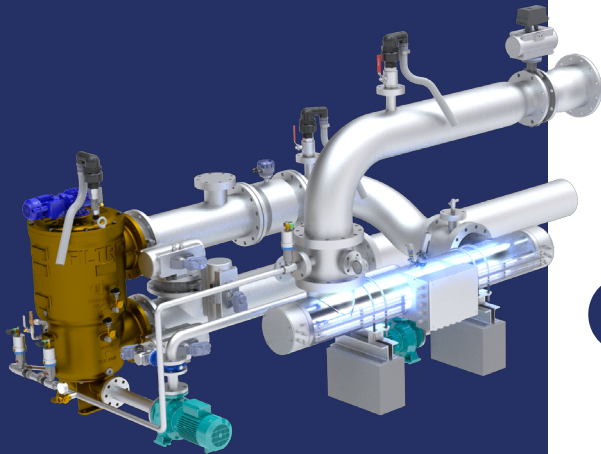


Ballast Water Treatment

M Range

BIO-SEA® M
From 500 to 2100 m³/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

- Automatic UV dosage controls depending on water quality
- Tested in low UV water transmittance conditions with best results
- Chemical free, zero by-products, zero active substances
- Not impacted by water temperature or salinity
- Autonomous operation, user friendly interface
- First Class marine components
- Compact unit with a lowest height requirement for fitting
- 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 190 to 2100 m³/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

1st step

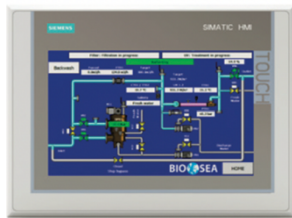
Mechanical filtration

- 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

2nd step

UV disinfection

- 254 SMO reactor designed with a reduced number of polychromatic, medium pressure, high intensity UV lamps 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
- No disruption of the filtration process during the backwash cycle and no significant variation of the treated water flow rate



Monitoring & control

- Large touch screen 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), by-pass valves, BIO-SEA Clean (automatic quartz sleeve cleaning system)



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