

# RAFALE 3: A Foiling Moth with Better Lifecycle Analysis

Marine > Foiling Moth

## Target

**Develop a foiling moth with better lifecycle analysis**

## Solution

**The Rafale 3 foiling moth made with Corecell™ M foam**

## Benefits

**Corecell™ M foam offers the high performance vital for the manufacture of the rudder and daggerboard**



Rafale ÉTS is a team of motivated engineering students that has developed a foiling Moth with a better lifecycle analysis. The vessel was built for the Sustainable Moth Challenge, a competition which gives students the opportunity to explore novel solutions free of market pressures and use lifecycle analysis to evaluate and compare with those of the industry.

A famous characteristic of the Moth boats are the two appendages, the rudder, and the daggerboard, shaped similarly to wind turbine blades and equipped with foils:

In order to keep a stable flight altitude, the foils must be able to tilt to correct the flight attitude of the boat. To achieve this objective the rudder and daggerboard must be:

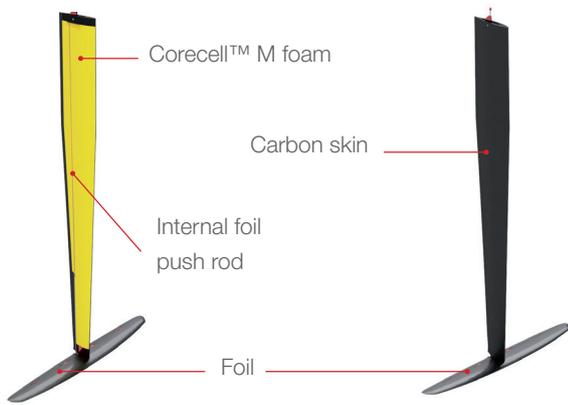
- Simple composite fabrication
- Resistant to shock and vibration
- Lightweight
- Resistant to the stress of the boat's steering
- Adapted to internal foil tuning components

## Why Corecell™ M?

The Rafale 3 team chose to work with Gurit Corecell™ M foam for the manufacture of the rudder and daggerboard components. Thanks to the unique formulation and properties, Corecell™ M Foam is the perfect choice to achieve the manufacturing and operating performance required for submerged components, key characteristics include:

- Lightweight
- High Impact performance
- Vibration damping
- Easy to shape with great precision.

With Corecell™ M, perfect mobility of the internal control system was achieved, due to the low friction between the foam and the metal, which also improved protection from ageing.



Above: Corecell™ M foam was used to manufacture the daggerboard and rudder components.

### A Turnkey Solution

As well as materials supply, the Gurit team provided technical support, providing the Rafael team with access to CNC equipment to enable the rapid machining of complex and precise shapes for the integration of internal components and the realization of 3D surface shapes.

After several months of partnership, the Rafale 3 foiling moth is due to be ready to race in Spring 2022. We hope to continue our partnership for our next projects, and we wish you “bon vent”!



The Foiling SuMoth Challenge is a competition aiming to promote sustainable practices in sailboat design and manufacturing. Student teams are invited to build their own Moth concepts and compete at the Foiling Week under specific rules and guidelines.



*“Gurit’s passionate teams provided us with detailed support throughout the project. Their expertise was a key asset for manufacturing critical components tailored to our needs.”*

Noah Ferrarotto, Team Captain, (third from left)



### Further information

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