

Comprehensive Metal Detection For In-line Inspection

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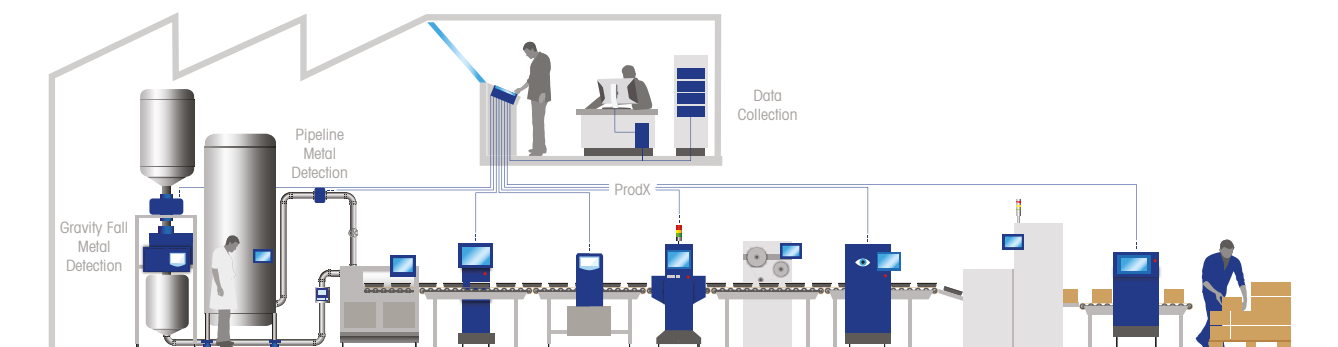


METTLER TOLEDO

Reduced Recall Risk Better Brand Protection

Sources of metal contamination occur in most food, pharmaceutical and industrial plants. These can include raw materials, processing equipment wear and tear, intentional sabotage as well as human error. As a result, metal detection is an essential part of any product quality management system.

When metal has been identified as a primary contaminant risk in your production process, an integrated metal detection system can help minimize the risk of product recalls due to metal. With more installations than many competitors combined, METTLER TOLEDO is a leading manufacturer of metal detection systems worldwide, offering high quality, reliable solutions for almost any industrial application, including food, nutraceutical, pharmaceutical and personal care products. Our extensive range of metal detection systems are ideal for integration at various Critical Control Points (CCP) - front-end, in-process, and end-of-line.



Front-end inspection

Detecting contaminants early in the production process protects downstream equipment and removes rejected product before value is added.

In-process inspection

Metal detection in-process minimizes product waste and enables potential re-work before further value is added, reducing costs.

End-of-line inspection

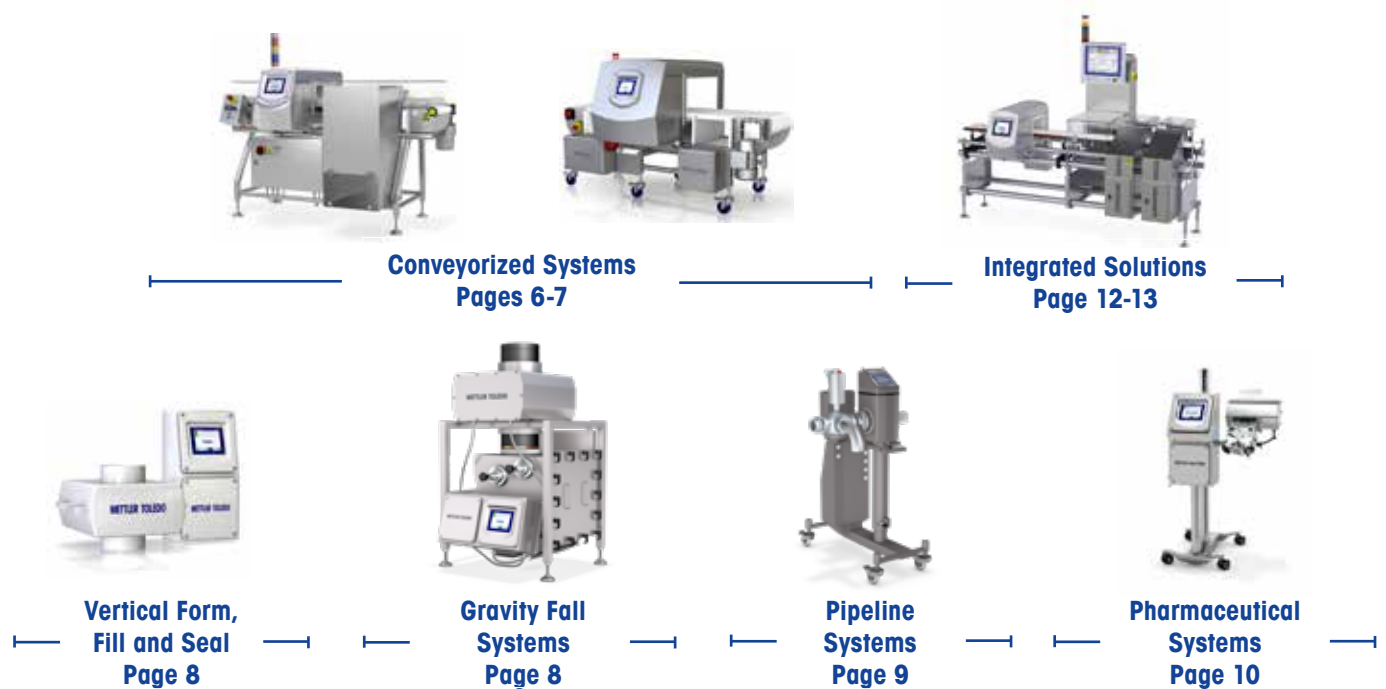
Inspection at the end of the production line checks every package for metal contamination prior to dispatch, ensuring only perfect product leaves the facility.

Extensive Metal Detection Range

For Food, Non-Food and Pharma Applications

Our metal detectors for food and packaged consumer goods (pages 6-11) can be integrated with a variety of transport mechanisms such as conveyors, pipelines, gravity-fed hoppers and multi-head weighers to provide fully-integrated inspection solutions. These systems make it easier to comply with food safety inspection standards, industry guidance and legislation. They can be connected to ProdX software to make compliance and reporting easier.

Our pharmaceutical metal detection systems (page 12) provide self-contained inspection solutions for use with all tablets, capsules and pharmaceutical powders, as well as unpackaged nutraceutical products. These systems ensure compliance with regulatory requirements, validation and qualification of procedures.



Common applications include the inspection of:

- Bulk products - cereals, nuts, dried fruits, coffee, flour, sugar and food additives
- Bakery, confectionery and snacks - bread and other baked goods, cereal bars, sweets, chocolate, crisps
- Dairy - cheese, yogurt, ice cream
- Meat, poultry and seafood - minced meats, meat cuts, blocks of meat, IQF seafood
- Produce - fresh or frozen fruits and vegetables
- Convenience foods - ready meals, soups and baby food purees
- Pharmaceutical and nutraceutical products - tablets, capsules, powders



How Metal Detectors Work

Sensitivity, Reliability and Usability

Metal detection technology is based on magnetic permeability and electrical conductivity. Modern metal detectors can identify ferrous, non-ferrous (including brass and aluminum) and stainless steel metal contaminants. The best performance requires a combination of maximum sensitivity, stability and reliability.

While metal detectors may be manufactured using similar principles, performance can vary greatly between manufacturers and models. For the best protection against product recalls due to metal contamination, the metal detector must be integrated into a high performance metal detection system, designed with operator safety, automatic rejection and due diligence in mind. It must also be installed, operated and maintained correctly.

When selecting a metal detector, it is also important to consider:

- **Achievable spherical sensitivity** - a small difference in sphere size equates to a significant difference in the size of irregular-shaped contaminants such as wire that can be detected (see chart on next page), so choosing the right inspection technology, from an experienced metal detector manufacturer is essential.
- **Reliability** - as a CCP, metal detector uptime is essential to support enhanced Overall Equipment Effectiveness (OEE) of the line; online stability and noise and vibration immunity are essential to avoid false triggering and rejection of good product.
- **Ease-of-use** - including simple set-up, fast product changeovers, easy integration with existing production lines and the ability to export data electronically to support audit requirements.

Typical sensitivity performance of METTLER TOLEDO metal detectors (individual products may vary)

Using Tuned or Ultra-High Tuned Frequency Detection for Dry Product Applications

Aperture Size	Ferrous Metal	Non-ferrous Metal (brass, copper and aluminum)	Stainless Steel 316
350mm x 50mm	0.5mm	0.4mm	0.6mm
350mm x 125mm	0.7mm	0.7mm	0.9mm
350mm x 200mm	0.85mm	0.95mm	1.1mm

Using Multi-Simultaneous Frequency and Product Signal Suppression for Wet Applications

Aperture Size	Ferrous Metal	Non-ferrous Metal (brass, copper and aluminum)	Stainless Steel 316
350mm x 50mm	0.6 to 0.8mm	0.8mm to 1.0mm	1.0mm to 1.2mm
350mm x 125mm	1.0 to 1.2mm	1.0mm to 1.5mm	1.2mm to 1.8mm
350mm x 200mm	1.2mm to 1.5mm	1.2mm to 1.5mm	2.0mm to 2.5mm

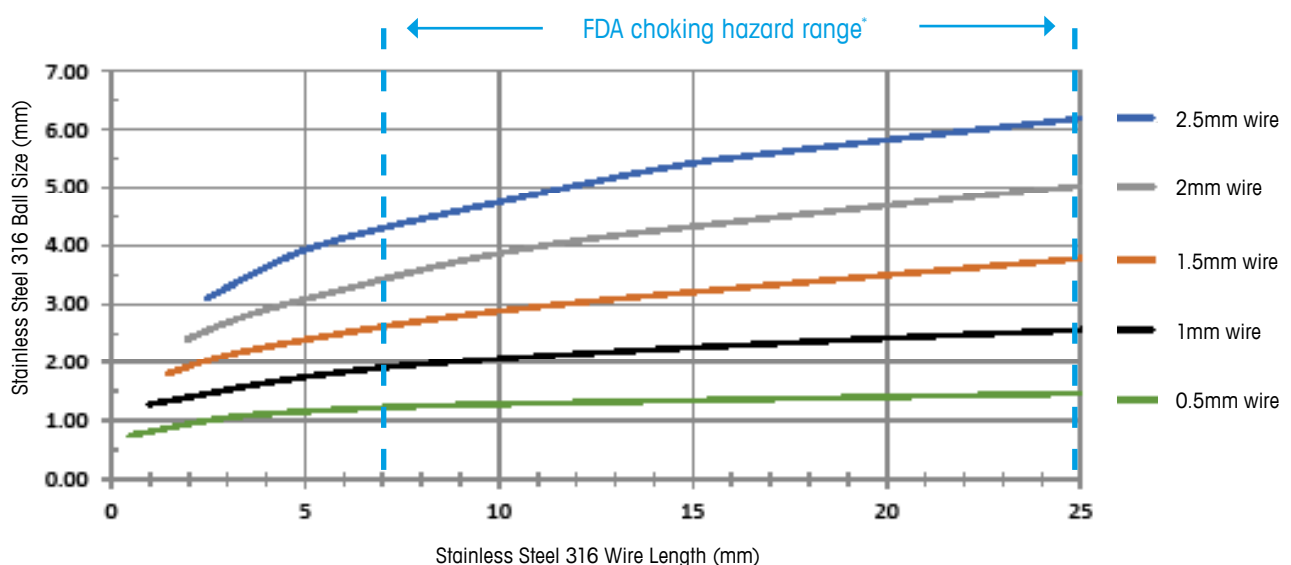
Maximizing Product Quality Through Innovative Technology

Operating at the highest sensitivity level will provide maximum protection to your brand and company's reputation, dramatically improving your detection capability to real life contaminants such as wires and swarf. Choosing the right technology and frequency for your application in order to maximize sensitivity performance will make it easier to detect smaller metal contaminants and minimize the risk of false rejects.

We provide a range of operating platforms to suit your application and requirements:

- **Signature** - provides a robust solution with a membrane key panel to offer simple push-button set-up routines, inspection process control and a stable operating platform based on tuned technology.
- **Signature Touch** - combines the reliability of our Signature operating platform with a full-color touchscreen interface and additional features which make operation and quality processes easier.
- **Profile** - used ultra-high tuned frequency detection, optimized for dry applications to enhance levels of sensitivity; the intuitive touchscreen interface simplifies procedures and places valuable process information at the fingertips of the whole manufacturing team.
- **Profile Advantage** - uses Multi-Simultaneous Frequency and Product Signal Suppression technology to deliver superior metal detection sensitivity in challenging applications to detect smaller metal contaminants and virtually eliminate false rejects.

Detectable Stainless Steel 316 Wire Results For Dry Product Inspected at High Frequency



*FDA choking hazard: <http://www.fda.gov/ICECI/ComplianceManuals/CompliancePolicyGuidanceManual/ucm074554.htm>

Meeting Production Challenges Designed for High Performance

METTLER TOLEDO Safeline's metal detection conveyor systems provide flexible inspection solutions to suit a wide range of light to heavy-duty food and non-food applications. Systems can be designed and built to suit your specific process requirements. Choose from simple stop-on-detection systems through to fully automated detect-and-reject systems, customized with the most suitable Safeline metal detector for your application.



Series 30

Compact solutions for small spaces.

- Compact footprint enables installation to take place in the smallest spaces
- Optimized width and height of conveyor design.



Series 40

Standard solution for light to medium weight applications.

- Optimized width and height of conveyor design
- Failsafe and system monitoring sensor packs for retailer and food standards compliance.



Series 80

Flexible solution for packed or loose products.

- Customizable reject options
- Suitable for a wide range of environments with a choice of modular belt or food-grade, flat, Polyurethane (PU) belt
- Failsafe and system monitoring sensor packs for retailer and food standards compliance.

Compatible tunnel metal detectors

Profile Compact, Profile Vent Tube

Signature, Signature Touch, Profile Compact, Profile & Profile Advantage

Signature, Signature Touch, Profile Compact, Profile & Profile Advantage

Metal detector aperture sizes

Standard range of sizes

Standard range of sizes

Configurable combinations

Reject devices available

Stop on Detect; Air Blast; Pusher

Stop on Detect; Air Blast; Pusher

Stop on Detect; Air Blast; Pusher; Lift-/Drop-Flap; Overhead Sweep; Diverter Arm; Retracting Band

Conveyor dimensions

Choice of set lengths, widths and height

Choice of set lengths, widths and height

Flexible choice of lengths, widths and height options

Tailored System Designs

To Suit Your Requirements

With a choice of metal detector heads, reject mechanisms and belt types, detector finishes and due diligence enhancements, we can customize your integrated metal detection conveyorized solution to optimize performance and ensure you meet your compliance requirements.

For the most highly specialized applications, take advantage of our in-house design capabilities to create a unique solution that will meet your production challenges. Tailored solutions can include requirements such as multi-level conveyors, dual or triple-headed solutions, custom-built transport systems with specialized reject mechanisms and more. Your local METTLER TOLEDO Sales Representative will work to understand your needs and develop a solution that delivers tangible benefits for your business.



Series 90

- Wide retracting band solution.
- Specially designed for the inspection of light to medium weight, multi-lane or randomly presented bakery and confectionery products and packs
 - Sensor guided automatic belt tension and tracking system
 - Failsafe and system monitoring options available.



Series 200

- Optimized for bulk product inspection.
- Choice of food grade flat, Polyurethane (PU) or heavy duty modular belt to suit all applications
 - Failsafe and system monitoring sensor packs for retailer and food standards compliance.



Bespoke Systems

- Highly tailored solutions to suit your requirements.
- Tailored design service combined with decades of industry expertise to meet the most challenging metal detection applications
 - Our bespoke inspection system solutions enable you to meet your quality assurance standards every time.

Signature, Signature Touch and Profile

Configurable combinations

Wide Retracting Band

Flexible choice of lengths, widths and height options

Signature, Signature Touch, Profile, Profile Advantage & Profile RB

Configurable combinations

Stop on Detect; Pusher; Lift-/Drop-Flap; Overhead Sweep; Diverter Arm

Flexible choice of lengths, widths and height options

Signature, Signature Touch, Profile Compact, Profile, Profile Advantage & Profile RB

Configurable combinations

Choice of options tailored to the application

Flexible choice of lengths, widths and height options

In-Process Inspection At Critical Control Points

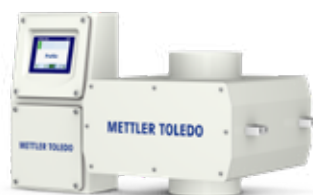
METTLER TOLEDO Safeline's non-conveyorized systems inspect a wide range of food and non-food applications. Solutions include inspection of vertical packing applications such as snack foods, free-flowing powders and granular gravity-fed applications and pipeline inspection for liquids, pastes and slurries. Our solutions maximize product quality to help you protect your consumers and your brand.



T-Series

For use with Vertical, Form, Fill and Seal (VFFS) processes for inspecting snack foods and confectionery, where insertion space is limited.

Latest range offers Emulation, Reduced Test Mode, ATS and eDrive on Profile operating platform.



ST-Series

For use with VFFS processes, the Super Throat (ST) delivers maximum sensitivity when inspecting snack foods and confectionery.

Latest range offers Emulation, Reduced Test Mode, ATS and eDrive on Profile operating platform.



Gravity Fall Systems

Suitable for inspecting free-flowing powders and granular products with a range of available reject mechanisms.

Latest range offers Emulation, Reduced Test Mode, ATS and eDrive on Profile operating platform.

Integrated reject systems

Integrates with bagmaker to either stop production or make a double bag when metal is detected

Integrates with bagmaker to either stop production or make a double bag when metal is detected

Y-Valve; Sealrite; Open Diverter

Finish options

Painted aluminum;
Bead blast stainless steel

Painted aluminum;
Bead-blast stainless steel

Painted aluminum;
Bead-blast stainless steel

System integration

All leading weigher and bagmaker combinations

All leading weigher and bagmaker combinations

Floor mount or suspended frame options available for integration with other processing equipment

ProdX-enabled

Yes

Yes

Yes



L-Series Pipeline

Offers versatility for inspecting a wide range of liquids, pastes and slurries. The Human Machine Interface (HMI) can be installed remotely from the metal detector enabling the point of inspection to be located in inaccessible locations for easier integration.

Mounting frame with reject valve options throughout the tube

Bead blast stainless steel

Existing processing lines and production equipment

Yes



Profile Advantage Pipeline

Delivers the highest sensitivity performance in challenging applications subject to product effect (due to bubbles or voids in the product flow), and virtually eliminates false rejects.

Stand, tube and plug valve; Stand, tube and ball valve

Bead blast stainless steel

Leading vacuum fillers and processing equipment

Yes



HDS Pipeline

Designed specifically for vacuum-filler applications. The space-saving design can be configured through the use of a range of accessories for easy integration with leading processing equipment including vacuum fillers, linking machines and clipper systems.

Mounting frame with reject valve options throughout the tube

Brushed stainless steel

Existing processing lines and production equipment

Yes

In-Process Inspection of Tablets, Capsules and Powders

METTLER TOLEDO Safeline's pharmaceutical systems integrate easily with other processing equipment such as de-dusters and tablet presses. Tablex systems are designed for inspecting tablets and capsules, with a choice of side diverter or lift flap reject devices to efficiently remove contaminated products from your production line. Our Pharma-GF system is specifically designed for the inspection of pharmaceutical and nutraceutical powders and granular products in-flight.



Tablex2

Standard metal detection for inspecting pharmaceutical tablets and capsules. Typical sensitivity is 0.39mm stainless steel 316 for an aperture of 76mm x 22mm.



Tablex-Pro

Advanced metal detection for inspecting pharmaceutical tablets and capsules. Offers enhanced password-protected secure access to support 21 CFR compliance. Typical sensitivity is 0.3mm stainless steel 316 for an aperture of 76mm x 22mm.



Pharma GF-Pro

Advanced metal detection for pharmaceutical and nutraceutical powders. Typical sensitivity is 0.3mm stainless steel 316 for an aperture of 76mm x 22mm.

Compact design for easy integration into limited spaces. Advanced reject device removes contaminants from the product flow with minimal loss of good product.

Integrated reject systems

Integrated lift flap or side diverter

Integrated lift flap or side diverter

Advanced reject diverter

Finish options

Polished stainless steel

Polished stainless steel

Polished stainless steel

System integration

Compatible with all leading tablet presses, de-dusters and other processing equipment

Compatible with all leading tablet presses, de-dusters and other processing equipment

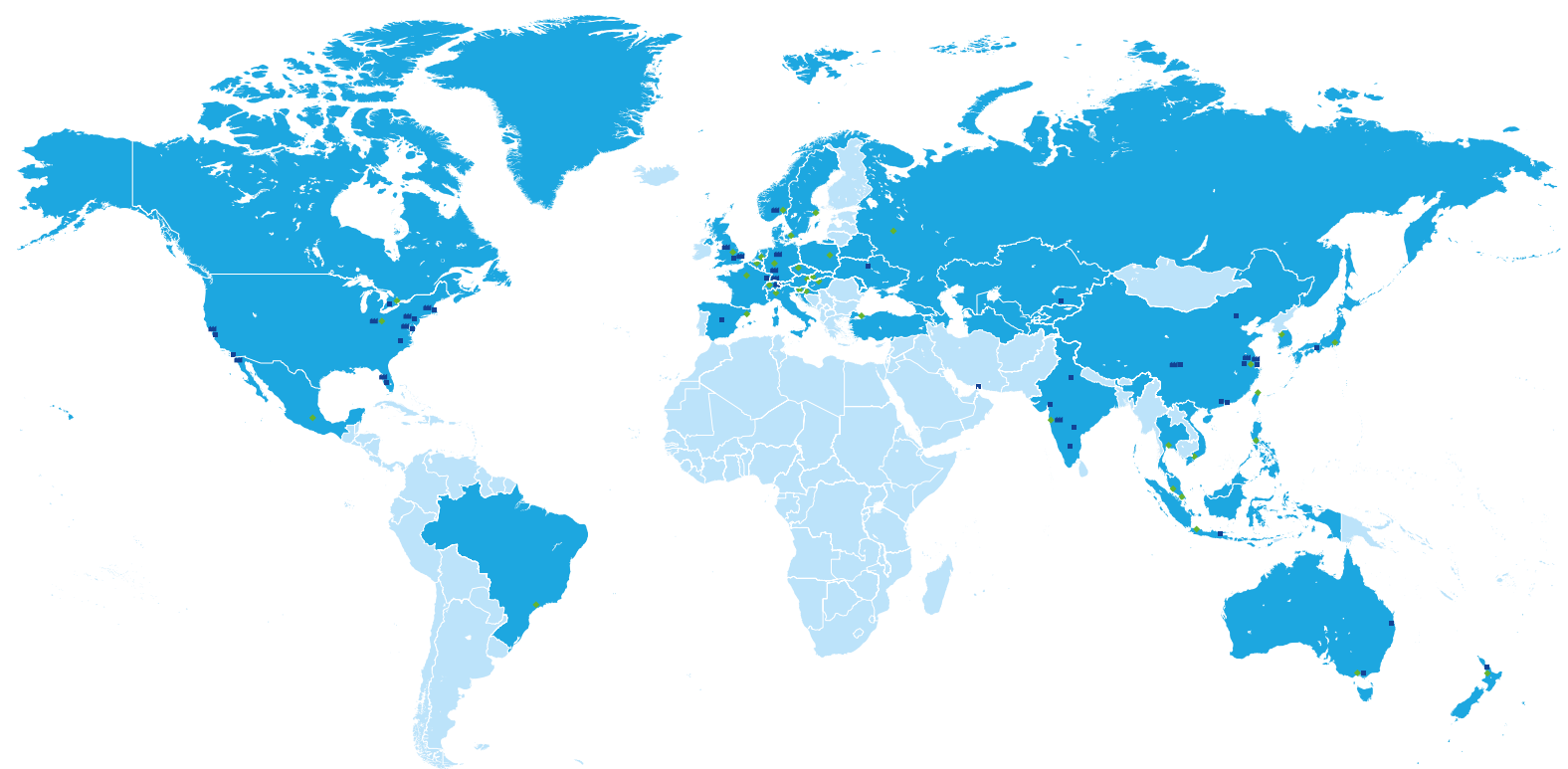
Easy integration under feed hoppers and at the discharge end of bulk feed conveyors.

ProdX-enabled

Yes

Yes

Yes



Service Support

Where and When You Need It

When you invest in a piece of METTLER TOLEDO equipment, you are assured of the highest build quality, consistent performance and maximum reliability, but that is just the start of the relationship.

Our sales teams provide initial guidance on selecting the correct system solution to suit your needs. Once your system is up and running, you can be sure that a METTLER TOLEDO trained service expert is never far away. Our global team of expert service technicians is ready to give ongoing support throughout the life of the system.



Full product lifecycle support for your metal detection equipment:

- Start-up support
- Certified test samples
- Initial & ongoing performance verification
- Spare parts & spares kits
- Equipment repairs
- Upgrades and refurbishment
- Operator, Quality & Maintenance training

With a local presence in most industrialized countries, as well as selected partners in other regions, we are ready to serve you around the globe. With over with 600 dedicated product inspection and 3600 overall technicians in 39 countries, METTLER TOLEDO has the largest service team in the product inspection industry. Our global presence allows us to offer customers short response times and reliable repair services worldwide.



Product Inspection Integrated Solutions For Compliance and Brand Protection

Production line space is becoming increasingly precious across all industries, driving the need for powerful, space-saving solutions. METTLER TOLEDO's broad portfolio of combined solutions delivers machines with the industries' smallest footprints, combining two or more inspection technologies.

Safeline metal detectors can be integrated with METTLER TOLEDO's market-leading C-series checkweigher range, offering compliance with industry and retailer standards, safeguarding brand reputation and ensuring the highest process safety and security.



What are the Benefits of Integrated Solutions?

- ▶ The smallest footprint in the industry with only 4 feed on the ground
- ▶ Global compliance with local weighing regulations and retailer standards
- ▶ Separate rejects for off-weight and contaminated or non-conforming products
- ▶ Sophisticated product handling to smoothly transport any product type at high speeds
- ▶ Highest due diligence / process safety options
- ▶ Separate evaluation and data management with the optional ProdX management software
- ▶ Access to a service and support network with over 600 dedicated product inspection technicians



Checkweighing

The C-Series checkweighers serve as the base for most combination systems. The modular platform allows configurations from standard to highly complex. The systems reliably avoid underfill and ensure compliance with weighing regulations, whilst providing brand protection and reducing costly overfill.

▶ www.mt.com/checkweighing

CM31 StandardLine

Dependable Accuracy

- Comes with Profile LS Combi metal detector
- The reliable guardian for "easy" products in medium speed production lines, configurable with 80 performance and productivity enhancing options
- Up to 200 packs per minute throughput
- From 20 g to 6 kg weighing range, high weighing accuracy



Bischofszell Food Limited (BINA) process agricultural products and preserve them. The company's success is built on its raw materials and efficient production, combined with a commitment to product safety and quality. BINA have 30 production lines in their Bischofszell facility, the majority of which incorporate METTLER TOLEDO product inspection systems.

"We have a long history of working with METTLER TOLEDO, so they were a natural choice when we were reviewing suppliers. Functionality and price were very important factors in our decision making process. METTLER TOLEDO was able to provide a CombiChecker unit that could inspect products for metal contamination, but also check overfill levels at the same time."

Joachim Gründing,
Team Leader QM Food Safety
Bischofszell Food Limited, Switzerland



See our full range of integrated solutions online

► www.mt.com/pi-integrated-solutions



CM33 PlusLine

Robust Performance

- Choose from four metal detectors: Profile LS Combi, Profile, Profile RZ, Profile Advantage
- Customizable with 180 performance and productivity enhancing options
- Up to 300 packs per minute throughput
- From 7 g to 7.5 kg weighing range, very high weighing accuracy



CM35 AdvancedLine

Precision and Versatility

- Choose from four metal detectors: Profile LS Combi, Profile, Profile RZ, Profile Advantage
- Fully customizable with 230 performance and productivity enhancing options
- Up to 600 packs per minute throughput
- From 3 g to 10 kg weighing range, extremely high weighing accuracy

Choosing the Right Supplier

Key Considerations

Choosing the right solution involves more than just physical equipment. A partner who offers local service support can help you achieve optimal performance from your product inspection equipment. Equipment manufacturers who can offer integrated process solutions including software for automated data collection and electronic record keeping will make it easier to comply with industry standards and regulations.

Why Partner with METTLER TOLEDO?

METTLER TOLEDO's foreign body detection solutions are designed to make it easier to detect smaller contaminants, reduce product waste, minimize false rejects, maximize uptime and meet compliance needs. With decades of experience in manufacturing tailored, in-line solutions with safety at the core, we are ideally positioned to be your partner for all your product inspection needs.



Assurance and certification

Professional documentation and compliance-related products and services are available for your metal detection and x-ray inspection systems, including certified test samples and Performance Verification.

Equipment optimization

METTLER TOLEDO can help you achieve optimum equipment performance, from professional start-up support to preventative maintenance and service contracts.



Expert training and education

Our modular training programme offers comprehensive guidance to operators, quality assurance staff and maintenance personnel. Additional literature, technical documentation and best practice advice is available to download from our online library.

► www.mt.com/library



With a local presence in most industrialized countries, as well as selected partners in other regions, we are ready to serve you around the globe. Our geographically focused teams and partners are responsible for all aspects of sales, service and support. We have over 7200 factory-trained service and sales specialists worldwide ready to support you throughout the life of your equipment.

Enhance Production Line Performance With Digitalization and Data Management

Food and pharmaceutical manufacturers are increasingly using more intelligent systems to improve automation and traceability within their plants. Connecting manufacturing equipment across networked infrastructure improves production line efficiencies and management control.

Digitization and real-time data collection are key enablers to ensure the highest levels of regulatory compliance, accountability and governance. **ProdX** PC-based client server software monitors and manages data collected from METTLER TOLEDO product inspection systems, fully documenting the handling of suspected contamination incidents, weights, set-ups and inspection routines. It is a powerful and effective solution to:

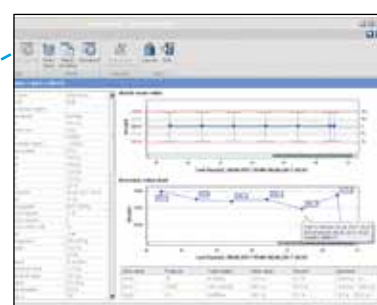
Enhance Quality Processes:

- Meet the requirements of GFSI-approved bodies
- Fully support the fulfilment of retailer audits
- Enable faster and more targeted reaction to incidents and document corrective actions
- Automate collection of data, including logging of all alarms, warnings and activities

Improve Production Efficiencies:

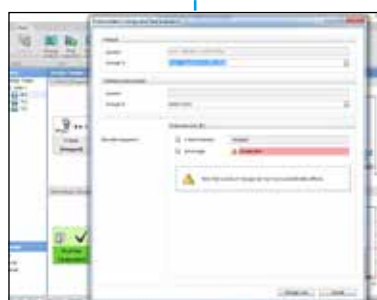
- Track and evaluate production data to maintain and improve OEE
- Provide an unparalleled volume of historical "big data"
- Simplify production line operation

Incident monitoring allows Quality Managers to add corrective actions for continuous improvement.

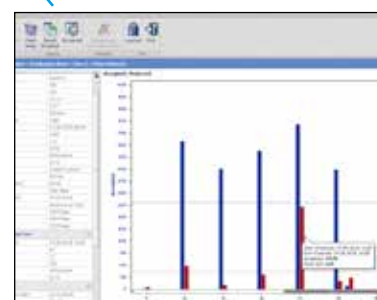


Automatic collection of counters and statistics even during network interruptions.

Performance Verification Report ensures the equipment is performing as expected.



Easy and fast product and batch changeover for all product inspection devices via the HMI or OPC UA server.



Complete log of all rejected products with time stamp. Corrective action for each incident can be entered centrally.

Product Inspection Solutions

To Improve Quality and Productivity

We go beyond metal detection. Our Product Inspection division is a global leader in the field of automated inspection technology, providing metal detection, checkweighing, x-ray inspection, vision inspection and track and trace solutions. As part of a truly global business, we draw on a wealth of industry experience gained by working in genuine partnership with our customers worldwide. We are dedicated to serving the needs of our customers during the full lifetime of their equipment.

Each solution we offer is the result of many years' experience gained by working in close partnership with our customers in a wide variety of industries and markets, throughout the globe. We have an in-depth understanding of the challenges faced by manufacturers, and over the years have responded to the diverse requirements of our customers by developing the biggest product portfolio in our industry.



Metal Detection



Checkweighing



X-ray Inspection



Vision Inspection



Track and Trace



Integrated Systems

www.mt.com/metaldetection

For more information

METTLER TOLEDO Group
Product Inspection Division
Local contact: www.mt.com/contacts

Subject to technical changes
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