Technical Data Sheet

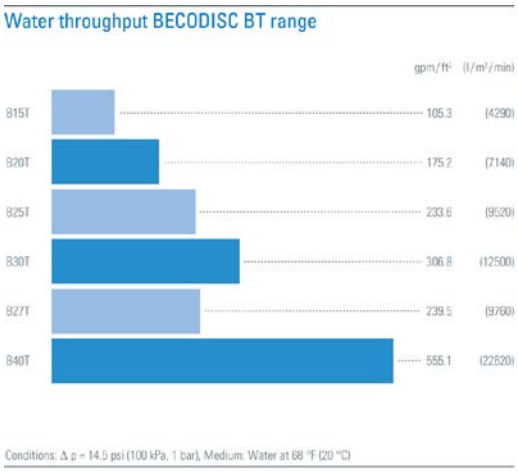
Depth Filtration
BECODISC® BT Range

Stacked Disc Cartridges for Chemical, Cosmetics, and 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 depth 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 BECODISC BT stacked disc cartridges:

- Efficient filtration through high dirt holding capacity.
- Differentiated fiber 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.

Application Examples:
Polishing filtration of concentrated sugar solutions of approx. 65 °Brix and filtration of edible oils, vegetable extracts, liquid gelatin, and ointment bases consisting of primary products, oils, varnishes, polymer dispensions and separation of bleaching earth. Possible applications also include removing of activated carbon. Depending upon particle distribution of the activated carbon a single step filtration is possible.

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 is reduced to detection limit.

Application Examples:
Filtering sugar, removing activated carbon, and for cleaning electro-dipcoats.

Powering Business Worldwide

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 psi (kPa)	Water throughput at Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa* l/m²/min)
B15T	CP07S	15.0	0.14 (3.6)	35.0	> 16.0 (110)	105.3	(4290)
B20T	CP03S	20.0	0.15 (3.7)	35.0	> 13.1 (90)	175.2	(7140)
B25T	CP02S	25.0	0.13 (3.3)	17.0	> 13.1 (90)	233.6	(9520)
B30T	CP01S	30.0	0.18 (4.6)	16.0	> 14.5 (100)	306.8	(12500)
B27T	CP2KS	27.0	0.11 (2.9)	< 1.0	> 21.8 (150)	239.5	(9760)
B40T	CP1KS	40.0	0.18 (4.5)	< 1.0	> 43.5 (300)	555.1	(22620)

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-chani-cal strength	Solvent appear-ance	Solvent	Me-chani-cal strength	Solvent appear-ance	Solvent	Me-chani-cal 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			

r = resistant — *nc = no change* — *0 = slight opalescence*

** = German Food, Commodity, and Feed Act* — *** = Federal Institute of Risk Assessment* — **** = Food and Drug Administration; USA*

Components

The depth filter sheets for the BECODISC BT 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 liquids to be filtered, 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, install a central spindle 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 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/ft² (50 l/m²) 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.

HS Customs Tariff: 8421 99 00

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 warrantees 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

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

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

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

For more information, please email us at *filtration@eaton.com* or visit *www.eaton.com/filtration*

EN
1 A 2.5.5.12
08-2016

Powering Business Worldwide