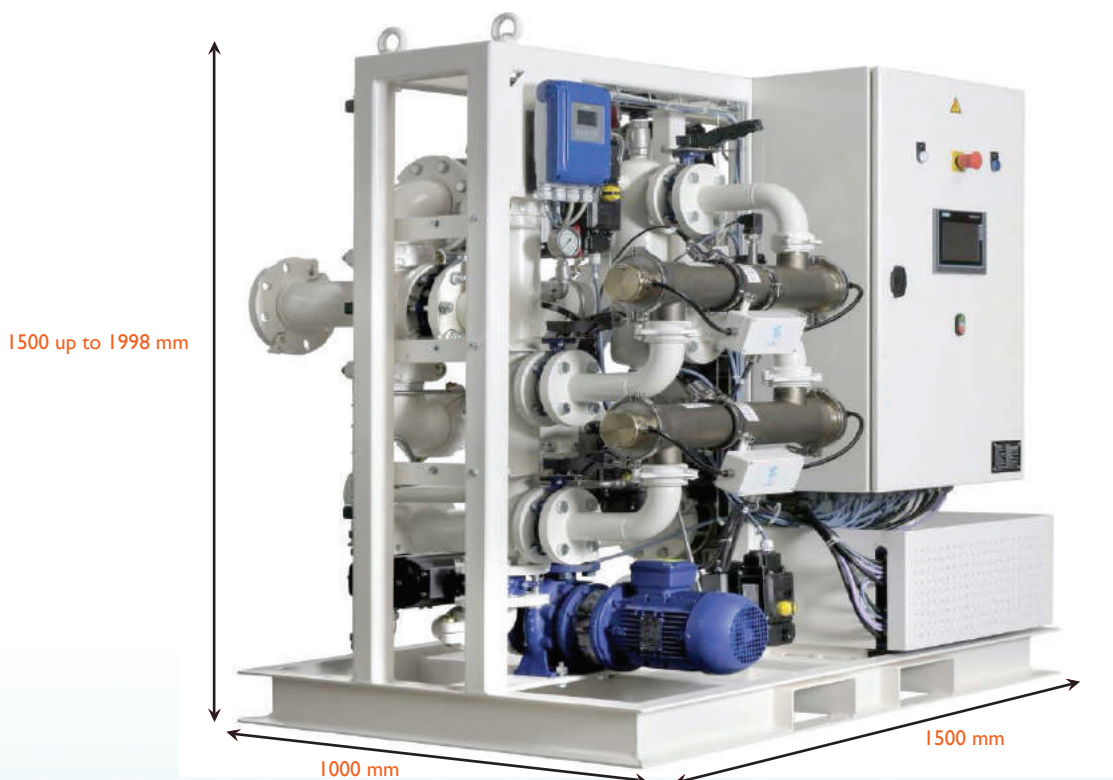


BALLAST WATER TREATMENT 30-60-90 SMALL FLOW RATE



BIO-SEA® by **BIO-UV** designed the **smallest ever ballast water treatment system on the market** (without additional power supply cabinet out of the skid), **IMO standard and USCG-AMS** regulations compliant.

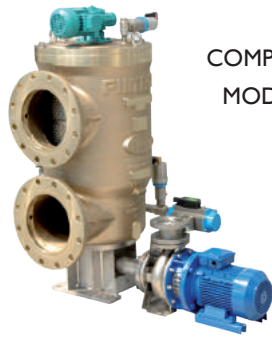


BIO-SEA® 60 - SKID

BENEFITS

- Well proven technology
- High UV dose
- Tested in low UV water transmittance conditions
- Not impacted by water temperature, neither by salinity
- Easy to install, operate and maintain
- Automatic operation, easy-to-use interface
- Safe: no explosive gases, no induced corrosion, chemical free
- First Class marine components
- Cost efficient solution
- Available in flexible skid design, semi-modular and modular versions, to fit in all ships environment

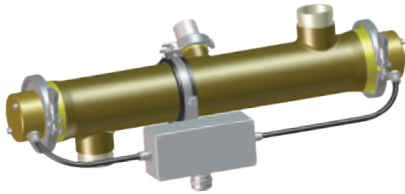
1ST STEP : MECHANICAL FILTRATION



COMPACT
MODEL

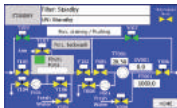
- **40µm screen in order to retain suspended solids and zooplankton**
- **Size to scale** depending on the flow rate to treat
- **Automatic backwash**
- **No disruption of the filtration process during the cleaning cycle**
- **Additional suction pump** to allow a complete and performing cleaning

2ND STEP : UV DISINFECTION



- **Copper-aluminum alloy reactor** equipped with a single polychromatic, medium pressure, high intensity UV lamp
- A high-quality quartz sleeve protecting the UV lamp
- **Optimized design** by CFD (Computational Fluid Dynamic), taking into account the water quality (UV transmittance) and fluid speeds on the quartz sleeve, in order **to facilitate cleaning and maintenance**
- Lamp driven by **electronic transformer** allowing precise management of the UV lamp in order to optimize its regulation, **reduce the power consumption and prolong its life**
- **Modular design**, facilitating the installation of UV reactors in parallel and a better **adjustment to the flow** that has to be treated

MONITORING AND CONTROL



- **Automated operation and monitoring** through sensors and PLC: UV sensor, temperature sensor, flow meter, differential pressure switch, automatic valves
- **Automatic** and/or manual **operations** for **ballasting, deballasting, cleaning and stripping**
- **Touch screen interface** for easy friendly use and understanding
- **Recording** of operations, alarms (10,000 records of each) covering 24 months
- Operator and administrator modes
- Bus communication for remote control and integration to vessel automation system and control command

BIO-SEA® small flowrate	
Treatment Capacity	from 30 to 85 m ³ /h +
Power Supply	400 – 440V; 50-60 Hz; 3-phases
Power Consumption per UV reactor	6 kW for 30 m ³ /h - 12 kW for 60 m ³ /h - 18 kW for 85 m ³ /h
Environmental Operating Conditions	T°= 0°C - 55°C; H% = 95
Global Head Loss	< 0,55 bar
Min Operating Pressure	1,5 bar
Max Operating Pressure	10 bars

