

Designed to Survive®

X-RAY INSPECTION SYSTEMS



X-ray Inspection:
Enhanced Food Safety

For nearly 20 years, LOMA SYSTEMS® has been developing X-ray technologies for food and pharmaceutical inspection. With a wealth of experience gained from many installations around the world with producers, both large and small, we have introduced our fifth generation of X-ray Systems, the X5 Series.

X-ray Inspection is fast becoming the preferred route for contaminant detection for factories who operate to strict retailer codes of practice and for those wishing to provide the ultimate protection for their brand.

Operating under LOMA®'s core *Designed to Survive*® philosophy, our engineering teams provide solutions built around the following key values:



Safe — Delivers product safety to the end consumer as well as operational safety during use



Durable — Tough, robust and reliable systems designed specifically for any food production environment



Flexible — Capable for a variety of inspection needs with multiple inspection algorithms as well as unique Adaptive Array Technology



Friendly — Easy operation, factory and environmentally friendly, helps deliver low cost of ownership

X-ray Inspection systems also offer a great range of benefits including:

Detect a much wider range of contaminants
- Great detection of ferrous, non-ferrous and stainless steel metal contaminants
- Reliable detection of glass, bone, ceramic/stone, dense plastics & product clumps, and other foreign bodies depending on relative densities of the contaminants

Can reliably inspect products in aluminium trays or metallized foil packaging
- Can detect stainless steel and non-ferrous in food packed in metal foil or in aluminium trays without any interference from the packaging

Check the integrity of products being scanned
- X-ray systems can simultaneously inspect for the integrity of the product, which includes missing items, excess products (by volume/count), and x-weighing.

Meet the X5 X-ray Series



X5C:
First Time Users



X5 PACK:
Packaged Products with integrated reject



X5 PIPELINE:
Pumped products



X5 SPACESAVER:
Packaged Products



X5 BULKFLOW:
Loose flowing products



X5 XL:
Large/bulk products



X5 SPACESAVER COMBO:
Combined DETECT and CHECK

X5C COMBO:
Combined DETECT and CHECK



Safety

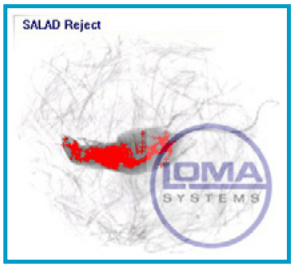
Protecting the Consumer

LOMA's X5 X-ray series is designed to help food producers deliver the utmost safety to the consumer by providing enhanced contamination detection capabilities over conventional metal detectors, as well as ensuring the systems themselves do not increase the risk of contamination.

Working with standards such as BRC, IFS, FSMA and retailer Codes of Practice (COP), LOMA'S X5 X-Ray Inspection systems can be configured with varying levels of specifications ranging from auto-rejection through to full retail compliance to cover all possibilities.

Detecting Foreign Bodies and Physical Contaminants

Using X-ray technology to produce density maps of the product being scanned, the X5 X-ray series can be used to detect a variety of different foreign bodies and contaminants, which include both hard contaminants (i.e. ferrous, non-ferrous and stainless-steel metals) and softer contaminants (i.e. bone, stone, plastics). The systems include a host of technologies designed to ensure reliable contaminant detection, which includes Adaptive Array Technology (AAT) that can be found on some of the X5 models, which helps provide even better detection.



Preventing Further Contamination

The X5 systems are designed to be as hygienic and easy to clean so as to prevent any kind of bacterial contamination of products being inspected.



Protecting the User

LOMA's X-ray systems are designed and build to meet strict legislative requirements governed by UK, EU and USA (FDA) regulations to ensure that the systems are safe to install and use. The X5 X-ray series feature radiation protection to ensure that emissions are kept below 1 µSv/hour during operation.

By their very nature, X-ray systems used for food inspection are safe and emissions are significantly less than many naturally occurring radiation sources such as medical X-rays, Radon gas, Gamma decay in rocks, cosmic rays and even the Sun. The worlds average "background" rate of radiation is around 2.7 mSv/yr. Working a 40 hour week for 48 weeks per year next to a LOMA X-Ray system equates to 0.78mSv/yr less

A transatlantic flight for 8 hours provides a much higher dose of radiation than an X-ray system

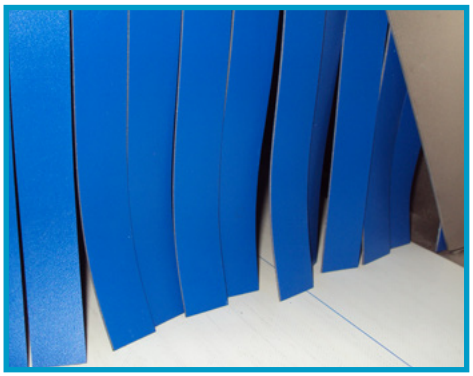


Safety by Design

LOMA's X5 X-ray series are designed with a whole host of features designed to support safe factory operation and ensure that the systems cannot be used in an unsafe manner.



360° View Status light clearly displaying when x-rays are being generated



Curtains that help to prevent leakage of x-rays from the machine cabinet



Critical controls are placed within operators reach



Dual Emergency Stop buttons, accessible from both sides of the line



User interface provides access to key status information and multi-level user security prevents inappropriate use



Lockable covers with safety interlocks to prevent X-rays being generated with the covers open

Durable

LOMA's X5 X-ray systems are developed using Loma's ***Designed to Survive***® philosophy making them some of the toughest and most durable systems on the market. Fabricated from brushed 304 stainless steel, the X5 systems are produced with sloped surfaces to minimize water collection spots during wash-down procedures.

Hygienic and Robust Design

The X5 systems are designed to be hygienic to prevent any kind of bacterial contamination of products being inspected.



- All of the X5 X-ray systems can withstand a low pressure wash down, featuring ingress ratings of IP66. The X5 Pipeline system has an IP69K rating and can withstand a high-temperature, high-pressure wash down, making it suitable for pumped and processed products.
- Systems are designed with a flush through construction with no flat surfaces for fast washing, rinsing and drying
- The X5 series has virtually no metal to metal joints or angled surfaces to eliminate risk of bacterial / microbial harbor

The X5 Pipeline has a complete **IP69K ingress rating**, making it suitable for C.I.P. with a high-temperature, high-pressure wash down regime

Pipe bends help **prevent X-ray leakage**

Complete construction for **easy cleaning and maintenance**







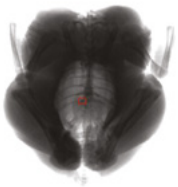
EASY TO CLEAN AND HYGIENIC

Flexible

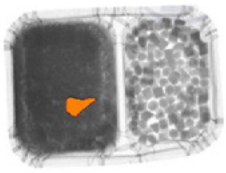
The X5 Series feature a host of features designed to optimize the system for a variety of different product applications, from simple homogenous density products, to loose-flowing, through to products packaged in foil or metallized film. As well as scanning for foreign bodies and contaminants, X5 X-ray systems can also check the integrity of the product being inspected.

Inspection of a Wide Variety of Different Products

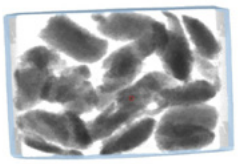
The X5 X-ray Inspection Systems offer reliable detection for a wide range of contaminants and products.



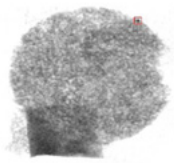
Detection of 1.5mm stainless steel swarf in whole chickens



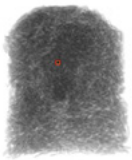
Bone fragment within foil tray packed ready meal



Detection of 1mm stainless steel in a bag of chicken nuggets



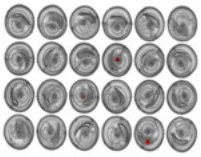
Finding stone and glass in a pack of flavoured noodles



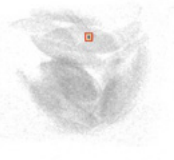
Packed microwavable rice with glass fragment



1.5mm stainless steel detected in tinned sardines



Metal, glass and stone detection in foil wrapped chocolate eggs



Lightweight product being imaged by the X5c

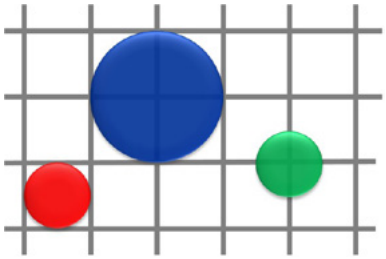
User interface provides **simple access** to setting up and running the system for a **variety of products**



The X5 Spacesaver includes 300 and 500 millemeter belt width options to suit different product applications. It is also capable of **multi-lane operation**

AAT Optimizes Detection for Each Product

The unique Adaptive Array Technology (AAT) featured on a majority of the X5 models, allows the detector pitch to be optimized for a particular product application. It tailors resolution, depth and scaling to give the best detection performance, for hard or soft contaminants, and pack speed for any product requiring inspection.



Algorithms Make Product Inspection Easy

The X5 series includes up to 15 software algorithms for perfecting detection of different foreign bodies and contaminants making them especially good for detecting stainless steel contaminants within foil trays or metalized packaging. As well as contaminant detection, algorithms are provided for image optimization, object checking and product integrity.

Contaminant Detection

Basic

The Basic algorithm offers a safety net by setting a density threshold higher than that of the product being inspected.



Explorer

Explorer is a patented algorithm that analyzes the product texture and can differentiate small high density contaminants (i.e. metals) and larger low density contaminants (i.e. glass, stone, bone and rubber). It offers excellent detection capability with a large margin for minimizing false rejects.

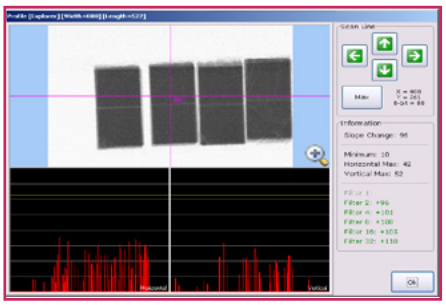
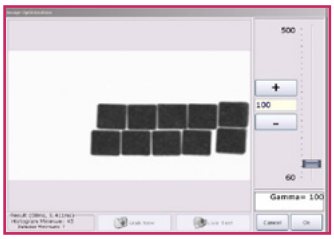
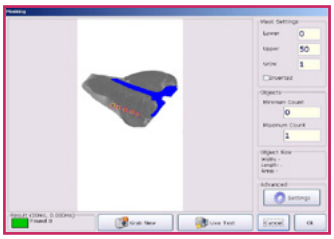
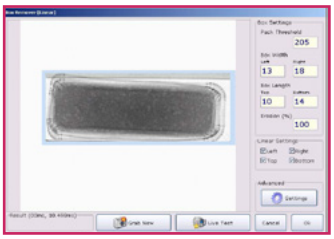


Image Optimization

Algorithms are designed to help improve product imaging. This includes image contrasting; Mask, for masking out part of the product such as bones, promotional toys or packaging clips; and Box Remover that blanks out the edges of a packaging box or container to inspect only the contents.

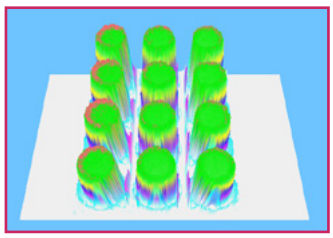


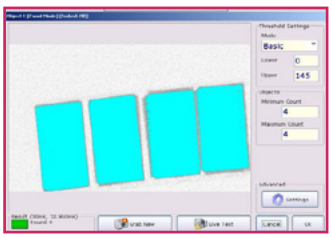


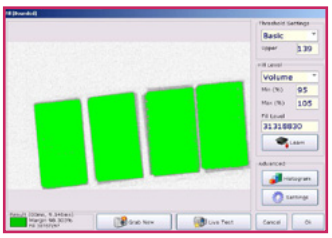


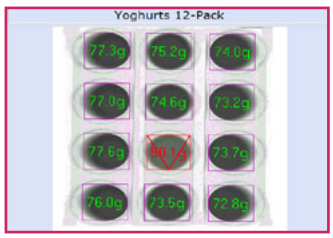
Product Integrity

Object checking algorithms provide extensive product quality control checks which include functionality such as counting quantities, shape analysis, volume, area, fill level, x-weighing and holes analysis.









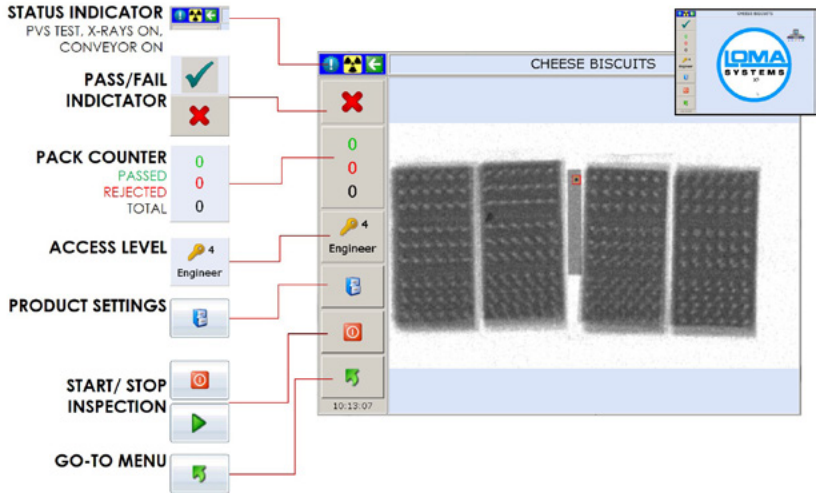
Friendly

Working with producers and retailers around the world, LOMA's engineering teams developed the experience of the X5 X-ray systems to be as friendly as possible. This includes designing the user experience for operators, line supervisors and quality staff; understanding how best to maintain and clean the systems to support maintenance staff in maximizing uptime; and ultimately ensuring the X5 systems deliver the best cost of ownership.

Designed for Users

LOMA's X5 X-ray systems are designed to be as simple and easy to use as a metal detector, whilst providing all the advanced features of the technology. Operating from a control panel with a color touchscreen, the systems provide the following functionality designed to aide ease of operation:

- Graphical mimic screens providing icons for most common functions
- Multi-lingual user interface making the day to day interaction with the system straightforward for a variety of users.
- Individual login and levels of password protection help the systems conform to retailer standards.





Fast Product Learn Wizard Maximizes Uptime

Changing products on the X5 X-ray systems is fast and simple. Enter some basic product data, pass the representative pack five times and the system optimizes the inspection parameters out of the box to suit most product characteristics.

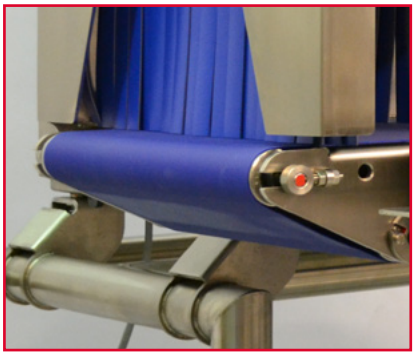




Factory Friendly

LOMA's X5 X-ray systems include many features intended to make them friendlier to factories:

- Space-saving: designed to maximize valuable space within a food factory, the X5C and X5 Spacesaver models occupy a line length of only 1 meter or 1.8 meters with an auto-rejection station.
- To facilitate easier maintenance:
  - Front and rear opening doors with spring lock for quick access and closure.
  - Produced with a minimum quantity of rollers and mechanical parts necessary for reliable operation.
  - Quick release belts which can be changed and replaced in less than 30 seconds.
- Remote Support: Should an issue occur in field, LOMA's service teams are able to remote access most of the X5 models when the machines are connected to a network.
- Environmental friendliness: Coupled with low power consumption, LOMA's X5 series are constructed without the introduction of lead shielding.



Lowest Cost of Ownership

LOMA's X5 X-ray systems are designed to provide great detection performance with low power consumption. Coupled with intelligent cooling systems to prolong X-ray tube life, sealed x-ray generators with non-circulating oil, and maintenance free rollers, the systems are some of the most economical systems on the market and lead to an overall low cost of ownership.

The X5C features a sealed X-ray generator that requires **no oil changes during its normal operating life**



The compactness, ease-of-installation, and good inspection capability make the X5C **ideal for first-time users**

Worldwide Locations

Headquartered in the UK, LOMA SYSTEMS operates from several locations in the Americas, Europe and Asia. Across these sites LOMA conducts ongoing research and development, specialised manufacturing, sales and service support. Through a worldwide network of OEM and distributor partners, LOMA supplies and supports inspection equipment in over 100 other countries.


Farnborough, UK


Manchester, UK


Helmond, Netherlands


Chicago, USA


Plzen, Czech Republic


Shanghai, China


Sao Paulo, Brazil


Nantes, France


Dinslaken, Germany


Warsaw, Poland

About LOMA SYSTEMS

Established in 1969 in the UK, LOMA SYSTEMS designs, manufactures and supports inspection equipment used to identify contaminants and product defects within the food, packaging and pharmaceutical industries, principally offering Metal Detectors, Checkweighers and X-Ray Inspection systems.

With the addition of the LOCK Inspection, Cintex and Brapenta brands and products, LOMA's reputation is based on consistent quality and advanced technology, the result of continuous and far-reaching research and development programmes. Short lead times, modular design and excellent availability of spare parts, coupled with our passion for customer service, allows our customers to:

- Comply with, and exceed, product safety standards, weight legislation and retailer codes of practice
- Maximise production up-time
- Be self-sufficient
- Lower lifetime costs

We are part of Illinois Tool Works (ITW), a global Fortune 250 diversified industrial manufacturer of value added consumables and speciality equipment with related service businesses. Operating under the core philosophies of 80/20 business processes, customer-back innovation and a decentralized entrepreneurial culture, ITW's seven industry-leading segments leverage the ITW business model to generate solid growth with best-in-class margins and returns in markets where highly innovative, customer-focused solutions are required. These divisions serve customers and markets around the globe, with significant presence in developed and emerging markets. ITW's revenues totalled US$13.6 billion in 2016, with more than 50,000 employees worldwide.

Local contact

HOANG LONG TECHNOLOGY
Always for your product quality

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