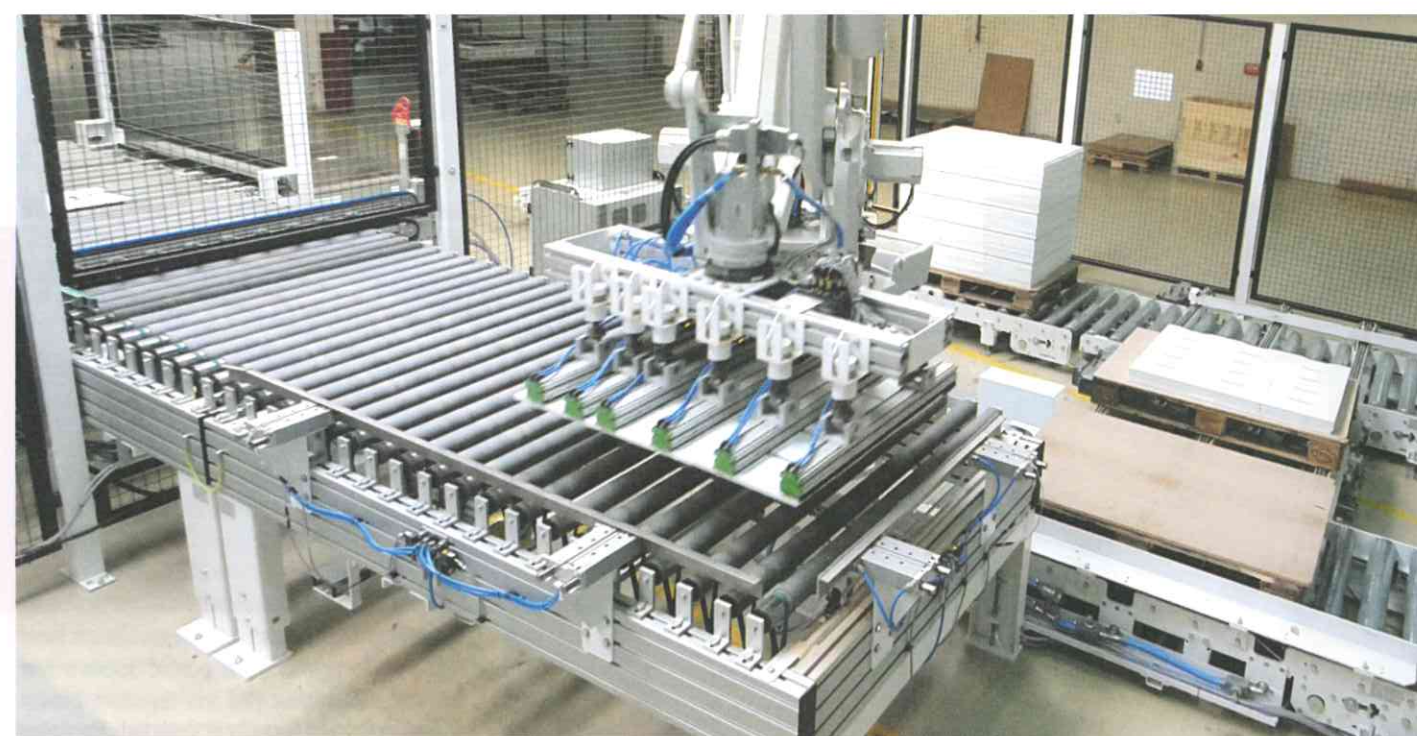




The robot, which is also equipped with an EOAT consisting of six Kenos® KVG area grippers from Piab, picks up a layer of furniture parts packed in boxes from the roller belt.



The EOAT with the six Kenos® KVG area grippers takes up eleven front drawer parts at once ...

## Handling of furniture parts is child's play

At the machine builder GO GmbH in Hemmoor, they were looking for an "all-in-one" gripper solution that can be used to stack both loose and packaged furniture parts on and off pallets, as well as the pallets themselves. The solution was found in Piab's Kenos® area gripper KVG 700.

As a young, powerful company, GO GmbH develops machines and systems for the furniture industry, among others, that supply the entire range from single shops to large furniture store chains. The systems for automated handling must therefore be as flexible as their customers.

The specification of the customer order, which led to repeated cooperation with Piab, contained the requirement that both individual parts and fur-

niture parts packed in cardboard boxes should be stacked on pallets. Furthermore, Euro pallets, protective plates, cardboard pallets and sheets of paper, which are required as intermediate layers for the stability of the stack, are to be handled with the same robot or with the linear robot system. The aim was to be able to move all objects with one and the same gripper to ensure maximum flexibility. „For the customer who produces furniture for a furniture store, where you have to assemble

the products yourself at home, we delivered three systems in which this technology was installed," explains Pirmin Grombach, Managing Director of GO GmbH.

On one system the front of drawers are manufactured. These are pre-produced in double width and then divided using a separating saw. In order to be able to process the rough cut edges of both pieces in the correct position, the left part is rotated by 180 degrees. For this, two oval suction cups and the Piab COAX® multi-stage ejectors are used. Once the edge processing has been completed, up to eleven parts are collected of the drawer front using a roller belt and then picked up by a robot with an end-of-arm tool (EOAT), which consists of six individual Kenos® KVG vacuum area grippers, and stacked on a pallet fed by another roller belt.

On the second system, furniture parts already packed in cardboard are stacked on pallets. This system consists of a robot and a linear robot system that takes the required pallet from the stack and places it alternately on two different roller belts. Both the industrial robot and the linear robotics system are each equipped with an EOAT consisting of six individual Kenos® KVG vacuum area grippers. The individual layers of packaged furniture parts are brought to the robot from a roller belt running out of the packaging station. Each layer consists of up to four boxes and is picked up by the robot as one layer and placed on the pallet

until the desired number of layers is reached. The pallet then runs over another roller belt to a pick-up point for forklifts.

If furniture consists of several packages that the customer has to put on their shopping cart in the furniture store, it should be made as easy as possible for them and the packages should be stored together. However, they are produced by type. That is why the third system is repackaging the cartons. Again, a robot with an EOAT consisting of Piab's Kenos®KVG area grippers is used. The robot first takes a cardboard pallet from the stack and places it on the roller belt to the desired position on another belt. Like the packages later, the pallet is first aligned on the front of the roller belt. This saves the programming of a further step for the robot. The latter then picks up two packages from a stack and places them on the roller belt, which moves the packages to the left and right. Now the robot takes two packages from the other stack and also places them on the roller belt, which separates them again. In the next step, the robot takes the two packages on the right, which now come from two different stacks, and places them on the pallet. The roller belt pushes the packages on the left so that the robot can also place these packages on the pallet after having already placed a new layer of the first type on the belt. After placing four layers on the pallet, the same gripper is used to take a paper liner from a stack and place it on the furniture packages. If eight layers are stacked on the pallet it is moved forward via the roller belt on which it is placed.

Piab's Kenos®KVG was chosen for the grippers as it can handle the entire required portfolio. "Because it is not necessary for the entire area of the gripper or all grippers on the EOAT to be covered by the product," explains Marc Oliver Hempel,

North Area Sales Manager for vacuum automation at Piab, and continues, "thanks to the integrated multi-stage COAX® ejector three times more flow can be generated than with conventional vacuum ejectors - with identical air consumption. This not only makes the area gripper powerful, but also particularly energy-efficient and safe. Because the pump unit can deliver high performance even when the supply pressure is low or fluctuating."

This was proven in independent comparative tests at the Fraunhofer Institute for Machine Tools and Forming Technology IWU in Dresden. These have shown that the Piab ejectors require significantly less compressed air in order to achieve the same performance compared to ejectors from other manufacturers. Accordingly, their use reduces the cost of providing compressed air and thus the

overall production cost. In the highly competitive furniture industry, this is an important advantage that GO GmbH provides to its customers thanks to the use of Piab products.

"Working with a flexible, reliable partner, whose products meet the high requirements and which function smoothly in our system was crucial for us. After tests with area grippers from different manufacturers, we decided on the Piab Kenos® KVG again, because only this one could move all products consistently reliably and in the required number of cycles," explains Pirmin Grombach and adds, "We also appreciate Piab's service and readiness to help us support the commissioning at our customer's site."

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The furniture parts are placed on the existing layer on the pallet.



The robot with the EOAT made of Kenos® KVG area grippers picks up a cardboard pallet.