



# Inspection systems

for the bakery 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 bakery products with foreign substances is unfortunately a problem in every manufacturing company. The effects are often dramatic if these are not reliably detected and removed from the production chain. 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 bakery products.

### 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

In the incoming goods area, metal detectors and metal separators are used to check the emptying of trucks and big bags - either in free fall or in the pneumatic conveying line. In conjunction with conveyor belts, they can also be used for examining flours, additives or special ingredients in 25 kg bags. This allows contaminants to be traced back directly 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. Contaminated material is discharged through lock valves without loss of pressure. The detection units used are optimally shielded against environmental disturbances and are also very easy to integrate into existing pipeline systems.

**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. Even with larger diameters, they offer excellent detection accuracy. These are often combined with the **mesulINSERT** test body feed and collection stations to facilitate regular tests of detection accuracy.

Special ingredients such as seeds or spices 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. They are loaded manually; complaints about contaminated packages of expensive raw materials can be made directly to the supplier without opening the packages. Optionally, the bags can also be automatically slid onto a discharge belt or marked with paint to prevent re-entry into production.



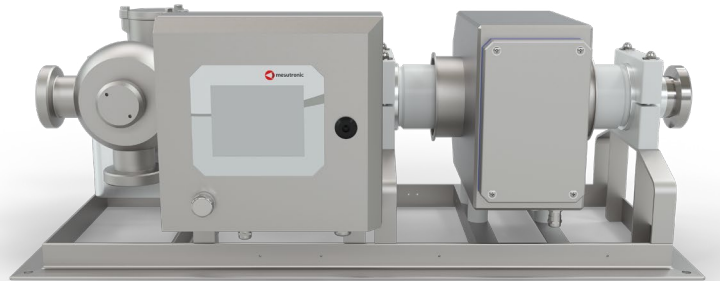
# Production

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 hand, 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 happens for doughs before they reach forming machines.



Small baked goods in particular are often examined as bulk goods before final packaging. For this purpose, conveyor belt systems from the **TRANSTRON C** series are usually used.

The link belt is both hygienic and easy to clean. Contaminated products are discharged safely and in line with regulations via withdrawal at the end of the belt. The best way to compensate for changing product effects due to residual heat in the product is usually to combine them with metal detectors of the **METRON 07 CI** type.

## Outgoing goods area

**In packaging, the task of quality assurance is of prime importance.**

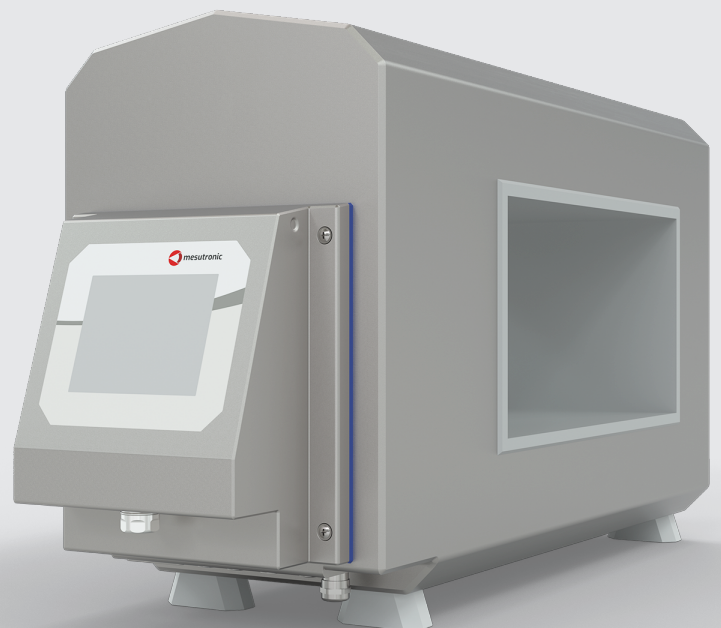
**According to the HACCP criteria, a final check for foreign bodies should take place if re-contamination can be excluded. This usually means the inspection of the product when its primary packaging is closed. Inspection in any secondary packaging is also possible. However, here a check must be made 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, blower 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 after the VFFS 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.

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 inspection

**In the baked goods sector 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, from cartons full of dough blanks to individual toast loaves, with belt widths of 400 or 600 mm, complements the product portfolio of Mesutronic for the bakery 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 bakery industry, adding significant value beyond pure foreign body control:

## Clip masking 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.

## Weight check

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

## Integrity 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.

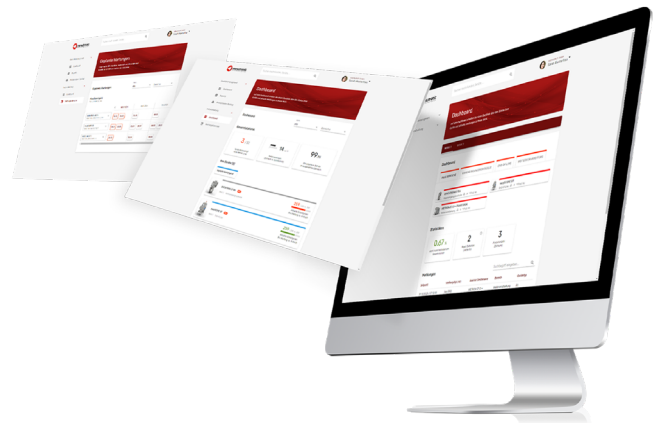


## Digital products and services

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.

The modular **mesuLINK** software packages offer the perfect possibility for building a network of metal detectors and X-ray systems. This means that all relevant information concerning foreign body management is recorded and evaluated centrally. This offers a variety of possibilities to simplify and save time in the areas of quality assurance and maintenance. Devices from the AMD 07, AMD 05 and easySCOPE series can be connected.

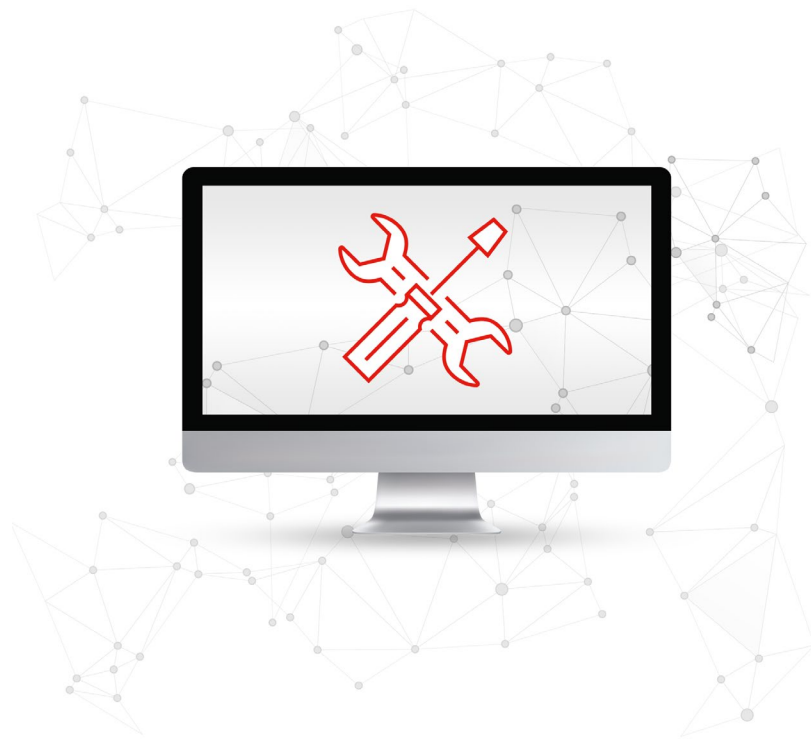


The **mesuEXPORT** software feature is another easy, automatic and cost-effective way to back up reports. Here, systems with the AMD 07 electronics series are connected to the customer's network drive via Ethernet. The system can then be configured to store event reports for specific events or at specific 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.

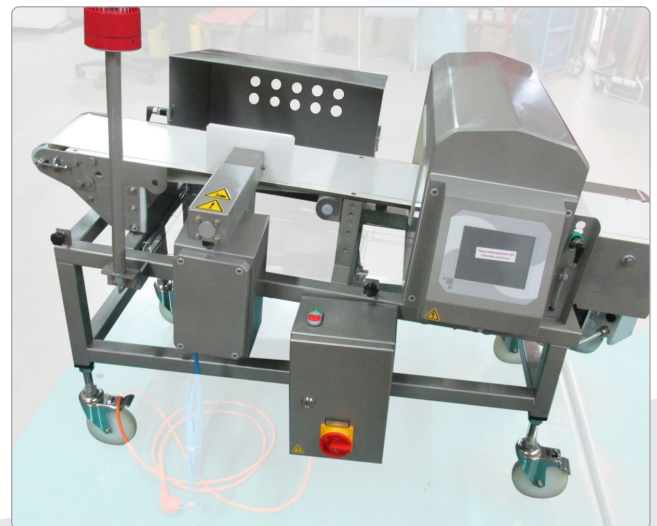
## Customer-specific projects

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.





**Headquarter  
Germany**

📍 **Mesutronic GmbH**  
Hackenfeld 13  
94259 Kirchberg im Wald  
Germany

☎ +49 9927 9410 0  
✉ sales@mesutronic.de  
www.mesutronic.de



**Sales and service  
USA**

📍 **Mesutronic Inc.**  
4502 Southmark Dr.  
Salisbury, NC 28147  
USA

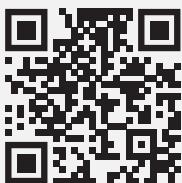
☎ +1 980 265 4015  
✉ info@mesutronic.us  
www.mesutronic.us



**Sales and service  
France**

📍 **Mesutronic France SAS**  
11, rue de Mittlerweg  
F-68000 Colmar  
France

☎ +33 03 89 20 43 98  
✉ contact@mesutronic.fr  
www.mesutronic.fr



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