

## Depth Filtration

### BECODISC® B30C, B30W

#### Activated Carbon Stacked Disc Cartridges

**BECODISC activated carbon stacked disc cartridges are ideal for the demanding liquid filtration applications in the chemical, pharmaceutical, cosmetics, food and beverage industries as well as in bioengineering.**

The specific advantages of BECODISC activated carbon stacked disc cartridges:

- High adsorption power for decolorizing and aroma correcting.
- Complex fiber and cavity structure with a large interior surface for the widest range of applications and operating conditions.
- BECODISC activated carbon stacked disc cartridges are easy to use and allow almost dust-free handling.

#### Adsorption through Activated Carbon

The activated carbon of BECODISC B30C and B30W is a micro-porous inert material, which is acid-washed and steam-activated. When products are cleaned or decolorized, a physical bond is created between the interior surfaces of the activated carbon and the unclean or colored substances. Since this bond is largely non-polar, there is a great affinity to organic molecules.

#### Factors Affecting the Adsorption Capacity

##### Filtration Speed

Adsorption processes are decisively affected by the contact time between the product and the adsorbing substance. The adsorption performance can thus be controlled by the speed of filtration. Slow filtration speeds and extended periods of contact result in optimum utilization of the adsorption capacity.



#### Water throughput BECODISC B30C, B30W



Conditions:  $\Delta p = 100 \text{ kPa}$  (1 bar), Medium: Water at 20 °C

#### Application Examples

- Decolorizing of chemicals and oils
- Decolorizing watery and alcoholic extracts
- Filtering of glucose, enzyme, vitamin, and antibiotic solutions
- Treating of cosmetics
- Taste and color correcting of beverages, spirits, and fruit juices

## Physical Data

This information is intended as a guideline for the selection of BECODISC stacked disc cartridges.

Type	Utilized BECO® depth filter sheet	Thickness in (mm)	Ash content %	Bursting strength wet psi (kPa)	Water throughput at	
					Δ p = 14.5 psi gpm/ft <sup>2</sup>	(Δ p = 100 kPa* l/m <sup>2</sup> /min)
B30C	ACF 07 with protective fleece	0.15 (3.8)	15.0	> 5.8 (40)	34.7	(1415)
B30W	ACF 07 without protective fleece	0.15 (3.8)	15.0	> 5.8 (40)	34.7	(1415)

The water throughput is a laboratory value characterizing the different BECO® depth filter sheets. It is not the recommended flow rate.

\* 100 kPa = 1 bar

## Chemical Data

Tested in accordance with § 177.2260 US Code of Federal Regulation of the US Food and Drug Administration (FDA).

Dry residue of the n-hexane extract 2-hour boiling time	< 0.5%
Dry residue of the extract with demineralized water 2-hour boiling time	< 4.0%
Dry residue of the extract with 5% acetic acid 2 hours at 194 °F (90 °C)	< 4.0%
Dry residue of the extract with 8% ethanol (v/v) 2 hours at 176 °F (80 °C)	< 4.0%
Dry residue of the extract with 50% ethanol (v/v) 2 hours at 140 °F(60 °C)	< 4.0%

## Components

BECODISC B30C or B30W activated carbon stacked disc cartridges are manufactured from particularly pure materials, i.e. finely fibrillated cellulose fibers from deciduous and coniferous trees, cationic charge carriers, and high-quality diatomaceous earth. The cells of the BECODISC B30C activated carbon stacked disc cartridges are built with a PET protective fleece.

## Recommendations for Avoiding Damage

BECODISC activated carbon stacked disc cartridges can be used only in the specified flow direction. This applies to product filtering as well as sanitizing with hot water, and sterilizing with the stacked disc cartridges with saturated steam. In order to avoid damage to the filter cells, the system should be protected with a suitable non-return valve.

Refer to our insert included with each BECODISC stacked disc cartridge carton for detailed application information.

Depending on the filtered liquids, the operating temperature should not exceed 176 °F (80 °C). Please contact Eaton regarding filtration applications at higher temperatures.

## Intermediate Plates

If more than two BECODISC activated carbon stacked disc cartridges (12" or 16") with double O-ring adapters are stacked in the housing, install a central spindle for safety reasons. In the event, more than one 16" BECODISC activated carbon stacked disc cartridge (flat adapter/double O-ring adapter) is used in the housing, Eaton recommends the installation of stainless steel intermediate plates between the BECODISC activated carbon stacked disc cartridges.

## Sanitizing and Sterilizing (Optional)

### Sterilizing with Hot Water

The hot water temperature should be 185 °F (85 °C). A differential pressure of 21.8 psi (150 kPa, 1.5 bar) must not be exceeded when sterilizing with hot water.

Sterilization time: At least 30 minutes once a temperature of 185 °F (85 °C) is reached at all filter openings. In the interest of energy conservation, the water may be circulated provided the specified temperatures are maintained.

### Sterilizing with Steam

The wetted BECODISC activated carbon stacked disc cartridges can be sterilized with saturated steam up to a maximum temperature of **250 °F (121 °C)** as follows:

Steam quality:	The steam must free of foreign particles and impurities.
Temperature:	Max. <b>250 °F (121 °C)</b> <b>(saturated steam)</b>
Duration:	Approx. 20 minutes after steam exits from all filter valves.
Rinsing:	After sterilizing with 1.23 gal/ft <sup>2</sup> (50 l/m <sup>2</sup> ) at 1.25 times the flow rate.

## Filter Preparation and Filtration

Unless already completed after sterilization, Eaton recommends pre-rinsing the closed filter with 1.23 gal/ft<sup>2</sup> (50 l/m<sup>2</sup>) of water at 1.25 times the flow rate prior to the first filtration. Depending on the application, this usually equals a rinsing time of 10 – 20 minutes. Test the entire filter for leakage at maximum operating pressure.

High-proof alcohol solutions and products that do not allow pre-rinsing with water should be circulated for 10 to 20 minutes. Dispose of the rinsing solution after rinsing.

### **Differential Pressure**

Terminate the filtration process once the maximum permitted differential pressure of 43.5 psi (300 kPa, 3 bar) is reached. A higher differential pressure could damage the depth filter sheet material. For safety reasons, a differential pressure of 21.8 psi (150 kPa, 1.5 bar) should not be exceeded in applications for separating microorganisms.

### **Safety**

When used and handled correctly, there are no known unfavorable effects associated with this product.

Further safety information can be found in the relevant Material Safety Data Sheet, which can be downloaded from our website.

### **Waste Disposal**

Due to their composition, BECODISC activated carbon stacked disc cartridges can be disposed of as harmless waste. Comply with relevant current regulations, depending on the filtered product.

### **Storage**

BECDISC activated carbon stacked disc cartridges must be stored in a dry, odor-free, and well ventilated place.

Do not expose the BECODISC activated carbon stacked disc cartridges to direct sunlight.

BECDISC activated carbon stacked disc cartridges are intended for immediate use and should be used within 36 months after production date.

### **Available Formats**

BECDISC activated carbon stacked disc cartridges are available with 12-inch and 16-inch diameters. Further information about filter areas and gasket types can be found in the current BECDISC stacked disc cartridge folder.

### **Quality Assurance According to DIN EN ISO 9001**

The Quality Management System of Eaton Technologies GmbH has been certified according to DIN EN ISO 9001.

This certification verifies that a fully functioning comprehensive Quality Assurance System covering product development, contract controls, choice of suppliers, receiving inspections, production, final inspection, inventory management, and shipment has been implemented.

Extensive quality assurance measures incorporate adherence to technical function criteria and chemical purity and quality recognized as safe under the German legislation governing the production of foods and beverages.

All information is given to the best of our knowledge. However, the validity of the information cannot be guaranteed for every application, working practice and operating condition. Misuse of the product will result in all warranties being voided.

Subject to change in the interest of technical progress.

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