

Metal Detection

SAFELINE
Metal Detection



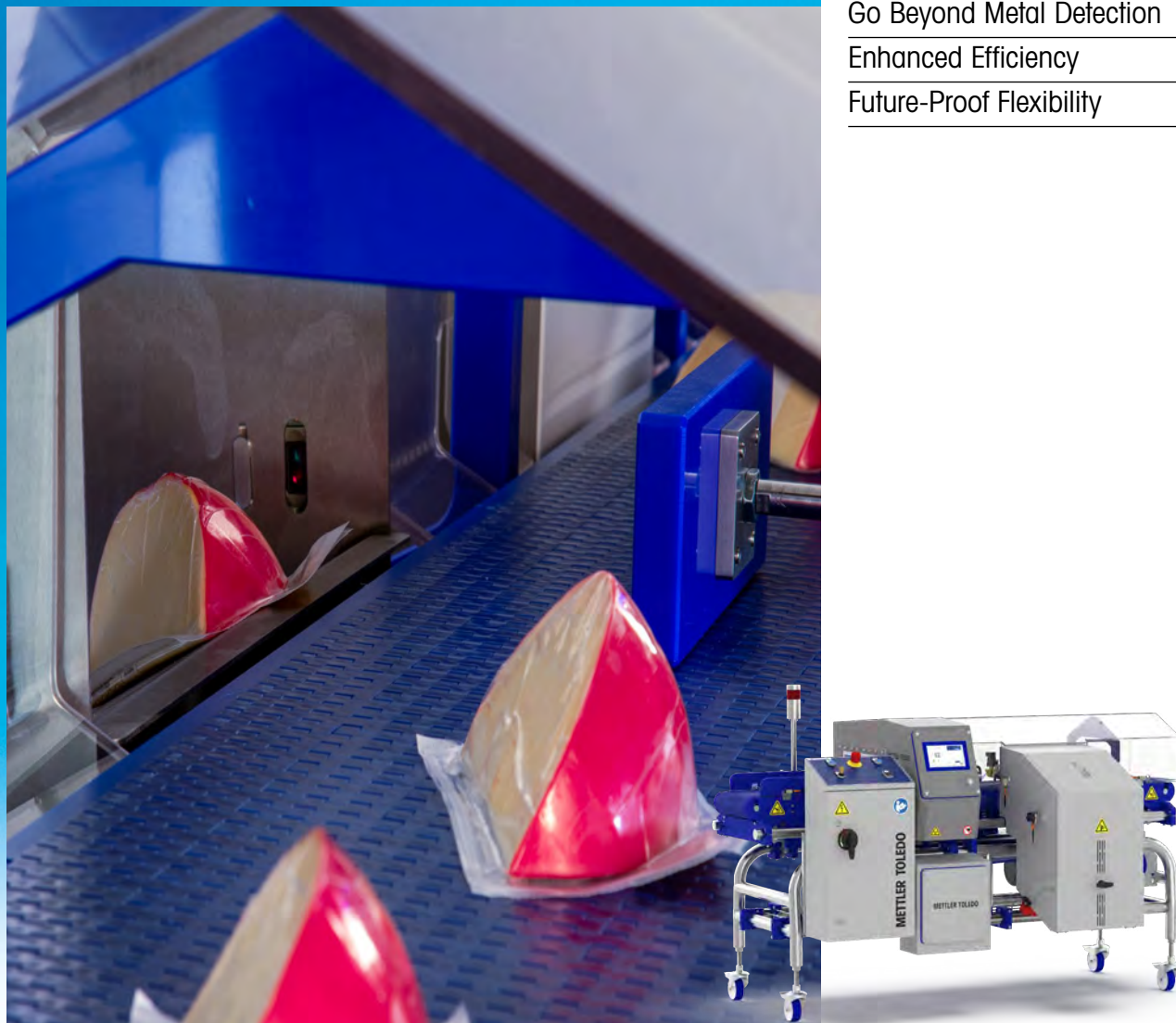
GC Series

Metal Detection Systems

Go Beyond Metal Detection

Enhanced Efficiency

Future-Proof Flexibility



Adaptable Conveyorized Systems Future-Proof Compliance

METTLER TOLEDO

Integrated Conveyor Systems Go Beyond Metal Detection

METTLER TOLEDO Safeline's GC Series metal detection systems provide flexible inspection solutions to suit a wide range of conveyorized, light to heavy product applications. Our next generation of conveyor systems can be configured to support your specific compliance and production requirements, and easily modified if needs change in the future. A combination of Safeline reliability, ease of use and enhanced serviceability help you achieve a maximum return on your investment.

Enhanced Brand Protection

A stable, reliable, high performance metal detector supports brand protection.

- A wide range of Safeline metal detectors helps you tailor your conveyor system to meet your sensitivity detection performance and budget needs
- Application-specific reject devices facilitate efficient removal of contaminated products
- Due diligence features can be added to reduce risk of brand-damaging product recalls
- Option of non-hollow frame to reduce risk of biological contamination



Increased Productivity

Essential tasks are simplified to improve operator efficiency and maximize uptime.

- Designed for rapid product set-up and easier cleaning
- Multi-lingual HMI and technical documentation
- Minimize false rejects when using an application-specific metal detection system
- Optional variable speed control for more flexible production line integration
- Designed for safer and faster servicing to minimize production line downtime



The metal detector, transport system, reject device, and a suite of integrated sensors work in harmony so metal-contaminated products can be efficiently detected, rejected and removed from the production process.



Affordable Compliance

Modular design makes it possible to upgrade your system from a stop-alarm to a full due diligence system to help meet the strictest industry regulations and retailer requirements.

- Flexible, modular configurations
- Lockable reject bins
- Password-protected access
- Lock Out Tag Out (LOTO) for enhanced worker safety and security
- Full lifecycle service support



The Perfect Partnership

Future-Proof Flexibility

A stable, reliable, high performance metal detector facilitates maximum uptime and brand protection. Integrate our metal detector heads with our next generation GC Series systems. They deliver efficient reject mechanisms and a suite of due diligence features to help increase productivity and make compliance easier. Safety elements have been designed-in to support quality control processes and improve ease of use.



Backwards and forwards compatibility with METTLER TOLEDO Safeline. Our extensive range of metal detectors means you can upgrade your conveyor system without needing to replace the entire system.

Software-Centric Control

- ▶ When integrated with an M30 R-Series metal detector, you benefit from software-centric control of the fully integrated system.
- ▶ The metal detector directs the process, assesses the inputs and outputs of the integrated system, and coordinates the actions of each component.

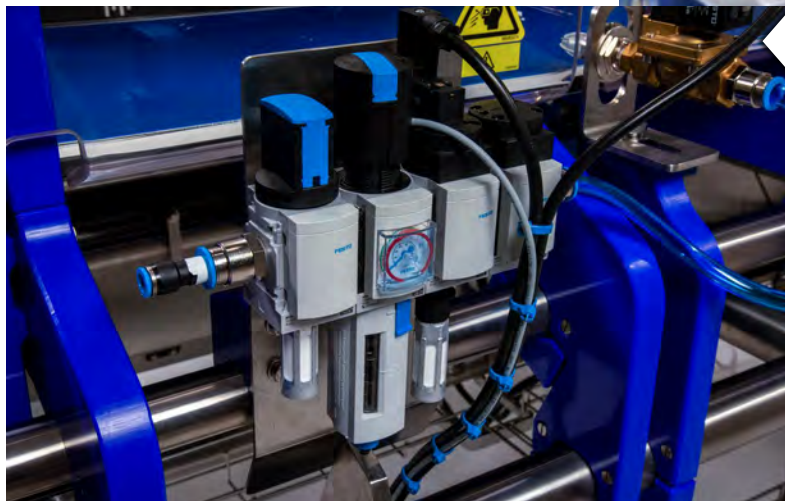


Enhanced Hygiene

- ▶ Cleaning processes are simplified due to a tubular, open frame design and the ability to easily remove belts and other modules.
- ▶ An optional solid frame design is also available.

Design Reduces Risk

- ▶ Key safety features such as guarding and Lock Out Tag Out (LOTO) devices for electrical and pneumatic systems help protect operators and support safer maintenance practices.



Reduced Cost of Ownership

- ▶ Modular construction facilitates re-configuration – whether you need to reposition, replace or add key components – no welding, drilling or cutting required.
- ▶ Fewer wear parts and common system elements reduce your spare parts inventory requirements and help to minimize potential downtime risks.

Adaptable Conveyorized Systems

Future-Proof Compliance

Our GC Series conveyor can be integrated with your choice of METTLER TOLEDO Safeline metal detectors. With a range of technologies available, we can help you choose the right metal detection solution for your application, based on key product characteristics and production requirements, then configure the system to suit your needs.

Step 1: Choose Your Metal Detector

We offer a wide range of metal detector heads to suit your performance and budget needs, from an entry-level solution for simple and less-demanding applications, through to solutions tailored for the most challenging applications, and options in between.

Entry Level Metal Detector For Dry and Wet Applications



M31R

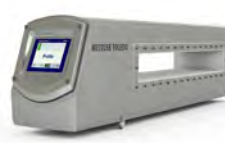
Versatile, reliable inspection

Solutions For Dry Applications



M33R

Performance in dry applications



Profile

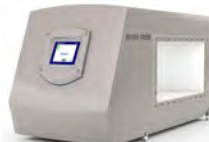
Optimized for dry applications

Solutions For Bulk Applications



M33RB

Performance in bulk applications



Profile RB

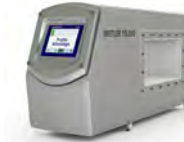
Optimized for dry, bulk products

Solutions For Wet, Challenging Applications



M34R

Performance in challenging applications



Profile Advantage

Optimized for challenging applications

Metal Detector Technical Specifications

Sensitivity		M31R	M33R	Profile	M33RB	Profile RB	M34R	Profile Advantage
Frequency		Tuned 3F	High Tuned 3F	Ultra-High Tuned 2F / 3F	High Tuned 3F	Ultra-High Tuned 2F / 3F	DSF	MSF
Standard Aperture width (mm)		150 - 1050*	150 - 1050*	150 - 1050*	550 - 1050*	500 - 1050*	150 - 1050*	150 - 1050*
Standard Aperture height (mm)		75 - 750*	75 - 750*	75 - 500*	250 - 550*	250 - 650*	100 - 500*	100 - 500*
Mounting Methods	Base	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Oversquare	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	End	No	No	No	No	No	No	No
	Face	No	No	Yes	No	No	No	No

*Increment steps vary (25 mm/50 mm/100 mm) depending on the chosen dimension. Please contact your local METTLER TOLEDO Sales Representative for full details. Aperture size limitations apply for Light Duty, Oversquare and RZ variants.

Productivity		M31R	M33R	Profile	M33RB	Profile RB	M34R	Profile Advantage
Touchscreen HMI		7" WVGA	7" WVGA	5"	7" WVGA	5"	7" WVGA	5"
Languages		33	33	33	33	33	33	33
Product Memories		100 / 200**	200	100	200	100	200	100
No. of User Accounts		10 / 50**	50	32	50	32	50	32
Set-up		Single pass auto setup with manual clustering	Single pass auto setup with manual clustering	Auto setup with product clustering	Single pass auto setup with manual clustering	Auto setup with product clustering	Auto setup with intuitive clustering	Auto setup with intuitive clustering

** Upgradable by SENSE™ Productivity Pack

Environmental Conditions		M31R	M33R	Profile	M33RB	Profile RB	M34R	Profile Advantage
Zero Metal Free Zone (ZMFZ)		Option	Option	Option	No	No	No	No
Metal Detector IP Rating	IP65 (Painted)	N/A	N/A	Option	N/A	Option	N/A	N/A
	IP65 (BB)	Option	Option	No	Option	No	Option	No
	IP65 (BR)	Option	Option	No	Option	No	Option	No
	IP66 (BB)	Option	Option	Option	Option	Option	Option	Option
	IP66 (BR)	Option	Option	N/A	Option	No	Option	No
	IP69K (BB)	Option	Option	Option	Option	Option	Option	Option
	IP69K (BR)	Option	Option	N/A	Option	No	Option	Option
Relative Humidity		Maximum relative humidity: 93% for temperatures up to 45 °C (113 °F)						

Finish Types: BB = Bead Blast; BR = Brushed, SS = Stainless Steel

Compliance		M31R	M33R	Profile	M33RB	Profile RB	M34R	Profile Advantage
Due Diligence Capability (see page 11)	Base	Option	Option	Option	Option	Option	Option	Option
	Plus	Option	Option	Option	Option	Option	Option	Option
	Advanced	No	No	Option	No	Option	No	Option
Connectivity	RS232/RS422	No	No	Yes	No	Yes	No	Yes
	Ethernet/IP	No	No	Option	No	Option	No	Option
	Modbus TCP	No	No	Option	No	Option	No	Option
	PackML	Partial	Partial	Option	Partial	Option	Partial	Option
	Profinet IO	No	No	Option	No	Option	No	Option
	ProdX-enabled	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Ethernet	No	No	Yes	No	Yes	No	Yes
Inputs / Outputs	USB	Standard	Standard	Option	Standard	Option	Standard	Option
	Fixed Inputs	-	-	7	-	7	-	7
	Fixed Outputs	-	-	3	-	3	-	3
	Programmable Inputs / Outputs (Expandable I/O)	10 / 6 (+6 / +6)	10 / 6 (+6 / +6)	0 / 3	10 / 6 (+6 / +6)	0 / 3	10 / 6 (+6 / +6)	0 / 3

Step 2: Configure the Conveyor

Choose your reject system, configure your conveyor belt, tailor your frame and product handling elements, and decide on your system dimensions and speed.

Basic Reject System



Stop-On-Detect

- Entry-level material handling system with stop-on-detect function when metal-contaminated products are identified
- Compatible with all available Safeline metal detectors
- Ideal for integration with Profile RB metal detectors for inspecting large products including cartons, crates, sacks, and blocks of product (e.g. meat, cheese)
- Available with extended belt lengths to provide future-proof flexibility so you can add an automated reject or failsafe monitoring options at a later date
- Photogated option available

Photogated Reject Systems

For increased productivity through automation, available reject options support the below product weights.



Air Blast

- < 0.5 kg
- < 1.5 kg
- < 3.0 kg



Punch / Pusher

- < 10 kg
- < 30 kg



Overhead Sweep

- One way - up to 15 kg or up to 30 kg
- Two way - up to 15 kg or up to 30 kg



Retracting Band

- < 15 kg
- 100 mm - 300 mm (50 mm increments) retraction range

Conveyor Features	
Standard system length ¹ (mm)	1200 to 5000 mm (200 mm increments) ¹
Line / belt width (mm)	150 - 1000 (50 mm increments)
Line / belt height (mm)	400 - 1500 (50 mm increments) ¹
Conveyor incline	+/- 0° - 10° available as standard
Speed configuration	Fixed speeds: 10-100 m/min Variable speed: 10-100 m/min
Maximum product weight	50 kg
Maximum belt load	30 kg/m ²
Operating / storage temperature	-10°C to 40°C (14°F to 104°F) / -10°C to 50°C (14°F to 122°F)
Relative humidity	Maximum relative humidity: 93% for temperatures up to 45°C (113°F)
IP rating options	Light duty IP65, medium duty IP66, heavy duty IP69K

¹Custom system lengths in 1 mm increments are available upon request

Reject Mechanisms and System Control		M31R	M33R	Profile	M33RB	Profile RB	M34R	Profile Advantage
Stop-on-detect		●	●	●	●	●	●	●
Air Blast	Light duty < 0.5 kg	○	○	○	○	○	○	○
	Medium duty < 1.5 kg	○	○	○	○	○	○	○
	Heavy duty < 3.0 kg	○	○	○	○	○	○	○
Pusher	< 10 kg	○	○	○	○	○	○	○
	< 30 kg	○	○	○	○	○	○	○
Overhead Sweep	One-way < 15 kg	○	○	○	○	○	○	○
	One-way < 30 kg	○	○	○	○	○	○	○
	Two-way < 15 kg	○	○	○	○	○	○	○
	Two-way < 30 kg	○	○	○	○	○	○	○
Retracting Band	< 15 kg	○	○	○			○	○
System Control	HMI only	●	●	-	●	-	●	-
	Physical control only	-	-	●	-	●	-	●
	HMI and physical control	○	○		○		○	-

GC Series System Components			Stop-On-Detect GC System	Photogated Reject GC System	Due Diligence GC System
Belt Materials	Food grade polyurethane (PU) ²	Blue	●	●	●
		White	○	○	○
	Food grade modular ²	Blue	●	●	●
		White	○	○	○
Frame SS 304	Conveyor finish	304 SS brushed	●	●	●
		316 SS brushed	○	○	○
	Stainless steel, 50 mm tubular		●	●	●
	Stainless steel non-hollow frame		○	○	○
	Levelling pads / casters +/- 50 mm		●	●	●
	Hygienic pads / casters +/- 50 mm		○	○	○
	Bolt-down pads +/- 50 mm		○	○	○
	Levelling pads / casters +/- 75 mm		○	○	○
	Hygienic pads / casters +/- 75 mm		○	○	○
	Bolt-down pads +/- 75 mm		○	○	○
Product Handling	Automatic reject mechanism		-	●	●
	Product guides		○	○	○
	Reject bin (choice of types and locations)		-	●	●
Safety	eStop		●	●	●
	Infeed tunnel guard		○	●	●
	Outfeed tunnel guard		○	●	●
	Safety circuits		●	●	●
	Lock Out Tag Out on electronics and pneumatics (if applicable)		●	●	●

²Modular belt is recommended for washdown applications; PU belt not available for retracting band systems.

● Standard ○ Option

Step 3: Due Diligence Enhancements

Whether you want to support compliance with food safety standards, or the strictest retailer codes of practice, we have a range of due diligence enhancements available to help you meet your compliance obligations now, or in the future. The modular design of the GC Series system means you can configure your system now, or we can design it so you can retrofit your due diligence options at a later date if your compliance requirements change.

Feature	Description
1. In-feed pack sensor	Essential for the optimum timing and operation of the reject device to ensure the correct contaminated product or products are removed from the production line. This sensor also doubles as a pack rate monitor that can be set to alarm should the packing rate become too fast for the reject mechanism to guarantee accurate rejection.
2. Reject confirmation unit	Upon detection of metal contamination, the system can be configured to expect a further signal from the reject confirmation sensor that a product or number of products has been rejected. If confirmation is not received, the system will alarm and stop the conveyor.
3. Pedestal mounted lamp beacon stack	Provides a visual indication of various fault or warning conditions to quickly alert operators to specific fault conditions.
4. Air failure sensor	Provides a warning should the pneumatic supply fail or drop to a level that could prevent a successful rejection taking place.
5. Automatic reject mechanism	A choice of reject mechanisms is available dependent on line speed, product weight, product dimensions and the nature of the packaging material.
6. Reject check sensor with test facility	Acts as a communication link with the In-feed pack sensor by checking the functionality of the reject sensor, which in-turn provides a check of the functionality of the in-feed pack sensor.
7. Reject bin with bin-locked sensor	Reject bins are available on most models with a mechanical lock. An electromechanical lock option is also available on selected systems. The sensor indicates whether the bin is locked as an added safety feature.
8. Bin-full sensor with test facility	If the reject bin becomes full, the conveyor will automatically stop until the bin is emptied. Then the conveyor can be restarted.
9. Key operated reset switch	Key operated reset switch provides additional security to minimize the risk of an unauthorized re-start.
10. Tunnel guard	Prevents access to a product as it leaves the metal detector and passes downstream towards the reject device.
11. Encoder	Tracks contaminated products through the system in conjunction with the in-feed pack sensor to improve reject accuracy, especially when using variable speed systems.

Refer to diagram on next page for location of individual features.

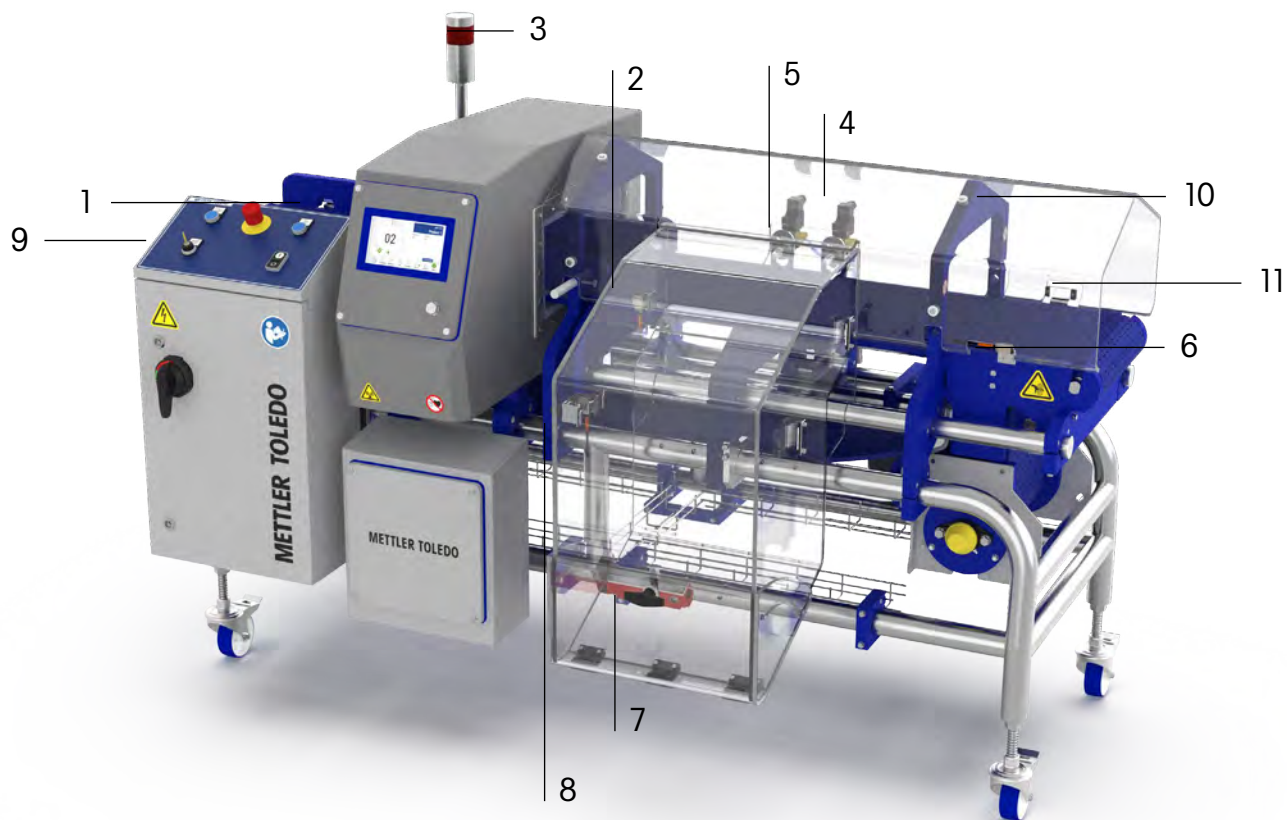
GC Series Failsafe Monitoring Features and Due Diligence Packages

- In addition to the features listed below, a choice of indicators (visual; audible) and reset methods (button; key) are also available
- Advanced packages are only available on Profile / Profile RB / Profile Advantage GC metal detection systems - pack rate monitoring is standard on these metal detection systems.

Due Diligence Features	Base	Plus	Advanced
In-feed pack sensor	●	●	●
Air failure warning	●	●	●
Bin-full warning	●	●	●
Reject Confirmation Unit - rejected product confirmation / reject operation failure	●	●	●
Head fault warning	●	●	●
Belt stop-on-alarm / warning ³	●	●	●
Reject check warning	○	●	●
Bin open warning	○	●	●
Fault state retention	N/A	N/A	●
Failsafe Monitoring Sensor Tests: In-feed pack sensor, air failure, bin-full, reject confirmation / operation and reject check	○	○	●

³Alternative setups available on request, including a non-stop and alarm until next detection event option

Due Diligence Features



Global Service Support Through Local Expert Teams

With over 3600 technicians in more than 40 countries, 600 dedicated to Product Inspection, METTLER TOLEDO has one of the largest service teams in the industry. Our global presence allows us to offer quick response times and reliable repair services worldwide.

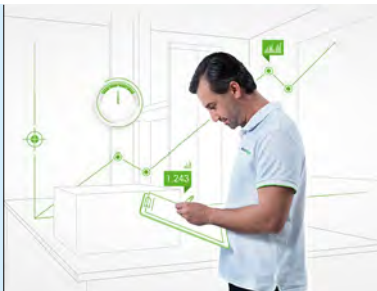
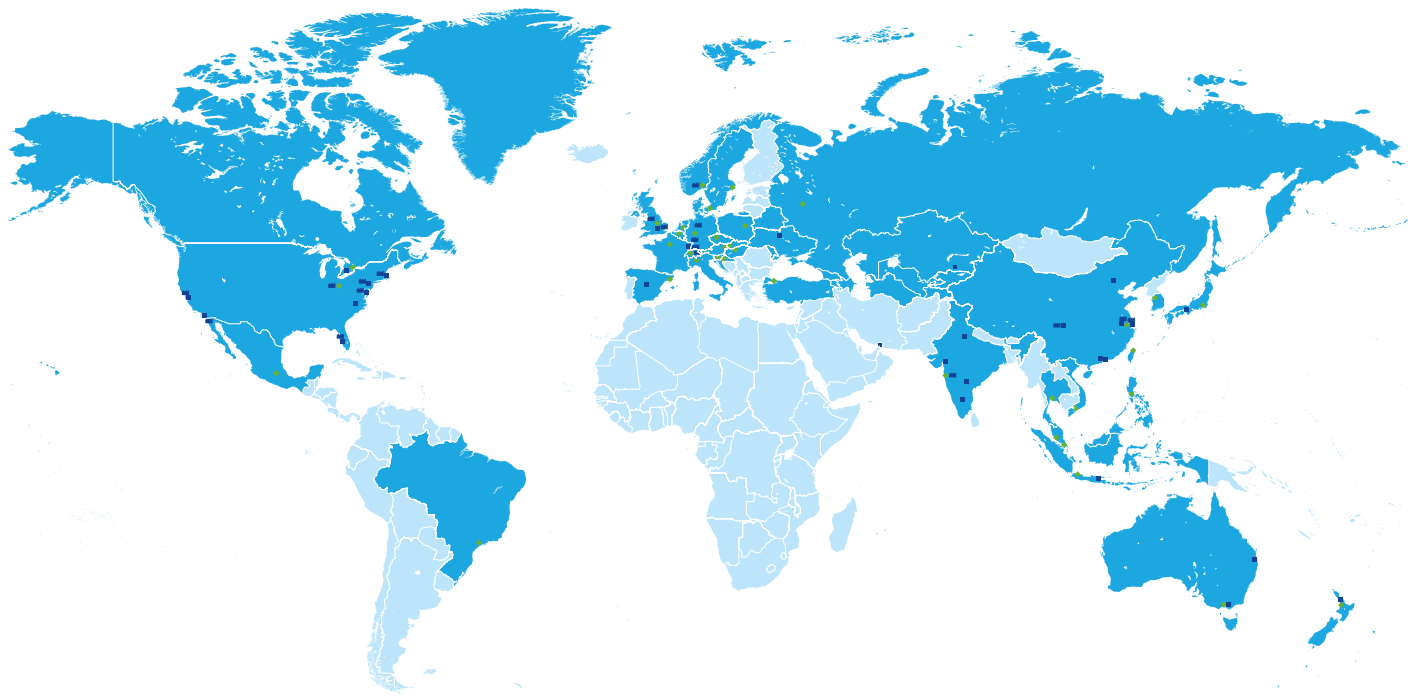
METTLER TOLEDO Service

**Our service offering supports these
four key areas:**



Uptime - Support and Repair

- ▶ Regular preventive maintenance to help maximize equipment uptime
- ▶ Professional repairs using genuine spare parts



Performance - Verification and Optimization

- ▶ Regular performance verification helps maintain the productivity of your equipment
- ▶ Professional start-up and configuration



Compliance - Quality Assurance and Certification

- ▶ Comprehensive documentation to support regulatory requirements
- ▶ Professional system commissioning with IPac and EQPac



Expertise - Training and Education

- ▶ Training for operators, quality and maintenance staff
- ▶ Keep your production processes running at maximum efficiency

Maximum Operational Efficiency

Control and Digitalization

ProdX™ is a complete digital quality and data management system for your product inspection equipment, across a wide range of manufacturing industries, for real-time monitoring and food safety compliance. Its advanced data redundancy capabilities and communication architecture make it seamlessly scalable from single site, single device installations up to multi-site and multiple time zone international installations.



Helping You Manage Quality and Compliance

ProdX empowers Quality Managers to actively take control of business critical quality requirements and to support global and local compliance needs. It significantly cuts administrative effort in reporting on compliance for all current food safety standards and retailer audit requirements.



Helping You Manage Data Communication

ProdX provides IT Managers with a data network connectivity solution designed to keep pace with the latest technological advances. Its full integration capability with MES/ERP systems, using the latest communication protocols, eases maintenance requirements and fully supports smart factory initiatives.



Helping You Manage Production and Efficiency

ProdX enables Production Managers to maximize process efficiency and increase productivity. It significantly reduces complexity and sources of error caused by multiple operating systems and proprietary machine software.

The investment costs can usually be paid back within a few months to a year. ProdX can save labor costs by collecting production data automatically and publishing reports within seconds, increasing productivity.

Benefits of ProdX

Quality and Production Data Management

Digital Transformation of the Food Safety Landscape

The food industry is experiencing a dynamic transition in its structures: Cultural change, a growing demand for remote audits and requirements for complete traceability are having an influence on the food safety landscape. Cloud connectivity-based technologies like ProdX help meet these challenges. ProdX was designed to keep pace with future food safety digitalization requirements.

Full Lifecycle Support

Complete professional installation and operator training packages help to make sure that the software is up and running with optimal performance from day one. SoftwareCare Service contracts means that the software is always up-to-date to support with the latest compliance and cyber-security standards, to resolve technical issues quickly.

Improved Efficiency and Productivity

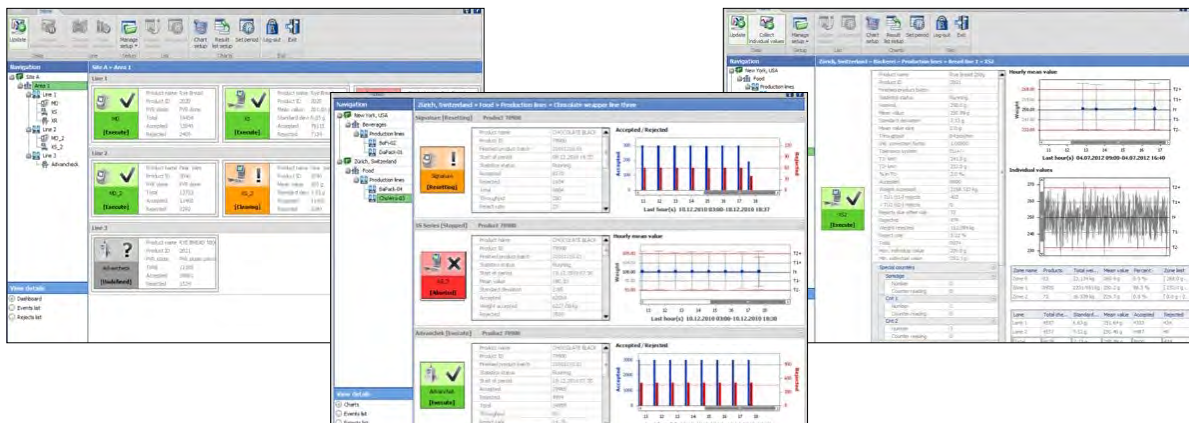
Go paperless and simplify data storage and retrieval. Time spent searching for quality and production data is reduced. Studies indicate that managers can spend 25% to 35% of their time searching for, retrieving, handling, filing, and storing documents and information. Repetitive manual processes are significantly reduced.

Improved Control

Improved data management means that everyone is working from the most current data. Access controls mean that only authorized parties can access or change proprietary information. Control over production parameter changes are improved with less manual effort.

Data Visibility

Quality and production data can be accessed remotely across multiple site and geographical locations, giving managers at all levels complete insight into product inspection and compliance performance metrics.



- ▶ Complete control from single device to multi-site installations
- ▶ Full connectivity with all METTLER TOLEDO product inspection devices
- ▶ Supports remote user access
- ▶ Automated report generation and real-time incident alerts
- ▶ Highest levels of MES/ERP OPC UA integration for centralized production monitoring and control processes.

Extensive Metal Detection Range

For a Diverse Range of Applications

Our metal detectors for food and packaged consumer goods 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.

For pharmaceutical and nutraceutical applications, we offer self-contained inspection solutions for use with tablets, capsules and powders. These metal detection systems support compliance with regulatory requirements, validation and qualification procedures.



**Vertical Form,
Fill and Seal**



**Gravi
Sys**



**line
ems**



Integrated Solutions



**Pharmaceutical
Systems**

For more information

Polyscientific Enterprise Sdn Bhd
百利企业有限公司 152064 D

Melaka (HQ)
272, Taman Asean,
Jalan Malim,
75250 Melaka

T +606 3350690 F +606 3351631

Shah Alam
14, Jalan Serendah 26/39,
Kawasan Perindustrian HICOM,
40400 Shah Alam, Selangor

T +603 51036920 F +603 51036980

Penang
16, Jalan Sungai Tiram 7,
11900 Bayan Lepas,
Penang

T +604 6371500 F +604 6371600

Johor
No. 365 Jalan Ekoperniagaan 11,
Taman Ekoperniagaan 2,
Senai Airport City, 81400 Senai,
Johor

T +607 5955243 F +607 5955745

info@polyscientific.com.my

www.poly.my