

Depth Filtration

BECODISC BT

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Stacked Disc Cartridges with Nominal Filtration Rates exceeding 4 µm for the Chemical, Cosmetic and for the Food Industry

BECODISC BT stacked disc cartridges (nominal filtration rates exceeding 4 µm) are used for clarifying filtration in the chemical, cosmetic and food industry. The filter sheets are removing particles of a coarse, crystalline, amorphous or gel-like structure perfectly. An extremely wide range of filtration tasks can be performed according to given specifications, even with highly viscous liquids.

The specific advantages of the BECODISC BT stacked disc cartridges:

- ▶ Efficient filtration through high dirt holding capacity.
- ▶ Differentiated fibre and pore structure (internal surface area) for various applications and special process conditions.
- ▶ Reliable filtration effect through an ideal combination of the depth filter effect and the adsorptive potential.
- ▶ Maximum purity of raw material for minimum contamination on filtrate.
- ▶ Comprehensive quality assurance of all raw materials and additives. Intensive in-process control guarantees the consistent high quality of the final products.

Coarse Filtration

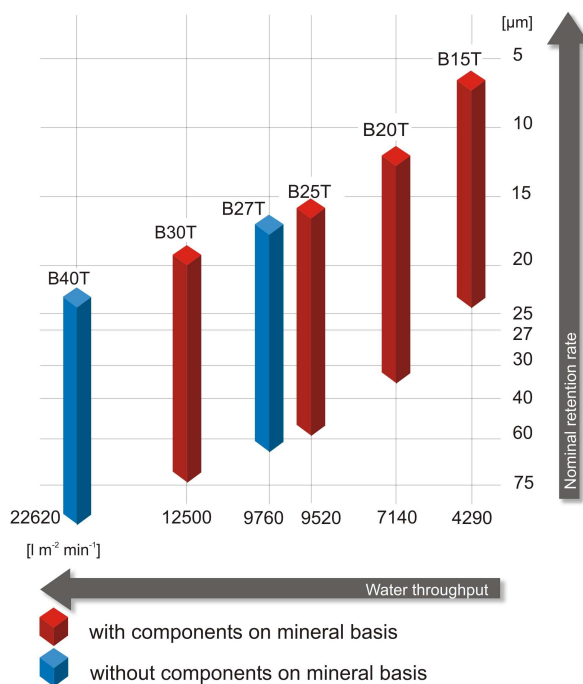
BECODISC B15T, B20T, B25T, B30T

BECODISC stacked disc cartridges with filter active components on mineral basis for clarification of liquids with coarse crystalline and non-crystalline or gelatinous particle structures. Suitable for highly viscous liquids.

Examples for application:

Polishing filtration of concentrated sugar solutions of approx. 65 °Brix and filtration of edible oils, vegetable extracts, liquid gelatin, ointment bases consisting of primary products, oils, varnishes, polymer dispersions and separation of bleaching earth. Possible applications also include removing of activated carbon. Depending upon particle distribution of the activated carbon can even be achieved in a single step filtration process.

Overview of BECODISC BT types



Conditions: Δ p - 100 kPa (14.5 psi), medium: water at 20 °C (68 °F)

Special Stacked Disc Cartridges with Low Ash Content

BECODISC B27T, B40T

These BECODISC stacked disc cartridges were especially developed to meet the high filtration demands of the chemical industry. By the implementation and selection of high pure filter cellulose, the content of washable ions is extremely low. These stacked disc cartridges are produced with components containing low ions. Therefore the migration of iron or aluminum ions can be reduced to detection limit.

Examples for application:

These types of stacked disc cartridges are used, among other things, for filtering sugar, removing activated carbon, and for cleaning electro-dipcoats for example.

Physical Data

Selection Guidelines

Type	Utilized depth filter sheets	Nominal retention rate [µm]	Thick-ness		Ash content [%]	Mass per unit area [g m ⁻²]	Bursting strength wet		Water permeability at Δ p = 100 kPa [l m ⁻² min ⁻¹]
			[mm]	[in]			[kPa]	[psi]	
B15T	CP07S	15.0	3.6	0.14	35.0	940	> 110	> 16.0	4290
B20T	CP03S	20.0	3.7	0.15	35.0	890	> 90	> 13.1	7140
B25T	CP02S	25.0	3.3	0.13	17.0	700	> 90	> 13.1	9520
B30T	CP01S	30.0	4.6	0.18	16.0	850	> 110	> 16.0	12500
B27T	CP2KS	27.0	2.9	0.11	< 1.0	625	> 150	> 21.8	9760
B40T	CP1KS	40.0	4.5	0.18	< 1.0	700	> 300	> 43.5	22620

Chemical Data

BECO CPS depth filter sheets meet the requirements of recommendation XXXVI/1 regarding the LFGB* by the BfR**, and the test criteria of FDA directive CFR 21 § 177.2260.

Chemical compatibility of the depth filter material with respect to different solvents, contact time 3 hours at 20 °C (68 °F).

Solvent	Mechanical strength	Appearance of solvent	Solvent	Mechanical strength	Appearance of solvent	Solvent	Mechanical strength	Appearance of solvent		
Aqueous solutions						Organic solvents:				
Sugar solution 10 %	r	nc	Hydrochloric acid of	1 %	r	Methanol	r	nc		
With 1 % free chlorine	r	nc		3 %	r	Ethanol	r	nc		
With 1 % hydrogen peroxide		ncV		5 %	r	nc	Isopropanol	r	nc	
With 30 % formaldehyde		ncV		10 %	r	nc	Toluol	r	nc	
With 10 % ethanol	r	nc	Nitric acid of	1 %	r	Xylol	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 lye of	1 %	r	nc	10 %	r	nc	n-Hexan	r	nc	
	2 %	r	nc	Sulphuric acid of	1 %	r	nc	Dioxan	r	nc
	4 %	r	0		3 %	r	nc	Cyclohexan	r	nc
			5 %		r	nc	Tetrachlorethylene	r	nc	
Ammonia solution of	1 %	r	nc	10 %	r	nc	Ethylene glykol	r	nc	
	3 %	r	nc	Acetic acid of	1 %	r	nc	Dimethyl sulfide	r	nc
	5 %	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

The comprehensive Quality-Management-System of BEGEROW has been certified according to DIN EN ISO 9001.

The certification confirms the functioning of the total system of Quality Assurance from product development through contract controls, choice of suppliers as well as acceptance controls, production and final examination all in the way to storage and dispatch.

Extensive quality assurance measures comprise the adherence to technical criteria regarding the function as well as the confirmation of chemical purity and quality recognized as safe under the German law governing the production of foodstuffs and beverages.

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