Last year, leakage detection specialists, Qipack installed 4 leak detection devices at Scholle IPN. They were for newly installed production lines for pouches. Already, the production loss, due to leaking pouches has been reduced drastically and now Scholle IPN is ready for the next step: Process optimization.

Scholle IPN produces pouches for various markets on their production lines in Tilburg. Stand-up pouches have become more popular in recent years and the demand is increasing fast. More and more liquid food is finding its way to the consumer via the well-known flexible little bag with a re-sealable spout. From dairy products and fruit juices to wine, automotive and cosmetic products, the pouch is becoming more and more popular. Moving away from the traditional rigid packaging, such as bottles and cardboard packaging. Thanks to their innovative closures, Scholle IPN has established itself a strong position in the pouch market.

We guarantee 100% control

1. Folding the foil.
2. Sealing the sides and bottom of the pouch.
3. The Qipack camera scans the seal seams from underneath via a mirror.
4. Welding of the spout to the pouch.
5. The Qipack camera scans, from above, via two mirrors the seal with the spout.
6. The Qipack software gives a graphic representation in colour of the seal temperature after sealing (bag and spout).
7. Delta robots putting the CleanPouch in collection cassettes.

We guarantee 100% control.
From plant to packaging
During his PhD course at University, Cedric Bravo was researching ways to detect plant diseases and wheat traces, using sensors. He found that special types of spectral and thermal cameras were perfect for the job. Cedric could see that just like plants, badly sealed packs also show features that can be detected by the same infrared technology. Realizing the potential, Cedric sent LinkedIn mail to various companies. At this time Alexander van Puijenbroek, who was working as a packaging innovation manager at Danone, received this mail and by chance he was working on a new project for packaging clinical food which required 100% seal quality. He immediately arranged a meeting with Cedric Bravo and was surprised at what the system could do. It could detect every fault and crease in the seal, visually. Also incomplete melting of the PE, variations in seal pressure etc. etc.

Alexander immediately saw the potential to start a company. He could see that every packaging machine could use such a system in the future. It is a very important instrument for “Smart Production”, where the prediction and total control of production is becoming more important.

QipCam on Interpack at the Bossar-stand, Hal 8B – D58.

“everything revolves around the correct sealing time, temperature and pressure. With our system we can detect every deviation from these parameters. We guarantee 100% monitoring control. During the sealing process it can happen that the spout is not quite positioned straight in the bag, then the pouch sealing machine will seal the spout incorrectly. This creates temperature differences between the two sides of the spout. For instance, one side can be 80°C and the other 100°C and this type of deviation will be instantly detected by the system and acted upon immediately”. John Ruyken states that “these kind of production errors result in weak seals. They cannot be detected by eye and when the pouch is filled, leakage can occur if there is any pressure on the packaging. Since we have installed the seal control equipment we have not had any leakage complaints”.

Mirrors
The CleanPouch is produced from a roll. First, the pouch machine folds the foil double and another folds is put in the bottom so as the bag will stand up. Following this, the machine seals the sides and bottom in three steps. The Qipack camera is mounted under the foil line and continuously takes readings of the sealed edges via a stainless steel mirror. The camera doesn’t take extra space on the side and takes advantage of the available space underneath. The next step is that the machine cuts the pouches loose and a “pick and place” unit positions the spout in the bag.

The second camera, which checks the spout seal, is mounted above the production line and uses two stainless steel mirrors. These are positioned on both sides of the packs. They are two small strips that reflect the image upwards into the camera. After the bags have been checked, “pick and place” robots put the pouches on a rail so they can be processed easily.

Fine tuning
The test period showed that the Qipack system can be tuned to be too sensitive, because so many potential fault areas are scanned. For instance, it is also possible to check the shape of the bags, or the width of the seal and spout and the cut position. The rejection rate was too high, which caused the operators to get frustrated. It was necessary therefore to establish a packaging quality priority list. Top of the list is a perfect bottom and side seal and a good spout seal. We therefore put this on maximum sensitivity. The other checks we either switched off or set on lower sensitivity. After fine tuning we managed to reduce the rejection rate from 13% to 6%. The system therefore had already proven itself and most importantly of all complaints from our customers regarding leaking packs have stopped.

Currently the second phase of optimizing the production process is underway. This will allow the operator to see exactly what is being produced, while the filling and sealing machines are running. It will be possible to fine tune the machines in regard to material and pack shape. It is hoped that eventually production speed can be increased by up to 25%, that’s the next challenge.

Innovatie

CleanPouch production.

The camera detect the temperature of the seal.

6 Percent emissions

John Ruyken (l) and Alexander van Puijenbroek.

Scholle IPN
The Dutch IPN (Innovative Packaging Network) merged, in October 2014, with the Scholle Corporation, an American Family run company.

IPN specialized in the development and production of dispensers and plastic parts for the packaging of food, non-food and the health sector.

The Scholle Corporation is the worldwide market leader for bag-in-box packaging solutions. By combining both companies’ strengths, Scholle can now offer their customers even better innovative flexible packaging and dispensing solutions.

With the new partnership, Scholle has more than 2000 employees worldwide working in production facilities in North America, Europe, Australia, Latin America, China and India.

www.packagingawards.nl

NL Packaging Award for Qipack
The Qipack system recently won the NL Packaging Award 2017 for Innovative Technology. The Judges stated that “This winning technical innovation is having a big impact on the market and leads to sustainability through less production waste. The whole chain will benefit from this technology: less rejects, complaints, decay and food waste. It follows the current trend of more automation negating the need for off-line checks. The Judges especially acknowledged the fact that this technology can now visually detect, on line, all faults that previously may have been missed.”