

Depth Filtration
BECODISC® BS Range

Stacked Disc Cartridges for Standard Applications

BECODISC BS stacked disc cartridges are ideal for demanding filtration applications involving liquids. The product range seamlessly covers retention grades between 4.0 and 0.1 µm, so that exact adaptation to the requirements can be ensured within this separation range.

The specific advantages of BECODISC BS stacked disc cartridges:

- Reliable product retention through ideal pore structure
- Use of high-quality raw materials for high clarification performance
- Economic service life through high dirt holding capacity
- Comprehensive quality control of all raw and auxiliary materials
- In-process monitoring ensures consistent quality



Sterilizing Filtration

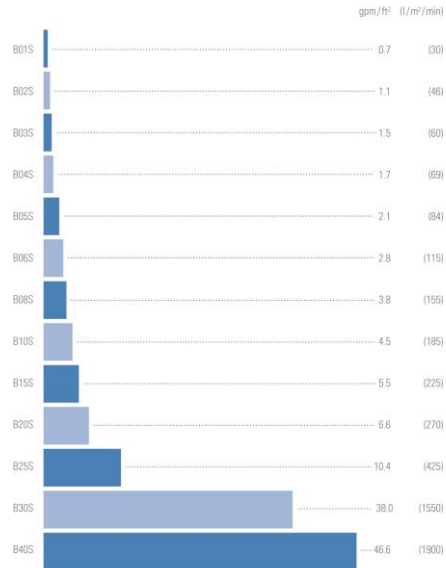
BECODISC B01S, B02S, B03S, B04S
BECODISC stacked disc cartridges with high germ retention rate. These stacked disc cartridges are particularly suitable for cold-sterile bottling or storing of liquids. The high germ retention rate is achieved through the fine-pored structure of the BECO® depth filter sheet and an electrokinetic potential with an adsorptive effect.

Due to their high retention capacity for colloidal ingredients, these stacked disc cartridges are suitable as prefilters for subsequent membrane filtration.

Low-germ Fine Filtration

BECODISC B05S, B06S, B08S, B10S, B15S, B20S
BECODISC stacked disc cartridges for achieving a high degree of clarification. These stacked disc cartridges 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.

Water throughput BECODISC BS range



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

Clarifying Filtration

BECODISC B25S, B30S, B40S
BECODISC stacked disc cartridges with large-volume pore structure. These stacked disc cartridges have a high holding capacity for particles and are especially suitable for clarifying filtration applications.

Physical Data

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

Type	Utilized BECO depth filter sheet	Nominal retention rate µm	Thickness in (mm)	Ash content %	Bursting strength wet		Water throughput at	
					psi	(kPa)	Δ p = 14.5 psi gpm/ft ²	(Δ p = 100 kPa* l/m ² /min)
B01S	Steril S 100	0.1	0.15 (3.9)	58.0	> 7.3 (50)		0.7	(30)
B02S	Steril S 80	0.2	0.15 (3.9)	50.0	> 11.6 (80)		1.1	(46)
B03S	Steril 60	0.3	0.15 (3.8)	50.0	> 7.3 (50)		1.5	(60)
B04S	Steril 40	0.4	0.15 (3.8)	49.0	> 7.3 (50)		1.7	(69)
B05S	SD 30	0.5	0.15 (3.8)	50.0	> 7.3 (50)		2.1	(84)
B06S	KDS 15	0.6	0.15 (3.8)	50.0	> 7.3 (50)		2.8	(115)
B08S	KDS 12	0.8	0.15 (3.8)	50.0	> 7.3 (50)		3.8	(155)
B10S	KD 10	1.0	0.15 (3.8)	50.0	> 7.3 (50)		4.5	(185)
B15S	KD 7	1.5	0.15 (3.8)	50.0	> 7.3 (50)		5.5	(225)
B20S	KD 5	2.0	0.15 (3.8)	50.0	> 7.3 (50)		6.6	(270)
B25S	KD 3	2.5	0.15 (3.8)	50.0	> 5.8 (40)		10.4	(425)
B30S	K2	3.0	0.15 (3.8)	46.0	> 7.3 (50)		38.0	(1550)
B40S	K1	4.0	0.15 (3.8)	42.0	> 8.7 (60)		46.6	(1900)

The water throughput is a laboratory value characterizing the different BECO[®] depth filter sheets. It is not the recommended flow rate.

* 100 kPa = 1 bar

Chemical Data

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

Chemical resistance of the BECO depth filter sheets to different solvents over a contact time of 3 hours at 68 °F (20 °C). The chemical compatibilities listed in the table below are a guide only.

Solvent	Me- chanical strength	Solvent appear- ance	Solvent	Me- chanical strength	Solvent appear- ance	Solvent	Me- chanical strength	Solvent appear- ance
Aqueous solutions:						Organic solvents:		
Sugar solution, 10%	r	nc	Hydrochloric acid, 1%	r	nc	Methanol	r	nc
With 1% free chlorine	r	nc	Hydrochloric acid, 3%	r	nc	Ethanol	r	nc
With 1% hydrogen peroxide	r	nc	Hydrochloric acid, 5%	r	nc	Isopropanol	r	nc
With 30% formaldehyde	r	nc	Hydrochloric acid, 10%	r	nc	Toluene	r	nc
With 10% ethanol	r	nc	Azonic acid, 1%	r	nc	Xylene	r	nc
With 40% ethanol	r	nc	Azonic acid, 3%	r	nc	Acetone	r	nc
With 98% ethanol	r	nc	Azonic acid, 5%	r	nc	Methyl ethyl ketone	r	nc
Caustic soda, 1%	r	nc	Azonic acid, 10%	r	nc	n-hexane	r	nc
Caustic soda, 2%	r	nc	Sulfuric acid, 1%	r	nc	Dioxan	r	nc
Caustic soda, 4%	r	0	Sulfuric acid, 3%	r	nc	Cyclohexane	r	nc
Ammonia solution, 1%	r	nc	Sulfuric acid, 5%	r	nc	Tetrachloroethylene	r	nc
Ammonia solution, 3%	r	nc	Sulfuric acid, 10%	r	nc	Ethylene glycol	r	nc
Ammonia solution, 5%	r	nc	Acetic acid, 1%	r	nc	Dimethyl sulfide	r	nc
			Acetic acid, 3%	r	nc	N, N-Dimethyl formamide	r	nc
			Acetic acid, 5%	r	nc			
			Acetic acid, 10%	r	0			
<i>r = resistant</i>			<i>nc = no change</i>			<i>0 = slight opalescence</i>		
* = German Food, Commodity, and Feed Act			** = Federal Institute of Risk Assessment			*** = Food and Drug Administration; USA		

Components

The depth filter sheets for the BECODISC BS 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 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, a central spindle should be installed 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 1.23 gal/ft ² (50 l/m ²) 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 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.

Waste 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.

Available Formats

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 the 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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