

Defying the Sun

Self-Lubricating Polyoxymethylene Bearings for Solar Systems

Components in solar power stations are exposed to strong solar radiation and other severe environmental influences. The plastics used for this must withstand these harsh conditions. Tracking systems in photovoltaic plants are also subject to frictional wear. These challenges can be met with the aid of self-lubricating, UV-resistant plastic compounds.



The self-lubricating EP-15 sliding bearings consist of a UV-resistant POM compound and therefore have long-term resistance to the intense solar radiation in photovoltaic plants © GGB

Solar plants is a sector that has undergone a major expansion in recent years, in terms of both the number and the size of these systems. Major photovoltaic power stations are often set up in highly aggressive environments where, in addition to constant exposure to ultraviolet radiation from the sun, they also have to contend with the effects of dust, sand, high temperatures, wind and low humidity. The perfect operation of a photovoltaic power station depends on the functioning of its solar panels, whose efficiency is increased through the use of a solar tracker which ensure their continuous alignment with the sun.

The components of the solar tracker must always respond optimally, reducing downtimes for maintenance or, worse, malfunctions. The French company GGB developed tribological technologies and concepts that contribute to reduce friction and improve product design. They help the company better minimize wear and friction

in such systems. A bearing system made from self-lubricating thermoplastic compound has been designed to support the structures of solar trackers.

UV-Resistant POM Compounds

The system uses a polyoxymethylene (POM)-based compound manufactured by the Italian company Lati. It offers excellent tribological and mechanical features, as well as excellent resistance to solar radiation. The self-lubricating compound can withstand the wear caused by dust and sand. Furthermore, it is not weakened by solar radiation, and its typical properties remain stable over time.

GGB's EP 15 bearing does not need to be greased or any other external lubricant, and consequently eliminates the need for maintenance interventions to deal with problems caused by drying of the lubricant and the formation of abras-

ive sludge, which, in turn, cause wear of the metal parts. The systems can be subjected to compression forces of up to 65 MPa without suffering structural damage. Unlike similar products made from hygroscopic resins, they work at temperatures between -40 and $+125^{\circ}\text{C}$ and at all levels of solar exposure and ambient humidity. They also comply with the stringent RoHS, ELV and WEEE standards. ■

Service

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