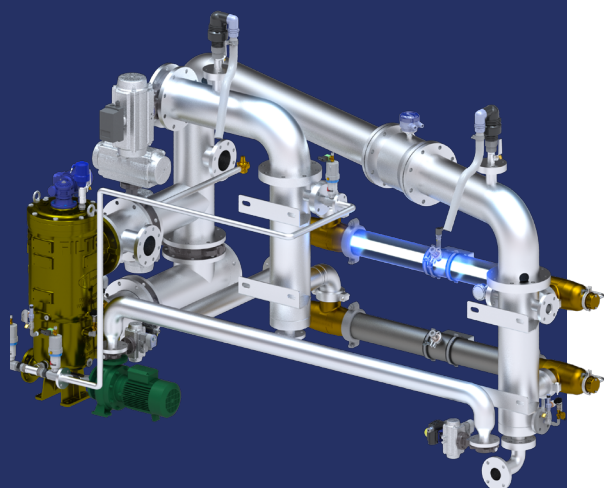




# Ballast Water Treatment

**B**  
Range

**BIO-SEA® B**  
From 135 to 450 m<sup>3</sup>/h



Other environmentally friendly solutions for water treatment onboard vessels:

- Drinking water
- Grey waters
- Legionella
- Pools & spas

BIO-UV Group, has a 20+ years experience in designing and manufacturing water desinfection systems using chemical-free technologies (UV, Ozone, Salt Electrolysis) for various applications including ballast water treatment solutions under BIO-SEA® brand.



## Benefits

- UV dose automatic regulation depending on water quality
- Tested in low UV water transmittance conditions with best results
- Chemical free, zero by-product, zero active substances
- Not impacted by water temperature, neither by salinity
- Automatic operation, easy-to-use interface
- First Class marine components
- Safe and easy to install, operate and maintain
- Cost-efficient solution, low OPEX

## Certified sales & service partners for turnkey solutions

From a simple onboard visit, or a 3D laser scanning survey, to a high-level global turnkey package, BIO-SEA corporates closely with a worldwide service network of certified partners and suppliers for services ranging from designing, to onboard installation and commissioning or annual check.

| SPECIFICATIONS                     |                                   |
|------------------------------------|-----------------------------------|
| Treatment Capacity                 | From 50 to 2000 m <sup>3</sup> /h |
| Power Supply                       | 400 – 440V ; 50-60Hz ; 3-phases   |
| Power Consumption per UV reactor   | 12kW – 22kW                       |
| UV lamp lifetime                   | 5000 hours                        |
| Environmental Operating Conditions | T°= 0°C – 55°C ; H% ≤ 95          |
| Global Head Loss                   | < 0,55 bars                       |
| Operating Pressure                 | 1,5 – 10 bars                     |

## 1<sup>st</sup> step

### Mechanical filtration

- 20µm screen to retain suspended solids and zooplankton
- Scaled to size depending on the flow rate to treat
- Automatic backwash with standard suction pump delivered with the system
- No disruption of the filtration process during the backwash cycle and no significant variation of the treated water flow rate

## 2<sup>nd</sup> step

### UV disinfection

- Titanium reactor designed with a single polychromatic, medium pressure, high intensity UV lamp for optimum cost and treatment results
- UV lamp protected by high-quality quartz sleeve
- Design optimized by CFD (Computational Fluid Dynamic) taking into account water quality (UV transmittance) and fluid speeds, allowing for easier cleaning and maintenance
- Lamp driven by electronic ballast and UV sensor under monitoring allowing precise management of the UV lamp power to optimize its intensity, reduce the power consumption and extend its life



### Monitoring & control

- Touchscreen interface
- Fully automated operating modes for ballasting, de-ballasting, cleaning and stripping
- Sensors and PLC monitoring: UV and temperature sensors, flow meter, pressure transmitters, automatic valves
- Operations and alarms covering (24 months), automatic generation of PDF reports
- Bus communication for remote control, integration to vessel automation system and control command, GPS connection

*Available options: remote control panels (7" or 15" auxiliary touch screen), AMS integration (RS 485 communication cable), BIO-SEA Clean (automatic quartz sleeve cleaning system)*



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