



Around the world powered by the sun

Media Outline

TÛRANOR PlanetSolar - the largest solar boat in the world

Kiel / Hamburg, 7th May 2010. TÛRANOR PlanetSolar - this catamaran measuring 31 metres in length and 15 metres across is powered exclusively by solar energy and will circumnavigate the globe in 2011 entirely without the use of traditional fuels. The futuristic electric motorboat is of incredibly light yet extremely durable carbon-sandwich construction. In total, 20.6 tonnes of carbon fibre, 11.5 tonnes of foam core and 23 tonnes of resin and hardener were used to create the boat itself, which is a technological masterpiece from Kiel-based boatbuilding firm, Knierim Yachtbau.

The most exciting feature of this enormous double-hulled boat becomes apparent from an aerial perspective: solar panels from Solon AG in Berlin are installed on deck – a total of 825 modules, equipped with 38,000 individual photovoltaic cells, on a total surface area of 537 square metres (including side riggers and "rear wings"). These capture energy which is then stored in six blocks containing twelve batteries each (648 cells using the latest, maintenance-free lithium ion technology from GAIA in Nordhausen). Each of the six blocks weighs just under two tonnes – traditional lead batteries with the same capacity would have weighed seven times as much, and had a shorter lifespan.

The TÛRANOR PlanetSolar is driven by two contra-rotating carbon propellers from Voith Turbo Marine Composite Technology GmbH in Hohen Luckow, near Rostock. The diameter of each propeller is almost two metres, twice the usual size for a vessel of this size, which makes propulsion more efficient. As half the propeller is in the air and the other half underwater, a "wheel effect" is created which makes it possible to steer the ship without a rudder. Four electric motors from Nuremberg – two per drive shaft – have a maximum output of 120



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kW and an incredibly high energy efficiency of over 90%. An estimated cruising speed of 7.5 knots (around 14 km/h) should ideally (without a head wind or counter-waves) only require around 20 kW.

For solar shipping, bridging the time without insolation by means of storage capacity and efficient propulsion is the main challenge - met by these new technologies. "We are on our way to demonstrate that motorised shipping can work without fuel", is how entrepreneur and owner of the TÛRANOR PlanetSolar, Immo Ströher, succinctly puts it.

The name TÛRANOR is derived from the Lord of the Rings Saga of J.R.R. Tolkien and translates into "The Power of the Sun". PlanetSolar refers to the identically called project (www.planetsolar.org), for 2011 planning the first circumnavigation of the world powered by the sun.

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