

Metal Detection

SAFELINE
Metal Detection



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DARTRONICS, INC.
PACKAGING AUTOMATION SPECIALISTS



Profile Advantage and Profile Advantage LS

Improving Brand Protection and Compliance

Cost Reduction

Increasing Productivity



Detecting More Metal In Challenging Applications

METTLER TOLEDO



Caring for You and Your Customers Maximizing Quality and Performance

The quality of your products and the safety of your customers is critical to your business. If the products you produce are "dry" then a METTLER TOLEDO Profile metal detector is the ideal solution. For more challenging products that are wet, warm or cooling, have varying moisture content or packaged in metallized film, a Profile Advantage metal detector should be your choice.

Detecting More Metal in Challenging Applications

Profile Advantage metal detectors utilize the latest multi-simultaneous frequency technology to push metal detector performance to another level. This technology incorporates a product signal suppression technique to effectively cancel out the product signal from difficult to inspect products. Cancelling these product signals or the effect of the package makes it easier to detect metal contaminants up to 50% smaller than previously possible.

Improving your Competitiveness

Profile Advantage metal detectors are designed to be a reliable piece of equipment on your production line. They offer improved brand protection and compliance with food safety standards while reducing the cost of operating a world class food safety programme.



Supporting your Compliance Needs

When installed at critical control points in your process, Profile Advantage metal detectors enable your business to comply with the requirements of HACCP (Hazard Analysis and Critical Control Points) and the broader needs of external food safety regulations and standards.

Profile Advantage systems support compliance with the latest GFSI standards and external codes of practice including:

- BRCGS (Brand Reputation Compliance Global Standard)
- IFS (International Featured Standard)
- SQF
- FSSC 22000
- All Major Retailer Standards
- Food Safety Modernization Act



● Improved Brand Protection and Compliance

Profile Advantage detects more metal in challenging applications irrespective of packaging material:

- Detecting more metal contaminants before they leave the factory.
- Detecting contaminants up to 50% smaller makes it easier to comply with the strictest international food safety standards and retailer codes of practice.

● Cost Reduction

Profile Advantage delivers exceptional reliability, improved ease of use and minimizes product waste:

- With intelligent balance control and enhanced noise and vibration immunity, Profile Advantage is one of the most reliable metal detector on the market.
- Profile Advantage Intuitive clustering technology means that a single product setting can be used for multiple products, making it easier to use and reduces the set-up time during product changeover.
- Product Signal Suppression delivers a reliable, stable performance and virtually eliminates the occurrence of false rejects.



● Increased Productivity

Profile Advantage allows for less frequent online testing and monitoring, increases manufacturing uptime and is easily integrated into a Manufacturing Execution System (MES) to report overall equipment effectiveness:

- Predictive Analytics and Condition Monitoring features continuously monitor metal detector performance allowing for a controlled reduction in the frequency of performance testing and an increase in production availability.
- On board Overall Equipment Effectiveness (OEE) reporting allows for easy reporting of the metal detector availability, reliability and quality as part of the overall production line performance.
- Connectivity options such as, EtherNet/IP, Profinet IO and Modbus TCP simplify integration and connectivity to factory information systems.
- PackML PackTags allow for standardized reporting of metal detector states and modes as defined by the Organisation for Machine Automation and Control (OMAC).

Detecting More Metal

For Complete Customer and Brand Protection

For challenging inspection applications where a product is wet, hot, chilled or cooling Profile Advantage technology provides the ultimate in metal contaminant detection capability. All metal contamination including ferrous, non-ferrous and even the most difficult to detect non-magnetic stainless steels are readily detected enabling them to be removed effectively from the manufacturing process.



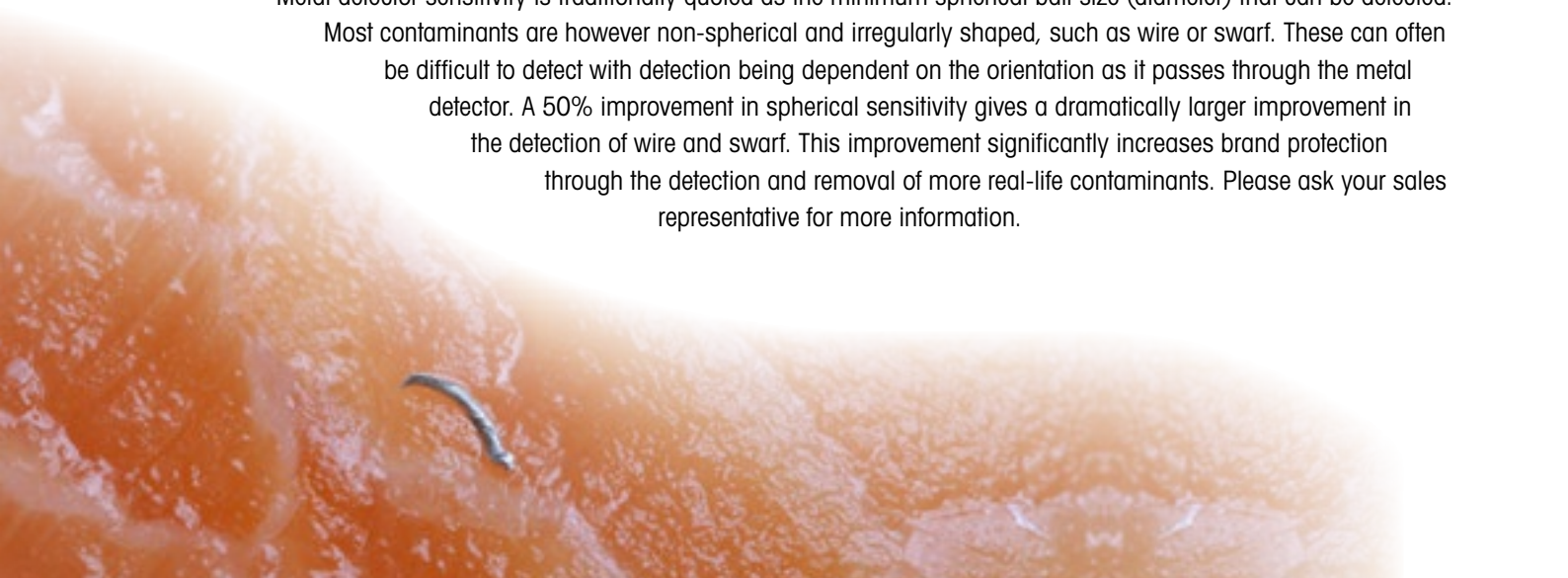
Multi-Simultaneous Frequency Metal Detection for Challenging Applications

Profile Advantage metal detectors utilize multi-simultaneous frequency technology and product signal suppression to deliver up to 50% improved sensitivity on challenging product effect applications.

Detecting the Most Challenging and Irregular Shaped Contaminants

Metal detector sensitivity is traditionally quoted as the minimum spherical ball size (diameter) that can be detected.

Most contaminants are however non-spherical and irregularly shaped, such as wire or swarf. These can often be difficult to detect with detection being dependent on the orientation as it passes through the metal detector. A 50% improvement in spherical sensitivity gives a dramatically larger improvement in the detection of wire and swarf. This improvement significantly increases brand protection through the detection and removal of more real-life contaminants. Please ask your sales representative for more information.



Maximizing Efficiency, Minimizing Downtime For Cost Reduction

When your manufacturing processes are robust, efficient and streamlined, they add value to your business and enable you to develop the edge over your competition. Profile Advantage detectors provide a vital building block to establish improved processes and manufacturing efficiency.

Inspecting Multiple Products on a Single Setting

Manufacturers face increasing pressure to offer a large variety of products from flexible production lines. These frequent product changes can lead to an increase in downtime and operational mistakes.



Profile Advantage uses Intuitive Clustering technology to group multiple products under the same setting. This allows seamless product changeovers without any impact on the metal detector availability.

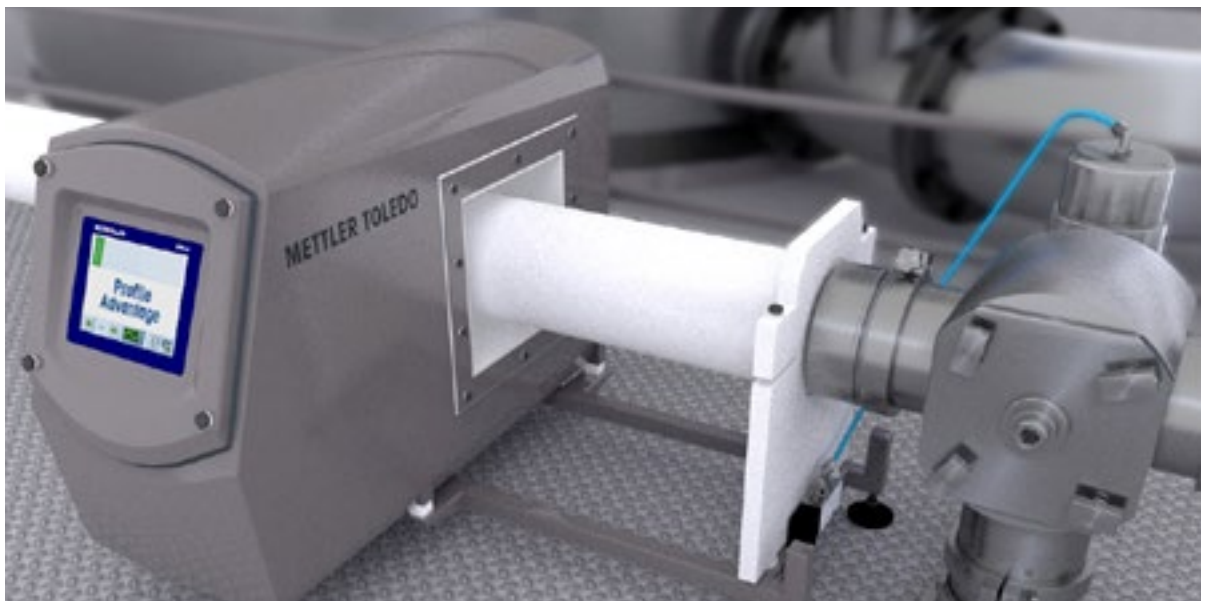


Profile Advantage Minimizes False Rejects

Natural products such as meat, poultry, dairy products and baked goods often have a high degree of moisture content that can vary significantly from one product to another. Conventional metal detector technology struggles to cope with this variation with the risk of a high false reject rate or an unacceptable reduction in online sensitivity.

Profile Advantage applies its Product Signal Suppression technology to each product that it inspects. Rather than simply comparing the signal from the inspected product to that of the signal captured during the auto set-up mode.

Differences in the product signal which could cause conventional metal detectors to trigger are virtually eliminated, dramatically reducing false rejects while maintaining optimum sensitivity and productivity.



Improved sensitivity with Profile Advantage Pipeline Metal Detector

Robust Mechanical Construction

Profile Advantage is designed and constructed for operation in harsh environments. Available in stainless steel with a bead blast or brushed finish to meet a variety of hygiene standards. Profile Advantage includes as standard:

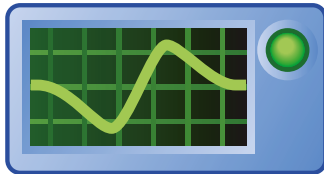
- IP69K construction*
- A triple sealed, single piece heavy duty liner system
- Enhanced Vibration Immunity (EVI)



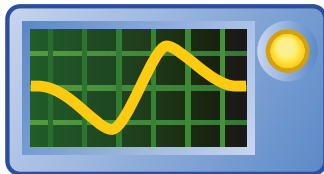
*IP65 option also available

Increased Productivity

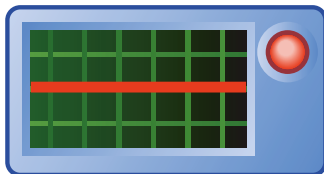
Extended Performance Validation Intervals



System Healthy



Early Warning



Fault Condition

To implement a world class contamination detection and prevention programme, it is necessary to undertake regular monitoring of system performance through a series of predetermined tests. The interval between executing these tests is usually dictated by the ability of the factory to quarantine all the products processed between tests. Test intervals can be extended through the use of the Profile Advantage Predictive Analytics and Condition Monitoring features.

Condition Monitoring continuously monitors critical parameters that affect the correct functionality of a metal detector to allow an early warning of potential issues with the detector. The Predictive Analytics feature monitors the impact of any changes in the metal detector sensitivity and will give an early warning alarm before the metal detector performance falls below the factory specification.

Using these features, a carefully designed and controlled contamination detection programme can be implemented with less frequent testing. Reducing the frequency of testing increases the operator efficiency and production line capacity. As an added bonus, the number of products wasted during testing will be reduced.

Advanced Performance Validation Routines

Enhanced test routines allow users to gain a greater degree of confidence in the performance of the system, by measuring the size or the signal created during a test and comparing this to a predetermined level.

By monitoring the margin of safety, an informed decision can be made as to the exact interval required between scheduled tests.



Managing Your Critical Control Points For Maximized Quality

When working within a formal HACCP programme, many metal detectors are employed to monitor a Critical Control Point (CCP). Profile Advantage comes with on-screen HACCP reporting to ensure effective control of the metal detector as a CCP device.

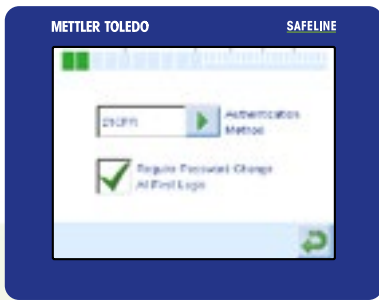


Advanced Color Coded Operator Access Log

Greater Control of Login Processes

A commonly reported failure mode of plant and process equipment is operator error or unauthorized access to the controls of the equipment. The discriminated Metal Detector Access Log compiles a report which can be viewed showing all logins made to the controls of the metal detector. This log will display the name of the operator making the change and the time and date of the occurrence for all change events.

For easy interpretation of the access log, the entries are color coded. Login events by QA personnel completing performance validation testing are colored green and any other log in events are displayed in red.



Dedicated FDA 21 CFR Part 11 Access Mode

Increased Login Access Security

To provide users with an increased level of access security, a high level access software routine is provided which complies with the requirements of FDA 21 CFR Part 11. Access to all of the metal detector controls is password protected via a dual level user name and individual password login.

The Due Diligence Enhancement Software which includes the added security derived from the FDA 21 CFR Part 11 login provides an opportunity to reduce the frequency of scheduled performance verification tests. The system provides the greatest level of system integrity and security possible and working in conjunction with the on-board Condition Monitoring system makes a reduction in the test frequency a real possibility resulting in a considerable reduction in the cost of ownership.



Enhanced Due Diligence To Meet Industry Standards

Today's modern digitally controlled metal detectors are more sensitive and more reliable than older machines but users still receive customer complaints and retailer non-conformance reports where metal has reached the consumer. Research has shown that, in the majority of cases, the contaminant in question was large enough to be detected by the metal detector in use, however, it still managed to reach the customer.

System failure can be attributed to many causes from a simple photo-cell failure through to reject system failure or, more critically, a detector head fault.

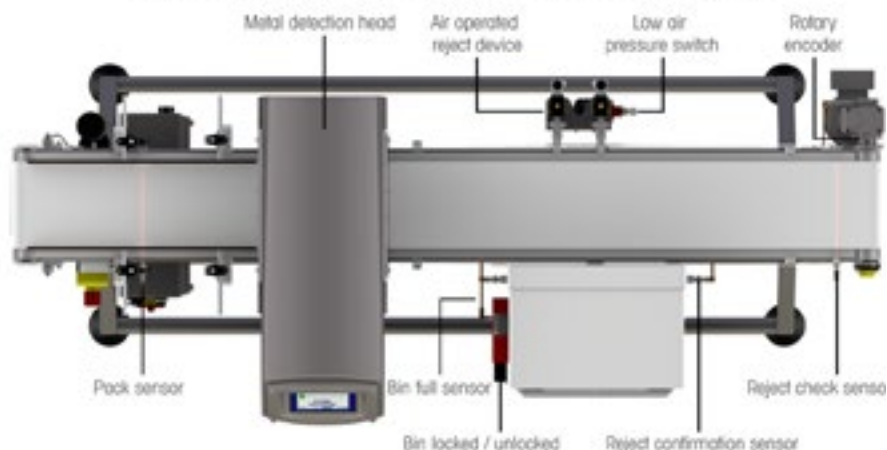
Profile Advantage metal detectors incorporate advanced Condition Monitoring as standard and when fitted with an optional* Due Diligence Enhancement Software Package can provide a level of system integrity that guarantees total system performance so the highest level of metal detection sensitivity is achieved with the highest level of failsafe system operation.

Failsafe Systems to Improve Processes

The Due Diligence Software pack facilitates control of numerous failsafe systems in conjunction with relevant hardware enhancements. These include:

- Intelligent reject confirmation system*
- Conveyor speed in relation to the reject timing
- Confirmation of the presence of the pneumatic supply for air operated reject devices
- Bin full monitoring to prevent the reject bin becoming full and thus preventing a contaminated pack being successfully rejected
- A foolproof reject confirmation system that employs simple "hand shake" logic to continually monitor the status of the photo sensors employed within the reject confirmation circuit
- A reject bin integrity system to monitor the status of the reject bin (locked or unlocked)

Components of a Failsafe Metal Detection System Detailed

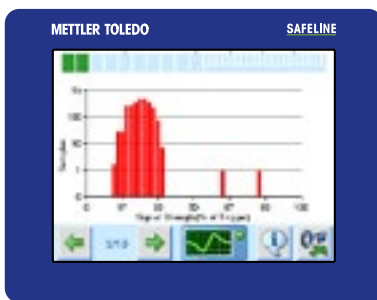


* Option available on LS models, fitted as standard on Profile Advantage solutions.

Monitoring Products and the Environment For Improved Detector Performance

Having the ability to understand the way products interact with a metal detector and to understand the relationship between the product signals and the metal detectors settings can improve detector set-up. This can be used to improve performance, achieve greater levels of compliance and lead to increased market competitiveness for your business.

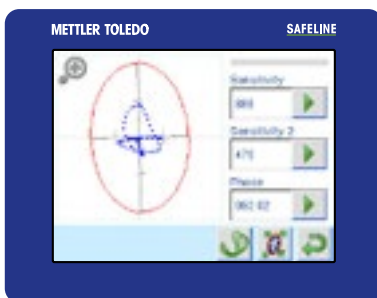
Monitoring the working environment of the metal detector means false rejects are eliminated and that maximum performance is maintained. The optional* Product Data and Environmental Display Software package provides detailed understanding of the set-up parameters and allows new levels of operating precision to be attained.



On-Screen Histograms for Greater Control

In-built Product Signal Strength and Product Phase Angle histogram displays give a graphical representation of all inspected products. Up to 50 million data packets can be stored within the software. This data can be collected over prolonged periods allows far more meaningful decisions to be made with regard to detector set-up and operational settings.

Changes in ongoing collected data can be signalled allowing remedial action to be taken to either the process or the metal detector settings so standards are maintained and false rejects are avoided.



Pictorial Vector-Diagram Display Shows Key Signals

To aid initial set-up, a unique Product Vector Diagram can be displayed which shows the signal generated by the product in conjunction with the active product settings for the product in question. This is useful for applications where the product exhibits a "product effect" which is common where the product has high inherent moisture content. Signals generated from this type of product are more complex than those from dry products and by generating an image of the signals, it is possible to improve performance in the set-up process.

During the set-up routine the metal detector captures the size and angle of the active product signal and displays this pictorially in conjunction with the operational settings derived from the auto set-up routine. Adjustment routines allow users to tune the settings to deliver the optimum in performance.

* Option available on LS models, fitted as standard on Profile Advantage solutions.

Staying in Control

Manage Data and Information Efficiently

Unrivalled Communications – Delivering Information Where You Need it

Profile Advantage metal detectors can be configured with a range of data collection facilities and connectivity solutions to support your decision making and data collection needs.



FIM enclosure box mounted onto the conveyor

Improving Methods of Data Collection

Profile Advantage can be configured with a USB connection to collect metal detector data on to a memory stick for future auditing purposes. Connectivity options such as RS232 and Ethernet are available for connection to printers and other external devices.

ProdX

The integrated Product Inspection Data Collection Software Solution

Profile Advantage metal detectors can be fully integrated with METTLER TOLEDO's **ProdX™** software solution provides data collection for all Product Inspection equipment (see separate brochure). Traceability, performance validation and proof of regulatory compliance have become essential requirements for modern metal detection equipment.



Profile Advantage metal detectors can be equipped with software routines that assist validation. More importantly, detectors can be equipped with advanced data collection facilities that record detector usage and provide information on product throughput. Cache storage, histogram displays and Ethernet communications allows the metal detector to be used as a useful data collection device.

Total Flexibility

Conveyorized Systems to Maximize Efficiency



GC Series

Integrate our metal detectors with the GC Series Conveyorized Systems for flexible inspection solutions to suit a wide range of light to heavy product applications. Efficient reject mechanisms and a suite of due diligence features help increase productivity and make compliance easier.



Bespoke Solutions

Whatever the application, our bespoke, customized conveyors will provide a reliable, high performance solution tailored to suit specific production needs.

IPac – Creating the Documentation to Support Compliance

Profile Advantage metal detectors are supplied with a METTLER TOLEDO IPac installation and performance verification package to support ongoing compliance with internal and external standards.

This comprehensive package provides full documentation for the installation, commissioning and verification process to make sure your audit requirements are met every time.



For more information
www.dartronics.com/metal-detection-solutions/



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