

## **Showdown in the test lab: plastic ball bearings compete against metal bearings in the salt water test**

**The test winner xiros is up to 60 percent lighter and 40 percent more cost-effective than the metallic version**

In Cologne, the company igus operates the world's largest test laboratory for plastics in moving applications. More than 12,000 tribological tests are conducted every year at the motion plastics specialists. These include tests that investigate the use of a wide variety of materials in the most varied environments in real test. This time: xiros flanged ball bearings and metal bearings in salt water. The use of lubrication-free and maintenance-free tribo-plastics enabled the xiros bearing to be completely convincing in the experiment.

The engineers of the igus test laboratory filled a container with saltwater from the sea and heated it to +80 degrees Celsius. Then two bearings were put inside for 120 hours: a classic 2-hole flange bearing made of metal and a xiros flange bearing made of xirodur B180, a high-performance plastic that has been optimised by igus for years in terms of wear and media resistance. Both bearings were not completely covered in the test, but exposed to air in order to trigger the corrosion effect.

### **Metal bearing begins to corrode after a few hours**

The test result spoke clearly in the end. After just a few hours, the metal bearing began to corrode. At the end of the test, significant traces of rust were visible on all bearing components. Unlike the bearing of plastic. The xiros flange ball bearing was unfazed even after 120 hours in the aggressive salt water and high temperatures. There is no colour change and no trace of rust. A clear advantage especially in cleanroom applications and use in food and medical technology, where rust poses a hygiene risk. The xiros ball bearings usually consist of four components: the inner and outer rings as well as the cages made of plastic and the balls made of stainless steel or glass. Unlike metal bearings, the wear-resistant polymer bearings enable a very smooth and

hygienic dry operation without a single drop of lubricating oil and are maintenance-free. Their long service life can be easily calculated online. In addition, the plastic bearings are electrically insulating, temperature-resistant from -40 to +80 degrees Celsius, non-magnetic and 60 percent lighter and up to 40 percent more cost-effective than comparable metal bearings. They are suitable for absorbing medium loads and due to their reliability, have been preferred by customers around the world for many years, for example, for use in conveyor belts, labelling, handling and packaging machines as well as in filling machines.

**Caption:**



**Picture PM3718-1**

2-hole flange bearing made of metal and xiros flange bearing made of xirodur B180 after the salt water test in the test laboratory. The wear-resistant xiros bearings with a service life that can be calculated online show no signs of corrosion or discoloration. (Source: igus GmbH)

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**ABOUT IGUS:**

igus GmbH is a globally leading manufacturer of energy chain systems and polymer plain bearings. The Cologne-based family business has offices in 35 countries and employs 3.800 people around the world. In 2017, igus generated a turnover of 690 million euros with motion plastics, plastic components for moving applications. igus operates the largest test laboratories and factories in its sector to offer customers quick turnaround times on innovative products and solutions tailored to their needs.

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