

Fast switching of stacking patterns with palletisers from Qimarox

Online wine retailer Laithwaites has installed a fully automated palletising solution in Gloucester, England. Unique is the speed at which the two Qimarox palletisers - installed and integrated by systems integrator CKF - can switch between different stacking patterns with different box sizes. Thanks to Qimarox's new multipalletiser software, Laithwaites can now palletise 2,000 cartons per hour.

For more than fifty years Laithwaites has selected the best wines from all over the world for customers in England. Tony Laithwaites and his team make use of their personal network of more than 450 passionate winemakers. These wines are popular, as evidenced by the increase in online sales. On the website www.directwines.co.uk consumers can choose from a wide range and order by the bottle. Laithwaites packs the ordered wines in a box and sends it to the customer.

Because the existing operation in Gloucester could no longer handle the growing number of online orders, Laithwaites sought out system integrator CKF in late 2019. In particular, the wine importer wanted to put an end to manually palletising the heavy boxes of wine, which can weigh up to 25 kilograms per box. In close cooperation with Qimarox, CKF designed and implemented a fully automated palletising system. At its heart are two Qimarox Highrunner HR7 palletisers, which together can palletise no less than 2,000 boxes per hour.

Fast switching of stacking pattern

The big challenge was the speed and complexity of the e-commerce operation. Because not every customer orders the same amount, Laithwaites packs the wine in boxes of two different sizes. The company then divides these boxes into eight different transport streams, based on the chosen delivery time and destination. Before the boxes can be transported, they must be stacked on pallets.

For this purpose, a sophisticated conveyor system was designed, consisting of ten buffer belts. For each flow, the boxes are collected in the correct order on one of these buffer conveyors. As soon as a pallet load is complete, it is called up in one go and delivered to one of the two Qimarox Highrunners. Because it is only shortly beforehand clear which boxes with what size must be stacked, these palletisers must be able to switch stacking patterns at lightning speed.

Qimarox's unique multipalletiser software offers a solution. This software calculates the optimal stacking pattern for boxes of different shapes and sizes. This stacking pattern is then converted into instructions for the Qimarox palletisers. Thanks to this software, they can switch at lightning speed. While the last layer of boxes is still being placed on the pallet, the first layer for the next pallet is already being formed in accordance with the new stacking pattern.

Fast, efficient and reliable

The choice of Qimarox Highrunners was not an easy one. Initially, there were doubts as to whether the machines could withstand the heavy loads, which can amount to 200 kilograms per pallet layer. Because this is a delicate product with a price per box of up to several hundred euros, Laithwaites cannot afford any product damage. An extensive test with a test pallet in the Qimarox test centre in Harderwijk put an end to all doubts.

What sets the Highrunner apart from many other solutions such as palletising robots in this respect is that the boxes are carried from below throughout the palletising cycle. The risk of a box collapsing under the weight of its contents is therefore virtually zero. Because the palletisers can continue to run at maximum speed without the risk of product damage, no more than two Highrunners are required to process the large flow of boxes - quickly and efficiently without loss of lead time.

The total solution including buffer conveyors and palletisers was installed and put into operation in phases throughout 2020. The result is a significant increase in productivity. Because the solution is built on a mezzanine, extra space has also been freed up on the floor. This not only provides room for further growth, but also increases safety for employees.

Automated palletising in e-commerce

This project underlines the good cooperation between system integrator CKF and Qimarox, designer and producer of material handling components. CKF realises automation solutions in the food and

logistics industries and has been using Qimarox vertical transport systems for years. With the unique palletisers from Qimarox, CKF now has an even broader portfolio of palletising solutions. The fact that CKF is a certified Qimarox partner offers end customers the guarantee that the system integrator has all the knowledge required to implement and maintain these solutions.

“The main challenge on this system was the complexity of the logistics of the customer’s case handling. Working closely with Qimarox, we developed a bespoke design that met our customer’s unique needs. Utilising Qimarox’s palletiser meant the system was high-speed whilst also giving the option to pre-buffer complete pallets for varying couriers. The handling offered by the Qimarox palletiser was also vital due to the fragility of the project. The layer palletiser also provided a smaller footprint on the project.”

“The palletising modules from Qimarox mean we are able to offer our customers a wider range of solutions, it’s also very beneficial that Qimarox supplies standard software for multipalletising. Partnering with Qimarox gives us the flexibility to offer our customers layer palletisers in addition to our robotic palletising offering which means we can provide and install a palletising system for practically any project.”

A key success factor is Qimarox's focus on the development and production of advanced material handling components. This focus has led not only to efficient, fast and reliable solutions with a low total cost of ownership, but also to important innovations such as the new multipalletiser software. This brings automatic palletising within reach of companies in e-commerce and other industries, which are confronted with fast changing stacking patterns and a great diversity of packaging forms.