



*AST*

**ACTIVE STRINGER TECHNOLOGY**



**Active Stringer Technology** created specifically for underwater hockey fins. Twin arms stringer\* integrated into the edges of the blade boots propulsion and makes the swimfins more maneuverable and durable.

Carbon and glass prepregs composition of the stringer is one of the key parameters leading to high-performances swimfins but not the only one. Alignment, orientation of the stringer are a few of the many parameters that also play a key role in final swimfins properties (thrust, strength, strain, fatigue....).

To fully understand the performance of these composite stringers, our team conducted a serie of in-depth analyses including material properties, orientation of fiber, lay-up alignment axes as well as life of the composite structure. With the results of these analyses, we now have a far better understanding of which variables are most critical to the manufacture of composite blades for our swimfins.

The area of the blade under the foot of the swimmer is an area subject to extreme stress.

The « Achilles heel » of our first composites swimfins had been perfectly mastered thanks to AST.

The innovation in AST uses a new design and manufacturing method to effectively change the direction of prepreg fabric which allows for fiber orientations other than 0°, 90° and 45°.

Every prepreg layer making up the structure of every blade is accurately laid up by hand for continuously varying fiber orientations within a single ply.

The innovative structure created with the AST offers perfect control over the mechanical characteristics thanks to optimized fibre orientations. The directional laying of stringers makes it possible to generate nuanced behaviour that far exceed conventional technologies.

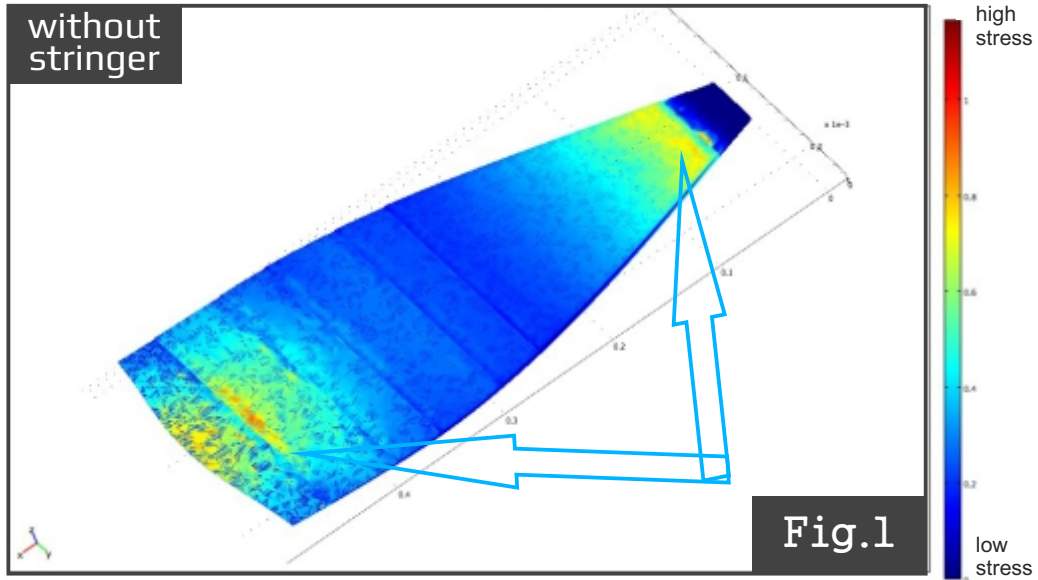
AST expands the available design options and the performance boundaries for composite blades, meeting the ever growing needs for very efficient yet highly durable swimfins.

Modelling work is continuing in order to ensure manufacturing quality and mechanical behaviour of our high performance composite swimfins.

\*Stringer : composite spring strip with advanced fibre orientations.

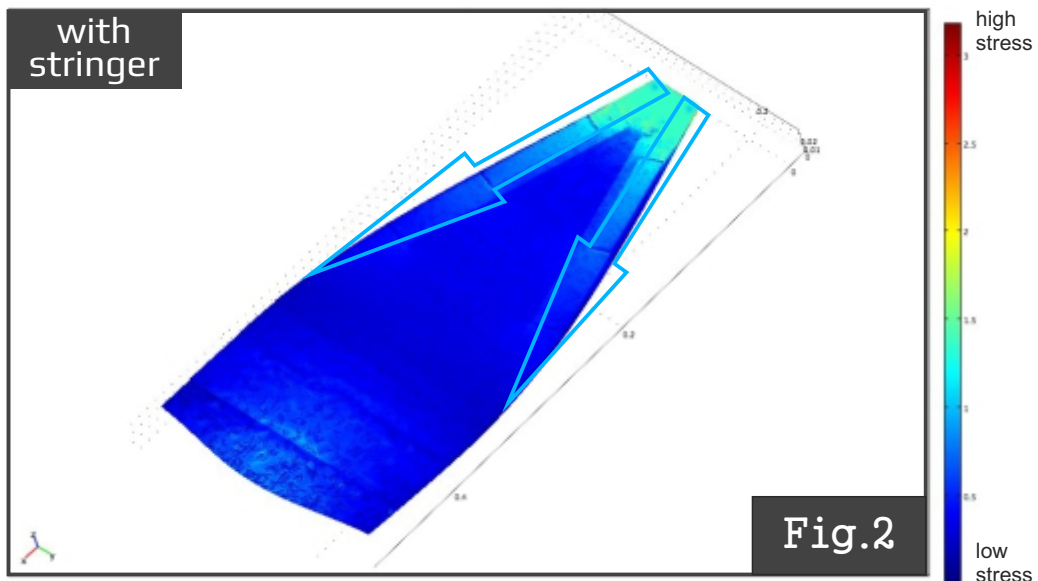


Von Mises stress criteria



The image shows critical stress areas on our first blades

Von Mises stress criteria



The image illustrates how well on an area subject to extreme stress, the stringer offers significant improved robustness and enhanced performance.



### Strength & Durability

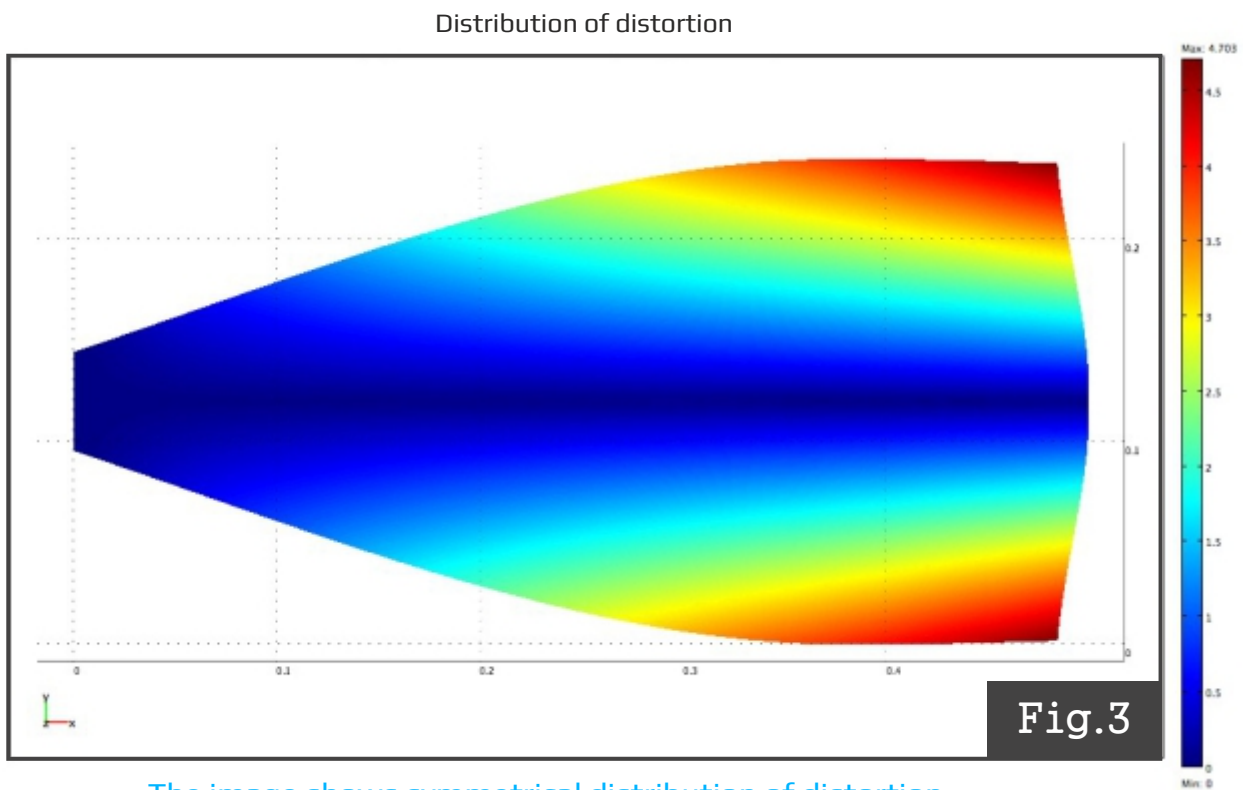
Stringer distributes flex strain evenly over the entire surface of the blade, improving the life of the fins (fig.2 versus fig.1).



### Power & Thrust

Acting like a spring, stringer improves response and flex memory. The blade flexes back faster and stronger (fig.2).





The image shows symmetrical distribution of distortion

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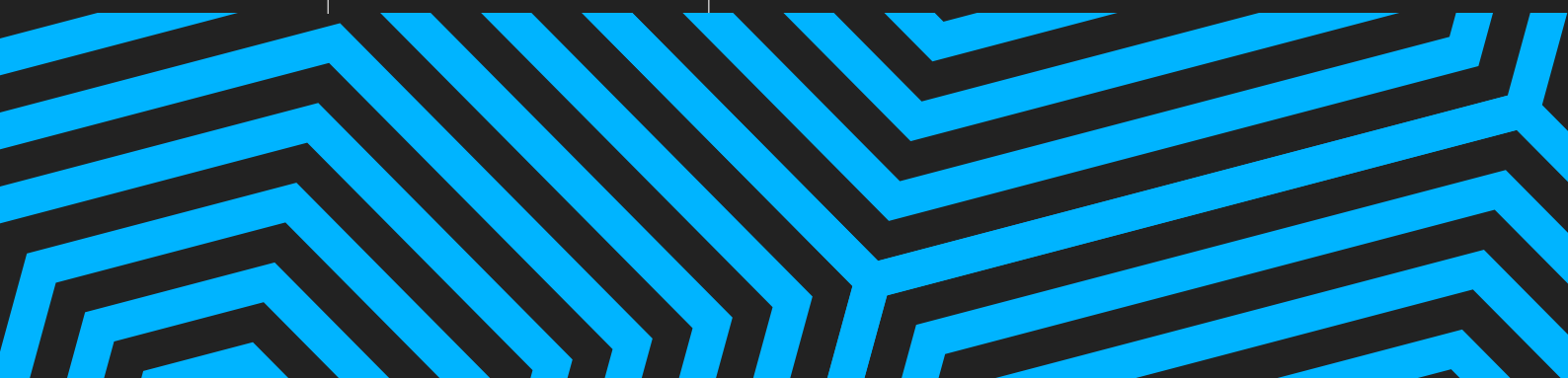
## Maneuverability

Thanks to stringer, the flex is perfectly symmetrical for a balanced swimming, allowing continuous control through radical direction changes.



***AST***

**MAXIMUM  
PROPULSION**



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