

# ▶ **ALTAIR FOR MARINE**

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From the design and manufacture of small recreational crafts and large oil tankers to the most technologically advanced aircraft carriers, Altair has assisted the world's leading shipbuilders and boat designers to develop higher performing, safer and lower cost vessels through the application of simulation technology. Altair helps naval architects address complex engineering challenges and mitigate environmental risks associated with seagoing loads including structural, hydro, dynamic, thermal and fatigue, as well as above surface and underwater weapon threats for the military and homeland security.

## TOOLS FOR NAVAL ARCHITECTS

### Robust Commercial Ships

Altair OptiStruct™, a modern and more accurate alternative to NASTRAN, can resolve all the typical problems in strength, stress, vibration and noise, bulking, fatigue and thermal analysis. Building upon the solver capabilities of OptiStruct®, Altair HyperLife™ provides a comprehensive and easy to use durability analysis workflow directly interfacing with major finite element analysis result files. OptiStruct is the original topology optimization structural design tool.

### Ready Military Vessels

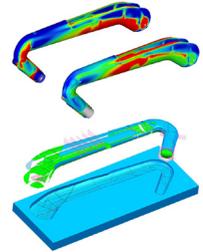
Altair Radioss™ multiphysics capabilities accurately simulate complex physics problems, such as collision, sloshing, slamming and underwater explosions. Altair FEKO™ is considered as the global market leader for antenna placement analysis. It is widely used in naval engineering for most electromagnetic issues, like radiation pattern analysis of communication antennas, the placement of antennas, antenna coupling or interference, and near-field radiation hazards.



Applying optimization technology to create a structurally efficient design for the Queen Elizabeth Aircraft Carrier

## Faster Recreational Boats

Based on the Finite Element Method, Altair AcuSolve™ is a robust and scalable general-purpose CFD solver that empowers users by providing unparalleled accuracy on fully unstructured meshes. OptiStruct is widely used at the world's most innovative companies for the design and optimization of laminate composites. It delivers optimal ply shapes, the optimal number of plies, and the optimal stacking sequence, all while observing manufacturing constraints.



The SW-RP90 superyacht, designed by Reichel/Pugh and built by Southern Wind Shipyard, features an innovative anchor arm that is half the assembled weight of its predecessor and stows neatly out of sight when not in use

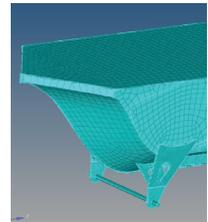
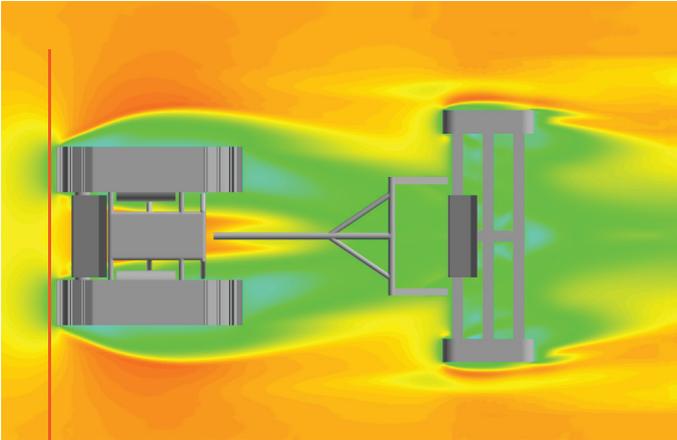
## TAILORED SOLUTIONS

### Custom Software

Tailored and automated simulation workflow processes for evaluating specific requirements and events can accelerate a more robust engineering process for shipbuilders. Altair's Product Engineer Services team has extensive experience working with top shipyards and classification societies to assist them in developing packaged solution offerings, integrating both commercial and proprietary tools, to consistently evaluate and streamline certification processes.

## Automation for Shipbuilding

The Altair Crane CAE Manager is a new process solution for evaluating and improving the block assembly method of ship building, where cross-sections of the superstructure are pre-built, taken to the building dock, and hoisted into position and attached. It uses a set of macros to assist engineers in dockyards sequence for the block assembly of ships. Parametric system-level models use OptiStruct and Altair MotionSolve™ to generate results and Altair HyperStudy™ enables system performance optimization.



DSA uses Altair software to create a high-quality hydrodynamic mesh and model for ship and marine structures

# HELPING THE INNOVATORS INNOVATE, DRIVE BETTER DECISIONS, AND TURNING TODAY'S PROBLEMS INTO TOMORROW'S OPPORTUNITIES.



## ALTAIR TRENDING IN:

Additive Manufacturing  
Autonomous & ADAS  
Big Data  
Cloud Computing  
Data Transformation  
Digital Twin  
e-Mobility

Exascale  
GPU Solutions  
Lightweighting  
Machine Learning  
Mechatronics  
Smart Product Development  
5G



**Our team struggled for years to develop high-quality hydrodynamic meshes using CAD software and free tools.**

We always compromised and had to do costly project re-work when meshes failed to provide expected results. **HyperMesh has helped us to reduce these issues.**"

Dean Steinke, DSA



Altair is a global technology company that provides software and cloud solutions in the areas of product development, high performance computing (HPC) and data analytics. Altair enables organizations across broad industry segments to compete more effectively in a connected world while creating a more sustainable future.

To learn more, please visit [altair.com](https://altair.com)

