

Case Study

Support brackets for solar panels



Figure 1 Solar panel and support bracket

[Nexus s.r.l.](#) was founded in 2006. Among other things Nexus produces photovoltaic products, e.g. the anchorage system for photovoltaic modules as shown in Figure 1. Nowadays the company sells its products in more than 25 countries. That is the reason why Nexus collaborates with Cabur to distribute its products.

To fabricate the support brackets for the photovoltaic solar power systems Nexus uses Durethan BKV 30 H2.0, a heat-stabilized grade of polyamide 6 reinforced with 30 % glass fibers. In this application, three metal parts are replaced by one part of the LANXESS polymer. The requirements profile for the material is as follows:

- resistance to temperatures in a range of - 30 °C to + 80 °C
- chemical resistance to alkaline solutions
- UV resistance
- good mechanical properties

One major advantage of the support brackets, particularly on the metal roofs of industrial facilities, is that they prevent galvanic processes and also corrosion and leakage current. The polyamide insulates the roof from the solar panel, thereby preventing undesirable electrochemical reactions. The pan-

Grade: Durethan® BKV 30 H2.0

Customer: Nexus s,r,l., Italy

Distributor: Cabur srl, Italy

els can thus even be used in hot, wet and salty sea air.

As far as the mechanical properties are concerned, it is primarily the high wind speeds that could act on the modules that are the central focus. In establishing whether the support brackets would be able to withstand forces arising in this way, LANXESS provided Nexus with support in the form of FEA calculations. In the event of a hurricane (wind speed 130 km/h), it has to be calculated with a maximum wind load (pressure/suck) of about 8 mbar. The components did not fail in the calculations even when a suction effect almost twice as high was taken as a basis.

In practical tests conducted by the European Quality Institute in Fabriano and TÜV Rheinland Italia, it was confirmed that the support brackets in the LANXESS polymer function safely and reliably both when new and after exposure to UV light.

For the fitters, the solution in plastic offers not only an ingenious design but also the advantage of a lower weight. The end customer similarly has reason to be pleased: the support brackets in plastic are less expensive than the conventional fastening methods.

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