steel mesh 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 cartridges are offered in the following media configurations:

- ultra.fiber SFp Pleated Sintered Metal Fibre
- ultra.steam GS Sintered Metal Powder
- ultra.mesh SMp Pleated Metal Mesh

ultra.mesh SMp precision woven meshes are manufactured in various types of weaves. Plain square weave is available for simple sieving duties through various weave patterns (reverse plain dutch, broad mesh twill and single plain weave). Dutch twill weave is provided for the most comprehensive selection of surface filtration duties.

ultra.mesh SMp demonstrates good permeability, high tensile strength and is available from single wrap designs through to complex multilayered structures in pleated constructions to optimise the area available. These meshes can be manufactured in diffusion bonded versions to increase performance security of pore shape and size and have the broadest range of pore sizes of any filter media type.

ultra.mesh SMp pleates stainless steel mesh is available in 316L stainless steel as standard with other alloys such as 304L stainless steel,  $Inconel^{\$}$ , Hastelloy<sup>®</sup> and Monel<sup>®</sup> on request.



# **Applications**

Typical applications for our ultra.mesh SMp pleated stainless steel mesh cartridges 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.



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# **Features and Benefits**



- ultra.mesh SMp pleated stainless steel mesh cartridge is a robust, non-shedding media which provides resistance to mechanical abrasion.
- Manufactured in various types of weaves Available in plain square mesh, reverse plain dutch, broad mesh twill, single plain weave and dutch (Hollander) twill weave to give the most defined absolute rating.
- Precise aperture

Our cartridges are manufactured to precise aperture requirements of both size and shape.

### Good permeability

Our cartridges have an open structure which provides good permeability.

#### • All-welded, robust construction

The all-welded construction eliminates the need for resin bonded end caps. Its robust structure ensures log service life and its suitability to the most demanding of environments.

• Single layered designs to complex multi-layered structures

These can be manufactured in a variety of layer combinations depending on the specific grade and micron requirement.

# • Pleatable structure, offering higher filtration area per cartridge

The pleated structure enables the reduction of the number of cartridges and overall footprint of the installation.

### Smooth surface variant

The manufacturing process of our cartridges enables us to achieve a smooth surface variant. This is the preferred choice for backwash applications.

# **Cartridge Construction**

The ultra.mesh SMp pleated stainless steel mesh range of filter cartridges and elements are constructed in stainless steel 316L as standard. This pleated cartridge configuration, giving 0.13m<sup>2</sup> (1.40ft<sup>2</sup>) of active filtration area per 10" length.

This pleated cartridge design uses a precision pleated pack, comprising of 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.

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 (363psi) differential pressure in normal flow direction (outside to insinde). 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 pleated cartridges are supplied with a guard as standard for backflow/backflushing protection up to 3bar (44psi) differential.





# **Specifications**

## **Materials of Manufacture**

316L stainless steel standard. 304L stainless steel, Inconel<sup>\*</sup>, Hastelloy<sup>\*</sup> and Monel<sup>\*</sup> 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 lengths available on request.				

**Effective Filtration Area** 

0.13m<sup>2</sup> (1.40ft<sup>2</sup>) per 250mm (10") cartridge.

#### **Gaskets and O-Rings\***

EPDM as standard. Nitrile, PTFE, Silicone, Viton<sup>\*</sup> and PTFE coated Viton<sup>\*</sup> available on request or by process selection. \*FDA approved seals are available.

# **Typical Maximum Differential Pressure**\* (all lengths)

Normal flow direction: 25 bar (363psi) Reverse flow direction: 3 bar (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.mesh SMp pleated stainless steel mesh media grades

	Micron Rating (µm) (micron code)	Liquids (µm)* (99.9% efficiency)	Gases (µm) (99.9% efficiency)
ſ	3 (0003)	10	2
	5 (0005)	18	13
I	10 (0010)	25	18
	15 (0015)	35	25
I	25 (0025)	30	20
	30 (0030)	40	30
I	35 (0035)	50	45
	70 (0070)	75	60

\*Hard spherical particle maximum passed.







\*Using a 10 inch cartridge, at ambient temperature.



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