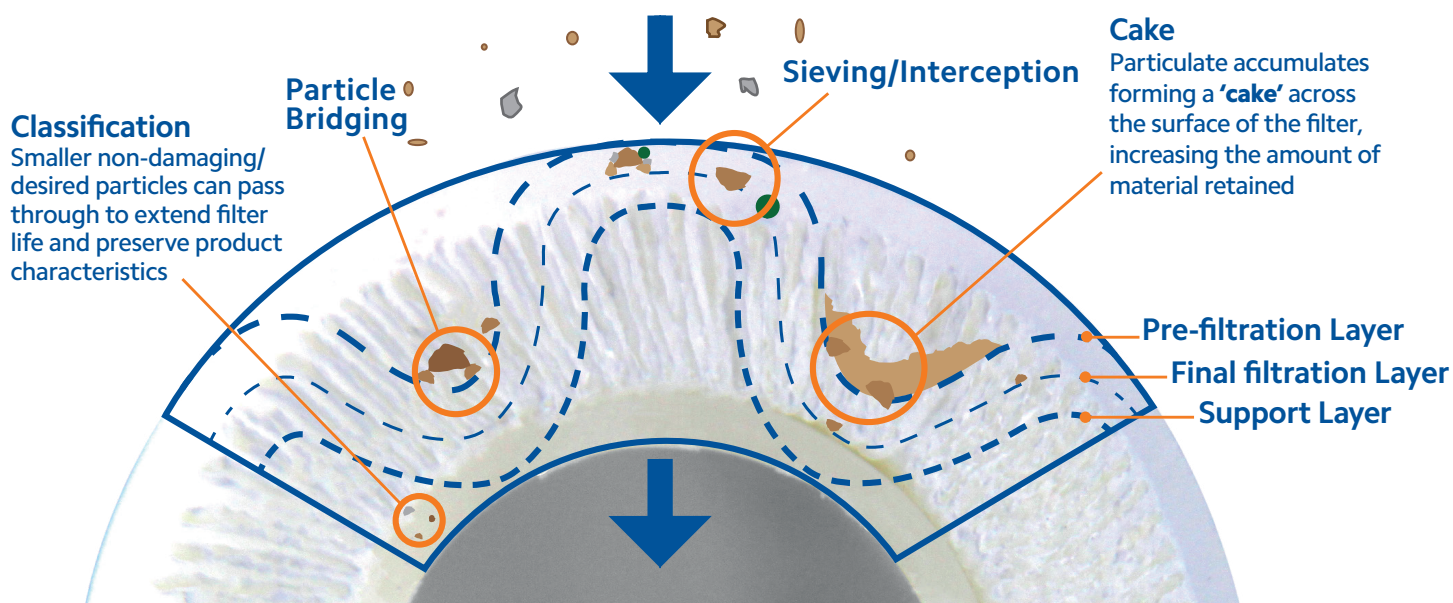


What is Surface Filtration?

Pleated filters are widely used as effective surface filtration due to their excellent flow rates and high efficiency.

Pleating dramatically increases available surface area whilst maintaining high dirt loading and low pressure drops. Much of the media used in pleated cartridges also has some depth characteristics, thanks to its multi-layer construction, thereby aiding particle retention and classification.

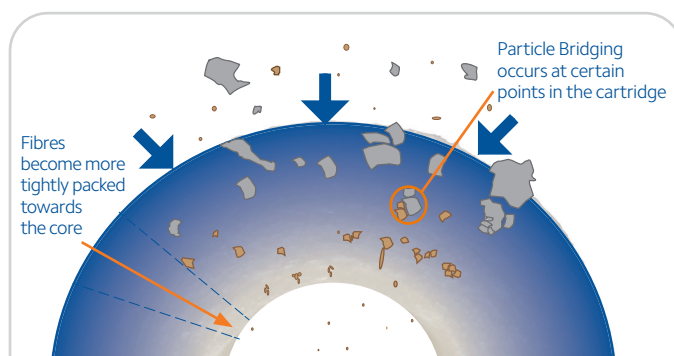


Surface Filtration Technology

Pleated filters are the ideal technology of choice over depth filtration for retention of known or uniformly sized particles.

The Standard (SPE) range of cartridges features a single layer media, which filters on the principles of direct interception and 'caking' where multiple particles accumulate across the media pore. Over time this leads to partial closure, which can increase efficiency and the chance to target finer particles.

The entire Premier range includes support and pre-filtration layers providing an element of depth characteristics. These layers retain larger particles, ensuring the specified micron rating of the cartridge can be utilised for exacting classification.



Depth Filtration Technology

The fibres become more tightly packed throughout a depth cartridge, progressively reducing the size of particles that can pass through the filter.

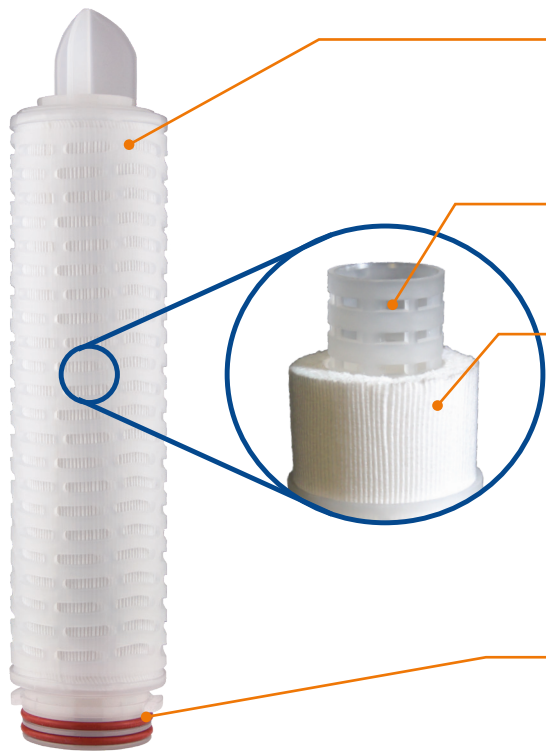
Advantage: Economic to produce.

Disadvantage: Higher pressure drop means a shorter service life compared to pleated cartridges.

Premier Pleat Construction

The Premier Pleat, Crypto and Bubble Point ranges are all constructed with a rigid inner and outer polypropylene core. Offering protection for the pleat pack, the cage also allows a variety of end-caps to be thermally bonded to the cartridge. This secure construction technique prevents bypass, creating a seal strong enough for repeated steam or chemical sterilisation as well as cartridge integrity testing.

Developments in 2018 see a new outer cage design that increases its void volume by over 10%. Whilst maintaining cartridge strength, increasing the open area allows a more uniform distribution of flow across the entire pleat pack ensuring low pressure drop and maximised dirt holding capacity.



Outer support cage

- Provides product strength and rigidity.
- Protects the pleat pack, ensuring media integrity.
- New outer cage design with increased void volume.

Inner support cage

- End-caps are bonded to the support core for product security and strength, ensuring no bypass and enabling integrity testing.

Media

- Pleated construction increases surface area, delivering high flow rates, low initial clean pressure drop and optimised dirt holding.
- Designed with an optimum balance of filtration media and void volume, the pleat pack is engineered to ensure that the entire surface area of the cartridge is used, maximising dirt holding capability whilst maintaining high flow rates and low pressure drop.

Thermally bonded end-cap

- No adhesive ensures no leaching of additives.
- Numerous end-caps and seals available to suit various housings (refer to pages 32 and 33).

Identification

Lot Coded

- Laser etched lot code on cartridge
- Traceable back to raw materials

QR Code

- Links directly to further information for each product

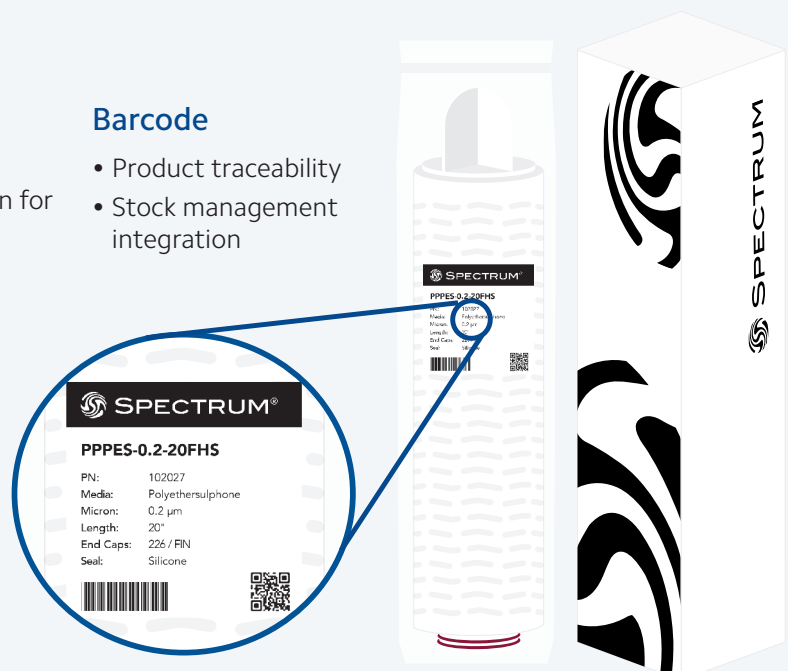
Barcode

- Product traceability
- Stock management integration

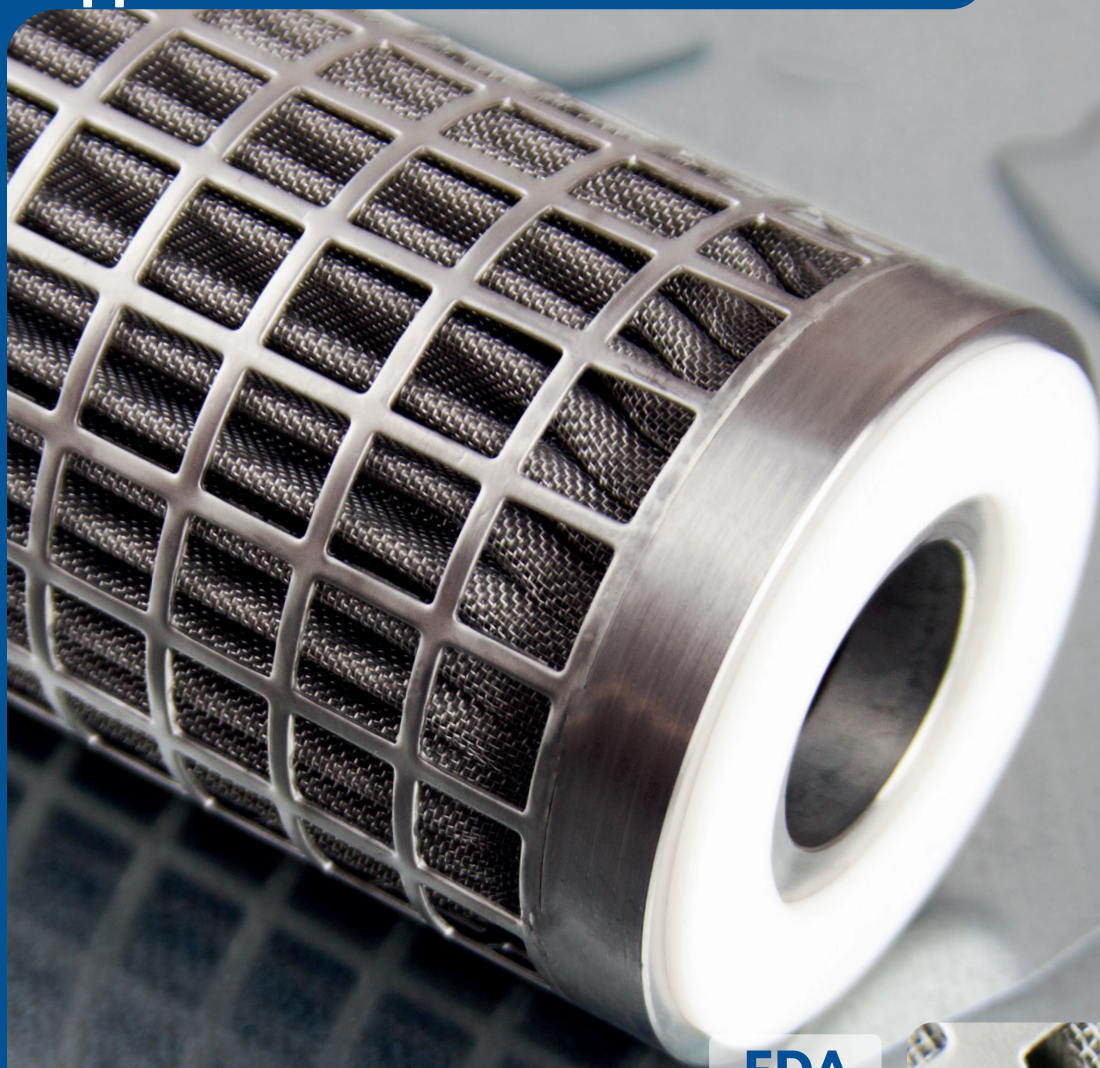
Packaging

Four Protective Layers

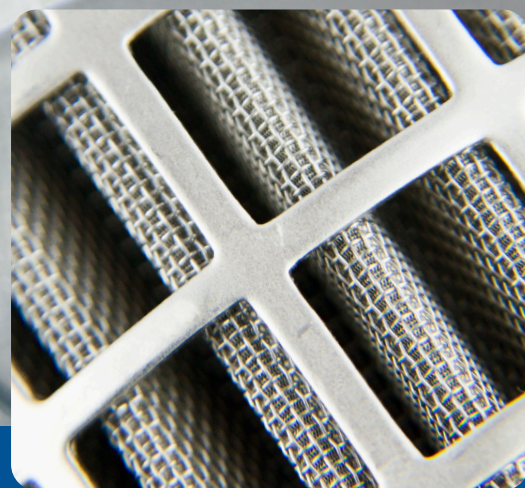
- Vacuum sealed inner packaging
- Tough outer polybag layer provides additional protection
- Individual product boxes
- Heavy duty outer carton



Premium Solution for Challenging Applications



FDA
Compliant Materials



 **SPECTRUM**

Premier Range

5 - 850 micron

Premier cartridges utilise the ultimate in material and construction technology to produce a high performance cartridge which is specifically designed to suit the most challenging filtration environments. The pleat pack is precision engineered with layers of woven stainless steel media, fully TiG welded to eliminate potential extractables, whilst the added outer cage provides additional protection for the pleated media ensuring cartridge integrity during back flushing.

Manufactured entirely from 316L stainless steel, the inert and reusable properties of the Premier range of cartridges are designed for use in a range of applications including cosmetics, food and beverage, power generation and chemical processing.



Chemical

The PPS offers a reliable filtration solution due to compatibility with both aggressive acids and solvents.



Cosmetics

Strong stainless steel can withstand high pressure usually required to flow high viscosity liquids.



Adhesives

Capable of high temperature cleaning, contaminants such as paint and glues can be incinerated and the cartridge reused.

Premier End-Caps

The SPECTRUM Premier Stainless Steel cartridges benefit from the addition of end-caps, lowering the risk of bypass. With Teflon® Seals supplied as standard, these cartridges have the widest range of chemical compatibility.



AA-Double Open Ended

Open-end gaskets are suitable for housings that require a knife edge seal and are most suited for non-critical applications.



ES - 222 / Closed End

Double 222 size external O-rings seal into female housing receiver.



FS - 226 / Closed End

Bayonet type tabs lock into the housing, which prevents the cartridge from moving during filtration, especially in high flow applications.



FH - 226 / Fin

The fin locates into the housing plate holes to maintain vertical position, which is particularly useful for longer cartridges such as 30" and 40".

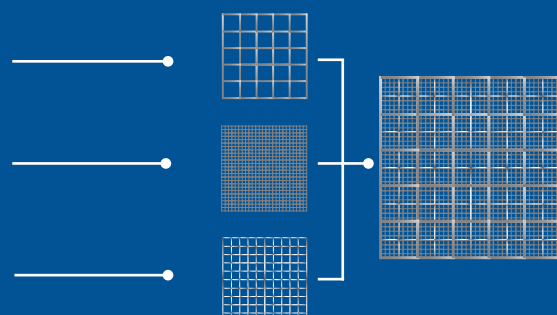
Construction

Additional support layers add depth characteristics to the media of the Premier range. This dramatically increases the dirt holding capacity of the cartridge, improving service life and reducing operation downtime.

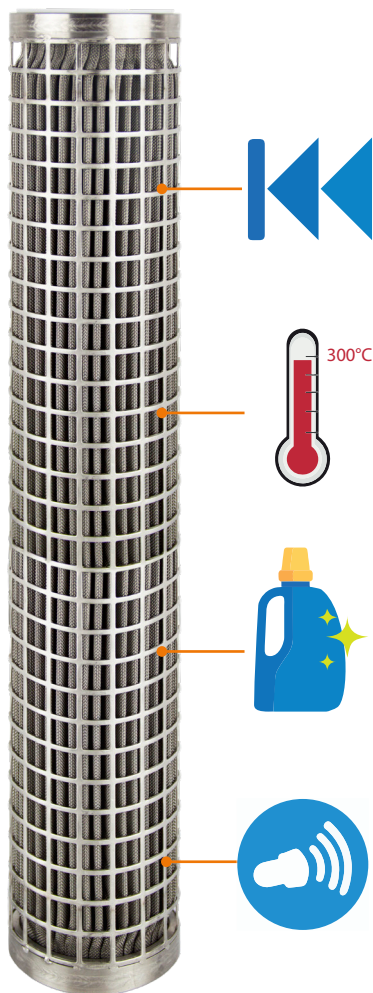
Outer support layer provides coarse particulate removal to protect the main filtration layer from premature blinding.

Main filtration layer specifically targets particulate at the micron rating of the cartridge for selective removal of unwanted contaminants.

Providing structural integrity and protection of the main filtration layer, the **inner support layer** is also constructed from robust stainless steel.



The exacting construction of the PPS results in a robust cartridge capable of withstanding cleaning procedures which would typically damage or destroy consumable polymeric cartridges. These cleaning processes enable stainless steel cartridges to be repeatedly reused, eliminating the disposal of expended single-use cartridges, commonly deemed environmentally unacceptable. Depending on the characteristics of the contaminant and the solution, there are different methods of cleaning that can be applied.



Reverse flow

Typically used when the majority of the contaminant is larger than the pore size of the filter media and remains on the surface of the cartridge, reverse flow is the simplest form of cleaning. Performed either in situ or externally, reverse flowing flushes the contaminant from the surface of the cartridge at pressures as low as 1 bar. The outer cage of the PPS means that higher pressure can be used to remove heavier loading.

High temperature burnout

The most aggressive form of cartridge cleaning, high temperature burnout is used to remove hardened adhesives, glues and paints. Exposing the cartridges to temperatures up to 300°C, collected contaminant is incinerated before being flushed and rinsed with filtered water.

Chemical cleaning

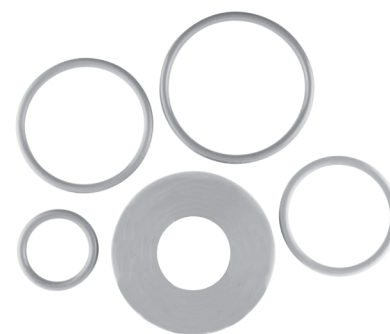
Due to the inert properties of the stainless steel media, aggressive chemicals and solvents can be successfully used to dissolve and remove both contaminant on the surface of the cartridge and finer embedded particulate within the depth of the media. Prior to reuse the cartridge is typically flushed with filtered water.

Ultrasonic cleaning

Using high-frequency sound waves, this technology breaks down hard, non-deformable particulate retained by the filter media. Once the contamination has been broken down, the cartridge is typically rinsed before use.

Replaceable seals

After all cleaning processes it is recommended that gasket/O-rings are replaced to ensure a positive seal and reduce the risk of bypass, offering peace of mind. Fiederer supplies a range of replacement gaskets and O-rings, available upon request.



Efficiency

		Challenge Particulate Size							
		5µm	10µm	20µm	40µm	75µm	100µm	250µm	500µm
Cartridge Micron Rating	5µm	95%	97%	99%	99+%	99+%			
	10µm		95%	96%	98%	99%	99+%		
	20µm			95%	96%	97%	98%	99%	
	40µm				95%	97%	98%	99%	99%
	75µm					96%	98%	99%	99%
	100µm						96%	98%	99%
	250µm							96%	98+%
	500µm								96%



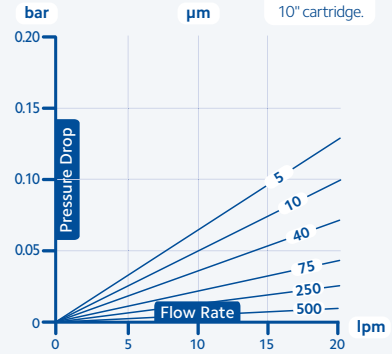
Key Features

- Fully TIG welded 316L stainless steel and strengthened cage provides high pressure differential capabilities
- End-cap configuration options typically required for a more secure seal at lower micron ratings
- Highest temperature tolerances in the range



Flow Rate

Water at 20°C
10" cartridge.



Materials of Construction

Filter media
316L Stainless Steel

Support media
316L Stainless Steel

Core
316L Stainless Steel

Cage
316L Stainless Steel

Seal
Teflon® (as standard)



Configurations

Micron (µm)

5	10	20	40	75	100
250	500				

Length (")

10	20	30	40
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End Caps

AA	EH	ES	FH	FS
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Seal

T = Teflon® E = EPDM V = Viton®



Specification

Efficiency
95%

Surface Area
0.175 m² per 10"

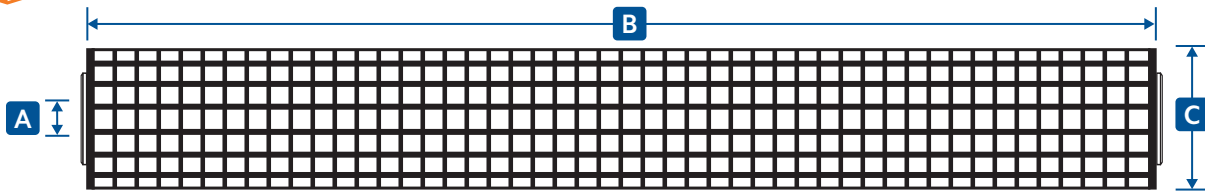
Max. Operating Temperature
360°C at 5 bar

Max. Operating Pressure Differential
5 bar

Max. Operating Reverse Pressure Differential
3 bar



Dimensions



Length	A (mm)		B (mm)				C (mm)
	AA	EH	ES	FH	FS		
10"	27	250	319	275	316	273	65
20"	27	508	569	525	570	523	65
30"	27	762	819	775	824	773	65
40"	27	1016	1069	1025	1078	1023	65

Part Number

Code	Micron	Length	End-Cap	Seal
PPS	5, 10, 20, 40, 75, 100, 250, 500	10, 20, 30, 40	AA, EH, ES, FH, FS	T, E, V

e.g. PPS-100-40FHT

