# RAYCON
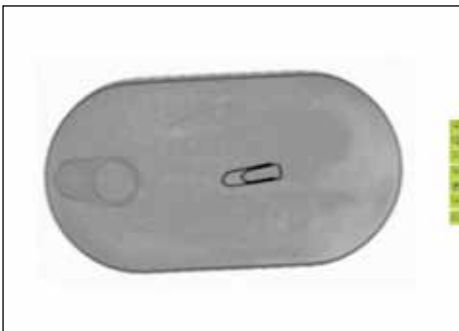## Product Inspection System
## for packaged and bulk materials

✓ **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 5 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.
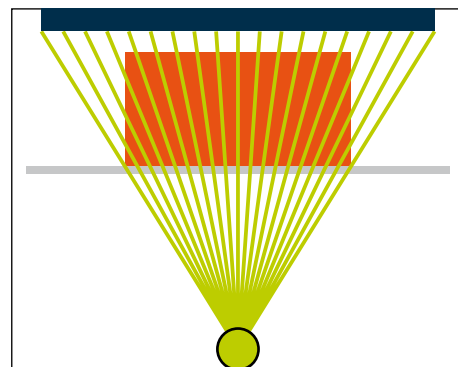


RAYCON

Made in Germany

# RAYCON
## Performance features

RAYCON product inspection systems include the following performance features:

- High performance long-life X-ray tube with integrated high voltage power supply unit
- High resolution detection unit
- 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 rejection and product handling options

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.

The heart of the RAYCON control is a high performance industrial PC incorporating a real-time operating system and sophisticated image processing software featuring user administration, multi-product memory, etc.
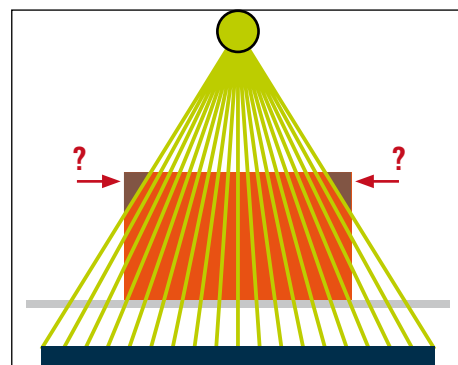
Operator input and set up is via a 10" LCD touch screen monitor (IP65).
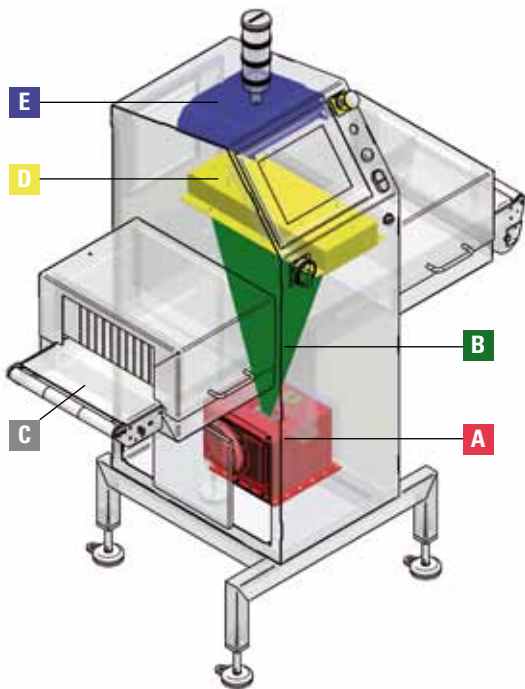
The S+S design is unique in that it guarantees the total inspection area can be fully utilised.

Conventional X-ray systems where the inspection width can be limited when high products are examined.

# Function



## 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**
Images are processed and compared with the "standard" product and "rejected" or "accepted".

The following standard sizes are available:

|  | Belt width: | max. product dimensions (W x H): |
|---|---|---|
| RAYCON 200/150 | 330 mm | 200 x 150 mm |
| RAYCON 300/150 | 330 mm | 300 x 150 mm |
| RAYCON 450/200 | 630 mm | 450 x 200 mm |
| RAYCON BULK |  | for subsquent release |

## Processing software

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

With the intuitive auto learn function a new product can be set up within a few minutes.

## Cleaning:

For easy hygiene operations the top cover can be folded away and fixed in the open position. All guard covers are equipped with safety switches which isolate the source when a cover is opened.

# 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 WINDOWS™ problems such as system errors or driver conflicts.

- 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.

- Data back up on the customer's network, and remote maintenance via internet.

For more specific information please request our detailed technical data sheet.

# Application example
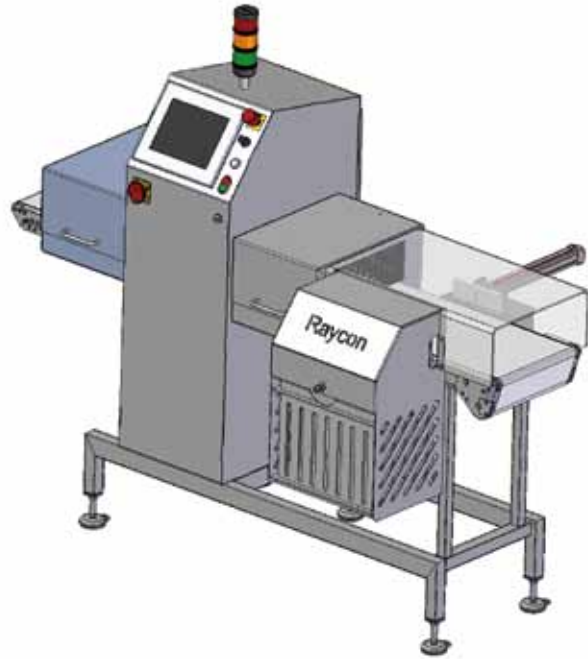
Complete system with automatic reject pusher

**Important information:**

X-radiation is classified as ionising radiation but it is not radioactive! In compliance with EU directive 1999/2/EC, S+S X-ray systems due to the minimum radiation energy can be used for the contaminant inspection of food materials and with organic products.

The RAYCON product inspection system is subject to statutory X-ray regulations and requires certification.

It is important to observe any country specific regulations!

# 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.**
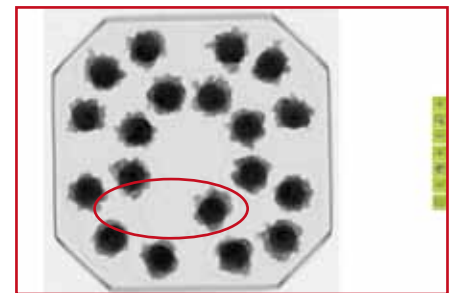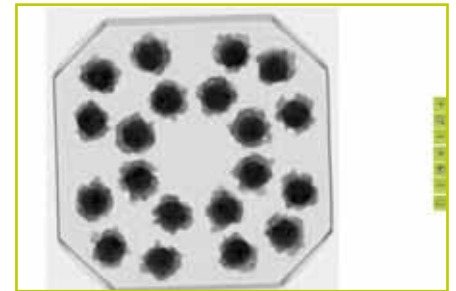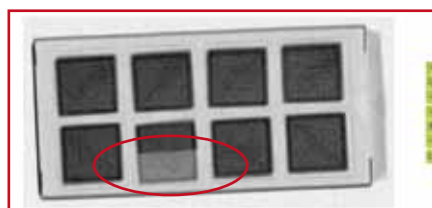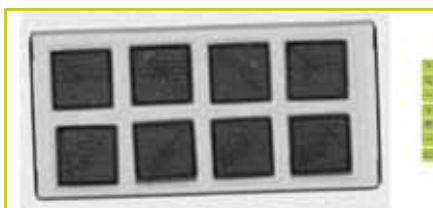


**Box with 20 chocolates**
Integrity checking in sealed non-transparent packaging using a count function, and verifying product position.
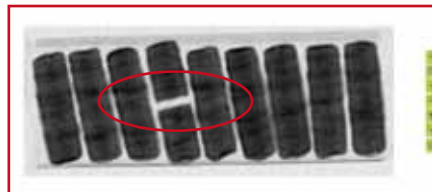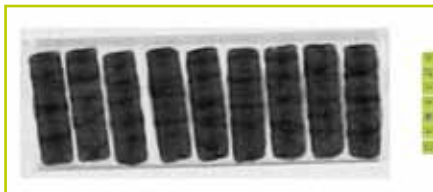


**Cereal bar packed in PP foil**
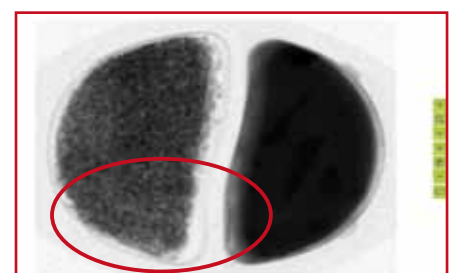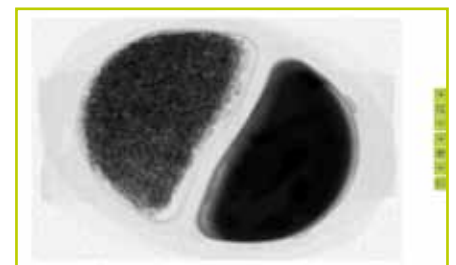Detection of broken products in non-transparent packaging material.



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

**Instant meal** with rice and meat in separate sections, total weight 350 gram.
Checkweighing of individual product components: rice is underweight by 20g!





**Canned fish**
Contaminants can be detected in metal packaging. The system detects stainless steel test balls from as small as 0.8 mm and glass test balls down to 2 mm.

**S+S
Separation and
Sorting Technology
GmbH**

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Sorting

# S+S system world





**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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