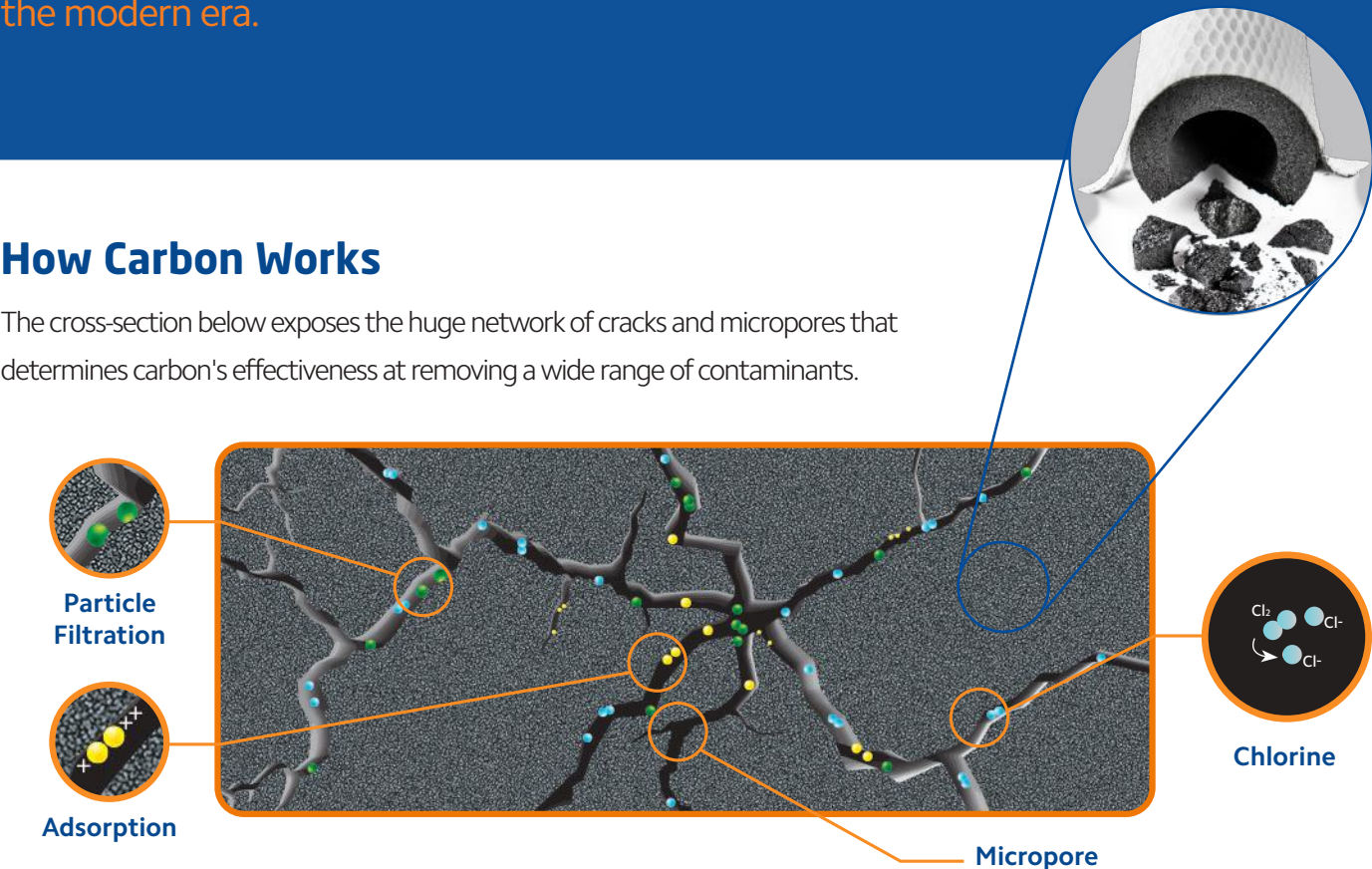


Carbon Technology

Utilised for several hundred years, carbon is considered one of the oldest means of water purification. Although impossible to trace the exact date and time, there is evidence of its usage and importance throughout history, from the ancient world to the modern era.

How Carbon Works

The cross-section below exposes the huge network of cracks and micropores that determines carbon's effectiveness at removing a wide range of contaminants.



Particle Filtration

Sediment and Suspended Solids

Every carbon block cartridge has a given micron rating to indicate the physical size of suspended particulate that can be removed by the cartridge. To prevent premature sediment blockage before the chlorine capacity of the carbon has been exhausted, pre-filtration, such as the SPECTRUM SSP or PSP, is recommended to prolong the life of the cartridge.

Adsorption

Organics and Heavy Metals

Carbon is a naturally adsorptive media, removing dissolved contaminants from a solution. When heated to 870°C, during the activation process, millions of tiny micropores are created throughout the structure of the cartridge, attracting large organic molecules and heavy metals to the surface.

Chemical Reaction

Chlorine and Chloramine

Through chemical interactions with the activated carbon, reactive chlorine molecules are converted to less reactive chloride ions. Chloramine can also be removed through this process although the reaction occurs at a much slower rate. Speciality cartridges such as the SPECTRUM PCB have been specifically designed to effectively target chloramine.

Carbon Flow Rate

The longer water comes into contact with carbon, generally the more effective the treatment process will be, whether removing organics, heavy metals, chlorine or chloramine. Even a small increase over the recommended flow rate can cause dramatic decreases in carbon treatment's effectiveness. Therefore it is imperative to size a carbon treatment system properly, ensuring that the flow rate allows enough contact time to remove the undesired contaminants. The recommended flow rate for each cartridge is shown on the product page (as illustrated, right).

The image shows a product specification card for SPECTRUM SSP or PSP cartridges. It includes a table of SCB Properties and a callout for Flow Rate (LPM).

on (L)	Chlorine Reduction (L) @ 0.2ppm	Pressure Drop (Bar) @	Flow Rate (LPM)
113,750	0.3	3.8	
227,500	0.3	7.6	
356,850	0.4	7.6	
713,700	0.4	15.1	

rine capacity using 2mg/l free available chlorine at 0.5mg/l breakthrough

Flow Rate (LPM)

3.8

7.6

7.6

Carbon's Effectiveness at Removing...

Excellent

Chloramine	Odours
Chlorine	Oil-dissolved
Dyes	PCBs
Glycols	Pesticides
Herbicides	Sodium Hypochlorite
Hydrogen Peroxide	Taste
Insecticides	THMs
Iodine	

Good

Organic Acids
Organic Salts
Potassium
Permanganate
Solvents
Sulphonated Oils
Tannins

Fair

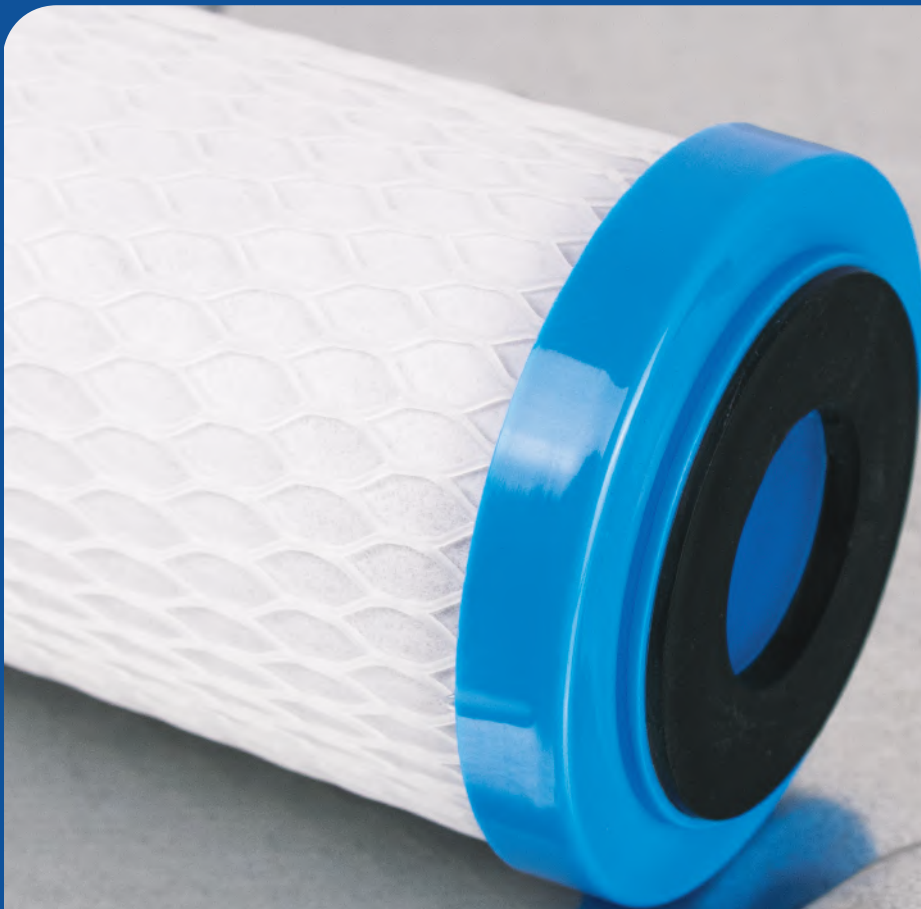
Acetic Acid
Detergents
Heavy Metals
Hydrogen Sulfide
Plating Wastes
Soap

Carbon Cartridge Construction

From raw material, through to activation and end product.



Batch Process Applications



For **Chlorine**
and **Organics**

Chlorine Reduction
Start - End of Life (%)
95-60

Total Chlorine
Capacity (mg)
9,600

Typical Life in UK
Water (L)*
48,000

Performance based on 10" cartridge. *Life in UK water based on free chlorine concentration of 0.2mg/l.

870 Carbon Block - Economic 1-10 micron

Suited to the industrial sector, the lower capacity ECB suits batch process, where a longer service life is not required. The carbon formulation has been upgraded, significantly improving chlorine removal efficiency to 60% from 35%, serving for a more reliable and dependable economic block. Manufactured using acid washed bituminous carbon, a highly microporous structure targets larger organic molecules such as benzene. This ensures the removal of ash and reduces rinse-up fines often found with non-acid washed bituminous carbon. Available in 3 micron sizes, the ECB offers flexibility to suit different applications where sediment could plug the carbon before service life is achieved.



Key Features

- Delivers chlorine reduction efficiency levels of 60%
- Robust, due to high binder content
- The highest micron size available in the range prevents blinding of cartridge



Typical Applications

- Low capacity industrial batch processes
- Small RO applications where cost is of primary consideration

Note: Bituminous carbon is not suitable for drinking water, please refer to the SCB range.



Specification

Max. Operating Temperature
52°C

Carbon Type
Acid washed bituminous

End-cap / Gasket
Polypropylene / EPDM

Max. Operating Pressure Differential
2.5 bar

Netting Material
Polyethylene

Wrap
Polypropylene

ECB Properties				
Length (")	Chlorine Reduction (L) @ 2mg/l *	Chlorine Reduction (L) @ 0.2mg/l **	Pressure Drop (Bar) @	Flow Rate (LPM)
9¾	6,000	48,000	0.4	3.8
20	12,000	96,000	0.4	7.6
9¾LD	27,400	219,200	0.5	7.6
20LD	54,900	439,200	0.5	15.1

*Chlorine capacity using 2mg/l free available chlorine at 0.8mg/l breakthrough

**Calculated chlorine capacity using 0.2mg/l free available chlorine at 0.08mg/l breakthrough



Configurations

Micron (µm)

1	5	10
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Length (")

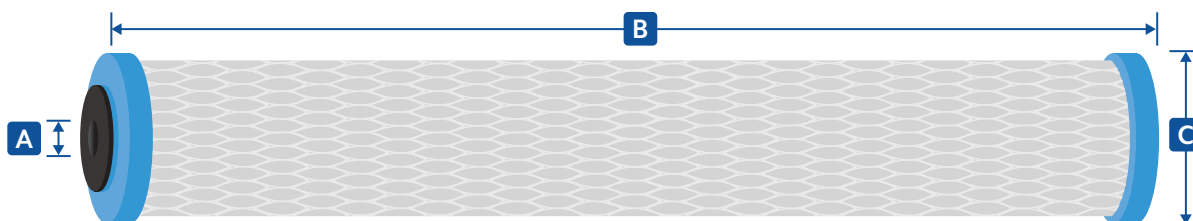
9¾	20
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Diameter

Regular	Large = LD
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Dimensions & Packaging



Length (")	Dimensions (mm)		
	A	B	C
9¾	28	248	66
20	28	508	66
9¾LD	28	248	115
20LD	28	508	115

Part Number

Code	Micron	Length
ECB	1, 5, 10	9¾, 20
		9¾LD, 20LD

e.g. ECB-1-20LD

