Hall Pyke

Depth Pre Filtration

Lenticular Filter Series

The SMART choice for filtration

Activated Carbon
CSD-C Lenticular Filter Series

CSD-C® Lenticular Filter Series adds activated carbon to the wood fiber. It is suitable for industries that need activated carbon adsorption. It reduces leakage of activated carbon,and has obvious advantages compared with traditional activated carbon filtration.

Filtration Applications

Pharmaceuticals	Food & Beverage	Chemical
Antibodies/Glucose/Vitamins	Organic Matter in Beverage	Organic Impurities –
LVP/SVP	and Fruit Juice Decolorization	Catalyst Decolorization
Blood Products		

Operating Conditions

Maximum Temperature	80 °C
Max. Differential Pressure	2.4 bar
Recommended Flow Rate	3-6 L/min/m²
Steaming Sterilize	30min @121°C

Biological Safety

Endotoxins < 0.25 EU/ml

CSD-C Series Sheet Activated Carbon Advantages

	Powder Activated Carbon	CSD-C Series (Sheet Activated Carbon)
Security	Powdered, flammable, can cause lung disease	Almost no carbon powder pollution; Reduces the risk of fire
Cleanliness	Residual; can pollute different batches	Clean and sanitary; Little carbon powder residue
Filtering time	Long time	Short time
Process step	Downstream flow needed to remove carbon powder	No need to remove carbon powder

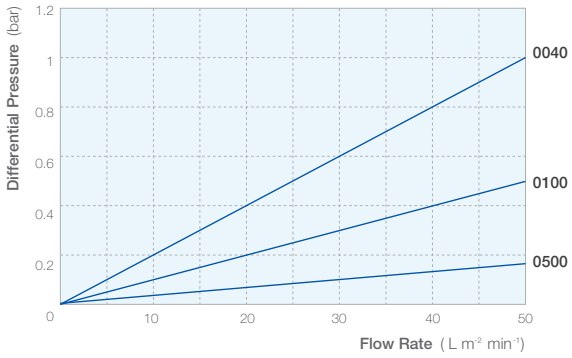
Ordering Information

	Removal Ratings	Diameter	End Cap	Number of Lenses	Seal Material	Application
CSD-C	**0500** =5.0-12.0μm	**12** =12"	**DOE** =Double open end	**S** =7 Lenses	**S** =Silicone	**F** =Food & Beverage
		16 =16"	**TC** =222 O-ring/flat cap	**N** =9 Lenses	**E** =EPDM	**P** =Pharmaceutical
				X =10 Lenses	**V** =Viton	**C** =Chemicals
				Q =11 Lenses	**F** =PTFE	
				T =12 Lenses		
				H =13 Lenses		
				F =15 Lenses		
				D =16 Lenses		

Filtration Applications

Food & Beverage	Beer, Bottled Water, Juices, Spirits, Wine, Brine Solution, Edible Oils, and High-Fructose Corn Syrup
Process Fluids	Clear Coatings, Inks, Paints, Resins, Cosmetics, and Perfume
Biopharmaceutical	API, Blood Products, Cell Separation, LVP/SVP, Serums, Vaccines
Chemicals	Catalyst, Chromatographic Column Protection, Lubricating Oils, Resins, Silicon Oils, Surface Active Agents
Electronics	Colloids, Cooling Water, RO Pre-Filtration, Photoresists, Ultrapure Water, Wastewater

Flow Rate Characteristics



Operating Conditions

Maximum Temperature	80°C
Max. Differential Pressure	2.4bar
Pure Water before Use	Volume: 50L/m²
	Flow Rate:20L/min/m²
Steaming Sterilize	30min@121°C

Filtration Area

Number of Lenses	12" Diameter	16" Diameter
7	0.8 m²	
9	1.0 m²	2.1m²
12	1.3 m²	2.8m²
14	1.5 m²	3.2 m²
15	1.6 m²	3.5 m²
16	1.7 m²	3.7m²

Chemical Compatibility

Chemical	Chemical Concentration	@20°C	@80°C
NaOH	2%	R	NR
HCl	5%	R	NR
HNO_3	5 %	R	NR
H_2SO_4	10%	R	NR
Acetic acid	Condensed	R	R
Citric acid	10%	R	R
Ethaneperoxoic acid	0.1%	R	R
Butylalcohol	80%	R	R
Ethanol	80%	R	R

R=Recommended, NR=Not Recommended

Extractable Evaluation

Ion	ppm	Ion	ppm
Na	<0.15	Al	-
K	<0.15	Pb	-
Ca	<0.35	Zn	<0.001
Mg	<0.25	Cd	<0.0005
Fe	<0.0005	Cu	-

Ordering Information

	Removal Ratings	End Cap	Diameter	Number of Lenses	Seal Material	Application
CSD	**0004** =0.04-0.2μm (Sterile Filtration) **0020** =0.2-0.4μm **0040** =0.4-0.6μm **0060** =0.6-0.8μm (Fine Filtration) **0100** =0.8-1.5μm **0150** =1.5-3.0μm **0300** =3.0-6.0μm (Clarification) **0500** =5.0-12.0μm **0600** =6.0-15.0μm **0700** =7.0-18.0μm	**DOE**=Double open end **TC**=222 O-ring/flat cap	**12**=12" **16**=16"	**S** =7 Lenses **N** =9 Lenses **X** =10 Lenses **Q** =11 Lenses **T** =12 Lenses **F** =15 Lenses **D** =16 Lenses	**S**=Silicone **E**=EPDM **V**=Viton **F**=PTFE	**F**=Food & Beverage **P**=Pharmaceutical **C**=Chemicals

CSD Lenticular Filter Series use a composite material composed of high purity lignocellulose and inorganic filter aid agent. Its inner crisscrossing three-dimensional structure allows it to be a depth filter while providing excellent filtration efficiency, high dirt holding capacity and longer lifetime.

It combines an assortment of filter disks into one filter unit for easy installation. The edges of each filter disc are sealed through an injection molding process which ensures the integrity of the entire filter. This structure provides excellent stability against filter damage from long-term use.

All raw materials are tested by strict quality control procedures to ensure the filter quality and performance capabilities.

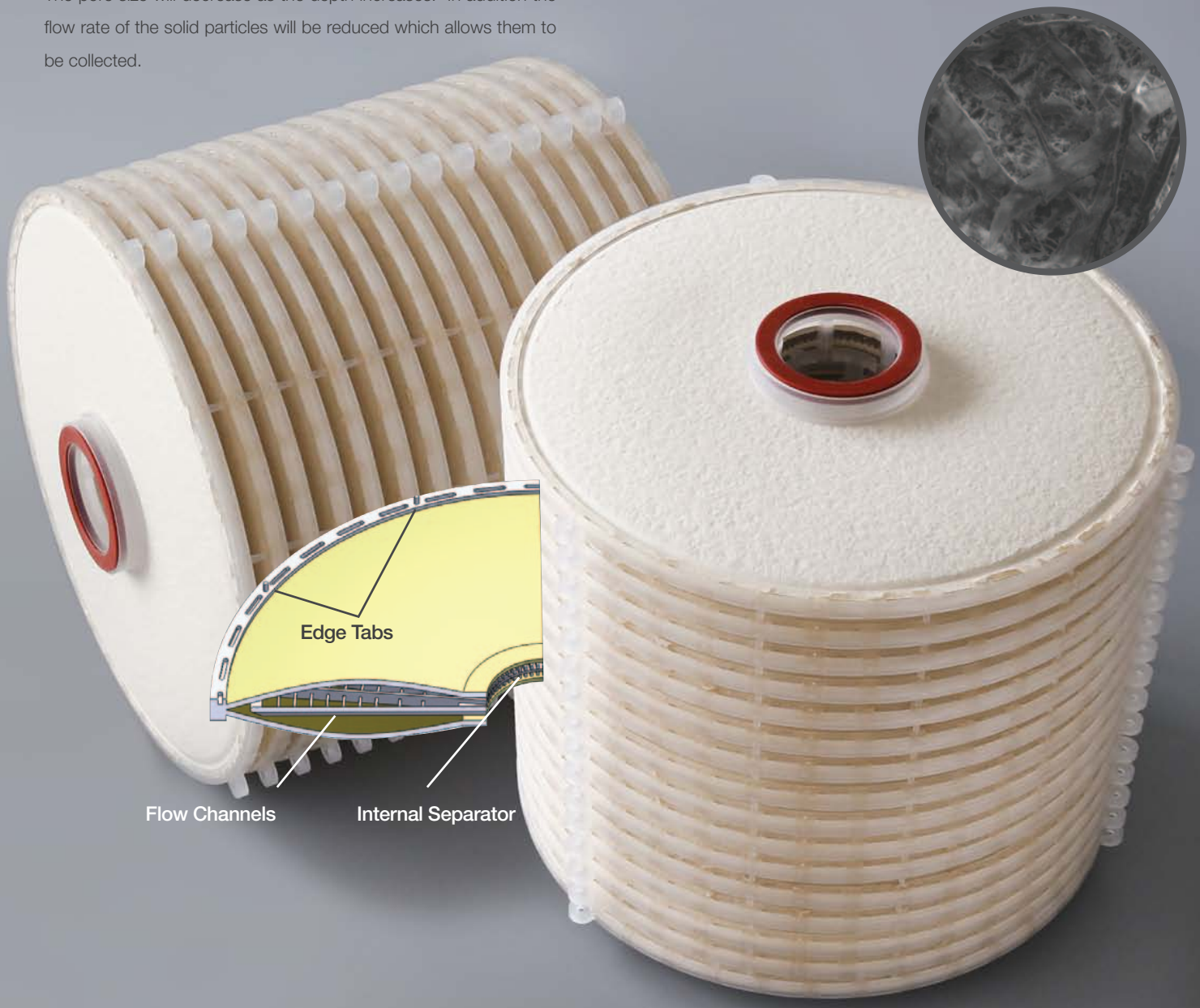
Excellent Retention Efficiency

The pore size will decrease as the depth increases. In addition the flow rate of the solid particles will be reduced which allows them to be collected.

As an inorganic filter aid, the naturally porous structure of the diatomite results in good adsorption and an increase in permeability.
There is a small amount of synthetic resin in the filter paper which improves the wet strength of the paper, and provides a positive charge which adsorbs the negative charges, endotoxin, and other substances.

Filter Use Characteristics

Using a high purity cellulose, reduces the level of ion precipitation and endotoxin making the CSD Series suitable for biopharmaceutical and other high purity applications. The filter designs solve many of the problems found in typical disk-style filters such as leakage, heavy use, and high costs. The filter aid agent in the filter paper creates an inner crisscrossing three-dimensional structure which results in a high dirt holding capacity and longer lifetime.



H-CSD Lenticular Filter Housing

An Innovative Substitute to Plate and Frame Filters

H-CSD Lenticular Housing Series specially designed for use with CSD lenticular filter modules.

Designed according to sanitary requirements,the well-polished housing leaves no residual liquids and has an easy throughput for cleaning.

The bottom in/bottom out flow pattern eliminates turbulent flow; thus, enhancing filtration efficiency.

Maximum height stack of 4 meets high flow rates requirements.

Design Features

- Bottom in/bottom out structure allows for easy cleaning; Drain port is available on the inlet line, which is convenient for drainage.
- Excellent sealing.
- Top and middle opening options; easy module change out reduce liquid spoilage.
- Satisfies EC Pressure Equipment Directive: PED 97/23/CE.

Surface Finish

Polish Type	Mechanical Polish; Electro-Polish
Finish	Internal Ra: 0.3μm; External Ra: 0.4μm

Operating Conditions

Design Pressure	0.6Mpa (6bar)
Max Temp.	130 °C (266°F)
Sterilization	Inline / Autoclave @ 121°C

Material of Construction

Housing Body	304，316L
Vent / Drain	304，316L
Swing Bolt	304
Feet Support	304
Sealing	Silicon, Viton, EPDM, PFA

Connection

Housing Connection	Swing Bolt
Inlet / Outlet	Tri-clamp
Vent	1.2”NPT
Drain	Tri-clamp 0.5 S
Pressure Gauge	1.5S Tri-clamp

Ordering Information

	Number of Filters	Filter Specification	Material	End Cap	Housing Connection	Inlet / Outlet	Sealing Material	Design Pressure	Surface Finish
H-CSD	1	12-1	F	D	D	T38	S	X	A
	01 1 Round	**12-1** 12" 16Lenses **12-2** 12" 32Lenses **12-3** 12" 48Lenses **12-4** 12" 64Lenses **16-1** 16" 16Lenses **16-2** 16" 32Lenses **16-3** 16" 48Lenses **16-4** 16" 64Lenses	**F** 304 **S** 316L	**D** DOE **TC** 222 O-ring	**D** Swing Bolt	**T38** Tri-clamp DN 38	**S** Silicone **E** EPDM **V** Viton **P** PFA/Viton	**X** 0.6MPa	**A** Mirror Polish **B** Internal Electro-polished

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