



GREEN PORT



Mobile Hybrid Ballast Water Treatment System

PORTOBALLAST SERIES

Mobile Hybrid Ballast Water Treatment System

In response to demands from numerous ship owners and terminal operators, we have developed a new generation of Mobile Hybrid Ballast Water Treatment System. On one hand, we provide vessels with ballast water reception and treatment services. On the other hand, the system is equipped with a chemical dosing system to neutralize excessive oxidants present in non-compliant ballast water. Ultimately, we can deliver solutions and services for ships that fully meet port discharge standards.



Purposes & Applications

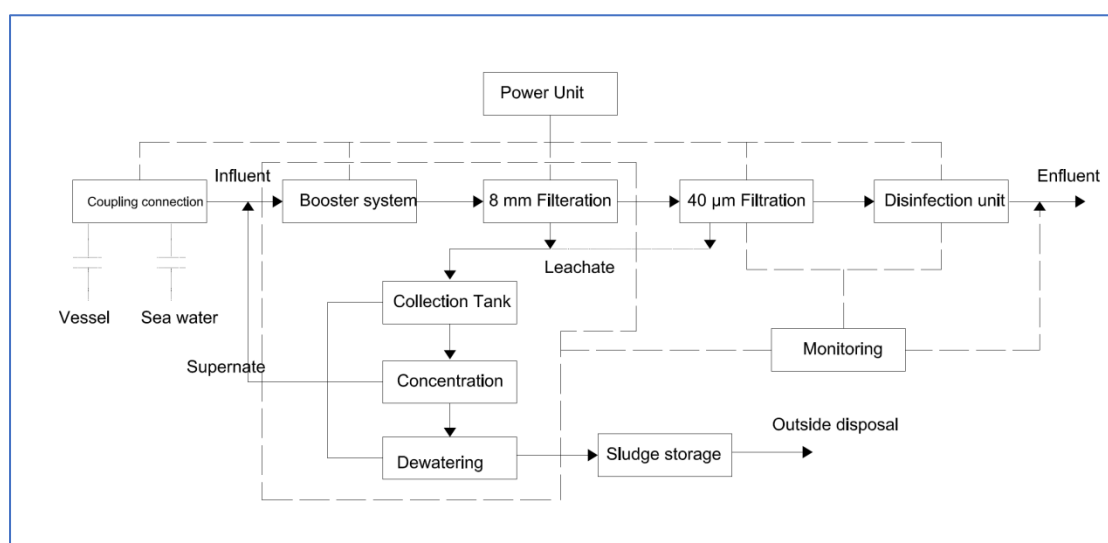
- ❑ Mobile Hybrid Ballast Water Treatment System is used to supply ballast water treatment service for oceangoing vessels with or without BWMS fitted on board, from port terminals or barges provided with containerized solution. It can be fitted on trailer trucks, port terminals or barges to supply flexible services.
- ❑ The supporting Chemical Dosing System is engineered to remove excess residual chlorine and other oxidants in ballast water. If an electrolytic BWMS malfunctions and fails to self-neutralize excessive oxidants, port or shore-side systems will be needed to perform the neutralization

Principles & Process Flow

■ Ballast Water Treatment

After being pumped into Ballast Water Port Reception & Treatment system, ballast water firstly goes through multiple filtration stages to remove most of ≥ 40 micron particles (inorganic particles, at least 98% of zooplankton, and at least 50% of phytoplankton), then passes through a high-efficiency medium-pressure UV reactor for disinfection treatment, and finally meets IMO D-2 discharge standard.

Slurry and sediments trapped by multiple stage filtration go to sludge treatment units for further solid-liquid separation. Subsequently, the separated liquid phase will return to biological inactivation route, while the separated solid phase will be stored temporarily or enter into sludge dewatering units.



■ Surplus Oxidants Neutralization-Automatic Dosing System



After receiving the treatment request from the visiting ships, the port side will compute the required total neutralizer dosage according to total ballast water discharge volume and oxidant concentration. Following dosing step, portable meters will test residual oxidants in treated ballast water. Only after getting approval from port environmental supervisors can the ship discharge ballast water. The dosing system can be used for emergency response when the Total Residual Oxidants (TRO) value exceeds the standard.

The system can automatically control the dosing amount based on the TRO value, and the dosing amount can also be set through the PLC. If an online TRO instrument is equipped, interlock control can also be carried out according to the set value of the instrument.

Specifications

☐ Ballast Water Port Treatment Unit

1	Tie - in Point	
	Power Supply	116 kilowatt; 400V/3 phase; 4 wire + ground
	Inlet/Outlet Size	DN200
	Fresh Water Inlet	DN25 with 1 bar pressure head
	Drainage Point	DN50
	Compressed Air	6 bar, 300L/min, DN15 (Included in system already)
2	Technical requirements	
	Influent Limit	Clean ballast water, oil-free, TSS $\leq$ 500 mg/L, water temperature $\leq$ 65 °C
	Treatment Capacity	50~300 m ³ /h with adjusting UV power
	Discharge Standard	IMO D-2 and local environmental protection requirements
	Explosive-proof	Optional
	Ambient temp	(-10 Deg C to +50 Deg C)
	Fluid temp	(0 Deg C to +65 Deg C)
	Maxi/Mini. Working Pressure	10 bar/1bar
	Design Lifetime	With proper maintenance and upkeep, the design service life exceeds 15 years.
	Dry/Operating Weight	10,000/13,000 kg
3	Containerized Equipment Room	
	Dimension Size	12,192mm×2,438mm×2,896mm (LWH)
	Input & Output Sampling Point	Yes
	Fire-fighting Device	Yes

	Air Conditioner	Yes
	Ventilation Device	Electric-driven Fans
	Communication Interface	Modbus RS 485
	Insulation Layer	50mm thickness insulation layer inside
	Grounding	Diagonal-double earthing
	Painting Standard	CX-25 coating
	Lightning Conductor	Yes

❑ Chemical Dosing System

Item	Technical Specifications
System Type	Skid-mounted, with mobile wheels, integral frame
Dimension Size	LWH 1200×1000×1800 mm
Applicable Chemical	Sodium thiosulphate
Dosing Flow Rate	216 L/h
Ambient Temperature	(-10°C to +40°C)
Power Supply	400V / 230V, 50/60Hz
Control Mode	Local manual + PLC automatic
Frame Material	316L Stainless Steel

Features

- Plug and play, with easy installation and use
- Harmless neutralizing agent that exerts no adverse impacts on marine and local ecological environments
- No need for Reinforced Concrete Structures, including reaction tankers, sediments & sludge tanker and equipment rooms
- No requirements for hydraulic retention time/holding time
- Equipped with Professional Sludge & Sediments Treatment System, to largely reduce the sludge volume
- Customized design, continuous upgrade service, to meet more stringent standards

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