



## **1001VELA<sub>CUP</sub> DESIGN CONTEST 2020**

Entry:  
**ecosail Karlsruhe**



**The team :**

*Design and Manufacturing Team, Year 2019*

Lukas Mazza

Philip Oehler

Christian Winter

Mario Bauer

Samuel Beier

Daniel Wenger

Johannes Bruns

Johannes Voigt

Linda Nolte

Claudius Roth

Timo Steinle

Timo Mungenast

Sven Doll

Tim Gartner

Jannick Laqua

Maximilian Heizmann

Paul Denk

Johannes Bruns

*Design and Manufacturing Team, Year 2020*

Johannes Voigt

Sven Doll

Mohamed Amine Aissa

Maher Alabci

Robyn Bauer

Muratcan Dogan

Patrick Grantolli

Andre Hopp

Kerim Karagöz

Niels Krempel



Maximilian Mail  
Nicolas Pautet  
Amos Ratz  
Saddam Sallab  
Lorenz Schürenkämper  
Pascal Wacker  
Thorben Wilhelm  
Theresa Wiltsch

***The jury evaluation:***

***Grado di innovazione  
Innovation degree***

The main innovation in this project is the further optimization of the hull structure and the deck using 100% recycled PP (Polypropylen). With this, the share of the natural, recyclable and recycled used material in the boat is more than 70%. Hence, this project has achieved the main idea and claim of the 1001VELAcup competition to design and manufacture ecofriendly sailboats>> / <<Nice selection of materials, there seems to be a lot progress 40/50>> / <<General note: According to the weight calculation the Natural + Bio and/or Recyclable and/or Recycled weight percent is 70.3%. Minimum is 75%. Conventional design. Hull shape, sails, appendages and racks seem to be obtained from similar boats without numerical analysis and optimization. Conventional materials. Numerical optimization made for the internal structure which uses a rather unconventional honeycomb material. The structure seems very light.>< / <<7 su 10 -7 on 10>> /<<Very interesting the study about the Topological Optimization of internal structure, also the tests of the recycle materials.>> / << 3.5/5 - The boat is quite simple in it's design which proved to be effective. It's very interesting and innovative the choice of the polypropylen honeycomb sandwich for frame and deck. >>

***Completezza e livello di approfondimento progettuale  
Thoroughness level of the project***

<<material in the boat is more than 70% Hence, this project has achieved the main idea and claim of the 1001VELAcup competition to design and manufacture ecofriendly sailboats. Thoroughness level of the project. The project team has worked thoroughly using modern the methods and tools of the product design. All the needed components for the sailboat were planned, calculated, simulated and optimized in terms of weight reduction and stiffness enhancement before starting the manufacturing. Furthermore, the project



team has applied a project management approach with predefined team organigram and project timeline.>>

<< Good effort in simulating the loads on boat, some mistakes in the naval architecture calculation 30/50>>

<<Most of the design has been done by comparison with other similar dinghies without optimization. Only the internal structure seems to have been numerically optimized. No VPP seems to have been used for parameter optimization.>>

<<Lavoro molto approfondito di massimizzazione delle performances senza ricorrere all'utilizzo di foils

Very thorough work of maximizing performances without resorting to the use of foils (translated by the editor).>>

<<All the tools needed for a proper design are well explained. Analytical, numerical and experimental test are well documented.>>

<<3.5/5 - The project is more detailed in certain zones where the team decided put the most effort. Other parts are lacking of detail.>>

### ***Qualità della rappresentazione del progetto***

#### ***Project's quality of representation***

<< The delivered project report gives a good overview about the project content, the sailboat specification and the project implementation.>>

<<Good presentation, partly too much like an report 30/50>>

<<There is no Table of main dimensions. The rig is not described. Otherwise the report covers the considerations and the techniques used. (Unless there are numerical studies not reported)>>

<<Impaginazione a settica e disegni che non valorizzano il progetto.

Aseptic layout and designs that do not enhance the project (translated by the editor).>>

<<The documentation is complete and well structured in all parts. The figures help a lot to understand the explanation written in the text.>>

<<3.5 - The presentation of the project is simple and linear.>>

**Ranking :**

**3<sup>rd</sup>**

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