

**Depth Filtration**  
**BECO PROTECT® FS**

**Depth Filter Cartridges**

**BECO PROTECT FS FineStream depth filter cartridges are innovative depth filter cartridges with a special design that increases the filter area.**

**The variable flow of the BECO PROTECT FS depth filter cartridge is also special. This can be adjusted to flow from outside to inside or, if the inlet and outlet ends on the housing are reversed, from inside to outside. The filtering effect remains the same.**

**The BECO PROTECT FS depth filter cartridge is used in the beverage industry.**



**Features and Benefits**

- High retention for a reliable separation effect,  $\beta$  ratio  $\geq 5000$  or  $\geq 99.98\%$  efficiency for defined particles
- Outstanding protection for subsequent membrane filtration thanks to the fine, newly developed filter material (0.2  $\mu\text{m}$ ) and thus an increased membrane filter cartridge service life
- The larger filter area gives a greater filter performance
- Variable flow
- Minimum product loss with flow from inside to outside
- Backwashable at up to 29 psig (200 kPa, 2 bar) at 176 °F (80 °C)
- High chemical resistance by using 100% polypropylene

**Configuration**

BECO PROTECT FS depth filter cartridges are made from high-quality, special pleated polypropylene layers. The cage and core of polypropylene ensures maximum mechanical stability. All materials used ensure product-neutral filtration without adsorption or particle migration.

**Materials**

<b>Filter material:</b>	Polypropylene
<b>Cage, Core</b>	Polypropylene
<b>End cap/adapter:</b>	Polypropylene, adapter with reinforcing ring
<b>O-rings:</b>	Silicone (standard)

The plastic components meet the requirements of Directive 10/2011/EC and amendments. All materials used meet the FDA requirements according to 21 CFR § 177.1520.

## Technical Data

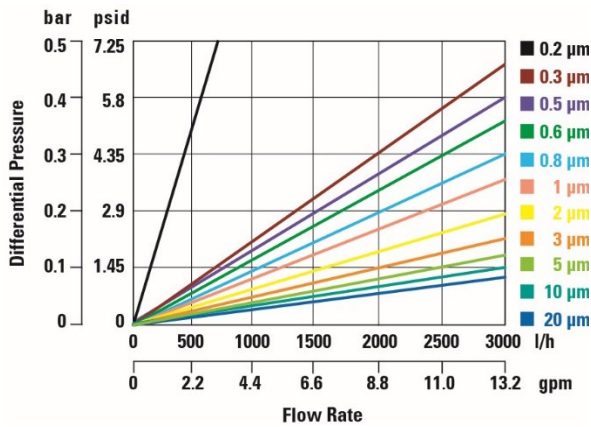
Nominal length for Code F	
1 = 10"	(254 mm)
2 = 20"	(508 mm)
3 = 30"	(762 mm)
4 = 40"	(1016 mm)

<b>Diameter:</b>	2.75 in (70 mm)
<b>Maximum operating temperature:</b>	176 °F (80 °C)
<b>Maximum differential pressure in flow direction:</b>	69 psid (480 kPa, 4.8 bar) at 77 °F (25 °C) 29 psid (200 kPa, 2 bar) at 176 °F (80 °C)
<b>Steam sterilization:</b>	Max. 14.5 psig (100 kPa, 1 bar) at 250 °F (121 °C) for 30 minutes
<b>Hot water sanitization:</b>	Max. 194 °F (90 °C) for 30 minutes
<b>Chemical sterilization:</b>	Can be sterilized with conventional chemical cleaners

## Flow Rate

10" (250 mm) element with water at 68 °F (20 °C) (standard values)





## Filter Cartridges Types/Retention Ratings

Type	Retention rating (μm)	Type	Retention rating (μm)
FS002	0.2	FS020	2.0
FS003	0.3	FS030	3.0
FS005	0.5	FS050	5.0
FS006	0.6	FS100	10.0
FS008	0.8	FS200	20.0
FS010	1.0		

## Adapter Codes



Code 0	Code 2
Single open end (SOE) 2-222 O-ring without spear	Single open end (SOE) 2-222 O-ring triple bayonet adapter with spear

Code 7	Code F
Single open end (SOE) 2-226 O-ring double bayonet adapter with spear	Double open end (DOE) with two flat gaskets

## Ordering Information

BECO PROTECT FS depth filter cartridges with protective foil in carton.

Type	Retention rating	Adapter	Nominal length	Gasket
FS	002 = 0.2 µm	0 = Code 0 (SOE)	1 = 10" (250 mm)	S = Silicone
	003 = 0.3 µm	2 = Code 2 (SOE)	2 = 20" (500 mm)	E = EPDM*
	005 = 0.5 µm	7 = Code 7 (SOE)	3 = 30" (750 mm)	
	006 = 0.6 µm	F = Code F (DOE)	4 = 40" (1000 mm)	
	008 = 0.8 µm			
	010 = 1.0 µm			
	020 = 2.0 µm			
	030 = 3.0 µm			
	050 = 5.0 µm			
	100 = 10.0 µm			
	200 = 20.0 µm			

\* Code F only available with EPDM gaskets.

### Example

FS	002	7	2	S
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BECO PROTECT FS depth filter cartridges; 0.2 µm retention rating; Code 7; 20" (500 mm); silicone gasket

### Regeneration

Rinse BECO PROTECT FS depth filter cartridges after each use against the direction of flow using approximately 1 µm of filtered, softened water under counter pressure. This will primarily remove any deposited, water-soluble haze substances such as polysaccharides (glucanes), proteins, tannins, tartaric acid crystals. Rinsing with hot water (176 °F/80 °C) will typically remove persistent residues, if used in a timely manner. The hot water may remain in the filter overnight.

Note: Detailed information on regeneration and chemical cleaning can be found in Application Note 1 A 4.3.1.1 and 1 A 4.7.

### Safety

When used as directed and handled correctly, there are no known unfavorable effects associated with this product. BECO PROTECT FS depth filter cartridges do not require the provision of safety-relevant information.

Storage, handling and transport do not present any environmental and health risks.

### Disposal

BECO PROTECT FS depth filter cartridges should be treated as industrial waste. Any local and other official regulations in relation to the filtered product must be followed.

### Storage

Store cartridges in their original packaging and in a dry, odor-free and UV ray protected place.

Use filter cartridges within 60 months after production date.

### Certified Quality

During the production process, BECO PROTECT FS depth filter cartridges are regularly monitored to ensure consistent excellent quality control.

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