mesutronic
DETECTING WHAT MATTERS

Inspection systems

for the confectionery and snack industry

Reliable, precise and user-friendly

X-ray inspection systems, metal detectors and separators from Mesutronic

Why detect foreign bodies?

Despite all safety precautions, the contamination of confectionery and snacks with foreign substances is unfortunately a problem in every manufacturing company. If these are not reliably detected and not removed from the production chain, the effects are often dramatic. Damage to processing machines, problems during audits, loss of supplier contracts and, in the worst case, severe image problems among consumers are often the result of inadequate control systems. In addition, X-ray inspection systems offer a wide range of other possibilities for checking the quality of sweet and savoury snacks.

Why Mesutronic?

For more than 30 years, we have been developing inspection systems with and for companies in the areas of bread and small bakery products. For all those who need foreign body detection for their production facilities and value “Quality – made in Germany”, Mesutronic is your experienced, solution-oriented, internationally active specialist and loyal partner.

We achieve this because everything from development to design and installation, up to service and maintenance is consistently geared towards individual industry and customer needs.

» **Machine protection and quality assurance - reliable and user-friendly.**

Manufactured in Bavaria, used throughout the world. «

Christian Boxleitner
Managing Director

Incoming goods area

The avoidance of foreign bodies in the final product begins with the examination of the supplied raw materials. For this purpose, metal detectors and metal separators check flours and powders during the emptying of lorries and big bags - either in the pneumatic conveying line or in free fall. Bag containers of 25 kg or 50 kg can also be examined using conveyor belt systems. This means that, in order to minimize risk, impurities can be recognized at this early stage and traced back to the supplier.

Type **P-TRON 05 GM** separators are available in nominal diameters of up to 200 mm. This makes them ideal for use in silo feeders or for the main distribution system after the silo. They can be used for both the pressure and vacuum conveying of powders, granulates or flakes.

Additives, sweeteners or special flours are often supplied in 25 kg bags.
Metal detectors of the **METRON 07 CI** series are used to close this security gap in incoming goods. These work, usually in combination with **TRANSTRON** conveyor systems, as stand-alone systems in the logistics sector. Complaints about contaminated packages of expensive raw materials can be made directly to the supplier without opening the package. Optionally, the bags can also be either automatically slid onto a discharge belt or marked with paint to prevent re-entry into production.

QUICKTRON 07 RH free-fall separators can be used after silos or when emptying big bags. A variety of nominal diameters, accessories or special versions such as ATEX-compliant devices are available for every application.

The fact that they can be disassembled without tools, as well as their hygienic structure means that cleaning for the area between different containers is reduced to a minimum.

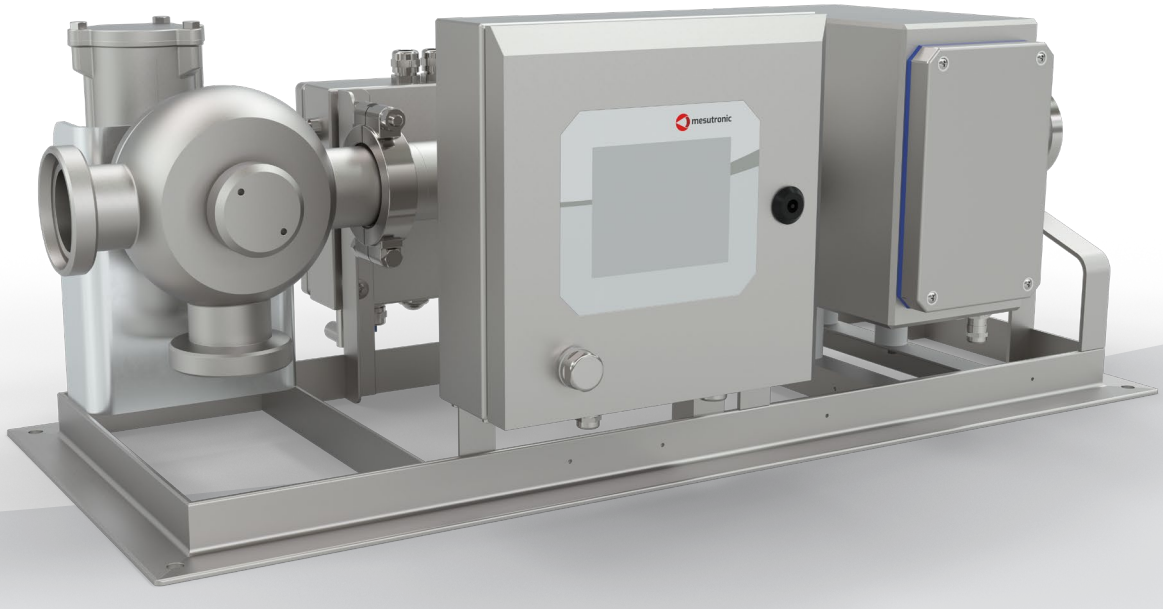
Production

The use of test systems at different stages of the production process allows increased process reliability and a reduction in the costs caused by foreign bodies.

On the one hand, mechanical processing machines such as mills or extruders can be protected against damage. On the other, at this point, product components discharged with metals are associated with significantly reduced loss of value in the production chain. Depending on the type of product, this point in the process can also be a CCP if a check after the final packaging is not possible or associated with significantly worse results.

PIPELINE 07 0 metal separators are used to inspect liquid or pasty compositions. If the viscosity does not allow the use of fine filters or if wear-and-tear occurs regularly, it is recommended to use this technology.

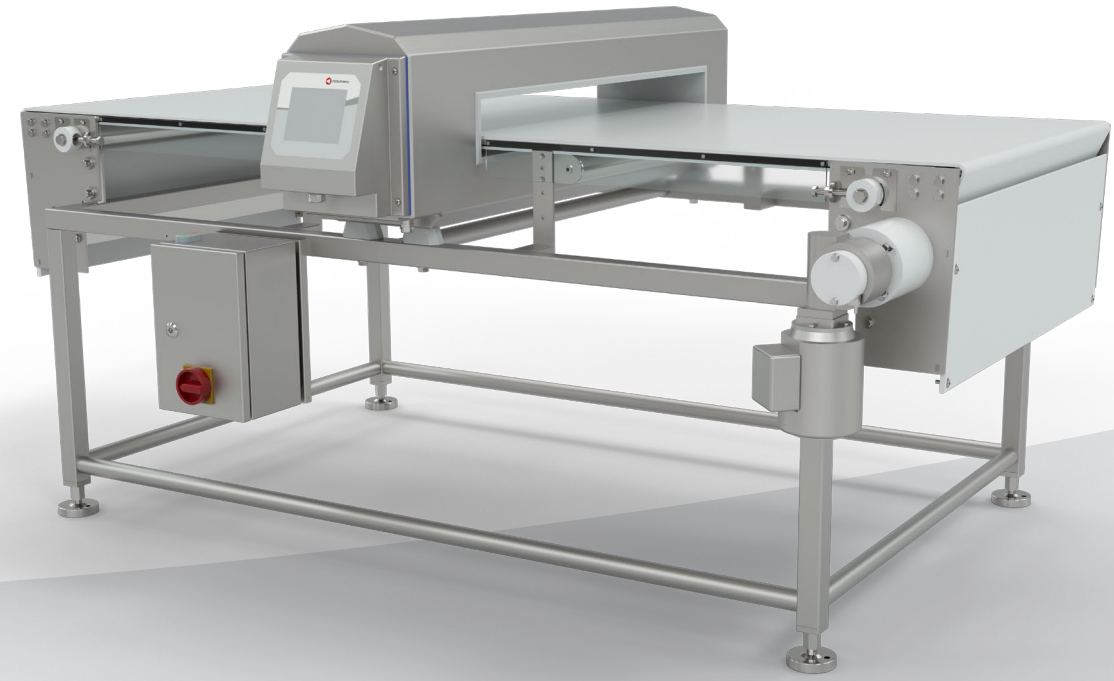
Typically, this is the case for liquid chocolates, doughs or fruit preparations.



METRON 07 FL metal detection systems are placed directly on the forming shoulder of the VFFS bagging machine. Thanks to the strong shielding, the devices can deliver high accuracy with minimal installation space, regardless of whether crisps, sweets or pastries are examined.

Different bag diameters can be easily filled with replaceable funnels. These represent a good alternative, especially when packaging films containing aluminium are used, as they make later investigation with a metal detector more difficult or impossible.

These are perfectly complemented by conveyor belts of the **TRANSTRON K** type, which offer an equally high degree of flexibility and can be supplied with rolling or fixed knife edges. This ensures maximum protection against faults and damage-free product transfer.



Outgoing goods area

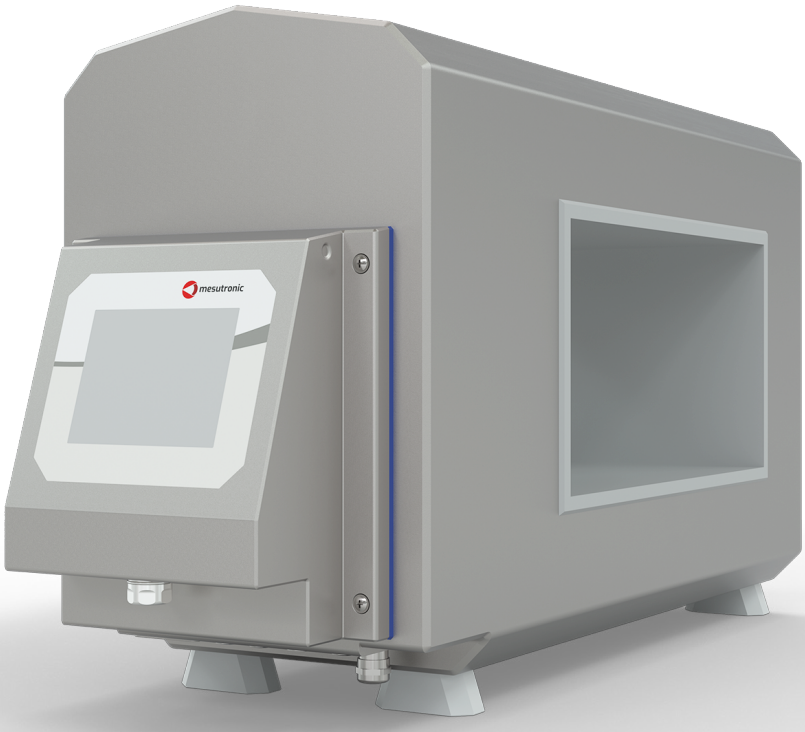
In packaging, the task of quality assurance is of prime importance.
According to the HACCP criteria, a final check for foreign bodies should take place if re-contamination cannot be ruled out. This usually means the inspection of the product when its primary packaging is closed. Inspection in any secondary packaging is also possible. However, here a check must be made of whether the recognition accuracy at this point is still sufficient.

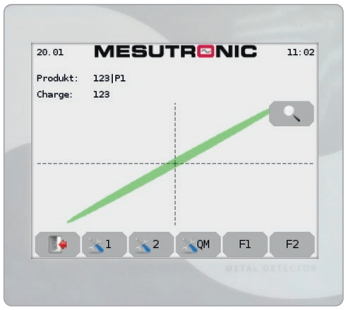
The most common variant of inspection in this area are conveyor belt systems of the **TRANSTRON** type.
As a supplement to our metal detectors, they represent optimum recognition accuracy and stability. Separation variants such as pushers, air jet nozzles, belt retractions or hinged belts are standard. Durable components, starting with bearings via motors and conveyor belts, ensure continuous, low-maintenance operation. We are also happy to offer you systems specially adapted to your production, e.g., as ascending conveyor belts to be placed after the tubular bag machine, or in special installation positions. Supplementary packages for special trading standards such as BRC, TESCO and others are also available.

The classic final inspection is carried out using a tunnel metal detector of the **METRON 07 CI** type.
Like all other systems in the 07 series, it allows seamless logging, automated test routines and simple reporting via USB, the mesuNET network or via direct log export.

Also upstream in the production process, these systems, with available tunnel widths of up to three metres and high recognition accuracy, are very well suited to the examination of products such as chocolate bars, pastries, waffles or rubber goods after they have been in baking or cooling tunnels. In order to detect even the finest metals here despite the large coil cross-section, MESUTRONIC offers shaft extension adapters that minimize the effects of powerful machines in the immediate vicinity.

The inspection of products with metallized film is also possible,
but here we generally recommend the use of an **easySCOPE** X-ray scanner.





X-ray inspektion

In the sector of confectionery and snacks in particular, inspection for foreign bodies by means of X-rays offers diverse advantages in addition to the search for metals alone. In addition to the detection of other types of contamination such as glass or stones, quality algorithms make a significant contribution to customer satisfaction. For the inspection of products with metallic components, X-ray inspection systems are the only meaningful way to carry out a final, policy-compliant inspection. Metal detectors offer, in the case of products which are easy to test and have no intrinsic conductivity, advantages for the detection of low-density types of metal, such as aluminium. In very rare cases, this is also applicable to magnetic impurities, for example iron or nickel. Here, a combination of the two technologies can be the best solution for maximum protection.

The **easySCOPE** X-ray machine, designed for the examination of medium and large packaged products, such as collective packaging or blisters, with belt widths of 400 or 600 mm, complements the Mesutronic product portfolio for the confectionery industry. Even for beginners in X-ray technology, the device, with its moderate price, high-quality, and thus low-maintenance, components, as well as its extremely intuitive operation, is their best chance of entry into this type of foreign body control. The system detects metallic and non-metallic impurities such as, for example, glass, stones or plastics, by means of an imaging process – X-ray technology.

The **easySCOPE ST**, on the other hand, is the optimal solution for the inspection of smaller, flat products. Without compromising on X-ray performance, it combines easy cleanability with an extremely compact footprint.

As with all other X-ray inspection systems in our portfolio, the easySCOPE ST is also available with fitted separation units, sensor packages to meet trade standards, and designs for hot or dusty environments.

Image processing functions

The following functions are offered in particular for the confectionery and snack industry, adding significant value beyond pure foreign body control:

Clip hiding and clip completeness check

This function checks, on the one hand, the completeness of closure clips using a plurality of algorithms, and on the other, it ignores the mostly metallic clip, so foreign body identification is not negatively affected.

Numbers

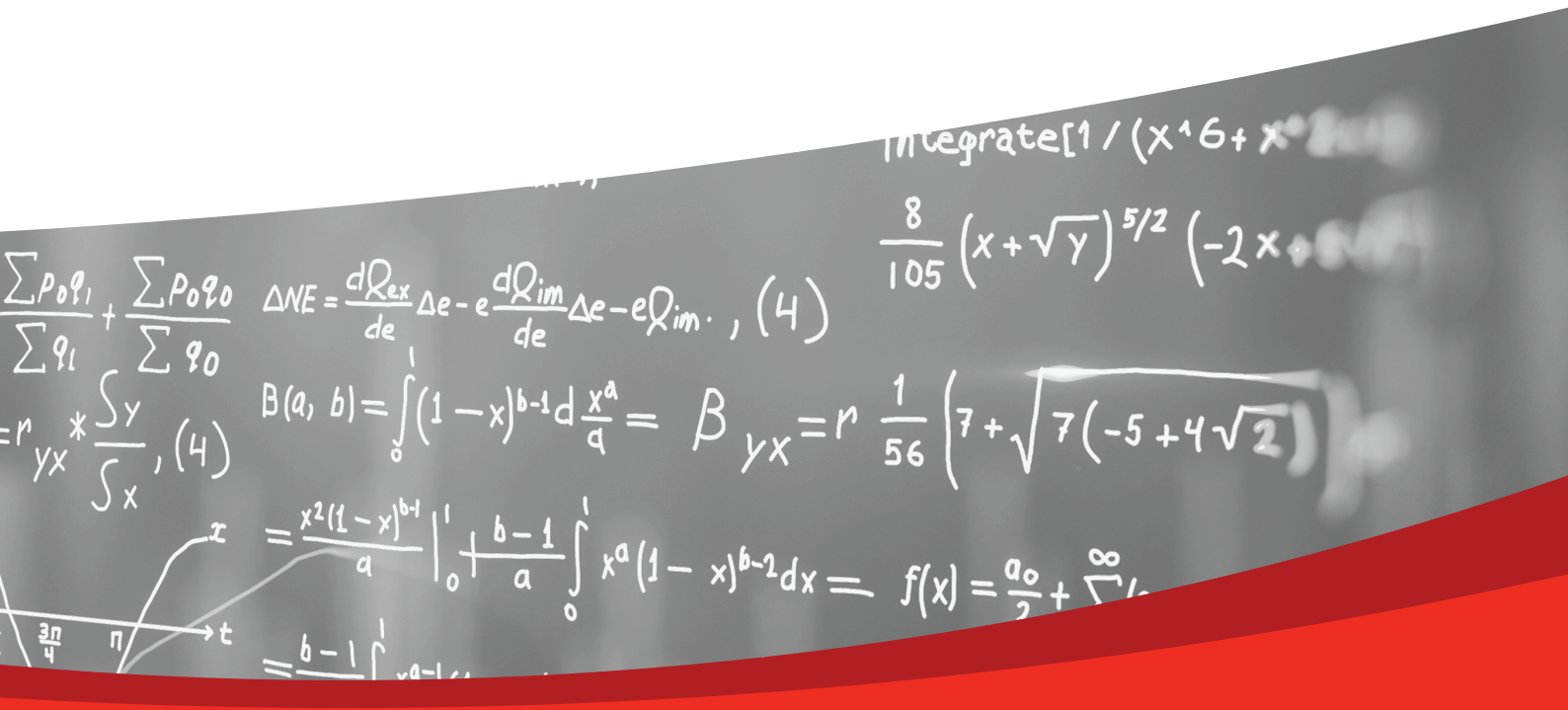
This function is used to reliably detect missing parts in collective packaging.
A common example of this are missing pralines in a closed box.

Weight check

This software extension allows the weighing of entire products or product parts.
It can therefore reliably detect, for example, missing pieces of chewing gum in a package.

M1 intgerity check

This extension, consisting of various algorithms, monitors almost all shape parameters of the entire product or product parts. It recognises broken products, products that are too large or too small, cavities, errors in the external profile and much more. In particular, fragile products in opaque packaging can also be checked again while intact after primary packaging.



Digital products and services

The successful operation of inspection systems is no longer solely dependent on purchasing of the right product, but also on how well the system is connected to the people and machines in its environment. Mesutronic offers a wide range of support services that increase the integration of our products.

Depending on the type of electronics used, our systems can already provide information as standard via analogue signals, various bus systems or Ethernet. Information is received by either controllers, process control systems or other, higher-level machines along the line. In addition to other protocols, with digital networking the OPC UA protocol is used here for the smooth transmission of operating conditions and production-critical values.

If a networking solution is desired purely at the level of foreign body detectors, here **mesuNET** offers optimal performance for the simple creation of reports, evaluation of statistical data, central backup of the event history and as an intermediary to higher-level databases or control systems. This facilitates the easy collection of important OEE data with secure, web-based access without attachment to a single computer.

The **mesuEXPORT** software feature is another easy, automatic and cost-effective way to back up reports. Here, systems with the AMD 07 electronics series are connected to the customer's network drive via Ethernet. The system can then be configured to store event reports for specific events or at specific times. Data is therefore redundantly backed up and cannot be lost - even if the system is completely destroyed.

mesuREMOTE allows our service specialists from Kirchberg im Wald to access any connected system, often avoiding time-consuming on-site deployment. Communication is secured according to current IT standards, encrypted and takes place solely after approval by the customer at all times.

All of this can additionally be secured on the hardware side via a key switch. This means that any uncoordinated manipulation of systems by Mesutronic or third parties is reliably excluded.

The electronic **autoTEST** tester allows significant reduction in manual test cycles in devices of the 07 electronics series.

Signals from physical test bodies are copied via an interference coil that operates independently of the detector. As a result, short test cycles, and thus maximum process reliability, can be implemented without additional effort.

In order to reduce introduction barriers and ensure smooth, long-term operation, we recommend our **training programmes**. We offer a wide range of solutions, from simple operator training included with commissioning to multi-day events on our premises. As with our physical products, we strive to make training as efficient and economical as possible for our customers while still in the coordination phase. The content is recommended by us and then individually adapted to your needs according to the number of participants, their educational background or previous experience.

We are also happy to offer regular training courses at a reduced rate in connection with **maintenance contracts**. These courses are also designed to be customer-oriented. Frequently selected options include, for example, annual on-site maintenance or reduced prices for spare parts. It is also possible to flexibly add or remove devices from the scope of the contract.

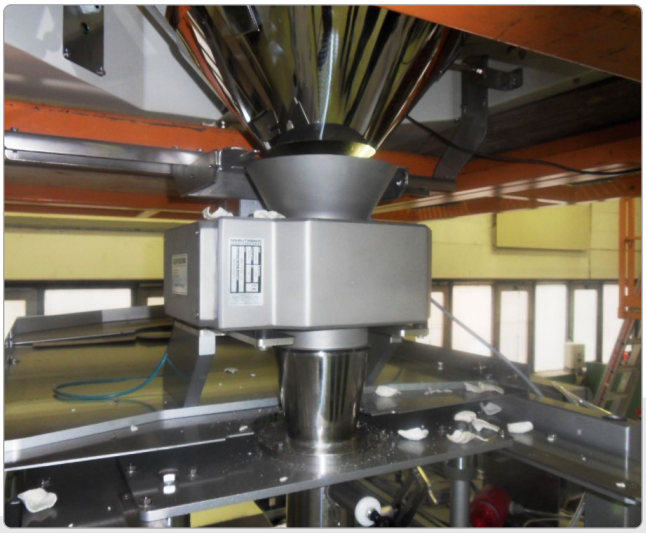
Options for maintenance contracts and training in our systems are usually also available for indirect customers of our local partners or OEMs.

The cornerstone of our **after-sales service** is our motivated, trained and customer-oriented service staff. Our promise of "detecting what matters" includes accessibility without compromise and without additional costs, 24 hours a day, 365 days a year. This is supplemented by our cost-effective board exchange programme with reprocessed electronic components as well as the possibility to repair every system ever sold to the market.

Customer-specific projects

Special challenges may arise in particular when retrofitting inspection systems into an existing production environment. The development of solutions for these tasks is one of the core competencies of Mesutronic GmbH. The ways shown range from simple consultation on the deployment of a standard solution in an unusual way, through smaller and larger modifications, to the complete, customised customer system.

We focus on the permanent, reliable and economically optimal fulfilment of your requirements. This is made possible by our company's competent team of employees, who are trained in all relevant areas from sales to application, mechanical and electronic development, up to production and after-sales. They are supported by modern work equipment and a process world embedded in ISO 9001.



We make projects, which we see as a permanent dialogue, transparent for our customers at all times.

The way we see it, our work is not finished when products are delivered, but when production is again functioning smoothly after conversion.

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