

Passive and Active Lifting Foils

Fully and Semi-Supporting Lifting Foils for a Variety of Hull Forms

Integrated Roll, Pitch & Heave Motion Control

Naiad Dynamics, the World Leader in Ship Motion Control Solutions[®], presents Passive and Active Foils for marine vessels. A reliable and effective solution for decreasing resistance and reducing motions for a variety of hull forms, including monohulls, catamarans and trimarans.

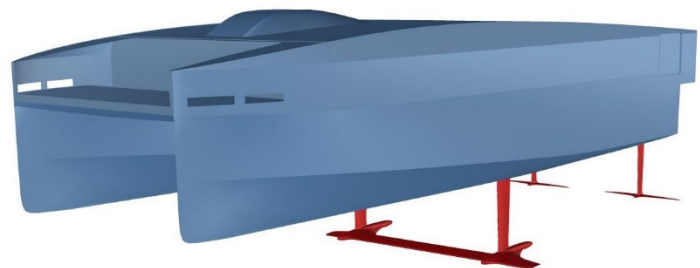
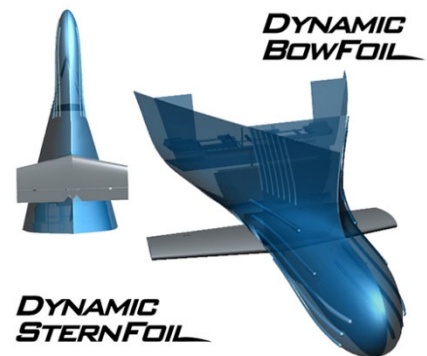
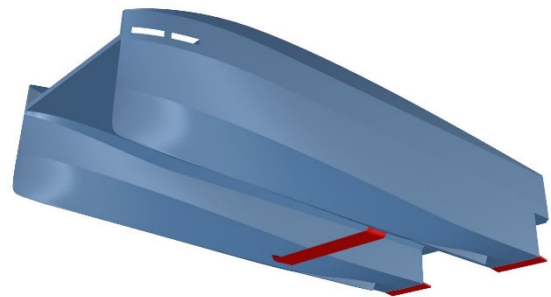
Overview

Foil Assisted and Foil Supported Vessels utilize appendages below the waterline such as T-Foils, Dynamic BowFoil[™], Dynamic SternFoil[™], Spanning Foils, Hydrofoils, or Lifting Bodies to improve ride quality and efficiency of the vessel.

A hydrofoil is a wing-like appendage under the hull of a vessel for the purpose of creating lift. As vessel speed increases, the hydrofoils lift the vessel up, greatly reducing the wetted area and therefore the hydrodynamic drag. This provides a corresponding increase in speed and fuel efficiency, reducing operating costs and emissions.



- ✓ Increase ride comfort and vessel control by reducing roll, pitch, yaw, heave, and sway motions.
- ✓ Green technology, reduce vessel emissions.
- ✓ Fuel savings, reduce operating cost.
- ✓ Energy Efficient, minimize engine size or increase speed compared to conventional hulls.
- ✓ Minimize wake, reduce transit time in harbors, protected areas, and restricted waterways.
- ✓ Highest quality materials and workmanship. Major components produced to US military standards alongside aerospace machined parts in our ISO 9001:2015 certified facility.
- ✓ Fully complies with commercial and military design standards. Proven in demanding high-speed ferry and naval ship applications.
- ✓ Custom designed hydrofoils with active flaps, pivoting (with or without active flaps), and fully retractable (with or without active flaps).
- ✓ Foil designs such as the Dynamic BowFoil and others do not increase the draft of the vessel.



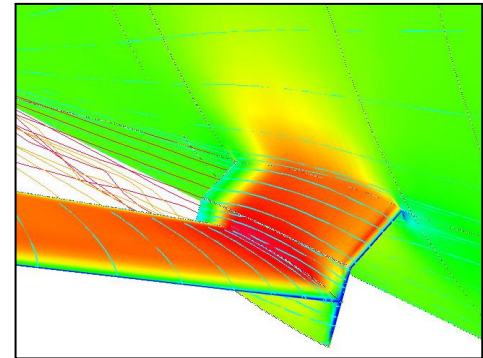
Automatic Roll, Pitch, Yaw, Heave, and Sway Control

All NAIAD® advanced digital control systems feature fully proportional closed loop performance, for continuously modulated, automatic foil position management along with seamless and fully integrated control of any number of other ND motion control effectors such as active fins, trim tabs, interceptors, etc. used in combination. Operator interface is through a Graphical Display featuring intuitive menus and screens.

Foil Design and Analysis

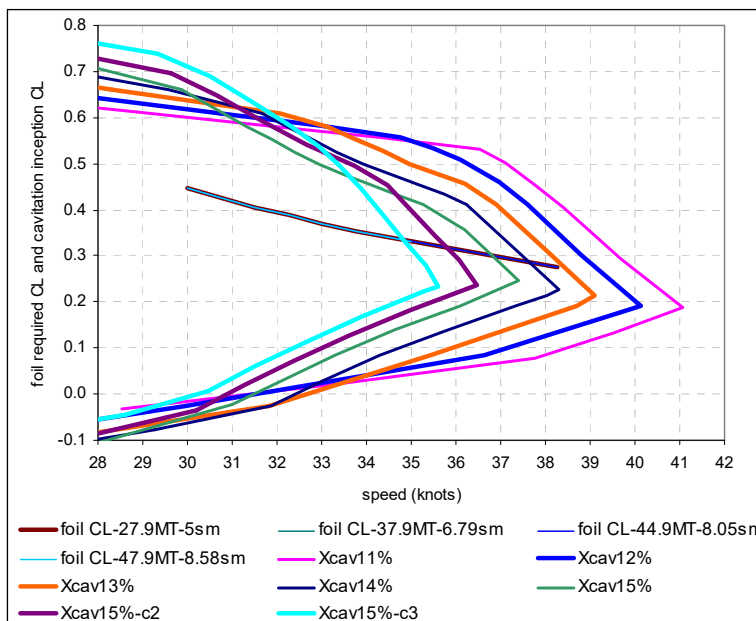
All NAIAD® T-Foils, Spanning Foils, Hydrofoils, BowFoils, SternFoils and Lifting Bodies are custom or semi-custom components designed hand-in-hand with your naval architect to achieve your project's specific objectives. NAIAD can help guide you through all stages of design and construction. We will work with you to:

- ✓ Determine your needs and generate an initial project specification.
- ✓ Determine the size and arrangement of foils to achieve your goals.
- ✓ Select and design optimum foil sections.
- ✓ Perform lift, drag, and resistance calculations.
- ✓ Perform CFD study and detailed performance evaluations.
- ✓ Technical Documentation, Load & Integration Guidance, and production of final foil components.

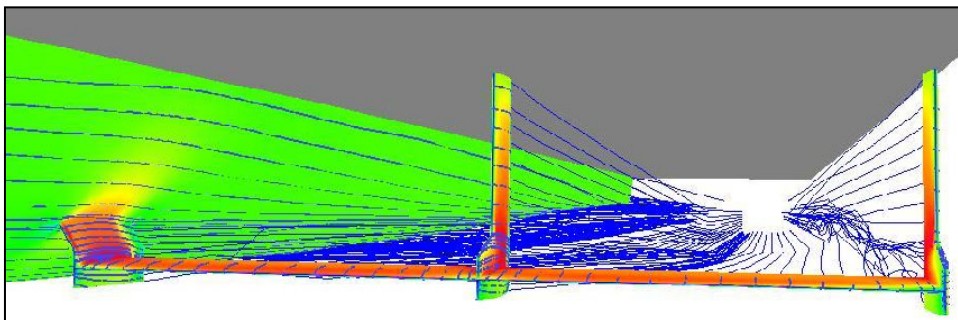


Hull-to-Foil Interaction Analysis

Foil Section Selection and Cavitation Inception Prediction



CFD Predictions: Streamlines & Wake, Surface Elevation, Lift, and Resistance



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