

Depth Filtration

BECODISC® B71C

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 B71C is a microporous 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 B71C



Conditions: $\Delta p = 14.5$ psid (100 kPa, 1 bar), Medium: Water at 68 °F (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
- Removal of odors and undesirable byproducts from liquids



Physical Data

This information is intended as a guideline for the selection of BECODISC stacked disc cartridges. The water throughput is a laboratory value characterizing the different BECO® depth filter sheets. It is not the recommended flow rate.

Type*	Utilized BECO® depth filter sheet	Ash content %	Bursting strength wet		Water throughput at	
			psi	(kPa**)	$\Delta p = 14.5$ psid gpm/ft ²	($\Delta p = 100$ kPa** l/m ² /min)
B71C	ACF 07.10	15	>5.8	(40)	34.7	(1415)

*B = Polypropylene version (e.g. B71C), C = Polyamide version (e.g. C71C)

**100 kPa = 1 bar

Ordering Information

B	71C	16	2	S	F	02
Design	BECO depth filter sheet	Height – Cell quantity	Size	Gasket material	Adapter	Protective fleece
B = Polypropylene C = Polyamide (FDA)	71C = ACF 07.10 See Physical Data	Standard height: Cell quantity (Flat adapter 10.9 in /276 mm) (Double-O-Ring 13.0 in /329 mm) Height 4: 4 + Cell quantity (Flat adapter 4.4 in / 101 mm) Availability see table below	2 = 12", Ø 11.6 in (295 mm) 4 = 16", Ø 15.8 in (402 mm)	E = EPDM F = FEP-coated silicone core S = Silicone V = Fluoroelastomer	F = Flat adapter S = Double O-ring adapter Y = Flat adapter with grounding devise	01 = without 02 = Polyester fleece on feed side

Example: B71C162SF02

Polypropylene stacked disc cartridge with BECO ACF 07.10 depth filter sheets with protective fleece, 16 filter cells, 10.9 in (276 mm) high, 12", with silicone gaskets and flat adapter.

	BECODISC 12", Ø 11.6 in (295 mm)				BECODISC 16", Ø 15.8 in (402 mm)			
	Standard		Height 4		Standard		Height 4	
Number of cells	16	14	9 ¹	5	16	14	9 ¹	5
Filter surface area [ft ² (m ²)]	20.5 (1.9)	17.8 (1.65)	11.8 (1.1)	6.4 (0.59)	39.8 (3.7)	34.4 (3.2)	22.6 (2.1)	12.4 (1.15)
Pre-coat volume [gal (l)] ²		0.9 (3.6)	2.1 (8.0)			1.8 (7.0)	4.1 (15.4)	
Carbon amount [kg]	0.8	0.65	0.45	0.25	1.5	1.3	0.9	0.5
Overall height flat adapter [in (mm)]	10.9 (276)	10.9 (276)	10.9 (276)	4.4 (101)	10.9 (276)	10.9 (276)	10.9 (276)	4.4 (101)
Overall height double O-ring adapter [in (mm)]	13.0 (329)	13.0 (329)	13.0 (329)	-	13.0 (329)	13.0 (329)	13.0 (329)	-
Cell spacer rail	-	-	✓	-	-	-	✓	-

¹ Special stacked disc cartridge configuration with cell spacer rails providing increased mechanical stability for holding filter cake | ² Calculated values (BECO depth filter sheets with 0.16 in/4.0 mm thickness)

Compliance Notice

BECO depth filter sheets fulfill the requirements of Regulation (EC) 1935/2004 as well as the FDA Guideline 21 CFR § 177.2260 test criteria. The polypropylene components comply with Regulation (EU) 10/2011. The polypropylene meets FDA requirements, 21 CFR § 177.1520. The polyamide meets the requirements of FDA, 21 CFR § 177.1500. The sealing materials (silicone, EPDM, Fluoroelastomer) meet FDA requirements, 21 CFR § 177.2600. For further details on individual components and materials see the declaration of conformity.

Components

BECODISC B71C 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.

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. When silicone/FEP coated gaskets are used the stainless steel plates are mandatory.

Sanitizing and Sterilizing (Optional)

Sterilizing with Hot Water

The hot water temperature should be 185°F (85°C). A differential pressure of 21.8 psid (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 be free of foreign particles and impurities.
- Temperature: Max. **250°F (121°C)** (saturated steam)
- Duration: Approx. 20 minutes after steam exits from all filter valves.
- Rinsing: After sterilizing with 1.23 gal/ft² (50 l/m²) 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/ft² (50 l/m²) 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 psid (300 kPa, 3 bar) is reached. A higher differential pressure could damage the depth filter sheet material.

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

BECODISC 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.

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

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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