

Depth Filtration

BECODISC BS

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Stacked Disc Cartridges with Nominal Retention Rates from 4.0- 0.1 µm

BECODISC BS stacked disc cartridges are used 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 the BECO standard range:

- ▶ Ideal pore structure for reliable retention of the components to be separated
- ▶ 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

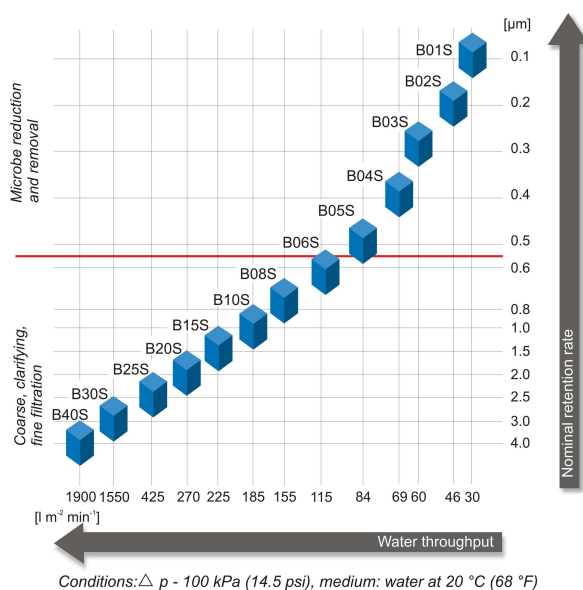
Microbe reduction and removal

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 particularly suitable as prefilters for subsequent membrane filtration.

Overview of BECODISC BS types



Microbe reduction and fine filtration

BECODISC B05S, 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.

Clarifying Filtration and coarse 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 stacked disc cartridges.

Type	Depth filter sheets used	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water permeability at $\Delta p = 100 \text{ kPa}$ [$\text{l m}^{-2} \text{ min}^{-1}$]
		[μm]	[mm] [in]	[%]	[kPa] [psi]			
B01S	Steril S 100	0.1	3.9	0.15	58.0	> 50	> 7.3	30
B02S	Steril S 80	0.2	3.9	0.15	50.0	> 80	> 11.6	46
B03S	Steril 60	0.3	3.8	0.15	50.0	> 50	> 7.3	60
B04S	Steril 40	0.4	3.8	0.15	49.0	> 50	> 7.3	69
B05S	SD 30	0.5	3.8	0.15	50.0	> 50	> 7.3	84
B06S	KDS 15	0.6	3.8	0.15	50.0	> 50	> 7.3	115
B08S	KDS 12	0.8	3.8	0.15	50.0	> 50	> 7.3	155
B10S	KD 10	1.0	3.8	0.15	50.0	> 50	> 7.3	185
B15S	KD 7	1.5	3.8	0.15	50.0	> 50	> 7.3	225
B20S	KD 5	2.0	3.8	0.15	50.0	> 50	> 7.3	270
B25S	KD 3	2.5	3.8	0.15	50.0	> 40	> 5.8	425
B30S	K 2	3.0	3.8	0.15	46.0	> 50	> 7.3	1550
B40S	K 1	4.0	3.8	0.15	42.0	> 60	> 8.7	1900

Chemical Data

The standard BECO depth filter sheet range meets the requirements of LFGB* recommendation XXXVI/1 issued by BfR** and the test criteria of FDA guideline CFR 21 § 177.2260.

Chemical resistance of the BECO depth filter sheets to different solvents over a contact time of 3 hours at 20°C (68 °F).

Solvent	Mechanical strength	Solvent appearance	Solvent	Mechanical strength	Solvent appearance	Solvent	Mechanical strength	Solvent appearance
Aqueous solutions:						Organic solvents:		
Sugar solution, 10%	r	nc	Hydrochloric acid 1%	r	nc	Methanol	r	nc
With 1% free chlorine	r	nc	3%	r	nc	Ethanol	r	nc
With 1% hydrogen peroxide	r	nc	5%	r	nc	Isopropanol	r	nc
With 30% formaldehyde	r	nc	10%	r	nc	Toluene	r	nc
With 10% ethanol	r	nc	Azonic acid 1%	r	nc	Xylene	r	nc
With 40% ethanol	r	nc	3%	r	nc	Acetone	r	nc
With 98% ethanol	r	nc	5%	r	nc	Methyl ethyl ketone	r	nc
Caustic soda 1%	r	nc	10%	r	nc	n-hexane	r	nc
2%	r	nc	Sulfuric acid 1%	r	nc	Dioxan	r	nc
4%	r	0	2%	r	nc	Cyclohexane	r	nc
Ammonia solution 1%	r	nc	5%	r	nc	Tetrachloroethylene	r	nc
3%	r	nc	10%	r	nc	Ethylene glycol	r	nc
5%	r	nc	Acetic acid 1%	r	nc	Dimethyl sulfide	r	nc
			3%	r	nc	N, N-Dimethyl formamide	r	nc
			5%	r	nc			
			10%	r	0			

r = resistant nc = no change 0 = slight opalescence
 * = German Food, Commodity and Feed Act; ** = Federal Institute of Risk Assessment

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, particularly pure kieselguhr.

Recommendations for Avoiding Damage

BECODISC stacked disc cartridges can only be used 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 our insert included with each BECODISC carton for detailed application information.

Depending on the liquids to be filtered, the operating temperature should not exceed 80 °C (176 °F). Please contact us regarding filtration applications at higher temperatures. We would be pleased to give you advice regarding further options.

Intermediate Plates

If more than two BECODISC stacked disc cartridges (12" or 16") with dual 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 / dual O-ring adapter) is used in the housing, we recommend 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 85 °C (185 °F) to 95 °C (203 °F). A differential pressure of 150 kPa (1.5 bars) must not be exceeded when sterilizing with hot water.

Sterilization time: At least 30 minutes once a temperature of at least 80 °C has been 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 **134 °C (273 °F)** as follows:

- Steam quality: The steam must be free of foreign particles and impurities.
- Temperature: Max. **134 °C (273 °F) (saturated steam)**
- Duration: Approx. 20 minutes after steam exits from all filter valves.
- Rinsing: After sterilizing with 50 l/m² at 1.25 times the flow rate.

Filter Preparation and Filtration

Unless already completed after sterilization, we recommend pre-rinsing the closed filter with 50 liters (13.2 gal) of water per square meter 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 chemical 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 300 kPa (3 bars) is reached. A higher differential pressure could damage the depth filter sheet material. For safety reasons, a differential pressure of 150 kPa (1.5 bars) should not be exceeded in applications for separating microorganisms.

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.

BECODISC stacked disc cartridges are intended for immediate use and should be used up within 36 months of delivery.

BECODISC stacked disc cartridges must not be exposed to direct sunlight.

Available Formats

BECODISC stacked disc cartridges are available with 12-inch (295 mm) and 16-inch (402 mm) diameters. Further information about filter areas and gasket types can be found in our current BECODISC folder.

HS customs tariff number: 4812 00 00

Quality Assurance According to DIN EN ISO 9001

BEGEROW's comprehensive Quality Management System 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.

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