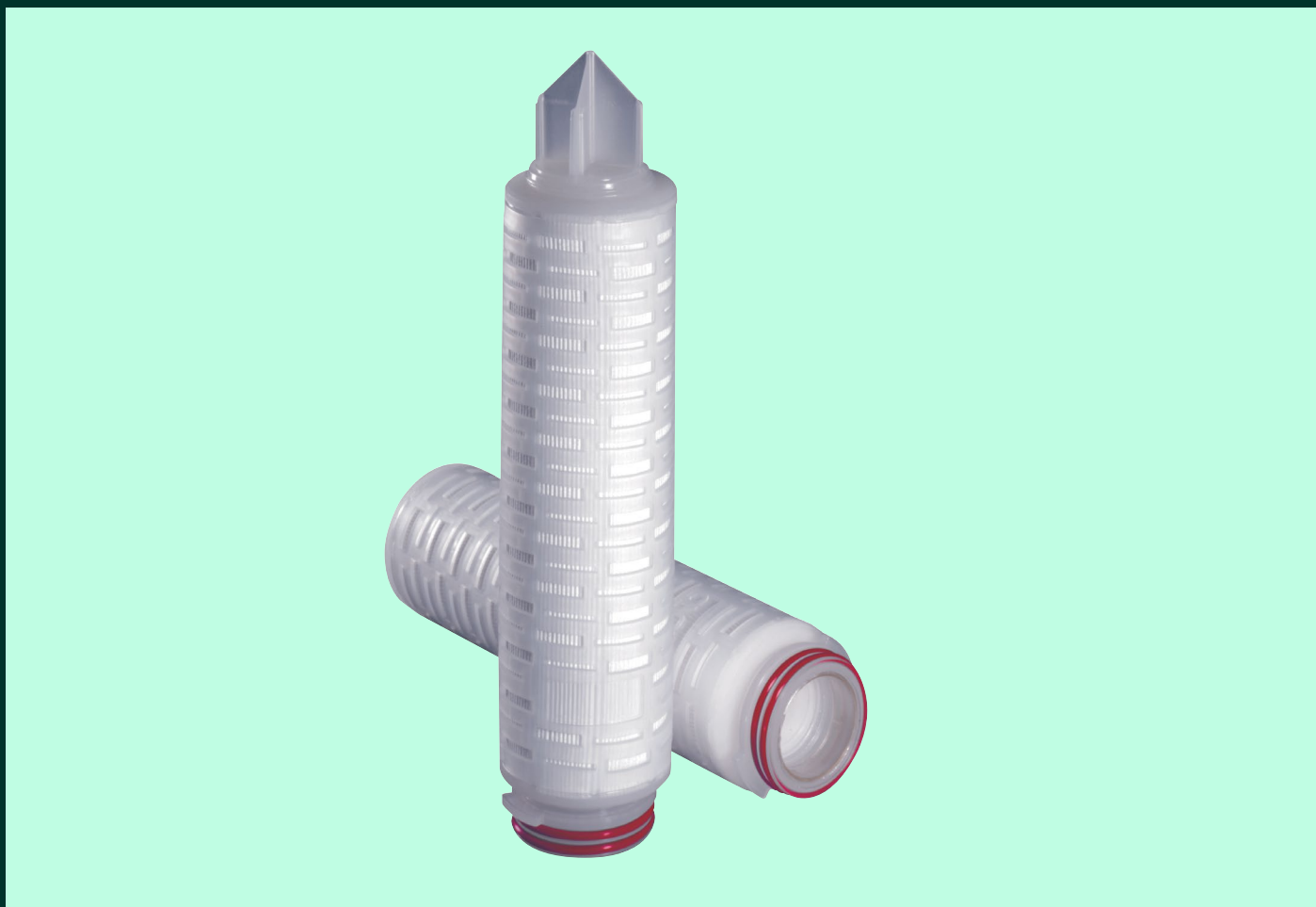


Purification and Filtration Solutions



3M™ LifeASSURE™ BDA020 and BGA020 Series Filter

Sterilizing grade filters

0.2 µm rated filters for bottled water and beverage microbiological stability

LifeASSURE BDA020 and BGA020 series filters help bottled water and other beverage processors meet the standards for microorganism control. Combined with Solventum's range of particle control and prefiltration filter cartridges, LifeASSURE BDA020 and BGA020 series filters offer bottlers a complete solution for rigorous contaminant control helping maintain long service life and low operating costs. LifeASSURE BDA series filters were designed for standard water conditions while the LifeASSURE BGA series filters were designed for water containing very fine sub-micronic silt.

Durable design

The LifeASSURE BDA020 and BGA020 series filter membrane and cartridge result in a durable filter cartridge, capable of secure operation through numerous cycles of hot water sanitization, steam sterilization, and standard chemical based cleaning and sanitization.

Advanced technology highly asymmetric membrane

LifeASSURE BDA020 and BGA020 series filters incorporate a novel dual-layer membrane with a high degree of asymmetry (Figure 1. on the next page). When viewed in cross-section, the membrane contains larger pores on the upstream surface that gradually taper to smaller pores towards the down stream surface. Compared to conventional membranes common in the market with a symmetric pore structure, this structure provides higher contaminant capacity, since it presents higher open spaces (void volume) to retain most common contaminants in water.

Features and benefits

Features	Benefits
Validated 0.2 µm absolute rated membrane	Reliable sterilizing filtration
Asymmetric dual-layer polyethersulfone membrane	High capacity and service life to help maximize economy
Advanced Pleat Technology (APT) construction (BDA020 series only)	Allows for superior fluid and contaminant access to filter surface area for longer service life and flow compared to standard pleating
Food contact compliance	<p>Certain LifeASSURE BDA and BGA series products are compliant with:</p> <ul style="list-style-type: none"> • US FDA 21 CFR • EU food contact regulation (EC) 1935/2004 • other food contact regulations <p>Contact your Solventum representative for detailed declaration of compliance information for food contact applications.</p>



This increase in capacity leads directly to longer service life. In addition, the asymmetric structure provides less resistance to flow, resulting in a lower pressure drop when compared at a constant flow rate to typical competitive filters, allowing a user to employ fewer LifeASSURE BDA020 and BGA020 series filters for any given flow rate.

Applications

LifeASSURE BDA020 and BGA020 series filters are optimized for food and beverage applications requiring sterilizing 0.2 µm retention rated performance.

- Bottled water
- Soft drinks
- Intermediates and ingredients
- Syrups
- Dyes and flavors

Advanced Pleat Technology design

LifeASSURE BDA020 series filters feature Advanced Pleat Technology (APT) design for extended service life. This design technology helps to maximize the useful surface area of the filter while maintaining open flow paths between the media pleats (refer to Figure 2.). By employing the APT design, the LifeASSURE BDA020 series filter can help provide lower pressure drops, longer service life, and lower overall operational costs. The LifeASSURE BGA series filter employs a conventional pleat design which can help withstand reverse water-hammer from rapidly closing valves in downstream filling equipment.

Novel media support design

LifeASSURE BDA020 series filter cartridges employ a design that results in higher beverage flow versus pressure drop compared to common competitive filters. This development combines the high flowing LifeASSURE BDA020 series filter membrane with special support layers upstream and downstream of the membrane. When combined with the previously mentioned APT, this feature greatly increases flow per cartridge, and results in lower overall operational costs as compared to filters without these features.

Advanced performance: Service life

In the majority of beverage applications, the final membrane filter is used in a continuous (as opposed to a batch) operation. Its service life is measured either by the volume filtered, or the number of days in service, before becoming permanently blocked. Filters that provide longer service life not only reduce direct operational costs, but also reduce indirect filter costs as well (filter change-out/installation labor, downtime between change-outs, filter flushing, etc.). The LifeASSURE BDA020 series filter cartridge's combination of highly asymmetric membrane, APT design, and novel upstream and downstream supports all work together to help maximize the volume of beverage that can be processed.

Absolute microbiological control

The primary purpose of a membrane filter cartridge in bottled water and beverage processing is to effectively control even the smallest microorganisms. LifeASSURE series filters provide superior retention of common spoilage microorganisms, even at challenge concentrations that far exceed those experienced by most beverage producers. The LifeASSURE BDA020 and BGA020 series cartridge membrane has been validated for complete retention of *Brevundimonas diminuta* (*B.diminuta*) (ATCC 19146) at a concentration of 10^7 CFU/cm² or greater.

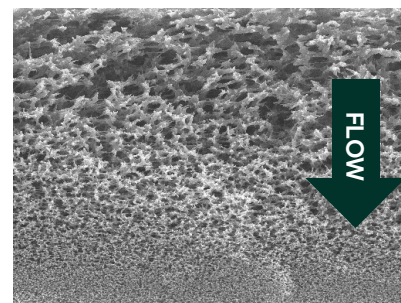


Figure 1. SEM photograph showing LifeASSURE BDA020 and BGA020 Series Filter membrane cross-section

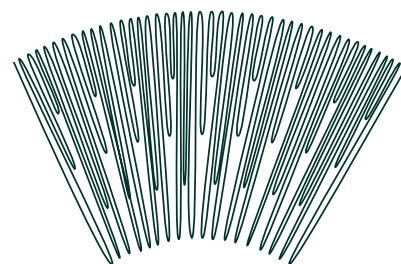


Figure 2. Advanced Pleat Technology (APT)

	Microorganism	Retention level
BDA020 and BGA020	<i>Brevundimonas diminuta</i>	Complete
BDA020 and BGA020	<i>Pseudomonas aeruginosa</i>	Complete

3M™ LifeASSURE™ BDA020 and BGA020 membrane design

LifeASSURE BDA020 series filters contain two layers of PES membrane. The upstream layer is rated at 0.65 µm while the downstream layer is rated at 0.2 µm. Our testing has shown this arrangement results in long service life while maintaining the necessary retention of microorganisms. However, in circumstances where very fine silt may result in lower service life, the LifeASSURE BGA020 series filter is offered. This filter employs a 0.45 µm rated upstream membrane layer to better retain this fine silt before it reaches the 0.2 µm rated membrane layer. Furthermore, the LifeASSURE BGA020 series filter employs a conventional pleating design, which helps provide resistance to “water hammer” conditions in some filling systems than BDA series.

Operating parameters and specifications*

Materials of construction	
Membrane	Dual layer Polyethersulfone
Media support layers	BDA020: 0.65 µm upstream/0.2 µm downstream BGA020: 0.45 µm upstream/0.2 µm downstream
Inner core, outer cage, end cap adapters	Polypropylene
Gasket and O-ring options	Various polymers available
Encapsulated adapter reinforcing ring	Polyethersulfone
Operating conditions	
Typical water flow rate at 77°F (25°C)	2 gpm (7.6 LPM)
Maximum forward pressure differential	80 psid @ 77°F (5.5 bar @ 25°C) 35 psid @ 194°F (2.4 bar @ 90°C)
Maximum diffusion at 77°F (25°C) per 10" (254mm) filter	< 33 sccm
Maximum hot water sanitization temperature	185°F (85°C) - 75 hrs 1gpm (3.8 LPM), 10 psi (0.69 bar)
Maximum steam temperature	259°F (126°C) - 150, 30-min cycles
Maximum peracetic acid exposure	1% Conc. @ 77°F (25°C) - 100 hrs
Cartridge dimensions	
Filtration surface area	7.2 ft. ² (0.67 m ²)
Outer diameter	2.75" (70 mm)
Nominal length	10" (254 mm), 20" (508 mm), 30" (762 mm), 40" (1016 mm)

*Refer to Technical Brief 70-2016-0416-5 for additional information on integrity testing parameters and specifications. Refer to Technical Brief 70-2016-0417-3 for additional information on cleaning, sanitization, and sterilizing parameters and specifications.

Ordering guides

3M™ LifeASSURE™ BDA020 Series Filter Cartridge ordering guide¹

Cartridge	Configuration	Length (Inches)	End-modification	Gasket/O-ring material
BDA020	F	01 – 10 03 – 30	B – 226 O-ring and spear (Code 7) F – 222 O-ring and flat cap (Code 3)	A – Silicone C – EPR

Example: The part number for a 30 inch LifeASSURE BDA Series filter cartridge would be BDA020F03BA, 226 silicone O-ring connector with locating spear, silicone gasket material.

3M™ LifeASSURE™ BGA020 Series Filter Cartridge ordering guide¹

Cartridge	Configuration	Length (Inches)	End-modification	Gasket/O-ring material
BGA020	F	01 – 10 03 – 30	B – 226 O-ring and spear (Code 7)	C – EPR

Please note: The ordering guide above is for reference only. Not all combinations are available. Please consult with your Solventum representative to determine the appropriate part number for your application.

¹Additional configurations may be available upon request.



Intended Use: LifeASSURE BDA and BGA Series products are intended and are compliant for use in food and beverage filtration applications of aqueous and non-aqueous fluids in accordance with the product instructions, specifications and where materials of construction are compatible. For specific details regarding use or limitations for food contact applications please contact your Solventum representative for more information.

Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the Solventum product is suitable and appropriate for the user's specific application, including user risk assessments and evaluation of the Solventum product in the user's application.

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Solventum Corporation
2510 Conway Avenue East
St. Paul, MN 55144-1000
Phone 1-800-243-6894
1-203-237-5541
Web Solventum.com

3M Purification is now part of Solventum

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