

Kawasaki industrial robot palletises frozen onions at FROST



Goals:

- Improve production efficiency
- Meet the needs of a growing market
- Modernise the production line

Challenges:

- Install a new line and palletising station
- Meet customers' quality requirements for packaging and palletising

The company "FROST Barbara Wegenke" specialises in production of frozen vegetables and fruit. They include frozen onions, courgettes and pumpkins, but by far the number 1 product is onions, which account for 90% of production. The products are packed in a range of packaging to meet customer needs. In one of the company's production plants – the one in Jarogniewice – it was decided to modernise the production line and install the Kawasaki robot for palletising.



Registered office of
the FROST company

**Products/solutions/
services:**

- Kawasaki palletizing robot

Benefits:

- Improved palletising efficiency by 30%
- Doubled plant productivity
- Time savings during the palletising process
- Consistently high quality of packaged products and their protection during transport

The company's history dates back to the early 1980s, when a decision to build a Fruit and Vegetable Processing Plant in Jarogniewice was made. The purpose of the plant was to process crops produced on over 2 thousand hectares of the surrounding area. Adjusting the processing plant to the market realities, investments were made in the construction of modern, fully automated technological lines for individual production departments.

In August 2008, the Jarogniewice plant was equipped with state-of-the-art weighing and packing line for packing frozen food into bags or cartons of 5-25 kg and the Kawasaki palletising robot. High production potential is achieved thanks to modernisation investments and also thanks extension and modernisation of the cooling installation in the Jarogniewice plant and twin equipment of a newly built facility in Ponętów Górny Pierwszy. The capacity of each plant is 5 tons per hour, which places Frost among the largest producers of frozen onions in the country.

Needs

The tasks performed by the employees were considered to be hard and demanding. Prior to the robot implementation, the operators were responsible for stacking heavy cartons or bags on pallets. The

next stage of their work involved transporting full pallets with a forklift and then manually wrapping the product, which was in this way prepared for transport.

The owner of the company, Barbara Wegenke, had several reasons for changing this. One of them was the difficulty in finding employees for the palletising duties, which resulted in a high staff turnover. In addition, there was a need to increase production efficiency and meet the growing needs of the market. The company also wanted to develop and introduce modern technologies. It was mainly for these reasons that the company decided to purchase a new production line, an important component of which was the creation of a palletising station with a Kawasaki robot.

Implementation

The choice of an integrator company was obvious for Frost. Ms Wegenke decided to cooperate with P.W. DREWMAX Tadeusz Sqsia-dek i Wspólnicy Sp.j., a company she had already trusted and which offered and implemented a solution based on the Kawasaki robot provided by ASTOR. The implementation work took about 2 months.

*The Kawasaki robot
with a gripper*





Employees of the
FROST company

“Palletisation of products at Frost was a demanding project due to the large variety of packaging (various sized cartons and frosted bags) and pallets of different dimensions. Drewmax designed and manufactured a gripper using pneumatic vacuum generators and peripheral equipment to transport packages and pallets. The Kawasaki ZX130L robot was used in this project. Thanks to the functionality of the AS programming language used in Kawasaki robots, it was possible to build a flexible and very clear application, allowing the placement of basically any packaging in any configuration on any pallet. This application also made use of the possibility of creating a user interface on the robot teach pendants, thanks to which the application was equipped with a simple interface for modifying

stacking schemes, which greatly simplified the operation of the palletising cell” – says Tomasz Maciejewski, Automation Engineer at DREWMAX, which was the implementation integrator.

A pallet transporter was installed to deliver pallets from both sides of the robot. The Kawasaki palletizing robot stacks 15-20 kg plastic bags or 10 kg cartons containing diced or sliced frozen onions onto the pallets. Next, the loaded pallet is transported to the pallet wrapper, where the products are wrapped, and then the finished pallet can be shipped.

The Kawasaki robotic palletising station is an essential part of the production line design, with the freezing tunnel as the main component.

It is worth noting that the production technology at FROST has not changed, only the tools used to perform the activities related to the production of frozen vegetables have changed.

Benefits

“The modernisation of the transport line as well as the installation of a robot for palletisation allowed us not only to increase productivity by 30% and stimulate the development of our employees and their contact with modern technology but also to increase the value



of FROST and its perception as a modern company," concludes Henryk Tomczyk, Manager of the Maintenance Department at FROST.

The results of robotisation include increased productivity and time saving. Palletising activities are performed much faster by a robot than manually by employees. In addition, accurate palletising and wrapping of pallets allows maintaining a high quality of packed products and protecting them during transport.

"Now the employees have been entrusted with less demanding work, such as sorting onions and keeping the plant clean. They found out that the robot did not deprive them of work, but instead relieved them of the heaviest duties. Modernisation of the production line has also resulted in doubling of productivity: from 1200 tonnes of frozen palletised onions per month to 2500 tonnes" – summarises Barbara Wegenke, President of the Frost company.

Both the customer and the integrator saw the advantages of cooperating with ASTOR, which not only distributes automation and robotics systems but also provides a package of additional services. These include technical and business consultation, pre-implementation consultation, and professional technical support (including periodic reviews).

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