

Case story

Bottling beverages faster and cheaper

Valser uses VLT® OneGearDrive® geared motors to optimise conveyor systems

By using Danfoss VLT® OneGearDrives® to operate the conveyors in its filling line for mineral water, Valser Mineralquellen has replaced up to forty previous combinations of motors and gear units with just one motor size and three gear ratios. Subsequently the spares inventory has been significantly reduced and system output increased.

Reducing complexity and saving energy

In the food and beverage industry demands for energy efficiency and flexibility are rising in line with increasing cost pressure. In the past, different drive concepts were

required for different areas, such as production, filling and packaging. Previously, several hundred drives with a wide variety of sizes and power ratings were required to drive the large number of conveyors that connect the individual production machines. This resulted in large stocks of spare drives, corresponding maintenance effort and high energy costs.

Valser Mineralquellen recognised these considerations. Before modernisation with Danfoss VLT® OneGearDrives®, up to 40 different motor/gear variants with or without brakes were used, but now there is only one motor type



10%

decrease

in direct electricity
consumption by using
VLT® OneGearDrive®

Bottling beverages faster and cheaper Using high-efficiency VLT® OneGearDrive® geared motors to optimise conveyor systems



VLT® OneGearDrives® optimise the conveyor belts.

in the modernised section of the plant. This not only reduces the cost of maintaining a full stock of spares but also saves a lot of maintenance effort. The time-consuming mechanical effort of swapping gear units on a spare motor to configure a suitable replacement for a defective drive has been entirely eliminated now that the OneGearDrive is used. Today Valser Mineralquellen keeps just three motors and one frequency converter in stock.

"This simplifies operations for us tremendously, particularly as the OneGearDrives are very energy efficient. Our direct electricity consumption has dropped by 10%", said Roman Schmid, Maintenance Planner at Valser Mineralquellen.

"Furthermore, neutral-line currents are up to 50% lower, there are fewer harmonics, the phase balance is better, and there are fewer voltage and frequency deviations."

"Together with the reduced spare parts inventory and easy installation, VLT® OneGearDrive® is a considerable improvement for our filling line. As part of our modernisation, we have also improved the operation of our conveyor systems. They run more smoothly now, and the belts don't jerk at low speed," according to Schmid.

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Maintenance Planner,
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VLT® OneGearDrive® – high efficiency and hygienic design

VLT® OneGearDrive® is a highly efficient permanent magnet three-phase synchronous motor coupled to an optimised bevel gear box. The system can reach an efficiency level as high as 89%. With only one motor type and three gear ratios available, the motor concept covers all typical conveyor drives. Furthermore, the restricted range of physical configurations of the OneGearDrive simplifies spares holding and makes it more cost efficient, easing engineering and installation thanks to uniform mechanical dimensions.

The OneGearDrive is available in two versions: VLT® OneGearDrive® Standard for use in dry and wet

Valser Mineralbrunnen

Valser is Swiss mineral water from mineral springs in Vals, in the Canton of Graubünden. In 2002 the Hess Group sold Valser Mineralquellen AG to Coca-Cola HBC Schweiz, which produces and bottles products of the Coca Cola Company under licence.

The source water accumulates in the region of the Piz Aul massif in the form of rain, snow and ice. It seeps into the limestone marble, Bündner schist and dolomite and passes through cracks and fissures in these materials into the deeper parts of the mountain.

Inside the Piz Aul massif, the water is purified and highly mineralised by rock layers 220 million years old. After following a route at least 1000 metres deep over an average time of 25 years, the water eventually emerges from the Spring of St. Peter in Vals as a crystal-clear stream with a unique, balanced taste, enriched with many valuable minerals and trace elements.



VLT® AutomationDrives in a central installation at Valser Mineralbrunnen.



VLT® Decentral Drive FCD 300 in operation at Valser Mineralbrunnen.

production areas, and VLT® OneGearDrive® Hygienic for use in areas where hygiene is crucial and thorough cleaning is required, as well as in aseptic and clean room production areas.

Future-proof part of VLT® FlexConcept®

OneGearDrive is part of the VLT® FlexConcept®, Danfoss's extremely flexible and efficient drive system concept that reduces the number of drive variants in typical food and beverage plants or material handling systems by up to 70%.

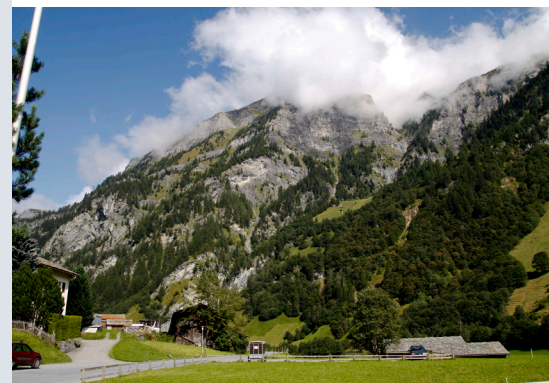
The VLT® FlexConcept® comprises the VLT® OneGearDrive®, combined with a VLT® Decentral Drive FCD 302 or VLT® AutomationDrive FC 302 frequency converter – perfectly

matched components for energy-efficient drives in all system areas. This results in considerable savings in planning, commissioning, maintenance and inventory costs. Up to 50% cost savings compared to conventional systems can be achieved by using the OneGearDrive together with AutomationDrive FC 302 or Decentral Drive FCD 302.

The FlexConcept provides system manufacturers and operators with a solution which complies with applicable current and future standards relating to the new efficiency categories and guarantees a high degree of investment security. The products already fulfil the requirements of the Minimum Energy Performance Standard (MEPS) that will take force in 2017.



The Valser Mineralbrunnen plant beautifully situated in the Swiss Alps



What VLT® is all about

Danfoss VLT Drives is the world leader among dedicated drives providers – and still gaining market share.

Environmentally responsible

VLT® products are manufactured with respect for the safety and well-being of people and the environment.

All frequency converter factories are certified according to ISO 14001 and ISO 9001 standards.

All activities are planned and performed taking into account the individual employee, the work environment and the external environment. Production takes place with a minimum of noise, smoke or other pollution and environmentally safe disposal of the products is pre-prepared.

UN Global Compact

Danfoss has signed the UN Global Compact on social and environmental responsibility and our companies act responsibly towards local societies.

Impact on energy savings

One year's energy savings from our annual production of VLT® drives will save the energy equivalent to the energy production from a major power plant. Better process control at the same time improves product quality and reduces waste and wear on equipment.

Dedicated to drives

Dedication has been a key word since 1968, when Danfoss introduced the world's first mass produced variable speed drive for AC motors – and named it VLT®.

Twenty five hundred employees develop, manufacture, sell and service drives and soft starters in more than one hundred countries, focused only on drives and soft starters.

Intelligent and innovative

Developers at Danfoss VLT Drives have fully adopted modular principles in development as well as design, production and configuration.

Tomorrow's features are developed in parallel using dedicated technology platforms. This allows the development of all elements to take place in parallel, at the same time reducing time to market and ensuring that customers always enjoy the benefits of the latest features.

Rely on the experts

We take responsibility for every element of our products. The fact that we develop and produce our own features, hardware, software, power modules, printed circuit boards, and accessories is your guarantee of reliable products.

Local backup – globally

VLT® motor controllers are operating in applications all over the world and Danfoss VLT Drives' experts located in more than 100 countries are ready to support our customers with application advice and service wherever they may be.

Danfoss VLT Drives experts don't stop until the customer's drive challenges are solved.

