

## WATER TREATMENT SOLUTIONS FOR LIFE SUPPORT SYSTEM APPLICATIONS

**FILTRATION, UV DISINFECTION &  
CHEMICAL CONTROL**





## About Us

Evoqua's Neptune Benson has been synonymous with water filtration and disinfection since 1956. Our products are used in zoos and aquariums worldwide, providing exceptional water for the most demanding habitats. We manufacture state-of-the-art products such as Defender® regenerative media filters and Vortisand® microsand filters. We also offer UV disinfection, chemical controllers, strainers, valves, and much more.



# Vertical Sand Filters

## STEEL AND FIBERGLASS

Evoqua's Neptune Benson is a market leader in supply of durable and reliable vertically mounted sand filters.

Our vertical filter vessels are available in small or large diameters ranging from 36" to 120", and can be built with 48", 60" or 72" custom side shell heights. They are available with a 14" x 18" access see-through manway.

Steel filters are built to meet job specified nominal shell and head thickness, with a hard-wearing, proven internal lining. Our fiber-reinforced plastic (FRP) sand filters are made with vinyl ester resin, which maximizes strength and provides corrosion resistance against chemicals commonly used in water treatment applications, including ozone. Our winding method used during construction

results in one of the strongest FRP vessels on the market with outstanding resistance to cracks caused by the expansion and contraction of filter during pressurization and de-pressurization and is designed to a 0.001 inch strain limit.\*

Structural pipe legs and custom media dump ports are built to order.

Manufactured base supports are integral to the tank and designed for securing to floor slab, or concrete equipment pad, with anchor bolts.

## SUPERIOR MATERIALS

Our filament wound filters are made of vinyl ester resin for greater strength and reliability and have seamless construction for leak resistance. They are also available in high strength carbon steel or stainless steel construction.

## DURABLE

Schedule 80 PVC internals with integral fiberglass flange connections to guarantee no possible leaks.

## RELIABLE

Steel tanks have Flexsol 3000 lining and are backed with a 10-year warranty.

Fiberglass tanks are backed with a 15-year warranty.

## EASY MAINTENANCE

Large 14" x 18" manway for safe access.

## OPTIONAL CLEAR MANWAY COVER

Provides view into the filter.



\*See design and operational limits in the operating and maintenance manual.

# High Rate Commercial Sand Filters

## CUSTOMIZABLE CONFIGURATIONS

Neptune Benson offers a full range of sand filters constructed out of spun fiberglass, stainless steel, or lined carbon steel. Our sand filters are made from superior materials and include either manual or fully automated face-piping arrangements. Our filters can be custom engineered and fabricated to suit your specific needs.

### DURABLE

Schedule 80 PVC parts with solid fiberglass flange connections for leak resistance.

### EASY MAINTENANCE

Large 14" x 18" manway for safe access.

### SMALLER FOOTPRINT

Horizontal filters are stackable to save space.

## SUPERIOR MATERIALS

Our filament wound filters are constructed of vinyl ester resin for greater strength and reliability and are seamless for leak resistance. They are also available in high strength carbon steel or stainless steel construction.

### STRONG

Base designed for seismic zone 4 installation. Steel tanks have Flexsol 3000 lining.

### OPTIONAL CLEAR MANWAY COVER

Provides view into the filter.

### RELIABLE

Filters are backed with a 15-year warranty.









Neptune Benson's Defender® Regenerative Media Filter is a water filtration system designed to provide exceptional water quality in a cost-effective and sustainable way.

## Defender® Regenerative Media Filtration System

### UP TO 90% WATER SAVINGS

Nobody likes backwashing. With Defender filters you don't have to! Defender filters automatically “bump”—regenerating media for a fresh start without wasting water to drain.

- Reduces footprint and operating weight
- Eliminates backwash holding tank
- Requires smaller waste line to sewer
- Addresses backwash flow rate restrictions

### UP TO 50% IN ENERGY, FUEL AND CHEMICAL SAVINGS

Eliminating backwashing translates into significant operational savings. Consider the money that can be saved by not re-heating and chemically re-treating all of the water sent down the drain. Defender filters also operate at lower head pressures, reducing power demand and electrical costs.

### UP TO 75% SPACE AND CONSTRUCTION SAVINGS

Running out of space in your mechanical room? The footprint of Defender filters can be up to 75% smaller than equivalently sized sand filters, saving both space and construction costs.

### COST SAVINGS ANALYSIS

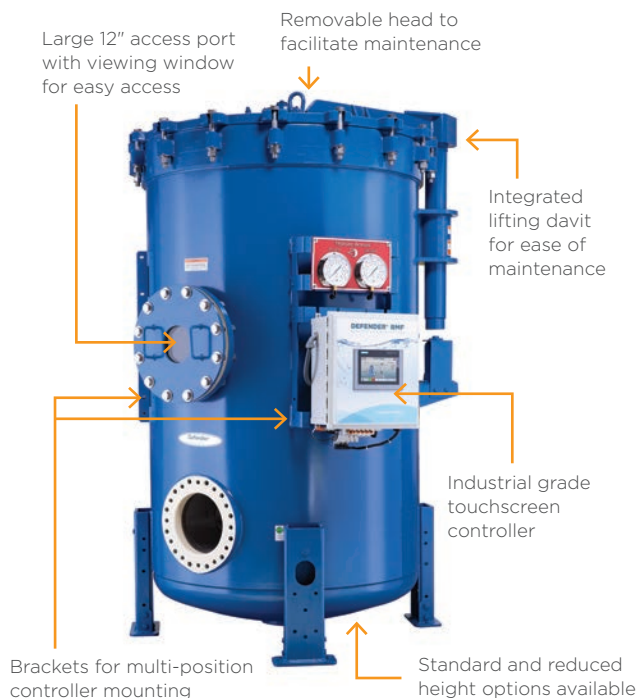
In addition to providing superior water quality, Defender filters reduce water, energy and chemical consumption, which translates into significant bottom line savings. Some facilities have realized an ROI in less than one year. Our team of experienced aquatics experts are waiting to help quantify savings for your facility.

### REMOVES PARTICLES DOWN TO 1 MICRON

Defender filters produce sparkling, crystal clear water by removing particles down to 1 micron with much greater removal efficiencies than typical sand filters in the critical 1-10 micron range. The difference in water clarity is visible to the naked eye. In addition, the dramatic reduction in turbidity improves transmission of UV light which improves UV effectiveness.

### PROVEN PERFORMANCE

With over 4,000 global installations, the Defender filter has a long history of proven performance and comes backed with a 10-year warranty.





# Screen and Microsand Filtration

## V-SERIES AUTOMATIC SCREEN FILTERS

VAF™ Filtration Systems and V-Series filters represent the latest technology available in automatic self-cleaning screen filters. The efficiency and simplicity of the mechanical system that drives the cleaning process truly differentiate these filters from the competition.



### Filtration Level

- Down to 10 micron

### Benefits

- 70% fewer moving parts (no limit switches or pistons reversing the cleaning mechanism)
- Simple controls
- Flush waste is less than 1% of system flow
- Greater cleaning efficiency, lower maintenance
- Filter remains on-line during the self-cleaning process

## VORTISAND® CROSS-FLOW MICROSAND FILTRATION SYSTEMS

The Vortisand filter is a high capacity media filter that combines cross-flow dynamics with microsand media to achieve submicron filtration performance. This technology allows the unit to operate at filtration rates of up to 5 times greater than traditional media filters, while filtering 10-50 times finer.



### Filtration Level

- Submicron (below 1 micron)

### Benefits

- Up to 75% reduction in footprint compared to traditional media filters
- Higher quality water than conventional filters
- Lower cost of operation (reduced water consumption, energy savings, reduced chemical costs, low maintenance costs)

**NEPTUNE BENSON OFFERS  
A VARIETY OF FILTRATION  
OPTIONS TO MEET YOUR  
INDIVIDUAL NEEDS AND  
APPLICATIONS.**



# Ultraviolet Disinfection

## SOLUTIONS FOR LARGE AND SMALL EXHIBITS

Neptune Benson offers a variety of high quality ultraviolet (UV) disinfection solutions for zoo and aquarium habitats.

UV disinfection is an environmentally friendly disinfection solution and is one of the most effective methods for deactivating harmful pathogens such as *Listeria*, *E.coli*, and more. It also deactivates chlorine tolerant pathogens like *Cryptosporidium* and *Giardia*.

## WAFER® SYSTEMS

Wafer disinfection generators are the premier UV solutions for commercial aquatic applications. The Wafer UV disinfection generator system from Evoqua differs from any other UV generator currently on the market, with a unique UV chamber that offers one of the most compact UV disinfection generators available today. At about one third of

the size of comparative UV offerings, and with a significantly reduced maintenance envelope, the Wafer generator delivers an easy to install and retrofit solution that will fit the tightest of mechanical rooms.

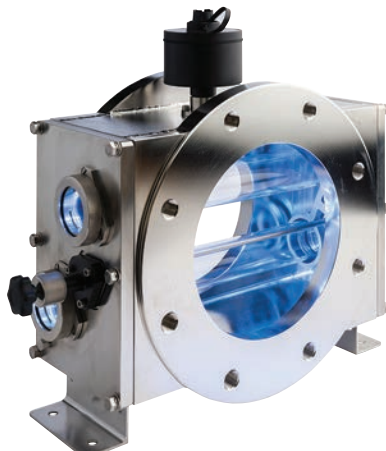
## DELTA UV® SYSTEMS

Delta UV disinfection systems are perfect for smaller exhibits allowing for superior protection of your species collections without harmful by-products associated with traditional chemical disinfection.

## THE ULTIMATE COMBINATION

When used together, UV disinfection, chemical disinfection and regenerative media filtration (such as Defender® Regenerative Media Filters) provide a multiple barrier approach for exceptional protection from harmful contaminants, ensuring the cleanest, safest water.

Wafer UV System



Delta UV Series

Evoqua UV disinfection generator systems undergo third-party validation testing in accordance with the UVDGM (USEPA, 2006). Validated products are tested to confirm a minimum inactivation equivalent of 3 log (99.9%) for microorganisms in accordance with NSF/ANSI 50 and the UVDGM. Performance is not claimed nor implied for any product not yet validated; unvalidated products use single point summation calculations to provide delivered dose recommendations. Performance limitations depend on feed conditions, overall installed system design, and operation and maintenance processes; please refer to Operations Manuals. For more information: [contactus@evoqua.com](mailto:contactus@evoqua.com)







## Blu-Sentinel™ Chemical Controller

### AQUATICS ANALYZERS/CONTROLLERS

The Blu-Sentinel controller is an innovative chemical controller with an intuitive touch-screen display and unique color based status indicator in the flow cell that provides a visual indication of water quality: blue = all is good, yellow = check parameters, red = fault, check immediately. It offers a proven range of features from basic control to advanced chemical control and has an exceptional reputation for our long lasting and reliable pH and HRR® controller (ORP) Strantrol® controller probes. HRR controller (ORP), pH, ppm, conductivity (TDS), and total CL all have two upper and lower limits for alert and alarm conditions. The Blu-Sentinel SE controller allows for remote operation from a smart phone or tablet. The flow cell can be separated from the electronics by up to 3,000 feet, allowing for accurate readings and response when the sample has far to travel.



#### Blu-Sentinel SE Controller Features

- 4" touchscreen for ease of navigation
- Remote access from connected smart devices
- Highly visibly LED color indication of controller status



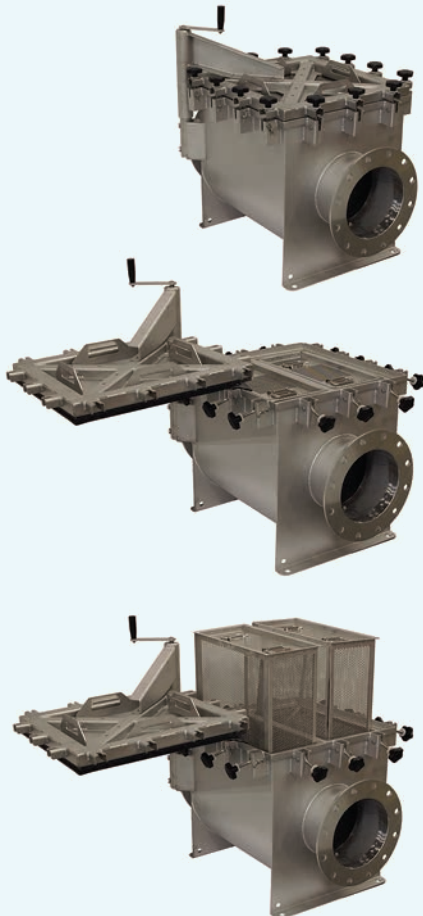
# Strainers

## GUARDIAN™ STRAINERS

Neptune Benson's Guardian Strainers are available in fiberglass and stainless steel. These strainers and strainer baskets excel in hair and lint removal. Custom sizes are available for easy installation, effortless operation, and durability.

### Features

- Clear acrylic lid for easy viewing during operation
- Large easy-grip hand knobs make lid removal a snap
- Full face gasket ensures watertight seal



## PROSTRAINER® STRAINERS

Neptune Benson's ProStrainer strainer is a dual basket high capacity pump strainer, flow straightener, and air evacuator in one product, with Horizontal Laminar Flow (HLF) Technology. It is ideal for outdoor pools and fountains with heavy loading of their strainers. Our standard series comes in 3"-20" flange sizes. Our reducing series allows for a flange size to match the pump. A crank operated davit makes access quick and easy even on larger models.

### Features

- 300% greater capacity
- All stainless steel components
- Adjustable draw latch lid clamping system
- Grounding lug hole
- Integrated mounting holes built into feet
- Integrated lid handles for easy and safe service
- Easy access external flush and clean out plug
- HLF creates clog free bypass design
- Low profile improves dynamic head/pump selection







TRANSFORMING  
**WATER**  
— ENRICHING —  
**LIFE**



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AQ-LSS-BR-0623