Technical Data Sheet

Depth Filtration
BECODISC® Range

Premium Depth Filter Medium with High-Purity Cellulose

BECODISC stacked disc cartridges are characterized by maximum purity. They offer exceptionally high chemical resistance both in alkaline and acidic applications.

In Eaton's innovative BECODISC stacked disc cartridge's range, high-purity celluloses form a unique structure, which even for microbial removal does not require mineral components.

The specific advantages of BECODISC stacked disc cartridges:

- Very good chemical and mechanical resistance
- Without the addition of mineral components, low ion content
- Virtually no ash content
- Low charge-related adsorption
- Up to 20% higher performance
- Rinsing volume reduced by up to 50%, resulting in reduced process costs

Ingredients

BECODISC stacked disc cartridges are made only of high-purity cellulose and wet strength agents.

Areas of Application

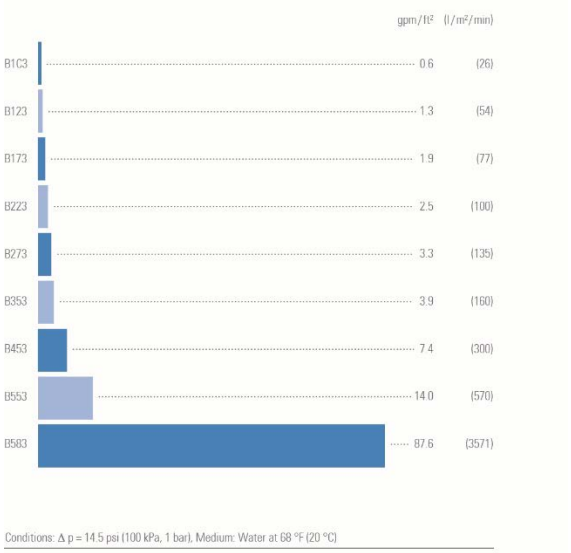
BECODISC stacked disc cartridges can be used for filtration of all liquid media. Application options range from coarse filtration to microbial removal.

BECODISC Stacked Disc Cartridges

BECODISC stacked disc cartridges are very low cationic. This means there is only a minor charge-related adsorption during the filtration. Valuable substances are not adsorbed and remain in the filtrate. The chemical resistance and the mechanical stability are exceptionally high.

BECODISC stacked disc cartridges are suitable for applications involving primarily mechanical separation of particles from aggressive media, for example, catalyst and/or activated carbon removal. For applications where the important substance should remain in the filtrate, e.g., in the flavor or cosmetic industry, the BECODISC is ideal due to the low charge-related adsorption.

Water throughput BECODISC range



Guide to Choosing the Right BECODISC Stacked Disc Cartridge

B1C3
Microbial removal, fine colloids removal, especially for membrane protection

B123, B173
Microbial removal filtration

B223, B273
Microbial reduction filtration

B353
Fine filtration, removal of yeasts

B453
Clarifying filtration, activated carbon removal

B553, B583
Coarse filtration, catalyst separation and recovery

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Physical Data

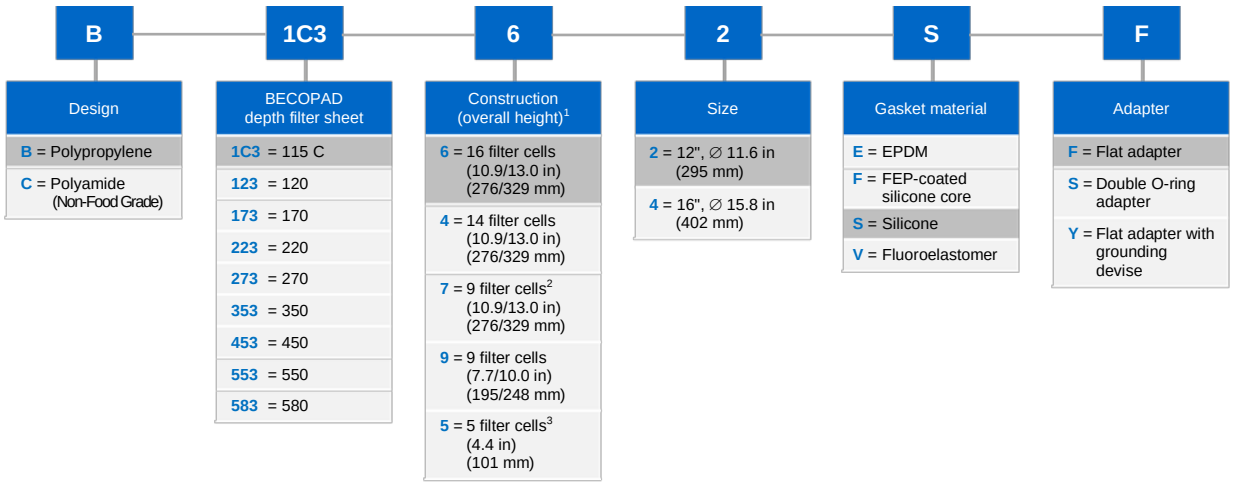
This information is intended as a guideline for the selection of BECODISC stacked disc cartridges.
The water throughput is a laboratory value characterizing the different BECOPAD® depth filter medium types.
It is not the recommended flow rate.

Type*	Utilized depth filter sheet	Nominal retention range µm	Thickness in (mm)	Ash content %	Bursting strength wet psi (kPa**)	Water throughput at Δ p = 14.5 psi gpm/ft²	Water throughput at (Δ p = 100 kPa** l/m²/min)
B1C3	BECOPAD 115 C	0.1 – 0.2	0.16 (4.1)	< 1	> 21.8 (150)	0.6	(26)
B123	BECOPAD 120	0.1 – 0.3	0.15 (3.9)	< 1	> 21.8 (150)	1.3	(54)
B173	BECOPAD 170	0.2 – 0.4	0.15 (3.9)	< 1	> 21.8 (150)	1.9	(77)
B223	BECOPAD 220	0.3 – 0.5	0.15 (3.9)	< 1	> 21.8 (150)	2.5	(100)
B273	BECOPAD 270	0.5 – 0.7	0.15 (3.9)	< 1	> 21.8 (150)	3.3	(135)
B353	BECOPAD 350	0.7 – 1.0	0.15 (3.9)	< 1	> 21.8 (150)	3.9	(160)
B453	BECOPAD 450	1.0 – 2.0	0.15 (3.9)	< 1	> 21.8 (150)	7.4	(300)
B553	BECOPAD 550	2.0 – 3.0	0.15 (3.9)	< 1	> 21.8 (150)	14.0	(570)
B583	BECOPAD 580	8.0 – 10.0	0.15 (3.9)	< 1	> 21.8 (150)	87.6	(3571)

* B = Polypropylene version (e.g. B1C3), C = Polyamide version (e.g. C1C3)

** 100 kPa = 1 bar

Ordering Information



[1] Flat adapter/Double O-ring adapter | [2] With cell spacer rail | [3] Cannot be combined with double O-ring adapter

Example: B1C362SF
Polypropylene stacked disc cartridge with BECOPAD 115 C depth filter sheets, nominal retention range from 0.1 to 0.3 µm, 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)				
Number of cells	16	14	9[1]	9	5	16	14	9[1]	9	5
Filter surface area [ft² (m²)]	20.5 (1.9)	17.8 (1.65)	11.8 (1.1)	11.8 (1.1)	6.4 (0.59)	39.8 (3.7)	34.4 (3.2)	22.6 (2.1)	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)	-	-
Overall height flat adapter [in (mm)]	10.9 (276)	10.9 (276)	10.9 (276)	7.7 (195)	4.4 (101)	10.9 (276)	10.9 (276)	10.9 (276)	7.7 (195)	4.4 (101)
Overall height double O-ring adapter [in (mm)]	13.0 (329)	13.0 (329)	13.0 (329)	10.0 (248)	-	13.0 (329)	13.0 (329)	13.0 (329)	10.0 (248)	-
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) meet FDA requirements, 21 CFR § 177.2600. For further details on individual components and materials see the declaration of conformity.

Recommendations for Avoiding Damage

BECODISC 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 the 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 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 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 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 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 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 0.61 gal/ft² (25 l/m²) at 1.25 times the flow rate

Filter Preparation and Filtration

Unless already completed after sterilization, rinse the stacked disc cartridges with 0.61 gal/ft² (25 l/m²) of water at 1.25 times the flow rate prior to the first filtration. Check the entire filter for leakage at maximum operating pressure.

High-proof alcoholic solutions and products that cannot be rinsed with water should be circulated with the product. Discard 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.

Disposal

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

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

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

BECODISC 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 warrantees being voided.

Subject to change in the interest of technical progress.

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