

## Depth Filtration

### **BECODISC B30C**

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## Activated Carbon Stacked Disc Cartridges

**BECODISC B30C activated carbon stacked disc cartridges are used for the demanding liquid filtration applications of the chemical, pharmaceutical, cosmetic, and food industries as well as in bioengineering.**

The specific advantages of the BECODISC B30C activated carbon stacked disc cartridges:

- ▶ High adsorption power for decolorizing and aroma correcting.
- ▶ Complex fiber and cavity structure with a large interior surface for a widest possible range of applications and operating conditions.
- ▶ BECODISC B30C activated carbon stacked disc cartridges are easy to use and allow dust-free handling.

### **Adsorption through Activated Carbon**

The activated carbon of BECODISC B30C 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**

All 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.

#### **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 stacked disc cartridges.

Type	Thickness mm (in)	Ash content %	Bursting strength wet kPa (in)	Water permeability at $\Delta p$ = 100 kPa $\text{l m}^{-2} \text{min}^{-1}$
B30C	3.8 (0.15)	15.0	> 40 (> 5.8)	1415

The depth filter sheets of the BECODISC B30C activated carbon stacked disc cartridges meet the requirements of FDA Directive CFR 21 § 177.2260.

## 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 90° C	< 4.0 %
Dry residue of the extract with 8-% ethanol (v/v) 2 hours at 80° C	< 4.0 %
Dry residue of the extract with 50-% ethanol (v/v) 2 hours at 60° C	< 4.0 %

## Components

BECODISC B30C activated stacked disc cartridges are made from particularly pure natural materials using finely fibrillated cellulose fibers and cationic charge carriers, as well as high quality kieselguhr and acid-washed, steam-activated activated carbon.

## Recommendations for Avoiding Damage

BECODISC stacked disc cartridges can only be used 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 carton for detailed application information.

Depending on the liquids to be filtered, the operating temperature should not exceed 80 °C (176 °F). Please contact us regarding filtration applications at higher temperatures. We would be pleased to give you advice regarding further options.

## Intermediate Plates

If more than two BECODISC stacked disc cartridges (12" or 16") with dual O-ring adapters are stacked in the housing, a central spindle should be installed for safety reasons. If more than one BECODISC stacked disc cartridge (flat adapter / dual O-ring adapter) is used in the housing, we recommend the installation of stainless steel intermediate plates between the BECODISC stacked disc cartridges.

## Sanitizing and Sterilizing (optional)

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### Sterilizing with hot water

The hot water temperature should be 85 – 95 °C (185 °F - 203 °F). A differential pressure of 150 k Pa (1.5 bars) must not be exceeded when sterilizing with hot water.

Sterilization time: At least 30 minutes once a temperature of at least 80 °C (176 °F) has been 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 stacked disc cartridges may be sterilized as follows:

Temperature:	Max <b>121 °C (250 °F)</b>
Duration:	Approx. 20 minutes after steam escapes from all filter valves.
Rinsing:	After sterilizing with 50 l/m <sup>2</sup> at 1.25 times the flow rate.

### Filter Preparation and Filtration

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Unless already completed after sterilization, we recommend pre-rinsing the closed filter with 50 liters (13.2 gal) of water per square meter 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 chemical 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 300 kPa (3 bars) is reached. A higher differential pressure could damage the depth filter sheet material.

### Waste Disposal

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

## Storage

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BECODISC stacked disc cartridges must be stored in a dry, odor-free, and well ventilated place. BECODISC stacked disc cartridges must not be exposed to direct sunlight.

BECODISC stacked disc cartridges are intended for immediate use and should be used up within 36 months of delivery.

### Available Formats

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BECODISC stacked disc cartridges are available with 12-inch (295 mm) and 16-inch (402 mm) diameters. Further information about filter areas and gasket types can be found in our current BECODISC folder.

### Quality Assurance According to DIN EN ISO 9001

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BEGEROW's comprehensive Quality Management System 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.

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