

## Depth Filtration BECODISC® BT Range

### Stacked Disc Cartridges for the Filtration of Highly Viscous Liquids

BECODISC BT stacked disc cartridges 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

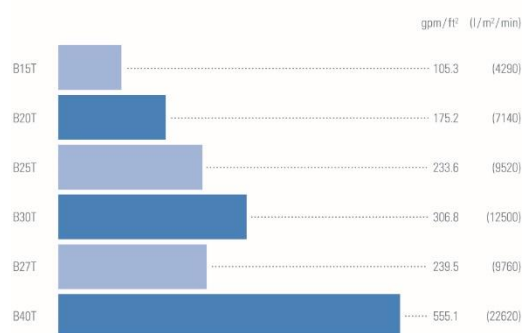
BECODISC stacked disc cartridges with filtration-active components on mineral basis for clarification of liquids with coarse crystalline and non-crystalline or gelatinous particle structures. Suitable for highly viscous liquids.

##### 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 dispersions 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.



Water throughput BECODISC BT range



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

#### 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-purity 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.

## Physical Data

This information is intended as a guideline for the selection of BECODISC stacked disc cartridges. The water throughput is a laboratory value characterizing the different BECO depth filter sheets. It is not the recommended flow rate.

Type*	Utilized BECO® depth filter sheet	Nominal retention rate µm	Thickness		Ash content %	Bursting strength wet		Water throughput at	
			in	(mm)		psi	(kPa <sup>***</sup> )	Δ p = 14.5 psi gpm/ft <sup>2</sup>	(Δ p = 100 kPa <sup>***</sup> ) l/m <sup>2</sup> /min
B15T	CP07S	15.0	0.14	(3.6)	35	> 16.0	(110)	105.3	(4290)
B20T	CP03S	20.0	0.15	(3.7)	35	> 13.1	(90)	175.2	(7140)
B25T	CP02S	25.0	0.13	(3.3)	17	> 13.1	(90)	233.6	(9520)
B30T	CP01S	30.0	0.18	(4.6)	16	> 14.5	(100)	306.8	(12500)
B27T	CP2KS**	27.0	0.11	(2.9)	< 1	> 21.8	(150)	239.5	(9760)
B40T	CP1KS**	40.0	0.18	(4.5)	< 1	> 43.5	(300)	555.1	(22620)

\* B = Polypropylene version (e.g. B15T), C = Polyamide version (e.g. C15T)

\*\* Without the addition of mineral components

\*\*\* 100 kPa = 1 bar

## Ordering Information

B	15T	6	2	S	F
<b>Design</b>	<b>BECO depth filter sheet</b>	<b>Construction (overall height)<sup>1</sup></b>	<b>Size</b>	<b>Gasket material</b>	<b>Adapter</b>
B = Polypropylene C = Polyamide (Non-Food Grade)	15T = CP07S 20T = CP03S 25T = CP02S 30T = CP01S 27T = CP2KS 40T = CP1KS	6 = 16 filter cells (10.9/13.0 in) (276/329 mm) 4 = 14 filter cells (10.9/13.0 in) (276/329 mm) 7 = 9 filter cells <sup>2</sup> (10.9/13.0 in) (276/329 mm) 3 = 9 filter cells <sup>3</sup> (10.9/13.0 in) (276/329 mm) 9 = 9 filter cells (7.7/10.0 in) (195/248 mm) 5 = 5 filter cells <sup>4</sup> (4.4 in) (101 mm)	2 = 12", Ø 11.6 in (295 mm) 4 = 16", Ø 15.8 in (402 mm)	E = EPDM F = FEP-coated silicone core S = Silicone V = Fluoroelastomer	F = Flat adapter S = Double O-ring adapter Y = Flat adapter with grounding devise

<sup>1</sup> Flat adapter/Double O-ring adapter | <sup>2</sup> With cell spacer rail | <sup>3</sup> With cell spacer rail and protective fleece |

<sup>4</sup> Cannot be combined with double O-ring adapter

### Example: B15T62SF

Polypropylene stacked disc cartridge with BECO CP07S depth filter sheets, nominal retention rate of 15.0 µm, 16 filter cells, 10.9 in (276 mm) high, 12", with silicone gaskets and flat adapter.

	BECODISC 12", Ø 11.6 in (295 mm)					BECODISC 16", Ø 15.8 in (402 mm)				
	16	14	9 <sup>1</sup>	9	5	16	14	9 <sup>1</sup>	9	5
Number of cells	16	14	9 <sup>1</sup>	9	5	16	14	9 <sup>1</sup>	9	5
Filter surface area [ft <sup>2</sup> (m <sup>2</sup> )]	20.5 (1.9)	17.8 (1.65)	11.8 (1.1)	11.8 (1.1)	6.4 (0.59)	39.8 (3.7)	34.4 (3.2)	22.6 (2.1)	22.6 (2.1)	12.4 (1.15)
Pre-coat volume [gal (l)] <sup>2</sup>	-	0.9 (3.6)	2.1 (8.0)	-	-	-	1.8 (7.0)	4.1 (15.4)	-	-
Overall height flat adapter [in (mm)]	10.9 (276)	10.9 (276)	10.9 (276)	7.7 (195)	4.4 (101)	10.9 (276)	10.9 (276)	10.9 (276)	7.7 (195)	4.4 (101)
Overall height double O-ring adapter [in (mm)]	13.0 (329)	13.0 (329)	13.0 (329)	10.0 (248)	-	13.0 (329)	13.0 (329)	13.0 (329)	10.0 (248)	-
Protective fleece (polyester)	-	-	✓/-	-	-	-	-	✓/-	-	-
Cell spacer rail	-	-	✓	-	-	-	-	✓	-	-

<sup>1</sup> Special stacked disc cartridge configuration with cell spacer rails providing increased mechanical stability for holding filter cake | <sup>2</sup> Calculated values (BECO depth filter sheets with 0.16 in/4.0 mm thickness)

## Compliance Notice

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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

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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

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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. When silicone/FEP coated gaskets are used the stainless steel plates are mandatory.

## Sanitizing and Sterilizing (Optional)

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### 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<sup>2</sup> (50 l/m<sup>2</sup>) at 1.25 times the flow rate.

## Filter Preparation and Filtration

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Unless already completed after sterilization, Eaton recommends pre-rinsing the closed filter with 1.23 gal/ft<sup>2</sup> (50 l/m<sup>2</sup>) 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

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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.

## Waste Disposal

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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

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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.

## 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.

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