

Categorie Premio
Accessibilità
Sostenibilità
Qualità della vita
Product Name **SolarProa**
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Description of innovation social values

- product category
- formal and functional features
- problems solved by innovation
- user
- field of application

concept

The Solarproa is a solar powered boat for 6 people. Multifunctional, innovative technology and materials, driveable without driving licence, light, elegant, sustainable - These are all fundamentals that played the major roles during the developing and designing process.

The final product is a proa, an asymmetric catamaran, that is completely powered by solar power. It is possible to enjoy all benefits of boats, without polluting the environment and producing noise. The dynamic, asymmetric catamaran shape allows a big surface of 14,5 sqm for the solar panels. The streamline shape of the displacement hulls reduces the drag to a minimum. Above the waterline the shape is dominated by edges that set new pattern for innovative and modern yacht design.

transformation

The solar powered boat has two foldable covers with solar panels on top that produce the energy for the engine and all other electrical devices. In the marina, these covers are closed and the boat has just one clean and flat surface. The batteries are charged constantly and the interior is protected. When the batteries are completely charged, it is possible to supply the electricity to the 230V electricity network. While driving the canopes are opened. The deck transforms itself into different areas with different functions. This interesting space contains room for 6 passengers including the driver, storage for sports and swimming equipment and a large sundeck without reducing the energy generating surface.

Description of technical features

- operations
- technology

propulsion

With a length at the waterline of 7.38m the maximum hullspeed is at 6.59 knots (12.21km/h). The total displacement of the hull is about 800kg. The minimum power prediction for the dimension of the engine shows, that it is possible to reach the max. hull speed with 1kW. For safety reasons the boat has a 2kW electrical engine.

solarpanels

The solar surface consist of 1368 cells with a cell voltage of 0,46A. The whole system has an amperage of 80A with a voltage of 24V. The overall power is 1,9KW. There are 6 lithium-mangan batteries. To drive self sufficiently with 1kW power only 69% effort from the solar cells is needed; if there is no sun it is possible to drive 5 hours.

Dimensions

Length 7,40m / Width 2,80m / Height 0,7m

Materials

Hull: sandwich of two layers carbonfibre and one layer honeycomb nomex - thickness 10mm
Solarpanels: industrial standard polycrystalline cells between one layer makrolon and one layer plexiglas.

Certifications

A prototype of the Solarproa is under construction. Several calculations and flow tank tests were conducted to guarantee a working realisation of the concept. International publications about the Solarproa underline the interest and the trust in young technoloies combined with the value of modern and design.

Benefits for environment

Driving Solarproa instead of regular motor boats reduces the CO2 emissions and less fossil ressources are wasted. Due to the transformability, the solar cells are always in use and energy is constantly generated, no matter if the boat is driven or lies in the marina. Consequently, even though lots of energy is needed to produce solar cells. it is still a very sustainable use of this young and innovative technique.

Benefits for human being

The combination of innovative, modern design and solar techniques is a key aspect to change the thinking of today's motorboat drivers. The Solarproa makes it possible to enjoy driving a boat without emitting CO2 and wasting fossil resources.It guarantees an environmentally friendly time on the water. If you connect your boat in the marina with the electrical grid you even qualify for financial support by the government (Germany)