

ProdX

Quality and Compliance

Data Communication

Production and Efficiency

Product Inspection Management

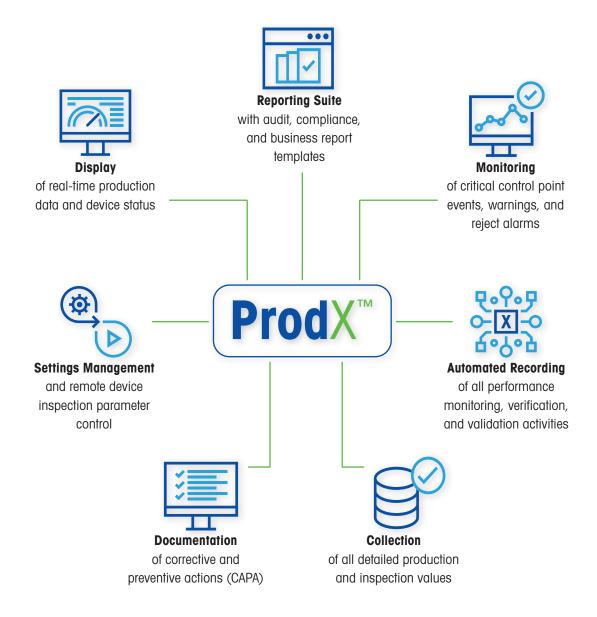
Improving Quality, Productivity and Control



Next Level Product Safety

Extend the Value of Your Product Inspection Devices with ProdXTM

ProdX[™] is a complete inspection management and connectivity software solution for METTLER TOLEDO Product Inspection devices across a wide range of manufacturing industries. It is designed to extend the value of METTLER TOLEDO Product Inspection devices, offering real-time monitoring and recording of inspection activities with indefinite, safe data storage. This allows manufacturers to save time and money by automating essential quality control processes.



When investing in ProdX, costs are paid back within a few months to a year. ProdX saves labor costs by collecting production data automatically and publishing reports within seconds. This increases productivity.

Benefits of ProdX™

Quality and Production Data Management

Time and Cost Savings

ProdX automates the collection and reporting of production data, reducing the need for time-consuming manual data collection. It saves manufacturers both time and money.

Safe Data Storage

All inspection data is securely stored – this supports regulatory compliance and facilitates brand protection by allowing manufacturers to prove due diligence.

Extended Functionality of Devices

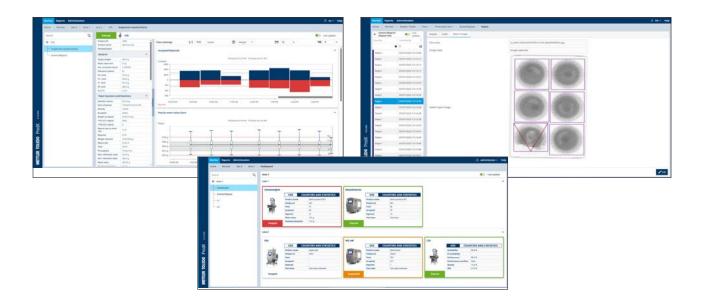
ProdX always takes product inspection devices to the next level by extending and enhancing their functionality and value.

Business Growth

By analyzing data collected and stored by ProdX, manufacturers can identify production line improvements, boost productivity and combat rising costs.

Compliance Support

ProdX helps manage compliance with national and international product safety standards and retailer audit requirements.



- Complete control from single device to multi-site installations
- ▶ Full connectivity with over 30 METTLER TOLEDO product inspection devices
- Connectivity with third-party checkweighers
- 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



Inspection Device ManagementFor Quality, Production and IT Managers

Quality Management

ProdX[™] manages all the data and documentation requirements of Quality Managers:

- Offers immediate access to data to demonstrate compliance with national and international laws/ standards
- Supports the fulfilment of retailer audits
- Enables quicker and more targeted reaction to quality incidents
- Reduces the manual effort required to document quality incidents and the remedial actions taken
- Simplifies and speeds up the collection and compilation of data from multiple production line systems

ProdXTM captures all quality relevant data from multiple product inspection technologies to completely log and document all events and actions. This supports the Quality Manager through automation of time intensive manual processes.



Production Management

ProdX[™] gives Production Managers unparalleled insight into production line performance data to exploit untapped potential for efficiency gains:

- Tracking Overall Equipment Effectiveness (OEE) feeds back how production levels can be maintained or improved
- Centralized execution of manual product changeover processes reduces human error and downtime
- Provides the highest levels of data integrity and production security
- Enables quicker and more targeted reaction to production incidents and access to historical big data for trend analysis
- Simplifies and speeds up the collection and compilation of data from multiple production line systems
- Keeps up-to-date with emerging production automation standards such as PackML



ProdX[™] is a central database of all product inspection data. It provides event logs, giving a complete real-time and historical overview of all production data and machine operation, status and performance. Automated processes enable timely warnings or alarms about production relevant incidents.

IT Management

 ${\sf ProdX^{TM}}$ aids IT Managers to integrate multiple product inspection technologies and devices seamlessly into site networks with minimal time and effort:

- Instant connectivity for full data visibility and functional control of current and future METTLER TOLEDO product inspection devices
- Removes the requirement for costly MES/ERP modifications to take full advantage of available inspection device data
- Meets new security requirements and IT environments to support further development

- Access complete service support:
 - Professional installation
 - User training
 - Regular update service
 - Immediate technical support
- High levels of IT security and data integrity
- Supports smart factory, Industry 4.0 and IIoT (Industrial Internet of Things) integration projects using OPC UA, especially for connecting legacy hardware devices



The different installation models allow network administrators the maximum flexibility to integrate ProdX[™] into the widest range of known network infrastructures and simplifies machine connectivity issues. The full service support packages help ensure optimal and trouble-free performance.

Supported Devices

ProdX[™] supports more than 30 models of product inspection devices from METTLER TOLEDO. These include metal detection, checkweighing, x-ray inspection, vision inspection and combination systems. It seamlessly integrates with existing manufacturing systems to provide unmatched data integrity and production security.

All systems require an Ethernet port to connect to ProdX (upgrades are available for older systems already installed that are not equipped). The models named below is not a complete list of those compatible with ProdX – if you don't see your model listed, please contact us to find out if your system is compatible.



Metal Detection

Tunnel: Profile Advantage, Profile RB, Profile, Profile Compact, Profile Vent Tube, Signature Touch, Signature 300, M31R, M33R, M34R, M33RB, PA9000, ASN9000, PowerPhase Pro, PowerPhase Pro RB

Gravity Fall: Y Valve, Sealtite, Open Diverter

Throat Detectors: T-Series, ST-Series

Pipeline: L-Series, HDS, Profile Advantage

Pharma: Tablex-PRO, Tablex2, Pharma GF-PRO

- Logging each rejected product with time and date, classification type and signal strength for complete visibility of contaminated products
- Logging and documenting Performance Monitoring Routines including time and date, type of material, size and result to reinforce HACCP programs
- Automatically uploading and storing counters, number of rejected, accepted* and total* inspected (* only with conveyor and product sensor)



Checkweighing

C-Series: C1200, C16, C21, C23, C31, C33, C35, C3x3, C3x7, CS3600, CM23, CM31, CM33, CM35, CX35, CX35

X-Series: XS, XE, XD, XC

S-Series 12"

- Logging each rejected product with time and date as well as classification type (e.g. limit TU1 violation, underweight etc.)
- Automatically uploading and storing counters and statistics required for fill/content weight legislation
- Supports multi-lane checkweighers
- Logging of all individual weight values including metadata (e.g. time, date and zone classification) to provide full traceability
- Certified by the NMi Certin B.V (TC8081) as software for e-marked Pre-packaging Data Registration and Presentation
- ProdX can also connect to third-party checkweighers





X-ray Inspection

X3000 Series: X32, X33, X34, X35, X36, X37, X38, X39, X34C, X35 DXD, X36 DXD X2 Series: X12, X32, X52

InspireX2

AXR

- Logging each rejected product with time and date, classification type (e.g. contamination, broken etc.) and image
- Optional logging of all individual metadata to provide full traceability
- Documenting Performance Monitoring Routines
- Automatically uploading and storing counters, number of rejected, accepted and total inspected



Vision Inspection

V11, V13, V15 smart camera systems and V31, V32 using CIV-Core V11 software or newer

- Logging each rejected product with time and date, classification type (e.g. label, code, fill level, sealing) and image
- Support for multiple cameras
- Logging data from labels, caps, barcodes and further printed information
- Automatically uploading and storing counters, number of rejected, accepted and total inspected by camera

Supporting Regulatory Compliance

The monitoring and record keeping functionality of $ProdX^{TM}$ is aligned and supports compliance with current food safety standards, legislation and regulations. ProdX automatically records all equipment testing routines, rejected items and quality relevant incidents.

This data is available for archiving and printing in standard report formats. All report formats support regulation and audit requirements and not only prove compliance, they also demonstrate due diligence. ProdX keeps up-to-date with emerging standards; future-proofing your production line and maintaining compliance ProdXTM supports the following international compliance standards:

IF.S

▶ SQF

BRCGS

OIML

▶ FSSC22000

HACCP

▶ HARPC

FPVO

MID

Sample Standards

The following are examples of data monitoring requirements taken from well-known industry standards:

BRCGS - Clause 2.10.1

A monitoring procedure shall be established for each CCP to ensure compliance with critical limits. The monitoring system shall be able to detect loss of control of CCPs and wherever possible, provide information in time for corrective action to be taken. As a guide, consideration may be given to the following, although this is not an exhaustive list:

- Online measurement
- Offline measurement
- Continuous measurement (e.g. thermographs, pH meters etc.)

Where discontinuous measurement is used, the system shall ensure that the sample taken is representative of the batch of product.

BRCGS - Clause 3.7.1

The site shall have a procedure for handling and correcting failures identified in the food safety and quality management system.

The site procedures shall include the completion of root cause analysis and implementation of preventive action.

BRCGS - Clause 4.10.1.4

Where foreign material is detected or removed by the equipment, the source of any unexpected material shall be investigated. Information on rejected materials shall be used to identify trends and where possible, instigate preventive action to reduce the occurrence of contamination by the foreign material.

Digital Transformation of the Food Safety Landscape

ProdX[™] gives manufacturers critical assistance as they gear up for the food industry's fast-approaching digital transformation, based on Industry 4.0 principles of secure machine-to-machine communication.

BRCGS - Clause 4.10.3.3

The site shall establish and implement procedures for the operation and testing of the metal detection or x-ray equipment. This shall include at a minimum:

- Responsibilities for the testing of equipment
- The operating effectiveness and sensitivity of the equipment and any variation to this for particular products
- ▶ The methods and frequency of checking the device
- recording of the results of checks

BRCGS - Clause 6.1.2

Where equipment settings are critical to the safety or legality of the product, changes to the equipment setting shall only be completed by trained and authorised staff. Where applicable, controls shall be password-protected or otherwise restricted.

BRCGS - Clause 6.2.3

Documented procedures shall be in place to ensure that all products are packed into the correct packaging and correctly labelled. These shall include checks:

- at the start of packing
- during the packing run

The checks shall also include verification of any printing carried out at the packing stage including, as appropriate:

- date coding
- batch coding
- bar coding etc.

BRCGS - Clause 6.3.3

Where used, the site shall establish procedures for the operation and testing of online checkweighers. At a minimum, this shall include:

- ▶ Consideration of any legal requirements
- Responsibilities for testing the equipment
- Operating effectiveness and any variations for particular products
- Methods and frequency of testing the checkweigher
- Records of the test results

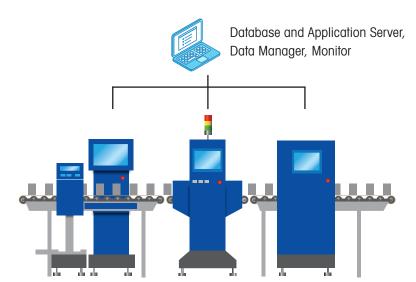
Installation Models

The choice of options depends on the site network infrastructure, quality control and production requirements. ProdX TM is designed to grow with you to match your ever changing production needs.

ProdX has two installation models:

Starter Pack

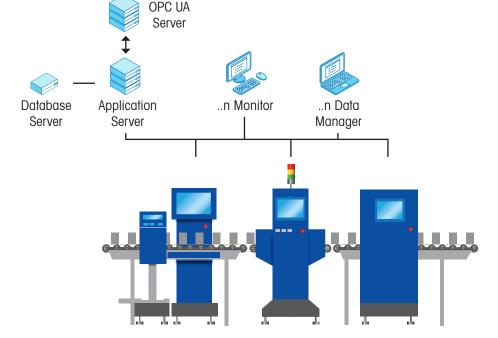
The Starter Pack is quick and easy to set up and deploy using a single PC and MS SQL Express Edition (integration to MES, email servers or image storage is not included). It is ideal for simple network infrastructures in small sites.



- One device and five users included
- Reject logs
- Event log
- Counter and statistics
- ► ProdX[™] Monitor
- Central data management
- Batch
- Limited to a maximum of ten devices and 100 users
- No options

Base Pack

The Base Pack includes all features available. It is ideal for medium to large network infrastructures and allows direct connection to MES and ERP systems. The additional features and functionality allow maximum data storage capability, the greatest levels of reporting flexibility and real-time notifications of alerts and alarms on mobile devices.



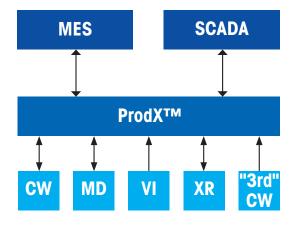
- All features of the Starter Pack
- Two devices and ten users included
- Support of Citrix desktop virtualization
- Reject image upload
- ▶ File Export
- ▶ Email, SMS alerts
- Limited to max 200 devices and 3000 users
- Optional MES/ERP interface (OPC UA Server)
- Optional 100% individual data

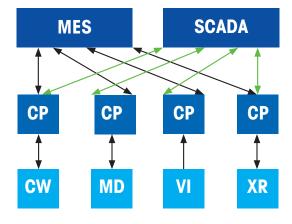
Connectivity

Why Would You Use a Middleware?

ProdX[™] has many valuable features which can be expensive to implement separately in a Manufacturing Execution System (MES). For example, collecting all rejects including reject images from x-ray or vision inspection, or logging performance tests including result details etc. The table below illustrates the connectivity benefits of ProdX.

Customer Requirement	Cost		
Integration of individual devices, including the cost of device connectivity.	System integrator develops or customizes each interface. Takes more time to get system running.		
Adjustments required after device software upgrades or addition of new features.	Rework interface by system integrator. Could cause production line downtime.		
Changes in documentation requirements for food safety standards and regulations.	Need to validate the integrity of the documentation.		



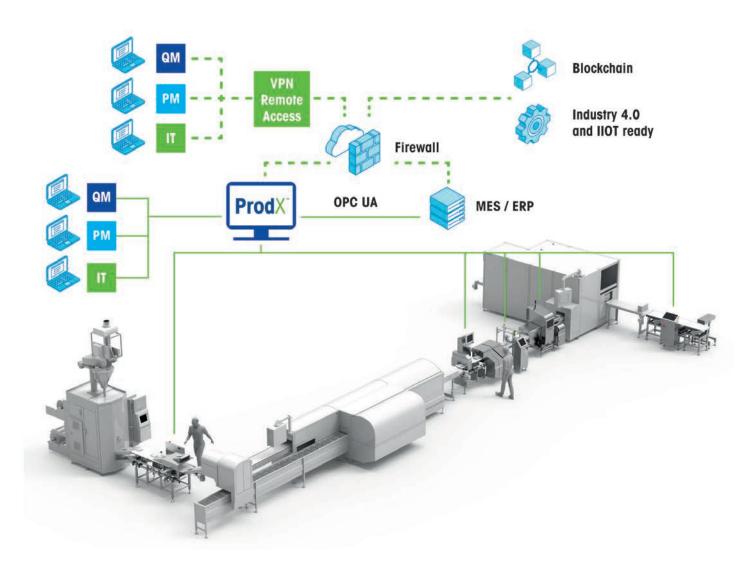


With ProdX™

- Each device is connected to ProdX using a single standard protocol
- Checkweighers from other manufacturers ("3rd" CW) can also be connected
- ProdX only needs to be connected once
- New METTLER TOLEDO device connection is seamless
- All device data can be made instantly available to the SCADA/MES/ERP using an in-built OPC UA server
- OPC UA is the connectivity protocol of the future

Without ProdX™

- Each device is separately connected to the network
- Each device may use different communication protocols (CP) depending on age and connectivity options
- Each device must be separately configured
- Data available to the SCADA/MES is limited



Improved Communication with OPC UA

OPC UA is an industrial communication standard, which allows for the open connectivity, interoperability, security, and reliability of industrial automation devices and systems.

OPC UA is widely recognized as the key communication and data modeling technology for the Industry 4.0 initiative. It works with many software platforms, is completely scalable, and has been widely adopted by several industries because of its flexibility.

Why has METTLER TOLEDO gone to such great lengths to build functionalities around OPC UA?

Openness and interoperability between hardware, software, and services are key in helping manufacturers transform how they operate and create solutions that benefit productivity. OPC UA is the communication technology for Industry 4.0 and is essential to reaching this next level of connectivity in manufacturing facilities.

Benefits of OPC UA

- It is a global, open standard
- It is independent and belongs to no single entity
- It provides an extensible data model which easily integrates with new technologies
- ▶ It is secure managing access, authentication, validation, and encryption
- It is a cost-effective way to connect IIoT

Security

Stay on the Safe Side

ProdX[™] provides maximum security through centralized user and access management, centralized data storage and complete data traceability. Secure OPC UA technology is the basis for safe access management, authentication, validation and encryption.

Central User Management

Centralized user and access management allows the definition of individual ProdXTM access rights for groups like Administrator, QA etc. and allocates device user roles (Operator, Supervisor etc.) to individual users. Users can log on to client computers or inspection devices with ProdXTM or Windows[®] credentials.

Authentication and authorization is carried out centrally by ProdXTM or optionally by a Windows® domain controller. This centralized management leads to increased security by determining who can view and modify data. The system is fully traceable as it logs who has executed performance tests, product parameter changes etc.



Data Integrity

Inspection data is stored accurately on a tamper-proofed central server, including all metadata such as time stamp, device, product, important parameters, etc. This allows full traceability of inspection results and non-conforming products to a

batch or even to a single product item. The central server can be hosted on-site or in a data center. Should server connectivity be temporarily lost, all data is buffered locally on the device until connectivity is restored.



Traceability

All data can be traced back to a device, product, batch or the user who carried out performance tests or changed products. Users logging on to a device or client PC are recorded, as well as all parameter

changes. All inspection results can be traced back to an individual product item including metadata such as inspection result, time stamp, inspection device and other important settings.



Service and Support – SoftwareCare

Keep Your Software Up-to-Date

SoftwareCare gives you peace of mind that $ProdX^{TM}$ is always up-to-date to meet ever changing compliance, production and IT requirements. It provides quick reaction times from our dedicated software specialists to help ensure optimal system performance at all times.







Software Evolution Updates and Upgrades Notification and access for new software releases	 Improves software and system reliability and uptime Compliance with changing regulations and standards Enhancements to functionality for more efficient operations 		
Remote Support Provides technical assistance via telephone, email and chat, as well as remote connection	 Fast and efficient help for set-up and operational issues Quick response and resolution times Minimizes disturbance of normal business processes 		
On-site Software Deployment Set-up and professional software updates by factory-trained technicians	 Professional set-up helping to ensure full performance from day one Service engineer operation tests to confirm reliable operation 		
On-site Repair Hands-on support to help ensure fully functional software and system operation	Supervisor and user familiarization with new functionality		

	SoftwareCare Standard	SoftwareCare Comprehensive
Software Evolution Notification and access to new software releases within the purchased license deck	~	~
Deploy Software Remotely Electronic deployment of new software releases*	~	✓
Support Software Remotely Technical assistance via telephone, email or remote connection	~	✓
Deploy Software On-site On-site installation of new software releases by a METTLER TOLEDO field service technician	_	✓
Repair Software On-site On-site support to solve problems or technical issues	_	~

^{*}update installation to be carried out by customer or to be purchased separately

Standard Features	Starter Pack	Base Pack	*W0	PM*	*
Complete line and device overview dashboard Condensed overview of all lines in area Real-time state of your critical control points (CCPs) Drill down to the single device view Accept/Reject chart for production output trends Display individual device OEE	•	•			
Collecting and storing of counters and statistics Automatic documentation of fill quantities to comply with legislation Hourly mean trend chart with standard deviation Checkweighing giveaway calculation	•	•			
Monitoring of CCPs Supports your HACCP program: View remotely if your product inspection devices are working Logs any early warnings or alarms Logs the product or parameter changes on the inspection device. Documentation of performance tests of the metal detection and x-ray systems for food safety and audit demands: Test user and results including sample material and sample size, as well as device sensitivity settings	•	•			
Document incidences, reason and corrective actions Entry of reason for the incident and a corrective action from a dropdown list or custom text Creation of predefined lists of: Reject reasons and corrective actions Alarm reasons and corrective actions Warning reasons and corrective actions	•	•			
Management of product or batch changeover Central/remote product or batch changeover for individual or all inspection devices in a line Trigger a product or batch changeover at one "Master Device" within the production line	•	•			
Management of checkweigher and metal detection parameter set-ups Product set-ups are automatically uploaded and stored centrally View and maintain product set-up parameters centrally Maintain one set of common parameters for multiple lines	•	•			
Standard reports Printing and exporting reports is simple and fast in 15 file formats 28 standard report templates available Automate report publishing, to printer, file or attached to an email (email only possible with Base Pack)	•	•			
Tracking reject products • Logs of all rejected products with time stamp, reject classification and device set-up parameters	•	•			
Reject image upload • Automatically saves images of all rejected products for x-ray and vision inspection devices		•			
Alert messages to notify operators and supervisors • Alerts can be sent via email or SMS to mobile devices • Define the events which trigger the notification • Define the users who should receive the alerts		•			
Production data export Manual or automatic export of production data at final evaluation or at batch end as CSV or XML		•			
Citrix Server installation for client monitors		•			

Optional Features

Report template designer Generation and printing of customer and site specific reports Supports the creation of internal reporting formats tailored to the specific needs	Pack	*		
100% individual value acquisition • Allows big data analyses to find patterns and trends • Traceability of products • Traceability of inspection results to each individual package	for Starter	ı for Base Pac		
OPC UA Server Makes production data for all connected devices available to an MES/ERP Use of PackML tags calculate production line OEE Supports Smart Factory (IIoT, Industry 4.0) initiatives and highly digitalizes production environments Allows remote product and batch changeover OPC II interface to connect non METTLER TOLEDO checkweighers using standard VDMA weighing companion specification tags.	Not an option	As an option		

Calculating the Value of Data Automation

Choosing new quality management software can be a big decision. With an ever-increasing need for quality improvements, it is imperative that the solution delivers a return on investment as soon as possible. There are many benefits to having effective quality management software in place. Some can be quantified, while some are more intangible which take place over time.

Before attempting to calculate the return on investment of ProdXTM, a performance benchmark needs to be established to document the costs of all the current production and quality data management processes. Below are some indicators of key areas where process automation and digitalization can make a real difference.

Quantifiable Cost Factors	Value of ProdX TM	Saving Calculation (12 Months)	
Reduced defect management costs — caused by manual documentation of scrap and rework processes. Estimated potential saving in personnel costs: 11%	Paperless documentation of product reject incidents required for compliance. Save time filling in forms, filing and collation of information for reports and trend analysis.	(Hours spent on tasks x hourly rate) 11%	
Reduced customer audit and compliance management costs – caused by manual collation and preparation of documents required for audits. Estimated potential saving: In personnel costs: 35% In fines: 100%	Standard reports for compliance and retailer audits are instantly available in the correct format to reduce audit preparation time. Omits sources of error or missing data to prevent fines and time required to prepare for re-visits.	(Hours spent on tasks x hourly rate) + (Hours spent on re-visit prep x hourly rate)	
Reduction of production costs — caused by time required to recognize negative production trends. Estimated potential saving: 5%	Automatic notifications triggered by pre-defined production events and trends to enable quick reaction for corrective action. Reduces product giveaway and unplanned downtime events.	Cost of X% giveaway + (Reaction time x hourly rate) + Cost of X% un-planned downtime 5%	
Reduced time to access production critical data — caused by slow availability of data to all management levels. Estimated potential saving in personnel costs: 15%	All data on quality and production issues is instantly available at your workstation or on mobile devices. Responsible personnel have faster visibility of critical situations. Reduces time on reporting and solving issues.	(Hours spent on reporting tasks > hourly rate) + (Hours spent investigating issue x hourly rate)	

Intangible Cost Factors

Complex manufacturers are faced with continually changing standards and regulations. Quality management software has the capability to manage quality and compliance issues across departments, process areas and locations as needed.

- Visibility into overall operational performance for better decision making more effective and efficient management driven by real time and historical data. All managerial levels have the information available to drive long-term business growth initiatives to react to evolving markets and customer demands.
- Complete traceability, trackability, and genealogy of every product provides the power and flexibility to create, record, query and manage traceability requirements to meet regulatory, quality and customer demands.
- Improved confidence and quality of products shipped help ensure the quality of the products shipped is high and will go a long way in protecting and enhancing the overall reputation of your brand.

With an effective system in place, employees can focus on high-value activities versus spending time on managing documents or processes.

Data-driven Improvements

Production and quality data management software can help companies create a competitive advantage through continual improvements and best-in-class quality management.

Next Steps

Contact your local METTLER TOLEDO office to:

- Receive more information on ProdX[™] and how it can help your business
- Organize a live demonstration of the software
- Install a 60 day test version to try out the software under real production conditions.

Product Inspection Solutions to Improve Quality and Productivity

Our Product Inspection division is a global leader in the field of future oriented automated inspection technology, providing metal detection, checkweighing, x-ray inspection, and vision inspection 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.



www.mt.com/ProdX .

For more information

METTLER TOLEDO

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

Subject to technical changes.
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