Case Study UPDATE: Traditional German Brewery Automates Entire Bottle Production Process

Application: Palletizing & Material Handling
Robot Model: Kawasaki CP500L Palletizing & BX200L Large Payload Robots

OVERVIEW

Westheimer Brewery has been brewing regional beer specialties for the German and international markets for more than 150 years. In order to assert themselves in a competitive market and stay productive despite labor shortages, the brewery decided to automate its entire production step by step.

In 2017, Westheimer Brewery took the first step towards automation by installing a Kawasaki palletizer to replace outdated machinery. After seeing success with their first robot, they decided to add two additional Kawasaki robots, this time BX200L models. Now, their entire bottle production line is automated - from managing empty bottles and filling them, to palletizing for distribution.

“As early as the 1990s, there were the first attempts at automation at Westheimer with the introduction of a PLC," recalls technical manager Thomas Juckenath, who has worked on Westheimer’s automation since its inception. "The Mod BUS systems chosen at that time works perfectly with Kawasaki robots. The basic program created at that time has been the basis for all automation ever since and is constantly being developed further."

CHALLENGES

Retaining skilled workers

In-house training and retaining skilled workers has played a large role in Westheimer Brewery’s continued success, explains master brewer Jörg Tolzmann: "Long-term retention of good skilled workers is crucial, because the shortage is clearly noticeable in the brewery and the craft sector, especially in rural regions like the Sauerland (where the brewery is located)." As in almost all industries there is fluctuation, and retaining experienced employees is particularly important as new employees are increasingly difficult to recruit.

The new system makes their employees’ daily tasks easier, thus making it easier to retain their workforce. For example, the Kawasaki Robotics BX200L in the packing station can pick up bottles independently and change over to new varieties quickly and easily – without extra effort from employees. The laborious and time-consuming changeover of the line is no longer necessary. "Our team has really got some breathing room," says Juckenath.

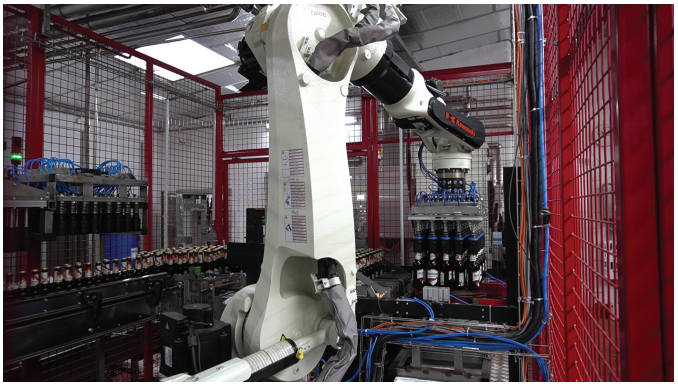
An evolving brewery market

The brewery market has changed massively in recent years, and being able to provide one product type is not enough to meet market demand. The new robot-assisted production provides the flexibility Westheimer needed to meet customer requests.

"It used to be one type of beer in small and large bottles. Today, we have several private labels, lemonade and other beverages, and produce for other companies. In short, there is an incredible variety. Our team and production facilities are being challenged much more than before," says Tolzmann.

Pandemic pivot

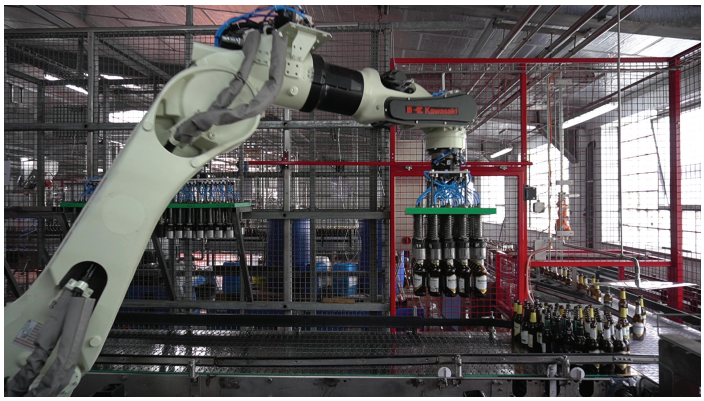
By automating their line, Westheimer was able to meet the high demand for more bottled beer and greater product variety - including non-alcoholic beverages – that arose during the COVID-19 pandemic. Now that bottle production has been fully and successfully automated, the brewery can shift their focus to expanding their keg and cask production line.



SOLUTION

- Kawasaki CP500L first installed to replace outdated palletizing machinery
- Two BX200L robots added in second phase of automation to load an unload bottles into crates

Westheimer’s production takes place on two linked levels - handling empty bottles and end products below and filling above. The crates with empty bottles are fed from the first floor to the bottle line via a conveyor system.



There, a BX200L robot removes the bottles from the crates with a gripper and places them on a conveyor. The crates are cleaned in a waiting crate washer and fed to the packer.

The empty bottles are transferred to the bottle washer via a feeder. There, the bottles are first checked for damage, incorrect shapes, and similar factors, and then intensively cleaned. After cleaning, the bottles are additionally checked by an inspector. Only the bottles in perfect condition move on. They are then filled, checked again, labeled, and packed into the crates provided by the packer - another BX200L. By switching to double crates, the speed of the packer has increased. The filled and ready-to-sell crates are then fed via the conveyor system to the palletizer to process for distribution. Integrating the new robots was a straightforward task. Because all relevant machines basically remained in the same place and the new robots have such a small footprint, only safety fences and new belt settings were necessary.

The added value of the robotic system quickly became apparent. Previously, the palletizer had to be shut down step by step so each pallet could be loaded manually. Then, anoperator would have to remove it for both full and emptycrates. With the new system, this physicallytaxingtask has been removed from employees' workloads, and they are able to do any leftover tasks using a forklift.

Overall efficiency has increased for the brewery since phase two of their automation process. Now, both full and empty crates run down a conveyor belt, and are automatically pushed into position and placed on the pallet by the robot. Automation also allows for significantly more crates to move at the same time. Thanks to optimum capacity utilization, bottles no longer have to be parked to one side as they had to previously; everything happens automatically without delays.

RESULTS

Above all, the significantly reduced running costs - especially compared to older machines - have proven to be a tangible advantage for the Westheimer brewery after only a short time. Now that their bottle production line is completely automated, they're looking to further automate their keg and cask production line in the future.

"The robots run easily and reliably," says Juckenath, who also said the robots' low maintenance needs have exceeded all expectations. "Everything runs perfectly. Maintenance once a year, batteries replaced, grease check - that's it."

Acceptance among the Westheimer employees was also very high and the robots are perceived as a great relief, according to Tolzmann. "In the past, you had to get bottles out manually, check them, move pallets here, etc. The robots are a tremendous relief… physically above all."

To see this application in action, visit the "Case Study" playlist on Kawasaki Robotics' YouTube channel.

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