The Latest News from AeroSouth - September 2022

AeroSouth at the 2022 Worlds

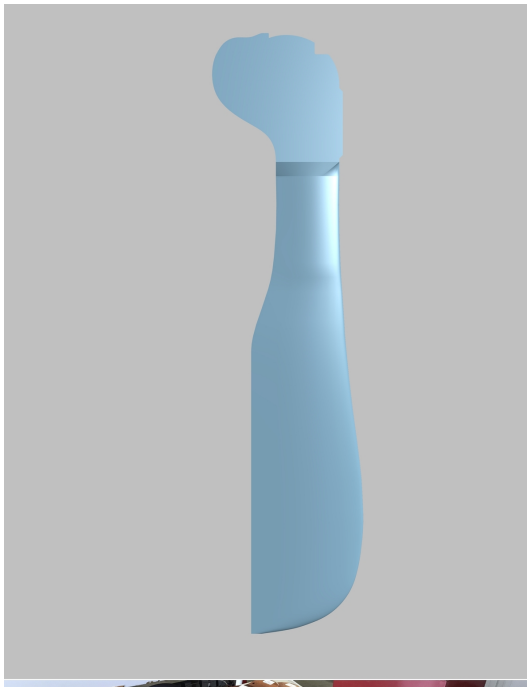
Congratulations to all 94 participants in the2022 Sunfish World Championships being held this week on beautiful Lake Garda in northern Italy. Just as being accepted into this elite group of sailors is an achievement to be proud of, AeroSouth is equally proud that its high-performance sailboat products are in use there this week. Both our **Mainsheet Hanger Clips** and our **Breezy Wind Indicators** are getting a workout on one of the most famous sailing venues in the world.

Order you own today from the **AeroSouth Store** and you'll be one step closer to performing among the world's best Sunfish sailors.

FS Rudder Mark IV in Production

Continuous process improvement (CPI) is the act of implementing improvements to a product, service or process. These changes typically occur incrementally (over time), which is the case for all of our products.

Since early spring our production has been running at capacity filling orders, a nice challenge! We are blessed to have friendly customers and a great distributor, **Sunfish Direct**, who give us useful feedback, much of which flows directly into the CPI of these



products.

One such example is our world-leading **FS Rudder Blade**, which is now in its 4th generation. Key improvements include a modified head shape to reduce mainsheet fouling, a notch in the head to allow a new tiller recently introduced to the market, and improved surface coating to reduce drag.

Order your FS Rudder Blade today from the AeroSouth Store.

Dinghy Bob Gets a New Tailfin

A further example of Continuous Product Improvement (CIP) at AeroSouth can be seen in the evolution of Dinghy Bob's tailfin (no pun intended). It was the one aspect of our popular product, designed to prevent sailboats from turning turtle, that, while certainly functional, had room for improvement.

As can be seen in this image, the latest generation of floats now use a combination of an aluminum U-channel attached to the polyethylene float, and an accurately-cut tailfin affixed within the channel with E6000 adhesive, ideal for such applications. One nice side effect of this effort was the improvement to our in-house metal and foam-cutting equipment and techniques, things that previously had been done by outside suppliers.

Dinghy Bob is available for Sunfish- and Laser- class dinghies**at the AeroSouth Store.**

The Science of Sailing:

Modulus of Rupture

Wood, nature's composite material. Like fiberglass or carbon fiber, wood combines tough fibers with an epoxy matrix. In fact, early forms of composite construction made use of plant-derived resins, the thick liquid that holds the cellulose fibers in a tree together. When shaped with advanced woodworking tools such as the CNC mills and routers AeroSouth uses, and protected with modern coatings such as spar urethane or epoxy finishes, a rudder or daggerboard made from wood can last a very long time. Plus, they are relatively easy to repair or refinish using materials found in most hardware stores. (And they look great!)

When choosing the type of wood for a particular application on a sailboat, its material properties are the starting place for the engineer, who must also keep its cost, machineability, and availability in mind. One of our favorite sources of material properties is the online **Wood Database**, a creation from woodworker and instrument maker Eric Meier.

When designing a new blade or board, we test its strength first on the computer using FEA tools (Finite Element Analysis). One must know the material properties, which are easily found in the Wood Database. We define a load on the side of the parts, simulating the hydrodynamic side force (obtained from a so-called "CFD" program) or, in the case of the daggerboard, a 100Kg (220 lb) load representing a sailor standing on it when uprighting a capsized boat. What we want to see in our simulations is whether the resulting stresses in the wood exceed its known "**modulus of rupture**".

Typical wood varieties used for such parts include (with their modulus of rupture in parentheses) Sapele (109.9 MPa), White Ash (103.5 MPa), and White Oak (102.3 MPa). One of the strongest wood varieties is Shagbark Hickory (139.3 MPa), but is not as readily available as the others. Sapele, being related to mahogany, has good rot resistance, one of the reasons it has become popular in recent years for boatbuilding. It is also relatively inexpensive compared to mahogany. Ironically, due to the recent boom in the housing industry, white oak and red maple are more expensive than sapele, what we use at AeroSouth. Fortunately for us, North Carolina has one of the largest furniture industries in the country, so advanced machinery and skilled craftsman are plentiful, as is the supply of sapele.

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