Begerow® Product Line

BECODISC
Stacked Disc Cartridges

Powering Business Worldwide

Eaton – supplier of complete solutions for depth filtration applications – develops, manufactures, and provides top-quality depth filter media for a wide range of applications in food and beverage industries, chemical, fine and specialty chemical, cosmetics, and pharmaceutical industries as well as in bio-technology. Eaton´s Begerow Product Line offers a variety of equipment and system solutions for the application of BECO® depth filter media.

Benefits

BECODISC
Stacked disc cartridges

The individual cells of the BECODISC® stacked disc cartridges are made up using BECO depth filter sheets.

In addition to simple handling and shorter setup times, the innovative technology of stacked disc cartridges in an enclosed system offers the following benefits:

Protection against bypass effects

- Precise sealing of the filter cells through polypropylene or polyamide edge molding
- Constant final pressing
- Robust unit, even during sterilization, through three-part stainless steel segmented sleeve
- Double O-ring adapter available

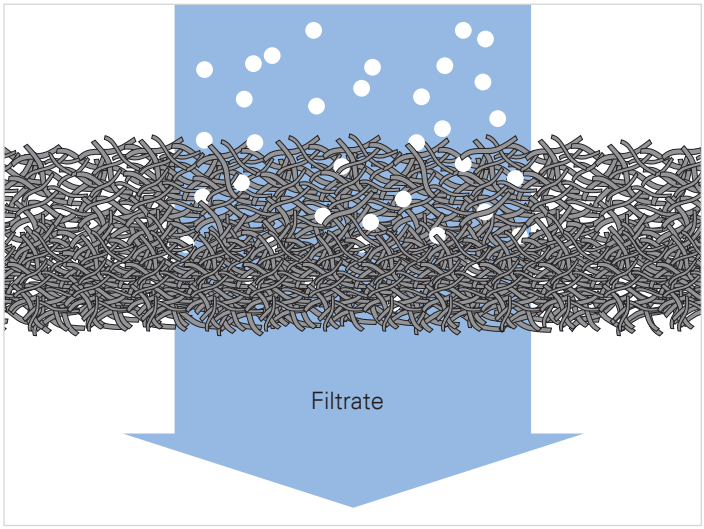
Performance

- Optimum flow path within the cell through internal drainage plate
- Constant cell distance ensures full utilization of the wholefilter surface

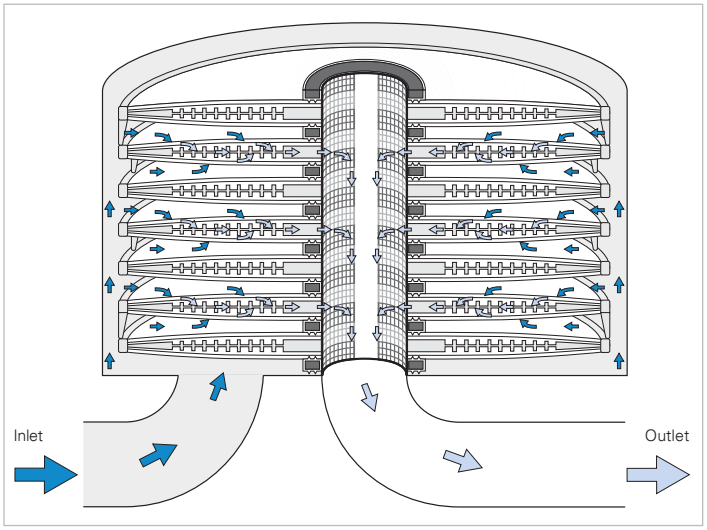
Adaption to a wide variety of filtration tasks

- Wide range of types
- Different sealing and plastic materials
- Different filter areas
- 9-cell stacked disc cartridges with larger cell distance and cell spacer rail ensure very high mechanical stability when handling large quantities of solids
- Depending on the product to be filtered and the given process parameters, it may be expedient to use BECODISC stacked disc cartridges with polyamide plastic components.
  A wide range of gasket types (silicone, EPDM, Viton, FEP coated silicone) are available for selection

Our basic goal is to provide the highest quality products to our customers. In particular, we use state of the art depth filter media in our BECODISC stacked disc cartridges for superior filter efficiency and operational safety.



The principle of depth filtration



BECODISC flow diagram in enclosed filter housing

BECODISC Stacked Disc Cartridges for various Filtration Tasks

BECODISC BS range

Stacked disc cartridges for standard applications

There is a broad standard range within the different stacked disc cartridges. Numerous grades covering a wide retention range enable precise adaptation to each respective filtration task. BECODISC BS stacked disc cartridges are used for particle removal, removal of colloids, and for the removal of micro-organisms.

Further details can be found in the Technical Information 1 A 2.5.5.8

Main applications: Wine, beer, fruit juices, spirits, food industry, chemistry, cosmetics, pharmaceutical, biotechnology

BECODISC range

Premium mineral-free stacked disc cartridges

BECODISC stacked disc cartridges with BECOPAD® depth filter media are mineral-free and used for a wide range of applications from coarse filtration to microbe removal. It is characterized by an unparalleled purity giving rise to much lower values for extractable ions and organoleptic quality affecting substances. The new filter media provides excellent filtration quality, maximizes filtration throughput and has a significantly high chemical resistance.

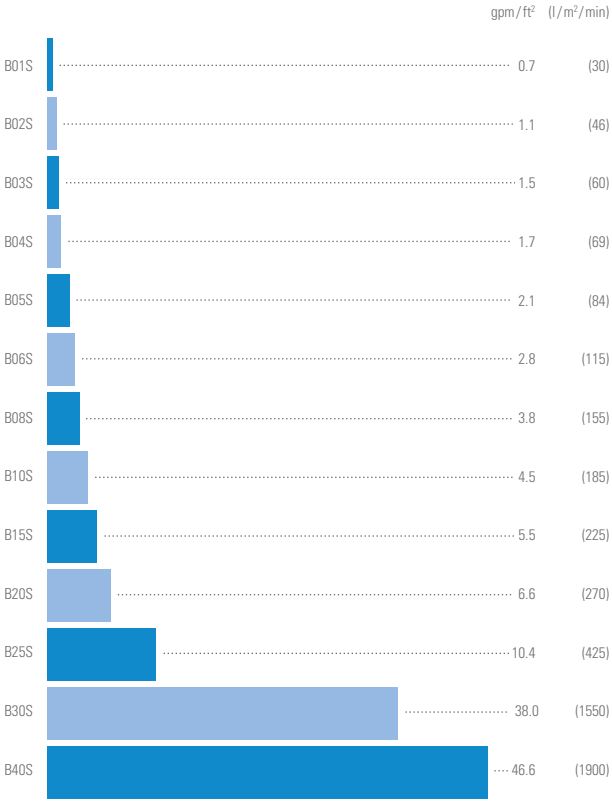
BECODISC B1C3 stacked disc cartridge is the finest grade that was developed to protect subsequent membrane filtration steps particularly in the filtration of wines with borderline colloid content.

BECODISC stacked disc cartridges with BECOPAD depth filter media make it possible to combine the strictest standards of microbiological safety with the full maintenance of valuable flavor and color.

Further details can be found in the Technical Information 1 A 2.8.1

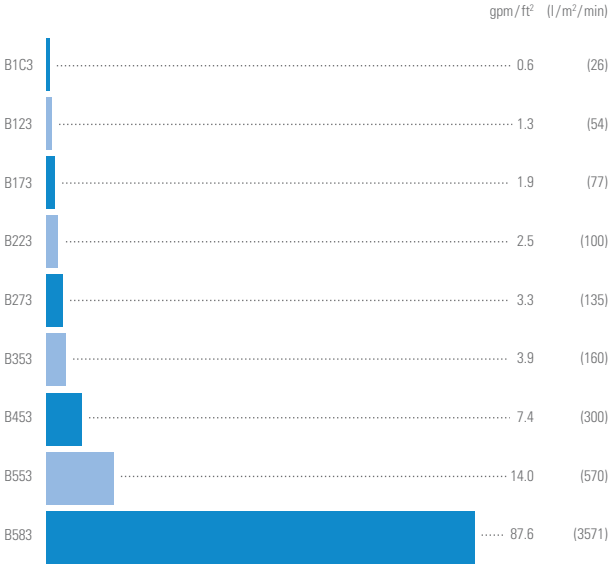
Main applications: Wine, beer, fruit juices, spirits, food industry, chemistry, cosmetics, pharmaceutical, biotechnology

Water throughput BECODISC BS range



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

Water throughput BECODISC range



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

BECODISC BT range

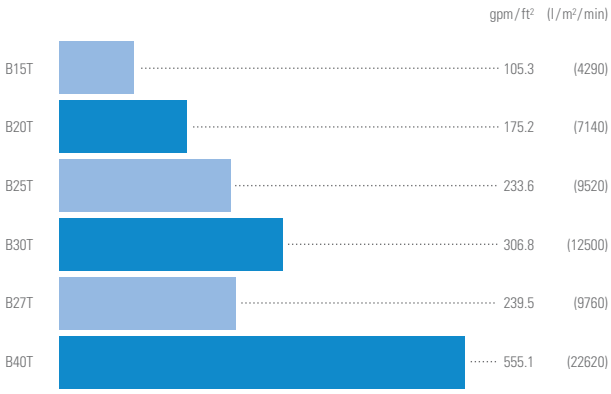
Stacked disc cartridges for filtration of highly viscous liquids

BECODISC BT stacked disc cartridges were specifically designed for the filtration of highly colloidal, highly viscous liquids and liquids containing particles. It is therefore mainly used for the filtration of highly viscous liquids and liquids with a high particle load.

Further details can be found in the Technical Information 1 A 2.5.5.12

Main applications: Fruit juices, sugar syrup, gelatin, and other food and beverages, chemistry, cosmetics, pharmaceutical, biotechnology

Water throughput BECODISC BT range



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

BECODISC BA range

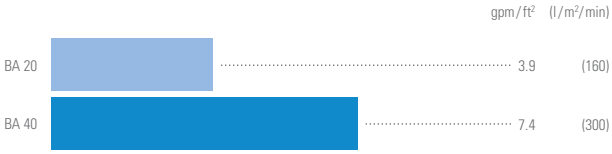
Special stacked disc cartridges with reduced Calcium and Magnesium content

These BECODISC BA stacked disc cartridges are used wherever low Ca and Mg ion contents are necessary. They are used for the demanding filtration of colored spirits, such as cognac, armagnac, barrel-matured brandy, and whisky. The product range is graded from coarse particle separation to fine filtration and enables adaptation to the requirements of spirit filtration.

Further details can be found in the Technical Information 1 A 2.5.5.13

Main applications: Whisky, cognac, vodka, and others spirit, flavors

Water throughput BECODISC BA range



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

BECODISC B00E

Stacked disc cartridge with support sheets for cake filtration

BECODISC B00E stacked disc cartridge is used for classic solid liquid separation where the solids or the liquids phase can be the product or as support material for precoat filtration. High wet strength and an optimized surface enable a service life up to 30 precoat cycles, depending on the liquid to be filtered and the filter aid used.

Main applications: Beer, gelatin, edible oil, essential oil, flavors, and others, chemistry, cosmetics

BECODISC B30C

Stacked disc cartridge containing activated carbon

The depth filter sheet utilized for BECODISC B30C stacked disc cartridge has an exceptional adsorption capacity, achieved through a high content of highly activated carbon. These adsorptive characteristics enable the decolorization of solutions, for example. BECODISC B30C stacked disc cartridge is also very effective for lipid removal, dechlorination, or removal of negative sensoric effects in beverages.

Further details can be found in the Technical Information 1 A 2.5.5.11

Main applications: Vodka, white spirits, apple juice, sugar syrup, pharmaceutical, biotechnology, chemistry, fine/specialty chemistry, cosmetics

Water throughput BECODISC B30C

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

BECODISC BP range

Stacked disc cartridges with low endotoxin content for pharmaceutical applications

The BP range of BECODISC stacked disc cartridges was specially developed for pharmaceutical and biotechnology applications. The innovative production process guarantees an endotoxin content of less than 0.125 EU/ml. Quantitative analysis of endotoxins takes place at an independent laboratory and is based on a LAL test (**L**imulus **A**mebocyte **L**ysate), which is used as standard to test the BECO PR depth filter sheet's range.

Our long-standing experience in the production of depth filter sheets in conjunction with the special technology of the manufacturing process guarantees an efficient depth filter sheet with demonstrably consistent product quality. A Validation Guide for the depth filter sheets is available providing support for the design, execution, and documentation of a validation. The application of BECODISC BP stacked disc cartridges ensures that the high quality standards for the manufacturing of pharmaceutical and biotech products are met.

Further details can be found in the Technical Information 1 A 2.5.5.9

Main applications: Pharmaceutical, fine/specialty chemistry, biotechnology

BECODISC P range

High-pure mineral-free stacked disc cartridges

The pharmaceutical grade BECODISC P stacked disc cartridges with BECOPAD P depth filter media are mineral-free and with an exceptional purity. Distinguishing features are the very low level of extractables and an extremely low endotoxin content, < 0.025 EU/ml after rinsing with 6.6 gal/sqm WFI (25 l/m²).

The detection of ion content after extraction with 40% ethanol (after rinsing with 6.6 gal/sqm (25 l/m²) ethanol) is extremely low.

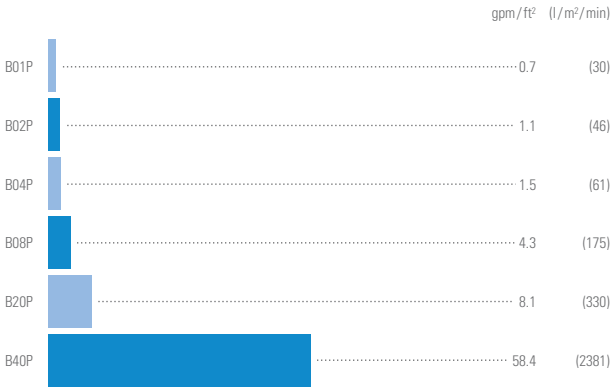
For example:
- Calcium < 50 ppb
- Magnesium < 25 ppb
- Aluminum < 5 ppb

Quality related test reports and documents are available in a Validation Guide.

Further details can be found in the Technical Information 1 A 2.8.2

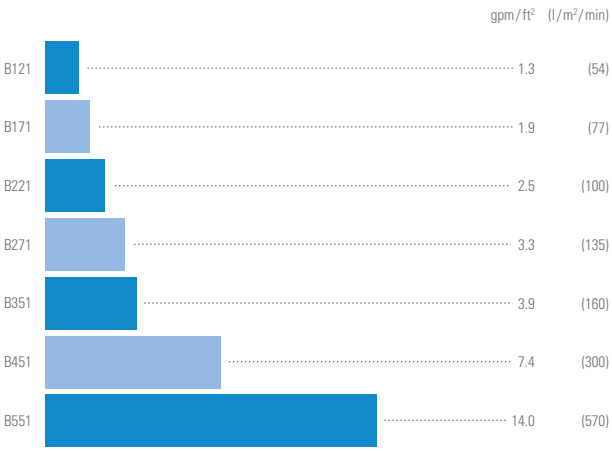
Main applications: Pharmaceutical, biopharmaceutical, fine/specialty chemistry, biotechnology

Water throughput BECODISC BP range



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

Water throughput BECODISC P range



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

BECODISC B00P

Stacked disc cartridge with support sheets for cake filtration in the pharmaceutical industry

BECODISC B00P stacked disc cartridge was specially developed to meet the strict requirements of the pharmaceutical industry with respect to separation of desirable substances and for cake filtration. A special production process for the depth filter sheet guarantees that the endotoxin content is less than 0.125 EU/ml. These support sheets can be used for precoat filtration in combination with common filter aids. A support sheet Validation Guide is available.

Main applications: Pharmaceutical, fine/specialty chemistry, biotechnology

Areas of Application

Depth filtration removes impurities and undesired particles from **foods** and **beverages** to enhance the natural flavor. BECODISC stacked disc cartridges can be adapted exactly to every filtration task and every production process.

The clear trend worldwide continues to be towards cold-sterile filtered draft and bottled beer. Gentle **beer production** without heat treatment thus requires a fully developed and reliable filtration technology. Beer-contaminating microorganisms are removed while simultaneously retaining the brightness of the beer and improving the chemical-physical stability.

Great importance is attached to microbiological safety when depth filtration is used in the area of **wine production**.

BECODISC stacked disc cartridges reliably separate coarse and fine haze substances and offer excellent colloid retention rates while simultaneously preserving beneficial ingredients with low color retention.

Gentle treatment of flavor and color plays a particularly important role in the filtration of **spirits**. In addition to reliable separation of fine colloidal and coarsely dispersed haze substances, the aim of filtration includes selective separation of haze-producing long-chain fatty acid esters. BECODISC stacked disc cartridges with a low calcium and magnesium ion content as well as high fusel and essential oil absorbing capacity are used in particular for this purpose.

Refreshing and tasty **fruit juices** are part of a healthy and well-balanced diet. They supply the organism with vital vitamins, minerals, and secondary plant matter. BECODISC stacked disc cartridges enhance the natural task of fruit and vegetable juices and stabilize the product without destroying valuable components.

Water is not only a natural food but also the basis of most beverages. For this reason, the production of **mineral water**, **table water**, and **product water** as well as **industrial water** places particularly high demands on filtration technology. Particular emphasis is placed on reliable particle separation. BECODISC stacked disc cartridges assure safe and reliable filtration.

There are multitudes of possible filtration applications in the **food industry** in which BECODISC stacked disc cartridges play a major role. Filtration processes are typically used in the production of **gelatin**, **liquid sugar** and **invert sugar syrup**, **glucose**, **dextrose**, **extracts**, **essences**, **enzyme solutions**, and **rennin**. Filtration is especially important, for example, in the production of **edible oils** where top priority is placed on retaining taste, vitamins, and the fatty acid composition while removing haze and mucilaginous substances.

In the **chemical industry** an important task is the removal of residues and contamination from raw, intermediate, or finished products. Varnishes, paints, silicone products, synthetic resins, softeners, pesticides, abrasives, waxes, and industrial oils offer a wide range of applications. In these manufacturing processes the BECODISC stacked disc cartridge often has to offer above-average chemical resistance against aggressive solvents, strong acids, and caustic solutions at demanding temperatures as well as high dirt holding capacity.

In **fine and specialty chemistry** a frequent task is the removal of undesired contamination and waste products from previous process steps or the separation of valuable metallic catalysts, activated carbon powder, or filter aids. An application example from antibiotics production is the adsorptive separation of decolorization via sheets containing activated carbon.

High dirt holding capacity and microbe reduction with simultaneous preservation of active ingredients plays an important role in the production of **active ingredients of plant origin**, which are used in the cosmetics and perfume sector and in the production of natural remedies and aromas.

In the **cosmetics industry** an important task is the removal of particulate contamination and substances that can lead to undesired hazing and precipitation in the finished product. This is ensured through the application of BECODISC stacked disc cartridges in the processing of essential oils, alcohol-based perfumes, fragrances and aroma substances, resins and terpenes, creams, shampoos and lotions, face and hair tonics, skin and bath oils.

In the production of **therapeutic proteins** from blood plasma (e.g., albumin, immunoglobulin, clotting factors) the main function of the depth filter medium is the economical and reliable separation of precipitates. In addition, the production process involves numerous clarification and fine filtration steps aimed at removing contaminants, such as endotoxins and protecting downstream systems from premature blocking.

In **fermentative production processes**, filtration in downstream processing is a very important process step. The BECODISC stacked disc cartridge has the task of reliably removing cells and cell fragments from fermenter broth. Typical application examples include production processes for **industrial enzymes** used in the food and detergent industries, for **special enzymes** used in diagnostics, or for **active biopharmaceutical ingredients**.

In the production of **pharmaceutical precursor**, **intermediate**, **and finished products**, depth filtration is required for protecting downstream membrane filters, ultrafilters, chromatography columns, and cross-flow equipment.

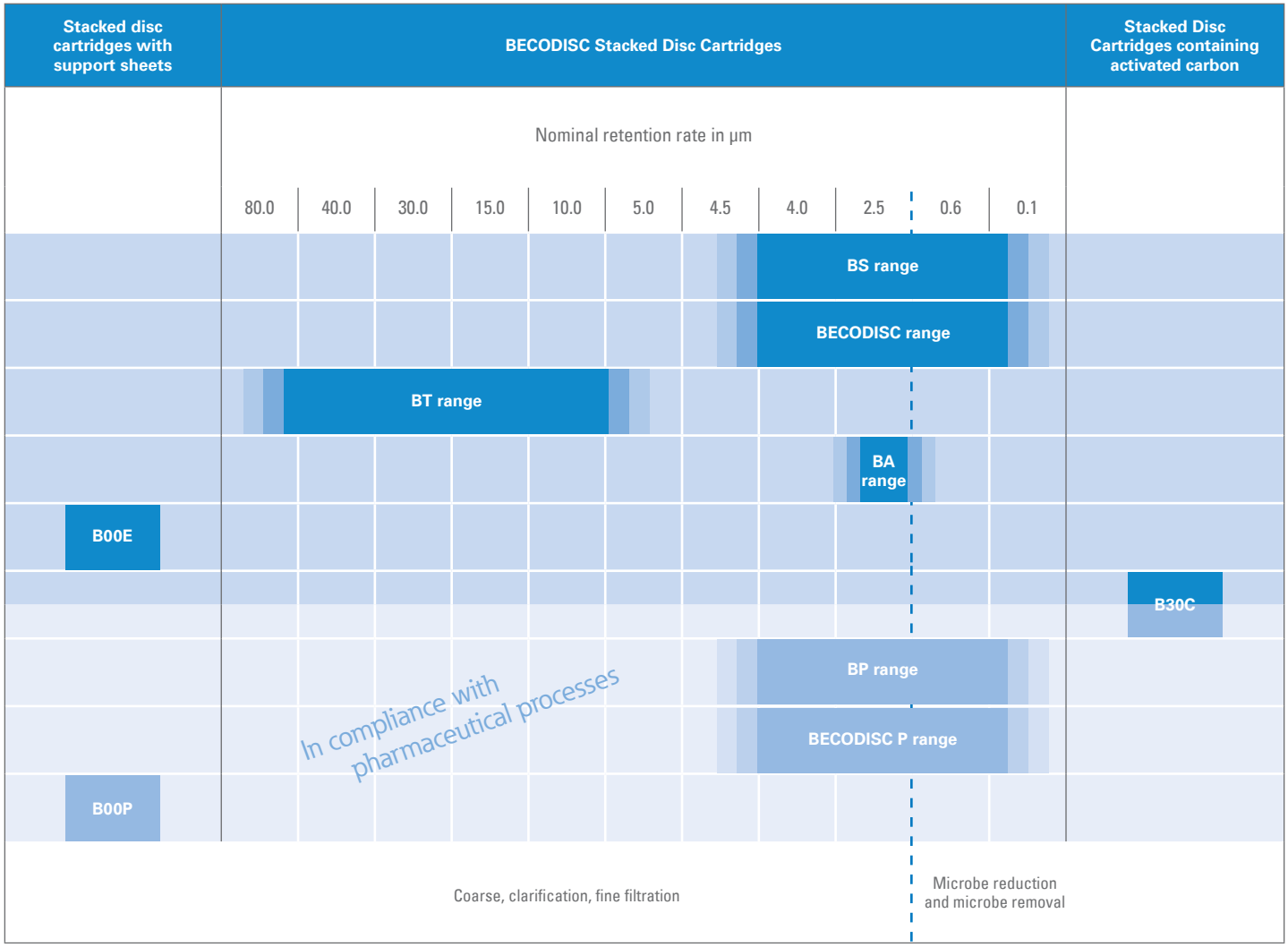
Overview of BECODISC Stacked Disc Cartridges

From coarse filtration to microbe removal, several product ranges for various applications, production technologies, and filtration tasks are available.

The selection of the appropriate depth filter sheet type and filtration technique (cake filtration or clarification) depends on the composition of the liquid to be filtered, the application and the process parameters.

Our filtration specialists recommend performing preliminary tests and will be happy to provide advice.

For laboratory or pilot plant trials, our application engineering division provides support for complex tasks and for selecting the right filter medium for optimal filtration quality and performance.



Depth filter media are used in the following various filtration systems: enclosed plate and frame filters, stacked disc cartridge housings, single sheet filters, laboratory filters, and a range of classic plate and frame filters.

Enclosed filtration systems
BECO INTEGRA® enclosed system is the alternative to classic filtration systems when the protection of operating personnel and product is a priority.

BECO INTEGRA DISC
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.

Modules and types
The complete system consisting of BECODISC stacked disc cartridges and BECO INTEGRA DISC housings should be individually configured for every application. Stacked disc cartridge housings are available in a variety of sizes, designs, and types.

BECO INTEGRA DISC
12" and 16"
Stacked disc cartridge housing for insertion of 1 – 4 stacked disc cartridges with filter areas from 6.35 ft^2 (0.59 m^2) up to a maximum of 159.31 ft^2 (14.8 m^2).

Types:

Sanitary design
BECO INTEGRA DISC P stacked disc cartridge housings meet the requirements of pharmaceutical processes and have the following features:
- TC connections according to ISO
- CIP/SIP capability
- Diaphragm valves and manometer
- FDA compliant gaskets

Stacked disc cartridge housings for liquids and gases, operating pressure 145 psi (1000 kPa/10 bar). Approval: According to DGRL 97/23/EC (fluid group 1) with EC certificate of conformity.

Industrial design
BECO INTEGRA DISC I stacked disc cartridge housings are used for a wide range of filtration tasks and were specially designed with a enhanced edge at the base and clamp screws or quick closure device for:
- Clean production conditions
- Critical products
- Safe handling of aggressive media

Stacked disc cartridge housings for liquids and gases, operating pressure 145 psi (1000 kPa/10 bar). Approval: According to DGRL 97/23/EC (fluid group 1) with EC conformity certificate.

Beverage design
BECO INTEGRA DISC S classic stacked disc cartridge housings for a variety of beverage filtration applications. Operating pressure:
- Liquids: max. 87 psi (600 kPa/6 bar)
- Gases: max. 7.3 psi (50 kPa/0.5 bar)
- Approval: Pressure test with manufacturer's certificate

Special design
To accommodate a wide range of application options, BECO INTEGRA DISC K stacked disc cartridge housings offer a number a special types and customized designs.

BECO INTEGRA DISC 16"/...
Multicolumn stacked disc cartridge housing for insertion of up to six columns, each with four stacked disc cartridges with filter areas from 119.5 ft^2 (11.1 m^2) up to a maximum 955.84 ft^2 (88.8 m^2). The stacked disc cartridge housing type is determined by the respective application.

Eaton's Begerow Product Line offers a wide range of components and devices, including complex filtration systems.

Using these resources, the engineering specialists develop optimum solutions for each customer. They offer competent and practical support from the preparation of the requirements profile and its implementation in practice, to delivery of documentation and customer staff training.

These data are typical values and only serve as guidance for the selection of BECODISC stacked disc cartridges.

BECODISC BS range

Type	Utilized BECO depth filter sheet	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
B01S	Steril S 100	0.1	0.15	(3.9)	58.0	> 7.3	(50)	0.7	(30)
B02S	Steril S 80	0.2	0.15	(3.9)	50.0	> 11.6	(80)	1.1	(46)
B03S	Steril 60	0.3	0.15	(3.8)	50.0	> 7.3	(50)	1.5	(60)
B04S	Steril 40	0.4	0.15	(3.8)	49.0	> 7.3	(50)	1.7	(69)
B05S	SD 30	0.5	0.15	(3.8)	50.0	> 7.3	(50)	2.1	(84)
B06S	KDS 15	0.6	0.15	(3.8)	50.0	> 7.3	(50)	2.8	(115)
B08S	KDS 12	0.8	0.15	(3.8)	50.0	> 7.3	(50)	3.8	(155)
B10S	KD 10	1.0	0.15	(3.8)	50.0	> 7.3	(50)	4.5	(185)
B15S	KD 7	1.5	0.15	(3.8)	50.0	> 7.3	(50)	5.5	(225)
B20S	KD 5	2.0	0.15	(3.8)	50.0	> 7.3	(50)	6.6	(270)
B25S	KD 3	2.5	0.15	(3.8)	50.0	> 5.8	(40)	10.4	(425)
B30S	K2	3.0	0.15	(3.8)	46.0	> 7.3	(50)	38.0	(1550)
B40S	K1	4.0	0.15	(3.8)	42.0	> 8.7	(60)	46.6	(1900)

BECODISC range

Type	Utilized depth filter sheet	Nominal retention range	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
B1C3[2]	BECOPAD 115 C[2]	0.1 – 0.2	0.16	(4.1)	< 1.0	> 21.8	(150)	0.6	(26)
B123[2]	BECOPAD 120[2]	0.1 – 0.3	0.15	(3.9)	< 1.0	> 21.8	(150)	1.3	(54)
B173[2]	BECOPAD 170[2]	0.2 – 0.4	0.15	(3.9)	< 1.0	> 21.8	(150)	1.9	(77)
B223[2]	BECOPAD 220[2]	0.3 – 0.5	0.15	(3.9)	< 1.0	> 21.8	(150)	2.5	(100)
B273[2]	BECOPAD 270[2]	0.5 – 0.7	0.15	(3.9)	< 1.0	> 21.8	(150)	3.3	(135)
B353[2]	BECOPAD 350[2]	0.7 – 1.0	0.15	(3.9)	< 1.0	> 21.8	(150)	3.9	(160)
B453[2]	BECOPAD 450[2]	1.0 – 2.0	0.15	(3.9)	< 1.0	> 21.8	(150)	7.4	(300)
B553[2]	BECOPAD 550[2]	2.0 – 3.0	0.15	(3.9)	< 1.0	> 21.8	(150)	14.0	(570)
B583[2]	BECOPAD 580[2]	3.0 – 4.0	0.15	(3.9)	< 1.0	> 21.8	(150)	87.6	(3571)

BECODISC BT range

Type	Utilized BECO depth filter sheet	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] 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[2]	CP2KS[2]	27.0	0.11	(2.9)	< 1.0	> 21.8	(150)	239.5	(9760)
B40T[2]	CP1KS[2]	40.0	0.17	(4.3)	< 1.0	> 21.8	(150)	555.1	(22620)

[1] 100 kPa = 1 bar
[2] Without mineral components

BECODISC BA range

Type	Utilized BECO depth filter sheet	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
BA 20	SELECT™ A 20	0.8	0.17	(4.4)	43.0	> 5.8	(40)	3.9	(160)
BA 40	SELECT A 40	2.5	0.17	(4.4)	43.0	> 5.8	(40)	7.4	(300)

BECODISC B00E

Type	Utilized BECO depth filter sheet	Thickness		Ash content	Bursting strength wet		Water throughput at	
		in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
B00E[2]	ENDURA®[2]	0.13	(3.4)	< 1.0	> 101.5	(700)	105.3	(4290)

BECODISC B30C

Type	Utilized BECO depth filter sheet	Thickness		Ash content	Bursting strength wet		Water throughput at	
		in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
B30C	ACF 07	0.15	(3.8)	15.0	> 5.8	(40)	34.7	(1415)

[1] 100 kPa = 1 bar
[2] Without mineral components

BECODISC BP range

Type	Utilized BECO depth filter sheet	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at		Endotoxin content[3]
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)	EU/ml
B01P	PR Steril S100	0.1	0.15	(3.9)	58.0	> 7.3	(50)	0.7	(30)	< 0.125
B02P	PR Steril S 80	0.2	0.15	(3.9)	50.0	> 11.6	(80)	1.1	(46)	< 0.125
B04P	PR Steril 40	0.4	0.15	(3.9)	49.0	> 7.3	(50)	1.5	(61)	< 0.125
B08P	PR 12	0.8	0.15	(3.9)	50.0	> 18.9	(130)	4.3	(175)	< 0.125
B20P	PR 5	2.0	0.15	(3.9)	50.0	> 8.7	(60)	8.1	(330)	< 0.125
B40P	PR 1	4.0	0.17	(4.3)	48.0	> 6.5	(45)	58.4	(2381)	< 0.125

BECODISC P range

Type	Utilized depth filter sheet	Nominal retention range	Thickness		Ash content	Bursting strength wet		Water throughput at		Endotoxin content[4]
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)	EU/ml
B121[2]	BECOPAD P 120[2]	0.1 – 0.3	0.15	(3.9)	< 1.0	> 21.8	(150)	1.3	(54)	< 0.025
B171[2]	BECOPAD P 170[2]	0.2 – 0.4	0.15	(3.9)	< 1.0	> 21.8	(150)	1.9	(77)	< 0.025
B221[2]	BECOPAD P 220[2]	0.3 – 0.5	0.15	(3.9)	< 1.0	> 21.8	(150)	2.5	(100)	< 0.025
B271[2]	BECOPAD P 270[2]	0.5 – 0.7	0.15	(3.9)	< 1.0	> 21.8	(150)	3.3	(135)	< 0.025
B351[2]	BECOPAD P 350[2]	0.7 – 1.0	0.15	(3.9)	< 1.0	> 21.8	(150)	3.9	(160)	< 0.025
B451[2]	BECOPAD P 450[2]	1.0 – 2.0	0.15	(3.9)	< 1.0	> 21.8	(150)	7.4	(300)	< 0.025
B551[2]	BECOPAD P 550[2]	2.0 – 3.0	0.15	(3.9)	< 1.0	> 21.8	(150)	14.0	(570)	< 0.025

BECODISC B00P

Type	Utilized BECO depth filter sheet	Thickness		Ash content	Bursting strength wet		Water throughput at		Endotoxin content[3]
		in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)	EU/ml
B00P[2]	PR ENDURA[2]	0.13	(3.4)	< 1.0	> 101.5	(700)	105.3	(4290)	< 0.125

[1] 100 kPa = 1 bar
[2] Without mineral components
[3] Determination of endotoxin content after rinsing with 13.2 gal/sqm WFI (Water for Injection) (50 l/m²)
[4] Determination of endotoxin content after rinsing with 6.6 gal/sqm WFI (Water for Injection) (25 l/m²)

Configuration

BECODISC 12", Ø 11.6 in (295 mm)

Number of cells	16	14	9	9[1]	9	5
Overall height of flat adapter in (mm)	10.9 (276)	10.9 (276)	10.9 (276)	10.9 (276)	7.7 (195)	4.4 (101.2)
Overall height double O-ring adapter in (mm)	13.0 (329)	13.0 (329)	13.0 (329)	13.0 (329)	10.0 (248)	6.1 (155)
Filter surface area ft² (m²)	20.5 (1.9)	17.8 (1.65)	11.8 (1.1)	11.8 (1.1)	11.8 (1.1)	6.4 (0.59)
Protective fleece (polyester)[2]	without	without	with	without	without	without
Cell spacer rail	without	without	with	with	without	without
Approx. value stacked disc cartridge weight (dry) lb (kg) / Approx. value stacked disc cartridge weight (wet) lb (kg)[3]	9.3 (4.2) / 27.6 (12.5)	7.7 (3.5) / 22.7 (10.3)	4.9 (2.2) / 14.3 (6.5)	4.9 (2.2) / 14.3 (6.5)	4.4 (2.0) / 13.9 (6.3)	2.4 (1.1) / 7.7 (3.5)
Precoat volume gal (l)[4]		0.9 (3.6)	2.1 (8.0)	2.1 (8.0)		

BECODISC 16", Ø 15.8 in (402 mm)

Number of cells	16	14	9	9[1]	5
Overall height of flat adapter in (mm)	10.9 (276)	10.9 (276)	10.9 (276)	7.7 (195)	4.4 (101.2)
Overall height double O-ring adapter in (mm)	13.0 (329)	13.0 (329)	13.0 (329)	10.0 (248)	6.1 (155)
Filter surface area ft² (m²)	39.8 (3.7)	34.4 (3.2)	22.6 (2.1)	22.6 (2.1)	12.4 (1.15)
Protective fleece (polyester)[2]	without	without	with	without	without
Cell spacer rail	without	without	with	without	without
Approx. value stacked disc cartridge weight (dry) lb (kg) / Approx. value stacked disc cartridge weight (wet) lb (kg)[3]	20.1 (9.1) / 50.3 (22.8)	17.4 (7.9) / 43.9 (19.9)	12.1 (5.5) / 28.0 (12.7)	11.7 (5.3) / 27.6 (12.5)	6.8 (3.1) / 15.2 (6.9)
Precoat volume gal (l)[4]		1.8 (7.0)	4.1 (15.4)		




[1] Special stacked disc cartridge version with cell spacer rails providing increased mechanical stability for holding filter cakes
[2] BECODISC stacked disc cartridges B30C and C30C: design with protective fleece
[3] Measured with water at 68 °F (20 °C)
[4] Calculated values: BECO depth filter sheet with 0.16 in thickness (4 mm)

Structure of Article Numbers

B 02 S 1 2 S F

Stacked disc cartridge types:

B = injection molded parts polypropylene
C = injection molded parts polyamide

Nominal retention rate:

here 0.2 µm
00 for support sheets
12, 17, 22, 27, 35, 45, 55 for BECOPAD (P)

Product range for depth filter sheets:

S = BECO standard range
3 = BECOPAD range
T = BECO CPS range
A = BECO SELECT A range
C = activated carbon stacked disc cartridge (BECO ACF 07)
P = pharmaceutical range (BECO PR range)
1 = BECOPAD P range

Product range and version for support sheets:

E = BECO ENDURA
P = BECO PR ENDURA
only in combination with retention rate 00

Overall height of flat adapter/ double O-ring adapter (in/mm):

6 = 16 filter cells [10.9 in (276 mm)/13.0 in (329 mm)]
4 = 14 filter cells [10.9 in (276 mm)/13.0 in (329 mm)]
3 = 9 filter cells with fleece, with cell spacer rail [10.9 in (276 mm)/13.0 in (329 mm)]
7 = 9 filter cells without fleece, with cell spacer rail [10.9 in (276 mm)/13.0 in (329 mm)]
9 = 9 filter cells without fleece, without cell spacer rail [7.7 in (195 mm)/10.0 in (248 mm)]
5 = 5 filter cells [4.4 in (101.2 mm)/6.1 in (155 mm)]

Size:

2 = 12", ø 11.6 in (295 mm)
4 = 16", ø 15.8 in (402 mm)

Gasket:

S = silicone
E = EPDM
V = fluoroelastomer/Viton
F = silicone/FEP coated

Adapter:

F = flat adapter
S = double O-ring adapter

Quality

Eaton is committed to providing consistently high quality products for our customers. As part of the manufacturing process, the depth filter medium helps to ensure safe, reproducible, and economical results for our customers.

We meet this responsibility by ensuring that our products comply with national and international quality standards, such as the German LFGB[1], the FDA[2] guidelines, and the hygiene guidelines according to HACCP[3]. We have been in compliance with the requirements of DIN EN ISO 9001 and updated versions since 1993.

Eaton welcomes plant audits to ensure stringent manufacturing practices and processes are in place.

The procedures for development, production, and testing of our products are based on more than 80 years of experience in depth filter media. Staff at all levels of our company contribute to ensuring and continuously improving the quality of our products and services.

BECO depth filters are listed with the FDA under the following master file number:

BECO depth filter sheets:
- Drug Master File DMF 9926

BECODISC stacked disc cartridges:
- Drug Master File DMF 15690

BECODISC stacked disc cartridges meet the requirements of EC Regulation (EC) No 1935/2004:
- The depth filter sheets of BECODISC stacked disc cartridges are certified for hot filtration applications, based on LFGB (German Food, Consumer Goods and Feed Code) recommendation XXXVI/I of the Plastics Commission of BfR[4] (Federal Institute for Risk Assessment).
- The silicone seals of BECODISC stacked disc cartridges comply with BfR recommendation XV for silicone.
- The plastic components of BECODISC stacked disc cartridges (polypropylene) comply with Commission Regulation (EU) No. 10/2011 and amendments relating to materials and objects made of plastic (excluding gaskets).

BECODISC stacked disc cartridges meet the requirements of Commission Regulation (EC) No 2023/2006 on good manufacturing practice for materials and articles intended to be exposed to food.

All materials used in BECODISC stacked disc cartridges meet the requirements of the FDA, as specified in the Code of Federal Regulation. Specifically:
- the depth filter sheets meet the requirements according to 21 CFR § 177.2260.
- plastic components (polypropylene) meet the requirements according to 21 CFR § 177.1520;
- the sealing materials meet the requirements according to 21 CFR § 177.2600.

[1] German Food, Commodity and Feed Act
[2] Food and Drug Administration, USA
[3] Hazard Analysis of Critical Control Points
[4] Federal Institute of Risk Assessment

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

Internormen Product Line
Friedensstraße 41
68804 Altlußheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
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*

US
1 A 2.5.6.3
07-2014

Powering Business Worldwide