# TECHTALK DESIGN ADVICE SERIES

## WHEN TO USE A BALL BEARING, NOT A BUSHING

**More than five years ago, the news that we were moving into the ball bearing business caused quite a stir.**

This was due to the fact that we've always been known for our plastic sliding technology, which eliminates the need for lubrication and promotes dirt and dust resistance, among a multitude of other advantages.

That said, we pay attention to what our customers ask us for, and they had been increasingly asking about maintenance-free ball-bearing solutions.

As a result, we decided to fill the gap where standard materials were not effective by using our 20-plus years' experience in testing tribologically optimized plastics. After their launch, the positive feedback from customers' resulted in xiros® plastic ball bearings becoming an independent product line.

**How they compare with metal roller bearings**

The dry-running plastic ball bearings do not compare with permanently lubricated metal roller bearings when it comes to speed and permissible loads. However, they provide an economic alternative for many applications where using conventional metal ball bearings would be problematic and special solutions are difficult to come by. For example, in applications where the focus is not on maximum load and speed, but on other features, such as chemicals or liquid media. In

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these kinds of applications, lubricants are often washed out of the sealed ball bearings and corrosion becomes a problem.

In contrast, the launch of our xiros® ball-bearing range signified the first step towards a range of technically optimized plastic ball bearings available from stock with a predictable service life.

Since then, we've been working hard on the research and development side of things. We now offer five different xiros ball-bearing materials, new styles, and multiple sizes from stock, as well as 3D-CAD downloads and an online service-life calculation program.

The lubrication- and maintenance-free ball bearings can be used at temperatures up to 302 degrees Fahrenheit, are resistant against corrosion, are suitable for wash-down environments, and are non-magnetic and extremely lightweight.

**When to replace an iglide® plastic bushing with a xiros® plastic ball bearing?**

There is usually an iglide® plastic bushing that will work in the majority of applications. However, if your automated equipment has parts that rotate continuously at speeds over 295 feet per minute with low loads, then you'd be better off using a xiros® plastic ball bearing.

The smaller the inside diameter, the fewer rotations per minute the ball bearing has to travel. For example, a xiros® ball bearing with an inside diameter of 60 millimeters can reach speeds up to 500 rotations per minute with a maximum dynamic load of 144 pounds. However, a xiros® ball bearing with an inside diameter of three millimeters can reach a maximum 4,500 rotations per minute. As a xiros® bearing increases in size, the load capacity increases, but the speed capacity is reduced.

For those applications where more load is involved, our double-row ball bearings may suffice. For those where dirt or other abrasive elements are a concern, we offer xiros® ball bearings with a cover plate.

**xiros® plastic ball bearings**
xiros® plastic ball bearings - maintenance- and lubrication-free, suitable for extreme environments
xiros® plastic ball bearings

**Triboplastics: Advantages**
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