elite® MARINE

Elite Marine Ballast Water Treatment System Corp.
南通海景船舶压载水处理系统股份有限公司

Seascape®-BWMS

BALLAST WATER TREATMENT SYSTEM

Advantages of Seascape® –BWMS

- Worldwide services
- High treating efficiency
- Chemical–free operation
- Highly intelligent operation
- Small size & compact design
- Easy and economical maintenance
- Optional Global Remote Support System
- Ex–proof and EMC approval to fit all vessel types

Company Introduction

Elite Marine Ballast Water Treatment System Corp. is an innovative high–tech enterprise specialized in ballast water treatment . We provide perfect service for the global customers with our mature technology and high quality product.

Customer oriented, Struggle based, Persist with hard–working, Insist on self–criticism is the core value of our company.Elite marine R&D team consists of domestic & foreign chief engineers, researchers, senior , engineers. Our self–developed ballast water treatment system owns 26 international & domestic patents（Deutsches Patent for combined technology of UV & US）.

Seascape®–BWMS has certified by the classification societies such as ABS, CCS, BV, DNV–GL, LR, NK, etc.

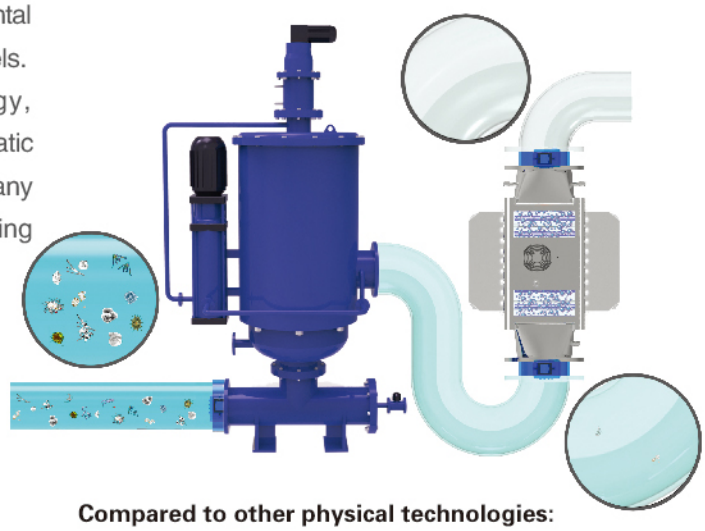
We have sales agents and sales representative teams in the following countries and regions, Greece, Cyprus, Germany, Poland, India, Dubai, Singapore, Hongkong, Taiwan, Korea, Brazil, Panama, America, Canada etc.

Up to now, our own global marketing and 5S service network has been established in the worldwide main port states to provide high quality service for the clients, including onboard surveying, 3D scanning, installation and maintenance etc.

Elite Marine Global Clients

Introduction of Seascape® –BWMS

Seascape®–BWMS is a combined treatment system which takes advantage of filter and EPT (Enhanced Physical Treatment–UV/US) unit. It is most environmental friendly and optimally designed for every type of vessels. Adopting a pure physical treatment technology, Seascape® –BWMS effectively disinfects harmful aquatic organism and pathogen in water without generating any toxic substance during ballasting and de–ballasting process.



Compared to chemical technology:

A. Be safe and reliable due to chemical–free operation. Chemical technology produces harmful chemicals, such as H_2 and Cl_2, which is a potential risk to vessels and personnel; while Seascape®–BWMS utilizes pure physical technology and is completely environmental friendly.

B. Be highly efficient and fits all vessel types. Chemical technology needs a long holding time to disinfect organisms in ballast water, which limits its application during short voyage. For Seascape®–BWMS, there is no salinity limitation and no need of holding time.

C. Simple structure and easy operation. Concentration of Total Residual Oxide (TRO) needs to be detected for chemical technology, which is more tedious than physical technology.

D. Low cost and economical maintenance. A high maintenance cost would be necessary for chemical technology, while it only needs to replace UV lamps for Seascape®–BWMS.

Compared to other physical technologies:

A. Seascape®–BWMS owns an US device to clean quartz tubes and enhance treating efficiency, which makes the system much smaller and have the lowest power consumption compared with other systems.

B. Due to the application of US device, no other cleaning units are needed in the system, accordingly has the lowest power consumption compared with other systems.

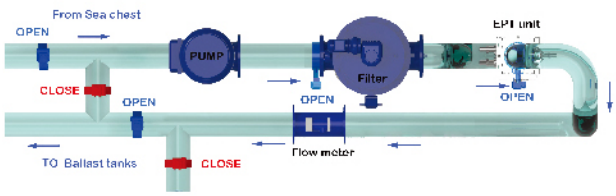
C. Self–cleaning filter possesses independent international patent with our own intellectual property rights, and it fits waters with high TSS content, free of manual dismounting and cleaning. UV output power can be adjusted according to water quality in order to save energy consumption.

D. Seascape®–BWMS is fitted with global remote support system for easy and high–effective maintenance.

Treatment Process

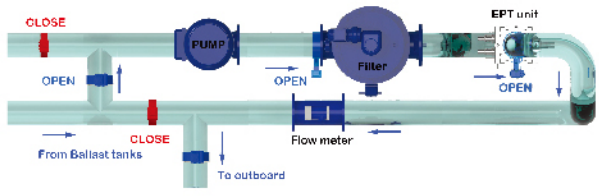
Ballasting

During ballasting process, ballast water firstly passes through a self–cleaning filter for filtration of big microorganism. The filtered ballast water then passes through an EPT chamber where UV light is used to disinfect the water prior to entering the ballast tank.



De–ballasting

During De–ballasting process, ballast water is pumped from the ballast tanks back through the filter and EPT disinfection chamber for final treatment before being discharged overboard.



Filter Unit

During uptake ballast water passes through an automatic self–cleaning filter. The filter removes particulates, sediments, zooplankton and phytoplankton over 40 microns. Automatic back flushing ensures and maintains filtration precision, which can achieve high working efficiency in the waters of high turbidity.
During the back–flushing cycle, the filtered water continues to flow in the normal manner, without being interrupted continues to flow in the normal manner.

- High UV transmission
- Low inflow of sediment
- Low pressure drop
- Automatic back flushing
- Treating capacity: 50~6000 m^3/h
- Applies to process in the waters of high turbidity

EPT Unit

UV (Ultraviolet) radiation is used to disinfect water efficiently and safely. UV technology is easy to operate and needs no expensive and potentially hazardous chemicals.US (Ultrasound) device is combined with UV radiation to penetrate cell membrane and cell wall to assist UV in destroying DNA and RNA of the microbes, affecting synthesis of enzymes and protein in the cells caused by variation, with the result of cell′s death due to abnormal metabolism.
What's more, US (Ultrasound) device can effectively clean the quartz tubes to ensure the maximum UV transmission at all times by preventing the accumulation of scales on the quartz tubes.
UV dose can be monitored continuously and adjusted automatically by PLC (Programmable Logic Controller) and light intensity sensor to fit all kinds of water of different turbidity in order to achieve maximum treatment efficiency. An extra level sensor and a temperature sensor provide additional guarantee of safety.

- No active substances nor toxic by–products
- No corrosion problem
- Self–cleaning
- Long life & High efficiency
- Easy maintenance and operation
- Capacity: 50 ~ 6,000 m^3/h

Electrical Power Supply Tank & Control &Monitoring Cabinet

Control unit is PLC (Programmable Logic Controller) based and configured, which can make local control achievable. The real–time network communication protocol can also be used to integrate Seascape®–BWMS with other automatic control systems on board, providing access to all Seascape®–BWMS functions through the vessel′s standard interface.

- On line data display
- Touch screen operation
- Alarm function
- Data record for at least 24 months
- Controller: SIEMENS PLC
- Human machine interface system

Specifications of Seascape®–BWMS

TYPE	Rated capacity (m^3/h)	Power Consumption (Kw)	Contour Size (mm)			
			Filter (ϕ × H)	EPT Unit (L × W × H)	Power Cabinet (L × W × H)	Control Cabinet (L × W × H)
Seascape–150–BWMS	150	9–18	476x1877	590x345x720	450x680x1600	600x230x780
Seascape–250–BWMS	250	12–24	616x2035	585x345x1100	450x680x1600	600x230x780
Seascape–300–BWMS	300	18–36	616x2035	590x345x720x2	500x500x1770	600x230x1000
Seascape–600–BWMS	600	24–48	616x2164	690x450x920	500x680x1770	600x230x1000
Seascape–800–BWMS	800	32–64	739x2178	690x550x920	500x680x1870	600x230x1000
Seascape–1000–BWMS	1000	48–96	739x2299	895x530x1120	630x680x2120	600x230x1000
Seascape–1200–BWMS	1200	48–96	739x2554	690x450x920x2	630x680x1900	600x230x1000
Seascape–1600–BWMS	1600	64–128	850x2749	690x550x920x2	630x680x2120	600x230x1000
Seascape–1800–BWMS	1800	72–144	850x2749	690x450x920x3	630x680x1900x2	600x230x1000
Seascape–2000–BWMS	2000	96–192	850x2749	895x530x1120x2	630x680x2120x2	600x230x1000
Seascape–2400–BWMS	2400	96–192	980x2988	690x550x920x3	630x680x1900x2	600x230x1000
Seascape–3000–BWMS	3000	144–288	980x2988	895x530x1120x3	630x680x2120x3	600x230x1000
Seascape–3200–BWMS	3200	128–256	980x3250	690x550x920x4	630x680x2120x2	600x230x1000
Seascape–4000–BWMS	4000	192–384	2000x2749	895x530x1120x4	630x680x2120x4	600x230x1350
Seascape–5000–BWMS	5000	240–480	2200x2988	895x530x1120x5	630x680x2120x5	600x230x1350

Installation Case

Seascape®–1200–BWMS was installed in container vessel INGRID of MSC in COSCO (Zhoushan) Shipyard.

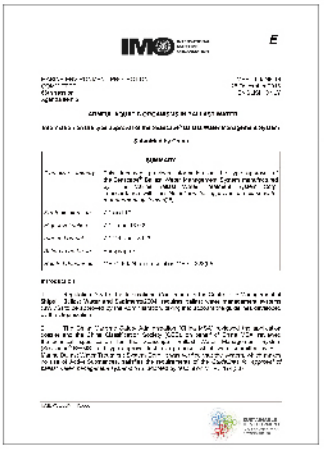
Type Approval

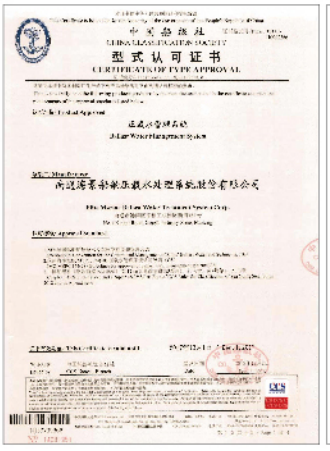
Land–based Test

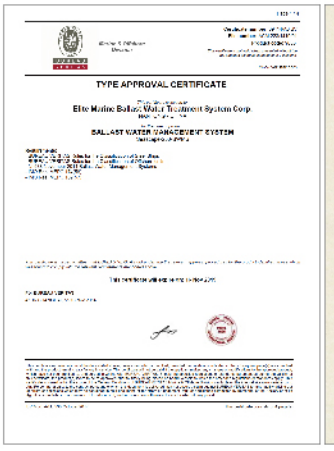
Shipboard Test

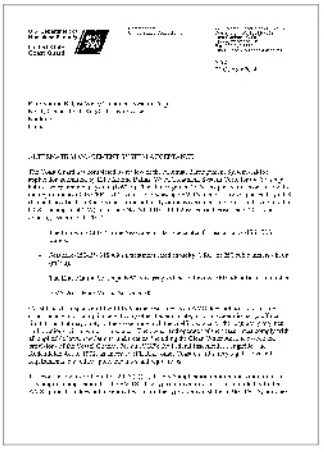
Certificate of Approval

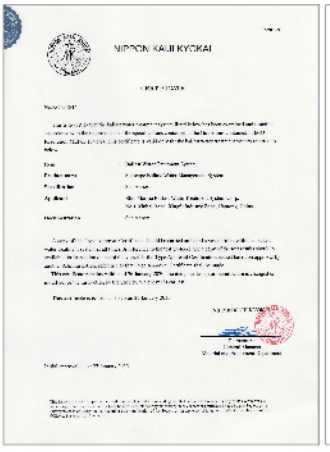
Seascape® –BWMS has received type approval certificate from CCS,approved by IMO and accepted by USCG as the Alternate Management System. Besides, type approval certificates from ABS,BV,LR,DNV, RINA,NK,KR have been obtained.

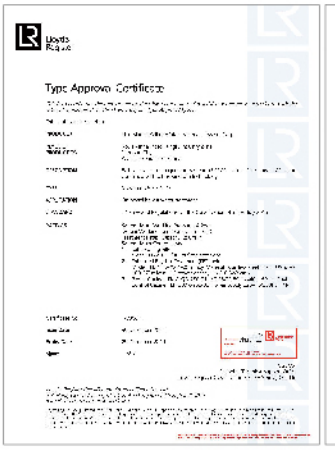


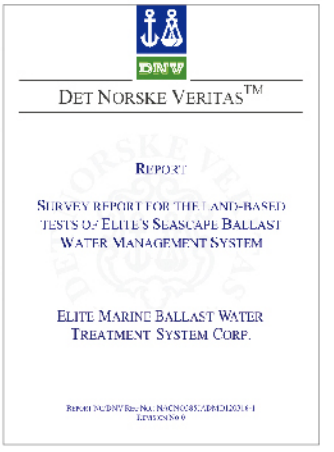












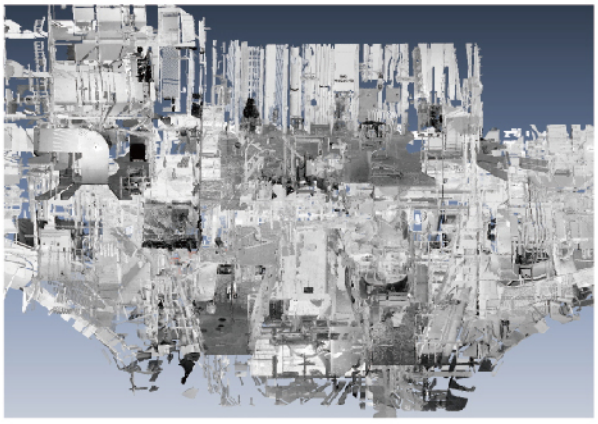
Technical Consulting & Engineering Services:

1.Onboard survey & 3D scanning of engine room spaces

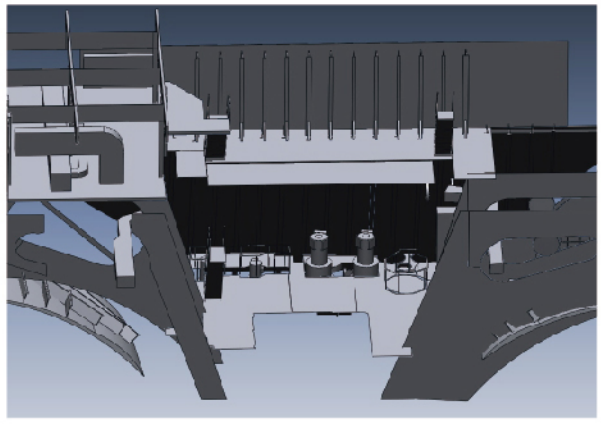
Carry out 3D Laser scanning and final onboard survey of the proposed engine room spaces and associated systems for the installation of BWT equipment and associated piping arrangement.

2. BWT system 3D modelling and installation pre-engineering

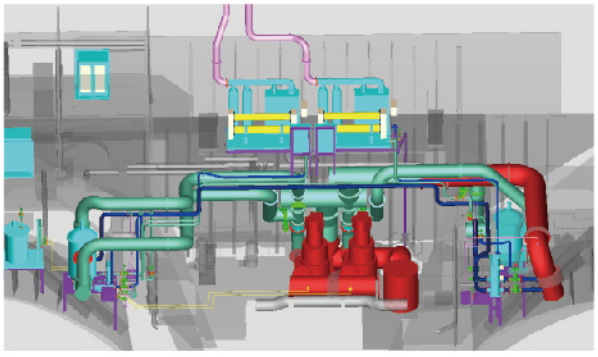
Prepare 3D modelling for the associated engine room spaces. Carry out a thorough review of vessel associated plans, manuals and specifications during onboard survey in order to evaluate the actual situation of engine room, lay out of machinery spaces and all issues in relation to: electrical circuit, power supply, ballast pumps piping arrangement, control, monitoring and safety, structural issues etc.

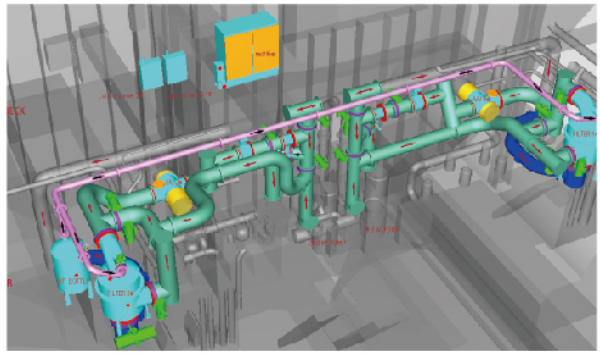


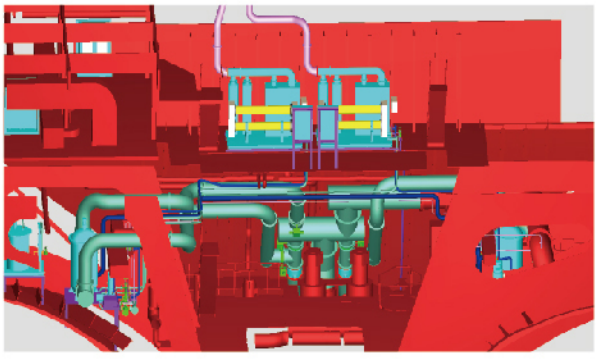
Original scan data

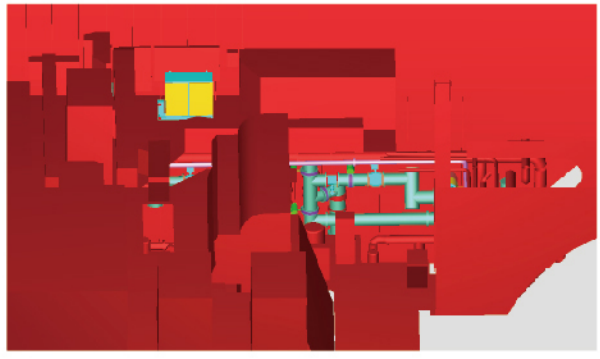


Scanning data modeling









New Pipe & Equipment Modeling

3. BWT system engineering & plan approval

Upon final selection of the ship specific BWT equipment by the clients, prepare the required plans and documentation to submit for CLASS approval and follow up all pertinent CLASS matters for final approval of the BWT system retrofit works.

Prepare detailed technical specification for the required modification/retrofit works (according to the final selection of the ship-specific BWT equipment) and submit installation cost budget to the clients.

4. Installation & commissioning onboard

1) Installation preparation
2) Hull base installation
3) Treatment units installation
4) Pipes connection
5) Assembly
6) Commissioning

Worldwide Service

Branch Offices

Elite Marine Taiwan	Elite Marine Indonesia	Elite Marine Poland	Elite Marine South Africa
Elite Marine Korea	Elite Marine Dubai	Elite Marine Greece	Elite Marine Australia
Elite Marine Japan	Elite Marine Egypt	Elite Marine France	Elite Marine New Zealand
Elite Marine India	Elite Marine Turkey	Elite Marine Danmark	Elite Marine Chile
Elite Marine Vietnam	Elite Marine Cyprus	Elite Marine Germany	Elite Marine Brazil
Elite Marine Philippines	Elite Marine Spain	Elite Marine England	Elite Marine Panama
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