

## Depth Filtration BECODISC® BX1 Range

### Premium Double Layer Stacked Disc Cartridges with BECOPAD® P Depth Filter Media

The BECODISC BX1 stacked disc cartridges contain two layers of BECOPAD®P depth filter media made of cellulose, characterized by high purity in one filter unit.

The double-layer design of the filter cells allows a two-step filtration with fine-tuned retention ratings for pre- and fine filtration.

The product range covers retention rates between 10 and 0.2 µm, to ensure a comprehensive portfolio for all customer needs.

The specific advantages of BECODISC BX1 stacked disc cartridges:

- Economical lifetime due to two-step- filtration in one unit
- Maximized performance due to increased dirt-holding capacity and particle retention
- Easy handling and shorter setup times
- Small footprint and lower investment costs for the stacked disc cartridge housings
- Double layer configuration and BECOPAD P depth filter media both require less rinsing volume which results in reduced process costs
- Very good chemical and mechanical resistance
- Low charge-related adsorption
- Minimum endotoxin contents for more product safety

#### Areas of Application

BECODISC BX1 stacked disc cartridges can be used for the filtration of all liquid media. Application options range from coarse filtration to microbe removal.

Due to the minimum endotoxin contents, the depth filter medium is ideal for pharmaceutical processes.



#### BECOPAD P Depth Filter Media

BECOPAD P depth filter media is cationic. It is therefore characterized by charge-related adsorption during filtration. Additionally, the filter medium has a very low content of extractable ions, especially of calcium, magnesium, and aluminum ions. The chemical resistance and bursting strength are extremely high.

BECODISC BX1 stacked disc cartridges with BECOPAD P depth filter media are therefore suitable for applications involving mechanical separation of particles and adsorptive retention of negatively charged particles.

#### Guide to Choosing the Right BECOPAD P Depth Filter Media

##### BECOPAD P 170

Microbe removal filtration

##### BECOPAD P 270

Microbe reduction filtration

##### BECOPAD P 350

Fine filtration

##### BECOPAD P 550

Clarifying filtration, particle removal

##### BECOPAD P 580

Coarse filtration, particle removal



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## Physical Data

This information is intended as a guideline for the selection of BECODISC BX1 stacked disc cartridges. When selecting the pre-filter and main filter layer, the main filter water throughput must be equal to or less than the throughput of the pre-filter.

The water throughput is a laboratory value that characterizes the different BECOPAD P depth filter media and is not the recommended flow rate.

Utilized BECOPAD P-depth filter medium	Nominal retention rate $\mu\text{m}$	Water throughput at		Endotoxin-content** EU/ml	Code pre-filter layer	Code main filter layer
		$\Delta p = 14.5 \text{ psi}$ gpm/ft <sup>2</sup>	$(\Delta p = 100 \text{ kPa}^*)$ l/m <sup>2</sup> /min)			
BECOPAD P 170	0.2 – 0.4	1.9	(77)	< 0.025	C	17
BECOPAD P 270	0.5 – 0.7	3.3	(135)	< 0.025	E	27
BECOPAD P 350	0.7 – 1.0	3.9	(160)	< 0.025	F	35
BECOPAD P 550	2.0 – 3.0	14.0	(570)	< 0.025	H	55
BECOPAD P 580	8.0 – 10.0	87.6	(3571)	< 0.025	I	58

\* 100 kPa = 1 bar

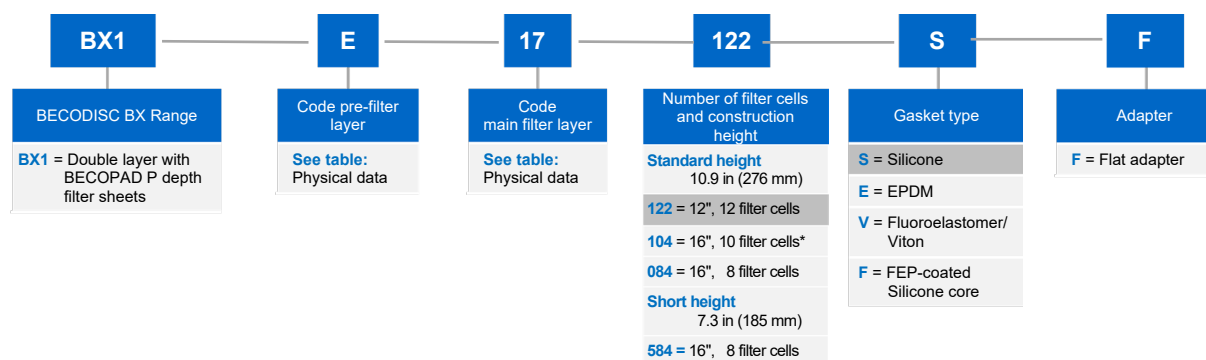
\*\* Endotoxin content analysis after rinsing with 0.61 gal/ft<sup>2</sup> (25 l/m<sup>2</sup>) of WFI (Water for Injection)

## Recommendation of Combinations (Further combinations on request)

Type	Utilized BECOPAD P depth filter medium		Application
	Pre-filtration	Main filtration	
BX1 E17	P 270	P 170	Microbe removal
BX1 F27	P 350	P 270	Microbe reduction
BX1 H35	P 550	P 350	Fine filtration
BX1 I55	P 580	P 550	Clarifying filtration

## Order Information

BECODISC BX1 stacked disc cartridges are available with 12" (295 mm) and 16" (402 mm) diameters. The plastic components are made of polypropylene.



### Example: BX1E17122SF

BECODISC BX1 E17 (BECOPAD P 270, BECOPAD P 170), 12 filter cells, 12", 10.9 in (276 mm) construction height, silicon gasket, flat adapter

Size	Overall height	Number of filter cells	Surface area	Approx. wet weight
12" (ø 295 mm)	10.9 in (276 mm)	12 filter cells	15.6 ft <sup>2</sup> (1.45 m <sup>2</sup> )	33.0 lbs (15 kg)
16" (ø 402 mm)	7.3 in (185 mm)	8 filter cells	19.9 ft <sup>2</sup> (1.85 m <sup>2</sup> )	55.1 lbs (< 25 kg)
16" (ø 402 mm)	10.9 in (276 mm)	8 filter cells	19.9 ft <sup>2</sup> (1.85 m <sup>2</sup> )	55.1 lbs (< 25 kg)
16" (ø 402 mm)	10.9 in (276 mm)	10 filter cells	24.8 ft <sup>2</sup> (2.30 m <sup>2</sup> )	55.1 lbs (> 25 kg*)

\*Version 104: 16", 10 filter cells exceed 55.1 lbs (25 kg) in wet weight and therefore requires transportation support for employee protection

## Compliance Notice

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BECOPAD P depth filter media fulfill the requirements of the Regulation (European Commission) 1935/2004 as well as the test criteria of FDA (U.S. Food and Drug Administration) Directive 21 CFR § 177.2260.

The polypropylene components comply with Regulation (EU) 10/2011 and meet the 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.

## Components

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BECODISC BX1 stacked disc cartridges are made only of high-purity cellulose and wet-strength agents.

## Instruction for Correct Use

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BECODISC BX1 stacked disc cartridges can be used only in the specified flow direction. This applies to product filtration as well as sanitizing with hot water and sterilizing the stacked disc cartridges with saturated steam. 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 BX1 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

In the event, more than one 16" BECODISC BX1 depth filter medium (flat adapter) is used in the housing we recommend the installation of stainless-steel intermediate plates between the BECODISC BX1 stacked disc cartridges.

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

## Sanitizing and Sterilizing (optional)

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BECODISC BX1 stacked disc cartridges can be sanitized with hot water or sterilized with saturated steam.

### Sanitizing with Hot Water

The hot water flow velocity should be at least equal to the product filtration velocity.

Water quality: The water should be softened and free of impurities.

Temperature: Max. **185 °F (85 °C)**

Duration: 30 minutes after the temperature has reached 185 °F (85 °C) at all valves.

Operating pressure: At least 14.5 psi (100 kPa, 1.0 bar) at the filter outlet.

Differential pressure: Max. 21.8 psi (150 kPa, 1.5 bar)

### Sterilizing with Steam

The wetted BECODISC BX1 stacked disc cartridges can be sterilized with saturated steam 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.

Differential pressure: Max. 5.0 psi (35 kPa, 0.35 bar)

Rinsing: After sterilizing with 0.74 gal/ft<sup>2</sup> (30 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, Eaton recommends pre-rinsing the closed filter with 0.74 gal/ft<sup>2</sup> (30 l/m<sup>2</sup>) of water or in exceptional cases with product appropriate solution 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.

Only in exceptional cases which, for example, do not allow rinsing with water, product or product-appropriate solution should be circulated for 10 to 20 minutes and discarded after rinsing.

Test the entire filter for leakage at maximum operating pressure.

### 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

BECODISC BX1 stacked disc cartridges can be disposed of as harmless waste. Comply with relevant current regulations, depending on the filtered product.

## Storage

BECODISC BX1 stacked disc cartridges must be stored in a dry, odor-free, and well-ventilated place.

Do not expose the BECODISC BX1 stacked disc cartridges to direct sunlight.

BECODISC BX1 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 the 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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