High factor protection: igus develops solar materials with three-times more UV-resistance

Two new lubrication-free tribo polymers increase the service life of bearings in single-axis solar trackers

Solarmid and iglidur P UV are the names of the two new materials that igus has developed specifically for housing bearings in single-axis solar trackers, the panels that track sunlight in solar farms. The new polymers last much longer than standard polymers, especially in 2P (two-in-portrait) tracker applications where the bearings have to withstand direct sunlight for hours. In the field tests, the materials' properties convinced with up to three times the UV resistance of other tribo polymers.

In solar farms all over the world, more operators rely on bifacial solar modules, which capture incoming sunlight from both the front and back of the solar panel. These modules have to endure thousands of hours of bright sunlight, and often sand, dirt and wind. To ensure that the modules are securely stored on square tubes, igus has produced a solution using its igubal bearings, which have proven themselves successfully in thousands of applications worldwide for years.
Until now, the bearings were classically installed mainly behind the solar module and were therefore only partially exposed to sunlight. In order to further increase the utilisation of solar farms, which convert sunlight into electricity, operators increasingly rely on two bifacial modules that are installed on top of each other, also known as two-in-portrait, or 2P, configuration.
The modules are arranged at a set distance, with the housing bearings located in between, where the bearings are now more exposed to UV radiation.
Specifically for this application, igus has developed solarmid and iglidur P UV, two new tribo polymers for the solar panel housing and the dome. The materials are lubrication-free and maintenance-free, while at the same time are resistant to dirt and dust, and they have extra UV protection, making them ideal for the solar power industry.

Three times longer service life in the UV test

Tested in accordance with ASTM-G154, a standard test for plastics, it was found that after 2,000 hours under extreme UV irradiation, the bending properties of these new materials changed by only five per cent. In comparison, the materials previously used in the solar industry have changed by 14 per cent. "The test shows that we have succeeded in developing new materials for the solar industry that make the solar trackers even more reliable and durable," says Robert Dumayne, Director for dry-tech® products at igus UK

"With the new materials solarmid and iglidur P UV, we can offer customer-specific storage solutions especially for utility scale projects that are UV-resistant, and thus significantly reduce unwanted maintenance work."

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The new materials solarmid and iglidur P UV for the igubal housing bearings are extremely UV-resistant and therefore highly suitable for use in bifacial solar modules.