

# Ballast Water Treatment Systems

Albion Marine Solutions offers end to end solutions, managing all aspects of the project from selection and procurement of the suitable system, to detailed engineering design, completion of modifications, installation, training and support.

Our team of professionals, dedicated to your vessels will consist of operational experts, design engineers and specialists in ballast water treatment systems, system developing and piping, and specialists in engineering work and installation.

Project Teams are deployed anywhere in the world from one of our locations in Vancouver, Canada; Singapore; Gdansk, Poland; Split, Croatia; Mumbai, India; Chennai, India or Shanghai, China.

#### **Project Planning**

- Discuss the Ship Owner's specific requirements.
- Review individual vessel operational profile.
- Establish project objectives: schedule, quality plan, cost envelope and deliverables.
- Create a project plan, including resources, interface management, reporting and milestones.







#### **BWT System Selection**

- Utilize our proprietary database of BWTS available on the market and recommend most suitable system with consideration to vessel specifics: design, trading patterns, ballast tanks capacity and flow rate requirements
- Develop criteria for technical, operational and installation requirements.
- Consider vendor's standing, production capacity and after sales support.

## Ship Site Survey

- Utilize modern survey and 3D scanning techniques to ensure quality engineering design data.
- Prepare survey reports with recommendations for equipment location and operational risk reviews and considerations.

#### **Basic Engineering**

- Carry out Feasibility Study to ensure Ship Site Survey findings are in line with the BWTS installation requirement.
- Carry out necessary calculations and develop installation plans with the details of the installation layout and the interface with existing systems and machinery.



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#### **Detailed Engineering**

Develop an engineering design package and dry docking specification with:

- Detailed spool piece design and pipe layout
- Cable schedule
- Foundations fabrication and installation drawings
- Piping hydraulic pressure drop calculations.
- Material take-off list.
- Complete the documentation packages to satisfy the Class and Flag requirements.
- Provide dry dock specifications.
- Develop vessel specific operation manuals.

On average the engineering package will include more than 80 different deliverables.

#### **Logistics and Procurement**

- Assist the shipowner with commercial negotiations.
- Develop a detailed procurement plan.
- Arrange and follow up on delivery of all items.

#### Installation, Completion, Commissioning

- Provide skilled personnel for yard supervision to ensure job is completed in accordance with specification and applicable requirements.
- Arrange riding crew, materials and work packages for retrofits at sea or at anchorage.
- Conduct pre-commissioning checks of newly installed equipment as per system maker's , Ship Owner's and Class requirements.
- Support Ship Owner in yard negotiations.

#### **Crew Training**

- Develop tailored crew training materials in accordance with ISM Code and Operator's SMS
- Deliver training programs on both system operation & maintenance.



#### **Operational Support**

- Develop a BWTS planned maintenance program.
- Develop OPEX budgets projections.
- Deliver complete retrofit documentation package.

### **Proudly affiliated:**





Alfa Laval PureBallast



This Alfa Laval partner has completed comprehensive

This Arta Laval partner has completed comprehensive training for retrofit engineering of the Alfa Laval PureBallast ballast water treatment system.