

Depth Filtration

BECODISC® P Range

Premium Mineral-Free Depth Filter Medium

BECODISC P stacked disc cartridges are characterized by unparalleled purity. The ion and endotoxin content is significantly lower than for conventional depth filter media.

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

The specific advantages of BECODISC P stacked disc cartridges:

- Minimum endotoxin contents. This ensures product safety
- Increased endotoxin retention
- Mineral-free, therefore minimum ion content particularly of calcium, magnesium and aluminum ions
- Very high chemical resistance and mechanical stability
- 20% higher performance
- Rinsing volume reduced by 50%, resulting in reduced process costs

Ingredients

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

Areas of Application

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

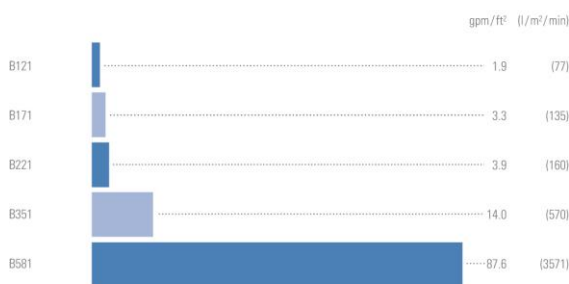
BECODISC P Stacked Disc Cartridges

BECODISC P stacked disc cartridges are cationic. They are characterized by adsorption charge-related during filtration. Additionally, the depth filter medium has a very low content of soluble ions, especially of calcium, magnesium and aluminum. The chemical resistance and bursting strength is extremely high.

BECODISC P stacked disc cartridges are suitable for applications involving mechanical separation of particles and adsorptive retention of negatively charged particles. Due to the minimum endotoxin contents and the increased endotoxin reduction the depth filter medium is ideal for pharmaceutical processes.



Water throughput BECODISC P range



Conditions: $\Delta p = 14.5$ psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

Guide to Choosing the Right BECODISC P Stacked Disc Cartridge

B171

Microbe removal and increased endotoxin retention

B271

Microbe and endotoxin reduction

B351

Fine filtration, activated carbon removal

B551

Clarifying filtration, particle separation

B581

Coarse filtration, particle separation



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Physical Data

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

Type	Utilized depth filter sheet	Nominal retention rate µm	Thickness in (mm)	Ash content %	Bursting strength wet psi (kPa)	Water throughput at		Endotoxin content** EU/ml
						Δ p = 14.5 psi gpm/ft ²	(Δ p = 100 kPa* l/m ² /min)	
B171	BECOPAD P 170	0.2 – 0.4	0.15 (3.9)	< 1.0	> 21.8 (150)	1.9	(77)	< 0.025
B271	BECOPAD P 270	0.5 – 0.7	0.15 (3.9)	< 1.0	> 21.8 (150)	3.3	(135)	< 0.025
B351	BECOPAD P 350	0.7 – 1.0	0.15 (3.9)	< 1.0	> 21.8 (150)	3.9	(160)	< 0.025
B551	BECOPAD P 550	2.0 – 3.0	0.15 (3.9)	< 1.0	> 21.8 (150)	14.0	(570)	< 0.025
B581	BECOPAD P 580	8.0 – 10.0	0.15 (3.9)	< 1.0	> 21.8 (150)	87.6	(3571)	< 0.025

The water throughput is a laboratory value characterizing the different BECOPAD® P depth filter medium types. It is not the recommended flow rate.

* 100 kPa = 1 bar,

** Endotoxin content analysis after rinsing with 0.61 gal/ft² (25 l/m²) of endotoxin-free water.

Chemical Data

BECOPAD depth filter medium meets the requirements of LFGB*, Recommendation XXXVI/1 issued by BfR**, and the test criteria of FDA*** Directive CFR 21 § 177.2260.

Chemical resistances of the BECOPAD P depth filter sheets to different solvents. The chemical compatibilities listed in the table below are a guide only.

Chemical compound	Max. tested temperature, Contact time	Mechanical resistance	Chemical compound	Max. tested temperature, Contact time	Mechanical resistance
Caustic:			Organic solvents:		
Ammonia solution	25% 68 °F (20 °C), 168 h	x	Acetone	68 °F (20 °C), 168 h	x
Potassium hydroxide	30% 68 °F (20 °C), 48 h	(x)	Butanol	68 °F (20 °C), 168 h	x
Sodium hydroxide	30% 68 °F (20 °C), 24 h	-	Cyclohexane	68 °F (20 °C), 168 h	x
	5% 68 °F (20 °C), 4 h	x	Dimethyl sulphide	68 °F (20 °C), 168 h	x
	2% 104 °F (40 °C), 4 h	x	Ethanol	68 °F (20 °C), 168 h	x
	1% 104 °F (40 °C), 4 h	x	Ethylene glycol	68 °F (20 °C), 168 h	x
	0.5% 104 °F (40 °C), 4 h	x	Ethyl methyl ketone	68 °F (20 °C), 168 h	x
			Isopropanol	68 °F (20 °C), 168 h	x
			Methanol	68 °F (20 °C), 168 h	x
Acids:			Aqueous solutions:		
Acetic acid	25% 68 °F (20 °C), 168 h	x	N,N dimethyl formamide	68 °F (20 °C), 168 h	x
Peracetic acid	0.1% 68 °F (20 °C), 168 h	x	N-hexane	68 °F (20 °C), 168 h	x
Peracetic acid	0.2% 68 °F (20 °C), 168 h	x	Tetrachloroethylene	68 °F (20 °C), 168 h	x
Peracetic acid	0.5% 68 °F (20 °C), 168 h	x	Toluene	68 °F (20 °C), 168 h	x
Nitric acid	25% 68 °F (20 °C), 48 h	x	Triethanolamine	68 °F (20 °C), 168 h	x
Hydrochloric acid	25% 68 °F (20 °C), 168 h	x	Xylene	68 °F (20 °C), 168 h	x
Sulphuric acid	25% 68 °F (20 °C), 48 h	x			
Citric acid	25% 68 °F (20 °C), 168 h	x			
			Iron trichloride	25% 68 °F (20 °C), 168 h	x
			Sodium hypochlorite free chlorine	12% 68 °F (20 °C), 168 h	x
			Hydrogen peroxide	10% 68 °F (20 °C), 72 h	x

x = resistant

(x) = limited resistance

- = not resistant

Ion Concentration after Extraction with 40% Ethanol

Ions	Content [ppb]*
Ca	< 50
Mg	< 25
Fe	< 5
Al	< 5

* After rinsing with 0.61 gal/ft² (25 l/m²) of 40% Ethanol

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.

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.

Delivery Information

BECODISC stacked disc cartridges are available with 12-inch and 16-inch diameters. Further information about filter areas and gasket types can be found in our current BECODISC 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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or visit www.eaton.com/filtration**

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