

# Lubrication-free igus linear belt axis in a hygienic design for clean use in food technology

drylin ZLW belt axis manufactured with FDA-compliant materials can be cleaned quickly and is maintenance-free thanks to tribopolymer technology

Cleaning complex machines and systems in food production leads to longer and therefore expensive downtime. To reduce this workload, igus is launching a ready-to-connect belt axis, designed to meet hygienic standards for the food industry. It uses FDA-compliant materials and has the advantages of igus's lubricant- and maintenance-free, high performance tribo plastics.

In bakeries, after mixing sticky waffle dough, the bowl and stirring sticks are cleaned: a messy business. Large bakeries are faced with the challenge of regularly cleaning huge vats and mixers, including the moving parts – the linear axes and linear slides on which the mixers are lowered into the containers. If classical linear axes are used here, there is a high risk that dough residues will be deposited in hard-to-reach places, make cleaning much more difficult and, in the worst case, introduce contamination risks.

"To reduce the time and effort required for cleaning manufacturing systems in the food industry, and in the pharmaceutical and cosmetics industries, we have expanded our portfolio of ZLW timing belt axes," says Adam Sanjurgo, Product Manager for Drive Technology at igus UK. "The new model can be cleaned particularly quickly and thoroughly, whether using high pressure steam jets, with chemicals or simply running water. Fast, thorough cleaning also increases product safety."

## Hygienic design simplifies the cleaning

The new linear axis is easy to clean because the designers at igus have based the product development on accredited, hygienic design guidelines. Undercuts, in which food residues could be deposited unnoticed, are minimized throughout the system. There are no gaps, even those under a millimetre, gaps that would arise if screw heads were recessed to finish smoothly with the surface. "We deliberately refrained from lowering the



screws," says Sanjurgo. "True to the motto: the form follows the function, in this case, the cleansing is the core function". Equally important are rounded corners that ensure better water flow during high pressure cleaning, and that dirt particles are removed more easily. Water cannot be deposited in this smooth system and nucleation is reduced. Wherever a dead end in the design is unavoidable, drilled holes ensure that trapped liquid drains completely.

## Lubricant-free plain bearings reduce the risk of contamination

The new timing belt axis has been designed to only use FDA-compliant materials. The trusses and linear slides are made of corrosion-resistant stainless steel. The gliders on which the carriage moves over the rail are made of food-grade tribopolymer iglidur A160, which enables low-friction dry running – avoiding all lubricants that could present a contamination risk and would pollute the environment.

At the same time, the drylin ZLW belt axis is extremely durable, demonstrated by the c. 1.5 million double strokes at a speed of 0.5 m/s and an acceleration of 2 m/s<sup>2</sup> with a load of three kilograms, measured at igus's in-house test laboratory. The drylin ZLW belt axis can now be ordered in a maximum displacement of up to 3 metres and can be equipped with a suitable stepper motor.

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## Image PM6021-1

## Caption:

Easy to clean, lubrication- and maintenance-free makes a good recipe: The new drylin ZLW timing belt axis is based on hygienic design principles and uses FDA-compliant materials. (Source: igus)

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