Automation in the Food Service Industry with igus: Space Saver for Cramped Spaces

The French startup Cook-e builds a robotic kitchen with compact and lubrication-free timing belt axes from igus

STAMFORD, CONNECTICUT, UNITED STATES, October 2, 2023 /EINPresswire.com/ -- It conjures up fresh and healthy dishes without human assistance and is intended to relieve restaurateurs of the pressure of the shortage of skilled workers: the robotic kitchen from the French company Cook-e. So that the electromechanical cooking artist can also swing the pots in restaurants with little space, the developers rely on compact and hygienic timing belt axes from igus.

The compact and maintenance-free timing belt axes from igus ensure fast preparation of delicious dishes in the Cook-e robotic kitchen. (Source: igus GmbH)

Long working hours and constant stress, even on weekends -- the job of a cook is not very attractive to many young people. Hence, restaurateurs worry about the future. Will the kitchen have to shut down at some point? Cook-e doesn't think so. The French company has found a way to relieve the burden on restaurants in times of skilled labor shortages -- a robotic kitchen to take over laborious tasks. But how can it cook without staff? Service personnel or guests place the order with a tablet, input terminal, or app. Then, the kitchen starts the fully automatic preparation of a customized dish.

Step one: assemble ingredients according to the recipe. For this purpose, metering containers move along a shelf with storage modules. Depending on the menu selected, rice, shredded chicken, corn, and other chopped ingredients are removed with an accuracy of 0.5 grams. Once all ingredients have been collected, the contents are poured into one of three rotating cooking modules that resemble a wok pan. They can rotate and tilt, mix, fry, and stir. In just 210 seconds after ordering, the dish is ready to serve. According to Cook-e, 250 dishes per hour are possible, including delicious risottos, chili con carne, or osso bucco.

"The automation of simple tasks and the associated lower costs allow restaurant owners to invest more in ingredients and service quality to provide a better restaurant experience with consistently high-quality dishes," stated Quentin Guilleus, co-founder Cook-e. this type of catering has a great future ahead of it.

drylin ZLW: Because space in kitchens is worth its weight in gold

To allow as many restaurants as possible to benefit from automation, Cook-e has designed the robotic kitchen to be space-saving. Rental prices are high, and kitchens are correspondingly small, especially in major cities. Therefore, all components are compact, from ingredient storage modules to dosing container positioning mechanics. The engineers initially considered using a linear guide with ball-bearing-supported carriages. That, however, would have taken up too much space, so the experts decided on an alternative: electric igus toothed belt axes. "drylin ZLW-series toothed belt axes are the ideal solution for light adjustment and positioning tasks in limited space where every millimeter counts," says Michael Hornung, igus Product Manager for drylin Linear and Drive Technology. "The clearance height is just 31 millimeters."

"The igus solution allows for a more compact design, so our machines' volume can be reduced," says Guilleus. "The robot kitchen requires just 2.7 square meters of floor space."

Lubrication-free polymer slide bushes ensure hygiene

However, the robotic kitchen's components must be compact and meet the strict hygienic requirements of HACCP, a hygiene concept that NASA developed initially to ensure food safety for astronauts.

Says Guilleus, "The materials chosen, mainly stainless steel and PETG, are suitable for contact with food."

The toothed belt axes fit seamlessly here because igus manufactures the trusses and linear carriages from corrosion-resistant stainless steel. The carriages move on linear plain bearings made of high-performance plastic. The key is that the plain bearings require no lubrication and are therefore completely maintenance-free.

External greases and lubricants have been eliminated, so all bearing points and surfaces are

hygienic, extremely easy to clean, and quick to make ready for use again. This is important because the kitchen automatically cleans itself after every meal prepared, which involves the dosing containers and pan tilting downwards. A high-pressure water jet with cleaning agents performs the actual cleaning.

ABOUT IGUS:

igus GmbH develops and produces motion plastics. These self-lubricating, high-performance polymers improve technology and reduce costs wherever things move. In energy supplies, highly flexible cables, plain and linear bearings, and lead screw technology made of tribo-polymers, igus is the worldwide market leader. The family-run company based in Cologne, Germany, is represented in 31 countries and employs 4,600 people across the globe. In 2022, igus generated a turnover of €1.15 billion. Research in the industry's largest test laboratories constantly yields innovations and more user security. Two hundred thirty-four thousand articles are available from stock, and service life can be calculated online. In recent years, the company has expanded by creating internal startups, for example, ball bearings, robot drives, 3D printing, the RBTX platform for Lean Robotics, and intelligent "smart plastics" for Industry 4.0. Among the most significant environmental investments are the "chainge" program – recycling used e-chains and participating in an enterprise that produces oil from plastic waste.

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