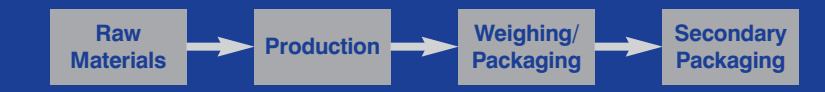


Knowledge Precision Performance

X-Ray inspection that tells you so much more, so much more safely

Ishida IX-GA inspection can be used at any stage in your process to tell you with the greatest accuracy and reliability when foreign bodies are contaminating your product, helping you and your customers to avoid the medical and legal problems that might otherwise result.



Of equal importance to your brand, it can detect product defects ranging from misshapen pieces to cracks, lumps or voids. It can also be applied to checking product or piece weights.

- Ishida IX-GA offers the following benefits:
- Detects potential contaminants at very low levels
 - Identifies a wide range of product defects
 - Provides a useful way of monitoring piece and product weight
 - All inspection results and logs are securely stored and accessible
 - Closed construction enables long-term, accurate operation in damp or dusty conditions
 - X-Ray output level can be readily monitored, eliminating machine error
 - Products are unaffected by inspection (little X-ray absorption)
 - 'Rejection at start-up' feature helps ensure that no product is over-exposed
 - X-Ray output is contained within the inspection tunnel: any breach or intrusion instantly halts all emissions
 - Operation is simple, quick and easy to learn
 - Hygienic construction makes cleaning easy and speeds up product changeovers



Working with you every step of the way

Our extensive R&D investment is directed at meeting the challenges of the fast-changing food industry around the globe. We aim to support our partners fully, from the very start of the buying process, and you will find many equipment brochures, visual animations and case studies available on our website. When you are ready to make contact, a well-resourced network of Ishida companies, distributors and agents, extending across Europe, the Middle East and Africa, can provide advice and organise demonstrations and trials.

Installation is rapid and efficient. For integrated packing lines, we use proven project management techniques and methodologies, tuned to your key objectives and specifications. A dedicated pan-European service engineering team helps to maximise the performance, functionality and reliability of our installed base. In addition, spares facilities are strategically placed throughout the territory, offering 24-hour delivery in most cases.



helpline • spares • service • training



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Innovation Commitment Experience

Quality



IX-GA X-Ray Inspection System

Protecting your consumer and your brand

Ishida Europe: understanding and tackling the weighing and packing line challenges you face

- Unique engineering expertise, combined with practical industry knowledge in your sector
- Global applications experience, including snacks, meat, poultry, ready meals, fresh produce, dry and frozen foods, bakery, confectionery and pasta
- R&D resources and commitment to support both continuous improvement and major innovation
- Solutions include consultancy and project management, complete packing lines, multihead weighers, distribution and topping systems, X-Ray inspection systems, snackfood bagmakers, checkweighers, traysealers, weigh-price-labellers and pick-and-place systems.



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IX-GA X-Ray Inspection System

An IX-GA inspection system protects your business in three important ways

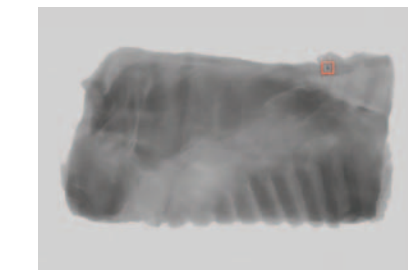
Detects potential contaminants at very low levels

The range of contaminants detected by an Ishida IX-GA X-Ray inspection system includes metal, glass, bone, shell, grit, plastic and hard rubber.

The IX-GA will pick these up at low levels, and the operator can further increase its sensitivity to expected contaminants thanks to the unique Ishida Genetic Algorithm facility (see **Making more from less**).

Provides a useful way of monitoring piece and product weight

The software of the IX-GA system enables it to calculate the mass (M) of all or part of a product by making use of volume (V) and density (D) information from each scan ($M = DV$). IX-GA automatically calibrates itself by reference to a known 'good' product that has been passed through the system.



The IX-GA system is particularly effective in detecting bone fragments in, for example, chicken or pork



Identifies a wide range of product defects

The following are some typical applications in which the Ishida IX-GA system can detect product integrity problems.

Item: Chinese dumplings in plastic tray	
Symptom: area difference	
Cause: undersized piece	
Item: chocolate bar	
Symptom: wrong boundary length	
Cause: fracture of bar	
Item: block of butter	
Symptom: variation in shading	
Cause: cavity	
Item: sausages	
Symptom: crack or split	
Cause: broken product	

Why you and your product can rely on an IX-GA system

All inspection results and logs securely stored and accessible

Operation logs and all data, including NG images, are automatically stored to disk with time stamps, for traceability and tracking purposes. They can also be saved to a CF card, even during operation. IX-GA has an Ethernet option, for connection to local area networks, and all data can be opened with standard PC applications.



Advanced masking capability reduces false alarms

The IX-GA can be programmed to ignore items that form part of the packaging, such as metal clips.

Closed construction enables ongoing, accurate operation in damp or dusty conditions

By eliminating intake and outlet ducts from the IX-GA, Ishida have achieved a completely closed design. A special cooling system prevents internal condensation. The IX-GA takes 24-hour operation under harsh factory conditions in its stride.



X-Ray output level can be readily monitored to eliminate machine error

The possibility of a sudden machine error distorting data is greatly reduced by having a display of X-ray output continuously available to the operator.

Product unaffected by inspection (little X-ray absorption)

X-Ray absorption by the inspected product is well below 0.1 Gray Unit (Gy), many times less than that needed to induce any change or denaturation.

'Rejection at start-up' system helps ensure that no product is over-exposed

A special safety feature ensures that no product that was in the inspection chamber at start up is allowed to proceed.

Ishida IX-GA: safer and simpler for your operators

X-Ray emissions are kept within the inspection tunnel: any breach or intrusion instantly halts all output

X-Ray emission takes place only within the inspection tunnel, isolated from the outside world. A high-visibility signal light warns when exposure is in progress and a safety interlock halts all X-ray output if a curtain or conveyor is out of place or if an operator's hand is inserted.

Apart from in the inspection tunnel during exposure, X-ray emissions are under $1 \mu\text{Sv/h}$ in all parts of the system.

Operation is simple, quick and easy to learn

Simple to read and use, the IX-GA touchscreen interface minimises training costs. In operation, it reduces downtime in many ways:

- Ready to go in under 90 seconds from power-up
- Product presets can be changed without stopping production
- Inspection settings automatically optimised by passing product through 2-3 times
- Routine calibration not needed

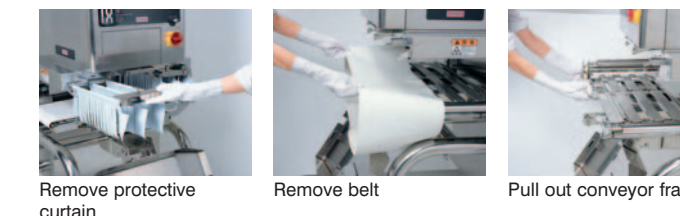
Hygienic construction makes cleaning easy and speeds up product changeovers

The design of the IX-GA facilitates cleaning and simplifies product changeovers:

- Overall system conforms to IP65
- Conveyor chamber conforms to IP66 (suitable for high pressure washdown)
- No tools required for conveyor removal/replacement



1. Preset 2. Name 3. Set



Remove protective curtain Remove belt Pull out conveyor frame

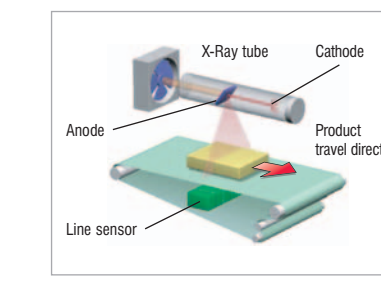


fig. 1

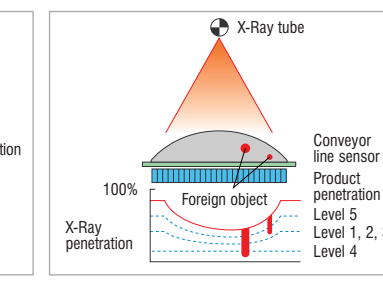


fig. 2

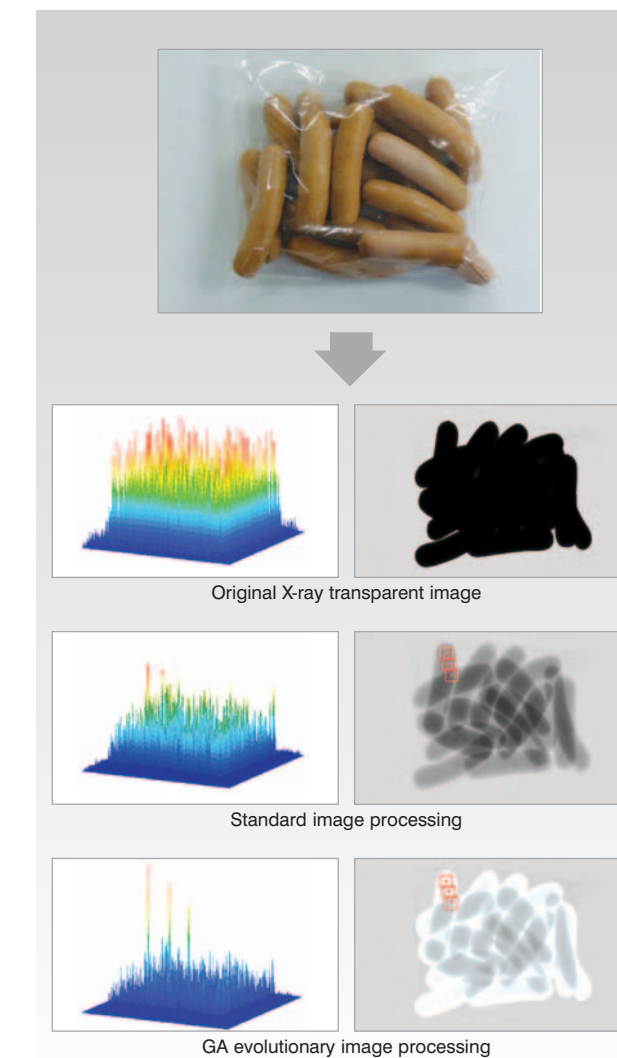
How Ishida X-Ray inspection works

An X-ray beam passes through product and conveyor and hits a line sensor (fig. 1), which uses the transmitted radiation to produce electronic signals. An image processing system generates images and, using Ishida's exclusive 5-level processing software, reveals any contamination or product defects (fig. 2).

Making more from less: Ishida's GA (Genetic Algorithm) evolutionary image processing

X-Ray image processing can be specially set up to detect known, expected impurities at very low levels. With earlier systems this demanded special expertise and considerable lead times for each potential contaminant.

With Ishida's original GA evolutionary image processing, your own inspection system operator can rapidly and automatically generate the optimal sensitivity settings, achieving the image qualities demonstrated here.



Original X-ray transparent image

Standard image processing

GA evolutionary image processing