

BECODISC stacked disc cartridges



Powering Business Worldwide

Robust and compact stacked disc cartridges for a wide variety of filtration applications

Eaton is a leading supplier of complete depth filtration solutions and develops, manufactures and provides high-quality depth filtration media for food, beverage, fine chemical and pharmaceutical applications.

The individual cells of the BECODISC® stacked disc cartridges are constructed using either BECO®-, BECOPAD® or BECO CARBON™ depth filter sheets. In addition to handling simplicity, reduced setup times, increased personnel and product protection, the enclosed BECODISC system offers protection against bypass effects. Additional benefits include:

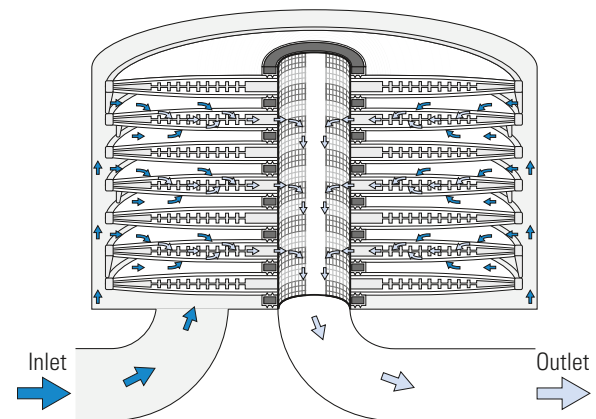
- Precise sealing of the filter cells through polypropylene or polyamide edge molding
- Excellent stability, even during sterilization, through high assembly pressure compressing the filter cells and bound tightly with a three-segment stainless steel sleeve
- Efficient flow path within the filter cell through an internal drainage plate
- Full filter surface area utilization through defined, consistent cell distance

The product range also contains enclosed BECO INTEGRA DISC™ housings in a range of designs and sizes. They meet many demanding filtration tasks and process safety requirements.

Eaton stacked disc cartridges meet national and international quality standards, such as:

- Regulation (EC) No 1935/2004 and German LFGB standard (Food, Commodity and Feed Act)
- FDA guidelines (Food and Drug Administration) from the USA
- Polypropylene components meet European Directive 10/2011

For further information, please refer to the Declaration of Conformity documents, technical data sheets and Validation Guides, especially for the pharmaceutical industry.



BECODISC flow diagram in enclosed filter housing



BECODISC Stacked Disc Cartridge Ranges

Selection guide

Broad application spectrum



BECODISC

Premium stacked disc cartridges with BECOPAD depth filter sheets made of cellulose, characterized by high-purity, strength and performance for excellent color and flavor fidelity.

Main applications:

Wine, beer, fruit juices, spirits, food, fine/specialty chemistry, biotechnology, pharmaceutical, cosmetics



BECODISC BS

Stacked disc cartridges with excellent clarification performance for reliable removal from particles to microorganisms due to optimal pore structure and adsorption.

Main applications:

Wine, beer, fruit juices, spirits, food, fine/specialty chemistry, biotechnology, pharmaceutical, cosmetics



BECODISC BT

Stacked disc cartridges with high dirt-holding capacity and burst strength for filtration of liquids with high viscosity or particle load.

Main applications:

Fine/specialty chemistry, biotechnology, pharmaceutical, cosmetics, food, fruit juices



BECODISC BA

Stacked disc cartridges specifically manufactured with reduced calcium and magnesium for prevention and removal of haze while preserving color and flavor.

Main applications:

Spirits, flavors and fragrances

Adsorption and decolorization



BECODISC BC

Immobilized activated carbon imparts high adsorption capacity to carbon stacked disc cartridges for the decolorization and removal of undesired by-products or for taste and odor correction.

Main applications:

Fine/specialty chemistry, biotechnology, pharmaceutical, cosmetics fruit juices, spirits, food

A Validation Guide for BECODISC B03C is available upon request.

Low endotoxin content suitable for pharmaceutical applications



BECODISC P

Stacked disc cartridges with BECOPAD P depth filter sheets composed of high-purity cellulose with low extractables, extremely low endotoxin content (<0.025 EU/ml) after rinsing with 0.61 gal/ft^2 (25 l/m^2) WFI (Water for Injection) and up to 50 % reduction of rinse volume.

Main applications:

Pharmaceutical, fine/specialty chemistry, biotechnology

A Validation Guide is available upon request.



BECODISC BP

Stacked disc cartridges with excellent clarification performance for reliable removal of particulate, microorganisms and retention of endotoxins due to optimal combination of depth filtration and adsorption. An endotoxin content of <0.125 EU/ml after rinsing with 1.23 gal/ft^2 (50 l/m^2) WFI is achieved.

Main applications:

Pharmaceutical, fine/specialty chemistry, biotechnology

A Validation Guide is available upon request.

BECODISC Stacked Disc Cartridge Ranges

Technical data

Range	Type ⁵	Depth filter sheet	Nominal retention rate µm	Thickness in (mm)	Ash content %	Bursting strength wet psi (kPa ¹)	Water throughput at Δp=14.5 psi (Δp=100 kPa ¹) gpm/ft ² (l/m ² /min)	Endotoxin content EU/ml	Activated carbon content g/m ²
BECODISC	B1C3 ²	BECOPAD 115 C ²	0.1– 0.2	0.16 (4.1)	<1	>21.8 (150)	0.6 (26)	-	-
	B123 ²	BECOPAD 120 ²	0.1– 0.3	0.15 (3.9)	<1	>21.8 (150)	1.3 (54)	-	-
	B173 ²	BECOPAD 170 ²	0.2– 0.4	0.15 (3.9)	<1	>21.8 (150)	1.9 (77)	-	-
	B223 ²	BECOPAD 220 ²	0.3– 0.5	0.15 (3.9)	<1	>21.8 (150)	2.5 (100)	-	-
	B273 ²	BECOPAD 270 ²	0.5– 0.7	0.15 (3.9)	<1	>21.8 (150)	3.3 (135)	-	-
	B353 ²	BECOPAD 350 ²	0.7– 1.0	0.15 (3.9)	<1	>21.8 (150)	3.9 (160)	-	-
	B453 ²	BECOPAD 450 ²	1.0– 2.0	0.15 (3.9)	<1	>21.8 (150)	7.4 (300)	-	-
	B553 ²	BECOPAD 550 ²	2.0– 3.0	0.15 (3.9)	<1	>21.8 (150)	14.0 (570)	-	-
	B583 ²	BECOPAD 580 ²	8.0–10.0	0.15 (3.9)	<1	>21.8 (150)	87.6 (3571)	-	-
BECODISC BS	B01S	BECO Steril S 100	0.1	0.15 (3.9)	58	>7.3 (50)	0.7 (30)	-	-
	B02S	BECO Steril S 80	0.2	0.15 (3.9)	50	>11.6 (80)	1.1 (46)	-	-
	B03S	BECO Steril 60	0.3	0.15 (3.8)	50	>7.3 (50)	1.5 (60)	-	-
	B04S	BECO Steril 40	0.4	0.15 (3.8)	49	>7.3 (50)	1.7 (69)	-	-
	B05S	BECO SD 30	0.5	0.15 (3.8)	50	>7.3 (50)	2.1 (84)	-	-
	B06S	BECO KDS 15	0.6	0.15 (3.8)	50	>7.3 (50)	2.8 (115)	-	-
	B08S	BECO KDS 12	0.8	0.15 (3.8)	50	>7.3 (50)	3.8 (155)	-	-
	B10S	BECO KD 10	1.0	0.15 (3.8)	50	>7.3 (50)	4.5 (185)	-	-
	B15S	BECO KD 7	1.5	0.15 (3.8)	50	>7.3 (50)	5.5 (225)	-	-
	B20S	BECO KD 5	2.0	0.15 (3.8)	50	>7.3 (50)	6.6 (270)	-	-
	B25S	BECO KD 3	2.5	0.15 (3.8)	50	>5.8 (40)	10.4 (425)	-	-
	B30S	BECO K2	3.0	0.15 (3.8)	46	>7.3 (50)	38.0 (1550)	-	-
	B40S	BECO K1	4.0	0.15 (3.8)	42	>8.7 (60)	46.6 (1900)	-	-
	B15T	BECO CP07S	15.0	0.14 (3.6)	35	>16.0 (110)	105.3 (4290)	-	-
	B20T	BECO CP03S	20.0	0.15 (3.7)	35	>13.1 (90)	175.2 (7140)	-	-
BECODISC BT	B25T	BECO CP02S	25.0	0.13 (3.3)	17	>13.1 (90)	233.6 (9520)	-	-
	B30T	BECO CP01S	30.0	0.18 (4.6)	16	>14.5 (100)	306.8 (12500)	-	-
	B27T ²	BECO CP2KS ²	27.0	0.11 (2.9)	<1	>11.6 (80)	239.5 (9760)	-	-
	B40T ²	BECO CP1KS ²	40.0	0.17 (4.3)	<1	>21.8 (150)	555.1 (22620)	-	-
BECODISC BA	BA20	BECO SELECT™ A 20	0.8	0.17 (4.4)	43	>5.8 (40)	3.9 (160)	-	-
	BA40	BECO SELECT A 40	2.5	0.17 (4.4)	43	>5.8 (40)	7.4 (300)	-	-
BECODISC BC	B71C	BECO CARBON ACF 07.10	-	0.15 (3.8)	15	>11.6 (80)	34.7 (1415)	-	420
	B02C	BECO CARBON ACF 02	-	0.21 (5.3)	2.5	>11.6 (80)	6.75 (275)	<0.125 ⁴	1000
	B03C	BECO CARBON ACF 03	-	0.20 (5.1)	5	>11.6 (80)	7.36 (300)	<0.125 ⁴	1000
BECODISC P	B171 ²	BECOPAD P 170 ²	0.2– 0.4	0.15 (3.9)	<1	>21.8 (150)	1.9 (77)	<0.025 ³	-
	B271 ²	BECOPAD P 270 ²	0.5– 0.7	0.15 (3.9)	<1	>21.8 (150)	3.3 (135)	<0.025 ³	-
	B351 ²	BECOPAD P 350 ²	0.7– 1.0	0.15 (3.9)	<1	>21.8 (150)	3.9 (160)	<0.025 ³	-
	B551 ²	BECOPAD P 550 ²	2.0– 3.0	0.15 (3.9)	<1	>21.8 (150)	14.0 (570)	<0.025 ³	-
	B581 ²	BECOPAD P 580 ²	8.0–10.0	0.15 (3.9)	<1	>21.8 (150)	87.6 (3571)	<0.025 ³	-
BECODISC BP	B01P	BECO PR Steril S100	0.1	0.15 (3.9)	58	>7.3 (50)	0.7 (30)	<0.125 ⁴	-
	B02P	BECO PR Steril S 80	0.2	0.15 (3.9)	50	>11.6 (80)	1.1 (46)	<0.125 ⁴	-
	B04P	BECO PR Steril 40	0.4	0.15 (3.9)	49	>7.3 (50)	1.5 (61)	<0.125 ⁴	-
	B08P	BECO PR 12	0.8	0.15 (3.9)	50	>18.9 (130)	4.3 (175)	<0.125 ⁴	-
	B20P	BECO PR 5	2.0	0.15 (3.9)	50	>8.7 (60)	8.1 (330)	<0.125 ⁴	-
	B40P	BECO PR 1	4.0	0.17 (4.3)	48	>6.5 (45)	58.4 (2381)	<0.125 ⁴	-

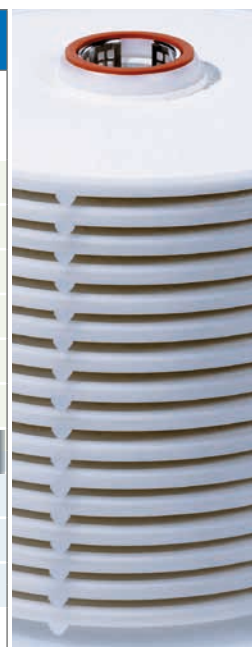
¹ 100 kPa = 1 bar | ² Without the addition of mineral components | ³ Determination after rinsing with 0.61 gal/ft² (25 l/m²) WFI (Water for Injection) | ⁴ Determination after rinsing with 1.23 gal/ft² (50 l/m²) WFI

⁵ B = Polypropylene design version (z. B. B02S); C = Polyamide design version (z. B. C02S)



Retention ranges and filtration tasks

BECODISC stacked disc cartridges											BECODISC BC activated carbon stacked disc cartridges		
Nominal retention range in µm											Activated carbon pore size		
0.1	0.6	2.5	4.0	4.5	5.0	10.0	15.0	30.0	40.0	80.0	Micro	Meso	Macro
BECODISC													
BS													
BT													
BA											B71C		
											B02C		
BECODISC P											B03C		
BP											Endotoxin content < 0.125 EU/ml		
											Endotoxin content < 0.025 EU/ml		
											Endotoxin content < 0.125 EU/ml		
Microbial reduction and removal											Adsorptive filtration		
Coarse, clarifying and fine filtration													



Enclosed filtration systems



BECODISC stacked disc cartridges are used in BECO INTEGRA DISC stacked disc cartridge housings.

As an enclosed system, BECO INTEGRA DISC is the alternative to classic filtration systems, especially where the focus is on protecting operating personnel and the product. In addition, these systems convince through:

- High product safety
- CIP/SIP capability
- High flexibility
- Simple handling
- Small footprint with large filter area



Concept and configuration

BECO INTEGRA DISC are enclosed filter housings consisting of a base with three legs and a detachable housing dome. The base with inlet and outlet socket contains the centering and mounting unit for holding the stacked disc cartridge with a flat adapter or double O-ring adapter.

The connection between the flat base and the housing dome is achieved through a quick closure device in V-ring design or through clamp screws.



Components and types

The complete system consisting of BECODISC stacked disc cartridges and BECO INTEGRA DISC housings should be individually configured for every application.

12" and 16" stacked disc cartridge housings for holding 1–16 stacked disc cartridges with filter areas from 6.4 ft² (0.59 m²) up to a maximum of 689 ft² (64 m²) are available in various designs.



BECO INTEGRA DISC MB
Beverage design

BECO INTEGRA DISC MP
Sanitary design

BECO INTEGRA DISC MA
Industrial design

BECO INTEGRA DISC MK
Hinged lid design

BECO INTEGRA DISC K
Special design

BECODISC Stacked Disc Cartridge Ranges

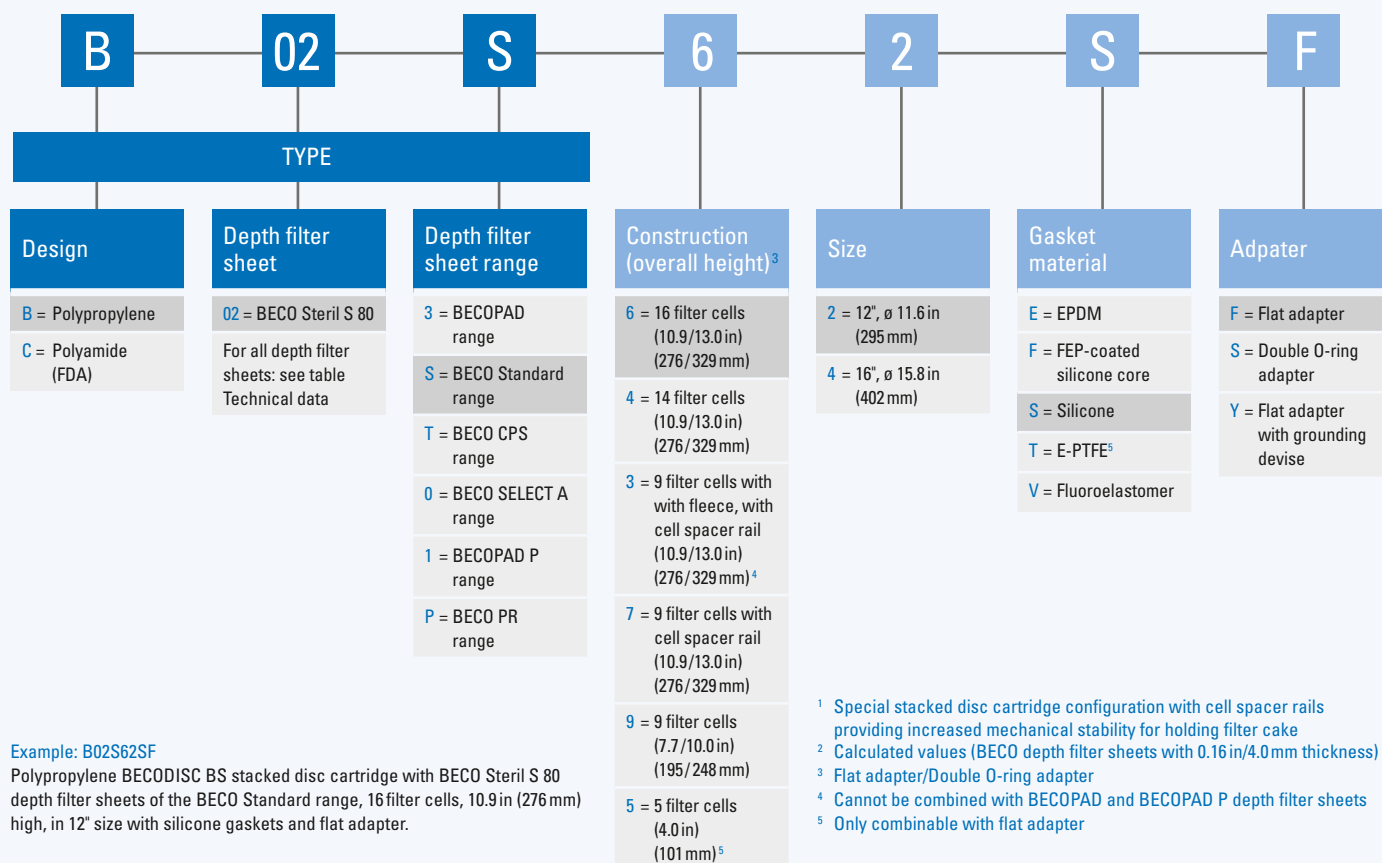


BECODISC stacked disc cartridges with BECO and BECOPAD depth filter sheets

Stacked disc cartridge configuration

	BECODISC 12", Ø 11.6 in (295 mm)					BECODISC 16", Ø 15.8 in (402 mm)				
Number of cells	16	14	9 ¹	9	5	16	14	9 ¹	9	5
Filter surface area [ft² (m²)]	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)] ²	-	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)	4.0 (101)	10.9 (276)	10.9 (276)	10.9 (276)	7.7 (195)	4.0 (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	-	-	✓	-	-	-	-	✓	-	-

Ordering information



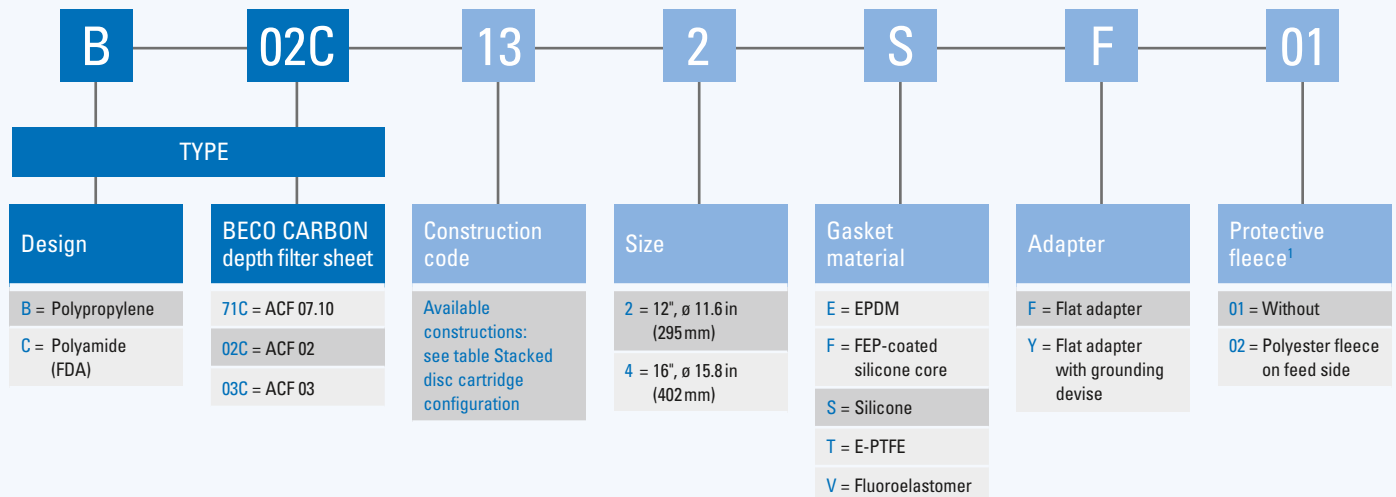


BECODISC stacked disc cartridges with BECO CARBON activated carbon depth filter sheets

Stacked disc cartridge configuration¹

		BECODISC BC 12", Ø 11.6in (295mm)			BECODISC BC 16", Ø 15.8in (402mm)		
Filter type design	in polypropylene	B71C	B02C	B03C	B71C	B02C	B03C
	in polyamide (FDA)	C71C	C02C	C03C	C71C	C02C	C03C
Construction code/Number of cells		16	13		16	13	
Filter surface area [ft² (m²)]		20.5 (1.9)	16.7 (1.55)		39.8 (3.7)	32.3 (3.0)	
Activated carbon content [lbs (kg)]		1.8 (0.8)	3.4 (1.55)		3.3 (1.5)	6.6 (3.0)	
Overall height flat adapter [in (mm)]		10.9 (276)	10.9 (276)		10.9 (276)	10.9 (276)	

Ordering information



Example: B02C132SF01

Polypropylene stacked disc cartridge with BECO CARBON ACF 02 depth filter sheets, 13 filter cells, 10.9 in (276 mm) high, in 12" size with silicone gaskets, flat adapter and without protective fleece.

¹ Other stacked disc cartridge configurations on request:

- Different number of cells
 - 14 cells available in polypropylene (B71C, B03C) and in polyamide (C71C, C02C, C03C)
 - 9 cells available (B71C, C71C) with cell spacer rails providing increased mechanical stability for holding filter cake (10.9 in/276 mm overall height with flat adapter)
 - 5 cells (B71C) and 3 cells (B02C, B03C) available for small volume filtration or pilot-scale-testing (4.0 in/101 mm overall height with flat adapter)
- Protective fleece optional for filter type B71C



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