

# LifeASSURE<sup>®</sup> BW

## Membrane Filters for Bottled Water Service



**Fluid Purification**



LifeASSURE<sup>®</sup> BW membrane filter cartridges are used as final filters in bottled water and other beverage grade water requiring high retention of *Cryptosporidium*, *Giardia*, heterotrophic plate count (HPC) bacteria, and other microorganisms. Encompassing two leading edge technologies, FlexN<sup>™</sup> membrane manufacture and MaxMedia<sup>™</sup> pleating construction, the LifeASSURE BW series of filters offers an unmatched combination of exceptionally high microorganism retention and long service life.

LifeASSURE BW BLA100 filters have been tested and certified by NSF International to Standard 53. This standard was developed in conjunction with the bottled water industry to certify filter performance in removing *Cryptosporidium* and *Giardia* cysts and meets EPA and CDC recommendations.

LifeASSURE BW filters are an effective means of providing microbiological control in water without the need for ozone. Ozone can generate unwanted disinfection by-products, such as bromate, leading the EPA to introduce regulations restricting the level of bromate in drinking water to <10 µg/L (10 ppb). The International Bottled Water Association (IBWA) recommends membrane filtration as an option in providing microbiological control, without the use of ozone, as part of a “multi-barrier” approach to water safety.

### NSF International

NSF International is a widely respected independent certification organization and the accepted authority in evaluating filter claims related to water and public health. Only products tested and certified by NSF are allowed to carry their mark. LifeASSURE BW BLA100 has been tested and certified by NSF to Standard 53 for reduction of cysts. This independent certification assures the rigor, reproducibility and impartiality that the bottled water industry has come to expect from NSF.



### Features

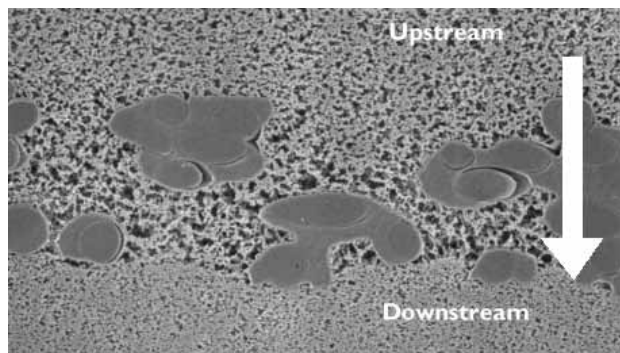
- Multi-zone, FlexN Nylon membrane
- MaxMedia construction providing high membrane surface area
- ANSI/NSF Std. 53 certified and listed
- 100% integrity tested in manufacturing and testable by the user

### Benefits

- Exceptionally high HPC microorganism retention
- Extended service life
- No disinfection by-products
- Fast per-cartridge flow rates
- Smaller filter housing assemblies required
- Reliable cyst reduction as certified by the only accredited testing body for cyst reduction
- Ensures proper installation and operation

## FlexN™ Membrane

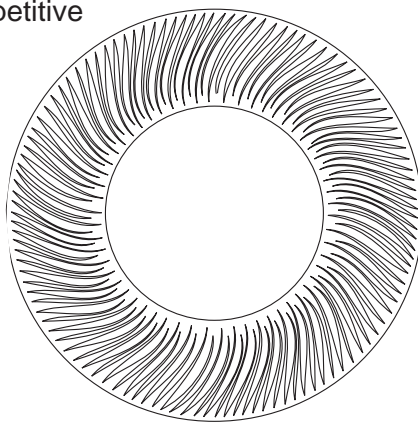
LifeASSURE BW membrane filters incorporate CUNO's advanced FlexN membrane technology\*. It allows unmatched flexibility in creating a multi-zone membrane that offers the maximum in contaminant holding capacity while providing very high per-cartridge flow rates. The cross-section SEM photograph shows that a single layer of LifeASSURE BW membrane consists of an "open" zone on the upstream side of the membrane and a "tighter" zone on the downstream side. In effect, the open zone acts as a prefilter by capturing larger particles and microorganisms while the tighter zone retains smaller microorganisms. This multi-zone structure eliminates the need for a dual layer membrane or thick, fibrous filter media commonly used in other filter cartridges. The result? LifeASSURE BW filters provide more membrane surface area per cartridge, faster cartridge flow rates and longer service life.



SEM Photograph Showing LifeASSURE BW Membrane Cross-Section

## MaxMedia™ Construction

LifeASSURE cartridge filters also feature CUNO's innovative MaxMedia construction for extended service life. This design technology maximizes the useful surface area of the filter while maintaining proper flow paths between media pleats. By employing as much as 50% more effective surface area than competitive filters, the LifeASSURE BW filter provides lower pressure drops, longer service life and lower overall filtration costs.



## Microorganism Reduction

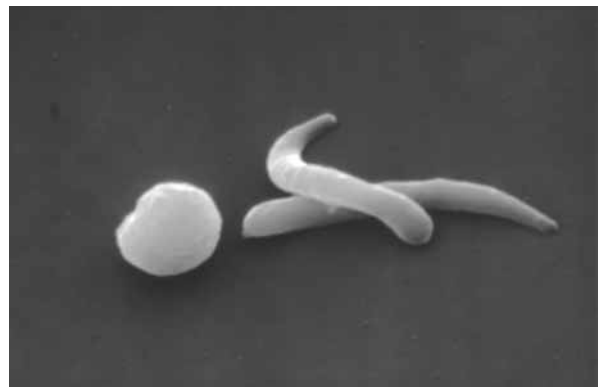
Microorganism control is a critical parameter in preparation of quality bottled or beverage grade water. LifeASSURE BW membrane filters consistently exhibit a greater reduction of microorganisms than competitive filters. In tests conducted with *Pseudomonas fluorescens* (a typical heterotrophic plate count, or HPC, organism) LifeASSURE BW BLA100 grade filters exhibited retention far exceeding that of similarly rated filters (Table 1.).

| Filter                    | Average LRV* |
|---------------------------|--------------|
| CUNO LifeASSURE BW BLA100 | 6.5          |
| Osmonics Flowtrex™ GF     | 0.8          |
| Whatman VTEC              | 1.5          |
| Pall AbsoLife™            | 0.1          |

Even in tests with *Brevundimonas diminuta*, (considered one of the smallest bacteria) LifeASSURE BLA020 and BLA045 grade filters exhibited log reduction values (LRV) significantly higher than similarly rated filters (Table 2.)

| Filter                    | Average LRV |
|---------------------------|-------------|
| CUNO LifeASSURE BW BLA020 | 7.3         |
| Millipore Milligard® CWSS | 4.5         |
| CUNO LifeASSURE BW BLA045 | 3.5         |
| Millipore Milligard CWSC  | 2.6         |

\* LRV =log10 number of organisms in/number of organisms out.



Scanning Electron Micrograph (SEM) of *Cryptosporidium parvum*. Magnification: 8,400X.

## Optimized Service Life

As the data in Chart 1 and Tables 1 & 2 demonstrate, LifeASSURE BW cartridges are designed to provide both enhanced service life without sacrificing effluent quality or microorganism retention. A laboratory study was conducted to measure the relative service life of filters marketed as cyst reducing

using a model contaminant (kaolin clay and anhydrous sodium pyrophosphate at 10 ppm) to induce plugging. Filters were tested side by side at a constant flow rate of 3 GPM. Filter service life was measured until a terminal differential pressure of 20 psid was observed.

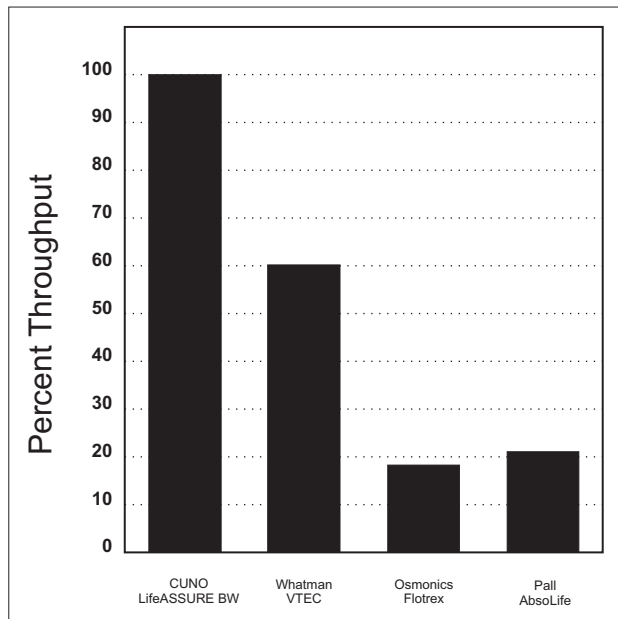
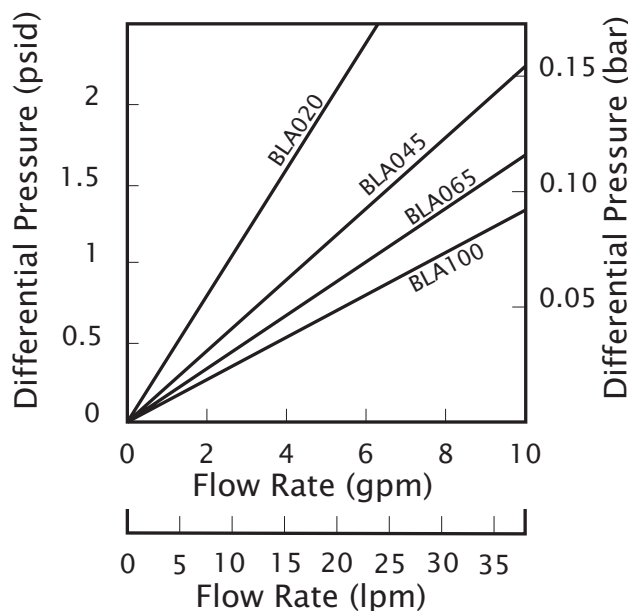


Chart 1. - Throughput Comparison

As the data show, LifeASSURE BW filters lasted 56% longer than the nearest competitor, and nearly four times longer than the competitor with the least throughput.

### Cartridge Flow Rates



Graph 1. - LifeASSURE BW Flow Rates

### Installation Integrity Test

LifeASSURE BW membrane filters are 100% integrity tested manufacturing. An in situ installation integrity test, a non-destructive measurement of a filter's ability to function as intended, can be performed by the user upon installation. Conducting an installation integrity test assures the user that the filter is installed and sealed correctly in the filter housing and is ready for service. For installation integrity test procedures and values, please consult CUNO document LITTDCO3.

| Cartridge Component                            | Material of Construction   |
|--|--|
| Cage, core, end-caps, and media support layers | Polypropylene  |
| Membrane                                       | FlexN Nylon 66   |
| Adapter support ring                           | Polysulfone  |
| Quality system                                 | ISO 9001 certified   |
| Regulatory Standards                           | FDA CFR21 listed materials of construction                                     |
|  | USP Class VI tested  |
|  | NSF Standard 53 certified (BLA100)   |
| Cartridge Dimensions                           | Dimension  |
| Filtration surface area                        | 11 ft <sup>2</sup> (1 m <sup>2</sup> )   |
| Outside diameter                               | 2 3/4" (7 cm) nominal  |
| Length   | Nominal 10, 20, 30 & 40 inches (25, 51, 76, and 102cm)                         |
| Operating Parameters                           | Specification  |
| Maximum operating temperature                  | 180°F(80°C)  |
| Maximum differential pressure                  | Forward: 80 psid (5.5 bar) @ 75°(25°C)   |
|  | Reverse: 50 psid (3.4 bar) @ 75°(25°C)   |
| Hot water sanitation                           | 30 min @180°F (80°C)   |
| Steam sterilization                            | 30 min @250°F (121°C)  |
| Chemical cleaning/sanitizing                   | Caustic solutions: consult literature: LITTDBA2                                |
|  | Peracetic acid based solutions: consult literature: LITTDBA2CL                 |
| Installation integrity test                    | Consult CUNO for appropriate values for specific filter housings in field use. |

Flowtrex is a trademark of Osmonics, Inc., VTEC is a trademark of Whatman, PLC., and AbsolLife is a trademark of Pall Corp.

## LifeASSURE® BW ANSI/NSF Standard 53 Certified Configuration Ordering Guide

| Cartridge Grade | Removal Rating   | Configuration                       | Length Inches                                | End-modification  | Gasket/O-ring Material |
|-----------------|------------------|-------------------------------------|--|---|------------------------|
| BLA             | 100 - 1.0 micron | B - Pleated MaxMedia™ Configuration | 01 - 10"<br>02 - 20"<br>03 - 30"<br>04 - 40" | B - 226 O-ring & Spear (Code 7)<br>C - 222 O-ring & Spear (Code 8)<br>F - 222 O-ring & Flat Cap (Code 3)<br>J - 226 O-ring & Flat Cap | D - Nitrile            |

## LifeASSURE® BW Filter Cartridge Ordering Guide

| Cartridge Grade | Removal Rating   | Configuration                       | Length Inches                                | End-modification   | Gasket/O-ring Material  |
|-----------------|--|-------------------------------------|--|--|---|
| BLA             | 020 - 0.20 micron<br>045 - 0.45 micron<br>065 - 0.65 micron<br>080 - 0.80 micron | B - Pleated MaxMedia™ Configuration | 01 - 10"<br>02 - 20"<br>03 - 30"<br>04 - 40" | B - 226 O-ring & Spear (Code 7)<br>C - 222 O-ring & Spear (Code 8)<br>D - Double open end (10" Length)<br>E - Double open end (9 ¾" Length)<br>F - 222 O-ring & Flat Cap (Code 3)<br>J - 226 O-ring & Flat Cap | A - Silicone<br>B - Fluorocarbon<br>C - EPR<br>D - Nitrile<br>H - Clear Silicone* |

\* O-Ring Only.

Your local CUNO distributor is:



An IBWA Bottler (Supplier) Member

### WARRANTY

Seller warrants its equipment against defects in workmanship and material for a period of 12 months from date of shipment from the factory under normal use and service and otherwise when such equipment is used in accordance with instructions furnished by Seller and for purposes disclosed in writing at the time of purchase, if any. Any unauthorized alteration or modification of the equipment by Buyer will void this warranty. Seller's liability under this warranty shall be limited to the replacement or repair, F.O.B. point of manufacture, of any defective equipment or part which, having been returned to the factory, transportation charges prepaid, has been inspected and de-

termined by the Seller to be defective. THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, AS TO DESCRIPTION, QUALITY, MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR USE, OR ANY OTHER MATTER. Under no circumstances shall Seller be liable to Buyer or any third party for any loss of profits or other direct or indirect costs, expenses, losses or consequential damages arising out of or as a result of any defects in or failure of its products or any part or parts thereof or arising out of or as a result of parts or components incorporated in Seller's equipment but not supplied by the Seller.

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