Food Safety

X-RAY INSPECTION

RAYCON

Product family overview

The next generation of RAYCON

Auto-learn function

The Auto-Learn function offers a simple and intuitive operation. The configuration of various filters is performed by the device itself, considerably reducing effort on the part of the user. Even the detection sensitivity is automatically adjusted. Auto-learning takes fewer than two minutes for each new product using five product samples.

New software features

"Bone Detector," "Wirefinder," and "Glass Increaser" are new filters that boost accuracy in the detection of specific contaminants. Also available: Sensitivity prediction (configuring the machine virtually, without test pieces); Integrated Compliance Monitoring for extra safety (automatic controls for standard requirements in 10-minute intervals to minimize errors)

Modular build of D+ devices

RAYCON D+ MX and HX have modular builds which allow the systems to be precisely adapted to your production line. They also offer a variety of upgrade possibilities including detectors, cooling devices, conveyance directions, operator panels, rejection units, software features and more.

UL/CSA certified

All RAYCON devices are certified with UL/CSA.

Made in Germany

All RAYCON devices are developed and manufactured in Germany.

Functionality

The system consists of these main components:

A X-ray tubes: Tubes electrically generate the x-ray beams. The beam exits through a small slit and passes through the product, layer by layer from the bottom up.

B X-ray beam

C Transport system: A self-driven flat belt made from PE transports the products evenly through the x-ray beam. This makes it possible to capture every layer of the product.

D Detector unit: The linear detector is installed above the inspection opening and converts the incoming x-ray beams into an electric signal from which an x-ray image is generated.

E Industrial PC: Here, the image is analyzed, and the rejection system is triggered as necessary.
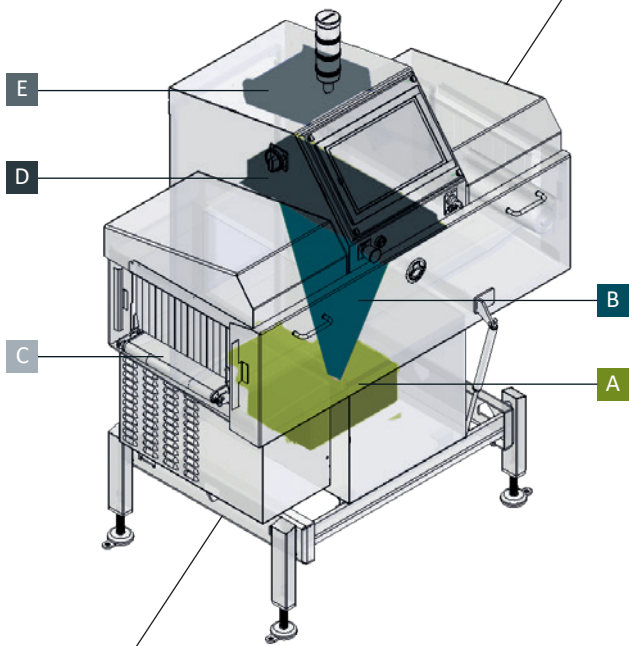
X-Ray AI-Technology

The X-ray AI technology called THiNK enables precise detection of anomalies and foreign objects. It offers a wide range of applications and can even detect low-density contaminants. The AI model learns the characteristics of the product by being trained with a large number of good products. If a product deviates from these learned characteristics, it is identified as defective. This allows foreign objects to be accurately localized.
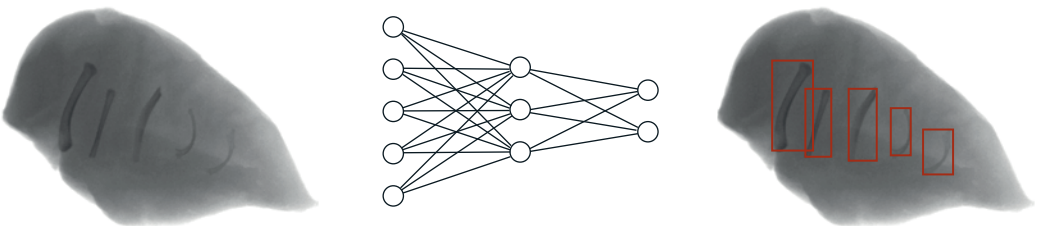
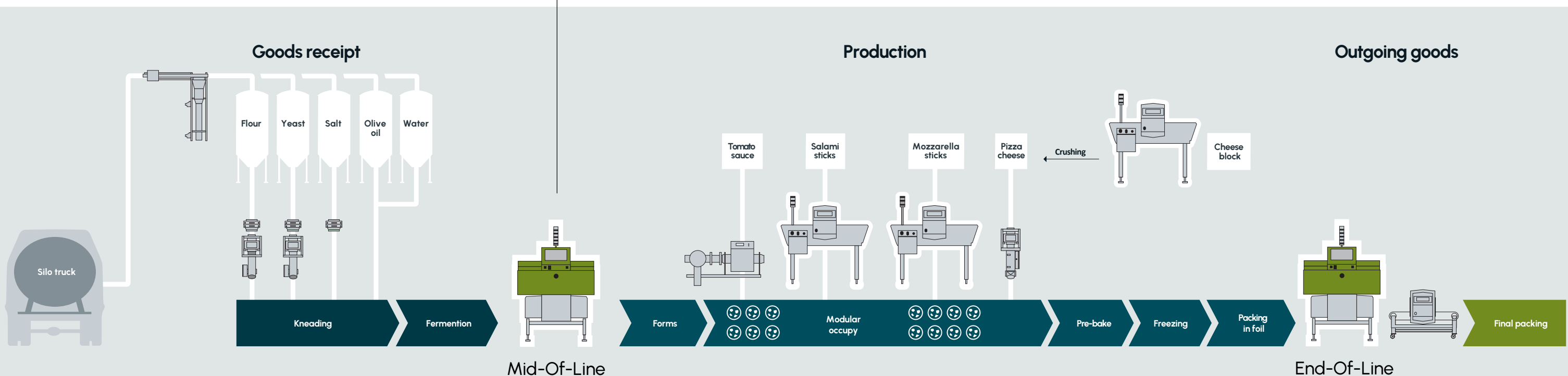AI-powered detection: Left: undetected contaminants – Right: successfully detected.
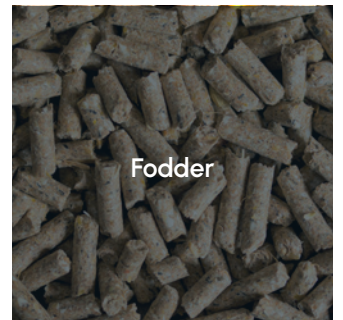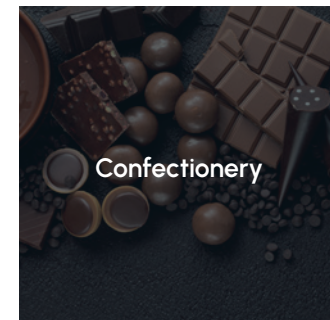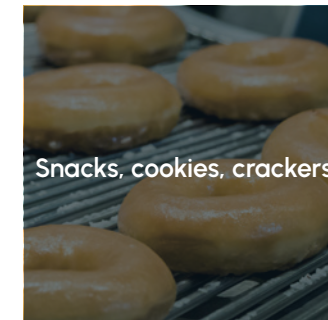
X-ray inspection comprehensively designed

Product quality is the top priority of the food industry. In a worst-case scenario, distributing defective goods can have fatal consequences. It can also involve incredibly expensive product recalls, recourse claims, and consumer damage claims. We help give you peace of mind with finely tuned x-ray inspection technology. Our RAYCON x-ray inspection systems were developed specifically for the food industry. They quickly and reliably detect a diverse range of physical contaminants in packaged and unpacked food products, regardless of their size, shape, or position. They can be used in the middle of a production line to inspect bulk materials or pre-products, or for end-of-line final product inspection.
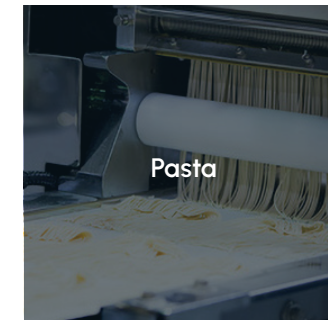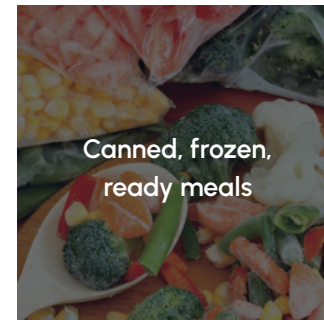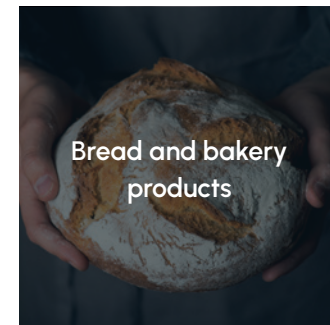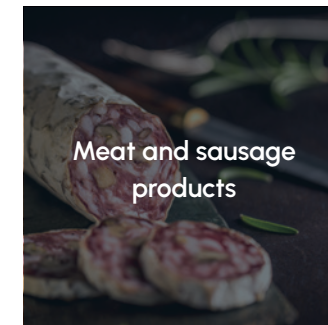
Whether for mid-process inspection of bulk material and pre-products, or end-of-line inspection of packaged foods: our RAYCON systems ensure optimal food safety.

Typical fields of application in food production

We support food processors and manufacturers in creating only the best quality products. Our RAYCON systems are designed for use in the following branches:

Meat and sausage products

Bread and bakery products

Cheese and dairy products

Canned, frozen, ready meals

Pasta

Grinding and peeling mill products

Nuts, dried fruits and vegetables

Nutrients and seasonings

Snacks, cookies, crackers

Confectionery

Fodder

Goods receipt

Production

Outgoing goods

Flour   Yeast   Salt   Olive oil   Water

Silo truck

Kneading   Fermention

Mid-Of-Line

Tomato sauce   Salami sticks   Mozzarella sticks   Pizza cheese   Crushing   Cheese block

Forms   Modular occupy   Pre-bake   Freezing   Packing in foil   Final packing

End-Of-Line

The Compliance Package

Our compliance software package for seamless and efficient documentation consists of the Audit Check, Sensitivity Prediction, Compliance Mode, Integrated Compliance Monitoring (ICM) and Integrated Validation Process (IVP) functions. It helps customers meet food safety standards, increase production efficiency, enhance product quality, and more.

Audit-Check

Quality assurance 4.0: With the help of a process wizard, the Audit-Check leads through theaudit routine and logs all steps. This continuous quality monitoring is of enormous importance, especially for food producers and processors, to ensure consistently high product quality.
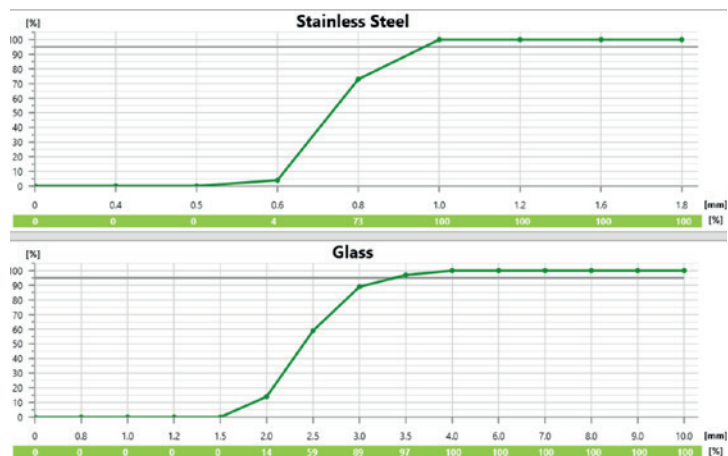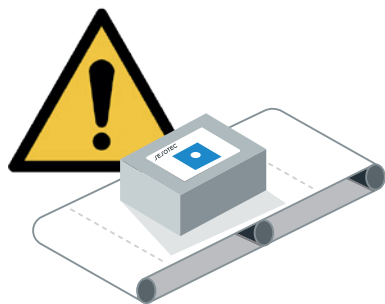

Grafische Darstellung der errechneten Detektionsempfindlichkeiten für Edelstahl und Glas.

Sensitivity Prediction

The „Sensitivity Prediction" enables automatic determination of the detection sensitivity of stainless steel and glass during an X-ray inspection. The test cards with 100 test bodies made of glass and stainless steel are available in all sizes and stored in the software. This information is calculated along with the product's gray value image as if a product with a test sample were being recorded.

Compliance Mode

In compliance mode, the sensitivity can be set to factory or audit standards at the touch of a button to produce compliantly and at the same time reduce the reduce the false reject rate. This ensures that process stability is constantly maintained. In compliance mode, the X-ray unit adjusts the software filters accordingly during the teach-in process, to reliably detect the specified test specimens.
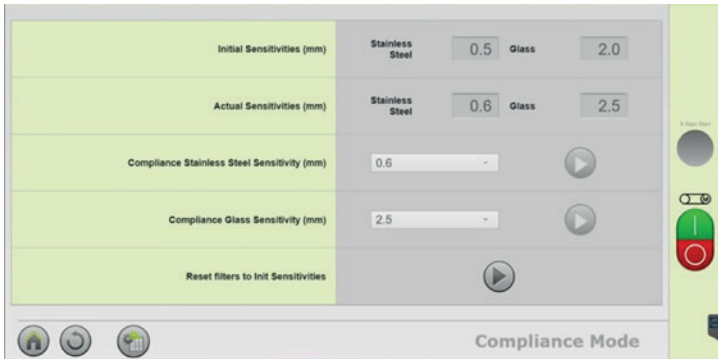
Integrated Compliance Monitoring (ICM)

Integrated compliance monitoring ensures that the specified sensitivities are continuously checked at previously defined time intervals. For this, test bodies stored in the software are compared with the product images and offset against the limit values matched.This monitoring of the detection requirements leads to deviations being recognised immediately and increases the stability of the production process.

Integrated Validation Process (IVP)

The Integrated Validation Process (IVP) provides proofthat the desired quality target for the product has been achieved. The customer can validate new products independently with menu guidance and receives a „Report of Validation", but this does not replace the validation certificate for the annual audit by an external service provider (manufacturer).

Advantages for the customer:
- Simplification of complex validation processes
- Reproducible, consistent and tamper-proof results

Driving the
AiVOLUTION

ANOMALY DETECTION POWERED BY AI IMPROVES THE IDENTIFICATION OF FOREIGN OBJECTS

THiNK: Making the invisible visible

The issue:

Reliable bone detection in fresh meat is challenging, as bone fragments often have low density and the product itself is inhomogeneous. This makes it difficult to distinguish between bone and meat, especially when using conventional inspection methods.
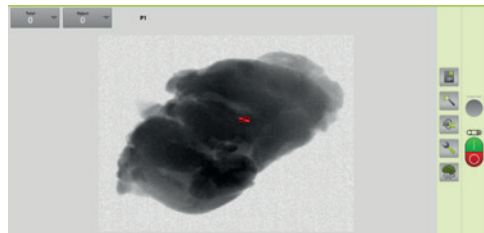
The AI model is based on a large number of good products. To create a solid foundation, these good products must first be conveyed normally and taught using the standard filters. Once this is done, the AI can be trained. The training process takes place directly on the device and typically lasts 2–3 hours. During this time, production can continue without interruption. Through individual retraining, the AI model is continuously optimized, allowing specific product characteristics to be precisely distinguished.

The solution: THiNK
Detection of bones in the upper thigh section (unpackaged)
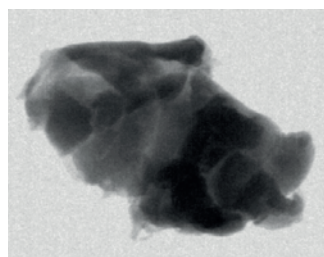
Uncontaminated product
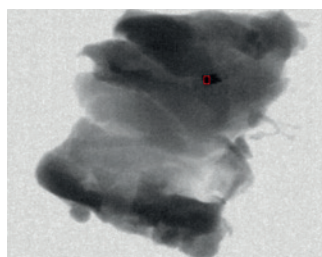
Bone detection using filters
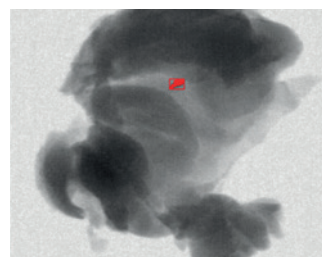
Bone detection through filter technology and AI algorithms
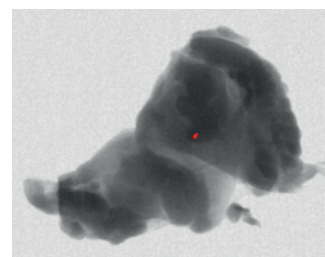
Bone detection using AI algorithms

Typical application areas:

- Improved plastic detection
- Enhanced bone and cartilage detection in fresh meat applications (e.g. inner fillet, outer fillet, thigh meat, upper leg meat, etc.)

Note:
The list of use cases can be expanded according to customer-specific requirements.

Devices with THiNK

RAYCON D+ HX LW Hygienic

Advantages for the customer

- Efficiency: Automated training reduces inspection effort and saves time through parallel detection using software filters and AI.
- Quality: High detection accuracy ensures consistent product standards.
- Flexibility: Individual retraining optimizes detection performance.
- Innovation: Cutting-edge AI technology enhances detection capabilities and adapts to new challenges.

Driving the AiVOLUTION

ANOMALY DETECTION POWERED BY AI IMPROVES THE IDENTIFICATION OF FOREIGN OBJECTS

THiNK
XA
Technologies

THiNK: X-ray Perfection in detection

The issue:

Detection of contaminants and product defects in packaged products that are visible to the human eye but show only minimal grayscale differences compared to good products – and are therefore not detectable using conventional methods.

The solution: THiNK

The AI model learns the characteristics of the product. To do this, a certain number of good products are used to train the model. If a product deviates from these learned characteristics, it is identified as defective. This allows foreign objects and anomalies to be accurately localized.

Typical examples are:
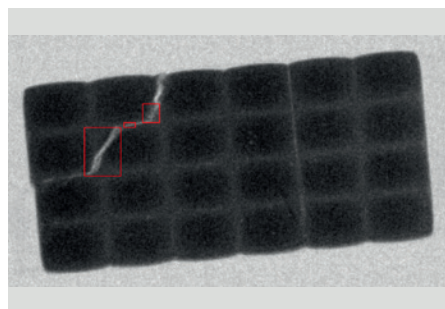
Defective/deformed product
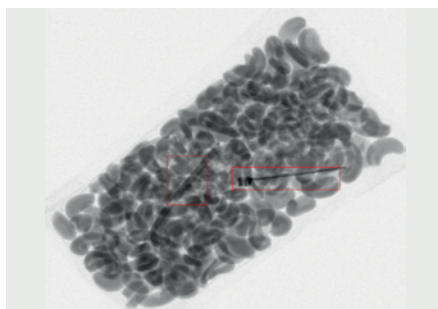
Cable tie
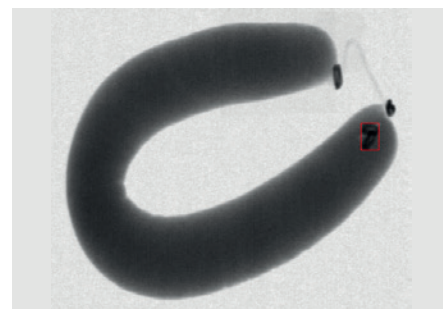
Clip in sausage

Typical application areas:

- Detection of defective and deformed products
- Identification of cable ties
- Detection of metal clips in sausage products
- Inspection for contaminants with lower density than the product (e.g. air pockets in a cheese loaf)

Note:
The list of use cases can be expanded according to customer-specific requirements.

Devices with THiNK

RAYCON D+ HX und RAYCON D+ TX

RAYCON D+ HX LW

Advantages for the customer

- Innovation: State-of-the-art technology precisely identifies foreign objects and anomalies.
- Quality: High detection accuracy ensures consistent product standards through parallel inspection using software filters and AI.
- Efficiency: Automated X-ray inspection detects anomalies quickly and saves time.
- Profitability: Customizable AI learns individual product characteristics and responds to deviations.

Your priorities.
Our answers.

The development of our metal detection systems was focused on one thing in particular: Your priorities. In-depth analysis and backgrounddiscussions have revealed the key requirements for foreign object detection. On this basis, we have intensively researched solutions. This has resulted in our Sesotec 6-priorities concept with practical answers to your challenges.

Sesotec
6-Priority
Concept

P1 Conformity & Accuracy

Reliable detection of magnetic and non-magnetic foreign objects throughout the inspection area enables compliance with all current specifications and standards.

P2 Safety for people & product

The automatic venting of the pneumatics in the event of an emergency stop and compressed air monitoring, as well as the ejection control, ensure all-round safe operation for people and products.

P3 Simple operating concept

Thanks to a large touchscreen, intuitive user guidance with quick access to the most important system functions, a help function and features such as the Auto-Learn function, our tunnel metal detectors offer particularly easy everyday handling.

P4 Comprehensive hygiene concept

Robust and hygienic housings allow easy cleaning.

P5 Efficiency in all areas

Intelligent sensitivity adjustment and high interference immunity prevent false positives and increase profitability.

P6 Reliable, fast service

With warranty services, combined on-site and remote service, and targeted training, you have optimal support for smooth operation.

SESOTEC   X-RAY SYSTEM

RAYCON

Conformity & accuracy

RAYCON supports and facilitates compliance with necessary foodsafety standards and laws.

RAYCON exceeds international standards

With a RAYCON device, you can rest assured that you are conforming to international food safety standards.

- BRC-, IFS- and HACCP compliance (exceeds the requirements for detection accuracy stipulated in all common food safety standards)
- Higher Level Security Package (Quality standards from Marks & Spencer) is included as standard in all devices.

All RAYCON devices are UL/CSA certified and approved for use in the USA and Canada.

Sesotec Compliance Package: Software for complete and efficient documentation

- Audit-Check: Runs through audit routines and documents all steps (quality monitoring).
- Sensitivity Prediction: Enables the automatic configuration of detection sensitivity for steel and glass.
- Compliance Mode: The necessary detection accuracy can be configured manually. This ensures consistency and process stability.
- Compliance Monitoring: Ensures that current sensitivity levels are checked at pre-determined time intervals.
- Integrated Validation Process: The device includes an integrated multi-step process for the simplified verification of products.

Detection performance via X-Ray
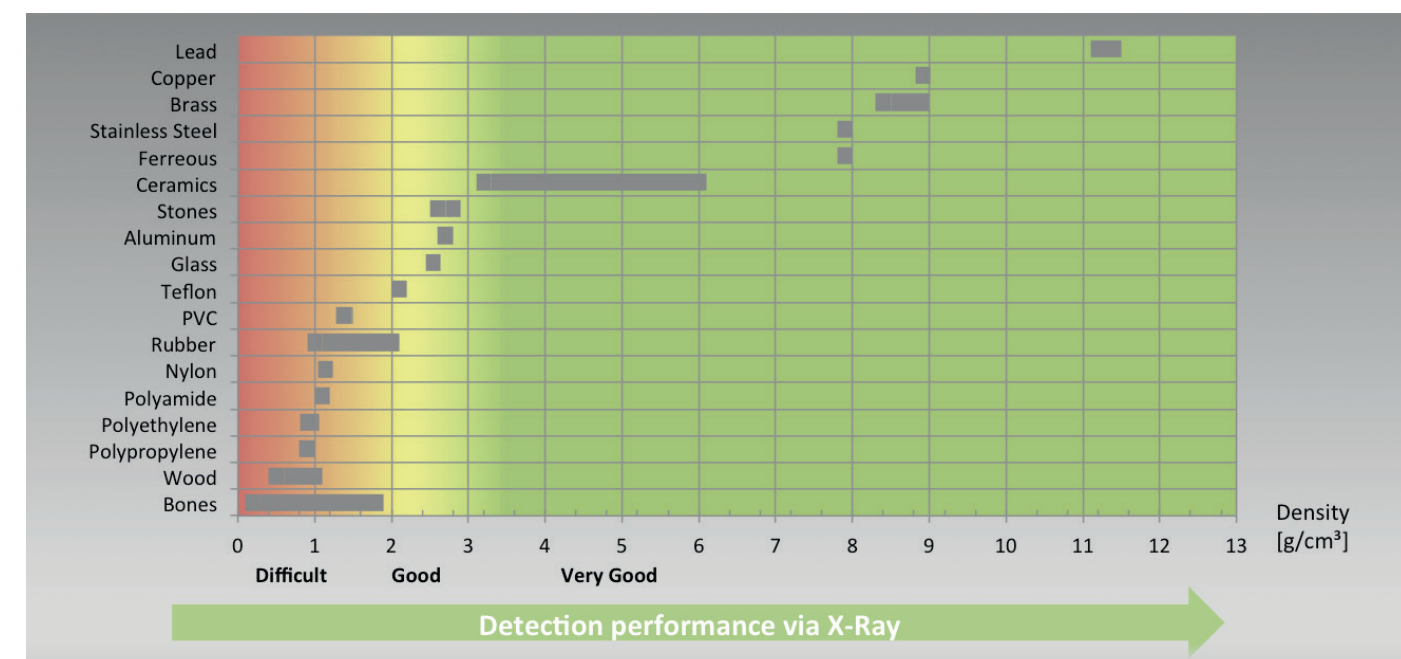
No dead angles

In RAYCON devices, the x-ray source is located beneath the conveyor belt. This eliminates dead angles in the inspection of tall products.
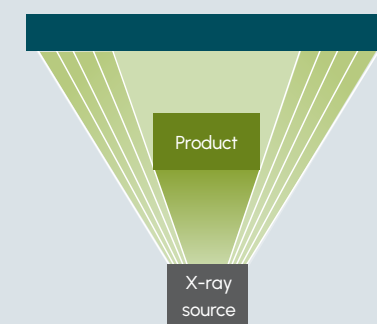
Flashlight effect

The large distance between the product and the detector makes it possible to detect foreign bodies that are smaller than the resolution of the detector.
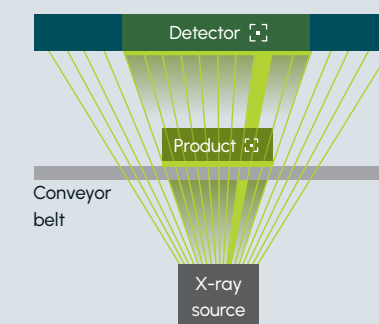
Detection accuracy

Reliable detection of various foreign bodies throughout the entire inspection area is a requirement for achieving conformity with all of the most common food safety standards and guidelines.

- Reliable detection of metallic and nonmetallic foreign bodies
- Detection accuracy from 0,3 to 0,6 mm exceeds the IFS requirements for stainless steel (0.8 mm)
- THiNK enables the detection of additional low-density contaminants and product anomalies.

aluminium clips

glass fragments, ceramic shards

knife fragments

bones

wire pieces

stones

sealing rings

aluminium foil

Safety for people & products

The system ensures safety for your brand, your products, your employees, and your data

Radiation protection: a top priority for you and us

Our RAYCON systems help you avoid recalls due to foreign bodies, protecting your brand from image damage. Thanks to highly effective radiation protection and precision x-ray dosing, RAYCON devices are safe for both people and products.

- The legal threshold of 1 mSv/a is never surpassed and radiation levels remain significantly beneath this threshold.
- At the operation panel, for instance, the radiation level is a mere 0.1 µSv/h (measured from the operation side in front of the device).
- The radiation exposure for products is 100 times lower than the thresholds defined in EU 1999/2/EG.
- Compatible with organic products
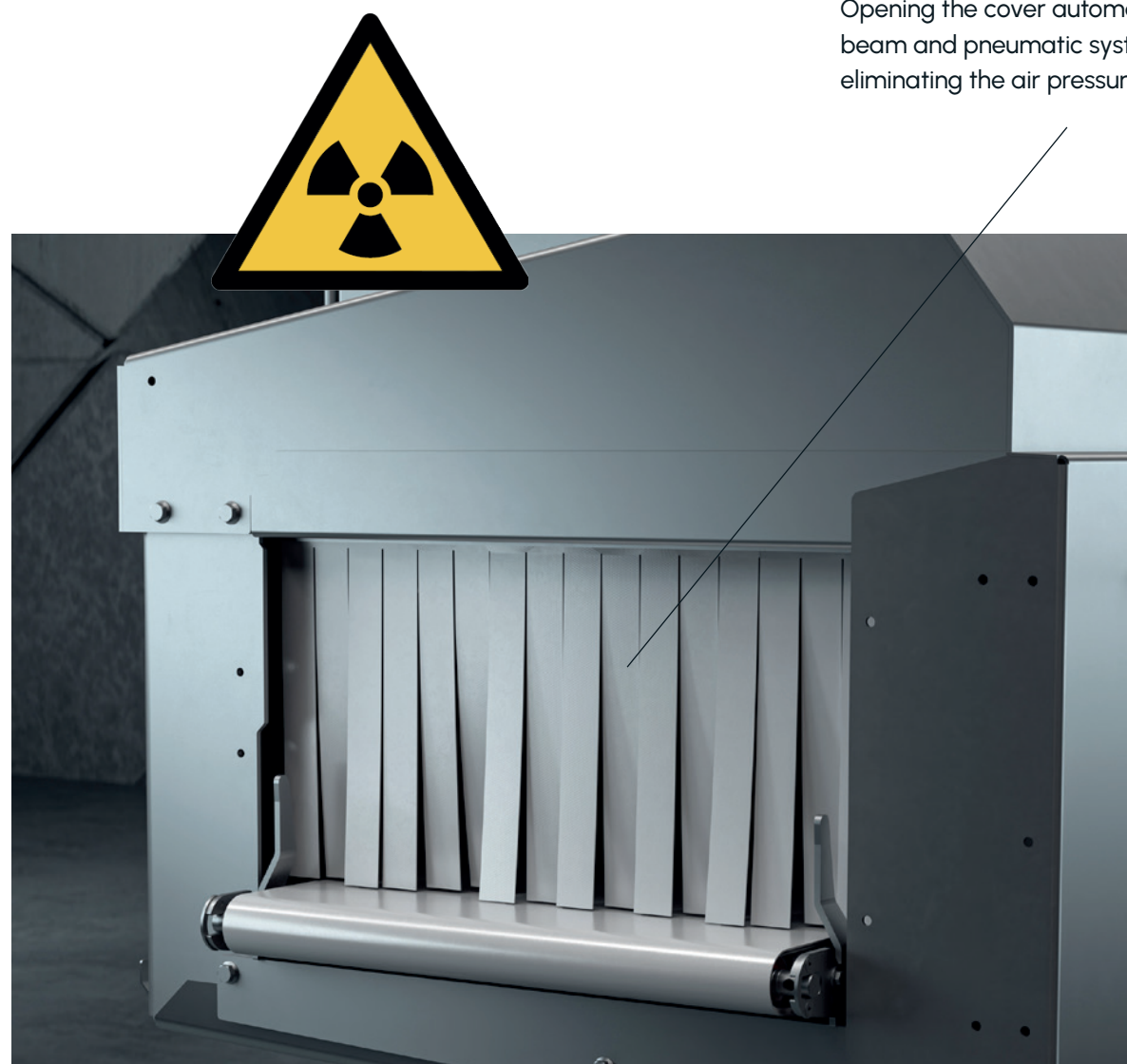
Guaranteed data safety

- Contactless user login via RFID chip ensures maximal access safety. An RFID transponder can both read data on the chip and save new data to it.
- Users can log in by holding their chip to the RFID reader, which is programmed to recognize each of the users assigned to each chip in user administration.
- Defining different user groups (e.g. Service, Admin, Operator) makes it possible to define access rights and provides an extra layer of protection.

Smart solutions for mechanical safety

Opening the cover automatically deactivates the x-ray beam and pneumatic system's air is de-energized, eliminating the air pressure in the pusher for extra safety.
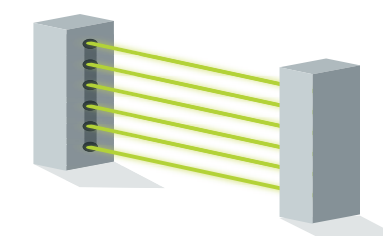
An additional lightbox at theopening is optional for US customers.

Sesotec Service for RAYCON x-ray devices

Mechanical engineering with x-rays involves many requirements for radiation protection and employee safety. Ongoing service from Sesotec helps you to safely install and operate your x-ray device.

For new Sesotec devices

- Organizing training for on-site specialists (R3) and parties tasked with overseeing radiation protection
- Single-day on-site training by Sesotec
- Instruction for operating personnel by Sesotec
- Expert examination (Assessment for initial installation)
- Registration and permissions
- Recurring regular examinations (every 5 years)
- Notifying relevant authorities of changes

For existing Sesotec devices

- Refresher courses for on-site specialists (R3) tasked with overseeing radiation protection, Instruction for new operators
- Recurring regular examinations for installed devices (every 5 years)
- Notifying relevant authorities of changes

Simple operating concept

Intuitive user operation doesn't just feel good – it also improves processes and minimizes the risk of error

Clever software support

- Increased detection sensitivity: The "Ignore clip" function filters out metal clips, increasing sensitivity within the product – activated easily via a checkbox in the filter menu.
- Automatic edge detection: The software automatically detects packaging effects and adjusts the filter to match the product contours. No expert knowledge of filter techniques is required.
- Automatic X-ray source adjustment: RAYCON automatically sets the optimal X-ray power for maximum detection accuracy during the teach-in process (Auto kV).

Ignoring metal clips to increase detection sensitivity

Automatic edge recognition for packaging

Auto-Learn menu
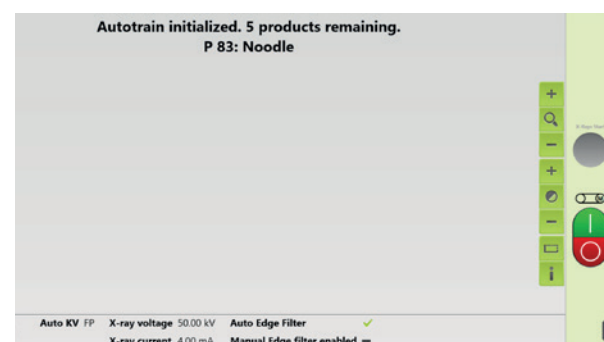
Menu-led, supported product learning
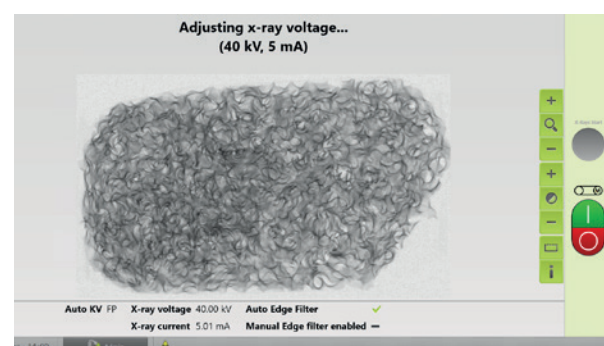
Automatic adjustment of the beam intensity depending on the product

Auto-learn function

Configuration and operation made easy:

- The Auto-Learn function offers simple and intuitive operation. Employees need not have specific skills or prior experience with image processing to operate the device.
- The configuration of diverse, specialized filters is performed by the device itself, relieving the user of this work.
- Using five product samples, auto-learning takes fewer than two minutes for each new product.

Front-end functionality for all operation and servicing

Operation, emptying the rejection compartment, cleaning, band change, etc.

Touch screen

10"/15" color touchscreen with high resolution and a user-friendly layout

USB connection

For simplified data transfer

RFID login

Contactless data transfer via RFID login for maximal access protection

Hygienic design concept

The system is built according to hygienic design principles and offers easy cleaning and maintenance

10%

Cleaning costs account for part of the annual revenue

Did you know that cleaning is one of the most time- and resource-intensive aspects of food production?
According to a study, 50% of companies invest at least 10% of their annual revenue in cleaning processes.

Highest hygiene standards – for food production

Constructed with stainless steel and food-safe plastics, RAYCON is ideal for use in food contact applications (EG1935/2004).

- Tilted surfaces discourage the build-up of liquids and condensation

- Built entirely from stainless steel and food contact approved plastics (EG1935/2004)

- Gaps, crevices, and other dead spaces are sealed off to prevent the accumulation of residue. Reduction of components that can loosen over time, presenting a contamination risk

- Use of materials that can withstand repeated, intensive cleaning without wear

- RAYCON D+ HX LW Hygienic for particularly high hygiene requirements, for example in the meat sector or for unpackaged, raw products

Mechanical advantages

- Simplified cleaning due to open, modular design
- Toolless access and disassembly of the conveyance area for cleaning and maintenance
- Suspension system for radiation protection curtains during cleaning help to reduce risk of recontamination
- Toolless belt replacement and toolless removal of radiation protection curtains in less than 2 minutes

Efficiency in all areas

Increasing output, avoiding food waste

Sophisticated technology for maximum productivity

- High detection accuracy minimizes false rejects, thereby wasting less food (sustainability)
- Expertly engineered and long-lasting core components with up to 200W x-ray source and detection accuracy from 0.3 mm of stainless steel
- Automatic notification x-ray source is approaching end-of-life (early warning system for planning source replacement service)
- Toolless beld and curtain change in just a few minutes

Added value that you can see

- Reliable detection of product defects: The software recognizes broken and misshapen products from within their packaging.
- Weight checking products and components: The software calculates the weight of the product based on dimensions and density, thereby recognizing weight differences among individual products in a line.
- Completion control: For each object marked for counting in the x-ray image, minimum amounts can be configured. Example: Counting chocolates
- THiNK enables the detection of additional low-density foreign objects and product anomalies.
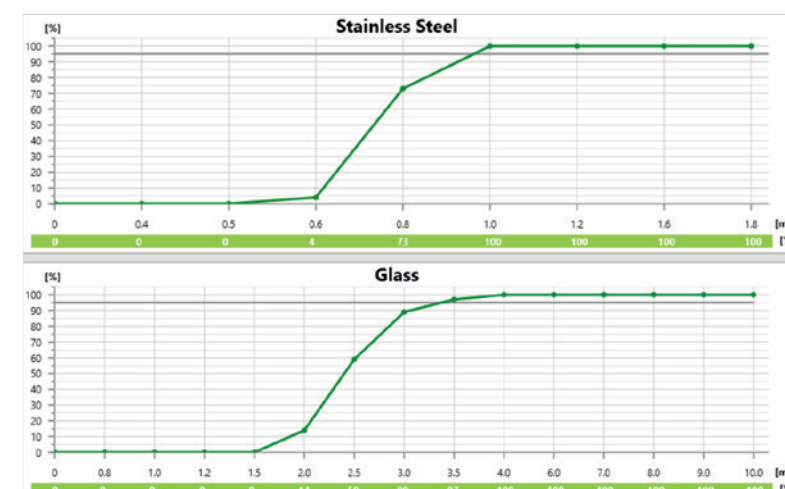
Graphic depiction of the calculated detection sensitivities for stainless steel and glass
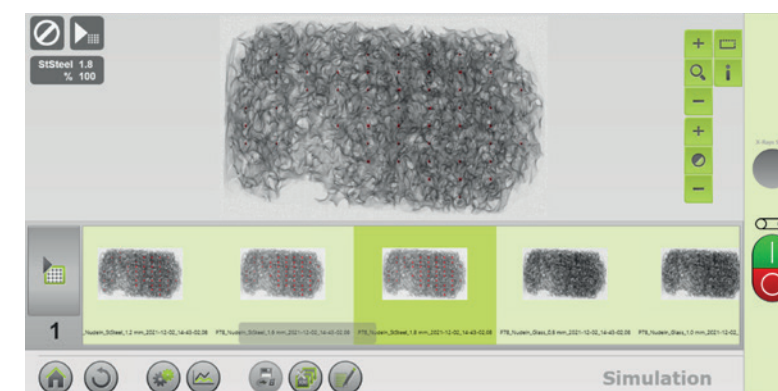
Simulation of test pieces for determining sensitivity

Sensitivity prediction and Compliance Monitoring

The software package "Sensitivity Prediction" makes it possible to automatically determine the best detection sensitivity for stainless steel and glass. Data about hundreds of test pieces for glass and stainless steel are stored in the software. This information is calculated along with the product's gray value image as if a product with a test piecewere being recorded.

All information about detection sensitivity is calculated based on these images and displayed in a graph. The sensitivity calculations can be started manually from the menu or automatically performed directly following the learning function.

Integrated Compliance Monitoring ensures that specified sensitivities are continuously checked at predefined time intervals. Through regular controls of the detection requirements, deviations are immediately detected, increasing the consistency of the production process.

Up to
1,500
products/minute
thanks to real-time controls
(product & machine dependent)

1.4
meter/second
Suitable for high belt speeds
(product & machine dependent)

Multi-lane inspection

Simultaneously inspect up to four lines of identical products on a single x-ray inspection device. The products to be tested per line must always be the same.

Multi-product software

As many as 20 different products can be conveyed in any order. The software recognizes each product as it passes through the x-ray beam, and selects the appropriate parameters within milliseconds.

Reliable & fast service

Ensure continued performance and improvements, quick assistance in case of unplanned downtime, and problem prevention.

- Customer-specific trainings for proper operation, radiation protection, and service and maintenance
- Yearly maintenance and product validation
- Initial installation on-site by a qualified service technician
- Demo-devices delivered on short notice

The Sesotec communication style: Service. Global. Competent. Responsive.

In addition to first-class technologies for foreign body detection, Sesotec also offers first-class service. Broad knowledge and skills ensure that our service team can assist you no matter what the issue. With our Service, Sesotec can offer you investment and planning security.

Telephone support

Many questions and incidents can be resolved over the phone. Our free telephone support is available daily from 6 am to 8 pm and on weekends from 8 am to 5 pm. Fast, simple, effective.

Remote Access

Frequently, malfunctions on machines can also be remedied via remote access. Sesotec service technicians have direct access to your machines via Ethernet connection and can perform error analyses, optimizations and parameter settings.

Remote support with augmented reality

In addition to telephone support and remote access, Sesotec also offers video-based support with augmented reality. This is done via the Team-Viewer Pilot app.

Sesotec spare and wear parts packages

With the preventive spare and wear parts package for our devices and systems, you have the supplies you need in the event of machine downtime and can quickly and easily replace mechanical components yourself.

Lifetime Warranty Package for increased OEE
(Overall Equipment Effectiveness)

Life-long guarantee for x-ray tubes and detector

With the Lifetime Warranty Package
- Complete cost control over the lifetime of the device
- Predictive Maintenance

Without Lifetime Warranty Package
- Costs and risks of unplanned downtime
- Unplanned downtime due to tube failure
- Uninspected products must be stored while the problem is resolved (storage costs)
- Costs and resources spent on subsequent investigation

operation-dependent costs

Your cost advantage

Maintenance cycle*

- operation-dependent costs
- unplanned downtime costs
- average cost **without** Lifetime Warranty-Package
- average cost **with** Lifetime Warranty-Package
- *The maintenance cycle depends on the annual operating hours and is calculated specifically for the customer
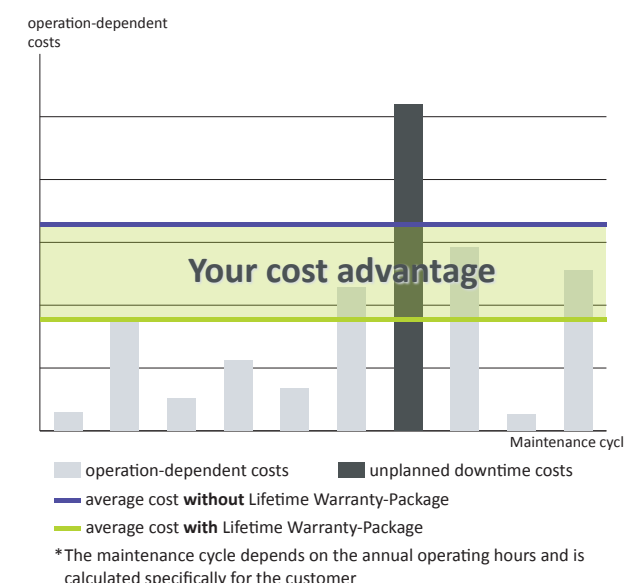
365 days

With global service centers, our support team is available year-round, offering quick response times.

The new RAYCON family
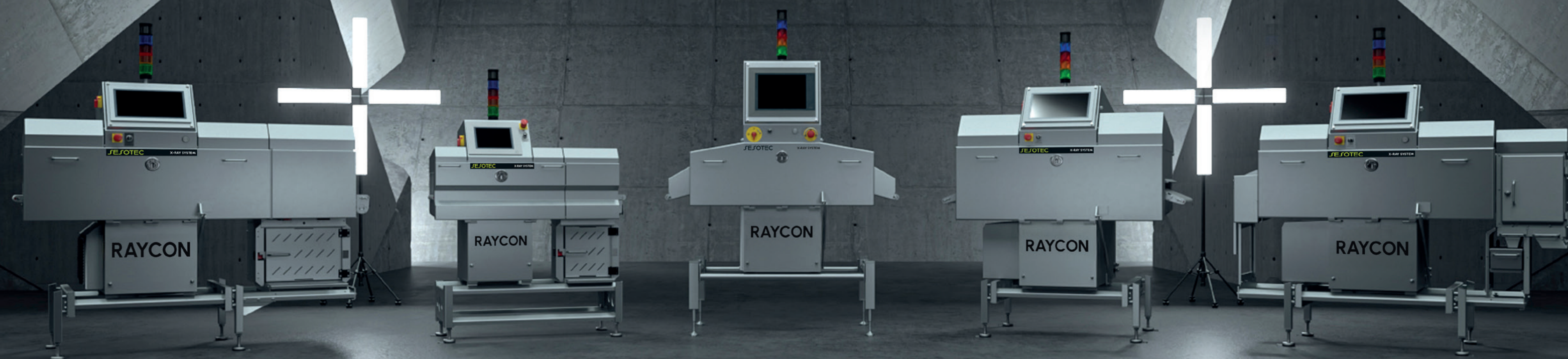
RAYCON EX1

An entry-level system for intelligent x-ray inspection of packaged products

0.8 mm	1000 pcs/min	60 Watt
Detection	Performance *	X-ray Source

Compact and effective

With a compact installation length, RAYCON EX1 fits into any production line. With an integrated exit signal, RAYCON EX1 has a total length of only 800 mm, or 1200 mm with an integrated rejection unit.

Auto-learn function

With the Auto-Learn function, RAYCON EX1 offers a simple and intuitive operation. The configuration of various filters is performed by the device itself, considerably reducing effort on the part of the user. Using five product samples, autolearning takes fewer than two minutes for each new product.

Detects product defects

The RAYCON EX1 reliably detects product defects such as missing, broken, or misshapen products.
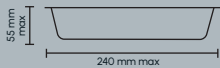
Possible configurations

|	
Belt width	230 mm
X-ray source	40–50 kV / 1.25–1.5 mA (60W)
Detector definition	0.8 mm
Detection accuracy	from Ø 0.6 mm
Conveyance speed	up to 1.4 m/s
Throughput	up to 1000 pcs/min at Ø 66 x H 33 mm 220 pcs/min at L 220 x B 170 x H 20 mm
Max. inspection area (W x H)	240 x 55 mm
Temperature environment	0 °C to 40 °C
Installation length	800 mm (signal only) 1200 mm (integrated pusher)
Protection type	IP 65 in the conveyor area, IP 54 Entire unit
Rejection system	Exit signal, Integrated rejection system

Optionen

Software Package 1	Completion control, weight check, form deviations, clip recognition
Compliance Package	Audit-Check in standard, IVP optional

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ MX

The standard system for intelligent x-ray inspection of packaged products

0.8 mm
optional 0.4mm
Detection

1500 pcs/min
Performance*

100 Watt
X-ray Source

Multi-Lane

The RAYCON D+ MX can simultaneously inspect up to four lines of products, making it possible to inspect identical products from different production lines on a single device.

Zone Analyzer

The Zone Analyzer software allows for the definition of different zones within an x-ray image. This makes it possible to carry out counting and weighing for individual zones using optimal sensitivity settings for each.

Multi-product

As many as 20 different products can be conveyed in any order. The software recognizes each product as it passes through the x-ray beam and selects the appropriate parameters within milliseconds.
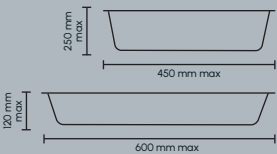
Possible configurations

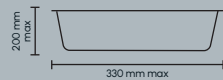|		
Belt width	360 mm	660 mm
X-ray Source	40–50 kV / 2.0–2.5 mA (100 W)	40–50 kV / 2.0–2.5 mA (100 W)
Detector definition	0.8 mm (optional 0.4 mm)	0.8 mm (optional 0.4 mm)
Detection accuracy	from Ø 0.6 mm (optional from Ø 0,3 mm)	ab Ø 0.6 mm (optional from Ø 0.3 mm)
Conveyance speed	up to 1.4 m/s	up to 1.4 m/s
Throughput	up to 1500 pcs/min at Ø 66 × H 33 mm / 220 pcs/min at L 220 × B 170 × H 20 mm	up to 1500 pcs/min at Ø 66 × H 33 mm / 220 pcs/min at L 220 × B 170 × H 20 mm
Max. inspection area (W x H)	330 × 200 mm	450 × 250 mm / 600 × 120 mm
Temperature environment	0 °C to 30 °C (option of cooling device for temperatures up to 40 °C)	0 °C to 30 °C (option of cooling device for temperatures up to 40 °C)
Installation length	1400 mm (signal only) / 1900 mm (integrated pusher)	1400 mm (signal only)
Protection type	IP66 in the conveyor area / IP54 Entire unit (IP55 with optional cooling device)	IP66 in the conveyor area / IP54 Entire unit (IP55 with optional cooling device)
Rejection system	Exit signal, Integrated rejection system, Separate rejection system	Exit signal, Separate rejection system, Separate rejection system

Options

Software Package 1 (inlcusive)	Completion control, weight check, form deviations, clip recognition
Software Package 2	Multi-Lane, Multi-Product, Zone-Analyzer
Compliance Package	Audit-Check, IVP optional
Login Package	Expanded login functionality

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ HX

The high-end system for intelligent x-ray inspection of packaged products

0.4 mm	900 pcs/min	200 Watt
Detection	Performance*	X-ray Source

New software filters

Newly developed software filters improve the detection accuracy for specific, low-density contaminants. The Glass Increaser, for example, optimizes the detection of glass fragments, while the Bone Detector improves the detectability of fragments of bone and cartilage. In addition, the Wire Finder can reliably detect smaller, elongated pieces of wire.

Sensitivity prediction

Sensitivity prediction makes it possible to automatically configure the best detection sensitivity for stainless steel and glass. Data about hundreds of test pieces for glass and stainless steel are stored in the software. This information is calculated along with the product's gray value image, as if a product with a test piece were being recorded.

Compliance Package

Integrated Compliance Monitoring ensures that the specified sensitivity levels are continuously verified at predefined time intervals. This monitoring of detection requirements enables immediate identification of deviations and increases the stability of the production process. Additional compliance features are available as optional add-ons.
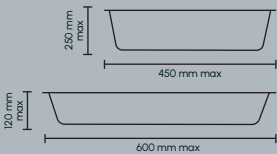
THiNK XA Technologies

Possible configurations

Belt width	360 mm	660 mm
X-ray Source	40–100 kV / 2.0–5.0 mA (200 W)	40–100 kV / 2.0–5.0 mA (200 W)
Detector definition	0.4 mm	0.4 mm
Detection accuracy	from Ø 0.3 mm	from Ø 0.3 mm
Conveyance speed	up to 1.4 m/s	up to 1.4 m/s
Throughput	up to 900 pcs/min at Ø 66 x H 33 mm 220 pcs/min at L 220 x B 170 x H 20 mm	up to 900 pcs/min at Ø 66 x H 33 mm 220 pcs/min at L 220 x B 170 x H 20 mm
Max. inspection area (W x H)	330 × 200 mm	450 × 250 mm 600 × 120 mm
Temperature environment	0 °C to 40 °C	0 °C to 35 °C
Installation length	1400 mm (signal only) 1900 mm (integrated pusher)	1400 mm (signal only)
Protection type	IP66 in the conveyor area, IP55 Entire unit	IP66 in the conveyor area, IP55 Entire unit
Rejection system	Exit signal, Integrated rejection system, Separate rejection system	Exit signal, Integrated rejection system, Separate rejection system

Options

Software Package 1 (inclusive)	Completion control, weight check, form deviations, clip recognition
Software Package 2	Multi-Lane, Multi-Product, Zone-Analyzer
Software Package 3 (inclusive)	Sensitivity prediction and compliance mode
Compliance Package	Audit-Check, Compliance Mode and Sensitivity Prediction (standard), ICM and IVP optional
Login Package	Expanded login functionality
THiNK XA	Anomaly detection based on artificial intelligence (software + hardware)

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ TX

The high-end system for intelligent x-ray inspection of packaged products

For packaged products

Free consultation

https://www.sesotec.com/emea/en/contact

0.3 mm	1500 pcs/min	200 Watt
Detection	Performance*	X-ray Source

New software filters

The newly developed High Precision software filter, specifically designed for detecting the smallest contaminants, improves the detection accuracy of low-density foreign objects. In addition, the Glassincreaser enhances the detection of glass shards, the Bonedetector identifies bones and cartilage, and the Wirefinder reliably detects small, elongated wire shapes.

TDI detector

The sensitivity prediction automatically determines the detection sensitivity for stainless steel and glass. The software includes a database of 100-type test cards in all sizes, which are digitally superimposed onto the grayscale image of the product—as if a real scan with a test card had been performed. This ensures exceptionally high detection accuracy, even at high speeds.

Compliance Package

Integrated Compliance Monitoring ensures that the specified sensitivity levels are continuously verified at predefined time intervals. This monitoring of detection requirements enables immediate identification of deviations and increases the stability of the production process. Additional compliance features are available as optional add-ons.

THiNK XA Technologies

Possible configurations

Belt width	360 mm
X-ray source	40–60 kV / 3.3–5.0 mA (200 W)
Detector definition	TDI detector
Detection accuracy	from Ø 0.3 mm (from 0.4 mm at 1.4 m/s)
Conveyance speed	up to 1.4 m/s
Throughput	up to 900 pcs/min at Ø 66 × H 33 mm 220 pcs/min at L 220 × B 170 × H 20 mm
Max. inspection area (W x H)	330 × 200 mm
Temperature environment	0 °C to 40 °C
Installation length	1400 mm (signal only) 1900 mm (integrated pusher)
Protection type	IP66 in the conveyor area, IP55 Entire unit
Rejection system	Exit signal, Integrated rejection system, Separate rejection system

Options

Software Package 1 (inlcusive)	Completion control, weight check, form deviations, clip recognition
Software Package 2	Multi-Lane, Multi-Product, Zone-Analyzer
Software Package 3 (inclusive)	Sensitivity prediction and compliance mode
Compliance Package	Audit check, compliance mode, sensitivity prediction (standard), ICM and IVP optional
Login Package	Expanded login functionality
THiNK XA	Anomaly detection based on artificial intelligence (software + hardware)

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ MX LW

The standard system for intelligent, curtainless x-ray inspection of lightweight or sharp-edged packaged products.

For lightweight or sharp-edged packaged products

Free consultation
https://www.sesotec.com/emea/en/contact

0.8 mm optional 0,4mm	1500 pcs/min	100 Watt
Detection	Performance*	X-ray Source

Curtainless machine

Designed free of curtains, the RAYCON D+ MX LW is perfect for inspecting lightweight products.

Multi-lane

The RAYCON D+ MX can simultaneously inspect up to four lines of products, making it possible to inspect identical products from different production lines on a single device.

Detects product defects

The RAYCON D+ MX LW reliably detects product defects such as missing, broken, or misshapen products.

Possible configurations

Belt width	360 mm	660 mm
X-ray source	40–50 kV / 2.0–2.5 mA (100 W)	40–50 kV / 2.0–2.5 mA (100 W)
Detector definition	0.8 mm (optional 0.4 mm)	0.8 mm (optional 0.4 mm)
Detection accuracy	from Ø 0.6 mm (optional from Ø 0,3 mm)	from Ø 0.6 mm (optional from Ø 0.3 mm)
Conveyance speed	up to 1.4 m/s	up to 1.4 m/s
Throughput	up to 1500 pcs/min at Ø 66 × H 33 mm 220 pcs/min at L 220 × B 170 × H 20 mm	up to 1500 pcs/min at Ø 66 × H 33 mm 220 pcs/min at L 220 × B 170 × H 20 mm
Max. inspection area (W x H)	330 × 50 mm	430 × 50 mm
Temperature environment	0 °C to 30 °C (option of cooling device for temperatures up to 40 °C)	0 °C to 30 °C (option of cooling device for temperatures up to 35 °C)
Installation length	1500 (signal only) 1750 mm (integrated pusher)	1500 (signal only) 1750 mm (integrated pusher)
Protection type	IP66 in the conveyor area IP54 Entire unit (IP55 with optional cooling device)	IP66 in the conveyor area IP54 Entire unit (IP55 with optional cooling device)
Rejection system	Exit signal, Integrated rejection system with 1 or 2 flaps, Separate rejection system	Exit signal, Integrated rejection system with 1 or 2 flaps, Separate rejection system

Options

Software Package 1 (inlcusive)	Completion control, weight check, form deviations, clip recognition
Software Package 2	Multi-Lane, Multi-Product, Zone-Analyzer
Compliance Package	Audit-Check in standard, IVP optional
Login Package	Expanded login functionality

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ HX LW

The high-end system for intelligent, curtainless x-ray inspection of lightweight or sharp-edged packaged products

For lightweight or sharp-edged packaged products

Free consultation
https://www.sesotec.com/emea/en/contact

0.4 mm	900 pcs/min	200 Watt
Detection	Performance*	X-ray Source

New software filters

Newly developed software filters improve the detection accuracy for specific, low-density contaminants. The Glass Increaser, for example, optimizes the detection of glass fragments, while the Bone Detector improves the detectability of fragments of bone and cartilage. In addition, the Wire Finder can reliably detect smaller, elongated pieces of wire.

Sensitivity prediction

Sensitivity prediction makes it possible to automatically configure the best detection sensitivity for stainless steel and glass. Data about hundreds of test pieces for glass and stainless steel are stored in the software. This information is calculated along with the product's gray value image as if a product with a test piece were being recorded.

Self-monitoring

Integrated Compliance Monitoring ensures that specified sensitivities are continuously checked at predefined time intervals. Through regular controls of the detection requirements, deviations are immediately detected, increasing the consistency of the production process.
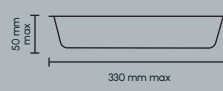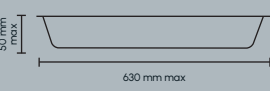
THiNK XA Technologies

Possible configurations

Belt width	360 mm	660 mm
X-ray Source	40–60 kV / 3.3–5.0 mA (200 W)	40–60 kV / 3.3–5.0 mA (200 W)
Detector definition	0.4 mm	0.4 mm
Detection accuracy	from Ø 0.3 mm	from Ø 0.3 mm
Conveyance speed	up to 1.4 m/s	up to 1.4 m/s
Throughput	up to 900 pcs/min at Ø 66 × H 33 mm 220 pcs/min at L 220 × B 170 × H 20 mm	up to 900 pcs/min at Ø 66 × H 33 mm 220 pcs/min at L 220 × B 170 × H 20 mm
Max. inspection area (W x H)	330 × 50 mm	630 × 50 mm
Temperature environment	0 °C to 30 °C (option of cooling device for temperatures up to 40 °C)	0 °C to 30 °C (option of cooling device for temperatures up to 35 °C)
Installation length	1500 mm (signal only) 1750 mm (integrated pusher)	1500 mm (signal only) 1750 mm (integrated pusher)
Protection type	IP66 in the conveyor area IP55 Entire unit	IP66 in the conveyor area IP55 Entire unit
Rejection system	Exit signal, Integrated rejection system with 1 or 2 flaps, Separate rejection system	Exit signal, Integrated rejection system with 1 or 2 flaps, Separate rejection system

Options

Software Package 1 (inlcusive)	Completion control, weight check, form deviations, clip recognition
Software Package 2	Multi-Lane, Multi-Product, Zone-Analyzer
Software Package 3 (inclusive)	Sensitivity prediction and compliance mode
Compliance Package	Audit check, compliance mode, sensitivity prediction (standard), ICM and IVP optional
Login Package	Expanded login functionality
THiNK XA	Anomaly detection based on artificial intelligence (software + hardware)

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ MX Bulk

The standard system for intelligent x-ray inspection of unpackaged products

Free consultation
https://www.sesotec.com/emea/en/contact

0.8 mm	to **13.5** t/h	**100** Watt
Detection	Performance*	X-ray Source

Real-time operating system

Fastest image data processing and an exact rejection rate; very high detection accuracy from 0.6 mm.

High processing capacity

The RAYCON D+ MX Bulk can inspect up to 13.5 tons per hour at a fill height of 20 mm.

Hygienic design concept

An optional dust extraction system enables the RAYCON D+ MX Bulk to minimize dust accumulation in the vicinity of the product sorting unit.

Possible configurations

Belt width	360 mm	660 mm
X-ray source	40–50 kV / 2.0–2.5 mA (100 W)	40–50 kV / 2.0–2.5 mA (100 W)
Detector definition	0.4 mm	0.4 mm
Detection accuracy	from Ø 0.3 mm	from Ø 0.3 mm
Conveyance speed	up to 1.3 m/s	up to 1.3 m/s
Throughput	up to 7 t/h	up to 13.5 t/h
Max. inspection area (W x H)	330 × 50 mm	630 × 50 mm
Temperature environment	0 °C to 30 °C (option of cooling device for temperatures up to 40 °C)	0 °C to 30 °C (option of cooling device for temperatures up to 40 °C)
Installation length	1800 mm (integrated flaps)	1800 mm (integrated flaps)
Protection type	IP66 in the conveyor area IP54 Entire unit (IP55 with optional cooling device)	IP66 in the conveyor area IP54 Entire unit (IP55 with optional cooling device)
Rejection system	Integrated rejection system with 4 flaps (option of up to 10 flaps)	Integrated rejection system with 4 flaps (option of up to 20 flaps)

Options

Compliance Package	Audit-Check in standard
Login Package	Expanded login functionality

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ HX Bulk

The high-end system for intelligent x-ray inspection of unpackaged products

0.4 mm	**to 13.5** t/h	**200** Watt
Detection	Performance*	X-ray Source

Real-time operating system

Fastest image data processing and an exact rejection rate; very high detection accuracy from 0.3 mm.

Maximum flexibility

The machine is equipped as standard with a rejection system featuring four separate, pneumatically operated flaps. To minimize loss of good material, the rejection system can optionally be expanded to up to 20 flaps or segmented air nozzles.

Consistent product distribution

The RAYCON D+ HX Bulk features an integrated feed hopper with an optional vibratory chute to ensure uniform distribution of bulk material across the entire conveyor belt width.
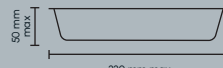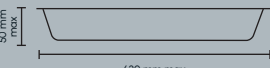
Possible configurations

Belt width	360 mm	660 mm
X-ray source	40–60 kV / 3.3–5.0 mA (200 W)	40–60 kV / 3.3–5.0 mA (200 W)
Detector definition	0.8 mm	0.8 mm
Detection accuracy	from Ø 0.6 mm	from Ø 0.6 mm
Conveyance speed	up to 1.3 m/s	up to 1.3 m/s
Throughput	up to 7 t/h	up to 13.5 t/h
Max. inspection area (W x H)	330 × 50 mm	630 × 50 mm
Temperature environment	0 °C to 40 °C	0 °C to 35 °C
Installation length	1800 mm (integrated flaps)	1800 mm (integrated flaps)
Protection type	IP66 in the conveyor area / IP55 Entire unit	IP66 in the conveyor area / IP55 Entire unit
Rejection system	Integrated rejection system with 4 flaps (option of up to 10 flaps)	Integrated rejection system with 4 flaps (option of up to 20 flaps)

Options

Compliance Package	Audit-Check in Standard
Login Package	Expanded login functionality

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ HX Dual Energy

The high-end system for intelligent x-ray inspection
of packaged products

0.8 mm	**1500** pcs/min	**200** Watt
Detection	Performance*	X-ray Source

Dual Energy functional principle

Two nearly parallel lines in the Dual Energy detector, one low-energy and one high-energy, yield two related images.

Dual Energy advantage

The dual detector can identify the type of material for each product. This helps to better distinguish contaminants from the product itself.

Auto-learn function

The Auto-learn function offers a simple and intuitive operation. The configuration of various filters is performed by the device itself, considerably reducing effort on the part of the user. Using five product samples, auto-learning takes fewer than two minutes for each new product.
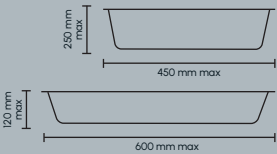
Possible configurations

Belt width	360 mm	660 mm
X-ray source	100 kV / 2.0 mA (200 W)	100 kV / 2.0 mA (200 W)
Detector definition	0.8 mm	0.8 mm
Detection accuracy	from Ø 0.6 mm	from Ø 0.6 mm
Conveyance speed	up to 1.4 m/s	up to 1.4 m/s
Throughput	up to 1500 pcs/min at Ø 66 × H 33 mm 220 pcs/min at L 220 × B 170 × H 20 mm	up to 1500 pcs/min at Ø 66 × H 33 mm 220 pcs/min at L 220 × B 170 × H 20 mm
Max. inspection area (W x H)	330 × 200 mm	450 × 250 mm 600 × 120 mm
Temperature environment	0 °C to 40 °C	0 °C to 35 °C
Installation length	1400 mm (signal only) 1900 mm (integrated pusher)	1400 mm (signal only)
Protection type	IP66 in the conveyor area IP55 Entire unit	IP66 in the conveyor area IP55 Entire unit
Rejection system	Exit signal, Integrated rejection system, Separate rejection system	Exit signal, Integrated rejection system, Separate rejection system

Options

Software Package 1 (inlcusive)	Completion control, weight check, form deviations, clip recognition
Software Package 2	Multi-Lane, Multi-Product, Zone-Analyzer
Compliance Package	Audit-Check im Standard, IVP optional
Login Package	Expanded login functionality

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ HX LW Hygienic

The high-end system for intelligent x-ray inspection
of packaged products

Free consultation
https://www.sesotec.com/emea/
en/contact

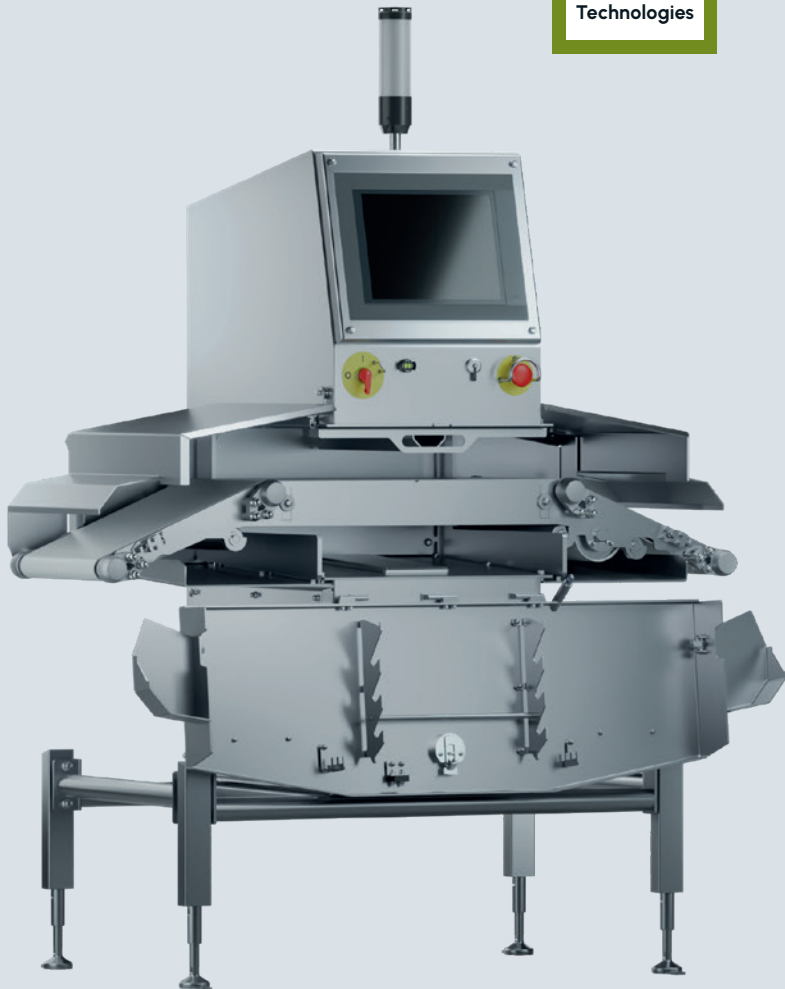| 0.4 mm	900 pcs / min	200 Watt
Detection	Performance*	X-ray Source

New software filters

The newly developed software filters improve the detection accuracy of low-density foreign objects. The Bonedetector optimizes the identification of bones and cartilage, while the Glassincreaser enhances the detection of glass shards. In addition, the Wirefinder reliably detects even small, elongated wire shapes.

THiNK XA Technologies

Compliance Package

Integrated Compliance Monitoring ensures that the specified sensitivity levels are continuously verified at predefined time intervals. This monitoring of detection requirements enables immediate identification of deviations and increases the stability of the production process. Additional compliance features are available as optional add-ons.

Hygienic Design

The RAYCON system is designed without curtains and features sturdy casters, polished surfaces, and passive cooling instead of filter fans or air conditioning units. All components (monitor, key switch, signal light, drum motor, etc.) of the RAYCON D+ HX LW Hygienic are rated to protection class IP69. Safety symbols and the nameplate are laser-etched as picto-grams, replacing less durable adhesive labels.
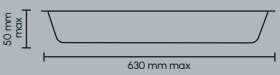

Possible configurations

Belt width	360 mm	660 mm
X-ray Source	40–60 kV / 3.3–5.0 mA (200 W)	40–60 kV / 3,3–5,0 mA (200 W)
Detector definition	0.4 mm	0.4 mm
Detection accuracy	from Ø 0.3 mm	from Ø 0.3 mm
Conveyance speed	up to 1.4 m/s	up to 1.4 m/s
Throughput	up to 900 pcs/min at Ø 66 × H 33 mm 300 pcs/min at L 220 × B 170 × H 20 mm	up to 900 pcs/min at Ø 66 × H 33 mm 300 pcs/min at L 220 × B 170 × H 20 mm
Max. inspection area (W x H)	330 × 50 mm	630 × 50 mm
Temperature environment	2 °C to 12 °C (Passive cooling)	2 °C to 12 °C (Passive cooling)
Installation length	1500 mm (signal only) 1750 mm (integrated flap)	1500 mm (signal only) 1750 mm (integrated flap)
Protection type	IP69	IP69
Rejection system	Retract Belt, Integrated rejection system with 1 or 2 flaps	Retract Belt, Integrated rejection system with 1 or 2 flaps

Options

Software Package 1 (inlcusive)	Completion control, weight check, form deviations, clip recognition
Software Package 2	Multi-Lane, Multi-Product, Zone-Analyzer
Software Package 3 (inclusive)	Sensitivity prediction and compliance mode
Compliance Package	Audit check, compliance mode, sensitivity prediction (standard), ICM and IVP optional
Login Package	Expanded login functionality
THiNK XA	Anomaly detection based on artificial intelligence (software + hardware)

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON D+ HX BO Hygienic

The high-end system for intelligent x-ray inspection of packaged products

0.4 mm	**900** pcs / min	**200** Watt
Detection	Performance*	X-ray Source

For unpackaged products

Free consultation

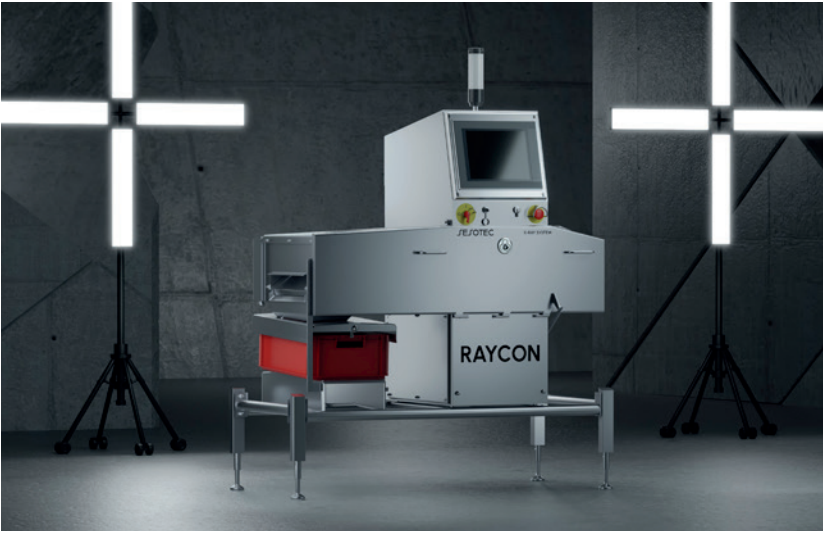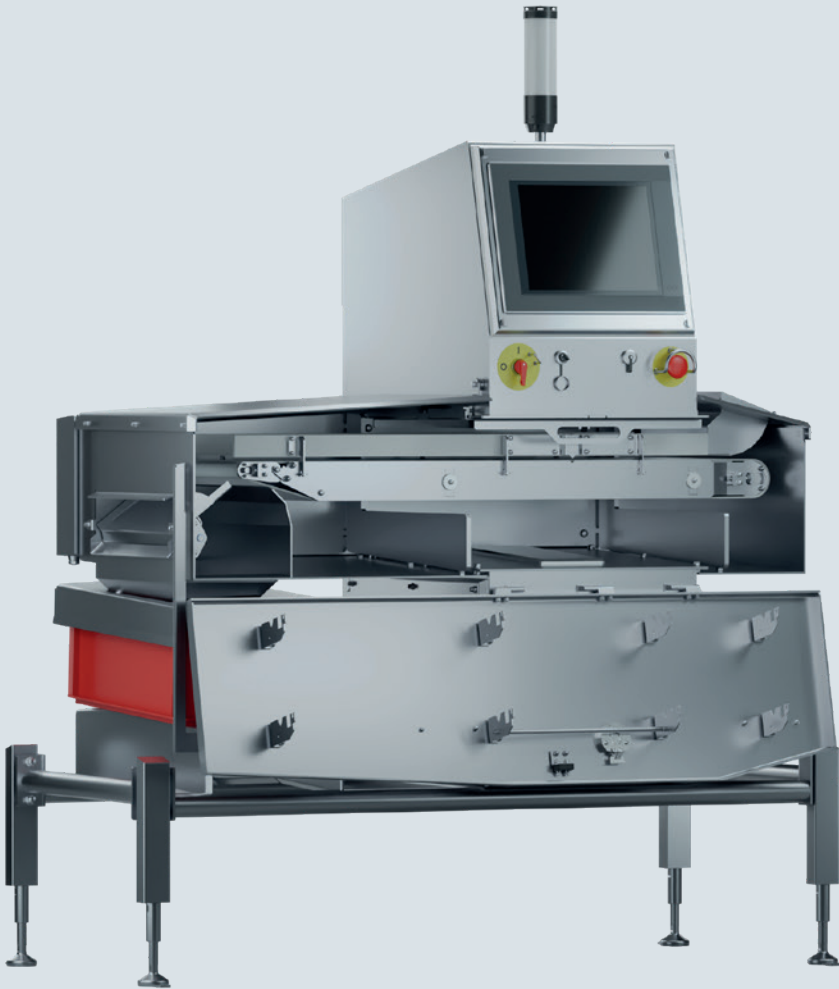https://www.sesotec.com/emea/en/contact

New software filters

The newly developed software filters improve the detection accuracy of low-density foreign objects. The Bonedetector optimizes the identification of bones and cartilage, while the Glassincreaser enhances the detection of glass shards. In addition, the Wirefinder reliably detects even small, elongated wire shapes.

Optimized image processing

Two operating modes are available. In Bulk Mode, continuous images of bulk material are captured, with only defective products shown on the main screen while accepted products are processed in the background. In Bulk Object Mode, each product is captured individually, enabling more precise sorting and accurate piece counting.

Hygienic Design

The RAYCON system is designed without curtains and features sturdy casters, polished surfaces, and passive cooling instead of filter fans or air conditioning units. All components (monitor, key switch, signal light, drum motor, etc.) of the RAYCON D+ HX BO Hygienic are rated to protection class IP69. Safety symbols and the nameplate are laser-etched as pictograms, replacing less durable adhesive labels.
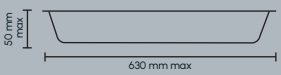
Possible configurations

Belt width	360 mm	660 mm
X-ray source	40–60 kV / 3.3–5.0 mA (200 W)	40–60 kV / 3.3–5.0 mA (200 W)
Detector definition	0.4 mm	0.4 mm
Detection accuracy	from Ø 0.3 mm	from Ø 0.3 mm
Conveyance speed	up to 1.4 m/s	up to 1.4 m/s
Throughput	up to 900 pcs/min at Ø 66 × H 33 mm 300 pcs/min at L 220 × B 170 × H 20 mm	up to 900 pcs/min at Ø 66 × H 33 mm 300 pcs/min at L 220 × B 170 × H 20 mm
Max. inspection area (W x H)	330 × 50 mm	630 × 50 mm
Temperature environment	2 °C to 12 °C (Passive cooling)	2 °C to 12 °C (Passive cooling)
Installation length	1500 mm (signal only) 1750 mm (integrated flap)	1500 mm (signal only) 1750 mm (integrated flap)
Protection type	IP69	IP69
Rejection system	Retract Belt, Integrated rejection system with 1 or 2 flaps	Retract Belt, Integrated rejection system with 1 or 2 flaps

Options

Software Package 1 (inlclusive)	Completion control, weight check, form deviations, clip recognition
Software Package 2	Multi-Lane, Multi-Product, Zone-Analyzer
Software Package 3 (inclusive)	Sensitivity prediction and compliance mode
Compliance Package	Audit check, compliance mode, sensitivity prediction (standard), ICM and IVP optional
Login Package	Expanded login functionality

Accessories

Insight.NET
Sesotec memory module for data archiving

INTERLINK Modul
For connection with other networks

Test bodies
In various sizes and configurations

*depending on product

RAYCON is flexible and can be adapted to fit your needs

Software Package 1
included as standard

Completion control
For each object marked for counting in the x-ray image, minimum amounts can be configured. E.g. the number of chocolates in a box.

Misshapen products
The software recognizes broken and misshapen products from within their packaging.

Weight checking
The software calculates the weight of the product based on dimensions and density, thereby recognizing weight differences among individual products in a line.

Clip recognition
This feature makes it possible to ignore the gray value of the metal clips used to package a product and proceed with the optimal detection sensitivity for the inside of the product.

Software Package 2

Multi-lane
This software package allows for the simultaneous inspection of up to four lines of products, making it possible to inspect identical products from different product lines on a single device.

Multi-product
Allows for the conveyance of up to 20 different products in any order. The software recognizes each product as it passes through the x-ray beam and selects the appropriate parameters within milliseconds.

Zone Analyzer
Allows for the definition of different zones within an x-ray image. Counting and weighing parameters can be defined for each zone, ensuring the best sensitivity settings are used for each.

Software Package 3
included as standard

Sensitivity prediction
Makes it possible to automatically configure the best detection sensitivity for stainless steel and glass. Data about hundreds of test pieces for glass and stainless steel are stored in the software. This information is calculated along with the product's gray value image, as if a product with a test piece were being recorded.

Compliance Mode
With the Compliance Mode, the detection sensitivity can be set to a factory/ or audit standard to produce compliantly and maintain constant process stability. The X-ray unit directly adjusts the software filters to the compliance mode values during the teach-in process in order to reliably detect the specified test samples.

OPC UA connects Sesotec devices with IT systems and the cloud for seamless integration

INTERLINK Module / X-ray inspection 4.0

- Connectivity via OPC UA
- Targeted productivity increase through centralized process analysis, monitoring, and control
- Enables centralized control of Sesotec inspection systems, as well as remote maintenance and predictive maintenance
- Allows early detection of faults and wear through cross-device data comparison

Insight.NET from Sesotec offers efficient data management and full device overview.

Insight.NET

- Our X-ray inspection system logs operating data such as foreign object detection, product changes, audit checks, and error messages. Each data entry is time-stamped and dated, and all X-ray images are recorded by the RAYCON inspection system.
- Insight.NET is a central data management software for monitoring and operating all X-ray systems and metal detectors from a central control station (e.g. smartphone or laptop). This means you can read, save, load, delete, and print all logged operating data (e.g. system logbook or X-ray images) – while simultaneously accessing and remotely controlling all connected systems, anytime and anywhere.

Want to learn more about our technology for food manufacturing?

Get in touch with us directly! We look forward to advising you. You can reach us at:

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