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EXPERTS IN FILTRATION

# Water Treatment

## Carbon and Media Cartridges

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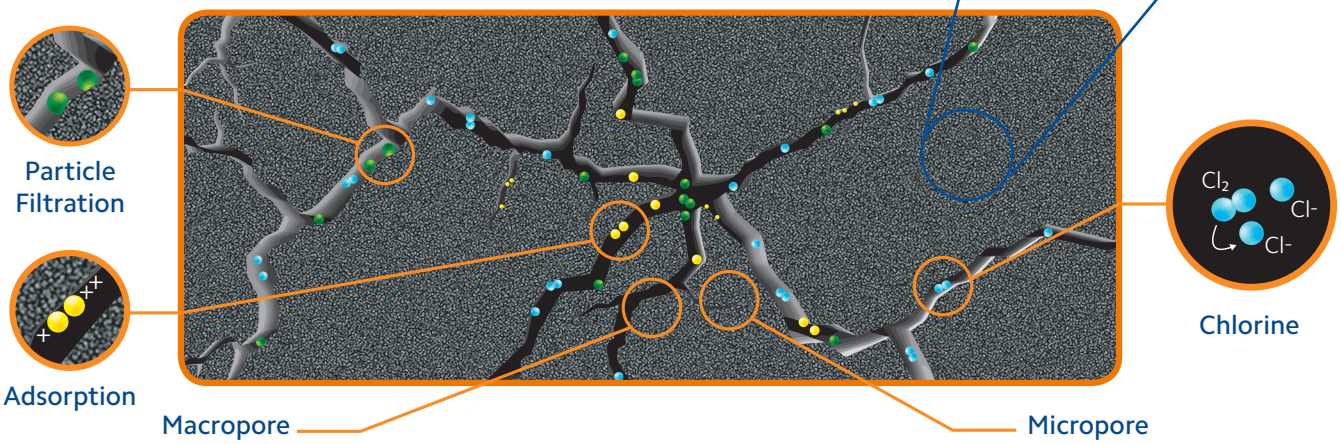
# Carbon Technology

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**

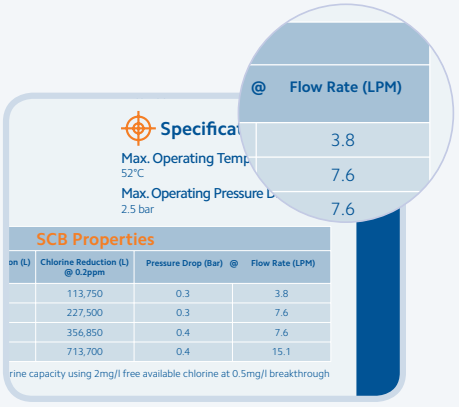
Carbon is a naturally adsorptive media, removing dissolved contaminants from a solution. When heated to 870°C, during the activation process, millions of tiny micropores are created throughout the structure of the cartridge, attracting large organic molecules and heavy metals to the surface.

### 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, chorine or chloramine. Even a small increase over the recommended flowrate can cause dramatic decreases in carbon treatment's effectiveness. Therefore it is imperative to size a carbon treatment system properly, ensuring that the flowrate allows enough contact time to remove the undesired contaminants. The recommended flowrate for each cartridge is shown on the product page (as illustrated, right).



## Carbon's Effectiveness at Removing...

### Excellent

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

### 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.

SPECTRUM


*Average oil removal per 10" cartridge

# OilOut-99

## Specialised for Hydrocarbon Reduction

Suitable for the polishing of trace hydrocarbons, the OilOut-99 is capable of absorbing up to three times its own weight before changeout is required. Designed to remove up to 99% of dispersed hydrocarbons, the SPECTRUM SRIF is suited to applications where the inlet contamination is below 500mg/l, such as surface run off water, CNC machine coolant and bilge separators. The OilOut-99 achieves best results as a polishing phase after primary oil removal technologies or in a double-pass system and is effective at removing a range of contaminants, including mineral oils and BTEX hydrocarbons.

## Key Features

- Immediately absorbs hydrocarbons retaining up to 3x its own weight
- No release of hydrocarbons and extremely low pressure drop when saturated
- Cost effective hydrocarbon removal at high flow rates *
- 25µm rating, used solely for oil reduction

## Typical Applications

- Surface run off water
- CNC coolant
- Bilge water treatment
- Engineering waste water

## Configurations

### Micron (µm)

| 25 |
|---|

### Length (")

| 9¾ | 20 | 30 | 40 |
|---|---|---|---|

### Diameter

| Standard | Large = BB |
|---|---|

* With a complex range of oils and hydrocarbons, including emulsified and dissolved, it is always recommended that a small scale trial is conducted to validate cartridge performance.

## Materials of Construction

**Carbon Type**
Resin Impregnated Felt

**Netting**
Polyethylene

**Core**
Polypropylene

**Wrap**
Polypropylene

**End-caps**
Polypropylene

**Gasket**
Buna-N

## Specification

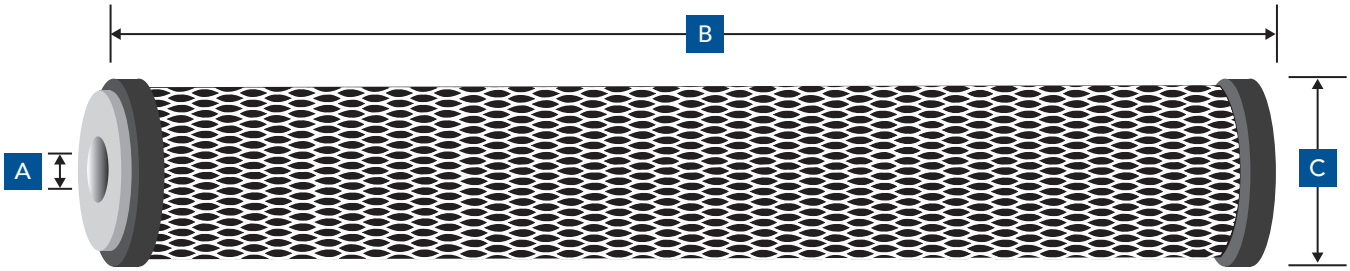
**Max. Operating Temperature**
70°C

**Max. Operating Pressure Differential**
1.4 bar

### OilOut-99 Properties

| Length (") | Average Oil Removal (g) | Pressure Drop (Bar) @ | Flow Rate (LPM) |
|---|---|---|---|
| **9¾** | 375 | 0.11 | 20 |
| **20** | 750 | 0.11 | 40 |
| **30** | 1,125 | 0.11 | 60 |
| **40** | 1,500 | 0.11 | 80 |
| **9¾BB** | 1,500 | 0.08 | 20 |
| **20BB** | 3,000 | 0.08 | 40 |

## Dimensions & Packaging




| | Dimensions (mm) | | |
|---|---|---|---|
| Length (") | A | B | C |
| **9¾** | 26 | 248 | 70 |
| **20** | 26 | 508 | 70 |
| **30** | 26 | 762 | 70 |
| **40** | 26 | 1016 | 70 |
| **9¾BB** | 26 | 248 | 117 |
| **20BB** | 26 | 508 | 117 |

| Packaging | |
|---|---|
| Box Qty | Box Weight (kg) |
| 15 | 4 |
| 15 | 7 |
| 15 | 10 |
| 15 | 13 |
| 4 | 3 |
| 4 | 6 |

# Part Number

| Code | Length |
|---|---|
| SRIF | 9¾, 20, 30, 40 |
| | 9¾BB, 20BB |

e.g. SRIF-40