

Case study | VLT® FlexConcept®

Luxeapers **optimizes** its lines to reduce **energy consumption** **and production downtime**

25%

energy savings in
the factory thanks
to VLT® FlexConcept®



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Pickling company Luxeapers has incorporated VLT® FlexConcept® by Danfoss into its factory in Nacimiento, Almería, in order to reduce maintenance and malfunctions caused by the use of vinegars and acids having an aggressive pH and by the infiltration of water during cleaning. Thanks to the hygienic wrapping and high efficiency of the VLT® OneGearDrive®, Luxeapers not only managed to minimize production losses caused by malfunctions, but also achieved 25% energy savings in the plant.

“Since installing the VLT® FlexConcept® by Danfoss, we have gone from having several production line stoppages per year, adding up to the equivalent of two shifts for these motors, to not having any stoppages in two years,” states Domingo García, Director of Systems and Infrastructure for Luxeapers.

“One minute of downtime on a production line means a production loss of between 120 and 140 bottles, so reducing these downtimes has had a significant impact on our production.”

With an annual production of more than 15 million jars and 3 million kilos, Luxeapers is one of the world's leading exporters of pickled products. Its offering of pickled products includes capers (both the flower buds and the berries), olives, pickled gherkins, peppers, banderillas (pickled foods and spicy peppers served on a skewer) and garlic in various packages and with various seasonings. Due to their vinegar and acid content and aggressive pH, these seasonings generate a hostile environment for mechanical and electrical equipment, in particular conventional ventilated motors. The corrosion produced by these seasonings, as well as the infiltration of water during the cleaning processes, had increased the maintenance needs and downtime at the Luxeapers plant, so that the geared motors had to be replaced practically every year. This led to production losses that one of Luxeapers' export companies wished to minimise.

In order to limit the effects of the corrosive environment on the geared motors, Luxeapers opted for the VLT® FlexConcept® solution by Danfoss. Thanks to the hygienic IP69K surface of the VLT® OneGearDrive®, the maintenance needs and associated costs for downtime decreased drastically. At the same time, 25% energy savings was achieved due to the high efficiency of this equipment.

Significant reduction of production losses

For Domingo García, Director of Systems and Infrastructures, the greatest advantage of using the VLT® OneGearDrive® is the reduction of downtime: **“The motors would fail during production, and the stoppage time could last for four or five hours. As the filling machine had four motors which had to be replaced once a year, the time lost at the end of the year was equivalent to two work shifts.”**

The loss of earnings associated with these stoppages was significant for Luxeapers, according to Domingo himself who explained, **“A stoppage on the production line can mean production losses of approximately 120-140 bottles per minute.”**

Since the VLT® OneGearDrive® units were installed, they have not caused any stoppages. “In two years, they have not failed or required maintenance. Everything indicates that they will meet the guaranteed hours of use without failure”.

This reduction in downtime is due to the IP69K enclosure of the VLT® OneGearDrive®. Luxeapers used conventional ventilated motors which were covered with stainless steel protective housings.

Due to the grates needed for the fans and their structure, dirt would accumulate in these housings which did not isolate the geared motors from the corrosive environment and also allowed the passage of water during cleaning. This caused short circuits in the motor due to contact with water, as well as oxidation due to the corrosive environment and the detachment of the external paint. The VLT® OneGearDrive®, prevents all these problems, increases the useful life of the motors and reduces their maintenance due to its hygienic, waterproof enclosure.

25% savings in energy consumption

Thanks to the use of permanent magnets, the efficiency of the VLT® OneGearDrive® motors is close to 89%, an improvement over the IE4 Super Premium efficiency class. VLT® AutomationDrive FC 302 drives were installed along with these motors; this facilitated energy savings due to the more precise regulation which they allow. The combination of both pieces of equipment has delivered energy savings of 25% for Luxeapers.

Hygiene

“We have managed to speed the cleaning process up and prevent accumulation of dirt in recesses and inaccessible areas.” Domingo points out that cleaning is carried out with water jets which caused problems with the old motors equipped with protective metal housing, as the water infiltrated into the interior of the motor.

In addition, due to the ventilation grates in the housing, dirt accumulated in inaccessible areas such as fins or bends in the motor; these are difficult to clean. These problems have been eliminated with the installation of the VLT® OneGearDrive®. These units can be cleaned with water without needing to be dismantled. In addition, their seals ensure that dirt cannot accumulate inside the machines and isolate them from the corrosive environment.

“We leave the stainless steel connections in place while cleaning, and there is no problem. The paint does not flake, and the units stay white with a hygienic appearance,” says Domingo.

“According to our calculations, and taking energy savings into account, return on investment for these units is reached in two years,” says Domingo.

Luxeapers production line



Reduction of inventory costs

Thanks to VLT® FlexConcept®, Luxeapers has been able to significantly reduce its inventory which has resulted in economic savings and the minimization of potential human error associated with replacing equipment.

Before the Danfoss solution was installed, each of the production line motors required its own spare part. Now, a single replacement can be used for all those that have been replaced by VLT® OneGearDrive®.

“We only have one VLT® OneGearDrive® replacement that works for all the motors which we replace when one fails. In this way, we not only save costs when it comes to buying spare parts, but we also minimize human error. Before, there were several part numbers in the inventory, and this opened up the possibility of introducing errors when replacing the damaged motor,” states Domingo.

Both the motors and the VLT® AutomationDrive FC 302 drives were advantageous for the inventory. The Danfoss drives are used to control any type of motor, so they can be used to regulate both VLT® OneGearDrive® equipment and other motors in the plant.

Objectives achieved:

1. 135,000 more units produced per year.
2. 25% energy savings.
3. 75% savings on inventory.
4. Optimization of cleaning processes.



Production line filling machine

Luxeapers

Luxeapers is one of the leading exporters of pickled products in the world, with an annual production of 3 million kg of pickled products, of which approximately 80% are sold outside of Spain. Luxeapers employs more than 50 people in its 10,000 m² facility and is a benchmark company on an international scale, as shown by its ALAS award for best export company awarded in 2016, and its prize for internationalization in the second edition of the SME awards in 2018.

Its origin as a family business dates back to 1982 in Nacimiento (Almería, Spain). In 2008, it joined a group of companies in the international agri-food sector which, combined with its pursuit of the continuous improvement of its facilities, gave the company a great boost and multiplied its turnover tenfold in the last 10 years.

The products offered by Luxeapers include capers (both the flower buds and the berries), olives, peppers, banderillas (pickled foods and spicy peppers served on a skewer), pickled gherkins and garlic in various packages and seasonings. The company's flexibility when offering varied packs of products, and its speed of supply have been the lynchpins of its international development.

