TECHTALK DESIGN ADVICE SERIES

HOW TO INCREASE SPEEDS AND ACCELERATIONS USING PLASTIC BEARINGS

A few years ago, we replaced ball bearings on the welding jaw of a vertical-form-fill-seal machine, which enabled it to pack more bags of product per hour, translating into an impressive 20% increase in throughput for the end users.

Ball bearings don't deliver the same performance when reacting to high accelerations / decelerations because the balls can slide instead of roll due to inertia. This causes damage to the shaft, which had forced the engineers working on this particular project to lower cycle times to prevent failure.

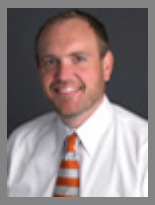
Since our DryLin® liner is composed of a sliding film, it's capable of unlimited accelerations without any negative affects.

The largest consideration when designing a plain bearing into a high acceleration application is that it may require increasing the necessary drive force (particularly if the payload's center of gravity is not directly on top of the bearings).

If you have accelerations greater than 1G, contact us for design assistance at sales@igus.com.

DryLin® linear bearings also eliminated lubrication for the company discussed above, which is crucial in the food industry. DryLin® tested to more than 8-million cycles - pretty impressive - without measurable wear and reduced the overall mass and inertia of the sliding system since it's comprised of plastic and aluminum.

YOUR CONTACT



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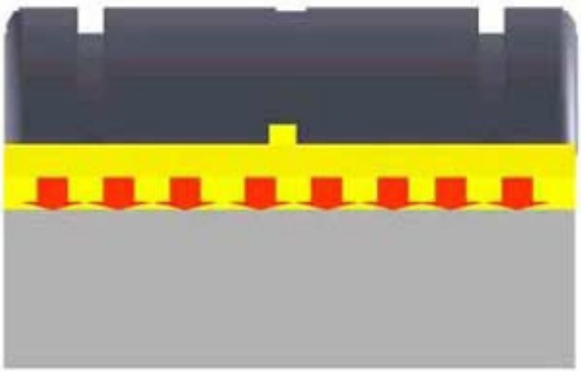
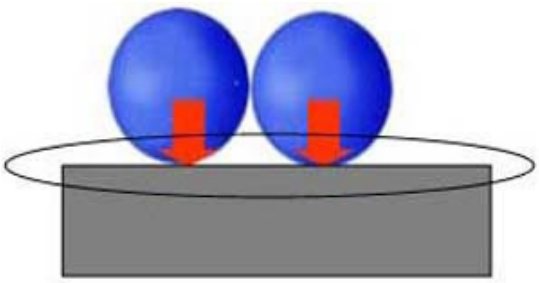


Here's another great fact you may not be aware of: plastic bearings can achieve speeds up to 65 feet-per-second (20 m/s) as long as you watch your loads.

You may have noticed that all our linear products are offered primarily with aluminum shafting. This is because aluminum has excellent thermal conductivity when compared to ferrous materials and is the perfect partner for plastic bearings. High speeds in conjunction with high loads, however, do cause frictional heat buildup and are generally not recommended for any sliding bearings, including plastics.



One of the best and most unique tools we offer at igus is our online Expert System - a complimentary database that accurately predicts the life expectancy of our plastic bearings - which can tell you the max average velocity for your application, as well as other valuable information.

Useful Links and Tools

Determine which DryLin® bearing is right for your application

Need help specifying a system? Let igus® do the work for you!