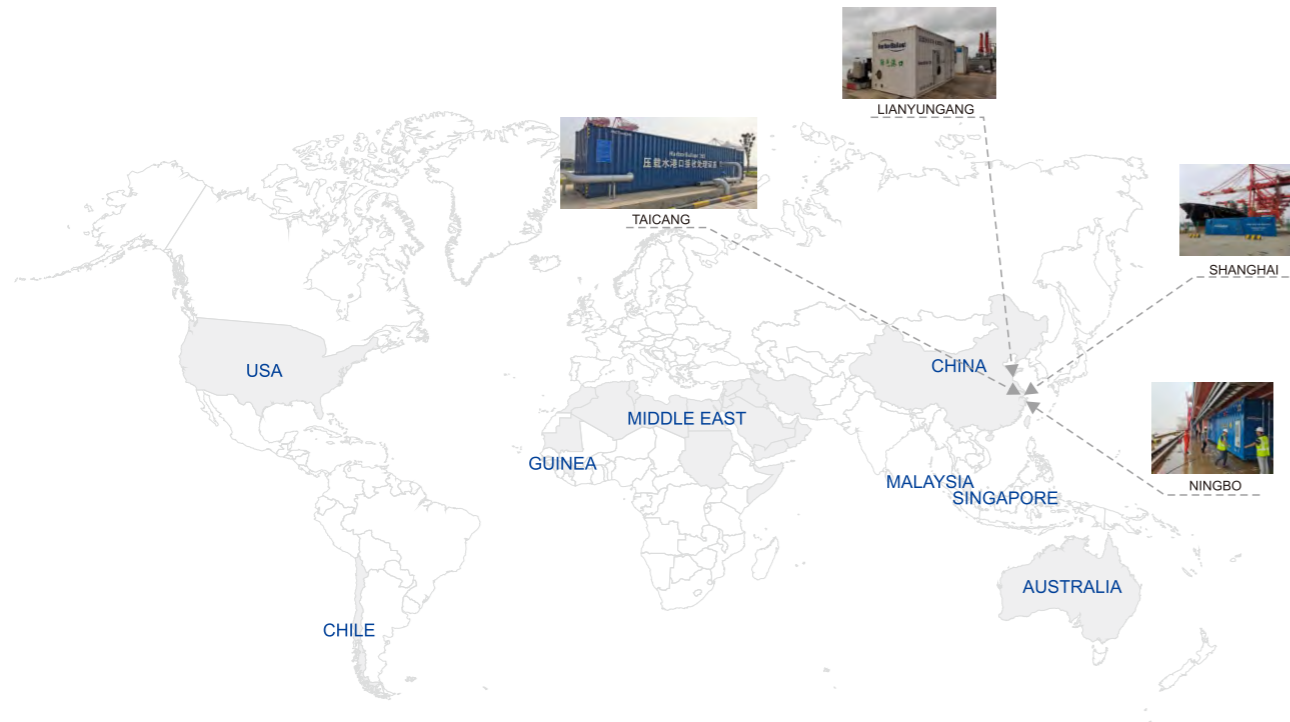


Global References



PACT Environmental Technology Co., Ltd.
Room 1201-1203, No. 488 Yaohua Road, Pudong District,
Shanghai 200126, China
Tel: 0086-021-53019081
Fax: 0086-021-53018771
E-mail: BWT @pactmarine.com
www.pactmarine.com

Global Offices & Representatives

Shanghai / Hongkong / Singapore / Seoul / Dubai / Los Angeles / Santiago / Turkey / Greece / Brisbane

GREEN PORT



Ballast Water Port Reception & Treatment Facilities

HarborBallast Series



ISO9001 Certified for Design, Manufacturing
and Servicing of Standard and Customized
Equipment and Plants



HarborBallast

Ballast Water Port Reception & Treatment Facilities

Ballast Water Port Reception & Treatment Facility 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.

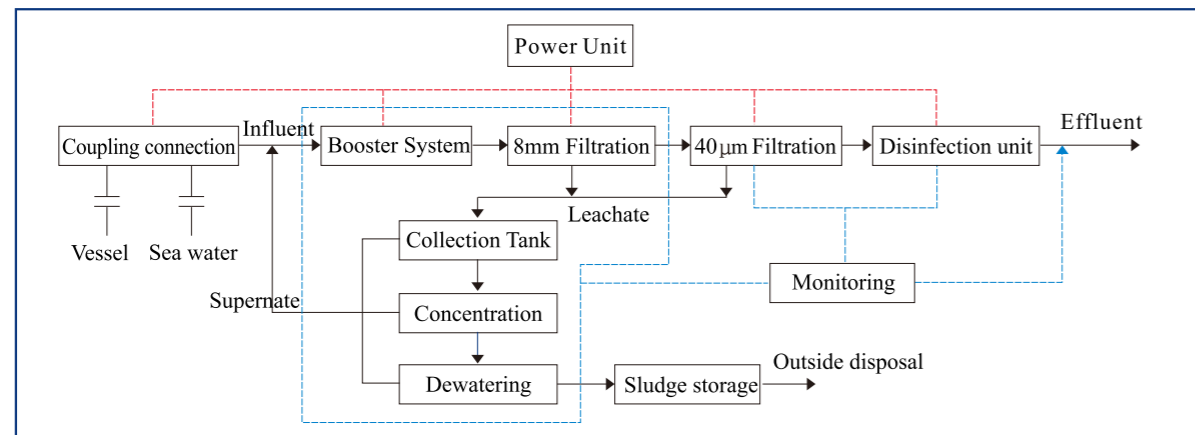
After disinfection treatment, effluent from the facility can be directly discharged into the waters near the ports or transferred to urban water plants for advanced treatment or reuse development. Meanwhile, it also can be reloaded by ships as "cleaning" ballast water.



Principles & Process Flow

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.



Applicable Settings

- Green Port Planning, helping to meet local environmental protection requirements by the government
- Ships without on-board BWMS or with malfunctioning BWMS, providing ballast water treatment service in compliance with IMO Ballast Water Convention
- Facilities in need of water reuse
- Shipbuilding and repair yards
- Ports with epidemic or red tide in coastal waters



Working Scenarios



1) Mobile Trailer Service

- Applications: Cruise ships and vessels with small volume ballast water
- Treatment Capacity: 50 ~ 500 m³/h
- Features: High frequency of treatment service, more flexibility, no need for piping modification on port side, shore power supply

2) Fixed-location Port Service

- Applications: Suitable for all kinds of ships
- Treatment Capacity: 50 ~ 5,000 m³/h
- Features: Need for piping modification on ship and port side, shore power supply, poor flexibility



3) Mobile Barge Service

- Applications: VLOC/VLCC, large ships with big volume ballast water
- Treatment Capacity: 1,000 ~ 5,000 m³/h
- Features: Higher frequency of treatment service, more flexibility, no need for piping modification on ship and port side, no negative impacts for daily operations of ports

Discharge

- Direct discharge into waters near the ports, online instantaneous treatment with the influent coming in
- In compliance with the IMO D-2 standard (MEPC 300(72) code), with discharge sampled and tested already by a third party lab with CNAS/CMA accreditation
- Customized design, continuous upgrade service, to meet more stringent standards
- Utilization of sludge reduction and dewatering technology to dispose slurry and sediments efficiently



Models & Specifications

HarborBallast Series	HB200	HB500	HB1000	HB1500	HB2000
TRC (m ³ /h)	300	500	1000	1500	2000
Power (kw) 380/440 VAC;50/60HZ	80	100	150	240	300
Dimension(LWH) mm	12,000×2,400×2,900			12,000×3,000×2,900	
UV dosage	>300 mj/cm ²				
Note: 1) Customized design according to the client's requirements; 2) Ex-HarborBallast is available.					

Features

- More efficient and reliable due to enough design redundancy
- Can achieve economies of scale due to large volume of ballast water can be treated by centralized treatment
- Can design and custom-made products to meet different requirements
- Provides economic and environmental-friendly solution by using shore power, and can reduce fossil fuels from ships
- Perfect match for shore based professionals to operate this turnkey unique system
- Smart on-line monitoring system and data transmission can assist third party monitoring and operation, such as real time system self-checking as well as water quality changes detection
- Strive for excellence thru continuously upgrades and innovations to meet future stringent standards