

## Automation made easy

**Rivella AG is the largest group of companies for soft drinks of Swiss origin and is one of the strongest brands in Switzerland with an awareness level of 93 per cent. The drinks are bottled in Rothrist in the canton of Aargau - with the support of igus.**

Rivella was founded in 1952 by Robert Barth in Stäfa (Canton Zurich). Today, the family business is based in Rothrist and is one of the few remaining independent Swiss beverage producers. The company currently employs around 240 people and achieved a turnover of CHF138 million in 2023. For years, Rivella has been one of the most popular and best-known brands in Switzerland. The refreshing drink of the same name is even officially listed in the country's inventory of culinary heritage. All products are manufactured locally and almost 100 million litres of soft drinks and fruit juices leave the Swiss production facility every year.

### **Save costs through automation in maintenance - minimise set-up times**

Wherever beverages are produced, the demands on machines and systems are high. Hygiene regulations must be observed, precise format adjustments and fast movements have to run smoothly. The demands on the flexibility of modern production systems are constantly increasing. The main reason for this is the growing variety of products. In addition to high plant availability, manufacturers are also dependent on shortened set-up times at the different stations of their machines. The machinery at the Rivella production site in Rothrist is also constantly being modernised and updated and, where possible, automated, as the two examples below show.

### **Project "Automation of print head adjustment for printing the date"**

"The operators at the packaging station approached me with a request to simplify the process for printing the date," says Ismail Ibraimi, Maintenance Project Manager at Rivella. When the product is changed at the packaging station, the height and position of the inkjet print heads for the date must also be changed. This is done by hand with adjusting screws and takes up to an hour, depending on the product and number of packages. Such a changeover often takes place three times a day. Those responsible were looking for an

automation solution to make the process easier for the employees and reduce the time needed for changeover. The project manager found what he was looking for at igus Switzerland - a manufacturer of lubrication-free plain bearing and linear technology.

"After Ismail Ibraimi described the problem to me on the phone, I travelled to Rothrist with my colleague André Kirchhofer to get an overview on site. After inspecting the plant, we presented our various product areas and immediately put forward first ideas," says Axel Ebert, Key Account Manager at igus Switzerland, and André Kirchhofer, Product Manager Low Cost Automation, adds: "A short time later, we drew up an initial concept proposal and worked out what I think is a perfect solution together with the project manager."

#### **drylin: lubrication-free linear guide combined with Apiro system**

This solution consists of two lubrication-free drylin SLW lead screw units, each of which is connected to an Apiro gearbox. "With the Apiro gearboxes, we can create a strong connection between the two drylin lead screw units and thus ensure synchronised parallel adjustment of both axes," says Kirchhofer, explaining the benefits of this system. The solution is completed by the motorised drive in combination with a D1 dryve motor control system - the in-house motor control from igus. Thanks to the ease of use of the control system, the system could be set up in a very short time. "We have programmed three positions, one for the 0.2-litre, one for the 0.5-litre and one for the 1-litre packs. All the operator has to do now is select the program, press a button and the system automatically adjusts the print heads to the desired height and position. We now need less than a minute to change the product date compared to up to an hour previously," says Ibraimi, visibly relieved, "and it's reliable, maintenance-free and lubrication-free."

#### **Project "Automation of the lane adjustment"**

"In our plant for Rivella products, we have to adjust the transport lanes from the filling system to the packaging line several times a day due to the different bottle sizes (from 0.2 to 1.5 litres) so that the bottles are centred on the belt and transported safely from A to B. This was always very time-consuming, as the operator had to manually adjust the width of the aisle every 50cm using a clamping screw. With a lane length of 12m plus a 90° bend at the end, we're

talking about 48 adjustments (24 stations, left and right), and some of them overhead," says Ismail Ibraimi, explaining the situation that needed to be automated. "The Apiro system proved its worth in the date changeover and I think the product is really sensational. It is easy to install, very interesting in terms of price and the ideal solution due to the limited space between the lane and the machine," he continues, and André Kirchhofer adds: "'Apiro' is Greek and stands for 'infinite'. And that's the number of possible solutions. We can use this system to create a wide variety of modular and flexible kinematics, such as a lane adjustment system for Rivella or two linear systems as a connecting element." Thanks to the modular gearbox system, lane and curve adjustments and lateral guides for conveyor systems can be easily integrated into existing systems in a space-saving way. The simple assembly can largely be carried out during ongoing production, which minimises downtimes. The drygear Apiro modular system offers various gear ratios as well as length variants that enable the aforementioned combination and application options. In addition to aisle adjustments, users can also build pusher applications, rotary tables or even Cartesian robots, for example.

### **Time saver hand crank**

In the transport lane, 40 Apiro gearboxes are used at intervals of 1m, and every 50cm in the bends. For the operator, this means that they can now make the lane adjustment at just two points with a hand crank, compared to the previous 48 required adjustments, and therefore only needs a few minutes. "The adjustment with the hand crank works great and saves an enormous amount of time. However, this is only temporary because another advantage of this system is the modular principle, which means we can replace the hand crank with a motor relatively easily at a later date. We already have the necessary products in-house and I'm waiting until our control technician has free capacity for the changeover. The lane adjustment will then work simply, safely and quickly at the touch of a button, just like the date changeover," so the project manager.

### **Conclusion**

Thanks to the automation solution from igus, lane or curve adjustments and even print head conversions can be easily integrated into existing systems in a space-saving manner. "The igus guide elements, plain bearings, linear guides and the entire Apiro system are completely free from lubrication and

maintenance, which is of course a further advantage in view of the hygiene regulations for filling systems," says Axel Ebert, and Ismail Ibraimi adds: "Another benefit is that the entire automation, from the mechanical components to the motor and the control system, comes from igus, which means that I only have one supplier, one contact person, and that makes things uncomplicated and convenient. The system has been so well-received by the machine operators that I have already received enquiries from several departments asking when they too will finally get such a great system."

### Statements:



*"Our operators are really enthusiastic about the system. It's simple, inexpensive, user-friendly and has been running smoothly from the very first minute."*

### Ismail Ibraimi, Project Manager Maintenance at Rivella



*"All products used, such as guide elements, plain bearings, linear guides and Apiro gearboxes, are completely free from lubrication and maintenance, which makes them ideal for the beverage industry."*

### Axel Ebert, Key Account Manager at igus Switzerland



*"Our modular gearbox system 'Apiro' for a wide variety of kinematics and superstructures was named after the Greek word for 'infinite'. Individual applications can be implemented with the Apiro gearbox system in a modular and cost-effective manner."*

**André Kirchhofer, Product Manager Low Cost Automation at igus Switzerland**

### Captions:



**Picture FA0624-1**

The three inkjet print heads for the date are now positioned precisely in height using the Apiro gearbox, the drylin SLW linear system and a motor. (Source: igus GmbH)



**Picture FA0624-2**

All igus guide elements, plain bearings, linear guides and Apiro gearboxes are completely free from lubrication and maintenance. (Source: igus GmbH)





**Picture FA0624-3**

Three levels have been programmed for the different bottle packs - at the touch of a button, the print heads are correctly positioned. (Source: igus GmbH)



**Figure FA0624-4a and 4b**

Space was restricted - no problem for the igus solution with Apiro gearboxes. (Source: igus GmbH)





**Picture FA0624-5**

Before the automation by igus, users had to operate 48 adjusting screws for each product change by hand. (Source: igus GmbH)



**Picture FA0624-6**

The aisle changeover now works conveniently via a hand wheel. (Source: igus GmbH)



**Picture FA0624-7**

Rivella is one of the strongest brands in Switzerland with an awareness level of 93 per cent. (Source: igus GmbH)



**Picture FA0624-8**

A successful team (left to right): Axel Ebert, André Kirchhofer and Ismail Ibraimi. (Source: igus GmbH)