

User report

March 2024

Into the crate every five seconds

Repetitive tasks, low productivity, a shortage of skilled workers - many factors speak in favor of automation. The scales and systems specialist Bizerba is also aware of this and has therefore installed a smart picking solution at a Spanish meat processor. Thanks to the powerful vacuum technology from Schmalz, up to 96 picks per minute are now possible.

Wrinkles are sometimes considered a beauty problem. In automated packaging processes, however, they can severely disrupt workflows. This can happen with meat products, for example, which are packed in plastic trays and sealed with a film. This film is the point of attack for the vacuum suction pads during the subsequent picking process. However, it is deformed by the packaging's own weight and creases. As a result, the wrinkles push conventional gripping solutions to their limits. Despite their soft sealing lips, they do not seal the irregularities adequately and conventional vacuum generation cannot maintain the vacuum.

Bizerba, a specialist in logistics and packaging systems, was therefore looking for a suitable solution to reliably automate the picking of these foil-wrapped trays. The company, headquartered in the Swabian town of Balingen, was founded in 1866 and today produces scales, labeling and marking systems as well as food processing and inspection systems. The global Bizerba team currently consists of 4,500 specialists who are active in 120 countries. The company generates an annual turnover of around 800 million euros.

High pick rate around the clock

A Spanish customer commissioned Bizerba to develop an end-of-line system for the automated picking of meat packaging. Previously, employees stacked the food trays in transport boxes after packing, weighing and labeling. However, the speed of the manual activity did not meet the requirements and therefore limited the output. Due to the shortage of skilled workers, additional personnel were not available for the meat processor. Automation was therefore required to ensure a higher pick rate and round-the-clock operation.

Together with Kilivations, Bizerba designed a new end-of-line system with two handling robots - the case packer. In Weil im Schönbuch, Kilivations specializes in lean and effective automation solutions that are installed directly on the robot controller. The company integrated the individual components into the automation cell for the meat processor. An important component is two cobots from Universal Robots (UR), which give the grippers the necessary reach. For the end-of-arm effectors, Bizerba and Kilivations rely on the smart and powerful systems from vacuum expert Schmalz.

Process-safe handle

Both identically constructed grippers, which are each attached to a cobot arm, use an all-electric vacuum system from Schmalz. Each of these units contains a GCPI compact pump, which supplies the gripper on the robot arm with vacuum. The compact vacuum generator forms a powerful system with the electric 3/2-way compact valves LQEI and performs just as well as pneumatic ejector solutions. The GCPI generates the necessary vacuum using an efficient double-head diaphragm pump, which Schmalz has equipped with an integrated energy-saving control system. This controls the speed of the pump as required. Process parameters can be transferred directly via an IO-Link interface.

The two LQEI compact valves, which control two separate suction circuits, are located decentrally on the gripper. They switch the vacuum where it is needed and ensure rapid evacuation and ventilation of the vacuum system. This significantly speeds up the suction and release times. A sensor integrated in the valve monitors the vacuum and guarantees a high level of process reliability. Thanks to the LQEI's end position fixing and non-return flap, the system maintains the vacuum even in the event of a power failure.

The PXT gripper impresses with its flexibility and modularity. Bizerba and Kilivations put together suitable end effectors from the standard components. If the geometry of the food trays should change later, the components can be recombined. "This is innovative and fits in with our open robot cell, which is only protected by light barriers," emphasizes Oliver Deifel. He is Director Global Customer Solutions & Integration Business at Bizerba. Until now, food processors have relied on closed cells, which were usually only designed for one workpiece format. "The system had to be laboriously converted for changing pack sizes," recalls Deifel.

The PSPF bellows suction pads have direct contact with the meat packaging. Six of them are controlled by a compact valve LQEI. In addition to a flexible yet stable bellows, they have a particularly soft sealing lip. This

enables the system to handle the film packaging automatically - despite the folds. This means that wrinkles are no longer just a beauty problem. PSPF is made of FDA-compliant silicone and is suitable for contact with food.

Individual solution

But as is so often the case, the technology is in the detail: with the Compact-Pump GCPI, two separate vacuum circuits can be implemented for each gripper via IO-Link. "IO-Link communication allows us to evaluate all relevant process parameters such as suction time and leakage rate," explains Jan Walter. He is Head of Sales Germany and Field Service at Schmalz. "This allows us to recognize creeping suction cup wear or detect leaks in the system." This predictive maintenance enables the food company to avoid unplanned downtimes.

The entire system works purely electrically, optimized flow cross-sections and line lengths enable the gripped workpieces to be deposited quickly and reliably without compressed air. This reduces operating costs. Thanks to the decentralized installation of the LQEI on the gripper, Schmalz achieves extremely fast evacuation and depositing times, which are necessary to reach the required 96 picks per minute.

A conveyor belt brings the packaged and labeled trays to the pick-up point of the handling solution from Schmalz. Each of the two PXT grippers picks up four food packages and places them in the waiting load boxes - one layer at a time, every five seconds. A roller conveyor then transports these crates to the dispatch area. "It runs like clockwork," says Walter happily.

"The collaboration with Schmalz and Kilivations was consistently positive and together we were able to install an excellent system for our customer in Spain," says Oliver Deifel. "And our client is also very satisfied. He now runs the system with a high throughput, saves on personnel costs and achieves maximum process reliability thanks to the automation." The case packer has been operating in Spain since the end of 2023 as planned, and other customers have already shown interest in the solution. "The smart concept of this system forms the basis for further projects," reveals Deifel.

(7,408 characters incl. spaces)

Service for the editorial team

Meta-Title: Handling solution from Schmalz maximizes throughput in a food processing plant

Meta description: At a Spanish meat processor, the handling solution from Schmalz manages 96 picks per minute. Thanks to automated picking, the food company was able to significantly increase its throughput and now works around the clock.

Social media: Working 9 to 5 is out - at least when it comes to the automated picking of meat products. Thanks to a flexible and smart handling solution from Schmalz, a Spanish food company can now pack its products into transport crates around the clock.

Pictures:



Picture 1:

At the end-of-arm of two cobots, PXT grippers reliably pick up wrapped meat packs.



Picture 2:

The automatic gripper solution achieves 96 picks per minute - enabling the meat processor to significantly increase its output compared to manual work.



Picture 3:

The Compact Pump GCPI (top left) provides the required vacuum purely electrically.



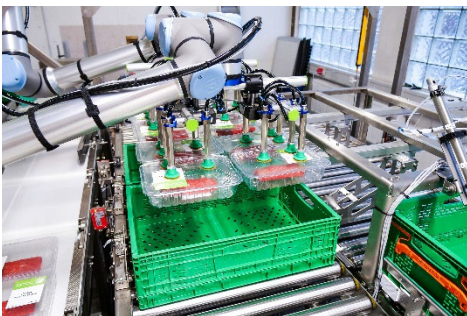
Picture 4:

The PSPF bellows suction pads even pick irregularly shaped surfaces and deposit them reliably at their destination.



Picture 5:

The Compact Pump GCPI has a user-friendly LCD touch display for setting the most important process parameters.



Picture 6:

Each of the two grippers picks up four of the pre-packed and labeled trays and places them in large transport boxes.

Pictures: J. Schmalz GmbH

About the company

Schmalz is one of the market leaders in vacuum automation and ergonomic handling systems. The internationally positioned company's products are used in logistics applications as well as in the automotive industry, the electronics sector and furniture production. The broad spectrum in the vacuum automation business segment includes individual components such as suction pads or vacuum generators, complete gripping systems and clamping solutions for holding workpieces, for example on CNC machining centers. In the Handling division, Schmalz offers innovative handling solutions for industry and trade with vacuum lifters and crane systems. With the Energy Storage business field, the company is establishing a further mainstay in the area of stationary energy storage systems.



The combination of comprehensive advice, a strong focus on innovation and first-class quality ensures sustainable added value for customers. Intelligent solutions from Schmalz make production and logistics processes more flexible and efficient - and at the same time fit for the advancing digitalization.

Schmalz is represented in all major markets with its own locations and trading partners in around 70 countries. The family-owned company, headquartered in Glatten in the Black Forest, employs around 1,800 people at 31 locations worldwide.

Contact for questions

J. Schmalz GmbH

Marketing Communication

Johannes-Schmalz-Str. 1

72293 Glatten, Germany

T: +49 7443 2403-506

presse@schmalz.de

www.schmalz.com

You can find more press releases on our website

<https://www.schmalz.com/de/unternehmen/schmalz-aktuell/presse/>

Reprint free of charge - specimen copy requested