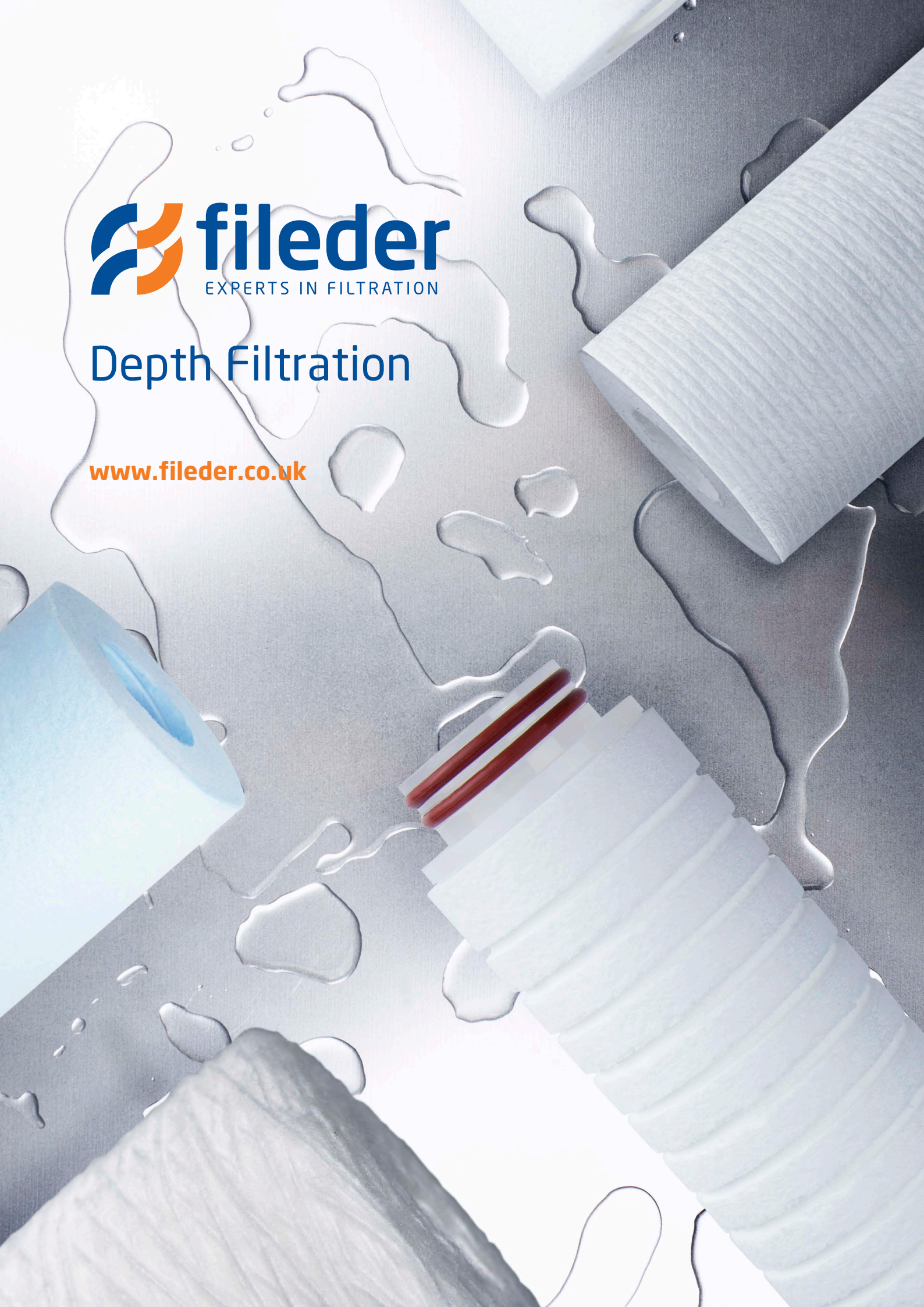


Depth Filtration

www.fileder.co.uk


VEOLIA
PENTAIR
SPECTRUM
SRO-1812-150

fileder

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.

SPECTRUM® PENTAIR VEOLIA JNC Filter AXEON

Contents

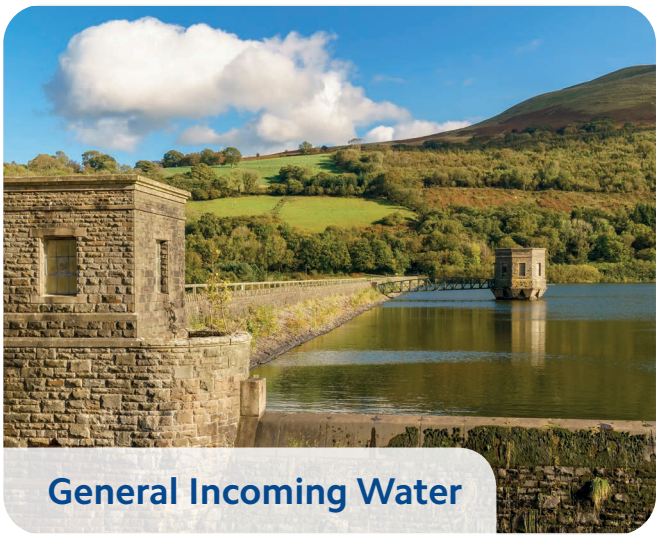
Acknowledgments:
Viton® is a registered trademark of The Chemours Company FC, LLC
Micro-Klean™ is a registered trademark of 3M
ProBond™ (Fulflo®) is a registered trademark of Parker Hannifin Corporation, Parker Intangibles, LLC

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.

Adhesives



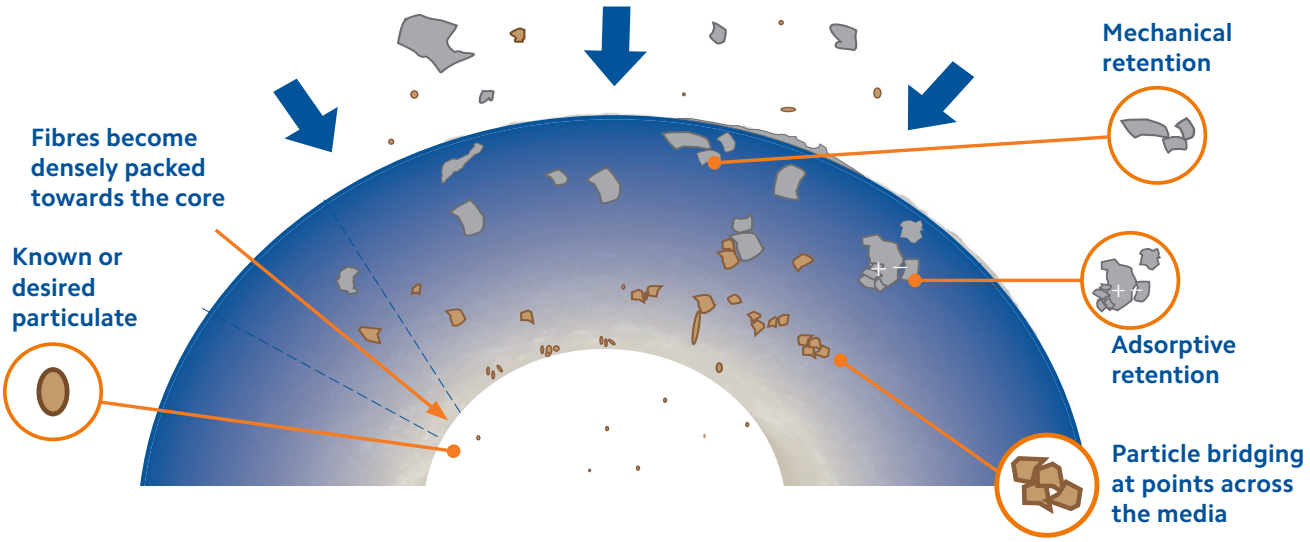
General Incoming Water

Paints and Inks

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 Fileder 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

SPECTRUM

WRAS APPROVED MATERIAL

TruDepth Premier Spun Polypropylene

1-50 micron

With higher efficiency and a longer service life than both the Economic and Standard spun, the PSP is the most versatile and adept cartridge in the TruDepth range. The deep grooved construction significantly increases the surface area, maximising the dirt holding capacity of the cartridge whilst the integral support core increases pressure and temperature operating conditions. Available with a range of end-caps for added seal security and operator ease for fitting in multi-round housings.

Key Features

- Deep-grooved finish for highest surface area and lowest pressure drop
- End-cap options for secure sealing
- A 4mm thick polypropylene core increases strength and temperature performance

Typical Applications

- Food and Beverage
- Chemical manufacture
- Incoming water

Specification

Efficiency
85%

Max. Operating Temperature
71°C

Max. Operating Pressure Differential
2.5 bar at 21°C

Materials of Construction

Filter Media
Polypropylene

Core
Polypropylene

End-cap (Optional)
Polypropylene

Seal
Silicone (as standard, when end-caps specified)

Compliance

WRAS Approved Materials
FDA Compliant Materials
BS6920 Approved Materials
Regulation (EC) 1935/2004
Regulation (EU) No10/2011

Configurations

Micron (µm)

1	5	10	20	50

Length (")

9¾	9⅞	20	30	40

End-cap (refer to page 9)

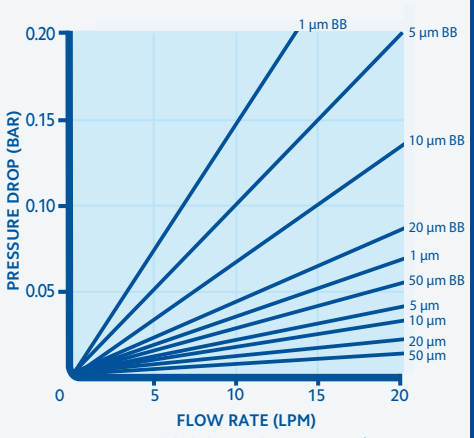
EH	ES	FH	MH	MS	XK

Seal

S = Silicone	E = EPDM	V = Viton®

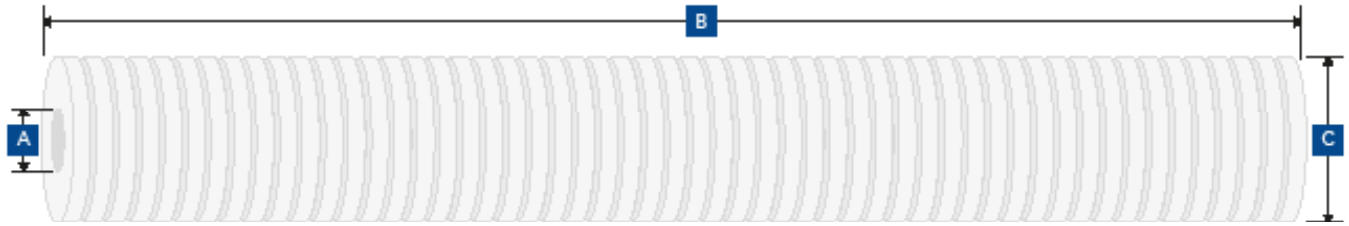
Diameter

Standard	Large = BB



Water at 20°C. 9⅞" or 9¾" BB cartridge.

Dimensions & Packaging



	Dimensions (mm)						
	A	B					C
Length (")		Blank	EH/MH	ES/ MS	FH	XK	
9⅞	28	250	317	278	322	310	63
20	28	508	575	536	580	568	63
30	28	762	829	790	834	822	63
40	28	1016	1083	1044	1088	1076	63
9¾BB	30	248	-	-	-	-	115
20BB	30	508	-	-	-	-	115

Packaging	
Box Qty	Box Weight (kg)
15	4
15	8
15	12
15	16
4	2
4	4

Part Number

Code		Micron		Length	End-cap	Seal
PSP	–	1, 5, 10, 20, 50	–	9⅞, 20, 30, 40	Blank	Blank
					EH, ES, FH, MH, MS, XK	S, E, V
				9¾BB, 20BB	Blank	Blank

e.g. PSP-5-40EHS

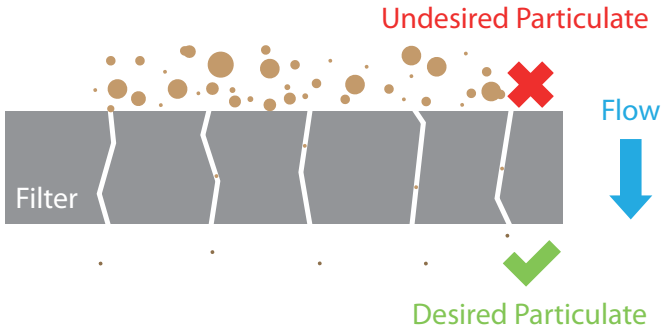
(V) Viton® is a registered trademark of The Chemours Company FC, LLC

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. Fileder have compiled a list of technical jargon typically used within the industry to help explain filter performance, benefits and key features.

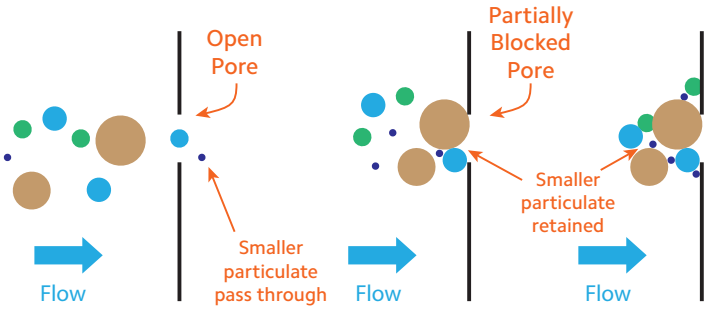
Classification

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.



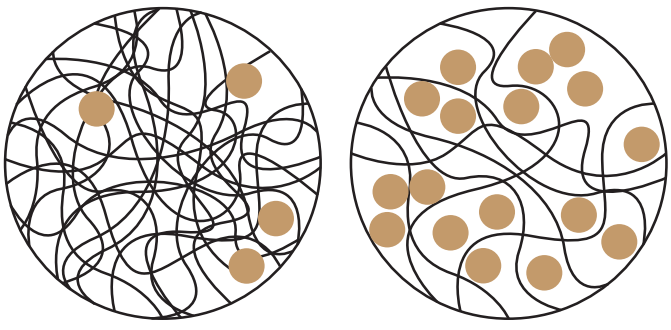
Micron Rating Creep

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.



Low Void Volume

High Void Volume

Beta Ratio Explained

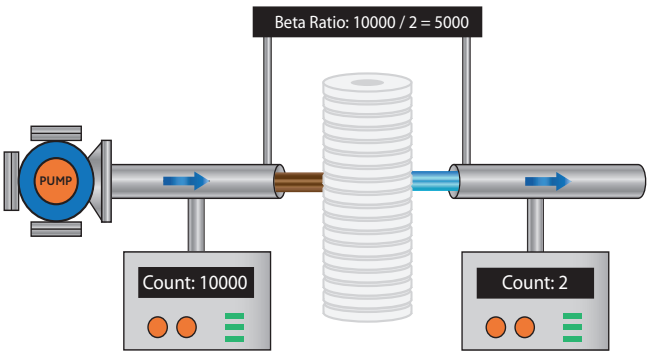
The table below shows the relationship between beta ratio and filter efficiency:

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 ÷ 10 = 1000

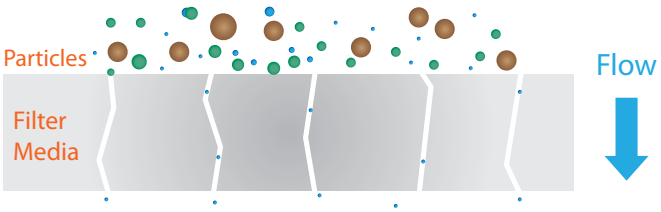
Beta Ratio

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.

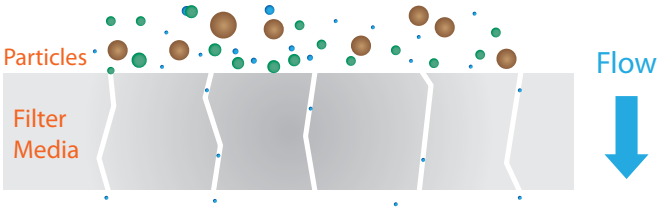


Nominal Efficiency Rating

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, Fileder list the particle removal efficiency of each filter at its given micron rating.**



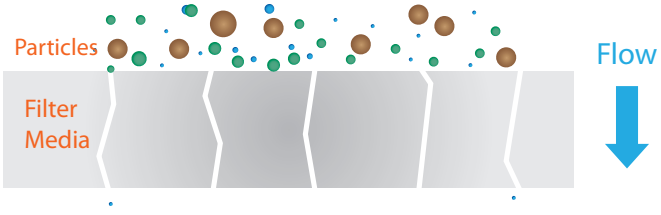
Nominal Efficiency Filtration
60-95% Removal



High Efficiency Filtration
95-99.8% Removal

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.



Absolute Efficiency Filtration
≥99.9% Removal

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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