

ENGINEERING  
TOMORROW



# Max

uptime on bottling  
lines with  
VLT® FlexConcept®

Case story | VLT® FlexConcept® solution

## Maximizing uptime for high-volume bottle filling

### The situation

The beverage industry keeps our thirst quenched around the clock—but not without effort. Pivara Skopje is the Balkan region's leading producer of Coca-Cola beverages, the world's most famous soft drink portfolio. The Macedonian facility is owned by Heineken and Coca-Cola Hellenic Group, which are leading the industry with consistent investments in energy-efficiency projects across their production facilities.

To meet the new standards for uptime, flexibility, and energy efficiency—and to keep up with the consistent demand for Coca-Cola's broad range of beverages—Pivara Skopje's returnable glass bottle (RGB) production line needed modernization. The conveyor belt system was operating on outdated gearboxes and a nearly obsolete PLC solution—with inefficient bottle-filling that led to downtime and high maintenance costs.

**Discover how Danfoss VLT® FlexConcept®—a seamlessly integrated, modern, and future-proof solution—helped the production line reliably increase the production speed for accurate bottle filling and accommodate flexibility with ease—all while improving energy efficiency on the bottling line.**

## The challenge

Pivara Skopje's conveyor line relied on motors started directly-on-line (DOL). That meant the conveyor belt speed couldn't be regulated—leading to bottles falling, filling mishaps, and, sometimes, production coming to a standstill. Combined with an outdated and nearly obsolete PLC automation system behind it, they faced expensive maintenance costs and continuously had difficulty sourcing spare parts.

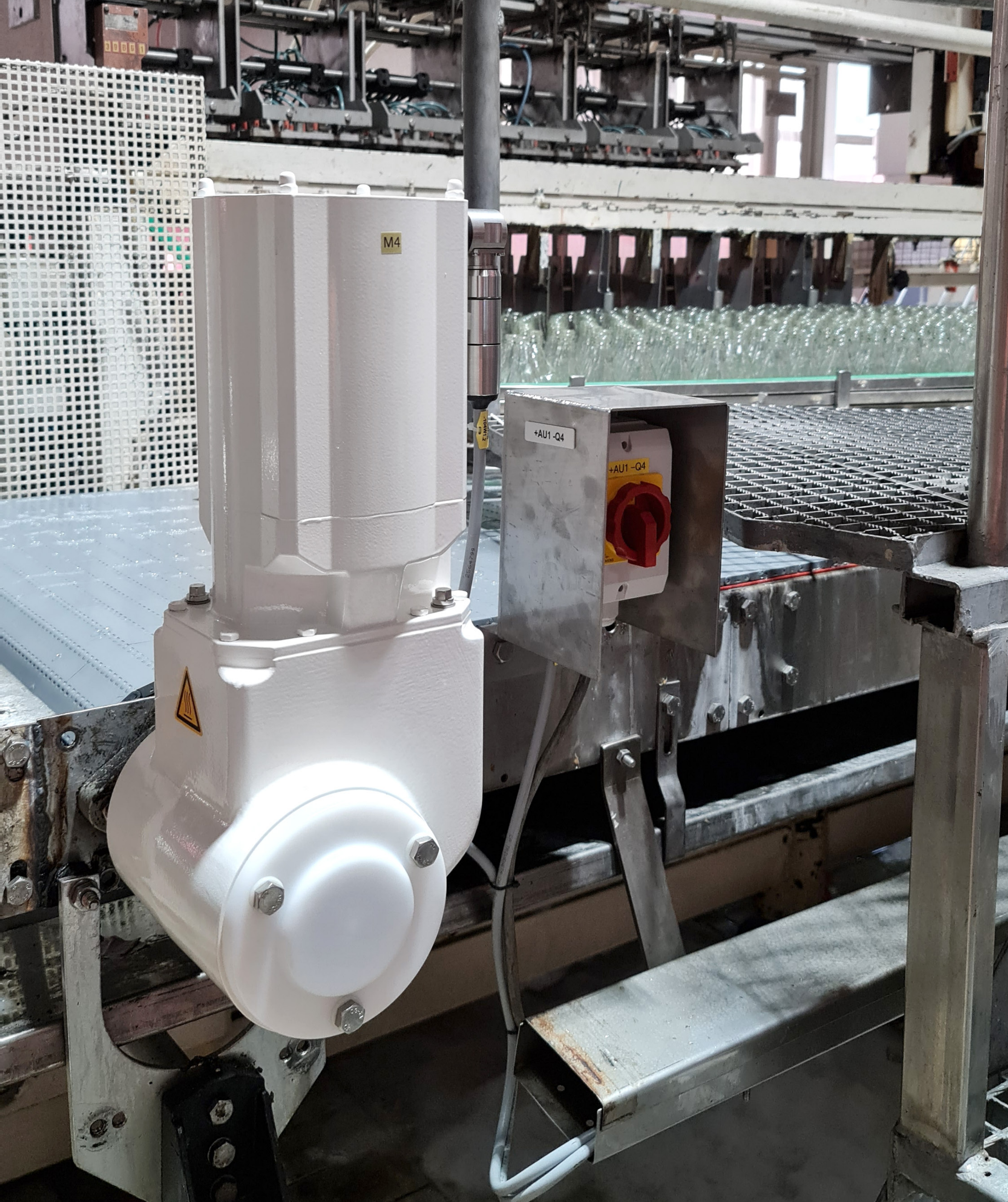
Modernization was key to addressing the challenges on Pivara Skopje's conveyor line—especially when it came to increasing uptime and improving energy efficiency.

**As the region's largest producer of Coca-Cola beverages, Pivara Skopje needed a future-proof solution that empowered their production line to accommodate multiple recipes, quantities, and speeds with agile precision—and support operational optimization.**

**“Pivara Skopje wanted to further improve the standards for working and energy efficiency on its RGB line while simultaneously reducing the operational and maintenance costs.”**

**Darko Kovac**, PLC & SCADA Programmer at INDAS and **Nenad Miroslavljevic**, Sales Engineer for Danfoss Drives





## The solution

At Pivara Skopje's Coca-Cola conveyor line, our long-standing partner INDAS implemented the innovative Danfoss VLT® FlexConcept® solution. The outdated mechanical variator gearboxes on all nine drives were replaced with Danfoss VLT® OneGearDrives® controlled by a VLT® Automation Drive FC 302. Plus, the Danfoss drives and gear motor seamlessly integrated with the new PLC system thanks to an open system architecture compatible with solutions from any other controls vendor.

Engineered specifically to meet the demands of modern food and beverage production, the VLT® FlexConcept® is highly efficient, enables agility in production, and dramatically improves uptime. A combination of the VLT® OneGearDrive®—delivered in a hygienic housing that complies with food safety guidelines—and the VLT® Automation Drive FC 302, the solution optimizes plant productivity while reducing energy costs thanks to simplified drive configuration and the need for fewer spare parts.

### VLT® FlexConcept® — Feature and benefits

The features and benefits of the VLT® FlexConcept® deliver the most energy-efficient and flexible solutions for high-volume production lines.

- ✓ **Higher energy efficiency** with matched design of the permanent magnet (PM) motors and inverters
- ✓ **Fewer variants** simplify project planning, integration, commissioning, and maintenance
- ✓ **Open system architecture** means the solution is compatible with any PLC for seamless integration and simple retrofitting
- ✓ **Unique hygienic design** with a smooth, crevice-free surface can be cleaned quickly and easily, reducing associated costs
- ✓ **Direct mounting** onto the conveyor shaft is advantageous for retrofitting

## The outcome

The Danfoss VLT® FlexConcept® empowers high-volume production lines to modernize their operations with ease and efficiency.

At Pivara Skopje, the implementation of the VLT® FlexConcept® has resulted in the highest level of flexibility and uptime for the production line. They gained faster and more reliable beverage production, instant energy savings, and an increased charging capacity—all while reducing downtime. Plus, with fewer drive variants, they have reduced inventory costs by 70%.

**That means the Pivara Skopje production line can accommodate several recipes with different parameters while increasing energy savings, reducing inventory costs, streamlining maintenance procedures—all with a relatively short return on investment.**

**“The ability to seamlessly integrate the VLT® FlexConcept® into Pivara Skopje’s bottle-filling conveyor line has resulted in the highest level of uptime and efficiency.”**

**Darko Kovac**, PLC & SCADA Programmer at INDAS and **Nenad Miroslavljevic**, Sales Engineer for Danfoss Drives

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