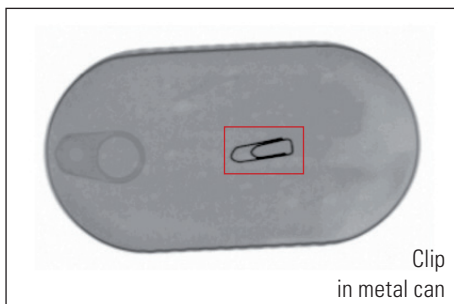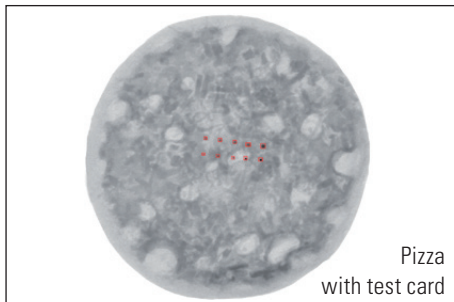# RAYCON
Product inspection system for piece goods

- ✓ **High precision inline detection of metallic and non-metallic contaminants**

- ✓ **Compact, light-weight, modular design, easy to clean and maintain**

- ✓ **Outstanding ease of operation with product autolearn function**

- ■ Full product width inspection even for high products

- ■ Simultaneous inspection of up to 4 product lines running in parallel

- ■ Detection of a wide range of product defects

- ■ Checkweighing of complete or part products

- ■ Complies with BRC, IFS and HACCP

- ■ Real-time operating system for high-speed inspection at up to 600 items/min.

Pizza with test card

Clip in metal can

Contaminations

Made in Germany

RAYCON
Performance features

**Easy-to-maintain design of the RAYCON product inspection system:**

RAYCON product inspection systems detect all contaminants that due to their density, chemical composition, or mechanical dimensions absorb X-radiation to a lesser or greater degree than the surrounding product. For example, metal, glass, ceramics, and stone contaminants in food . RAYCON will also detect some plastics (e.g. PVC, rubber) as well as other product defects (e.g. cracks, trapped air). Desired "contaminants" (e.g. aluminium clips on sausage chubs) can be masked out.

RAYCON product inspection systems include the following performance features:

- Covers with hinges can be fixed – saves considerable time in cleaning
- High performance long-life X-ray tube with integrated high voltage power supply unit: No use of high-maintenance water cooling – now only air cooling with air-conditioning unit / filter fan
- High resolution detection unit (Contaminants, e.g. stainless steel balls can be detected starting from a size of 0.6 mm)
- Compact system design and low centre of gravity requiring minimum footprint
- Excellent radiation protection in accordance with statutory X-ray regulations (<1 mSv/a)
- Easy to clean and maintain
- Flexible combination with various reject units, plus potential-free output contacts for integration in the customer's line
- Simultaneous inspection of up to 4 lines running in parallel, also with different products
- Detection of many other product defects
- Weight checking of the complete product or of individual sections
- Compliance with BRC, IFS and HACCP
- Real-time operating system for high-speed inspection of up to 600 pieces/min. (product-related)
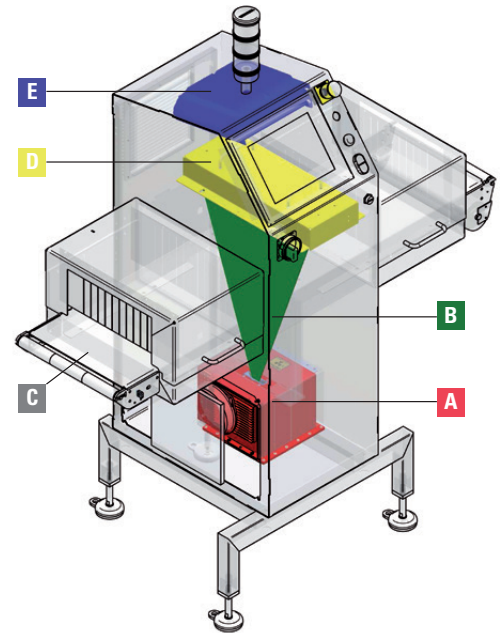
The system comprises the following main components:

A X-ray tube

X-rays are emitted from the tube and collimated through a narrow slot, entering the product as a fan shaped beam from bottom to top. Product height and density determines the amount of radiation absorbed.

B X-ray beam

C Transport system

A fixed speed conveyor belt transports product through the collimated, line X-ray beam. Scanning takes place line by line.
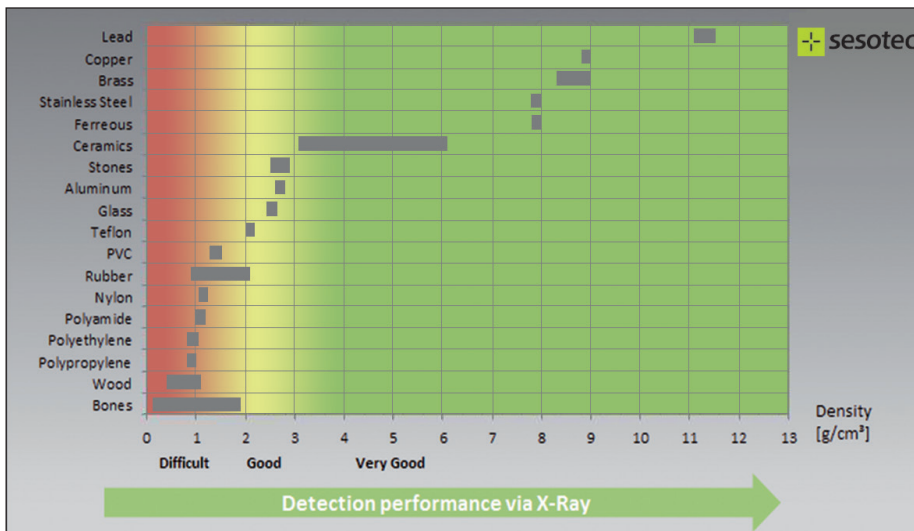
D Detector unit

The linear detector row installed above the conveyor belt converts the incident X-radiation into an electric signal, from which a digital X-ray image can be created and processed.

E Industry PC

Evaluation of the X-ray image for contaminants and other product defects is performed here.

**Overview detectability depending on density**

Product range

The following standard sizes are available:

	Belt width:	max. product dimensions (WxH):
RAYCON 200/150	330 mm	200 x 150 mm
RAYCON 300/150	330 mm	300 x 150 mm
RAYCON 335/100	380 mm	335 x 100 mm
RAYCON-W 430/210 with chain belt	500 mm	430 x 210 mm
RAYCON 450/200	630 mm	450 x 200 mm
RAYCON 580/75	630 mm	580 x 75 mm

Other sizes on request, also for bulk materials

System overview

The menu gives the user a quick overview of the most important system components. Simple adaptations can be made directly here.
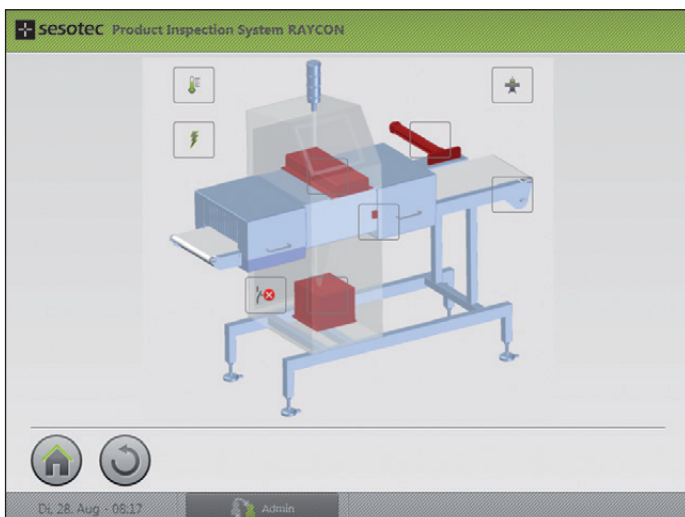
Software

Processing software

X-ray images are evaluated product specific image processing. Contaminated or defective products are detected and separated.

With the intuitive Autolearn function a new product can be set up within a few minutes. While the product passes through the system several times the sensitivity for the new product is set automatically.
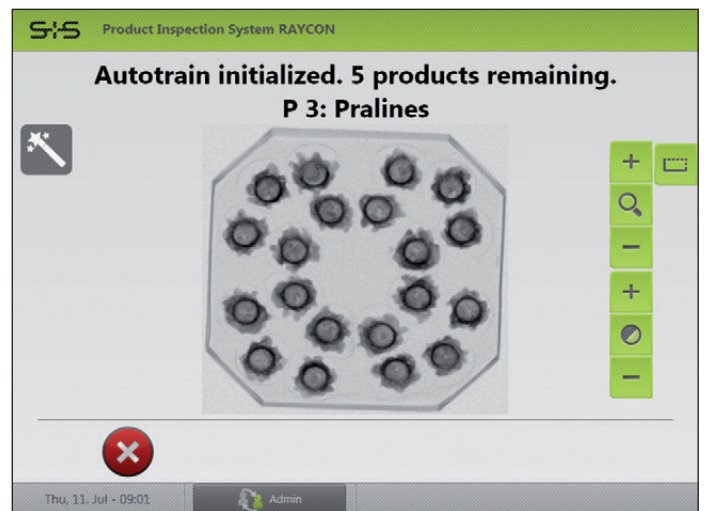
Autolearn function – Automatic sensitivity adaptation in only a few product passes

„Retrain Region"

It may be possible during production that the software, due to differing product compositions or similar factors, selects non-contaminated products as rejects (false reject) or that specified contaminations are not detected. The position where such false reject occurred can be selected manually, and corresponding options can then be used to increase or decrease the sensitivity in the selected area. "Retrain Region" means that it is no longer necessary to manually set individual filters, which saves a lot of time.
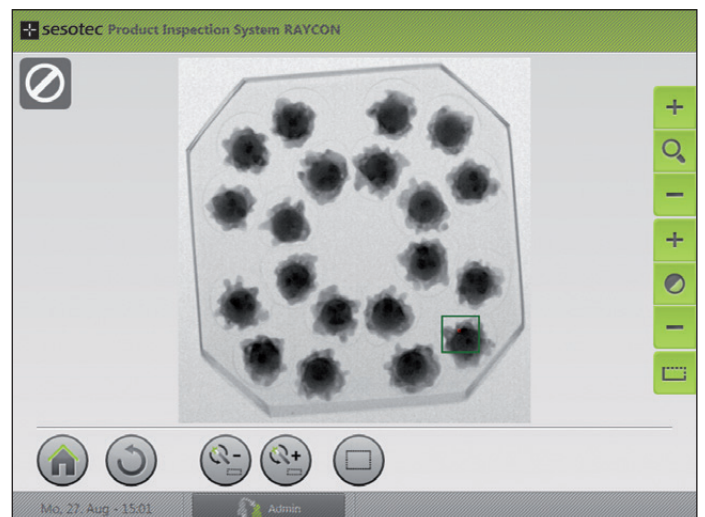
Software advantages

The RAYCON inspection systems's innovative software offers many advantages:

The use of the real-time operating system with flash card ensures
- No error prone hard disks or external drives.
- Full processor performance is used only for product inspection.
- No UPS is required for system protection.

Additional features and advantages:

- Ethernet connection for data transfer and remote maintenance
- USB port for saving images, product backup and software updates
- Multiple i/o capability for the connection of photo cells, reject and separation systems, etc. allowing flexible integration into the production line.
- Remote maintenance through remote access
- Product memory for up to 50 products

Multi-Product software (option):

Allows the simultaneous conveying of different products. A parameter set is saved for every product.
- The system automatically detects which product passes through the X-ray beam and uses the correct parameter set.
- A manual product change thus is no longer necessary
- Separate options (e.g. edge filter, weighing, counting) can be activated for every product.

InsightLog.NET

Data can be saved on the customer's network with InsightLog.NET

Reject images, logbook, etc. can be locally saved directly from the RAYCON product inspection system or other Sesotec metal detectors in the network.


Example: RAYCON with option
Higher Level Compliance (Retail Code of Practice)

Higher Level Compliance (Retail Code of Practice):

This system version especially is used in case of high line safety requirements. These sensors ensure continuous self-monitoring of the product inspection system:
- Air supply monitor incl. gate valve
- Photogating sensor
- Reject check sensor
- Reject confirmation test facility
- Reject bin full sensor
- Reject bin status monitor
- Reject confirmation sensor
- Encoder function
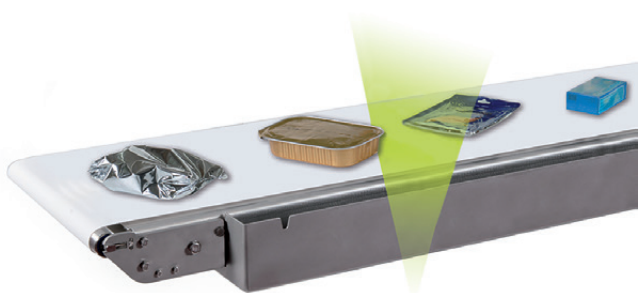
Product inspection with X-ray technology.
# New possibilities
for consistent product inspection

The RAYCON X-ray system provides a large variety of product inspection possibilities:

- **Detection of contaminants (metals, glass, ceramics, stones, raw bones, PVC, Teflon, rubber, fibreglass-reinforced plastics, ...) in packaged or unpackaged food materials.**

- **Checkweighing of the complete product or of individual product components, e.g. separate side dishes.**

- **Integrity checking in closed packaging (e.g. missing chocolate, biscuits).**

- **Detection of agglomerated, deformed, or broken products.**

- **Detection of trapped air in tubes and cans.**

- **Unlike ferrous-in-foil sensors, metal contaminants consisting of non-magnetic stainless steels and non-ferrous metals (brass, copper, ...) can be detected in aluminium packaged food.**
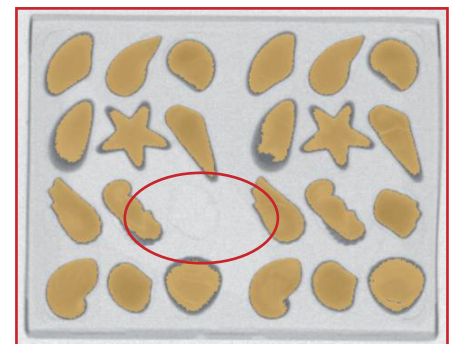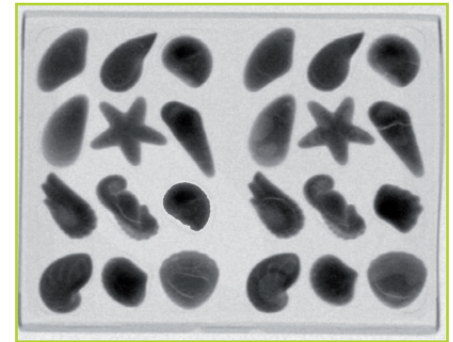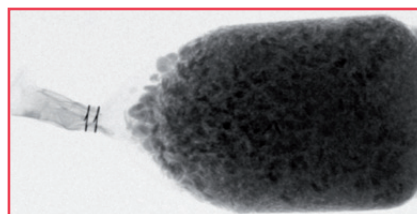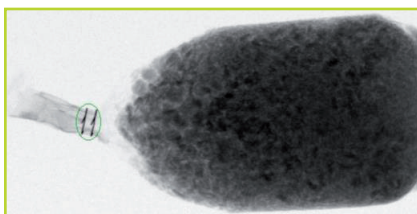

Box with 24 chocolates
Integrity checking in sealed non-transparent packaging using a count function, and verifying product position.
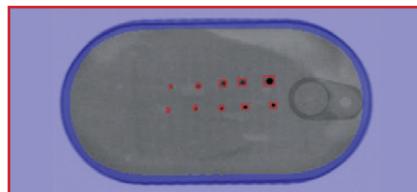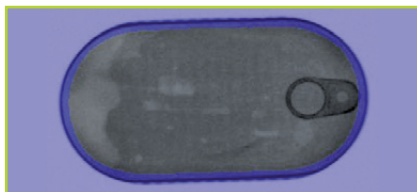
Canned fish
Contaminant detection also is possible in metal packaging. The system detects stainless steel balls starting from 0.8 mm and glass test balls starting from 2 mm. With an "edge filter" dense edges of a product can be masked out (blue frame of the image), which increases the maximum detection accuracy. The opener also has no influence on the sensitivity.
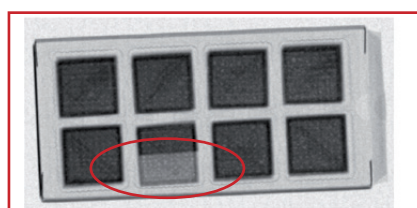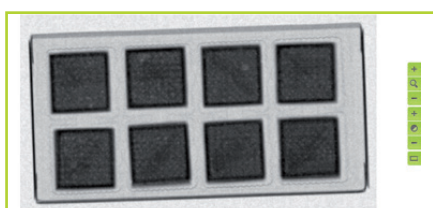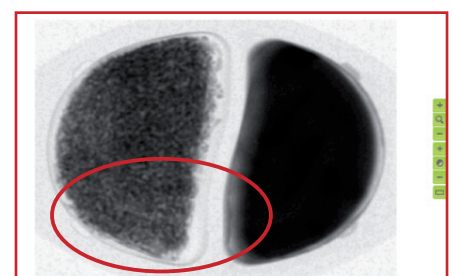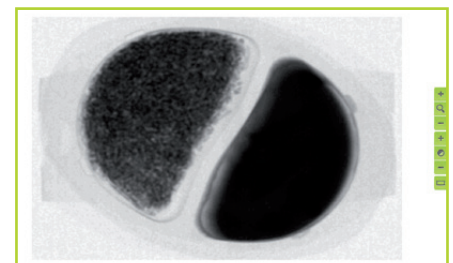
Instant meal
with rice and meat in separate sections, total weight 350 gram. Checkweighing of individual product components: rice is underweight by 20g!

"Ignore Clip" function
This function can be used to mask out the metal clip of a product. Without such masking-out the sensitivity in the product would strongly decrease because the metal clip has a high density. The clip is shown on the X-ray image (green frame), but is masked out for image processing by the software. The system also can check every product for the presence of a clip.

Carton with cookies
Detection of incomplete filling (half a cookie is missing!)

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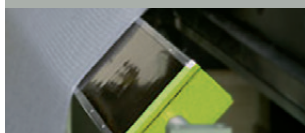
Detecting and separating contaminants:

Removing contaminants:
- metals
- plastics
- glass
- ceramics, porcelain, stones
- and many others

Removing from (good material):
- bulk materials
- liquids and pastes
- individually packaged product
- packed and loose items

Product types:
- end-products (food, textiles, plastics etc)
- industrial raw materials
- recycled materials

can be integrated into
all types of conveyor systems

Detecting and separating sub-standard products:

Qualitative defects:
- incorrect colour
- agglomerations
- breakages
- air inclusions in packs
- incorrect positioning / distribution

Quantitative defects:
- incorrect weight
- count errors (incorrect number of items in package)

Product types:
- end-products (food, textiles, plastics etc)
- industrial raw materials
- recycling materials

can be integrated into
all types of conveyor systems

Sorting mixed materials into single fractions:

Types of material:
- glass
- plastics
- metals
- and many others

Delivery flows:
- bulk materials
- individually packaged product

can be integrated into:
- conveying systems
- bulk material flows

For further information or to discuss your particular application contact one of our specialists.

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Choose Success!**