

With eagle eyes against contaminants

BAKING+BISCUIT INTERNATIONAL TALKED TO SIMON KING, GLOBAL HEAD SALES, SERVICE AND MARKETING AT EAGLE PRODUCT INSPECTION, HEADQUARTERED IN TAMPA, USA, ABOUT THE IMPORTANCE OF X-RAY DETECTION OF CONTAMINANTS IN BAKED GOODS



++ figure 1
Simon King, Global Head Sales, Service and Marketing

+ bbi: Mr. King, Eagle is a large company working worldwide in the broad area of food safety inspection. Why is the baking industry important for you?

+ King: Although we supply a lot of industries with our products, the baking industry is one of our biggest customers! Over the last 12–18 months one of the largest orders came from this business field in North America. And in 2013 we already won a huge European customer who had ordered our x-ray system in two system variations. I can't tell you more figures about this contract, but this is really important for us. In general terms: the baking industry is a leader in the implementation of x-rays, while other industries such as the meat industry now understand the importance and benefits it offers.

Facts about Eagle Product Inspection

Eagle Product Inspection is a company working in the field of food safety inspection technology. Its line of x-ray inspection systems evaluates in-process and finished products for contaminants such as metal, glass, stone and bone, while also having the ability to check mass, evaluate compartmentalized fill level and analyze fat content. Smiths Detection Product Inspection was founded in 1998 as a cooperative venture between a group of employees who were pioneers in the product inspection field. In March 2011, Smiths Detection Product Inspection division was acquired by Mettler-Toledo, who adopted the Eagle brand of food x-ray inspection systems. Today Eagle Production Inspection, with local offices and distributors across the globe, supports food manufacturers across 60 countries. +++



++ figure 2
A comparison between a standard x-ray (left) and MDX technology

+ bbi: From your point of view as an inspection expert, what are the characteristics and challenging factors of the baking industry?

+ King: It is the fact that baked goods are so diverse. You have all kind of raw materials, dry and wet ones with different consistencies, small and big ingredients such as refined sugar and big nuts etc. That makes a multi-textured product. Panetone, for example, is a challenging baked good for x-ray inspection, as contaminants are hard to find due to the amount of fruits in it.

+ bbi: And how do you solve this problem?

+ King: We developed a special kind of x-ray technology, called Material Discrimination x-ray (MDX) which originates from the security industry. This technology is able to discriminate materials by their chemical composition – that means atomic number – so that historically undetectable inorganic contaminants such as glass shards, small rocks, rubber and plastic can be identified.

+ bbi: Can you describe the MDX system more in detail?

+ King: It works with two different levels of energy absorption between the ingredients and the contaminants. The part with a low absorption rate will pass through, while high energy particles will be absorbed. With MDX you can see in a difficult and “busy” image what belongs to the baked good and what has a higher density (e. g. glass), therefore is darker in the image and must be rejected. For example if you have nut bread, you need MDX to make the picture clearer and see the differences between a dense nut and a dense contaminant (see figure 2). Up to now we can sort out impurities with an average size of 1.2–1.5 mm. Furthermore, this technology

can also mask individual parts of the product. So the metal closure on a bread packaging can be blanked out and will not disturb the image.

+ bbi: You talked of “inorganic contaminants” – what if there are organic contaminants? Or even burned parts of bread?

+ King: A burnt raisin is going to be harder and more dense than a raisin which is still in an un-spoiled condition. By contrasting the variance in energy absorption between the two conditions of the fruit, MDX will allow you to identify the variance between the spoiled product and the good condition product, allowing the burnt, spoiled version to be rejected.

+ bbi: This sounds as if you don't need traditional x-ray inspection anymore! Is it already old-fashioned?

+ King: No, not at all! It is still the standard in the food industry and our most sold products are the Pack range of x-ray systems. They have a detector to find contaminants in the size of 1.8 mm by using a single generator energy level, which is already very, very accurate. But sometimes, for some products such as special baked goods, we need more. So in a way, MDX is an upgrade on our standard x-ray systems.

+ bbi: There are some big trends in the world, for example decreasing household sizes, in which people live much more on the road. That also means a trend for convenience food, often single portion. This all influences the baking industry. What trends have an influence on your company?

+ King: The trends of more convenience and food-to-go also include the demand for a bigger choice in product range. Therefore our customers extend their range by using more ingredients such as chocolate, raisins or even rare ingredients. This leads to more complex images which our inspection systems have to read.

+ bbi: And what is with the trend of automation?

+ King: Of course, bakeries are growing and using more automated operation steps. This drives our growth too. But it is more than that we have to build bigger machines which must be faster than before. The emphasis lies on better quality control points. What means we have to develop software which is able to go with this trend. An example is the image analysis software SimulTask which is able to extend the images to the whole network in the plant, so that each operator has all information instantly, such as: What is the reject rate? How many contaminants were found? How was the quality of inputs that are mentioned in the process? In a way, it is a highly developed remote service which fulfills all aspects of traceability. ▶

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METTLER-TOLEDO Group

Mettler-Toledo is a global manufacturer and marketer of precision instruments for use in laboratory, industrial and food retailing applications. The group is divided into five business units. Each of them manages its own competence centers, which cover marketing, product and technology development, manufacturing, IT, finance and human resources. They produce products and services for their given market segments: Laboratory, Process Analytics, Industry, Product Inspection and Retail. Eagle joined the Mettler-Toledo Product Inspection brand family in March 2011, which includes Garvens checkweighing, Safeline X-ray, Safeline Metal Detection, CI-Vision and Pharmacontrol Electronic GmbH (PCE). Eagle Product Inspection operates as an independent business. +++

+ bbi: It sounds as if your products seem only to be of interest for larger customers ...

+ King: You are right, the impression might arise. But our x-ray systems are also available in an "entry level". We have scaled it back so that smaller customers can also use it for their production.

+ bbi: If we consider your customers in terms of their geographical distribution, what are the most important countries for you?

+ King: America is clearly our strongest market, but Western Europe follows closely after. That's why we have invested in a facility in the UK as well as in a new R&D center in

Wiesbaden, Germany. The rest of our revenue, which by the way increased by 25 % last year, is globally spread, for example, in South America such as Brazil and Mexico, China, Europe and Australia. China for example is a new market, where we have recently established a presence in order to serve our customers based in this growing market.

+ bbi: Eagle has R&D centers in America and Europe. Does this mean that research is an important factor in your work?

+ King: Yes! We have a number of dedicated engineers and product inspection experts working in our R&D centers worldwide. The German center was opened in early 2013, so it is equipped with the latest technology. For example the Material Discrimination x-ray system was explored in Wiesbaden.

+ bbi: One last question: What are your plans for the future?

+ King: Food safety is the number one priority for food manufacturers, and x-ray inspection technology is constantly evolving to stay ahead of increasingly stringent international standards. Furthermore, our goal is to provide not only the knowledge but also the support in both developing and maintaining the highest levels of product inspection. We will continue to grow and innovate in 2013 so that our extended global reach and service capabilities will ensure customers around the world have access to the latest technologies being developed, and the support to implement these in their production lines.

+ bbi: Mr. King, thank you for the interview. +++

++ figure 3
Eagle has dedicated R&D facilities in Germany and Florida





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