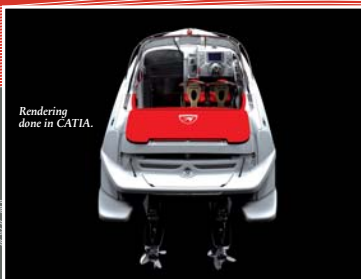




Rendered pictures used for the mass-media when launching the product.



Rendering done in CATIA.



Screenshot of the interior rendered in CATIA.

By Victor Rosenvinge, Eker Design

Screenshot of the complete assembly in CATIA.

Racing for Development

Eker Design, Scandinavia's leading provider of turnkey mechanical and industrial design services gives a behind the scenes tour of the development process of Hydroflit's latest speed boat.

Eker Design, part of the Eker Group, is Hydroflit's sister company responsible for the design of speed boats. "The thirty-employee development team at Eker Design, located in Fredrikstad, Norway, uses its expertise and state-of-the-art equipment developing high end products. The speed at which the company invests in equipment and machinery is as fast as its development process. The need to be better and faster in developing high end products has become an addiction", explains Victor Rosenvinge, Engineering Manager at Eker Design. Eker Design's motto "Performance and Speed" coined 20 years ago, is still relevant throughout the company.

CATIA FOR PRODUCT DEVELOPMENT

"Over five years ago, when we embarked on the activity of developing sport boats (e.g. Hydroflit) and sports cars (Koenigsegg), we needed to invest in a 3D software solution that could handle complicated surfaces. CATIA V5 was chosen and has now become an important tool for the construction of all kinds of products. It provides high quality and stable export files, which all our suppliers are able to read since they are devoid

of any geometrical problems or surface defects. Along with ICEM Surf we now have a complete 3D system for designing high quality class A-surfaces and construction class surfaces", explains Victor Rosenvinge.

The new Hydroflit C27 was designed and constructed in CATIA V5. The development process begins by building a scale model by hand and then scanning the surfaces. Engineers then start to rebuild the class A surfaces in ICEM Surf. CATIA is then used to model all the standard parts and to design the custom parts in fiberglass and stainless steel.

By modeling the entire product in CATIA V5, the design team had full control as they sought to obtain a design that would yield the best performance. They could, at any time, verify that all the parts fit together and could simultaneously choose the correct wall thicknesses, reduce as much as possible the weight and optimize the position of the boat's center of gravity. Together with the engineering team at Hydroflit, they managed to design the perfect hull that could go 60-80 knots and still remain stable while maintaining maneuverability even

in rough sea. Over a period of only 7 months the complete boat was designed and engineered from the first sketch to the first produced prototype.

Using the Machining module in CATIA, they milled in-house all the plugs needed for the mold construction, while maintaining control of the process with no risk of losing any valuable data or surface quality. This saved a lot of time since the tool path could be prepared before the files were finalized.

All moving parts, hinges and the convertible roof top were constructed with CATIA's kinematics function. The roof top has complicated mechanics, hinges and rails, and had to be smooth and easy to handle with one hand as well as be water resistant even when in full speed with the roof closed. Using the 3D assembly with all the components during the manufacturing phase gives the production staff a much better overview of how the parts

Article about the Eker Design dev. process of the Koenigsegg CCX coming soon...



are placed and the associated mounting sequence. This reinforces the company's belief that it is important to involve the production staff in the virtual world of CATIA 3D.

CATIA is also used to create exploded views, printed on A0 sheets, of the complete assembly to give a good visual overview of all the components. The exploded views are used daily by the production staff, service staff, purchasing, logistics and warehouse personnel.

Hydroflit uses ENOVIA SmarTeam Design Express as a collaborative solution to enable the entire engineering team to work on the same project at the same time and to exchange files and update parts during a work session.

FUELED BY THE NEED TO WIN

"Racing is in our blood. We instinctively need to compete on all levels. Product quality, design and engineering, logistics and manufacturing, sales and marketing – it all comes together in our mindset. The money we earn is only fuel which we burn in our on-going effort to improve ourselves as a complete design house. Hard work, cleverness and the ability to detect opportunities very early have been our strongest force so far," explains Bård Eker who founded the Eker Group in 1989.

More about the Eker Group

The diversity of the Eker Group, and its extensive design experience, are great assets to its customers. The Group's experience ranges from sea racing to evolutionary designs of the world's fastest production car, from conceptual design to engineering, production, manufacturing, marketing and sales. Bård Eker is the owner and Managing Director of Eker Group AS, which is comprised of the following companies:

Hydroflit AS for the development and production of award winning high performance pleasure boats, combining high performance with high quality and intelligent design.

Eker Design AS is a complete design and development house for turn key solutions bringing high performance products quickly to market. It is an award winning design office with internationally renowned clients.

Projectiondesign AS develops and produces award winning high performance projectors and specializes in single chip DLPTM technology for professional, business and consumer applications.

Koenigsegg Automotive AB develops and produces the world's fastest super sports car – the Koenigsegg CCX and the CCXR, the world's first standard production car to reach a top speed of 388 km/h.

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