BevASSURE™ BDA020 Series Sterilizing Grade Filter

0.2 µm rated filters for bottled water & beverage microbiological stability

CUNO's BevASSURE BDA020 series filter combines two asymmetrical polyether sulfone (BDA020) membrane layers together with Advanced Pleat Technology (APT) construction. This design results in a robust filter that is optimized for both long service life and fast flowing applications, while providing 0.2 µm absolute rated filtration for sterilizing grade performance.

The BevASSURE BDA020 series filter helps bottled water and other beverage processors meet the highest standards for microorganism control.

Combined with CUNO's range of particle control and prefiltration filter cartridges, BevASSURE BDA020 final filters offer bottlers a complete solution for rigorous contaminant control while maintaining long service life and low operating costs.

Durable Design

The BevASSURE BDA020 series filter membrane and cartridge design innovations result in a highly durable filter cartridge, capable of secure operation through numerous cycles of hot water sanitation, steam sterilization, and chemical based cleaning and sanitation.

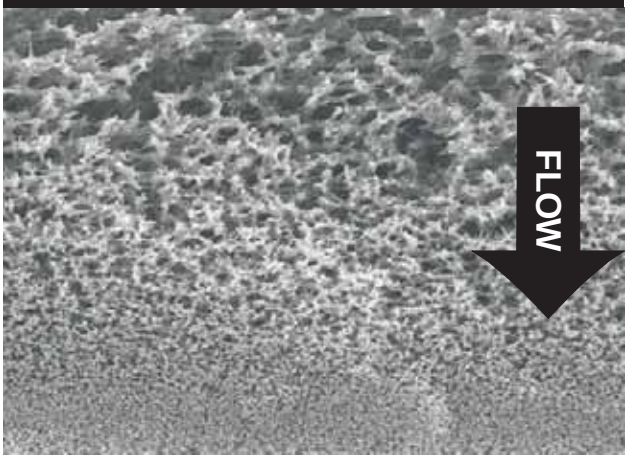
ADVANCED TECHNOLOGIES

Highly Asymmetric BDA020 Membrane

BevASSURE BDA020 filters incorporate a novel dual-layer BDA020 membrane 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 BevASSURE BDA020 filters for any given flow rate.

Features	Benefits
■ Validated 0.2 µm absolute rated membrane	■ Reliable sterilizing filtration
■ Asymmetric dual-layer polyether sulfone (BDA020) membrane	■ Exceptionally high capacity and service life resulting in maximum economy
■ Advanced Pleat Technology Construction	■ Allows superior fluid and contaminant access to filter surface area for greatest service life and flow rates
■ 21CFR compliant materials of construction, EEC Directive 2002/72 EC tested, USP Biological Reactivity for Class VI Plastics Test, Technical Support Guide	■ Eases regulatory concerns

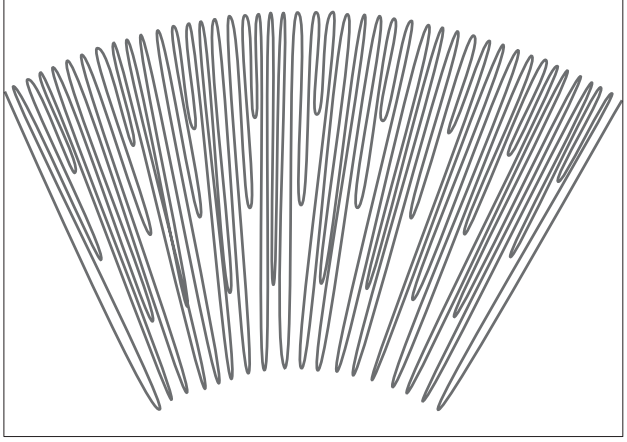
Figure 1. - SEM Photograph Showing BevASSURE BDA020 Membrane Cross-Section



Advanced Pleat Technology Design

BevASSURE BDA020 filters feature Advanced Pleat Technology (APT) design for extended service life. This design technology maximizes 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 BevASSURE BDA020 filter provides lower pressure drops, longer service life, and lower overall operational costs.

Figure 2. - Advanced Pleat Technology Design



Novel Media Support Design

BevASSURE BDA020 filters employ a design that results in higher beverage flow versus pressure drop compared to competitive filters. This CUNO development combines the high flowing BDA020 membrane with special support layers upstream and downstream of the membrane. When combined with the previously mentioned Advanced Pleat Technology, this feature greatly increases flow per cartridge, and results in lower overall operational costs.

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 BevASSURE BDA020 filter's combination of highly asymmetric BDA020 membrane, Advanced Pleat Technology design, and novel upstream & downstream supports all work together to 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. BevASSURE BDA020 0.2 micron rated filters provide superior retention of common spoilage microorganisms, even at challenge concentrations that far exceed those experienced by most beverage producers. BevASSURE BDA020 membrane has been validated for complete retention of *Brevundimonas diminuta* (ATCC 19146) at a concentration of 10^7 CFU/cm^2 or greater.

BevASSURE BDA020	Microorganism	Retention Level
BDA020	*Brevundimonas diminuta*	Complete
BDA020	*Pseudomonas aeruginosa*	Complete

Fast Flow Rates at Low Pressure Drops

CUNO has combined three key technological advances to provide a fast flow rate per unit of pressure drop. These three technologies, Advanced Pleat Technology (APT) design, a novel upstream and downstream support design, and a highly asymmetric microporous membrane, afford users with faster process flow rates using fewer filters as compared to alternative filters.

When installed in an existing system with a fixed flow rate, BevASSURE BDA020 series filters exhibit a lower pressure drop compared to alternative filters.

Since filter change-out is usually tied to a terminal differential pressure drop (typically between 20 and 35 psid), employing filters that exhibit a ***lower*** initial pressure drop can result in ***longer*** filter service life.

Alternatively, in a new system when determining the number of filters needed to provide a desired flow

rate at a given pressure drop, faster flowing filters will result in smaller, more economical systems.

BevASSURE BDA020 Cartridge Construction

Materials of Construction	
Membrane	Dual layer polyether sulfone (BDA020)
Support layers	Polypropylene
Core, Cage, End Caps, Adapters	Polypropylene
Adapter Reinforcing Ring	polysulfone
O-rings	Various polymers available
Nominal Filter Dimensions	
Effective Filtration Area (EFA)	7.2 ft^2 (0.67 m^2)
Filter Diameter	2.75" (70 mm)
Nominal Filter Lengths	10" (254 mm), 20" (508 mm), 30" (762 mm), 40" (1016 mm)
Operating Parameters	
Typical Water Flow Rate at 25°C	2 GPM/psid (11 lpm/100 mbar)
Maximum Differential Pressure (forward)	80 psid @ 77°F (5.5 bar @ 25°C) 25 psid @ 176°F (1.7 bar @ 80°C)
Maximum Differential Pressure (reverse)	10 psid @ 77°F (0.689 bar @ 25°C)
Maximum Forward Flow Diffusion at 25°C per 10" filter	33 cc/min @ 40 psig (2.75 bar)
Maximum hot water sanitation temperature	85°C
Maximum steam temperature	126°C
Maximum peracetic acid exposure	1% (10,000 ppm)

Prefiltration Selections

Many bottling applications employ a prefilter and final filter in series to achieve maximum performance and economy. Prefilters are used to protect and extend the life of more expensive final filters. CUNO offers a number of premium prefilter choices: Betafine™ XL pleated filter cartridges, PolyNet™ depth filter cartridges and LifeASSURE™ membrane filter cartridges. Betafine XL filter cartridges (Literature LITCBFXL) feature CUNO's Advanced Pleat Technology maximizing the accessible filter area and supplying exceptionally high flow rates. Those preferring depth-style filters can select from CUNO's PolyNet prefilter family (Literature LITCPN1) which employs an advanced media design that enhances flow while extending service life. For additional bioburden control, CUNO's LifeASSURE filter cartridges (Literature LITCLAFB1), featuring dual-zone membrane, are designed to deliver the ultimate in final membrane protection and bioburden reduction.

CUNO Filter Housings

A specialized range of filter housings is available to meet the needs of the food & 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 maximize corrosion resistance. Internal surfaces of the housings are polished to 20 micro-inch Ra to limit microbial adhesion and provide easy cleaning. CUNO also offers custom-design, fully automated filtration skids and mobile units. These units can incorporate membrane housings, prefilter housings, SIP and CIP systems along with all necessary piping, valves, monitoring devices and computer controls for reliable, hands-free operation.

Fully Automated Filtration Skids

* Data from published product literature

BevASSURE™ BDA020 Filter Ordering Guide

Cartridge Grade	Configuration	Length Inches	End-modification	Gasket/O-ring Material
BDA020 BevASSURE 0.2 µm	**F**	**01 -** 10” **02** - 20” **03** - 30” **04** - 40”	**B** - 226 O-ring & Spear (Code 7) **C** - 222 O-ring & Spear (Code 8) **F** - 222 O-ring & Flat Cap (Code 3) **J** - 226 O-ring & Flat Cap	**A** - Silicone **B** - Fluorocarbon **C** - EPR **D** - Nitrile

Example; The part number for a 30" BevASSURE BDA020 Filter, 0.2 micron retention rating, 226 silicone O-ring connector with locating spear, would be: **BDA020F03BA.**

BevASSURE™ BDA020 Filter Disc Ordering Guide

Part Number	Size / Packaging
NM04708BDA020	47 mm disc / 40 box

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An IBWA Bottler (Supplier) Member

WARRANTY

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