

Pick of the Crop

Flexible high-speed conveyor system delivers sweet system integration for Spanish strawberry co-op

Some corners of the world seem to be blessed by Mother Nature with just the right climate and soil conditions to grow and harvest natural delicacies that are enjoyed all over the world.

Located near the border between Spain and Portugal, the Spanish province of Huelva boasts a rare combination of warm temperatures and sandy, calcium-rich ground to enable the locally-based CORA—Europe's largest co-operative for strawberry cultivation—to display its impressive entrepreneurial credentials in the growing, processing and packaging of the common strawberry.

Occupying roughly 1,000 hectares of prime farmland in the south of Spain, the co-operative produces more than 65,000 tons of the strawberries a year, using new agricultural methods such as greenhouse and plastic film cultivation, as well as early harvesting.

Because the common strawberry (*fragaria x ananassa*) is a particularly delicate fruit of the land, it is essential for it to be sorted, packaged and shipped as quickly as possible after being picked—prompting the co-op to invest into the speediest, most efficient transport technologies in order to get its highly sought-after product to market in the most expedient manner.

“We invest a lot of money in modern cultivation methods to be able to fulfill the seasonal and continually increasing demand for strawberries,” states CORA's production manager Manuel Piedra Chaves. “Due to this very objective, we are always interested in automation and handling technologies that ensure careful and quick processing of these delicate fruits.”

To this end, CORA recently commissioned a nearby systems integrator **Construcciones Mecánicas Santa Gema S.L.**, located in Lepe/Huelva, to construct a new transport system that would replace large parts of the previously-used conveyor belting at the its sprawling production plant.

After comparing all the available options, the integrator ultimately settled on the **VarioFlow** conveying system manufactured by the German packaging technologies group **Bosch Rexroth AG**.

“We knew about Bosch Rexroth, and we knew that their name stands for quality and reliability,” Chaves explains. “In addition, Santa Gema has already had good experience with chain-conveyor systems.

“But above all, it was the system's speed and flexibility that really convinced us to use it in our application.”

Chaves explains that plant has only a six- to eight-hour window of opportunity to transport the fresh



The VarioFlow chain-conveyor system supplies both manual and automatic workstations, acting as a vital link between conveyor belts where the plucked strawberries are supplied in paperboard boxes, and where they are later prepared for shipment in the plastic transport boxes.

strawberries from the time they are actually picked by hand in the field. The entire sorting and packaging process at the plant is comprised of 16 workstations—starting with feeding of the bulk fruit in baskets and moving on to the weighing and palletizing.

The *VarioFlow* chain conveyor system links up all the manual workstations, and takes over basket conveying or outfeeding to the other stations in the system, where the baskets are weighed, and the fruit is added or taken away as needed. After a final weight test, the baskets are transported to automatic stations, where they are labeled, placed transport containers and, finally, palletized.

BUILT FOR SPEED

Chaves says he's been very impressed with the vastly improved speeds enabled by the Rexroth chain-conveyor system.

“With fresh produce, time is of the utmost importance to be able to remain competitive,” he explains.

“The conveyor belt we used previously served us well, but it could not keep up with the constantly increasing degree of automation in the system. This is why the speed of VarioFlow primarily convinced us that it was the right choice for us.”

In normal operation, the CORA plant conveys about 500 to 800 tons of fruit a daily, but this volume can go up to as much as 1,100 tons during periods of peak, continuous 24-hour production.

The aluminum system installed at the plant can transport three sizes of the strawberry baskets—from 250 to 1,000 grams—at speeds of up to 50 meters per minute.

Santa Gema technicians were also able to infinitely adjust the belt speed on-site, thanks to the motors outfitted with integrated frequency converters, and further enhanced by fully-integrated, compact-deign drives equipped with overload couplings.

Santa Mena manager Juan Manuel Cruz Soler explains: “Because the chain-conveyor system was to be integrated in the middle section of the existing installation, the flexible and modular construction of the VarioFlow was a real benefit.

“We were able to adapt the system to the existing

conveyor belt parts without any problems at all, set up discharge points to individual workstations, and link the automatic labeling and packaging stations.”

CORA selected a *VarioFlow VF90* model with a 90-millimeter chain-width, so that the strawberry baskets could also be optimally transported in curve sections. Offering a wide range of standardized curves and arcs, the conveyor systems installation was completed with remarkable ease, despite considerable space constraints.

Santa Gema helped custom-assemble a fully-modular conveyor system to correspond precisely with the available space—incorporating a number of inclines, as well as sections with declines, combining two different types of chains.

The standard flat chain is used to transport the strawberry baskets on the horizontal sections, with the static friction-chain used for the vertical transport of baskets, which have to overcome inclines of up to 30 degrees in some parts of the plant.

Designed specifically for food-contact applications, both the standard flat-chain and the static-friction chain are very easy to clean,

and Soler asserts the investment provided very good value for the money.

“The conveyor chains in the VarioFlow system have a longer service-life than any other on the market, even with an increased working speed,” Soler points out.

To match its application needs, CORA has combined the *VarioFlow* chain-conveyor system with components in the aluminum modular profile system from Bosch Rexroth.

“We were immediately thrilled by the modular construction and the resulting flexibility in the entire system,” Chaves sums up. “In our field, we have to be able to react quickly to changing market demands, and be able to adapt our production accordingly.

“The combination of VarioFlow conveyors and the aluminum-profile components provided us with the best basis for doing this right.” □



Working in special shifts, the system can deal with up to 1,100 tons of strawberries a day, with the VarioFlow transporting strawberry baskets at up to 50 meters per minute.



Modular components such as curve wheels, as well as vertical and horizontal section guides, enable the VarioFlow conveying system to work at full efficiency even in the most space-constrained environments.

For more information on:
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