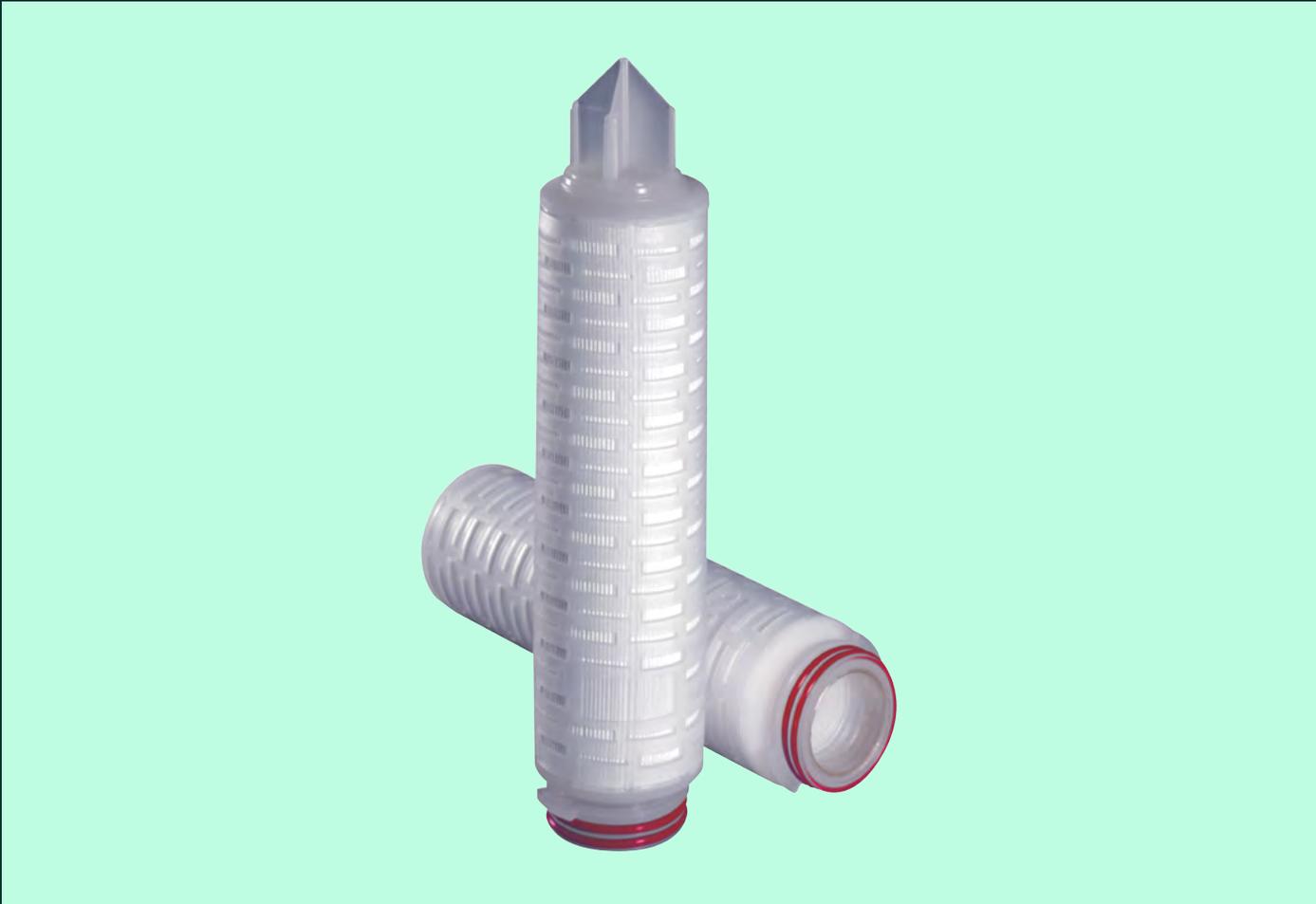


Purification and Filtration Solutions



3M™ LifeASSURE™ BNA020
Series Filters

0.2 µm rated filters for bottled water and beverage microbiological stability

The LifeASSURE BNA020 series filter helps bottled water and other beverage processors meet high standards for microorganism control. Combined with Solventum’s range of particle control and prefilters, LifeASSURE BNA020 series filters offer bottlers a complete solution for rigorous contaminant control while maintaining long service life and low operating costs.

Durable design

The LifeASSURE BNA020 series filter membrane and cartridge design innovations 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 technologies

Highly asymmetric membrane

LifeASSURE series filters incorporate a novel single-layer with a high degree of asymmetry (Figure 1.). When viewed in cross-section, the membrane contains larger pores on the upstream surface that gradually taper to smaller pores towards the downstream surface. Compared to conventional membranes with a symmetric pore structure, this structure provides greater contaminant capacity, since it presents greater open spaces (void volume) in which to retain these contaminants. 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 competitive filters, allowing a user to employ fewer LifeASSURE BNA020 series filters for any given flow rate.

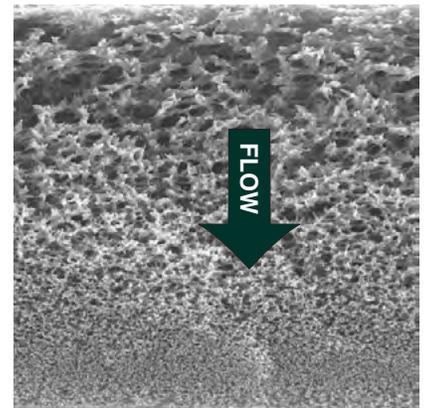


Figure 1. SEM photograph showing LifeASSURE BNA020 series filter membrane cross-section

Features and benefits

Features	Benefits
0.2 µm rated membrane	Reliable LRV microorganism control
Asymmetric polyethersulfone (PES) membrane	Excellent capacity and service life to help maximize economy
Advanced Pleat Technology (APT) construction	Allows superior fluid and contaminant access to filter surface area for excellent service life and flow rates
Food contact compliance	Certain LifeASSURE BNA products are compliant with: - US FDA 21 CFR - EU food contact regulation (EC) 1935/2004 - other food contact regulations

Contact your Solventum representative for detailed declaration of compliance information for food contact applications.

Applications

LifeASSURE BNA020 series filters are optimized for food and beverage applications requiring reduction of fine particles and microorganisms at the 0.2 µm level.

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

Advanced Pleat Technology (APT) design

LifeASSURE BNA020 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 BNA020 filter provides lower pressure drops, longer service life, and lower overall operational costs.

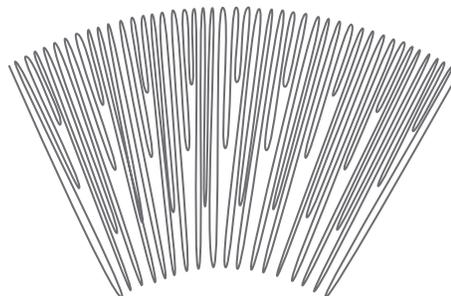


Figure 2. Advanced Pleat Technology (APT)

Novel media support design

LifeASSURE BNA020 series filters employ a design that results in higher beverage flow versus pressure drop compared to competitive filters. This Solventum development combines the high flowing PES 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.

LifeASSURE BNA020 series 0.2 µm rated filters provide superior retention of common spoilage microorganisms, even at challenge concentrations that far exceed those experienced by most beverage producers. LifeASSURE BNA020 series membrane has been shown to provide Log Reduction Values (LRV) in excess of 7 with *Brevundimonas diminuta* (*B. diminuta*) (ATCC 19146) and *Pseudomonas aeruginosa* (*Ps. aeruginosa*) at a concentration of 10^7 CFU/cm² or greater.

Advanced performance

Extended 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 BNA020 series filter's combination of highly asymmetric PES membrane, APT design, and novel upstream/downstream supports all work together to maximize the volume of beverage that can be processed.

Microbiological control

The primary purpose of a membrane filter cartridge in bottled water and beverage processing is to effectively control even the smallest microorganisms.

Filter housings

A range of filter housings is available to meet the needs of the food and beverage industry. They provide easy access for filter change-out and afford a secure seal between filter and housing to help prevent fluid bypass. All housings are constructed using 316L stainless steel to help maximize corrosion resistance.

Operating parameters and specifications

Materials of construction	
Membrane	Polyethersulfone (PES)
Media support layers	Polypropylene
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)	3.1 gpm (17 lpm)
Maximum forward pressure differential	80 psid @ 77°F (5.5 bar @ 25°C) 25 psid @ 176°F (1.7 bar @ 80°C)
Maximum reverse pressure differential	10 psid @ 77°F (0.69 bar @ 25°C)
Maximum forward flow diffusion at 77°F (25°C) per 10" (254 mm) filter	51 cc/min @ 35 psig (51 mL/min @ 2.41 bar)
Maximum hot water sanitization temperature	185°F (85°C)
Maximum peracetic acid exposure	1% (10,000 ppm)

Cartridge dimensions	
Filtration surface area	8.5 ft ² (0.79 m ²)
Outer diameter	2.75" (70 mm)
Nominal length	10" (254 mm), 20" (508 mm), 30" (762 mm), 40" (1016 mm)

Ordering guides

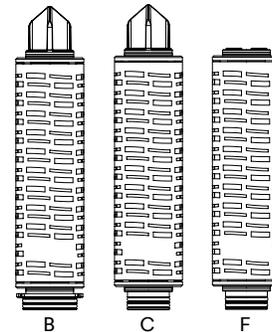
3M™ LifeASSURE™ BNA020 Series Filter Cartridge ordering guide

Cartridge grade	Configuration	Length (inches)	End-modification	Gasket/O-ring material	Adaptor insert
BNA020	B	01 - 10 02 - 20 03 - 30 04 - 40	B - 226 O-ring & spear C - 222 O-ring & spear F - 222 O-ring & spear	A - Silicone B - Fluorocarbon C - EPR	2 - SS insert

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.

3M™ LifeASSURE™ BNA020 Series Filter Disc ordering guide

Part number	Size (mm)	Quantity	Packaging
NM04708BNA020	47	40	Box



An IBWA Bottler
(Supplier) Member

For more information contact your Solventum sales representative.

Intended Use: LifeASSURE BNA 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.

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3M Purification is now part of Solventum

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