



Qipack leak detection reduced production failure

From leak detection to process control

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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.



We guarantee
100% control

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. Also Scholle IPN is a worldwi-

de supplier of bag-in-box packaging and can supply the necessary filling equipment, which gives their customers a total solution, if needed.

Quality Product

Scholle IPN sets the highest standards for the production of their Clean pouch. Scholle IPN produces these pouches in a clean-room environment and guarantees their customers the highest quality. These high standards require the correct packaging materials, equipment and a flawless process

control. The quality of the seal is very important. John Ruyken, Scholle IPN's Process Engineer said.

"After some market research it was found that Qipack Den Bosch, are the only company who can supply the necessary seal control equipment. There are some systems that can do leak tests, but not one system that can do this on the production line. Also there are no systems in the market which can check the seal quality of the sealed edges of the pouch as well as the seal

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.





CleanPouch production.

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 linkdin mail to various companies. At this time Alexander van Puijbroek, 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.

quality between the bag and the spout". The Qipack system won last month's NL Packaging award for Technical Innovation.

Measurement

After a long testing period, last year Scholle IPN purchased four Qipcam-systems, consisting of two high quality infrared cameras, an industrial pc and the Qipcam software. Two cameras have been installed on each pouch line. The first one checks the seal surrounds of the bag and the second

checks the seal between the bag and the spout. The control check by the Qipack equipment functions by observing and analysing high resolution camera images of the temperature of the seal.

Based on these established reference images, the system checks each pack to confirm it has the perfect seal. Should a fault be detected an error message is signalled and the pack is removed from the production run.

Qipack founder, Alexander van Puijbroek explains that,

"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".



The camera detect the temperature of the seal.

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Percent
emissions



John Ruyken (l) and Alexander van Puijbroek.

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 under way. This will allow the operator to see exactly what is being produced, while the filling and sealing machine is running. It will be possible to fine tune the machine 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.

WWW.SCHOLLEIPN.COM

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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.

WWW.PACKAGINGAWARDS.NL



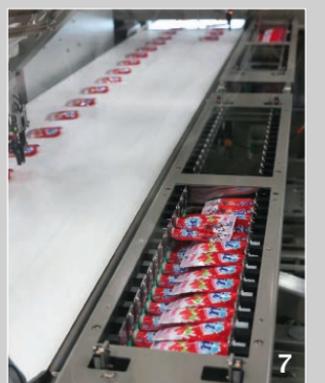
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