

A CENTURY OF TRADITION AND TOP QUALITY, DAY AFTER DAY



CONTINENTAL FOODS INNOVATES WITH SEAL INSPECTION OF POUCH PACKAGES WITH POWDER MIXES

More than 100 years ago, Jeanne Verelst created the first Belgian recipe for powdered pudding preparation. Today, powdered desserts are still a classic in the Continental Foods range and millions of units are packed every year on state-of-the-art packaging machines. For the automated, 100% quality control of the seals of the pouches, Continental Foods recently switched from vision-based control to **SealScope™** in-line, 100% seal inspection.

Continental Foods is one of Europe's leading food companies with branches in Belgium, Finland, France, Germany and Sweden. The group has recently been acquired by GB Foods of Spain, serving an even larger, complementary market. The food group represents brands that are steeped in tradition and quality, with products that have been used daily in most kitchens for more than 100 years. Well-known brands include Devos-Lemmens, Royco, Heisse Tasse, Liebig, Aiki Noodles, La Gallina Blanca, Blå Bland and Imperial.

It is for these last two brands that Continental Foods, based in Puurs, looked for a new inspection solution that better detected open or leaking paper pouches. These individual packages are typically packed in a carton of six. If certain pouches are not 100% closed after filling, there is a high risk of contamination further

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“The **SealScope™** inspection system has increased the production quality and improved the robustness of the packaging process.”

Bart de Bont, Engineering Manager



Packages rejected by the SealScope system: Folds (left) and product in seal (right) often result in open packages.

along the packaging line, resulting in production stoppages and clean-up actions. If an open package slips past the quality control and is still delivered, there are additional risks of faster spoilage and damage to reputation if the consumer is confronted with a box with a powder film due to open packages. Bart de Bont, Engineering Manager at Continental Foods, confirms: "It is extremely important that open or leaking pouches are detected and removed from the packaging line."

Dust - the enemy of a camera inspection system

Continental Foods processes the pouches on state-of-the-art HDG rotary pouch machines. Three pouches are simultaneously opened, filled and finally sealed at different stations. At the end of the line, there is a reject system where defective packages are removed from the conveyor belt. Initially, the seal inspection was handled by a camera system, which analyzed the number of ridges in the seal and -based on this analysis- approved or rejected the pouch. However, the fine dusting powder contaminated the camera lens, resulting in too many faulty analyses with unnecessary rejects or failures to emit defective packages. In order to cleanse the camera lens, the line had to be stopped each time, resulting in considerable production downtime. The camera was also mounted just before the ejector system, which often meant that the response was too late to remove a faulty package. In practice, the camera was often turned off and then replaced by manual inspection. In order to implement a fully automatic, in-line inspection system, Continental Foods was therefore looking for a new, more robust solution. At the same time, it was decided to invest in a new packaging machine due to increased capacity requirements.

Automatic, 100% seal inspection

It was the German machine supplier HDG that introduced the Engilico **SealScope**™ system to Continental Foods in May 2019. After a presentation of **SealScope**™ by the Engilico team, it was decided to first equip an existing machine with the Engilico system. The **SealScope**™ solution consists of specialized distance sensors mounted on the existing sealing bars, the industrial controller that processes all incoming and outgoing data, and the HMI presenting the results in an intuitive dashboard.

"We are very satisfied with the service provided by the Engilico engineers and their perfect collaboration with packaging machine provider HDG."

Bart de Bont, Engineering Manager

When closing and sealing the package, the distance between the seal bars is measured with high precision. This measurement is then compared with a good reference seal measurement. If there are any folds or product in the sealing area, this is instantly detected and **SealScope**™ sends a signal to the sliding hatch to remove the defective product from the packaging line.

The existing HDG machine used to seal three pouches simultaneously on a single seal bar. Because it could not be determined with 100% certainty in which of the three pouches there was a defect - and therefore in principle all three pouches had to be manually verified or removed- it was converted into three individual, synchronized sealing bars, each equipped with separate **SealScope**™ sensors. Switching to just a single pouch per bar, they were able to reject the individual pouch with defect, and no more.

Smooth integration on packaging machines

The cause of defective seals is inherent to the type of product to be packaged: because powders create a lot of dust during filling, the pouches are not always correctly transferred from station to station by e.g. contaminated grippers or because a part of the machine is no longer correctly tuned. As a result, folds may occur during sealing or the seal may be skewed. In addition, the pouches sometimes stick to the sealing bars due to the presence of (vanilla) sugar in and around the sealing area, which then melts on the hot sealing bars.



Distance sensors on the sealing bars detect whether there is product or folds in the seal

Initially there was some internal skepticism to whether this sensor-based system would work due to the presence of the powder dust, but it soon turned out that **SealScope™** was much more reliable and efficient than the original camera system. After **SealScope™** proved itself with extensive real production tests, it was decided to also equip the new HDG Triplex machine with the seal inspection system. This retrofit was carried out at HDG in Lindlar, before the machine was installed in Puurs. "We are very satisfied with the service provided by the Engilico engineers and their perfectly coordinated collaboration with HDG," continues Bart de Bont, "The fine-tuning of the **SealScope™** system went smoothly and even in the dusty conditions the system continues to work reliably."

"The new pouch packaging machine also works much more efficiently than the existing 2012 model. On the new machine we have a rejection rate of 1 per thousand packages, where on the old machine we often had a rate of 1% to sometimes 5%."

Better packaging process through **SealScope™**

SealScope™ brings another important advantage. Since the sensors are mounted directly on the sealing bars, the condition of the sealing process can also be monitored and tracked. If rejects of pouches increase at any point in time, it is often because there is something wrong with the tuning of the machine or maintenance is required, such as the cleaning of the sealing bars. Due to the instant reporting and newly gained insights by using the **SealScope™** system, Continental Foods decided to clean the sealing bars once an hour. By planning this preventive maintenance correctly, the machine is kept in optimal condition and rejects are significantly reduced.



Two packaging lines for different products are equipped with the **SealScope™** inspection system



Defective packages are dropped from the belt with a sliding hatch system.

On the packaging lines, several products with different paper thicknesses are packed, which is no problem for the inspection system. **SealScope™** keeps track of all packaging statistics per product type, such as number of correct and wrong packages, total number of checked pouches per hour or per batch and even per operator. This data enables comparisons to be made between operators and packaging machines for different products. Based on the information, it can be determined what are the optimal operation settings and these can be applied by all operators and for all machines.

The installation of the **SealScope™** inspection system has both increased production quality and made it more robust. With the old camera system, one person was continuously inspecting the quality of the bags, a challenging and mentally tiring task that cannot guarantee a 100% inspection.

"Engilico's **SealScope™** system for the inspection of the seals exceeds our expectations", concludes Bart de Bont, "At Continental Foods we also strive to exceed the expectations of the consumers by always delivering top quality. That's why we continuously innovate and invest in our production and inspection methods, so that our products will remain the first choice for future generations".

About Engilico

Engilico™ provides 100% seal inspection solutions to optimize the packaging quality and productivity in food, pet care and other industries where seal integrity is of utmost importance. Hundreds of customers worldwide use **SealScope™** technology to inspect the seals of flexible packaging. **SealScope™** is easy to integrate on most existing and new packaging machines without modifications to the production line. The main benefits for customers are higher packaging quality and an optimized packaging process that results in higher productivity.

www.engilico.com

T: +32 16 498 130

info@engilico.com