Manufacturing

Industrial Weighing and Measuring

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News

Get Maximum Productivity
Automate Weighing Solutions

Automated production has many benefits from reduced lead times to increased product quality. Weighing devices can support your process automation projects – but which solution offers the best fit for your application?

Automation is a manufacturing mega-trend. Its economical benefits sound especially appealing for parts and components manufacturing. This type of manufacturing tends to be highly standardized. Additionally, production volumes, quality requirements, and labor costs are increasing.

Will automation fit?

Automation will not work for every production set-up. Examine if the process you are considering has costly traps such as high fixed costs or significant capital bound up in production equipment. Also, as with most industrial weighing applications, companies must evaluate why automation makes sense. Will it save labor costs, shorten lead or response times, increase quality and safety, or eliminate process variations? In weighing, this could look like companies striving to increase the throughput of qualitycheck operations, or automating the filling of a shipping box.

What to consider

Especially for parts and components, the nature of the part must also be considered. Experience shows that automation of a manufacturing process is most successful when it involves:

- families of similar parts
- highvolume or high throughput of standardized parts
- parts using the same manufacturing technology
- repeatable operations
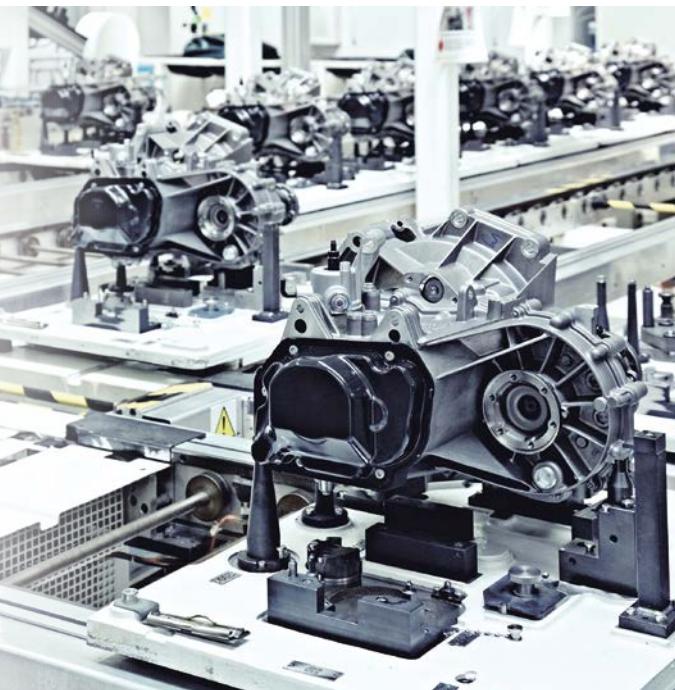
METTLER TOLEDO

Automated weighing solutions can be easily integrated into these types of operations. They offer direct connectivity into PLC systems via Ethernet/IP, PROFINET RT, or PROFIBUS.

For quality or completeness checks, they can handle any production speed because the size, shape, and dimensions of the item to be checked do not matter.

If parts are already on a conveyor belt, simply place a weighing platform underneath and implement a quality check that does not sacrifice lead time. Or, if high throughput is required, they can opt for fast weigh modules or weighing transmitters with an impressive speed of 600 Hz.

For added value checks or small production quantities, a manual weighing station might be the best choice. If you want to stay flexible in terms of production layout but want to save labor costs at the same time, a semi-automated solution could be an option.

In short, when automating weighing, the production process has to be suitable, as well as the type of parts or components being handled. The following table illustrates how these two dimensions come together to help companies decide if they should automate weighing.

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New Industrial Weighing Catalog

Find Your Required Solution with Our Full Product Portfolio
▶ **www.mt.com/ind-catalog-ma**
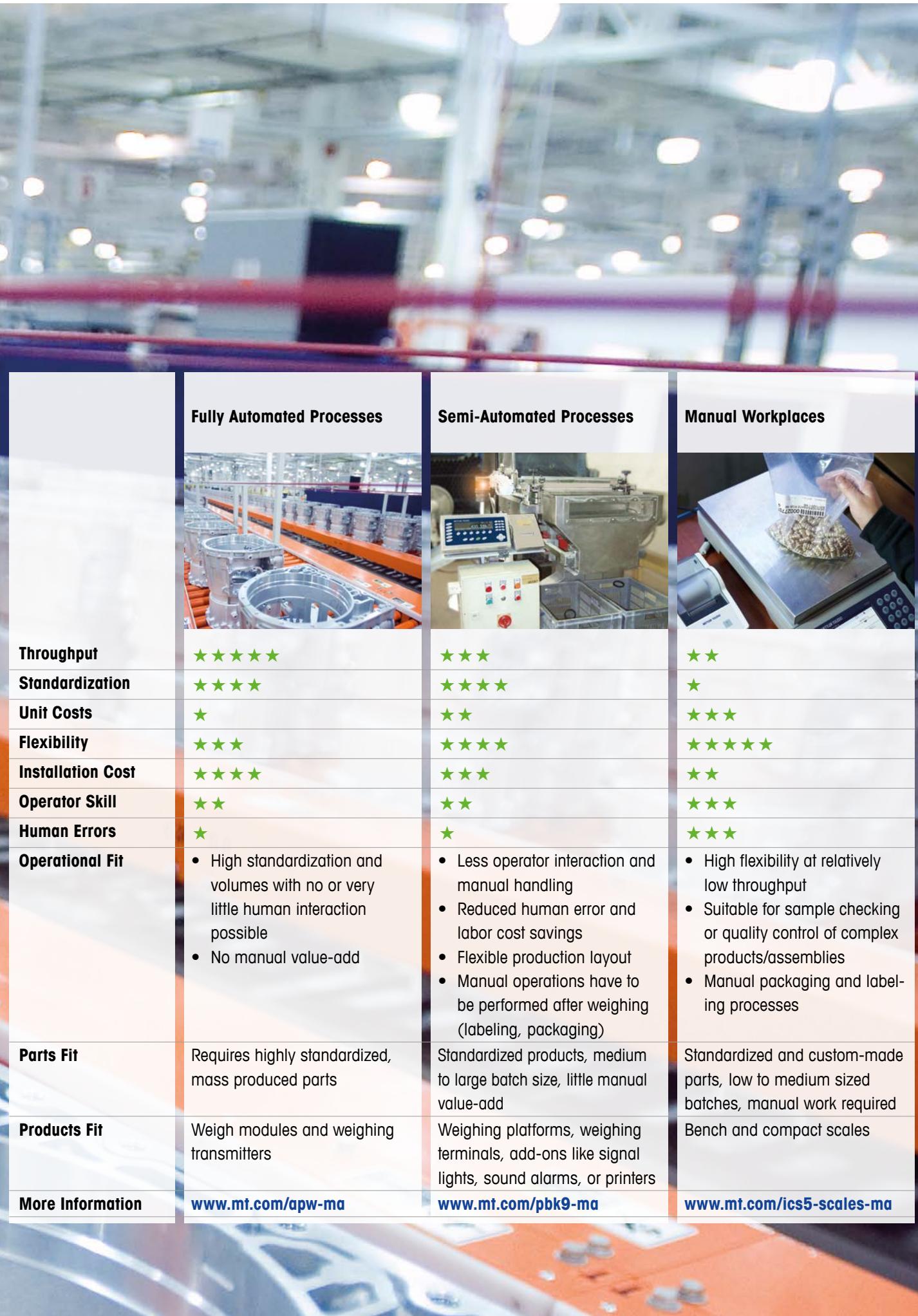
	Fully Automated Processes	Semi-Automated Processes	Manual Workplaces
Throughput	★★★★★	★★★	★★
Standardization	★★★★	★★★★	★
Unit Costs	★	★★	★★★
Flexibility	★★★	★★★★	★★★★★
Installation Cost	★★★★	★★★	★★
Operator Skill	★★	★★	★★★
Human Errors	★	★	★★★
Operational Fit	• High standardization and volumes with no or very little human interaction possible • No manual value-add	• Less operator interaction and manual handling • Reduced human error and labor cost savings • Flexible production layout • Manual operations have to be performed after weighing (labeling, packaging)	• High flexibility at relatively low throughput • Suitable for sample checking or quality control of complex products/assemblies • Manual packaging and labeling processes
Parts Fit	Requires highly standardized, mass produced parts	Standardized products, medium to large batch size, little manual value-add	Standardized and custom-made parts, low to medium sized batches, manual work required
Products Fit	Weigh modules and weighing transmitters	Weighing platforms, weighing terminals, add-ons like signal lights, sound alarms, or printers	Bench and compact scales
More Information	www.mt.com/apw-ma	www.mt.com/pbk9-ma	www.mt.com/ics5-scales-ma

Need Better-Quality Kits and Packages?
Improve Them with In-Line Checks

To avoid missing parts or incorrect filling of packages and kits, there is a simple solution: An in-line quality check based on weight that reduces packaging errors, whether the package is filled with small, big, or mixed-size parts.

Parts and components manufacturers often ship products in kits. These packages may enclose accessories or parts needed for repair or assembly. Unfortunately, bags are often sent out incomplete or overfilled due to insufficient quality control.

In many cases, missing small parts are responsible for incomplete assembly and production delays, upsetting customers. The manufacturer must then deal with the aggravation of costly returns, warranty issues, and loss of business.

For producers, the question is: How can I make sure packages complete without delaying production?

Easy completeness checks

To ensure your package contains enough products, place a scale under the shipping box or conveyor belt and check the total weight of every item placed inside. Predetermine the total weight of a correctly filled package and save it in the scale terminal's database. Every kit that passes through the weighing station can then be checked for completeness quickly and reliably, enabling 100% quality control.

All package and lot sizes

This solution will improve packaging for bags of electrical, metal, or plastic components, accessories or spare parts, especially when the bags include very small products (less than 1 gram) or a mix of light and heavier products. The form, size, or transparency of the kit does not matter. Weighing weighing is versatile: it provides an opportunity to check the completeness of kits ranging from just a few items to several thousand items.

Missing parts notification

If missing parts are detected, the scale can remove faulty packages from the production flow. Alternatively, a color-Weight® display indication or an signal light can indicate if a package is not within the predefined parameters so an operator can remove it from the belt for adjustments.
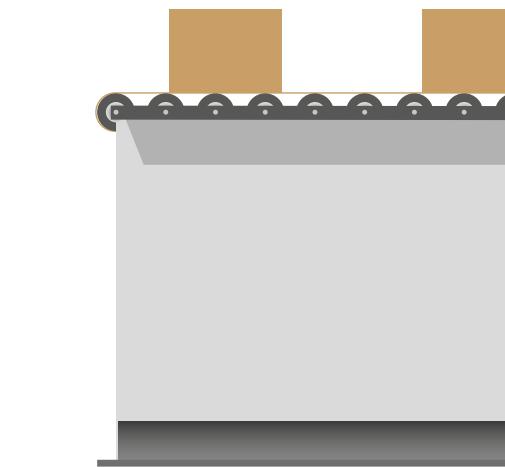
Improve traceability

Adding a barcode scanner can make it

Kits move along the conveyor belt towards the weighing station

Weighing system is integrated into the conveyor belt operation

Packaging 100% checked kits

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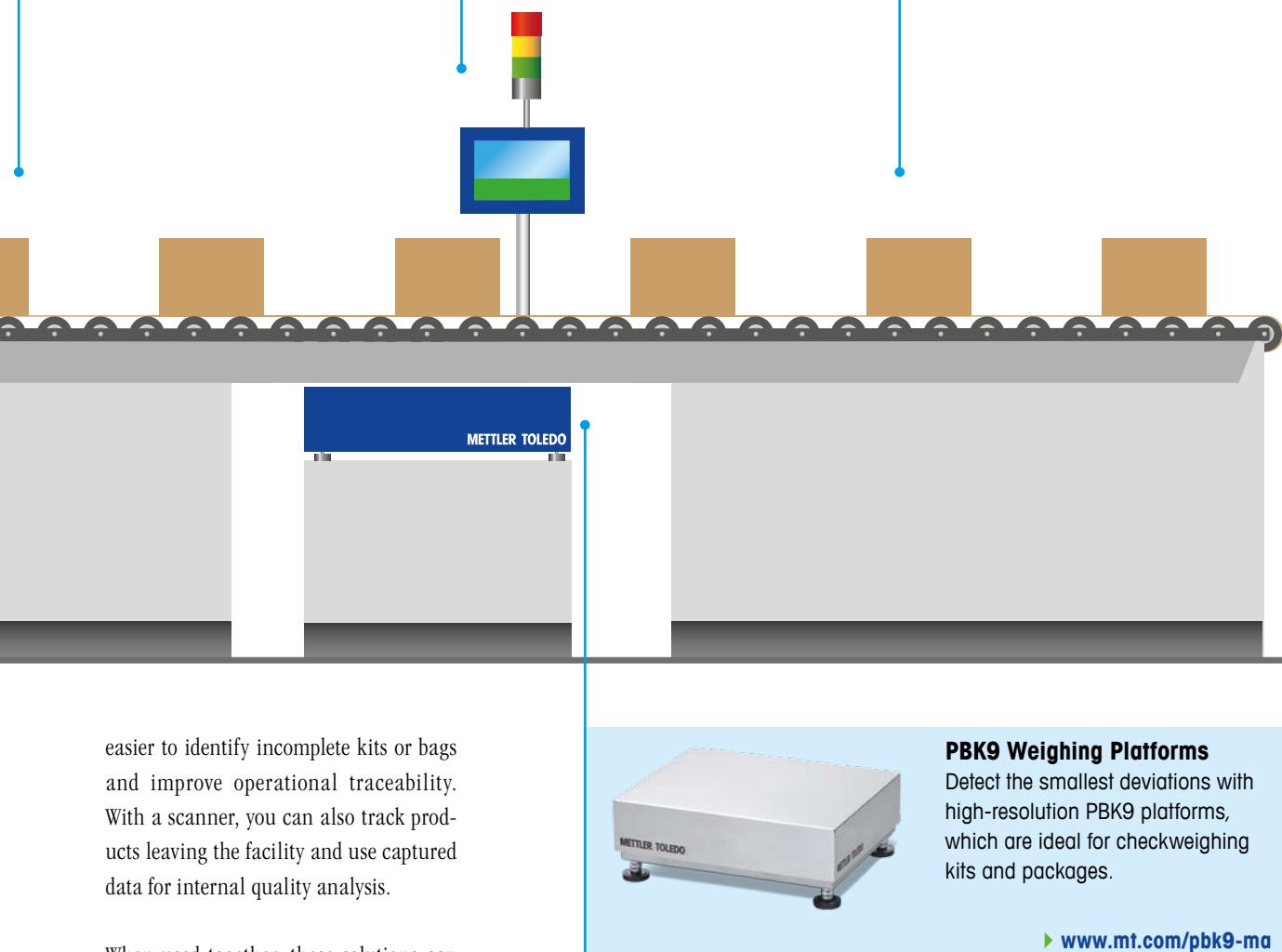
easier to identify incomplete kits or bags and improve operational traceability. With a scanner, you can also track products leaving the facility and use captured data for internal quality analysis.

When used together, these solutions can significantly reduce incomplete kit complaints, helping to ensure customers are satisfied with their products.

▶ **www.mt.com/ind-in-process-counting-ma**

PBK9 Weighing Platforms
Detect the smallest deviations with high-resolution PBK9 platforms, which are ideal for checkweighing kits and packages.

▶ **www.mt.com/pbk9-ma**

High-Speed Weight Transmitter
Offers Process Acceleration

A new compact weight transmitter designed for full PLC connectivity offers high accuracy in automated processes. Overcome the production bottleneck and speed up automated weighing to an impressive 600 Hz.

▶ **www.mt.com/ACT350-ma**

600 Weight Values per Second

ACT350 provides 600 filtered weight values per second, measuring high-speed weighing processes with an accuracy of 6,000 divisions according to OIML and NTEP standards. It enables much faster and more precise filling than more common 100 Hz transmitters.

Installation in Less than 10 Minutes

Installation is supported by configuration software and a service interface that allows settings to be saved, restored, and cloned. The ACT350 takes less than 10 minutes to install, saving engineering costs.

Easy Diagnostics

An integrated display shows weight value. The same display can be used with the small keyboard to get status information without any software tool or remote display.

Digital I/O (optional)

Digital output allows direct steering of signal lights.

Direct PLC Connectivity

ACT350 is dedicated for use in automation. Fieldbus connectivity via Ethernet/IP, PROFINET® IO RT, or PROFIBUS® DP is incorporated in a compact device. ACT350 fully supports integration by Device Description File, making installation easy and transferable to other transmitters. The weight value transferred from the transmitter is ready for use in the PLC program.

Space Saving DIN-Rail Mounting

No need to use a terminal. The small size of the transmitter saves space inside the cabinet. It also facilitates placement of multiple transmitters next to each other to control several weighing devices used in a process.

Faster Calibration

When it is impossible to use test weights, you can still stay accurate. Use the CalFree™ feature of the ACT350, which allows an initial calibration without test weights.

EtherNet/IP

Think About Risk
Adapt Your Quality Control System

In parts and components manufacturing, production risks such as machine malfunction and process abnormalities can lead to non-standard products that fail in the field. Apply weighing the right way to better control these processes and be ISO 9001:2015 compliant.

The new ISO 9001:2015 framework encourages companies to actively manage quality risks. Manufacturers may use the failure mode effects analysis (FMEA) method, where issue severity and a certain probability of occurrence make it necessary to use a sensor for detecting the risk. Weighing devices can act as this sensor. Weighing is a proven method to detect missing materials, assess uniformity problems, and identify incorrect counts or package weights. By following the steps of METTLER TOLEDO's Good Weighing Practice™ (GWP®) below, companies can mitigate production risks and implement risk-based quality-control thinking that is compliant with ISO 9001:2015.

▶ **www.mt.com/ind-iso9001-ma**

Understand the Production Process

Evaluate Your Requirements
Evaluate your quality control requirements. To detect parts or component completeness or integrity either by sampling or as a 100% check, weighing may be the right option.

Select the Right Equipment
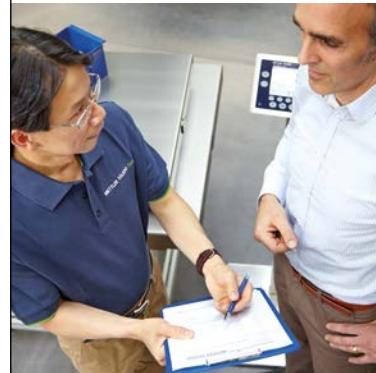
Meet Your Requirements
Select the right equipment based on an analysis of weighing needs and production environment. A GWP® Recommendation summarizes your requirements as a science-based equipment qualification.

Install Equipment Professionally

Weigh Right from the Start
Professional weighing system installation and qualification, along with in-depth user training, ensure trouble-free weighing. Scale readiness helps to ensure fewer operator mistakes and lowers production risks.

ISO 9001:2015

Calibrate Comprehensively

Reduce Weighing Risks
Calibration will disclose problems and determine if any adjustments are necessary for optimal performance.

Perform Meaningful Tests

Save with Risk-Based Testing
A GWP® Verification documents routine test methods, test frequencies, test weights, and pass/fail limits.

Improve Traceability

Get the Right Production Data
Weighing devices deliver accurate production data right into your production systems. Easy data management and retrieval via a variety of interfaces assures correct labeling and efficient traceability.

Accurate Moisture Analysis
Assures Swiss Icon's Quality

Switzerland-based Victorinox must uphold its reputation with every "Original Swiss Army Knife" it produces. METTLER TOLEDO moisture analyzers play a critical role in ensuring that incoming goods, such as plastic granulate, contain the correct moisture content.

Karl Eisener founded Victorinox in 1884 and it has been delivering knives to the Swiss Army since 1891. Throughout its 130-year history, the company has remained true to Swiss values for manufacturing precision and product excellence, crafting just over 100,000 Swiss Army knives, multi-tools, and kitchen/home use knives each year.

Critical moisture content
Victorinox carefully tests every batch of plastic granulate it receives to ensure moisture-content accuracy. More than 15 tons of raw materials are stored at once and up to 1,000 kg batches are dried daily. This front-line quality control also includes tests for color and thermal properties. If an incoming load of granulate does not pass quality control tests, it is withheld from production.

Secondary testing occurs when a customer order is received. At the point of order, granulate is sampled from the dryer and tested again. If the plastic contains too much moisture to achieve the required density and hardness, the granules go back to the dryer. If moisture content and other quality specifications are met, the granulate batch is fed automatically into the injection molding machines that produce Victorinox knife handles with the characteristic cross-and-shield logo.

Easy-to-use equipment
Victorinox works with six different plastics, each with its own drying method for moisture analysis. METTLER TOLEDO

HX204 Halogen Moisture Analyzer
When moisture matters, METTLER TOLEDO professional moisture analyzers deliver outstanding results. These analyzers offer:
- Innovative heating and predictive-result technology
- Up to 0.1 mg readability
- Quick operation and analysis
- Easy cleaning

▶ **www.mt.com**
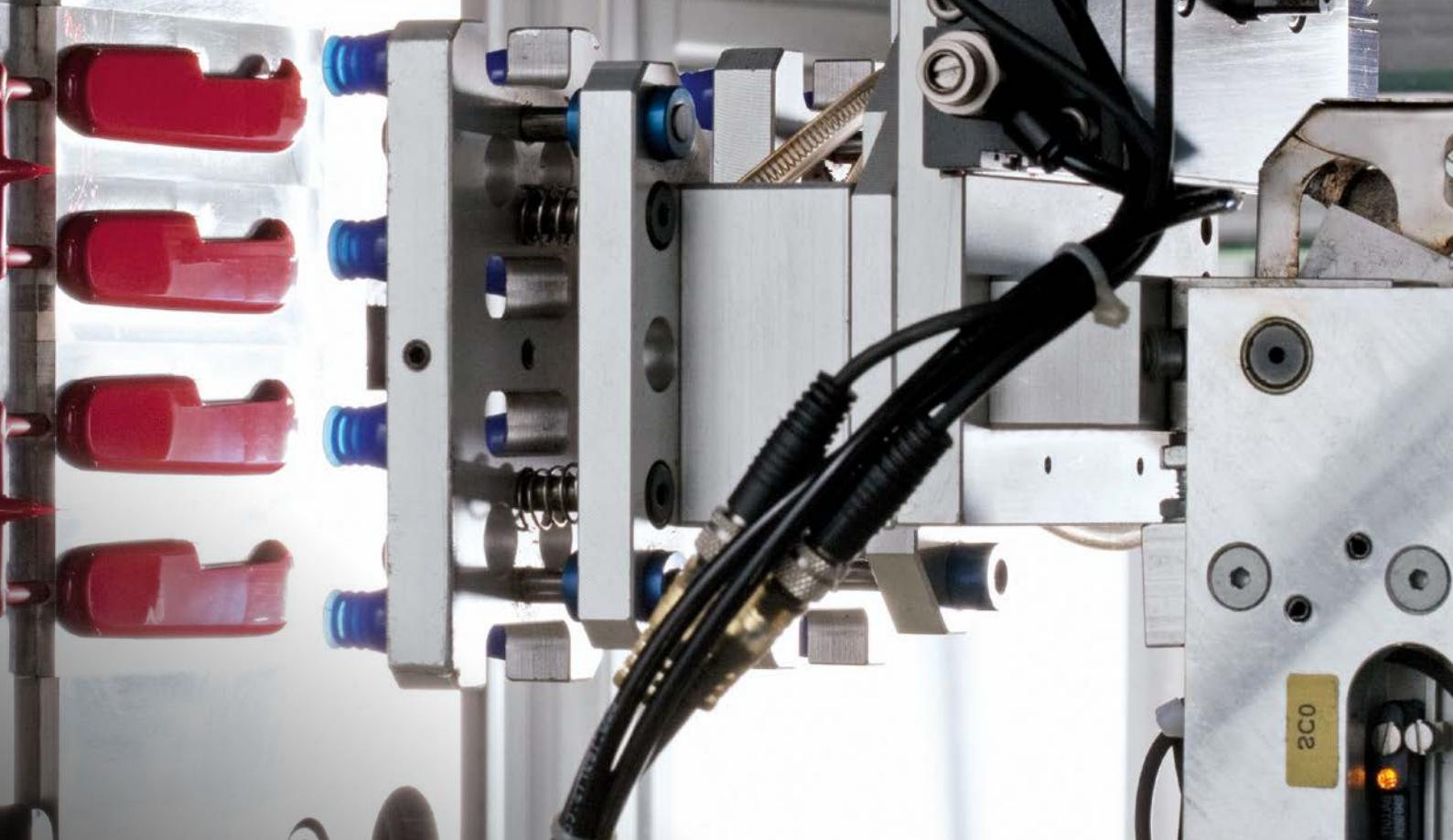
moisture analyzers have been the key to fast heating and precise temperature control to ensure highly reliable moisture content results. Additionally, the analyzers are easy to program. This is essential, as a single person prepares samples, changes tooling, and manages seven injection molding machines per shift. Pre-programmed shortcuts are easily identified by the material number.

Ensuring product quality

Since deciding on METTLER TOLEDO moisture analyzers, Victorinox has been able to assure correct material moisture content. So, if there is a injection-molding problem, moisture content is already eliminated as the potential cause. With this improvement, Victorinox has been able to cut discarded batches and speed up production by as much as 10 percent.

▶ **www.mt.com/ics5-quality-ma**

A symbol of Swiss quality: The iconic Victorinox knife

9 Ways for Proper Quality Control
Fast, Accurate, Speedy, Productive

Weight-based quality control can detect invisible defects like cavities in sintered metal parts or check completeness no matter the shape or weight of the work piece. It offers high resolution and speedy processing for a thorough quality check that does not slow down production.

With weight-based quality control you can check:

1 Number of parts correct?

2 Every part inside?

3 Correct length?

4 Cavities inside?

5 Coating applied?

6 Density of sintered parts?

7 All parts assembled?

8 Enough oil?

9 Properly counter-balanced?

Download Weight-based Quality White Paper

▶ **www.mt.com/ics5-quality-ma**

www.mt.com/ind-ma

For more information