

High-speed leak detection test on the conveyor belt:**Preventing expensive returns**

Witten, April 2007

Few companies test their modified atmosphere packaged products for leaks as consistently as Dr. Schär, the largest manufacturer of gluten-free food in Europe.

The care they take is not exaggerated: Even one single recall action can not only be very expensive, it can also quickly ruin one's reputation. It is highly important that the packaging is leak-free. Once the modified atmosphere of the packaging is damaged, it is highly likely that the product will become mouldy on the shop shelf. For this reason, premium manufacturers, like Dr. Schär, undertake comprehensive leak detection tests during the final inspection.

The company produces over 80 products, many of which are packaged in modified atmosphere packaging. The annual production totals 2500 tonnes. "We got to the point where the quality tests just could not keep up" recalls Josef Unterhofer, technical project manager at Dr. Schär in Burgstall by Meran. "It was only possible to test individual packaging units for leaks by means of an offline random sampling process".

The problem encountered by the company from South Tyrol was a result of their own success. Within 25 years, the small specialist firm grew into a company with 300 employees at three sites, two of which are based in Germany. The company specialises in the production of

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gluten-free products such as bread, pasta and snacks. This is a very large market today as many people react unfavourably to gluten that is hidden in a large number of foods.

Up to 15 cycles per minute

The company needed leak detectors that were fully integrated into the automatic packaging line (inline detectors) in the production. As there were no suitable devices available at that time, Dr. Schär came up with a semi-automatic solution that was operated outside the line. “However the hourly throughput rate and the measuring accuracy left a lot to be desired” said Unterhofer. An experience that a lot of his colleagues in the industry had gone through: As soon as the production reaches a certain level, automatic leak detection is a technical challenge.

Whilst looking for optimisation possibilities, the company came across the German manufacturer Witt, who manufacture a wide range of leak detection devices. The company was in the process of launching the model “Leak-Master[®] Inline“ onto the market, a new generation of high-performance leak detection systems that were capable of testing both individual packages and also shipping cases fully automatically and non-destructively.

Dr. Schär decided to purchase the system. Witt accompanied the product launch on site. “Together we worked out smaller adjustments and customising and modified the Leak-Master[®] to meet our special requirements“, Unterhofer said about the start-up phase. “It was a great advantage that Witt provided its full support during the project work“.

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After some fine-tuning, the device now works in a three-shift system. On average, 220 shipping cases containing around 1400 individual packages pass through the testing chamber. "The Leak-Master[®] is currently the fastest testing system of its kind on the marketplace", said the application specialist Markus Mertens from the manufacturer in Witten, who helped during the start-up phase. "Up to 15 cycles every minute allow automatic quality controls to be performed on the whole production output".

During testing, the device generates a vacuum in the measuring chamber. If there is a leak, the protective gas (CO₂ carbon dioxide) will leak from the packaging. If the sensor is triggered, one of the packages must have a leak. An alarm is then sounded and the nonconforming goods are automatically sorted out via a pusher.

Cost benefits

Unterhofer is also impressed by the testing procedure: Not only because the testing method leaves the products untouched and it does not damage them in any way. "We all know the problem of cartons becoming damaged if the vacuum is too high and then they cannot be shipped out", he said speaking from experience. Therefore Witt only tests using a relatively low vacuum level of just 175 mbar, whilst still achieving exact results at a high level of reliability. "This was the factor which convinced us" commented Unterhofer.

The gas technology specialist from Witten has good reason for using CO₂ as a trace gas for analysis purposes. It is much cheaper for the customer than testing with expensive helium which is favoured by other manufacturers. Even the smallest of leaks are detected by the "Leak-Master[®]". This is guaranteed thanks to the measuring system

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developed by Witt which analyses the signals of the ceramic CO₂ sensor. The measuring range lies between 0 and 5000 ppm (parts per million) which is a resolution of the very highest order – just as Dr. Schär demanded.

Info box:

In the meantime Witt has successfully introduced the second generation of its CO₂-based, in-line leak detection systems: the "Leak Master MAPMAX". This new solution operates with two synchronized conveyer belts, which can be adjusted to the transport rate of the preceding packing machine.

The "Leak Master[®] MAPMAX" is currently available with two machine types and three chamber sizes to suit all applications.

Additional information is available in the Internet under www.wittgas.com.

(5646 characters incl. spaces)

Picture material – other motifs available on request:

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Josef Unterhofer is impressed by the enormous testing speed and high measuring accuracy of the Witt Leak-Masters®



Main plant of Dr. Schär in northern Italy



Leak detection system Leak-Master® MAPMAX von Witt: Fastest solution

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Top quality gluten-free products: Modified atmosphere packaging increases the durability

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