

## Depth Filtration BECODISC® BXS Range

### Double Layer Stacked Disc Cartridges for Standard Applications

The BECODISC BXS stacked disc cartridges contain two layers of BECO depth filter sheets 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 seamlessly covers retention grades between 30 and 0.1 µm, to ensure a comprehensive portfolio for all customer needs.

The specific advantages of BECODISC BXS stacked disc cartridges:

- Economical filtration process due to two step-filtration in one unit
- Maximized performance and lifetime 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
- Reduced process costs due to reduced rinsing volume

#### Areas of Application

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

#### Guide to Choosing the Right BECO Depth Filter Sheets

##### Microbe Reduction and Removal

##### BECO Steril S 100, Steril S 80, Steril 60, Steril 40

BECO depth filter sheets with high germ retention rate. These depth filter sheets are particularly suitable for cold-sterile bottling or storing of liquids. The high germ retention rate is achieved through the fine-pored structure of the BECO depth filter sheet and an electro kinetic potential with an adsorptive effect.

Due to their high retention capacity for colloidal ingredients, these depth filter sheets are suitable as pre-filters for subsequent membrane filtration.



#### Microbe Reduction and Fine Filtration

##### BECO SD 30, KDS 15, KDS 12, KD 10, KD 7, KD 5

BECO depth filter sheets for achieving a high degree of clarification. These depth filter sheets reliably retain ultra-fine particles and have a germ-reducing effect making them particularly suitable for haze-free filtering of liquids prior to storing and bottling.

#### Clarifying Filtration and Coarse Filtration

##### BECO KD 3, K 2, K 1, BECO CP07S, CP03S, CP02S, CP01S

BECO depth filter sheets with large-volume pore structure. These depth filter sheets have a high dirt-holding capacity for particles and are especially suitable for clarifying filtration and for filtration of liquids with a coarser crystalline and amorphous, or gel-like particle structure.

## Physical Data

This information is intended as a guideline for the selection of BECODISC BXS stacked disc cartridges. When selecting the pre-filter and main filter layer, the main filter must always have a lower water throughput than the pre-filter.

The water throughput is a laboratory value that characterizes the different BECO depth filter sheets and is not the recommended flow rate.

Utilized BECO®- depth filter sheet	Nominal retention rate $\mu\text{m}$	Water throughput at		Code Pre-filter layer	Code Main filter layer
		$\Delta p = 100 \text{ kPa}^*$ l/m <sup>2</sup> /min	$\Delta p = 14.5 \text{ psi}$ gpm/ft <sup>2</sup>		
Steril S 100	0.1	30	0.7	A	01
Steril S 80	0.2	46	1.1	B	02
Steril 60	0.3	60	1.5	C	03
Steril 40	0.4	69	1.7	D	04
SD 30	0.5	84	2.1	E	05
KDS 15	0.6	115	2.8	F	06
KDS 12	0.8	155	3.8	G	08
KD 10	1.0	185	4.5	H	10
KD 7	1.5	225	5.5	I	15
KD 5	2.0	270	6.6	J	20
KD 3	2.5	425	10.4	K	25
K2	3.0	1550	38.0	L	30
K1	4.0	1900	46.6	M	40
CP07S	15.0	4290	105.3	N	-
CP03S	20.0	7140	175.2	O	-
CP02S	25.0	9520	233.6	P	-
CP01S	30.0	12500	306.8	Q	-

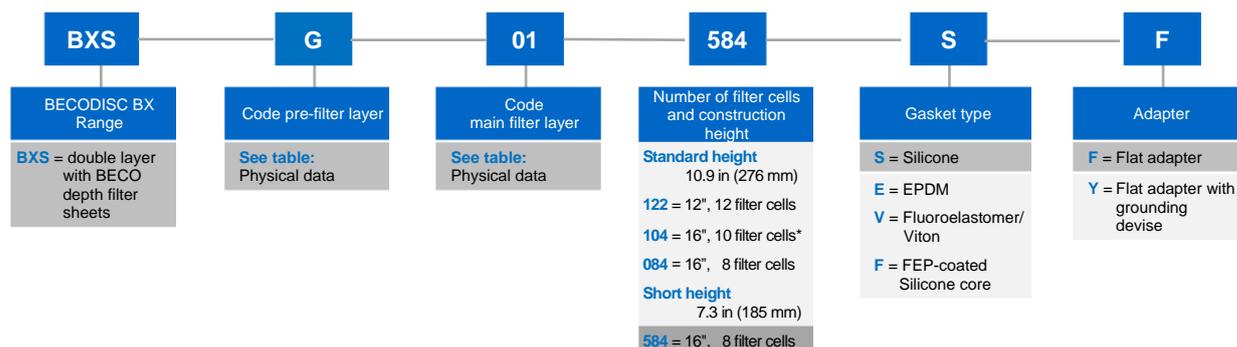
\* 100 kPa = 1 bar

## Recommendation of combinations (Further combinations on request)

Type	BECO depth filter sheet		Application
	Pre-filtration	Main filtration	
BXSG01	KDS 12	Steril S 100	Microbe removal and membrane protection
BXSK03	KD 3	Steril 60	Microbe reduction and removal
BXSM08	K1	KDS 12	Clarifying filtration - fine filtration
BXSN30	CP07S	K2	Clarifying filtration

## Order information

BECODISC BXS stacked disc cartridges are available with 12 in ( $\varnothing$  295 mm) and 16 in ( $\varnothing$  402 mm) diameters. The plastic components are made of polypropylene.



**Example:** BXSG01584SF  
 BECODISC BXS G01 (BECO KDS 12, BECO Steril S 100), 8 cells, 16", 7.3 in (185 mm) construction height, silicone gasket, flat adapter

Size	Overall height	Number of cells	Surface area	Approx. wet weight
12" (ø 295 mm)	10.9 in (276 mm)	12 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 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 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 cells *	24.8 ft <sup>2</sup> (2.30 m <sup>2</sup> )	55.1 lbs (> 25 kg*)

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

### 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.

### Components

The depth filter sheets for the BECODISC BXS 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 BXS 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 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 BXS 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 BXS stacked disc cartridge (flat adapter) is used in the housing, Eaton recommends the installation of stainless steel intermediate plates between the BECODISC BXS 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 BXS 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 1.47 gal/ft<sup>2</sup> (60 l/m<sup>2</sup>) at 1.25 times the flow rate

### Filter Preparation and Filtration

Unless already completed after sterilization, rinse the BECODISC BXS stacked disc cartridges with 1.47 gal/ft<sup>2</sup> (60 l/m<sup>2</sup>) 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

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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

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Due to their composition, BECODISC BXS 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 BXS stacked disc cartridges must be stored in a dry, odor-free, and well ventilated place.

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

BECODISC BXS 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

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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.

### North America

44 Apple Street  
Tinton Falls, NJ 07724  
Toll Free: 800 656-3344  
(North America only)  
Tel: +1 732 212-4700

### China

No. 3, Lane 280,  
Linhong Road  
Changning District, 200335  
Shanghai, P.R. China  
Tel: +86 21 5200-0099

### Europe/Africa/Middle East

Auf der Heide 2  
53947 Nettersheim, Germany  
Tel: +49 2486 809-0

Friedensstraße 41  
68804 Altlußheim, Germany  
Tel: +49 6205 2094-0

An den Nahewiesen 24  
55450 Langenlonsheim, Germany  
Tel: +49 6704 204-0

### Singapore

100G Pasir Panjang Road #07-08  
Singapore 118523  
Tel: +65 6825-1668

**For more information, please  
email us at [filtration@eaton.com](mailto:filtration@eaton.com)  
or visit [www.eaton.com/filtration](http://www.eaton.com/filtration)**

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