

Planatech

Reducing overall production time by 30% with Dassault Systèmes PLM Solutions



Overview

■ Challenge

Planatech needed to improve its boat development process, a stepping stone toward better customer service and a way to win new markets

■ Solution

Planatech uses CATIA, including CATIA Analysis and CATIA for Composites solutions, for its boat and tooling design requirements

■ Benefits

Planatech eliminated the need for physical prototypes thanks to virtual testing with CATIA Analysis products, which helped improve the reliability of designs while promoting innovation and reducing production time by 30%



“Thanks to CATIA Analysis, we no longer need to create detailed prototypes since we can perform accurate stress tests virtually. We can implement innovative design ideas faster and have reduced overall production time by 30%.”

Angelos Protopsaltis
Technical Director
Planatech

PLANATECH

20 years of experience in RIBs

Established in 1989 as a designer of Rigid Inflatable Boats (RIBs), Athens-based Planatech expanded its activities to cover the entire design-to-production process of recreational motor boats, making it the leading manufacturer of RIBs in Greece. Planatech has approximately 40 employees and produces on average 200 boats per year whose lengths range from 6-12m. Its know-how has earned it a solid reputation in Greece inspiring other boat companies to request Planatech's design and production services for their RIBs. Planatech faced many development challenges starting with the necessity to quickly design new products and the corresponding tooling without compromising quality.

End-to-end process coverage with CATIA

Planatech chose CATIA because it supports product engineering – from initial specification to product-in-service – in a fully integrated manner. Planatech's development process begins with the design of the ribs of a boat

using CATIA's advanced surface capabilities. The rib design is then used to design the entire product assembly in 3D.

A RIB is comprised of a solid hull and an inflatable tube at the gunwale that enables the vessel to maintain buoyancy if a large quantity of water is shipped aboard. The inflated tube is created from several plastic sheets that are tied together and that are cut after having been unfolded using CATIA's unfolding surface capabilities. Planatech uses CATIA Composites Design and a Composites materials library for the preliminary design of a RIB as well as for the design of a boat's hull.

Designers use the capabilities of CATIA Analysis to perform virtual tests of structural integrity and deformation. “With CATIA, we have an integrated all-in-one solution,” explains Angelos Protopsaltis, technical director, Planatech. “We don't need to change systems or convert data.” Designers also use CATIA's ergonomic analysis capabilities to study the way a human being fits and moves inside the boat. After final acceptance of the



boat's design, they design the tooling as well as generate the numerical control (NC) codes that drive routers, or NC machines that are used to cut materials like wood and polyester for boat parts and molds.

CATIA Analysis - an important ally for accuracy

CATIA Analysis is used during the design phase to give designers a rough view of the stresses a part will endure under real operating conditions. "Since we use composite materials for the construction of our fast power boats, material deformation, failure and fatigue are highly affected by design factors such as shape, dimensions of unstiffened areas, and curvature," said Angelos Protopsaltis. "This is why we must pay special attention to add-on equipment such as fuel tanks that are attached to the boat. We perform dynamic load studies, using CATIA, on the entire structure to see how and where the boat experiences stress caused by these extra loads, which in turn helps us design the most appropriate way to fasten the tanks to the boat."

Planatech engineers also perform detailed virtual tests in areas of the boat that relate to crew safety, for example, the transom (stern section of a boat's hull) for outboard engines or internal bases for in/outboard engines. "Thanks to CATIA Analysis, we no longer need to create detailed prototypes since we can perform accurate stress tests virtually," said Protopsaltis. "We can implement innovative

design ideas faster and have reduced overall production time by 30%."

Time saved on Planatech's Scorpion 10m RIB

Planatech designed a new Scorpion 10 meter RIB with CATIA and benefited from the fact that it was able to assemble all the parts in various configurations and present the different options to customers. It also designed and machined all the plugs that are used to form the shape and profile of the required mold. CATIA Analysis was used to define the construction sequence, thus optimizing the quality of the final product. "We were able to do away with our old development procedures, which were solely based on an engineers' know-how, and thereby accelerated the development process of the Scorpion by 25%."

Data management with ENOVIA SmarTeam

Planatech is considering implementing ENOVIA SmarTeam to manage its designs and associated information. They would link ENOVIA SmarTeam, which will be used to manage the design, testing, and manufacturing of each RIB, with its ERP system. Planatech will redesign and improve its older hull designs by copying them using a laser machine and importing these designs in CATIA using CATIA's rapid prototyping solutions.

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