

# X-ray Inspection

**SAFELINE**  
X-ray Inspection



## The X3310 Features & Benefits

**METTLER TOLEDO**

# Features & Benefits

## X3310 X-ray Inspection Systems

**The X3310 has been designed to inspect small and medium sized packaged products; the X3310 x-ray inspection system utilises new high sensitivity detector technology allowing the integration of a low power (20W) x-ray generator. An improved user experience, sustainability credentials and highly-functional design, the X3310 is truly market facing and encapsulates the most advanced development in inspection capability, which cannot be matched by any of our competitors, reducing the Total Cost of Ownership (TCO) and reduced x-ray emissions.**

**The X3310 offers an enhanced value proposition through new and improved features and benefits, simultaneously detecting dense foreign bodies, regardless of their size or location, as well as mass. The X3310 is ideal for ensuring the safety and integrity of packaged products for food and pharmaceutical manufacturers.**

### **Outstanding Inspection**

The X3310 x-ray system works on absorption difference, rather than conductivity, and is capable of detecting ferrous, non-ferrous and stainless steel, as well as non-metallic foreign bodies, such as glass, bone, stone and high-density plastic and rubber. With the mass tool available as standard software each product can be checked for integrity giving the customer confidence in the quality of their product. In addition, it does not suffer from changes in product temperature or moisture like traditional inspection systems, which ensures minimum false rejects.

### **X-ray Solution for Packaged Products**

The detector technology used in the X3310 system is a new high sensitivity diode array. The increased sensitivity combined with a low power 20W x-ray generator provides the same inspection performance as a conventional detector with a 100W x-ray generator. Complete with new mechanical design drawing on the strengths of our current systems and making significant steps forward in areas of hygienic design, ergonomics and part complexity. The X3310 will typically inspect up to 300 products per minute (depending on product dimensions), with a fully integrated reject available (option) ensuring product safety and integrity for the customer.

### **Designed with Hygiene in Mind**

The importance of achieving and maintaining high hygiene standards is ever increasing with the public more aware of the risks associated with bacterial outbreaks and the consequential potential damage to brands. At METTLER-TOLEDO Safeline X-ray, all our x-ray systems are designed and constructed with sanitary principles such as EHEDG and NSF in mind to prevent biological contamination. The X3310's circular tube open frame design and sloped surfaces allow water to drain off and easy strip down belts and components ensure easy and thorough cleaning.

## New Cabinet Design Improvements

Features	Advantages	Benefit
<b>Fully welded 3mm thick 304 stainless steel construction</b>	Robust and hygienic design with improved shielding and hygiene properties. Minimises crevices and recesses	Design and finish facilitates quicker and easier cleaning process. Fully welded construction ensures high ingress protection rating
<b>180-240 grit polished finish on main components</b>	Fine surface finish maximises hygiene	Finish reduces dirt build-up and facilitates quicker and easier cleaning process
<b>Clean fully welded tube frame with open design with all areas easily accessible</b>	Open design and sloping surfaces ensure water & dirt run-off	Hygienic design reduces cleaning time and ensures optimum protection against pathogenic micro-organism growth
<b>6mm corner radias in inspection zone</b>	Maximises cleaning efficiency in product contact area ensuring no risk of residue	Prevents micro-organism growth in the product contact area
<b>Drip gutter above cabinet and IP69K pneumatics enclosure door</b>	Prevents dirt or water dripping into the electrical cabinet when the door is opened	Electrical and pneumatics protected from dripping water when doors are opened after wash-downs
<b>Runoff channel on either side of the center sloped at 3° to meet EHEDG and 3A requirements</b>	Prevent runoff into the inspection zone	Prevents runoff contamination at the product contact area
<b>Sloped external surfaces following sanitary design requirements</b>	Allows dirt and water runoff	Facilitates quicker and easier cleaning process
<b>Slimline cabinet design</b>	Reduces footprint of the system	Reduces space required for installation and minimises use of materials
<b>Integrated transport cross members</b>	Aids mobility with forklift	Easier to manoeuvre system



X3310 slimline cabinet and fully welded tube frame with open design and easy access to all areas

## Conveyor Design

Features	Advantages	Benefit
<b>Blue good grade spacers used throughout</b>	Minimal metal to metal interfaces which produce crevices and recesses	Improved access for thorough cleaning and enhanced hygiene
<b>Adjustable infeed and outfeed curtains</b>	Can be set way from transfer roller to allow small and light products to transfer without disturbance or toppling over	Offers customers the widest flexibility of product that can be inspected by the system
<b>Lead free curtains / mechanical</b>	Free of toxic materials	Suited to food environment with no risk to customer line
<b>Belt tracking facility</b>	Simple cam tracking device provides single point of adjustment for belt tracking	Minimal operator input and skill level required to set up belt tracking
<b>High friction knurled drive roller (option)</b>	Knurled drive roller ensures maximum drive friction for wet belt environments	Ensures reliable conveyor operation in extremely wet or humid factory environments and the knurled drive roller reduces belt tension requirement thereby prolonging component life and maximises uptime
<b>Automatic conveyor belt tensioning</b>	The conveyor belt is pre-tensioned to an optimum value by a sealed spring which reduces the risk of over tensioning and premature wear on all moving conveyor parts	Eliminates human error and maximises belt life and machine uptime
<b>Sloped guarding lids</b>	Allows water run-off	Easy access for adjusting guides, reject mechanisms and facilitates quicker and easier cleaning process
<b>Large access areas</b>	Allow clear access to conveyor area	Easy access for adjusting guides, reject mechanisms and facilitates quicker and easier cleaning process
<b>10mm round bar guides</b>	Adjustable hockey-stick shaped round bar guides are superior to flat guides for many products	Allows greater product variety including lipped packs such as single yogurt pots
<b>Anti-stiction conveyor bed</b>	Optimised belt performance in wet environments	Avoids overloading of the motor / inverter improving reliability
<b>Non-handed conveyor design</b>	Ability to reverse the flow of direction without any parts	Flexible design allows for alteration on site if needed



The back door is also easier for operators to lower by themselves thanks to an integrated gas strut, making it easy for one person to take the belt on and off.

## Reject Design

Features	Advantages	Benefit
<b>Fully adjustable pusher and air blast option (air powered)</b>	Suitable for a wide range of container sizes and throughput speeds	Increased customer choice in selection of reject solutions to meet requirements
<b>Large vision window in reject bin</b>	Easy setup of rejection timing and functionality and inspection can be performed without stopping the line	Reduced set-up time and easier product change setup resulting in Maximum uptime
<b>Slotted position for sensors</b>	Allows adjustment for bin full and verification sensors	Enables fine tuning for the application
<b>Sloped bin hood and base</b>	Allows for water drain off	Follows hygienic principles of EHEDG and NSF
<b>Slotted bin door</b>	Gives visibility into bin without compromising security	Operators / Supervisors can see bin levels
<b>Larger bin aperture width of 440mm (17")</b>	Suits a wider range of products	Accommodates more products and improves rejection

## X-ray Generator

Features	Advantages	Benefit
<b>Low power X-ray generator</b>	Same detection as a 100 Watt system, but only 1/5 of the power is used. Lower power consumption. Less x-ray emission. Increased sustainability	Total cost of ownership is reduced, improving life expectancy of components
<b>300mm and 400mm detector capability</b>	Wider range of applications possible by choice of widths	Increases flexibility to meet customer inspection requirements

## Cooling

Features	Advantages	Benefit
<b>Low heat dissipation allows for passive cooling</b>	No external cooling. Internal fans move air across heat sinks and all heat is dissipated through enclosure wall with no cabinet penetrations for active cooling devices like heat exchangers	Reduced overall total cost of ownership (TCO) through lower power requirements

## Environmental Protection

Features	Advantages	Benefit
<b>IP65 wash-down design as standard with an option for IP69K</b>	Allows cold water, medium pressure wash-down of system with option for IP69K for high pressure, hot wash-down	Facilitates quicker and easier cleaning process



## Software Capabilities

Features	Advantages	Benefit
<b>10.1" widescreen TFT touchscreen display</b>	Larger HMI display area (compared to ADV)	Optimizes user interface and information available on screen
<b>LED backlit display</b>	Low power consumption / longer life	Running costs decreased, life expectancy improved
<b>Navigation through touchscreen display with flat menu structure</b>	Simplifies on-screen navigation	Facilitates better user experience with reduced training requirements
<b>Image library, event history, &amp; statistics logs all maintained during a power down</b>	Data stored in the event of unexpected power loss	Quality Assurance requirements are protected
<b>Automatic fault monitoring with status output</b>	System monitors health status of all modules constantly enabling fast diagnostics and fault finding	Minimises downtime
<b>Conveyor speed adjusted via user interface</b>	Eliminates separate speed controls and maintains correct X-ray scanning rate	Eliminates faulty system set-up due to operator error
<b>Reject verification and air pressure monitoring options</b>	Ensures reject system operates as per requirements	Maintains Quality Assurance requirements by confirming that rejects are removed from the line



New software features a fully-updated user interface



The software is icon driven and features touch and scroll

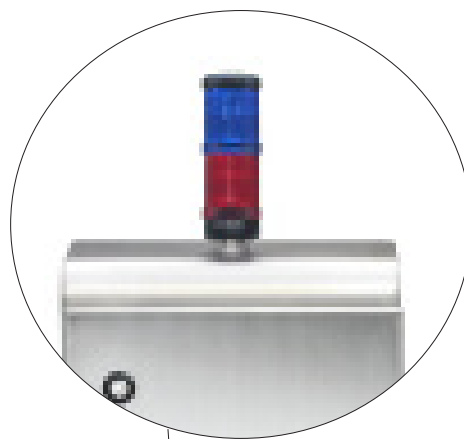
## Sustainability Credentials

Greener Sustainability	✓
Lower energy consumption	✓
Thinner Stainless Steel used due to low power x-ray generator	✓
Recyclable materials	✓
100% lead free	✓
Fewer production steps	✓
Reduction in weight	✓
Reduction in (transport) volume	✓
Less cooling required	✓
LED display instead of CCFL	✓
Reduced electronic components, less PCB's used	✓
Miniature LED lamp stack	✓





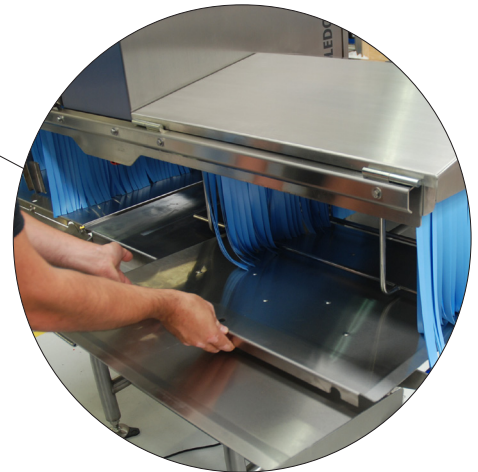
Quarter turn door locks have been added to the front of the system for quick access and positive sealing, and, because they require a tool it limits access to authorised personnel



LED miniature lamp stacks



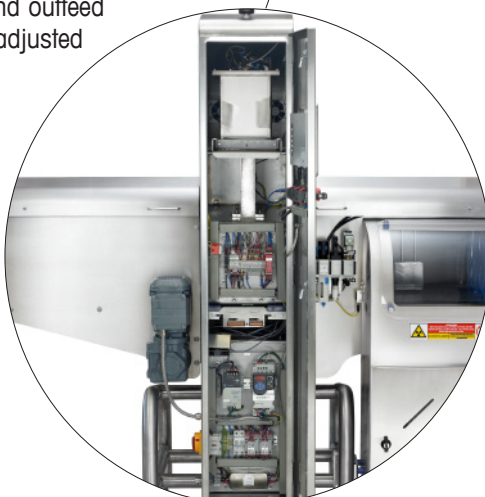
LED backlit screen display



The conveyor deck plates can be slid in and out, enabling both sides to be cleaned fully, and the back door is also easier for operators to lower thanks to an integrated gas strut



Curtains at the infeed and outfeed of the machine can be adjusted by up to 50mm



A single full-height cabinet door on the front, gives access to the x-ray generator, detector, control system and electrical panel all at once



Incorporating a much larger curved vision window, the reject bin is 20mm wider to maximise the size of product that can be rejected. Slots on both sides of the bin, which allow the reject confirmation and bin full sensors to be positioned effectively

## Mettler-Toledo Safeline X-ray

Features	Advantages	Benefit
<b>Global Service Support</b>	MT have more engineers per country than any competitor	Rapid response, local support and minimal downtime
<b>Global Sales Support</b>	Customers can purchase the same solution regardless of geography	Consistent technology globally, as well as global sales support and knowledge
<b>Industry Knowledge</b>	MT have the correct skillset to approach and find solutions quickly for customers	Best solution for every application, optimising the customer benefit
<b>Flexible Solutions</b>	MT will go further to find customised solutions to suit customers' needs	A range of solutions to suit a wide variety of applications
<b>High-Integrity Supplier</b>	This goes hand-in-hand with being an authority – MT does not play games with customers or use unfair tactics to win deals – we play it straight and open, and let our knowledge and solutions do the talking	Customers can be assured of a straight and open solution

[www.mt.com/xray-next](http://www.mt.com/xray-next)

for more information

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