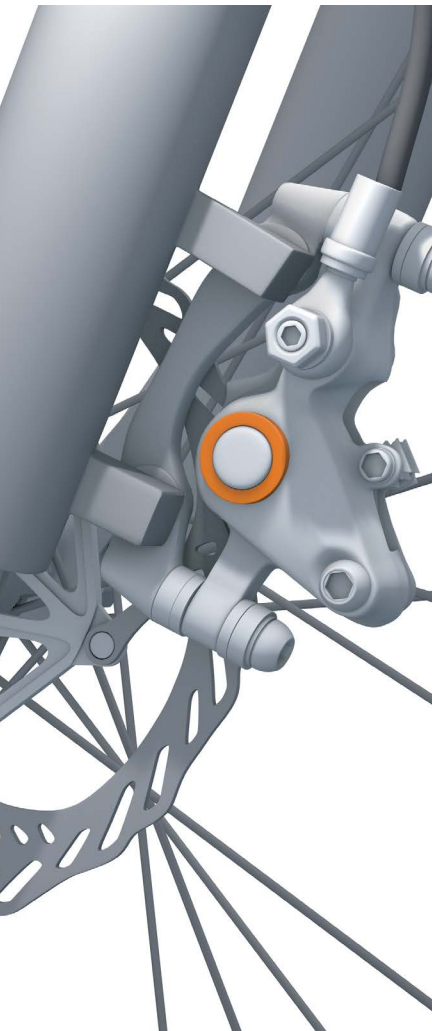
igus®

tech talk

The Top 10

Reasons to use composite plastic bearings

Composite plastic bearings combine base plastics, fibrous reinforcements, and solid lubricants for tailored bearing solutions with predictable lifetime in a wide variety of applications. These bearings run do not require maintenance or external lubrication, are resistant to corrosion and debris, conduct heat efficiently, and dampen vibrations while maintaining high compressive strength. Read on for the top ten reasons to consider plastic bearings.



1. Lighter weight than metal bearings

Swapping metal bearings for composite plastic bearings can reduce weight by 25% or more. The difference in density between composite plastic materials and metals - 1 to 3 g/cm^3 vs. 7 to 9 g/cm^3 - makes the weight reduction obvious.

2. Corrosion resistance

iglide® plastic bearings are non-metalic meaning they do not rust and can be used in all types of environments which include complete submersion in water.The iglide® product line also includes bearings that are able to resist harsh acids, such as hydrochloric acid, as well as UV and other high-energy radiation. Chemical resistance can change with temperature and chemical concentration, so be sure to take your specific application conditions into account.

3. 100% self-lubricating

iglide® plastic bearings are designed to run dry, without any external lubrication. They contain millions of tiny chambers, that house particles of solid lubricant, which are released as friction against a shaft occurs. Homogeneous blending of the plastic material means that lubricant cannot be pressed out, and will last throughout the entire service life of the bearing.

4. Forgiving of shock and edge loads; vibration damping

Plastic bearings run quietly and absorb or dampen vibrations. Their mechanical loss factor, an indicator of vibration-damping capability, is up to 250 times that of metal bearings. The fiber-reinforced material blends are tailored to specific application requirements, helping bearings stand up to shock and edge loads in a wide range of application settings.

Learn more at www.igus.com/iglide

5. Pairs well with a range of shaft materials

Plastic bearings can pair with any shaft material without corrosion issues, but not all shaft-bearing pairs are equal. Plastic bearings are able to operate on softer and rougher shafts which can decrease the overall cost of the product. Extensive testing and experience have provided igus® with a massive database of bearing wear results when paired with different shaft hardness, roughness, and material makeup. Excellent wear performance depends on pairing the right bushing material with the shaft.

6. Excellent wear rates

When a shaft with a composite plastic bearing starts to move, bits of solid lubricant and thermoplastic abrade to fill shaft imperfections and provide continuous lubrication, minimizing stick-slip and wear. Abrasion rates drop dramatically after initial startup, becoming negligible during continuous operation. The plastic bearing offers optimal wear thickness throughout the entire wall thickness of the bearing.

7. No maintenance required

Based on results of thousands of empirical tests, igus® specialists can recommend iglide® plastic bearings that are ready to “fit and forget.” Test data allows engineers to choose the best bearing/shaft combination and predict maintenance-free service life based on application factors. When combining this with the lack of required external lubrication, you get a completely maintenance-free bearing solution.

8. Dirt and dust resistance

Metal bearings wear prematurely and can significantly damage shafts if abrasive dirt particles get into them, but iglide® plastic bearings are able to ‘absorb’ these particles, incorporating them into the plastic material itself. Additionally, the lack of required grease and oil does not attract debris.

9. Special application materials available

If your application requires FDA or EU-directive compliant materials, the iglide® material range offers a number of applicable products. For example, iglide® A180, A200, and A500 all comply with FDA requirements. All iglide® bearings are RohS compliant and offer a veriety of certifications.

10. Materials and customization available for specific application needs

igus® engineers develop numerous new plastic compounds each year, which are tested in bearing form in thousands of tests annually. Whether your bearings need to run underwater, resist high shock loads, fit soft shaft materials, or run at extreme temperatures and speeds, igus® has an iglide® bearing for you. Currently, igus® offers 16 standard materials, along with 32 specialized material options.