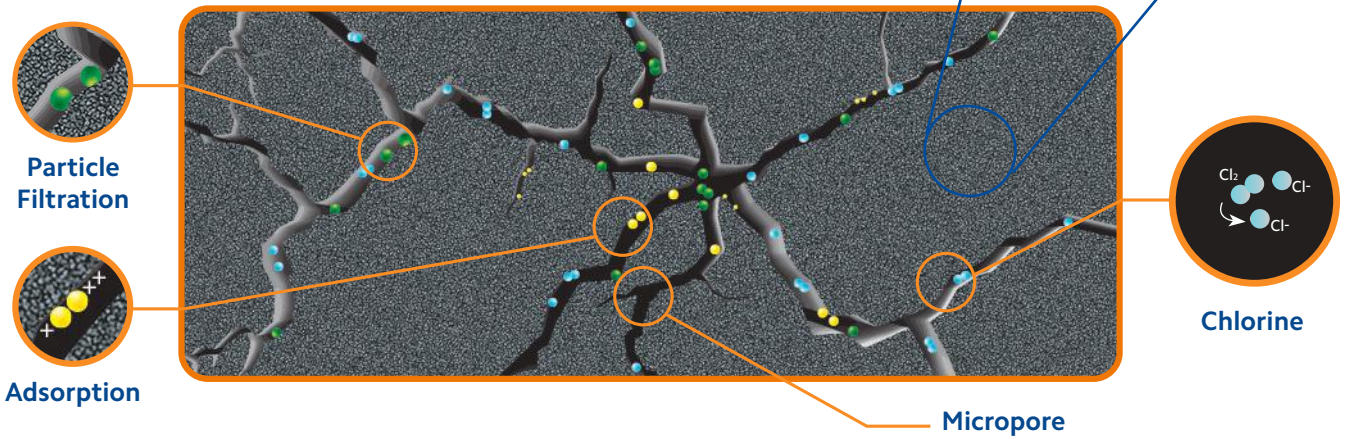


# Carbon Technology

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).

Specifications		Flow Rate (LPM)
Max. Operating Temp. 52°C		3.8
Max. Operating Pressure 2.5 bar		7.6
		7.6

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

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

# 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.



Coal and coconut carbon are the base materials used in cartridge construction. Coconut promotes the highest porosity and is the cleanest form oriented more towards drinking water use. Coal-based carbon, having a higher ash content, is better suited to industrial or batch process usage.



Coal and coconut are individually heated to 870°C in a carbon activation furnace.

Properties, such as mesh size and adsorption capacity, are confirmed with quality testing. Ash content is checked and can be controlled with acid washing to reduce ash and soluble impurities resulting in a cleaner end product that rinses up quickly.

Activated media is combined with binders and compressed through an extrusion machine, or manufactured using specialised techniques i.e. modified or catalytic carbon.

To complete construction, the product is encased in applicable wraps and end-caps.



### Modified Carbon Block

e.g. CFB-Plus

An advanced technology, Fibredyne combines dissolved contaminant removal with excellent sediment reduction. Uses powdered carbon for effective chlorine reduction.



### Powder Carbon Block

e.g. SCB & PCB

Finer carbon mesh size increases surface area, ensuring highly effective removal of small contaminants such as chlorine. Perfect for drinking water applications.



### Granular Carbon Block

e.g. CB & ECB

Traditional carbon technology, more effective at removing large molecules such as odours. Suitable for commercial and industrial applications.

## Narrow Diameter for Multi-Round Housings



For **Multi-Round Housings**



Chlorine Reduction  
Start - End of Life (%)  
**95-75**

Total Chlorine  
Capacity (mg)  
**21,000**

Typical Life in UK  
Water (L)\*  
**105,000**

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

## 870 Carbon Block - SCB-S 5 micron

The narrow diameter SCB-S with its secure 222 double O-ring connection has been designed for multi-round housings and specific use in beverage and drinking water applications where a more positive seal is required. Constructed from the same carbon formulation as the SCB, this microporous coconut carbon targets VOCs and THMs. Acid washed during the production process and low fine content gives excellent rinse-up times as well as regulating pH and taste. Designed to seal securely into the Standard (SFH) and Premier (PFH) Inox multi-round housings, available in 3 to 36 round configurations.

## Key Features

- Simple installation with a 222 double O-ring connection for greater security
- Highly porous, lightweight, clean and tight microporous structure effective at reducing chlorine, taste and odour contaminants
- Pre-washed, reducing carbon fines
- At a minimum 75% chlorine efficiency, the SCB-S is designed for effective chlorine reduction in high flow applications

## Typical Applications

- Drinking water
- VOC and THM reduction

## Specification

**Max. Operating Temperature**  
52°C

**Carbon Type**  
Powder Activated Coconut Carbon

**End-cap / Seal**  
Polypropylene / EPDM

**Max. Operating Pressure Differential**  
2.5 bar

**Netting Material**  
Polyethylene

SCB-S Properties				
Length (")	Chlorine Reduction (L) @ 2mg/l *	Chlorine Reduction (L) @ 0.2mg/l **	Pressure Drop (Bar) @	Flow Rate (LPM)
10	12,000	105,000	0.3	3.8
20	24,000	210,000	0.3	7.6
30	36,000	315,000	0.3	11.4
40	48,000	420,000	0.3	15.1

\*Chlorine capacity using 2mg/l free available chlorine at 0.5mg/l breakthrough  
\*\*Calculated chlorine capacity using 0.2mg/l free available chlorine at 0.05mg/l breakthrough

## Configurations

**Micron (µm)**

5

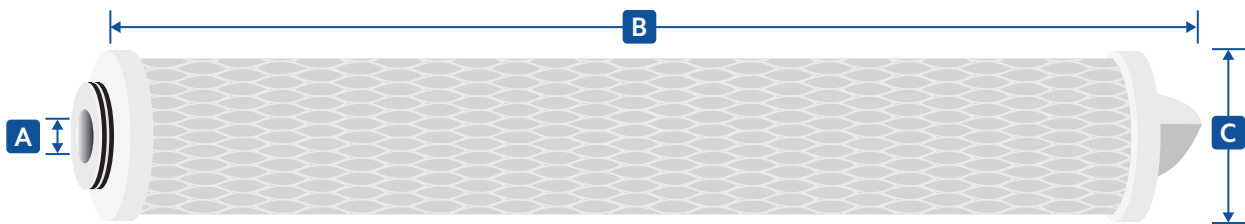
**Length (")**

10 20 30 40

**Diameter**

66 mm

## Dimensions & Packaging



Length (")	Dimensions (mm)		
	A	B	C
10	28	310	66
20	28	560	66
30	28	810	66
40	28	1,060	66

## Part Number

Code	Micron	Length	End-cap Seal
SCB-S	5	10, 20, 30, 40	EHE

e.g. SCB-S-5-EHE