



Skipper Jonny Malbon aboard Artemis 60.

A new round the world race yacht has been developed in the UK using Dassault Systèmes technology to achieve design excellence, unmatched performance and high levels of handling and safety.

By Nick Lerner

## Non-Stop Around the World



in practice

ROGERS  
YACHT DESIGN

Intrinsys

Artemis 60 sea trials.

**A**round the world sailing race require a new 60 foot yacht and a tight, efficient team to support the captain who will circumnavigate our planet non-stop and single-handed for the race's 3 months duration.

The boats used for this high order technical and human challenge are specially designed and constructed for the race and represent the ultimate in technology, performance, and safety. Among the innovations is the use of Dassault Systèmes CATIA by Simon Rogers Technical Team Leader and yacht designer.

### KIDS STUFF

Simon has known yachts all his life having worked with his 'Yachtsman of The Year' and winner of the Admirals Cup father, since before he could walk, graduating from University in Yacht Design and living in the Lynton, Hants, where sailing is all and the silent beckons from the end of the High Street.

Simon, and his company Rogers Yacht Design Limited decided to invest in Dassault Systèmes CATIA based technology to develop the new Artemis Ocean Racing 2 IMOCA Open 60 Vendée Challenge vessel. He explained the choice. "The technical needs of producing a boat for the Vendée Globe Challenge require a design-to-manufacture system that is capable of many things. For the same reasons that most F1 teams use this software we use it too. We develop robust innovative designs that are performance proven through examination of an accurate 3D digital model of the boat."

### MIRROR CALM

Dassault Systèmes UK Value Added Resellers, Intrinsys, said of the software, "CATIA, which is already the standard design-to-manufacture PLM system in the automotive and aerospace industries, is also the standard with many yacht designers including Beneteau, Oyster Marine and the Area Challenge Americas Cup team who deploy it and

reap the productivity benefits enjoyed by all users of this advanced technology. The ability to build and test a 3D digital model allows Rogers Yacht Design to know that the designs it develops are a true reflection of their intentions and that the resulting boat will be equally so. Whether you have a small number of seats (currently 3 at Rogers) or thousands, as at a multinational user, the same advanced working methodologies and consequent benefits apply."

### WORKS TO RULE

"Designing a yacht using CATIA methodology allows us to view details as well the whole picture. This suits us perfectly allowing ideas to become possible. Another great advantage is that we can, for example, change the centre of buoyancy or the hull line and by defining other features of the boat's parameters as rules, those features adjust themselves parametrically. This is of enormous benefit when designing a boat since it can accelerate in any direction and even small design changes can have dramatic effects on performance and handling.

"Among the means that we have developed to control and maximise the yacht's performance is a new wing rig (mast) which we sought the help of Boeing to optimise. As fellow CATIA users data transfer was a simple matter.

### CATIA has allowed Artemis 60 to sail securely at an extreme level.

Another innovation on Artemis 60 is the stepped hull - a design concept originated by the speed-boat industry and adapted by us for sailing.

"CATIA was used to design, produce and locate equipment in optimum positions. This includes the radical interceptor on the transom that conforms to the organisers rules and allows fore and aft trim variation to optimise performance and stability".

### SAFETY FAST

Simon commented, "This boat has been designed with powerful aggressive British good looks and handling to match. She has been built to be sailed at extremes. In the Southern Ocean Jonny will take her into our most dangerous sea environment with slim chances of survival or rescue if the worst occurs. A place where the wild seas test the strength and will of sailors and boats that dare to venture there. In these waters, waves that tower above the boat with its 100-foot

carbon mast will toss the Artemis 60' relentlessly for days.

To compete better in this heroic human endeavour where Jonny and the other team's skippers carry aboard hopes and dreams, Simon Rogers has used the 3D digital boat model in a sophisticated programme that simulated its voyage 10,000 times through 12 years of historical weather data in a bid to optimise the rig and equipment as well as the hull shape.

Simon added, "Boat design is a very mathematical process where load cases, engineering units are needed to calculate and control them. Boat design is also an art which requires tools of equal utility. CATIA meets both of these needs and also offers a chance to try 'what if scenarios' using variants on the 3d model to explore the effects of design or specification changes. This facility provides great design freedom because the effects on the boat of trial designs can be seen quickly and in context of both the craft itself and the environment that surrounds it. Simon concluded, "I am the designer of this boat as well as the leader of the technical team, and this carries the responsibility of a man's life. CATIA has allowed me to make Artemis 60 sail

so that Jonny Malbon will feel relaxed and secure throughout the race even though he will be sailing at an extreme level. This will enable him to use the boat's performance to maximum effect thereby giving the Artemis Ocean Racing 2 team the best chances of success • )

For more information:  
[www.rogersyachtdesign.com](http://www.rogersyachtdesign.com)  
[www.intinsys.co.uk](http://www.intinsys.co.uk)



CATIA model of Artemis 60.