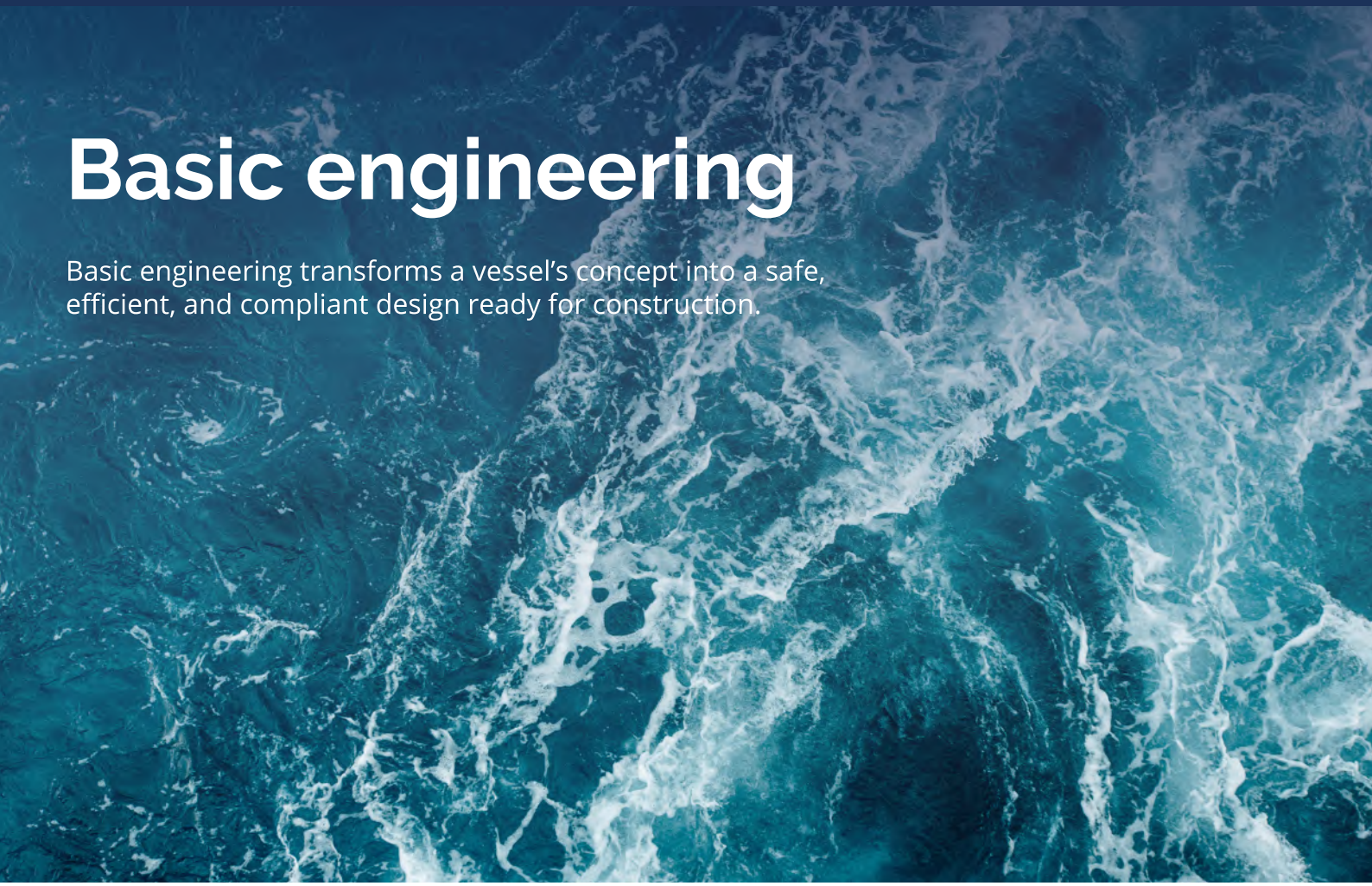
SALTWATER
Custom naval engineering solutions

Our field of expertise

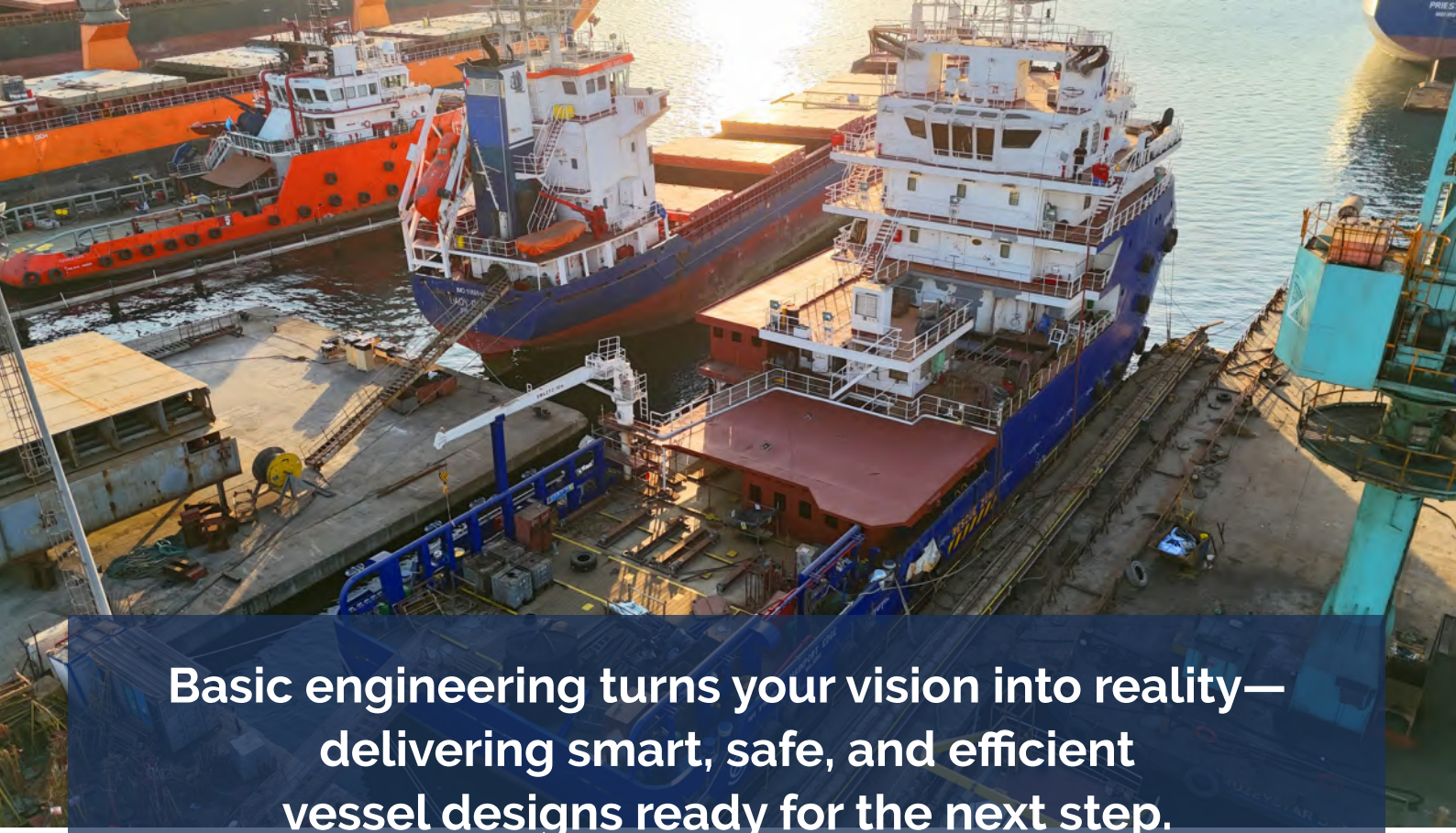


Basic engineering

Basic engineering transforms a vessel's concept into a safe, efficient, and compliant design ready for construction.

What sets us apart?

- We translate your concept into a construction-ready design
- Our engineering ensures top performance and full compliance for every vessel
- We design for seamless integration and long-term reliability from day one
- From structure to systems, we cover every detail with technical precision
- We ensure alignment with maritime standards from the very first blueprint



Basic engineering turns your vision into reality—delivering smart, safe, and efficient vessel designs ready for the next step.

Basic engineering is an essential foundation for turning a project concept into a practical, workable design. It involves developing the technical solutions needed to ensure a vessel or offshore structure is safe, efficient, and ready for detailed engineering and construction.

ENGINEERING THE ESSENTIALS

The basic engineering phase primarily focuses on translating client requirements and operational needs into a workable design, solving technical challenges, and system layouts.

It covers **key elements** such as:

General arrangement

Defining the vessel's layout, including space allocation and functionality.

Structural design

Ensuring the ship's hull can handle operational loads and stresses.

Stability and hydrodynamics

Analyzing how the vessel behaves in water, ensuring safety and efficiency.

Machinery and system integration

Planning the integration of propulsion systems, electrical networks, and other systems onboard.

Regulatory compliance

Ensuring the design meets international maritime standards and safety regulations.

PROPULSION OVERHAUL: FROM CONVENTIONAL TO HYBRID

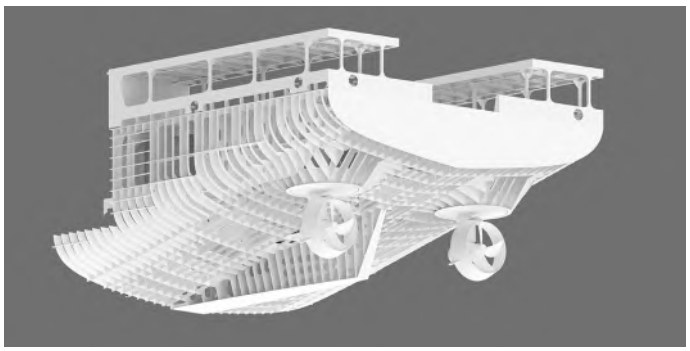
Saltwater was commissioned to carry out the basic engineering for the conversion of two geotechnical survey vessels. The project focused on modernizing the vessels' propulsion systems by replacing the conventional propellor shafts and stern tunnel thrusters with Azimuth thrusters. Additionally, a battery system was integrated to enable hybrid diesel-electric propulsion, enhancing operational efficiency and sustainability. The engineering work was based on an existing concept design, which Saltwater further developed and refined.

Through this conversion project, Saltwater successfully delivered a comprehensive engineering solution, supporting their client in the modernization of its fleet with an advanced and efficient hybrid propulsion system.

Naval architecture considerations

The conversion resulted in modifications to the hull shape, necessitating various naval architecture assessments, including:

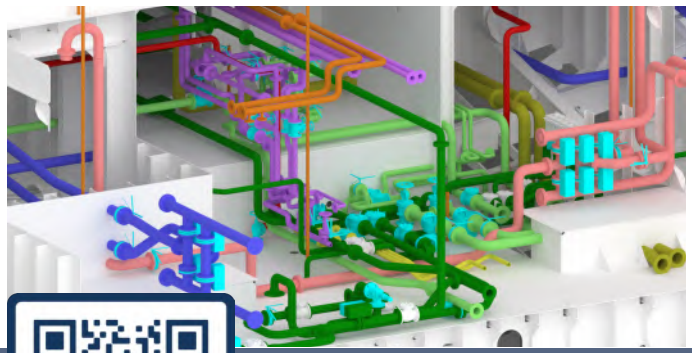
- Updates to the vessel's lines plan to accommodate the new propulsion system.
- Intact and damage stability analyses.
- Dynamic Positioning Analysis.
- Resistance and Propulsion predictions.



Engineering

Detailed engineering and construction plans were developed, covering:

- 3D modeling and detailed design using Ship Constructor software for construction, piping, and electrical systems.
- Development of routing for the piping and elaborate them into spool pieces
- Development electrical routing layouts.



Structural modifications

To accommodate the new Azimuth thrusters, modifications to the vessel's structural hull were required. The scope of work included:

- Designing and integrating new foundations for the propulsion units.
- Evaluating optimal installation methods within the vessel's structural layout.
- Conducting structural assessments to verify the feasibility of the design.

System integration

The mechanical engineering scope included:

- Determining cable and piping routes to support the overall engineering process.
- Using 3D scans of the vessel to ensure accurate placement of piping and mechanical components.

Are you facing a challenge?

Get in touch with one of our consultants

SALTWATER
Custom naval engineering solutions

Partner up with Saltwater

Everything Is Possible

Saltwater provides customized engineering solutions for the naval and offshore industry. Understanding your challenges enables us to deliver practical, quality products and clever solutions.

Mission

Our mission at Saltwater is to engineer and develop maritime solutions that reduce the environmental impact and support a low carbon footprint. We are committed to provide innovative and efficient engineering services that meet the needs of our clients while guaranteeing safety and quality.

Vision

At Saltwater, our vision is to be a leading force in the maritime engineering industry, striving for positive change through socially responsible practices. We envision a future where our engineering solutions help to create a healthier and more sustainable world. We are committed to ship conversions and new vessel designs, encouraging a culture of young innovators and collaborating with our partners and clients to achieve our shared goals.

Saltwater Engineering B.V.
Buitendijks 33
3356 LX Papendrecht
The Netherlands
T +31(0)78–205 15 00
M info@saltwater.nl
W www.saltwater.nl