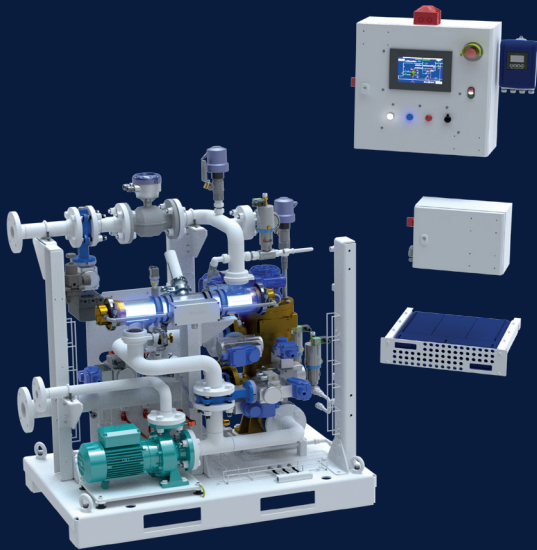




# Ballast Water Treatment

## L Range

### BIO-SEA® L 30 MINI From 13 to 30 m<sup>3</sup>/h



Available in flexible and scalable skid and semi-skid design, to fit in all ship.

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 BIO-SEA® ballast water treatment system.



| Specifications                     |                                 |
|------------------------------------|---------------------------------|
| Treatment capacity                 | From 13 to 30 m <sup>3</sup> /h |
| Power supply                       | 400-440 V ; 50-60 Hz ; 3-phases |
| Power consumption per UV reactor   | 6kW per reactor                 |
| UV lamp lifetime                   | 5000 hours                      |
| Environmental operating conditions | IP54 ; T°= 0°C - 55°C ; H% ≤ 95 |
| Global head loss                   | < 0.55 bars                     |
| Operating pressure                 | 1.5 - 10 bars                   |

## Benefits

- Most compact system on the market: 1 m<sup>2</sup> footprint, no additional cabinet needed
- 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
- Available in flexible and scalable skid design, and loose components versions to fit in all ships environment
- 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 global turnkey package, BIO-SEA cooperates closely with a worldwide service network of certified partners and suppliers for services ranging from designing, to onboard installation and commissioning or annual check.

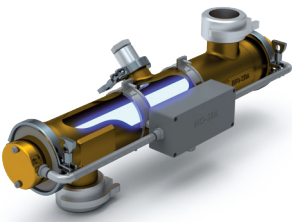


# BIO-SEA® L



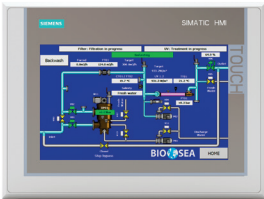
## Mechanical filtration

- 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
- Two types of filters (Hydac or Filtrex models) to fit all ships requirements



## UV disinfection

- Bronze reactor designed with a single polychromatic, medium pressure, high intensity UV lamp
- 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



## 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 (9" or 15" auxiliary touch screen), copper-nickel piping, special paint, drip-tray, etc.*



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