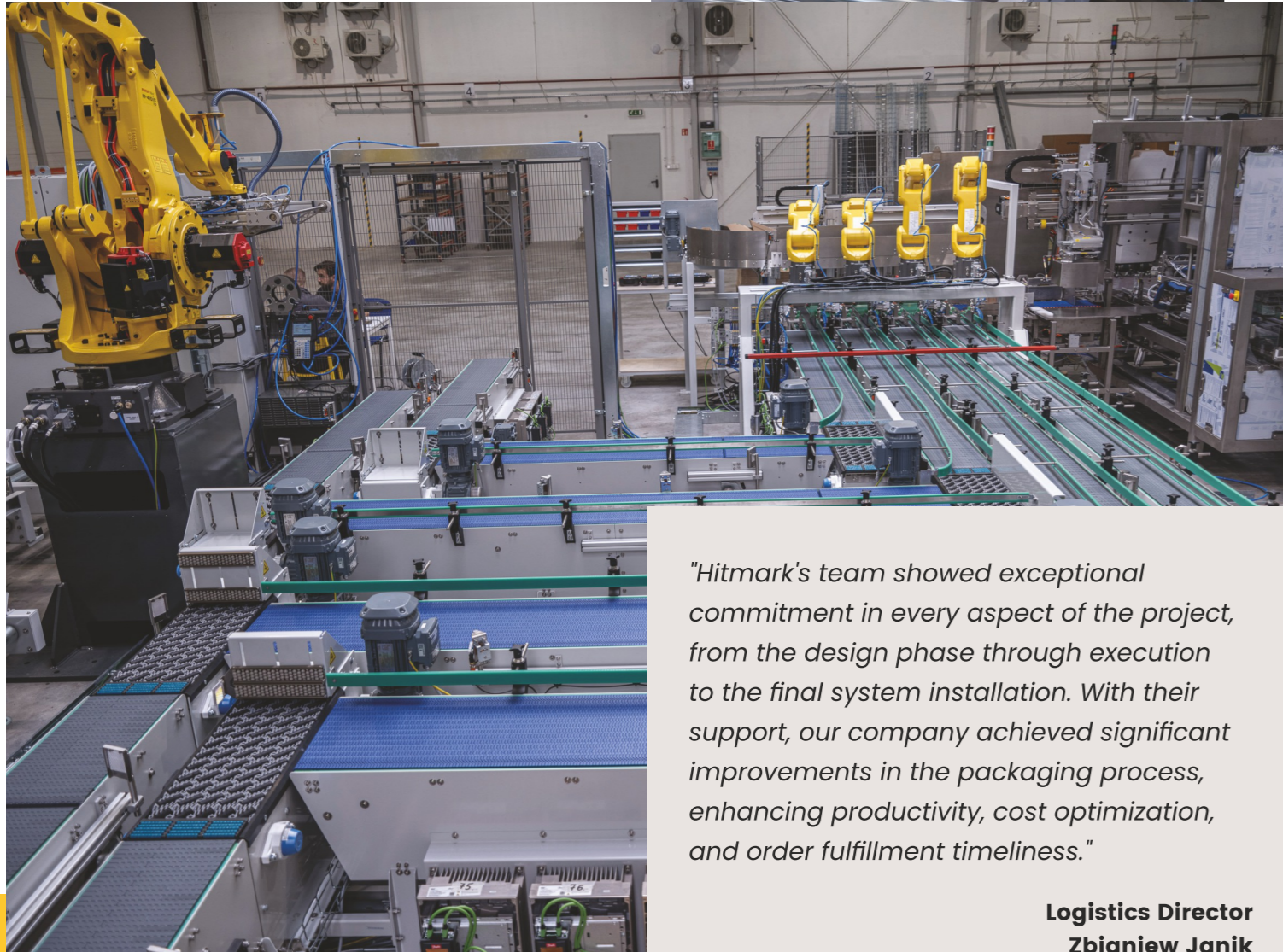


Continuous development in response to market needs

The Tymbark plant in Olsztyn, which has been part of the Maspex Group since 1995, is engaged in the production of the most popular beverage products for children under the Kubuś brand. This plant is also a large center for processing fruits and vegetables for the entire Maspex Group. It processes over 100,000 tons of raw materials from suppliers across Poland. The company is continuously evolving, responding to consumer needs and investing in new technologies. Currently, it operates several production lines, bottling products in Aseptic PET bottles, stand-up pouch packaging, and glass bottles of various volumes. The finished products are placed on pallets and sent to a fully automated logistics center, which has 30,000 pallet spaces and can ship nearly 4,000 pallets of products daily.



"Hitmark's team showed exceptional commitment in every aspect of the project, from the design phase through execution to the final system installation. With their support, our company achieved significant improvements in the packaging process, enhancing productivity, cost optimization, and order fulfillment timeliness."

**Logistics Director
Zbigniew Janik**

hitmark = robotics

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Robotic station for mixing doypack-type products

CASE STUDY

Implementation

Client:
Tymbark GMW Sp. z o.o. – Olsztynek (Maspex Group)

Application:
Depalletizing, mixing, and palletizing

Challenges

Process Efficiency– Traditional methods relying on manual mixing of products are inefficient and labor-intensive. Additional risks include potential worker errors, low workforce availability, and high employee turnover during peak seasons.

Versatility– A core principle of Hitmark's mixing solutions is to future-proof them against dynamic market changes and the evolving needs of end customers and retail chains.

Traceability– In the supply chain and production process, traceability ensures quality and safety. By tracking product batch data, and even individual units, full control is enabled, allowing the product history to be reconstructed, such as checking conditions at each stage of the supply chain. This makes it easier to identify areas for improvement.

Growing Retail Requirements– The competitive expansion among retail chains increases pressure on manufacturers and suppliers to minimize costs associated with staffing and waste management. Consequently, producers are expected to handle waste disposal and deliver products in formats optimized for easy shelf placement.

Efficiency

Previously, the process was manually operated, achieving up to 20 pallets per shift. Detailed process analysis led to dividing the workstation into three fully automated zones: depalletizing, packaging, and palletizing. Each area utilizes high-performance Fanuc robots and incorporates appropriate pallet and product buffers. Operator activities within the process have been minimized, resulting in a fivefold increase in line efficiency, reaching a maximum capacity of 120 pallets per day with only 2-3 operators per shift.

Versatility

When implementing robotic solutions, their flexibility for market changes should be considered in two aspects: mechanical and software.

We achieved mechanical flexibility by utilizing:

- Fanuc industrial robots selected with sufficient reach and load capacity reserves to suit the process requirements;
- Universal vacuum grippers in the depalletizing zone, equipped with laser sensors to detect the positioning of products on the incoming pallet;



Robots Used:
Fanuc M-410iC/110 (3 units), Fanuc LR Mate 200iD/7L (4 units)

Mixing Type:
2 to 4 flavors

Process Output:
≈ 16 cartons/min

Supported Products:
Doypack packaging 100/120/200ml, wrap-around cartons

Pallet Types:
600x800 mm; 1200x800 mm

Footprint:
Approx. 210 m²

- A layer preparation system in the palletizing zone, allowing for the creation of virtually any new palletizing patterns;
- Product handling based on innovative modular belts from Intralox, characterized by high throughput and a wide range of supported carton sizes;
- At least 25% spare space in the control cabinets, allowing for future workstation expansion.

We achieved Software Flexibility by:

- An intelligent changeover system uses sensor data to allow one zone to work on a new product while another zone completes the previous order, optimizing changeover time and increasing the OEE index;
- Parameter-based recipes enable adding new products in real-time from the operator panel without program code adjustments;
- PLC/HMI programming in PackML standard for state and mode normalization, facilitating simple expansions, quick operator onboarding, and seamless communication with other machines in the client's line.

Traceability

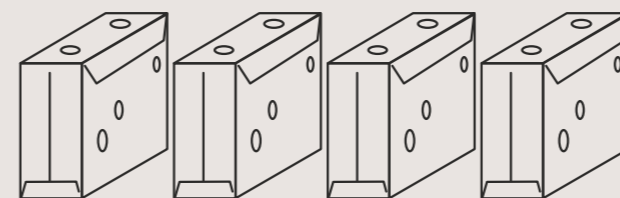
Traceability starts with the operator scanning SSCC codes on incoming product pallets. The system verifies if the product is included in the production recipe, displaying instructions on the correct conveyor for the operator to place each flavor. Each zone monitors unit cartons, including "defective" products rejected outside the workstation. Complete data on the quantity and type of unit cartons used is relayed to the client's supervisory system.

Growing Retail Requirements

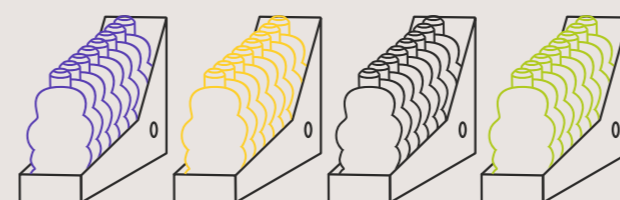
Integrating four Fanuc LR Mate series robots for lid opening and discarding of individual cartons enables compliance with customer requirements without requiring production line changes at the client's plant. Equipped with vacuum gripping heads and modules for breaking perforations, these robots significantly reduce the actions and time required by retail workers for product display. Additionally, careful waste management aids efficient recycling and supports the sustainable development strategy of the Maspex Group.

Mixing Process:

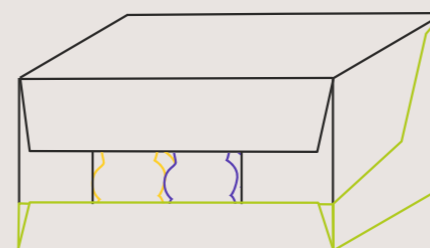
1 closed cartons



2 opened cartons



3 mix of cartons in a collective carton



Conclusion

Implementing Hitmark's robotic station for mixing doypack-type products provided the client with numerous tangible benefits, including a successful introduction of Industry 4.0. The solution enhanced process efficiency, improved order fulfillment timeliness, and reassigned nearly 90% of workers to other areas, thus reducing human error risk.

Control over the production process ensures high-quality products that meet customer requirements, and Hitmark's solution future-proofs the client against market shifts.

As a leader in the food industry, the Tymbark plant must continuously improve technological processes to maintain its established market position. Additionally, the quality level of the



offered products requires top-class, reputable equipment, which is why Hitmark was selected from among other providers, standing out for its professionalism and reliability.

The implementation of process automation allowed the Client to significantly enhance their competitive advantage in the food market by meeting the requirements of discount chains. This demanding process also demonstrated to the Client that Hitmark can assist them in optimizing various areas in the face of future challenges.

