



SIKA AT WORK

SOLAR-POWERED CATAMARAN

BREAKPROOF MOUNTING OF SOLAR PANELS WITH Sikaflex®-292

BUILDING TRUST



SOLAR-POWERED CATAMARAN



PROJECT DESCRIPTION

The 31 meter long solar-powered catamaran "Türanor PlanetSolar" was built by KNIERIM Yachtbau GmbH on the Kiel Canal, Germany. Photovoltaic modules made by Solon SE are installed on deck, supplemented by extendable side wings that are also equipped with solar modules. A total of 825 photovoltaic modules cover an area of over 536 m². These convert the solar energy needed to charge the lithium ion batteries that supply four electric engines. With no other drive units of any kind on board, the "Türanor PlanetSolar" became the first solar-powered catamaran to circumnavigate the globe. At an impressive average speed of about eight knots, the expedition took a total of 20 months and a distance of 60,254 km on sea with an environmental-friendly and nearly noiseless travel. The catamaran's design had to combine characteristics that had previously been incompatible, as the vessel's hull had to remain flexible in all directions in order to adapt to the demands of the marine environment, such as wave action. This is no simple matter, as photovoltaic modules tend to glass breakage when overbent. In cooperation with Sika, the bonding surfaces were examined in bonding tests on the boat and in the engineering department and were approved. This was achieved by having the manufacturer bond the photovoltaic modules to PVC sandwich panels laminated on both sides with Sikaflex®-292. The elasticity of this construction adhesive that has been specifically developed for boatbuilding and shipbuilding enables it to compensate the

kinetic energy transmitted through the hull of the vessel. Sikaflex®-292 has been proving its reliability on a major voyage, protecting the rigid photovoltaic modules against fractures on the flexible hull of the "Türanor PlanetSolar".

SIKA SOLUTION

Sikaflex®-292

PROJECT PARTICIPANTS

Project name:	Catamaran "Türanor PlanetSolar"
Manufacturers:	KNIERIM Yachtbau GmbH and Solon SE
Power output:	93.5 kW
Panels:	825
Start of operation:	September 2010
End of expedition:	May 2012
Distance travelled:	60,254 km

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