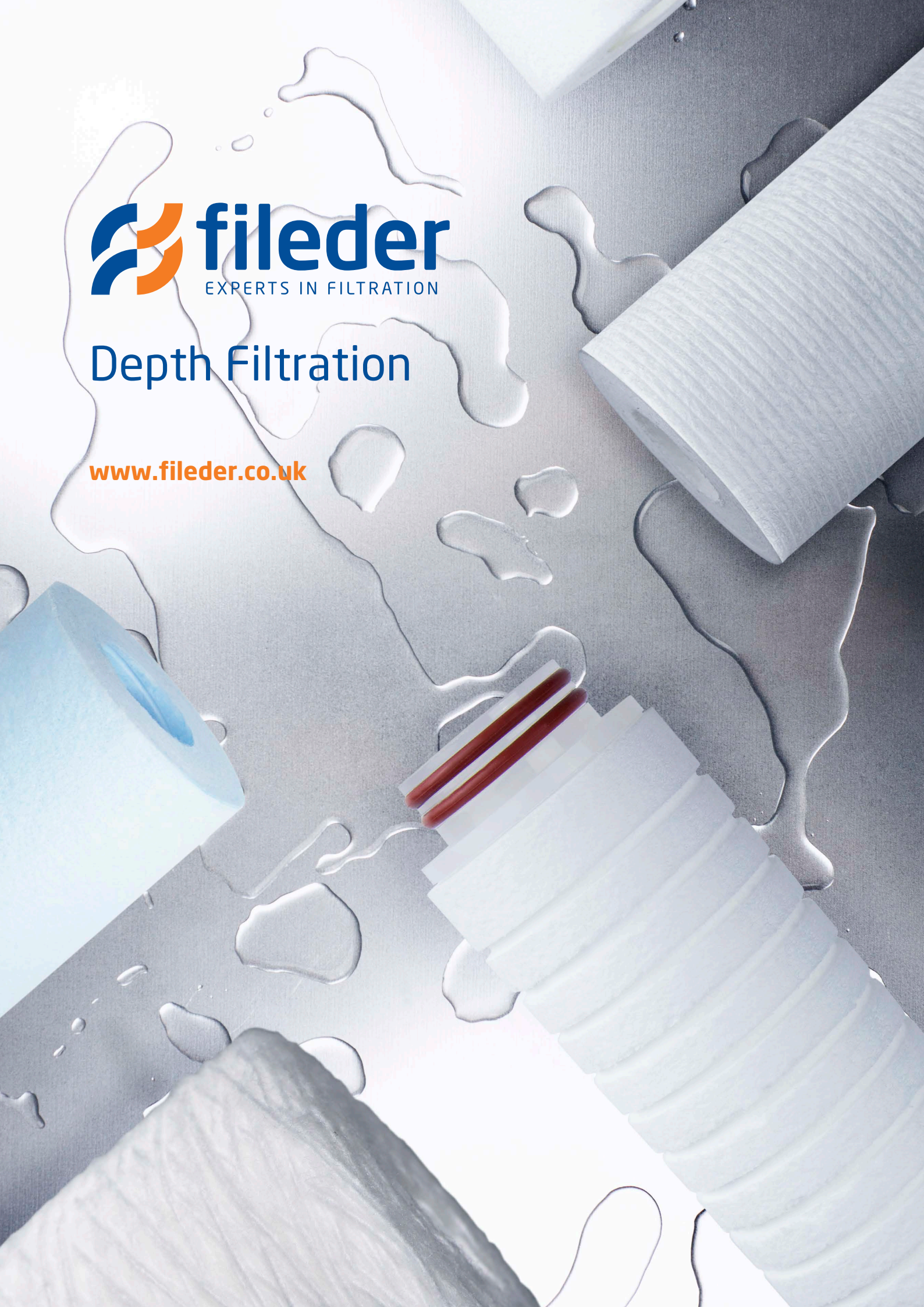




Depth Filtration

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EXPERTS IN FILTRATION

Depth Filtration

Effective at removing a broad range of particulate, depth cartridges are typically used to provide economic, consistent and efficient batch, pre and final filtration.



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Acknowledgments:

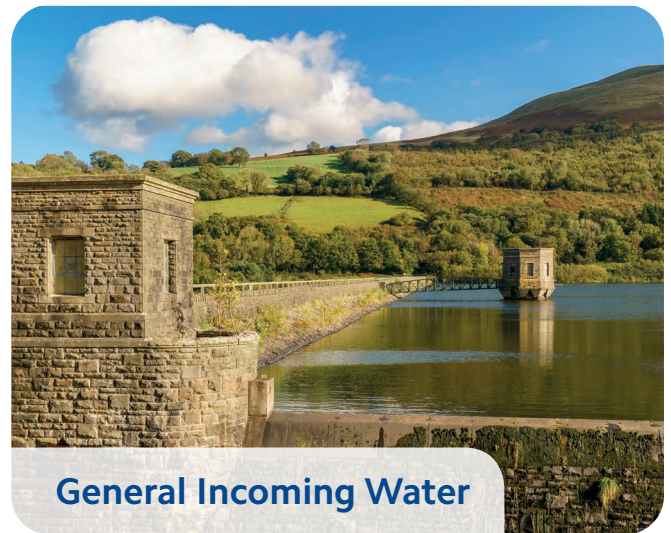
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Typical Applications

The most popular choice for general incoming water, depth cartridges provide excellent dirt-holding capacity and a greater level of filtration accuracy over alternative technologies, such as bag filters. Depth has traditionally been a simple, low cost solution for wide range particle reduction, more recently complex technologies have enabled more targeted removal within specific applications.

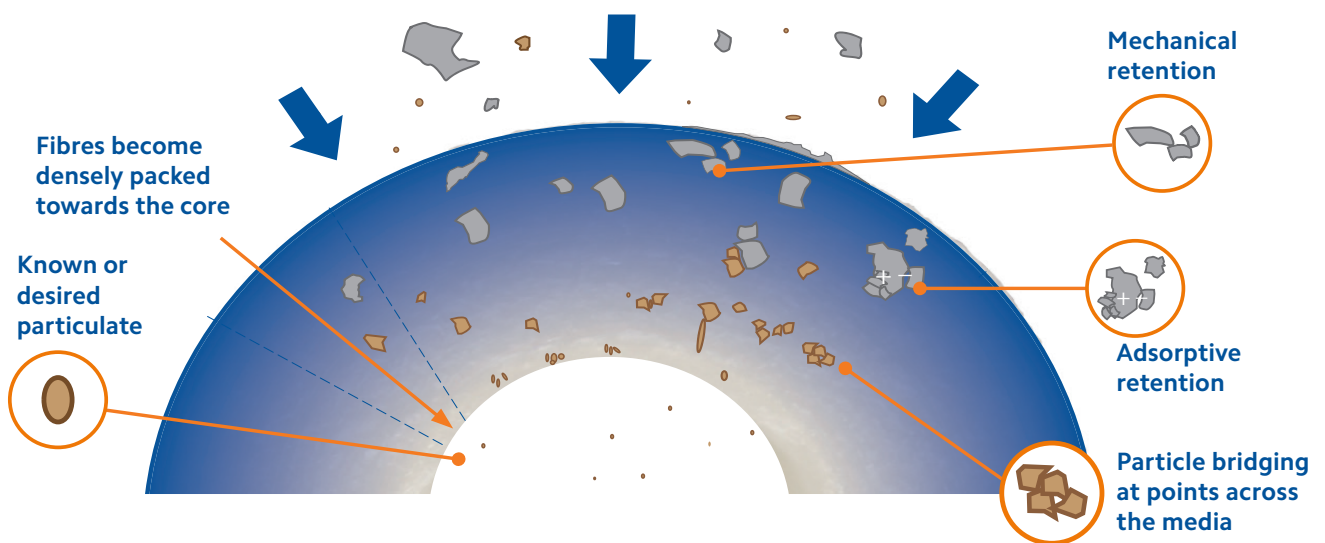
Although used extensively for general particulate removal, many cartridges have also been developed using modified materials and advanced techniques for improved temperature resistance, chemical compatibility, precise filtration for exact classification as well as bespoke solutions for challenging applications.



What is Depth Filtration?

Successfully used in a variety of applications, depth filtration utilises a thick layer of media to effectively trap and retain various particulate. Commonly specified as the first stage of a filtration cascade, more advanced manufacturing techniques have now developed depth cartridges suited to improving downstream filtration.

Cross-Section of a Depth Cartridge



How do Depth Filters Work?

As liquid from the inlet is sent twisting and turning on a tortuous path through the filter cartridge, particles become caught in the densely packed fibres of a depth filter - this sieving or interception is known as mechanical retention. With the introduction of graded-depth filtration, a broad range of particulate can be captured across the entirety of the depth media.

From outside to in, the media fibres become densely packed with larger particulate captured first, allowing smaller particles to be progressively intercepted. As well as the physical interception, fibres also naturally attract particles via Van de Waals force. This adhesion process is known as adsorptive retention.

Typical Applications

Depth filtration offers a myriad of solutions to suit many applications:

- Incoming water
- Pre-RO
- General pre-filtration
- Particulate removal
- High temperatures
- Aggressive solvents
- Food grade compatibility
- High viscosity liquids
- Adhesives
- Paints and inks

Technology Developments

For over 50 years, string wound cartridges have been used as a basic form of filtration. Development in manufacturing processes and technologies have resulted in more advanced cartridges with improved performance characteristics and capabilities.



1 Million+
Supply Capabilities

Each year Filerder supplies the equivalent of more than 1 million 10" depth cartridges



Spun Bonded Fibres

Advanced range of solutions for efficient prefiltration or particulate classification

- The most popular option for sediment reduction
- More precise filtration over wound technology
- Particulate is retained throughout the depth of the filter media
- Increased void volume (available space for particulate to be retained) maximises dirt holding capacity
- Suitable for applications from batch process to drinking water

Wound String Fibres

Ideal for high temperature and chemical compatibility applications

- Tried and tested technology
- Cost effective particulate filtration
- Multiple options of filter media and core material
- Suitable for high temperature and aggressive chemicals
- Wide micron rating options from 0.5 to 150 micron

Specialist Materials

Ideal for high viscosity and high temperature applications

- Specially designed for more challenging applications
- Technologies applied to overcome high viscosity processes
- Products for superior performance in paint and ink applications
- Cartridges infused with antibacterial additives





Meets the stringent requirements of NSF 53.*



Approved by DWI for use within the municipal drinking water sector*

* DWI specified cartridges only

Z.Plex Absolute Polypropylene

0.5-30 micron

Absolute rated, the ABS.ZA spun-bonded cartridge, offers exceptional efficiency and effective classification, where unwanted particles are retained by the media while desired particles are able to pass through. The patented filter matrix utilising finer fibres optimises

void volume whilst maintaining structural integrity, dramatically increasing the dirt holding capacity when compared with first generation spun cartridges. Every cartridge is supplied with O-rings or gaskets to ensure a secure seal is achieved for finer levels of filtration.

Key Features

- Engineered for absolute filtration
- 3D matrix construction ensures high dirt holding and temperature tolerance
- High purity materials ensure low rinse time

Typical Applications

- Ultrapure water (18 megohm)
- Food and Beverage
- Chemical production
- SDI reduction pre-RO
- Municipal Drinking Water

Specification

Efficiency
99.9%

Max. Operating Temperature
82°C

Max. Operating Pressure Differential
4.1 bar at 30°C

Materials of Construction

Filter Media
Polypropylene

Core
Polypropylene

End-cap
Polypropylene

Seal
Silicone (as standard)
EPDM (DWI cartridge)

Compliance

FDA Compliant Materials
DWI Regulation 31 Approved*
NSF 53 Compliant*
NSF/ANSI 61 Certified
Regulation (EC) 1935/2004
Regulation (EU) No10/2011

Configurations

Micron (µm)

95=0.5	01=1	03=3	05=5
10	20	30	

Length (")

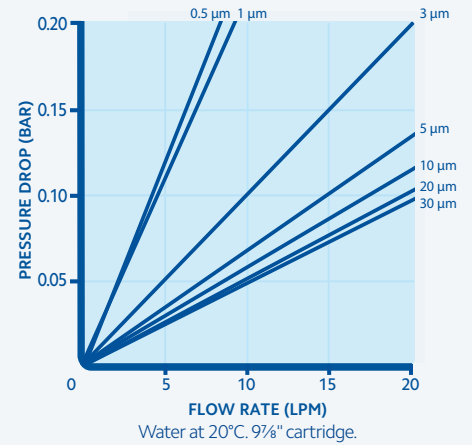
9 $\frac{7}{8}$	20	30	40
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End-cap (refer to page 9)

AA	EH	ES	FH	FS	MH	XK
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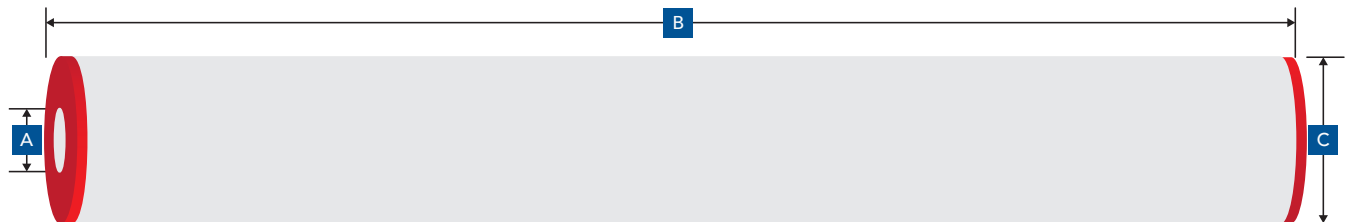
Seal

S=Silicone	E=EPDM	V=Viton®
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* on DWI specified cartridges

Dimensions & Packaging



Length (")	Dimensions (mm)							
	A	B						C
		AA	EH/MH	ES	FH	FS	XK	
9 $\frac{7}{8}$	25	251	318	279	323	284	311	64
20	25	508	575	536	580	541	568	64
30	25	762	829	790	834	795	822	64
40	25	1016	1083	1044	1088	1049	1076	64

Packaging	
Box Qty	Box Weight (kg)
6	3
6	6
6	9
6	12

Part Number

Code	Micron Code	Length	End-cap	Seal	Approval
ABS.ZA	95, 01, 03, 05, 10, 20, 30	9 $\frac{7}{8}$, 20, 30, 40	AA, EH, ES, FH, FS, MH, XK	S, E, V	-
	1, 5	30, 40	MH, EH	E	DWI

e.g. ABS.ZA95-30ESS

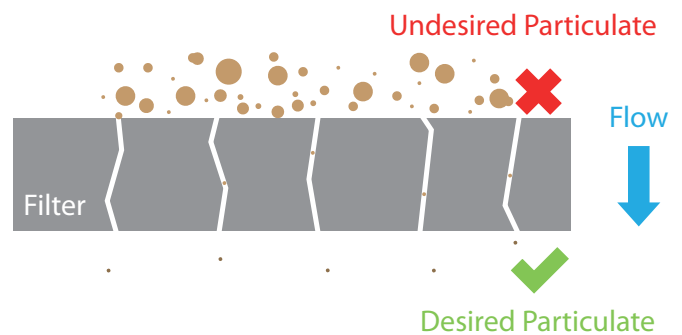
(V) Viton® is a registered trademark of The Chemours Company FC, LLC

Industry Terms Explained

The filtration industry and its associated technical terms can sometimes be misleading or confusing, with different manufacturers using various testing parameters and terminology to promote certain elements of their products performance. Filerder have compiled a list of technical jargon typically used within the industry to help explain filter performance, benefits and key features.

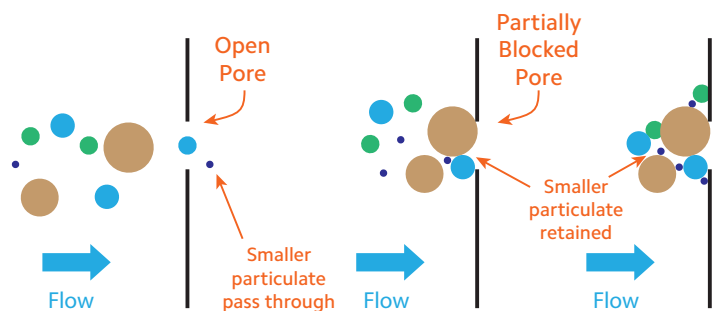
Classification

This process, sometimes referred to as 'sharp-cut off', removes the targeted contaminants whilst retaining smaller desirable or acceptable particles such as colour, flavour and odour, which are critical to the final product.



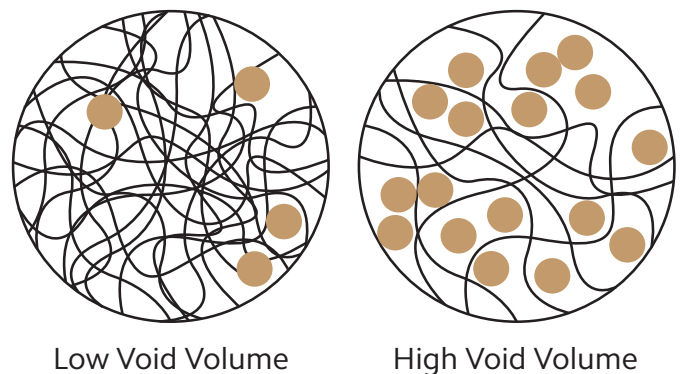
Micron Rating Creep

As a filter cartridge is used, the pores within the filter matrix become partially or completely blocked by the retained particulate. This means that particulate smaller than the micron rating of the cartridge can sometimes be filtered from the incoming fluid. Specialised cartridges, such as the CP2, are designed with an advanced fibre matrix to reduce the effects of micron rating creep.



Void Volume & Void Volume

Maximising the available internal space for retained particulate, whilst maintaining cartridge strength and efficiency, is the key to producing an effective filter cartridge. Modern manufacturing techniques use extremely fine fibres resulting in lightweight construction to optimise the void volume of the cartridge, increasing its dirt holding capacity and therefore effectively increasing its service life.



Beta Ratio Explained

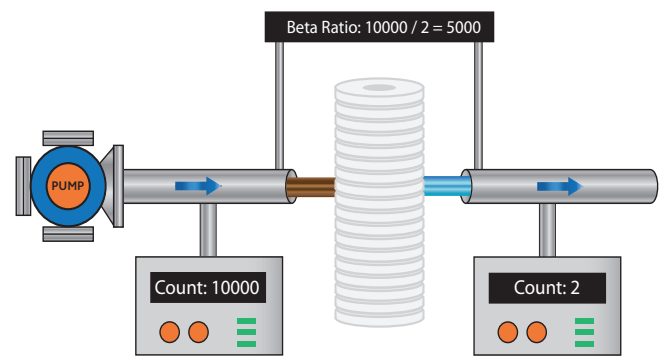
The table below shows the relationship between beta ratio and filter efficiency:

Upstream Contaminant Concentration (mg/l)	Downstream Contaminant Concentration (mg/l)	Beta Ratio	Filter Removal Efficiency (%)
10000	1000	10	90
	500	20	95
	100	100	99
	10	1000	99.9
	2	5000	99.98

e.g. upstream ÷ downstream = beta ratio
 $10000 \div 10 = 1000$

Beta Ratio

Bringing a standardised method to determine filter efficiency, beta ratio testing, typically used for high efficiency cartridges, measures controlled contaminant such as AC fine test dust at a specific micron size both upstream and downstream of a filter element. The beta ratio is calculated by dividing the number of particulate recorded on the upstream side of the filter by the number of particulate recorded downstream. The higher the beta ratio, the more efficient the cartridge at that micron rating.



Nominal Efficiency Rating

Nominal rating describes the ability of a filter to remove particulate at the stated micron size and above e.g. 80% at 10 micron. For improved classification and particle reduction **high efficiency** cartridges remove at least 95% of contaminate. There is no standardised method to determine the nominal rating of a filter, therefore some manufacturers will not state their products efficiency or will use larger particulate to increase the value. **To make product comparison and selection as simple as possible, Filerder list the particle removal efficiency of each filter at its given micron rating.**

















Absolute Efficiency Rating

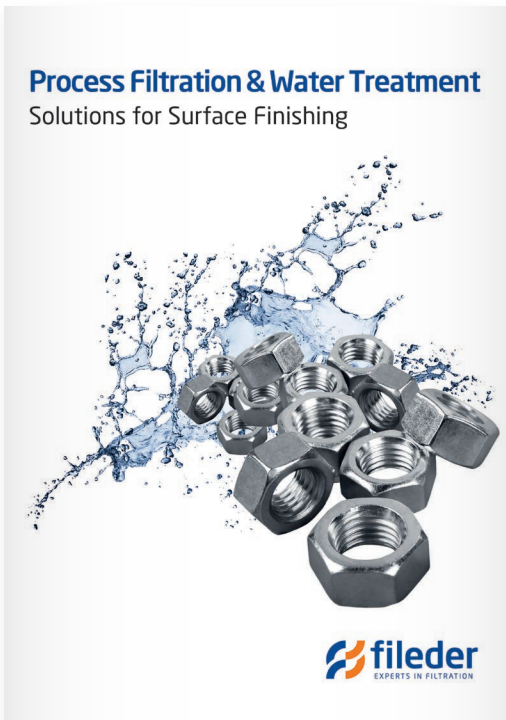
The absolute rating of a filter describes the diameter of the largest particle that would pass through the filter under laboratory conditions. In the filtration industry it is typically used to describe a filter with an efficiency of 99.9% or above at a specific micron size, e.g. 99.9% at 1 micron. Absolute rated filters are recommended for use in more critical applications and processes where known filtrate quality is essential.

Product Brochures



	Pleated Filtration
	Depth Filtration
	Stainless Steel Cartridges
	High Flow Filtration
	Water Treatment - Carbon & Media Cartridges
	Filter Housings
	Bag Filtration
	Pure Water Membranes
	Pressure Vessels & Media
	Water Softening & Conditioning
	UV Systems
	Food Service
	Filtration & Water Treatment Rental
	Installation & Servicing

Application Brochures



	Solutions for Surface Finishing
	Solutions for Hospitals
	Solutions for Beverage Production
	Solutions for the Coatings Industry
	Solutions for Bacteria and Parasites
	Solutions for Cosmetics and Toiletries
	Filtration for Municipal Water with DWI
	Solutions for Cryptosporidium Protection
	Solutions for Chemical Production

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