

## Case story

# VLT® FlexConcept® helps Molson Coors' Borsodi Brewery to **save a lot of energy**

**Breweries consume a lot of energy in running their processes. At Molson Coors' Borsodi Brewery in northeastern Hungary, an upgrade of the gear motors on a glass bottle filling line has resulted in energy savings of 33-42%.**

Improved reliability and productivity as well as reduced water consumption and emissions bring extra cost savings. The payback time of the retrofitting project will be less than three years.

The glass bottle filling line with a capacity of 35.000 bottles (0.33 liters and 0.5 liters) per hour had served the

Borsodi Brewery for 24 years. Only a few motors were speed controlled by an AC drive, so the performance of the complete system was far less than optimal. As Molson Coors Group has set ambitious targets regarding energy and water efficiency and carbon intensity, a total of 36 old gear motors needed to be replaced with more efficient, speed-controlled motors.



Up to  
**42%**  
energy savings at  
full load





VLT® OneGearDrive® is mounted directly on the conveyor shaft.

***"We were introduced to the Danfoss VLT® FlexConcept® – which is a flexible, highly efficient conveyor drive system. Initial calculations showed an energy savings potential of approximately 40% and the high efficiency of 89.4% achieved by the VLT® FlexConcept®."***

Gábor Széman,  
Technical Service Manager,  
Borsodi Brewery



Old bevel gear motor



"When planning the upgrade, our main attention was focused on energy savings to be achieved," says Gábor Széman, Technical Service Manager, Borsodi Brewery. "We were introduced to the Danfoss VLT® FlexConcept® – which is a flexible, highly efficient conveyor drive system. Initial calculations showed an energy savings potential of approximately 40%, based on a comparison of the most inefficient, old gear motor of the filling line, and the high efficiency of 89.4% achieved by the VLT® FlexConcept®," he continues.

The first step was to measure the energy consumption of an old bevel gear motor equipped with an AC drive.

Then, the same measurement was repeated in the same location and under the same conditions with a VLT® OneGearDrive®, a highly efficient permanent magnet (PM) 3-phase synchronous motor controlled by a VLT® AutomationDrive FC 302.

"In different operating situations, the result was energy savings of 33-42%. This result fully supported the first theoretical calculation, as predicted. Based on this result we decided to go ahead with the upgrade, replacing all the old gear motors and AC drives with 36 new units of VLT® OneGearDrive and VLT® AutomationDrive FC 302," says Mr. Széman.

Installation of the VLT® OneGearDrive® is easy and fast as it is mounted directly on the conveyor shaft, so chains are not required. "With the Danfoss VLT® FlexConcept® we control each motor and therefore, we have the possibility to optimize the production and also reduce losses. We are very satisfied with the performance of the new VLT® FlexConcept® drive system, and we are already planning a new retrofitting project," Mr. Széman concludes.

When calculating energy savings and all other savings achievable in spare parts, cleaning time and operation costs, the payback time of the upgrade will be less than three years.

## Cost savings and reduced emissions

In addition to the energy saving benefits, the Danfoss VLT® FlexConcept® provides the Borsodi Brewery with other useful advantages, such as:

### Reduction in costs for spare parts and stock

Before the upgrade, a spare parts stock of more than ten different types of gear motors was required for maintenance purposes. Thanks to the Danfoss VLT® FlexConcept® enabling a reduced number of variants, the stock could be reduced to five units only (comprising VLT® OneGearDrive® and VLT® AutomationDrive FC 302).

### Reduction in operation costs

The old gear motors caused system faults, which resulted in production loss and increased operation costs. Thanks to VLT® OneGearDrive®, the risk of system faults is considerably lower, which improves productivity.

### Savings in cleaning time and water consumption

Thanks to the special design of the VLT® OneGearDrive®, which has no fan, no cooling fins, and has a special surface, the unit is very easy and fast to clean, so the brewery saves time, water, and detergents.

### Reduction of CO<sub>2</sub> emissions

The energy-efficient Danfoss VLT® FlexConcept® enables the brewery to reduce CO<sub>2</sub> emissions by approximately 130 tons annually.



*The old filling line was served by a total of 36 gear motors, bevel gear motors with induction motors with efficiency rating IE1, and a few mechanical adjustable gear motors.*

*After the upgrade, 36 new units comprising VLT® OneGearDrive® controlled by VLT® AutomationDrive FC 302 run the filling line smoothly and achieve energy savings of 33-42%.*



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## About Borsodi Brewery

Borsodi Brewery is located in the village of Böcs, near Miskolc, the capital of Borsod-Abaúj-Zemplén county in northeastern Hungary.

The brewery started beer brewing in 1973 with an initial production capacity of 875.000 hectoliter liters. In 2012, the Borsodi Brewery was taken over by Molson Coors Brewing Company, an American Canadian brewery company which is one of the biggest brewers in the world.

The Hungarian beer market is around 5.7 million hectoliter liters in total (2013).

Borsodi is one of the biggest beer producers in Hungary. Borsodi was the first producer of canned beer and non-alcoholic beer in Hungary.

## About VLT® FlexConcept®

Danfoss VLT® FlexConcept® is a flexible, highly efficient conveyor drive system. It significantly reduces the number of variants, resulting in greatly reduced operating costs. It also delivers substantial energy savings with the Danfoss' innovative PM motor technology.

The VLT® FlexConcept® gives you perfectly adapted components for energy-efficient drives in all system areas, including hygiene-critical applications.

All VLT® FlexConcept® drives benefit from unified operation and are

matched to common filters and coils. They provide the same interfaces and use the same parameterization software.

The VLT® FlexConcept® consists of:

- VLT® OneGearDrive®
- VLT® Decentral Drive FCD 302
- VLT® AutomationDrive FC 302

You can easily and reliably combine components with existing solutions from other manufacturers on both centralized and decentralized systems. The open system architecture of the VLT® FlexConcept® means that standard, geared, and PM motors can all be controlled and operated

at high efficiency by Danfoss VLT® drives. For your retrofit application that means that all VLT® FlexConcept components are compatible with existing industry standard system components, including PM motors.

VLT® OneGearDrive® features a permanent magnet motor with rotor-mounted permanent magnets and is coupled to an optimized bevel gear box. The drive can achieve up to 89% efficiency and high torque, already exceeding the IE4 Super Premium Efficiency class, in a compact motor frame.





## Danfoss Drives

Danfoss Drives is a world leader in variable speed control of electric motors. We aim to prove to you that a better tomorrow is driven by drives. It is as simple and as ambitious as that.

We offer you unparalleled competitive edge through quality, application-optimized products targeting your needs – and a comprehensive range of product lifecycle services.

You can rely on us to share your goals. Striving for the best possible performance in your applications is our focus. We achieve this by providing the innovative products and application know-how required to optimize efficiency, enhance usability, and reduce complexity.

From supplying individual drive components to planning and delivering complete drive systems; our experts are ready to support you all the way.

We draw on decades of experience within industries that include:

- Chemical
- Cranes and Hoists
- Food and Beverage
- HVAC
- Lifts and Escalators
- Marine and Offshore
- Material Handling
- Mining and Minerals
- Oil and Gas
- Packaging
- Pulp and Paper
- Refrigeration
- Water and Wastewater
- Wind

You will find it easy to do business with us. Online, and locally in more than 50 countries, our experts are never far away, reacting fast when you need them.

Since 1968, we have been pioneers in the drives business. In 2014, Vacon and Danfoss merged, forming one of the largest companies in the industry. Our AC drives can adapt to any motor technology and we supply products in a power range from 0.18 kW to 5.3 MW.