



An open base frame maximises the stacker's accessibility.

A complete cold end system in Croatia

Manufacturer of cold end equipment for the glass industry MSK offers solutions for conveying, palletising and packaging right through to fully automatic complete systems. Uwe Jonkmann explains why Swiss glass packaging manufacturer Vetropack chose MSK to supply industrial packaging lines and logistics systems at its Croatian plant.

The only glass packaging manufacturer in Croatia, Vetropack Straža d.d. is the main supplier to the domestic food and beverages industry as well as catering to neighbouring markets in Slovenia, Italy, Hungary, Bosnia, Serbia and other countries in south-eastern Europe. Continuing a long-standing partnership, Vetropack commissioned MSK to supply the latest generation of its cold end system for a new furnace at the beginning of February 2021.

Despite the inconvenience of Covid-19, the companies were able to work together to carry out the project to a high technical standard.

Co-operation under Covid conditions

MSK packaging machines and pallet transport systems have been in operation in Vetropack's first two furnaces at its

Straža plant for years.

Jan Stöckl, CE-Specialist at Vetropack Holding described the process of commissioning a complete cold end from MSK for the third furnace: "During all phases of the project, MSK proved to be a reliable partner for Vetropack. Especially within the specification phase, the MSK Team demonstrated its ability to adapt to the high-level demands and requirements of Vetropack in order to fulfil the needs and expectations to a maximum. The planned target was achieved jointly together in good

co-operation from management to shop floor. Considering the limitation of Covid-19 we all have been facing, [this] makes this project an additional success for MSK and the Vetropack team in Straža."

"The cold end was planned in close co-operation with Vetropack and satisfies the high quality standards of our customer," explained Uwe Jonkmann, Director of Sales and Marketing at MSK. "All operations, from lehr right to the pallet depots, were automated and implemented in limited space." ▶

WARE HANDLING BUYERS GUIDE: PART ONE

In addition to the following contributions in part two of our Ware Handling Buyers Guide, articles from Bucher Emhart Glass, Dura Temp, Entegris, Glaston, Heye International, Italcarrrelli, Pennine Industrial Equipment, Renold Tooth Chain and Sheppee International were featured in part one in the May/June 2021 issue. To access the articles, visit the Digital Archive (sponsored by FIC) at www.glassworldwide.co.uk



The complete MSK bottle conveyer system.

From Lehr to pallet depot

Co-operation throughout every phase of the project is not the only aspect that demonstrates how Vetropack and MSK make a great team: the machines at the cold end also operate with one another flexibly and with standardised controls, forming a highly efficient overall system.

Downstream from the Lehr, MSK [machinery] takes the wide variety of shaped bottles produced and conveys them through the multi-line checking area, right to the palletisers. A dynamic bottle speed management system operates in the checking area, ensuring that the bottle flow speed is consistently stable without any unnecessary peaks.

In multi-gob production, some products are sorted in the checking area and aligned for the layer pattern by an MSK bottle alignment station before palletising (see below). Pallets are then conveyed via an MSK Quattro shuttle car to a high performance MSK Multitech shrink-hooding system.

Included in the project for Vetropack was an entire pallet

conveyor system on two levels, with vertical conveyer and pallet depots for full pallets as well as empty and provision pallets. The cold end is controlled by the MSK EMSY [Electronic Management System] software. In addition to stationary touch panels, two portable 'MSK EMSY move' tablets allow Vetropack operators to make fine adjustments in the field or when a bottle format change takes place.

Automatically adjustable palletising systems

Three of the five palletisers installed at Vetropack are the latest MSK Triotech generation, which are highly flexible and adapt, largely automatically, to the alternating bottle types and layer patterns. The MSK systems obtain the required parameter settings from the MSK EMSY database. Quick-change mechanisms for stacker rails and gripping systems, as well as magazines for stacker and palletiser head changes ensure fast job changes. The new, open design of the stacker offers easy and ▶



Mobile shuttle cars allow full and empty pallets to be transported without the need of a fork lift truck.



All pallet data is registered right to the pallet depot using MSK EMSY software.



Fully automated insertion of partitions in the MSK palletising system.



MSK Triotech palletising systems offer flexibility for easy job change.



Shrink wrapping with MSK's Multitech system.



MSK layer formation for special bottle shapes.



The MSK EMSY move tablet allows mobile operation in the field.

ergonomic accessibility. The guide rails of the accumulation table are adjustable using hand-crankes based on scales. Employing pneumatic cylinders mounted on the sides, the layer stoppers comply with HACCP standards. If required, layer formation can be implemented according to a special pick-and-place procedure. With two lines, a partition inserter ensures additional protection of each individual bottle in the layer. The palletising systems are automatically supplied with empty pallets and carton trays.

High-performance packaging system

To supplement its existing MSK Paratech shrink-wrap machines, Vetrotech decided to install a high-performance MSK Multitech shrink-wrapping system which can package up to 80 pallets per hour and, because of its compact design, requires very little space. By using three film formats/thicknesses, Vetropack can package a wide range of pallets with the lowest possible film and energy consumption. The machine head of the MSK Multitech can be lowered to working level, allowing quick and easy maintenance without the need for a platform or ladders.

Empty pallets with bottom film and a top-film sealing system ensure six-sided safe and hygienic packaging of the bottles, even when stored outside.

The MSK Paratech shrink-wrap machines installed for Vetrotech's first two furnaces are reportedly still providing reliable operation. The packaging areas of all three furnaces were coupled together with a pallet conveyor line so that the pallets can now be flexibly processed on all three packaging systems when necessary.

Pallet conveyor system on two levels

An extensive MSK pallet conveyor system with stationary conveyers, mobile shuttle cars, vertical conveyers and multiple pallet depots ensures an intelligent intralogistics system with a sufficient number of storage spaces.

On the upper floor at Vetrotech there is a storage area for packaging material where the delivery of empty pallets and accessory materials takes place and shuttle cars transport pallets between the palletising and packaging area in accordance with the jobs received from MSK EMSY; on the lower level there are multiple pallet depots.

For the first two furnaces MSK has already supplied the pallet depot and the pallet conveyor system, including shuttle cars and vertical conveyers. The new furnace has now received its own additional pallet depot with connection to the upper level.

Intelligent complete control

"In the preliminary planning for the project in Straža, the subject of digitalisation played an important role," said Michael Bouwmann, Key Account Manager Glass, emphasising the importance of the control software. "All operations at the cold end are now co-ordinated and controlled by the MSK EMSY visualisation software in a standardised and operator-friendly way."

All data is registered seamlessly, right to the pallet warehouse. The EMSYs of the MSK systems communicate with one another and provide a functioning and flexible overall system, all from one source. At Vetropack the latest EMSY software version 6.0 is used, which is the basis for networked and intelligent machine processes. Operators can configure settings and make fine adjustments to drives and sensors on the bottle lines in the field, read speeds, or directly solve problems on location with graphic support using the MSK EMSY move tablets.

Service ensures efficiency

Vetropack and MSK work together to ensure system performance and provide good service. In addition to proactive maintenance, the pallet conveyor system at the Straža plant was converted from roller conveyers to chain conveyers – a newly implemented conveyor concept for all conveyers transporting 'non-shrunked' pallets. ●



MSK EMSY 6.0 software provides a flexible overall system all from one source.

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