ON-LINE CANSEAMSCANNER

Nominated for the FoodPharmaTech Innovation Award 2010

BACKGROUND

Aluminium and steel cans are still among the most preferred for packaging perishable food. After autoclaving, the product can usually stay for many years, and metal cans are known to be both re-usable and safe. Value creation in detecting errors lies primarily in ensuring the control of production instantly, and to ensure that error-packaged food does not reach the market. A defective can in a batch can cause rejection of an entire delivery, which has obvious economical downside. At worst, a defective can may reach the end user, where the intake may cause fatal poisoning. Therefore, the need for continuous monitoring of the can seam is significant, especially for canned fish products.

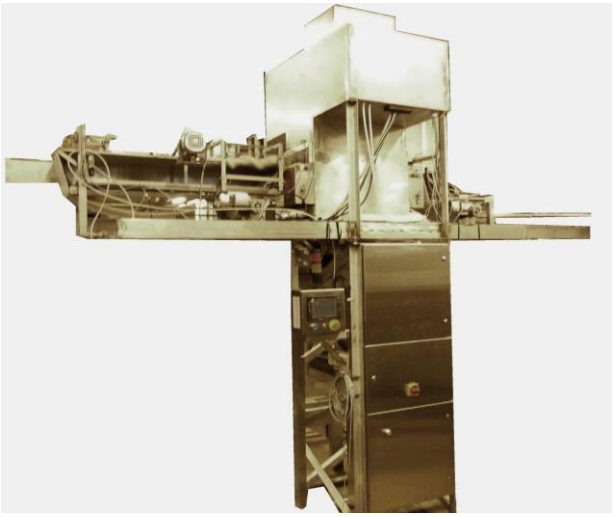
TECHNOLOGICAL SOLUTION

InnospeXion has developed a technology that ensures representation, measurement and automatic validation of canned closures on-line and at a rate per system up to 180 cans per minute. The ON-LINE CANSEAMSCANNER is unique worldwide and is based on extremely fast X-ray imaging (up to 300 frames per second), integration of advanced and fast sensors, and a newly developed geometric imaging principle.

The primary goal is the detection of seam defects, but also other can errors and deformities that affects the product's appearance, durability and ruggedness. Depending on speed, can size, and can format, defects down to 0.15 mm are detected and automatically discarded. The system design is controlled by a PLC, ensures that results can be used as part of process control, and not just as a final cull.

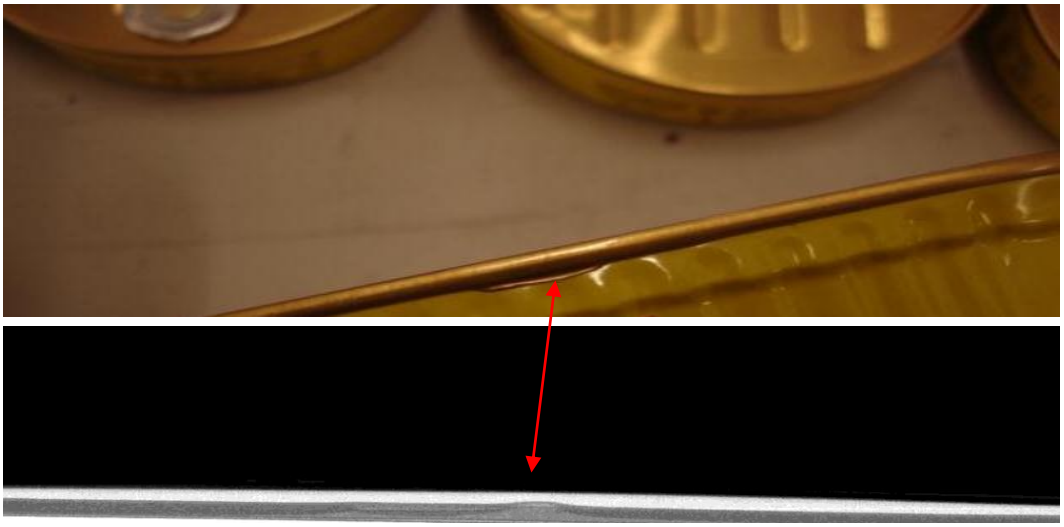
Capability & BENEFITS

The system operates with a false reject rate of less than 0.1% and a 95% probability of detection. Savings equals typically the costs of 2 operators per year, i.e. approx. 1.5 million DKK (in a 16 / 5 production). The largest value however is related to the instant detection of production defects and corresponding simultaneous corrective action taking. In addition, the value in securing a greater safety of the product may be extremely high. In many cases, the system allows simultaneous control of the can content, both in terms of quantity, distribution and possible foreign objects within the product.

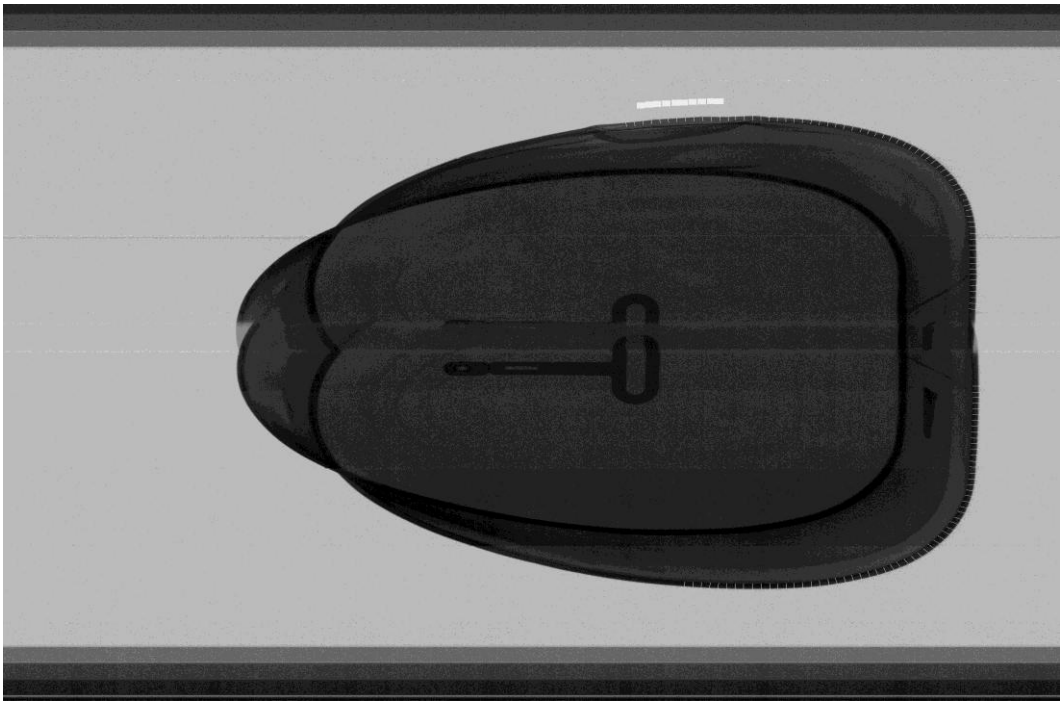


The ON-LINE CANSEAMSCANNER responds to a specific and essential need of canned food manufacturing companies. The technology is introduced to ensure productivity competitiveness and profitability through strong savings and better control of product quality. The system helps to minimize rejection significantly because of the on-line error detection capability. The system replaces final inspection which is performed by humans and thus relieves the need of repetitive and hard human work, that in any case only in part can satisfy present quality requirements on food safety.

The ON-LINE CANSEAM system reveals the seam defects in a large variety of cans fully automatically. The errors can not be detected with other techniques, for example due to water droplets, reflections and the small dimensions of critical defects. Thus, technologies as machine vision concept are not applicable. The alternative is repetitive and stressful human inspection. The consequence of faulty cans reaching the consumer can be fatal, and the costs due to leaking containers can be extremely significant.



Real-time X-ray of seam defects detected automatically by the On-line CanSeam system. The error is identical to that visually seen on the tin above.



Example of can defects detected on-line - the defect is marked (marker in upper part) and the image is saved for subsequent validation. The defect detection allow the manufacturer to adjust the can seaming machine instantly.

InnospeXion ApS – Horseager 14 – DK-4330 Hvalsoe – Denmark
Phone: +45 4640 9070 – bb@innospexion.dk – www.innospexion.dk