

Laboratory-Scale Depth Filtration BECO® MiniCap™ P



Disposable Filtration Unit for Pharmaceutical Industries

BECO MiniCap P ready-to-use filters from Eaton's Begerow Product Line include BECOPAD P depth filter sheets. The BECOPAD P depth filter sheet's high-purity celluloses form a unique structure, which even for microbe removal does not require mineral components.

The BECO MiniCap P disposable filters are for the filtration of small volumes of media containing particles, or for microbe removal.

The specific advantages of BECO MiniCap P filters:

- Shorter process times
- Higher process safety
- No cleaning effort or cleaning validation required

Applications

BECO MiniCap P filters have a filter area of 3.3 in² (21 cm²). With a filtration volume of 0.26 – 2.6 gal (1 – 10 liter), they are suitable for laboratory applications and scale-up trials.

BECO MiniCap P Filters with BECOPAD P Depth Filter Media

BECOPAD P depth filter media are cationic, characterized by charge-related adsorption during filtration. Additionally, the filter medium has very low soluble ion content, especially calcium, magnesium, and aluminum. The chemical resistance and bursting strength is extremely high. Therefore, is suitable for applications involving mechanical separation of particles and adsorptive retention of negatively charged particles.

Due to the minimum endotoxin content and the increased endotoxin reduction, the filter medium is ideal for pharmaceutical processes.



Overview of BECO MiniCap P Filters

Order number	BECO MiniCap P Filters
F1211300	BECO MiniCap P 120
F1711300	BECO MiniCap P 170
F2211300	BECO MiniCap P 220
F2711300	BECO MiniCap P 270
F3511300	BECO MiniCap P 350
F4511300	BECO MiniCap P 450
F5511300	BECO MiniCap P 550

Technical Data

Effective filter area	3.3 in ² (21.2 cm ²)
Diameter of the filtration unit	2.9 in (74 mm)
Housing	Polypropylene according to FDA CFR § 177.1520
Connections (filtrate inlet and outlet)	Hose connections 0.24 – 0.47 in (6 – 12 mm) in diameter
Reference values for the flow capacity	0.26 – 0.52 gal/h (1 – 2 l/h)
Max. inlet and differential pressure	43.5 psi (3 bar, 300 kPa) at 77 °F (25 °C)
Filling volume	0.44 fl oz (13 ml)
Dead volume after purging with compressed air 4.4 psi (300 mbar/30 kPa)	0.17 fl oz (5 ml)

The data listed below refer to the specific BECOPAD P depth filter media used.

Article number	Depth filter media used	Nominal retention rate	Thick-ness	Ash content	Bursting strength wet		Water throughput at		Endo-toxin content (EU/ml ^{**})
		µm	in (mm)	%	psi	(kPa)	Δ p = 14.5 psi gpm/ft ²	(Δ p = 100 kPa* l/m ² /min)	
F1211300	BECOPAD P 120	0.1 – 0.3	1.3 (3.9)	< 1	> 21.8 (150)		1.3	(54)	< 0.025
F1711300	BECOPAD P 170	0.2 – 0.4	1.3 (3.9)	< 1	> 21.8 (150)		1.9	(77)	< 0.025
F2211300	BECOPAD P 220	0.3 – 0.5	1.3 (3.9)	< 1	> 21.8 (150)		2.5	(100)	< 0.025
F2711300	BECOPAD P 270	0.5 – 0.7	1.3 (3.9)	< 1	> 21.8 (150)		3.3	(135)	< 0.025
F3511300	BECOPAD P 350	0.7 – 1.0	1.3 (3.9)	< 1	> 21.8 (150)		3.9	(160)	< 0.025
F4511300	BECOPAD P 450	1.0 – 2.0	1.3 (3.9)	< 1	> 21.8 (150)		7.4	(300)	< 0.025
F5511300	BECOPAD P 550	2.0 – 3.0	1.3 (3.9)	< 1	> 21.8 (150)		17.2	(700)	< 0.025

* 100 kPa = 1 bar

** Endotoxin content analysis after rinsing with 6.5 gal/sqm (25 l/m²) WFI (Water for Injection).

Chemical and Quality Data

BECO MiniCap P filters meet the requirements of LFGB (German Food, Commodity, and Feed Act), Recommendation XXXVI/1 issued by BfR (German Institute of Risk Assessment) and the test criteria of FDA (Food & Drug Administration) Directive CFR 21 § 177.2260.

Chemical resistance of the BECOPAD P depth filter media:

Chemical compound	Max. tested temperature, Contact time	Mechanical resistance	Chemical compound	Max. tested temperature, Contact time	Mechanical resistance	
Caustic:			Organic solvents:			
Ammonia solution	25% 68 °F (20 °C), 168 h	x	Acetone	68 °F (20 °C), 168 h	x	
Potassium hydroxide	30% 68 °F (20 °C), 48 h	(x)	Butanol	68 °F (20 °C), 168 h	x	
Sodium hydroxide	30% 68 °F (20 °C), 24 h	-	Cyclohexane	68 °F (20 °C), 168 h	x	
	5% 68 °F (20 °C), 4 h	x	Dimethyl sulphide	68 °F (20 °C), 168 h	x	
	2% 104 °F (40 °C), 4 h	x	Ethanol	68 °F (20 °C), 168 h	x	
	1% 104 °F (40 °C), 4 h	x	Ethylene glycol	68 °F (20 °C), 168 h	x	
	0.5% 104 °F (40 °C), 4 h	x	Ethyl methyl ketone	68 °F (20 °C), 168 h	x	
			Isopropanol	68 °F (20 °C), 168 h	x	
Acids:			Methanol	68 °F (20 °C), 168 h	x	
Acetic acid	25% 68 °F (20 °C), 168 h	x	N,N dimethyl formamide	68 °F (20 °C), 168 h	x	
Peracetic acid	0.1% 68 °F (20 °C), 168 h	x	N-hexane	68 °F (20 °C), 168 h	x	
Peracetic acid	0.2% 68 °F (20 °C), 168 h	x	Tetrachloroethylene	68 °F (20 °C), 168 h	x	
Peracetic acid	0.5% 68 °F (20 °C), 168 h	x	Toluene	68 °F (20 °C), 168 h	x	
Nitric acid	25% 68 °F (20 °C), 48 h	x	Triethanolamine	68 °F (20 °C), 168 h	x	
Hydrochloric acid	25% 68 °F (20 °C), 168 h	x	Xylene	68 °F (20 °C), 168 h	x	
Sulphuric acid	25% 68 °F (20 °C), 48 h	x				
Citric acid	25% 68 °F (20 °C), 168 h	x	Aqueous solutions:			
			Iron trichloride	25%	68 °F (20 °C), 168 h	x
			Sodium hypochlorite free chlorine	12%	68 °F (20 °C), 168 h	x
			Hydrogen peroxide	10%	68 °F (20 °C), 72 h	x

x = resistant

(x) = limited resistance

- = not resistant

Ion Concentration after Extraction with 40% Ethanol

Ions	Content (ppb)*
Ca	< 50
Mg	< 25
Fe	< 5
Al	< 5

* After rinsing with 6.5 gal/sqm (25 l/m²) of 40% Ethanol

Components

The BECOPAD P depth filter media are only made of high-purity cellulose and wet strength agents.

Sterilization (Optional)

If required, BECO MiniCap P filters can be sterilized 3 times at 255 °F (124 °C) in an autoclave for a period of 30 minutes each.

Before proceeding with the sterilization, please rinse the depth filter with a minimum of 1.7 fl oz (50 ml) sterile water to wet it.

After sterilizing, rinse with 1.7 fl oz (50 ml) sterile water or product again.

Filter Preparation and Filtration

Unless already completed after sterilization rinse the BECO MiniCap P with 1.7 fl oz (50 ml) sterile water or product.

The operating temperature should not exceed 176 °F (80 °C), depending on the filtered liquids. Please contact Eaton regarding filtration applications with higher temperatures.

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 materials.

For sterilizing filtration, the differential pressure must not exceed 21.8 psi (150 kPa/1.5 bar) at 77 °F (25 °C).

Waste Disposal

BECO MiniCap P filters may be disposed of as domestic waste, depending on the filtered product. Comply with current official regulations.

Storage

BECO MiniCap P filters should be stored in a dry, dark, and odor-free place, ideally in their original packaging.

The ready-to-use disposable filters are intended for immediate use and should be used within 36 months of delivery.

Available Formats

One package contains three individually packed BECO MiniCap P filters.

HS Customs Tariff: 8421 29 00

Quality Assurance According to DIN EN ISO 9001

The comprehensive Quality Management System of Eaton's Begerow Product Line has been certified according to DIN EN ISO 9001.

This certification confirms that a fully functioning and comprehensive quality control system covering product development, contract review, supplier selection, receiving inspection, production, final inspection, inventory management, and delivery has been implemented.

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 foods and beverages.

The depth filter media used meet the requirements of recommendation XXXVI/1 regarding the LFGB (German Food, Commodity and Feed Act) by the BfR (Federal Institute of Risk Assessment), and the test criteria of FDA (Food and Drug Administration) Directive CFR 21 § 177.2260.

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For more information, please e-mail us at filtration@eaton.com or visit us online at eaton.com/filtration for a complete list of Eaton's filtration products.

Not all products in Eaton's Begerow Product Line are available in all regions. Please contact your local Eaton office to determine availability.

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