

TECHTALK DESIGN ADVICE SERIES

OIL-FREE BEARINGS WITHSTAND 43,200 CYCLES 24/7



It goes without saying that it's extremely important for a bearing to meet the high standards of cleanliness and hygiene demanded by the packaging industry.

Each morning when I add sugar to my coffee, I don't worry about whether it was contaminated by a machinery component during the packaging process or not. I trust that the packaging or food manufacturer thought of this before the item made it to my cafeteria.

In truth, this is a consideration design engineers working in the food industry have to take into account all the time. And, of course, they are seeking bearing solutions at competitive costs that also deliver trouble-free performance.

Here is a good example of a case study that touches on all these considerations.

Packaging equipment

Background

The company manufactures packaging equipment for the food and pet industries, which handle flour, sugar and various types of pet food. The machines operate 24/7 and are expected to last 20 to 30 years.



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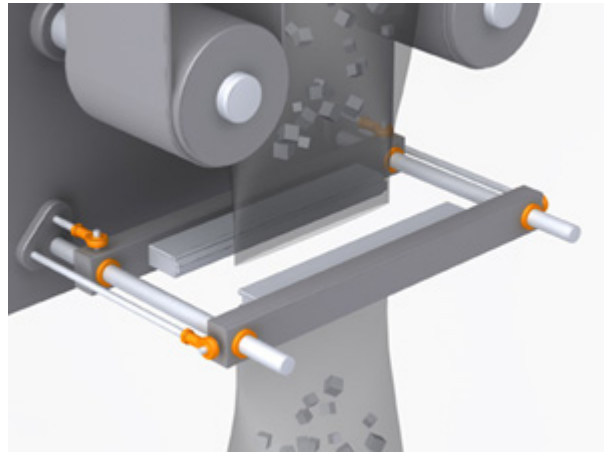
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Requirements

The customer needed an oil-free linear bearing to facilitate the movement of guide rods used in the machine's trimming and pressing stations. The bearing must have the ability to handle high loads and high cycles, while at the same time remaining unaffected by the excessive flour and sugar dust given off by the machines.

Solution

DryLin® R linear bearings were chosen because they are oil- and maintenance-free. Their strong plastic construction (a liner made from igus®, high-performance polymer, iglide® J, and an aluminum adapter that fits over the liner) enables them to carry up to 30 fifty-pound bags per minute on each machine. In one 24-hour period, the bearings perform 43,200 cycles and remain unaffected by the excessive food dust produced during the packaging process. Another unique feature of the DryLin® R liners (which are also used in igus' line of DryLin® W linear guides) are the integrated 'dirt channels', which allow debris to easily pass through the bearing system.



DryLin® R linear bearings are dry running and do not contaminate the food items or become clogged with flour and sugar excess like other types of bearings that require constant lubrication. Their corrosion-resistant and maintenance-free features have also helped to reduce downtime and repair costs.

The packaging machines also use a new type of hybrid linear bearing from igus®. DryLin® WJRM features a combined rolling-and-sliding carriage for reduced friction and can reduce the drive force necessary to power an application by a factor of four or five. The hybrid linear bearings are used on the machine's bag magazines, which hold packages open as they are being filled with flour, sugar or pet food. DryLin® WJRM bearings act as a mobile arm behind the bag to prevent it from falling backwards and spilling its contents. DryLin® WJRM is also dry running and does not require messy lubricants.

Useful Links and Tools

[Learn more about DryLin® R plastic plain linear bearings.](#)

[Learn more about how igus®' bearings are used in the packaging industry.](#)

[Click here to read an archived edition of TechTalk about the true costs of bearing lubrication.](#)