

Safeguarding Customers

Maximizing Quality and Performance



The diverse square chocolate bars produced by Ritter Sport have been top sellers in candy stores for decades. The cult brand is well recognized by Germans and enjoys a flawless reputation amongst its customers. To protect this reputation, the company uses cutting-edge technology to monitor its production processes. METTLER TOLEDO Safeline Profile R-Series metal detectors play a key role in the company's strict QM concept.

Each day, Ritter Sport produces around three million chocolate bars in over 30 different flavor varieties at its plant in the Swabian town of Waldenbuch. To ensure that only flawless, high-quality products make their way onto shelves, the traditional family-owned company is certified to the highest standard by IFS Food (International Featured Standard) and BRC (British Retail Consortium) - and it applies comprehensive quality management measures to its production processes, following strict standards.



The Profile metal detectors are used as a critical control point.

Ritter Sport

- Metal contamination
- and rejection in chocolates
- Quality control



Herr Schimpf, Shift Production Supervisor, has been won over by the Profile's detection accuracy

One of the most important stages in the quality assurance process is the examination of the chocolate bars for potential contamination prior to packaging. Metallic impurities may even affect the product during the conching process – the name given to the final processing stage in which the liquid chocolate is smoothed out by gently mixing it over an extended period – as a result of the wear and tear on the mixers.

“Here in Ritter Sport production we’ve been using Safeline metal detection technology for decades to ensure our chocolates are free from metal contaminants,” explains Markus Schimpf, Shift Production Supervisor at Ritter Sport.

To reliably detect metal contaminants and remove defective products from the process, Ritter Sport uses five high-performance METTLER TOLEDO Safeline Profile R-series metal detection systems at its plant in Waldenbuch.

All metal detection systems are located shortly before the packaging

process and routine performance checks are conducted hourly to verify the equipment continues to perform as it should.

The Profile metal detection solutions are an important critical control point in production according to the Hazard Analysis and Critical Control Points (HACCP) analysis, and as such, form part of the quality concept at Ritter Sport.

Customized settings for highest detection accuracy

After conching the chocolate, it is poured into molds, cooled, and then shaken from the mold. The finished bars (not yet wrapped) are then fed through the metal detectors on wide conveyor belts.

As the shape, size, and location of the metal flakes and splinters can vary greatly, Ritter Sport opted to use Profile systems that are extremely sensitive and have a high detection rate. Relying on the leading ultra-high-frequency technology developed by METTLER TOLEDO, these systems are able to detect even the smallest ferrous and non-ferrous fragments

and stainless steel contaminants, regardless of their shape.

Seamless Integration

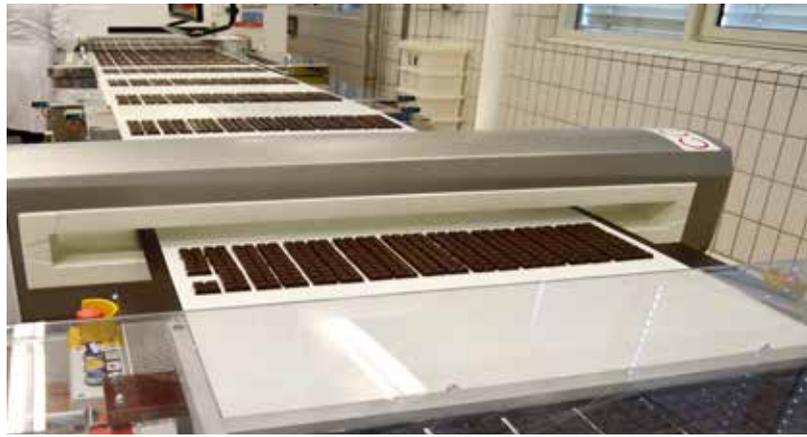
The metal detectors are tailored for the dimensions of the production lines and optimized to allow the passage of the flat bars through the detector. This ensures that the electromagnetic field used to detect foreign metal objects is evenly spread and maintains the same level of sensitivity.

The operating frequency of the devices can be individually configured, depending on the product to be inspected. If the selected operating frequency is too low, metal contaminants may be left undetected. If the frequency is too high, the device could possibly be too sensitive, leading to a high false reject rate and accelerated wear and tear on the equipment.

Reduction of product effect

A key feature of the Profile systems for Ritter Sport is the ability to automatically suppress the so-called ‘product effect’. Some chocolate bar varieties – such as Ritter Sport Fine Extra Dark Chocolate – have such a high percentage of cocoa that their product signal is extremely close to that of a foreign metal object. This could potentially lead to the rejection of products that do not actually contain any impurities and ramps up costs.

The Profile systems are able to remove this product effect from the analysis signal using the specially designed OVNC software algorithm, thereby saving Ritter Sport from unnecessary costs caused by false rejections.



Ritter Sport's chocolates being inspected by a Profile metal detector - the detection height is adjusted to optimally suit the product height.

Integrating existing reject mechanisms

To facilitate efficient integration, the new metal detectors were directly connected to Ritter Sport's existing conveyor belts and product reject mechanisms. If a contaminant is detected in a product, the Profile system automatically activates the retracting band reject mechanism.

The roller at the end of the conveyor briefly moves backwards to create a gap in the line. The rejected chocolate falls onto a conveyor belt perpendicular to the direction of transport, and is safely removed from the production process.

Product changeovers at the touch of a button

During day-to-day operations, the metal inspection systems prove their worth primarily through their ease of operation and suitability for daily use.

A clear, large-format, full-color touch screen makes control and operation of the equipment extremely convenient.

The graphical user interface is easy to use and ensures that production processes remain efficient. The need to change the product setup multiple times each day demonstrates this efficiency extremely well.

After each of the five lines produces six to seven different varieties of chocolate each day, the employees have to initiate a range of product changes on the inspection systems.

Although this sounds time-consuming, it can actually be done at the touch of a button, as all 30 varieties of chocolate are stored in the Profile system's item memory.

To assist Ritter Sport with the management of its production processes as effectively as possible, the Profile metal detectors are seamlessly integrated into the producer's IT processes and connected to the central ERP system.

This enables the production management team to view and statistically analyze the data generated by the five metal detectors at any time.

Versatile integration

The flexible metal detectors in the METTLER TOLEDO Safeline Profile R-series range make it simple for Ritter Sport to continuously monitor the quality of its products at the plant in Waldenbuch, and document full compliance in accordance with strict IFS Food and BRC provisions.

Seamless integration of the units into the production environment and the company's IT processes makes it possible to take full advantage of the user-friendly solution's strengths. This helps to maintain the excellent reputation of the Ritter Sport brand over the long term.

► www.mt.com/md-ritter-sport



About Mettler-Toledo Product Inspection:

The Product Inspection Division of METTLER TOLEDO is a leader in the field of automated inspection technology. Our solutions increase process efficiency for manufacturers while supporting compliance with industry standards and regulations. Our systems also deliver improved product quality which helps to protect the welfare of consumers and reputation of manufacturers.



Checkweighing



Metal Detection



Track & Trace



Vision Inspection



X-ray Inspection

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