

Case story | VLT® OneGearDrive® / VLT® FlexConcept®

Traditional art of brewing meets state-of-the-art drive technology

Stiegl Brewery of Salzburg is the leading private brewery in Austria. It is known for its Stiegl Goldbräu beer as well as a variety of different house and seasonal beers. In addition to its variety of beers that are generally available in stores, Stiegl each year brews very small batches of about ten to twelve special beers that are only available online and at their brewery shop.

This makes the traditional brewery in Salzburg the brewery with the greatest selection of beers in Austria. With Stiegl, everyone knows: Beer does not equal beer. Every beer has its own distinct taste, individual color and even aroma. Everyone who has done a beer tasting knows that there are not only pilsner beers, wheat beers or Altbier. The many varieties of beers can be distinguished

by many delicate taste nuances. Thus a pilsner is not just a pilsner, because even with one type of beer there are differences among individual breweries. To ensure that this taste variety endures until customers drink the beer, Stiegl Brewery relies on state-of-the-art filling plants with VLT® OneGearDrive® Hygienic motor controlled by Danfoss VLT® AutomationDrive FC 302.



€ 15,000

annual savings
in energy and
maintenance costs,
thanks to VLT®
FlexConcept.



The smooth surface of the VLT® OneGearDrive® is easy to clean and meets the stringent requirements of the beverage industry.

Stiegl has been brewing high-quality beer since 1492. The success story began with a small restaurant and brewery in the heart of the city of Salzburg. Even setbacks such as the devastating fire of 1875 that destroyed the brewery, or the aftermath of WWI and WWII, could not prevent its rise to become the leading private brewery in Austria. One fact, however, has remained the same all along: Stiegl continues to be family-owned today. The combination of state-of-the-art technology and traditional brewing techniques plays an important role in this privately held company. In this spirit, its brewing experts upgraded the old drives of the filling plant to ensure that Stiegl Brewery will continue to deliver first-rate beer to its customers into the future.

New VLT® OneGearDrive® reduce maintenance costs

Some of the motors had been in use for more than 15 years, and thus maintenance and cleaning costs were high. The new VLT® OneGearDrive® were to meet the latest hygiene standards and clearly reduce maintenance costs at the same time. For the new motors, Stiegl Brewery selected Danfoss VLT® OneGearDrive® Hygienic in the VLT®

FlexConcept®. The product's aseptic design and low maintenance cost were the main reasons for this choice. An outside company had done the annual maintenance of the old drives and had to take them apart and repair them as needed. This was not only extremely time-consuming, but also entailed considerable expense. The VLT® OneGearDrive® used now has very long maintenance intervals. When using food-quality oil, the oil change cycle is about 35,000 operating hours in the partial load range.

In addition, Stiegl Brewery previously had to maintain a large motor and spare parts inventory, since the individual system segments used different drives. This inventory has significantly decreased as a result of Stiegl Brewery's use of the VLT® OneGearDrive®, since the new design requires only three types of VLT® OneGearDrive® to properly operate the complete system. Stiegl saves about EUR 15,000 per year in energy and lower maintenance costs.

Technicians employed by the brewery performed the upgrade

The VLT® OneGearDrive® Hygienic drives are controlled by the VLT® AutomationDrive FC 302 and drive all conveyor belts in the filling plant. They transport the bottles to the individual machines as gently as possible. This requires exact coordination of the conveyor belts to ensure that the bottles touch each other as little as possible and do not get damaged. Stiegl Brewery technicians performed the entire system upgrade on their own. The big advantage of this approach was that there was no additional machine downtime during the conversion, since the technicians were able to install the new drives during scheduled machine idle times.

Another benefit was the fact that it was easier for the technicians to align the individual sections after the upgrade, since they were able to reconfigure one complete section at a time and then adjust it to the existing section of the system. In advance, they exchanged each of the old Danfoss VLT® 5000 drives for a new VLT® AutomationDrive FC 302, which then temporarily controlled the old drives.

High standards for motors in filling plants

Hygiene regulations in beverage industry plants are stringent, making robust motors a requirement. Since frequent washdowns are required in filling lines, motors have to be able to withstand countless cleaning cycles, often with strong cleaning agents. One of the advantages of the VLT® OneGearDrive® Hygienic is its very smooth and easy-to-clean surface. The motor is designed with no edges or recesses where dirt could settle, thus automatically keeping it cleaner. In addition, the surface allows liquids to drain away easily and without residue.

Another hygiene issue can potentially be created by the fans that are attached to the motor. When the fan is not running, for example on the weekend, bacteria can easily grow there. They are then lifted into the air as soon as the fan is turned on again. The VLT® OneGearDrive® does not require any fans and thus does not cause any particles to be lifted up into the air. Therefore, the airborne germ load is lower than with conventional motor.

The CleanConnect® stainless steel circular motor connector allows safe connection in wet areas, fast exchange and easy cleaning. Unlike the previously installed motor that made cleaning difficult because Stiegl employees had to work around them, employees can simply include the

VLT® OneGearDrive® in the lather and thus clean it as well. Its robust surface withstands cleaning agents and disinfectants, even with pH values of 2 to 14 and is thus the optimal design for the food and beverage industries. In addition, the VLT® OneGearDrive® Hygienic drive is EHEDG certified (European Hygienic Engineering & Design Group).

Perfectly synchronized bottle transport

In the filling line, the filling machine determines the speed, since it can fill carbonated beverages into bottles only at a specific speed to prevent overflow. Since the bottle supply must never slow down at this point in the process, bottle buffer zones are installed before the bottles reach the filling machine.

The VLT® AutomationDrive FC 302 adjusts the speed of the conveyor belts precisely and ensures that there are always enough bottles waiting to be filled in the buffer zone and at the filling machine. A PLC determines the required speed of each conveyor belt at all times, thus ensuring a seamless filling process. The drive then receives instructions via the PROFIBUS DP interface on how fast the belts are to move, and controls their speed correspondingly.

Summary

Beverage filling lines require robust, waterproof motors that can withstand even strong cleaning agents, since hygiene regulations are particularly strict. VLT® OneGearDrive® Hygienic drives controlled by VLT® AutomationDrive FC 302 meet these strict requirements and, in addition, reduce energy and maintenance costs. As a result of the upgrade of its filling plant to energy-efficient drives from Danfoss, Stiegl Brewery of Salzburg enjoys considerable cost savings in the areas of maintenance, spare parts inventory and energy.

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The control panel with display can be attached and detached during operation. This makes it easy to check or change



Precise control of the conveyor belts ensures the gentlest bottle transport possible.



Michael Hitter, Sales Engineer, Danfoss Drives



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