

hitmark = robotics

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**Robotic Palletizing Station
for Butter**

CASE STUDY

Client:

POLMLEK Grudziądz

Application:

Paletyzacja

Robot:

Fanuc M-410/185 – 3 units

Completion:

June 2023

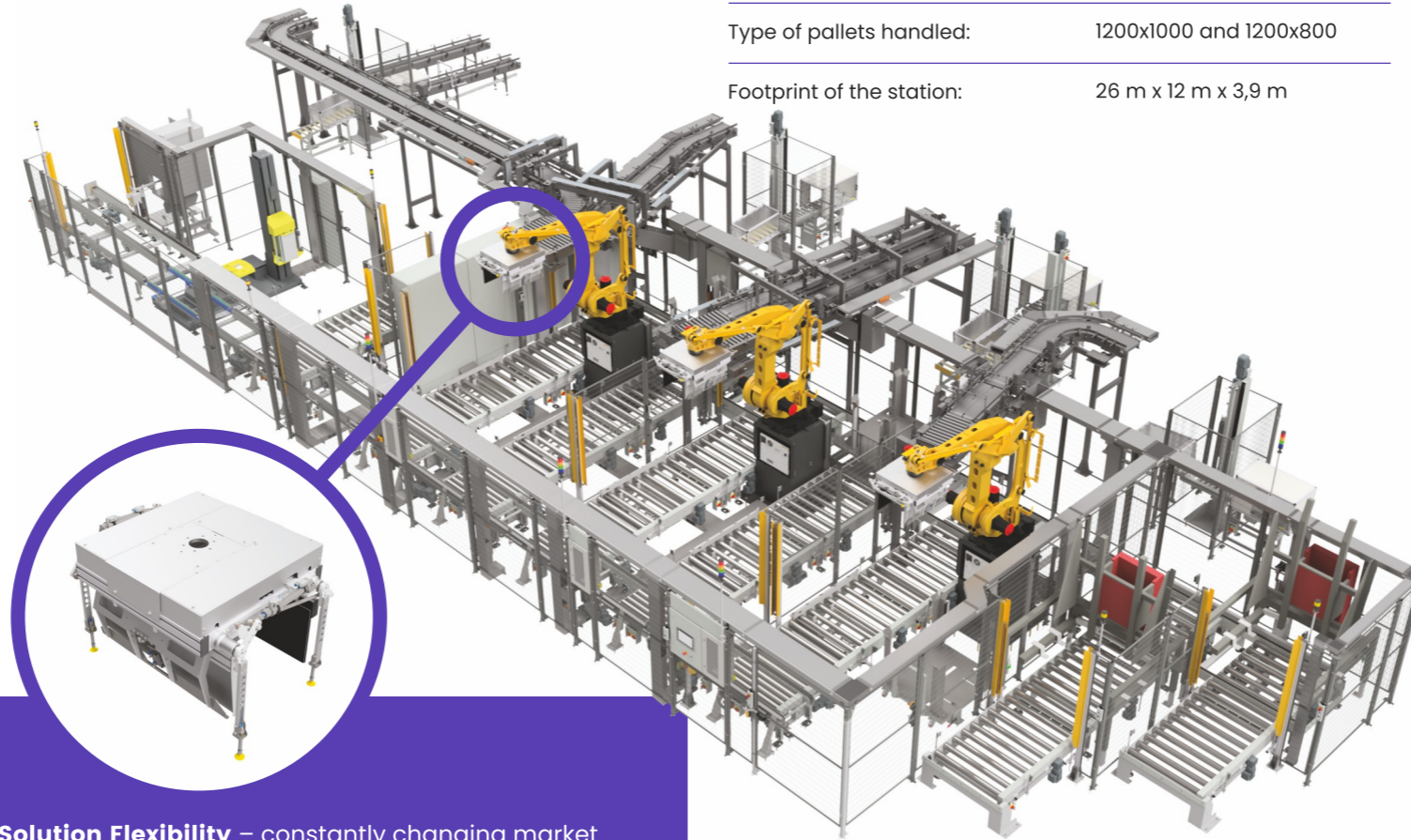
Technical parameters:

Efficiency:	up to 800 cartons/h per robot
Maximum product weight:	Up to 20 kg
Application of interlayers:	Automatic
Number of serviced lines:	5
Type of pallets handled:	1200x1000 and 1200x800
Footprint of the station:	26 m x 12 m x 3,9 m

Innovation in harmony with tradition

The Polmlek Group is the largest private dairy company in Poland with 100% Polish capital, which for nearly 30 years has been successfully implementing its strategy, delivering high-quality products to both Polish and international customers. Currently, it has 15 production plants and cooperates with nearly 9,800 farms involved in dairy cow breeding.

In June 2023, as part of a project co-financed by the Operational Programme Intelligent Development, the Polmlek Grudziądz branch implemented full automation for the final section of 5 butter production lines in collaboration with Hitmark. This increased production capabilities by 10% while securing the process against staff shortages, ultimately strengthening its position among industry leaders.



The use of two automatic pallet magazines allows serving different types of pallets simultaneously. Finished pallets with products are wrapped in macro-perforated stretch film, improving cooling air circulation, and then logistic labels are applied.

- **Process Monitoring** – The friendly interface of operator panels allows full parameterization of settings for the entire line. Production data is displayed in real-time, allowing for better control and optimization of individual process sequences.
- **Process Monitoring** – Central palletization from Hitmark integrated with the Client's warehouse system is equipped with reporting modules collecting data on selected production indicators (e.g., efficiency, availability etc.). Information is sent directly from the controller, allowing for remote monitoring of device status, the quantity of units produced, or cycle times.
- **Safety** – Proper process analysis, hazard identification, and selection by Hitmark resulted in dividing the palletizing system into 4 independent SAFETY zones. Besides ensuring complete process safety, this reduced downtime. For example, entering one zone, such as the pallet wrapping zone for film roll replacement, does not stop processes in other zones.

Challenges

- **Space** – in this project, all production line ends set up in series were located in one room with limited space with access to the zone only from one direction, requiring individual and detailed planning of the investment.
- **Solution Flexibility** – constantly changing market conditions, the emergence of new products, or the variable characteristics of orders are an inherent element of every production facility, which Polmlek Grudziądz also faced.
- **Safety** – the paramount goal of the Polmlek group's policy is to ensure a safe working environment so that every employee can perform their duties under proper conditions.
- **Process Monitoring** – the characteristics and complexity of processes in the dairy industry require continuous control and verification of product batches to ensure they meet standards and customer requirements.

Implementation

In response to the challenges, the following solutions were implemented:

- **Space** – The use of vertical conveyors ("lifts") and the transportation of products to palletizing robots at a height of 2.5 m allowed for the efficient use of limited space and ensured full access to the packaging machines for all lines.
- **Solution Flexibility** – The implementation of software for configuring new palletizing schemes along with the use of special conveyors changing the carton's position and universal grippers ensures quick and intuitive modifications on the line, including adding new products or changing palletizing layouts etc.

Summary

The central palletizing project at Polmlek Grudziądz is an example of well-executed full automation in limited production space. Transferring human resources from 3 shifts (5 people per shift) to more specialized tasks and increasing the OEE index, thanks to maintaining optimal access to production machines, significantly shortened the investment payback time to about 24 months. The implemented set of tools for monitoring progress in production processes, exporting reports along with the ability to configure and add new products, allows the management staff to quickly adjust production to market changes and customer needs.

„The benefits of the implemented solution allow us to recommend Hitmark Sp. z o.o. as a reliable supplier, which has the appropriate range of knowledge, experience, technical, and economic potential.”

Dorota Białczak

