

BALLAST WATER TREATMENT SYSTEM

Sustainable biological solutions

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INSTALLATION
BWTS



Shipbuilding and repair
Worldwide service coverage



BIOLOGICAL POLLUTION of the sea by ship ballast water.

STUDIES CONDUCTED
IN SEVERAL COUNTRIES
INDICATE THAT MANY
TYPES OF ORGANISMS CAN
SURVIVE IN THE BALLAST
WATER FROM VESSELS.

MARINE ENVIRONMENT Collaboration with the responsible authority.

One of the most serious problems of marine pollution, and perhaps the one with the most far-reaching consequences for the planet, is that of **biological contamination** due to organisms transported by a **ship's ballast water**.

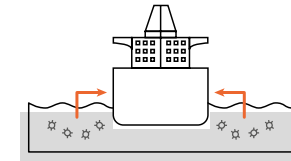
The inadvertent introduction of aquatic organisms in various areas of the sea and in ports around the world poses a potential threat to the environment and to the economy.

In addition to posing a serious problem regarding the introduction of invasive species in waters or ports where they do not belong, the transport of bacteria such as *Vibrio Cholerae* can lead to the transmission of **human diseases** such as **cholera**, it being of vital importance to find **sustainable solutions** and **effectively to biological contamination**.

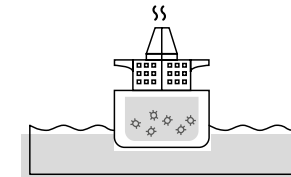


ENVIRONMENTAL ANALYSIS.
Applicable to vessels with the flag of a country that has ratified it.

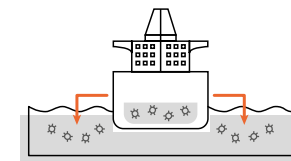
Organism transport cycle via ballast water:



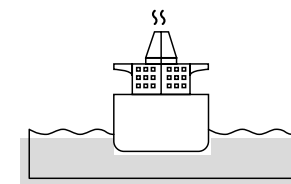
Vessel ballasting operation.



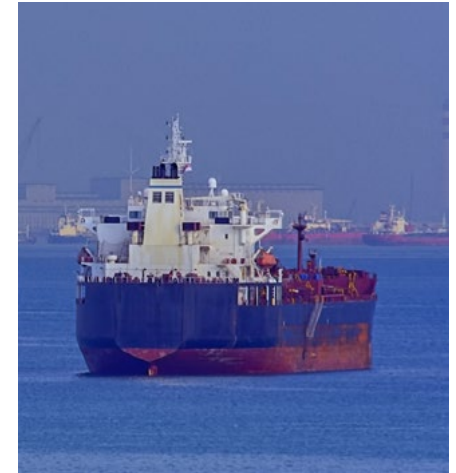
Ballast water transport.



Vessel de-ballasting operation.



Vessel ballast tanks empties.



INTERNATIONAL CONVENTION

Effective as of September 9, 2017.

SYM Naval offers its customers the installation of all types of ballast water treatment system and filtering solutions of the market.

We provide services from detailed engineering to the fitting of the system, with the guarantee and trust of a team of professionals with more than 25 years of experience in the naval industry.

At the Conference of the International Maritime Organization held in London (9-13 February 2004) the Convention for the Control and Management of Ballast Water and Sediment from Vessels was approved.

FROM THE STUDY OF THE
CONCEPTUAL PROJECT UNTIL
INSTALLATION AND APPROVAL BY
THE CLASSIFICATION SOCIETY.

THIS TREATMENT CAN BE
CARRIED OUT DURING
THREE STAGES OF BALLAST
OPERATIONS:

1. During ballasting at the discharge port.
2. During the trip between ports.
3. During the vessel deballasting at the loading port.

SYM NAVAL EXPERT IN DESIGN AND INSTALLATION

of ballast water treatment systems.

TIME OPTIMIZATION

Vessel operation and ballast water treatment system installation.

Regardless of the chosen approach, SYM Naval can support any phase of the project and lead to the most efficient installation possible.

As an independent retrofit partner, we represent no particular manufacturer or technology so we undertake projects with systems from any maker.

Our process is adaptable and we can engage to support owners on basic projects involving 3D scanning and modeling for feasibility studies or engage for full turnkey installations of systems. From the digital model to the physical installation.

Whatever approach is chosen, SYM Naval can support any and all phases of the project and lead to the most efficient installation possible.

With extensive experience in installation during navigation in coordination with the operation of the vessel, saving downtime

and improving execution times. Due to the design digitization, all the elements can be prefabricated and the execution time in dock or sailed can be optimized.

SYM Naval offers its services from its strategic bases in Barcelona and Santo Domingo and covers all the necessary fields for a turnkey installation.

Electrical, hydraulic and pneumatical installations, pipe systems prefabrication and installation, fabrication and installation of ballast water system auxiliary elements (foundations, supports), vessel structural modifications.

REGARDLESS OF THE CHOSEN APPROACH, SYM NAVAL CAN SUPPORT ANY PHASE OF THE PROJECT AND LEAD TO THE MOST EFFICIENT INSTALLATION POSSIBLE.



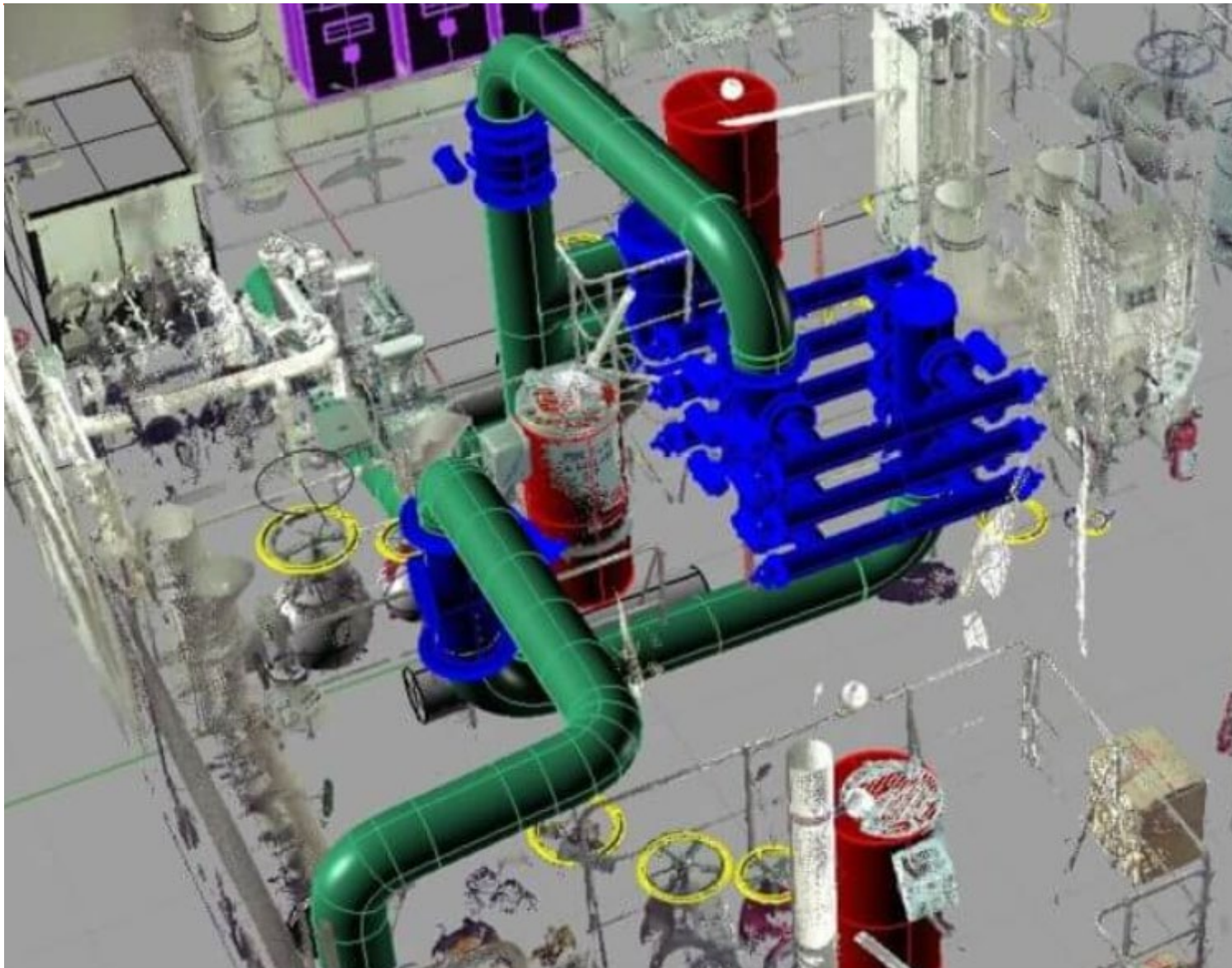
Tank unloading ballast in the port.



Electrical installation.

SOME REFERENCES

VESSEL	Type	DWT	Owner
PERTUSOLA	LPG Tanker	17670 t	Carbofin SPA
MAROLA	LPG Tanker	38427 t	Carbofin SPA
MARIGOLA	LPG Tanker	17779 t	Carbofin SPA
TENEO	Cable Layer	1736 t	—
SAN PORTLAND	Container Ship	28142 t	Borealis Maritime



FROM THE DIGITAL MODEL TO
THE PHYSICAL INSTALLATION.



CUSTOMIZED PHASING

Each phase can be offered independently at the owner's convenience.

FULL TURNKEY PROJECTS

We cover all areas included in this type of projects.

PROJECT PHASES

SELECTION OF THE SYSTEM BY THE SHIPOWNER

CONCEPTUAL PROPOSED DRAFT

3D SCANNING AND DIGITAL LAYOUT MAKING

APPROVAL ENGINEERING

DETAIL AND PRODUCTIVE ENGINEERING

PREFABRICATION OF THE PIPING SYSTEM AND AUXILIARY ELEMENTS

INSTALLATION ON BOARD

SYSTEMS OPERATION TESTS





NAVAL ENGINEERING OFFICE

A **technical office** capable of managing major naval engineering challenges with the highest quality from start to project ending.



QUALITY CONTROL

Steel shipbuilding and aluminum. We design and build ships in a personalized way. IACS classified boats.



WORLDWIDE ASSISTANCE

Sailing, in port and in dry dock. Maintenance and repair service for ships in dry dock. Worldwide coverage via riding squads.



CUSTOM PROJECTS

Analysis of technical and commercial needs of each client for the construction of personalized boats. More than 200 satisfied customers.



**MORE THAN 25 YEARS
OF EXPERIENCE**

Sailing, in port and in dry dock. Technical service specialized in cruises. Repair, maintenance and wet docking. Worldwide coverage via riding squads.



**COMMITMENT TO
THE ENVIRONMENT**

We count on the ISO 14001 certification, guarantee of your clear commitment to the environment which, in turn, obliges it to maintain the highest environmental standards.



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SYM Naval counts on the international certification ISO 45001 of Occupational Health and Safety Management Systems (OH&S), which guarantees that its works are safe, preventing accidents and workplace health problems.



SYM Naval counts on the ISO 9001 certification, guaranteeing that its processes comply with the highest standards in Shipbuilding, Conversion and Repair.



SYM Naval contributes to carry out maintenance, reforestation, cleaning and protection actions by defining specific action plans with the responsible authorities.

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