Increased Beverage Productivity

Consumers Demand Variety and Clear Labelling

Consumer behavior is changing. The trend for greater product diversity, proliferation of package sizes and the desire for healthier beverages are putting additional pressure on manufacturers. Automated quality control solutions offer the flexibility to handle product variability without reducing efficiency or safety.

Standing out from the competition in an increasingly saturated industry is a challenge for beverage manufacturers of all sizes. The need to keep up with rapidly changing consumer demands intensifies that challenge. Recent research from PMMI, the Association for Packaging and Processing Technologies, predicts some interesting and demanding trends for the current year.

Health and transparency

Consumers are moving towards healthier beverages. Clear and accurate labeling is essential to communicate product benefits to the consumer. But frequent product change-overs in bottling plants to meet market demands can increase the risk of mislabeling or label mix-up. Incorrectly labeled products could lead to consumer dissatisfaction, the loss of goodwill and the possibility of an expensive product recall to rectify problems. The use of vision inspection technology ensures that every label on every product is checked for correctness, quality, position and that the correct barcodes, lot numbers and use-before dates are included.

Smaller sizes

Drink containers are shrinking as consumers reach for more convenient and efficient packaging suited to a more active lifestyle. Packages sized to serve one or two people have become a big trend and present an opportunity for increased profitability for manufacturers. Smaller packages can frequently be handled at higher

METTLER TOLEDO

speeds providing opportunities for increased throughput and enhanced process efficiency. The advent of higher-speed processing has meant that traditional human-eye inspection is impossible. Vision technology has evolved and can enable very high speed inspection to take place.

Increase in PET bottles

PET bottles still rank among the most successful consumer packaging formats, and they continue to be a primary solution for fast-growing beverage products. Demands for improved sustainability, reduced product weight and attractive appearance are helping to drive usage. Assuring the quality of bottles is important. The bottle neck and screw thread need to be correctly formed and caps must be checked to ensure seal integrity. These are further functions that vision inspection can perform.

Continued use of glass

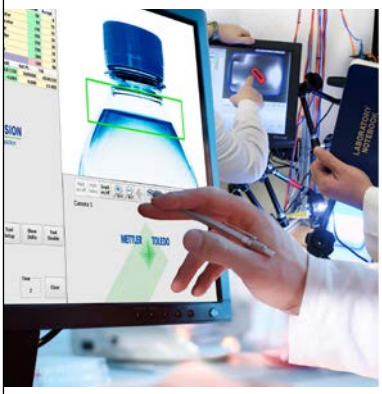
Glass continues to be widely used. The previously mentioned issue of increased speed can also lead to an increased risk of contamination, particularly from glass fragments which may occur during handling and filling.

Protecting the welfare of consumers is paramount for manufacturers and the use of x-ray inspection to detect physical contaminants is seen as essential by many manufacturers. X-ray can also be used to check closures and fill levels, even in opaque containers.

Vision and x-ray inspection systems are able to perform a wide variety of quality and integrity checks to support the beverage industry in meeting market demands of the future. METTLER TOLEDO is able to provide advice in choosing the optimum technology for each application.

▸ **www.mt.com/pi-be**

Vison for Quality and Integrity



Vision inspection verifies proper cap placement and sealing (including thread formation) as well as label quality, preventing product leakage and mislabeling.

▸ **www.mt.com/civision-be**

X-ray detects contaminants

High-speed inspection with x-ray technology identifies all manner of physical contaminants.

▸ **www.mt.com/safeline-xray-be**

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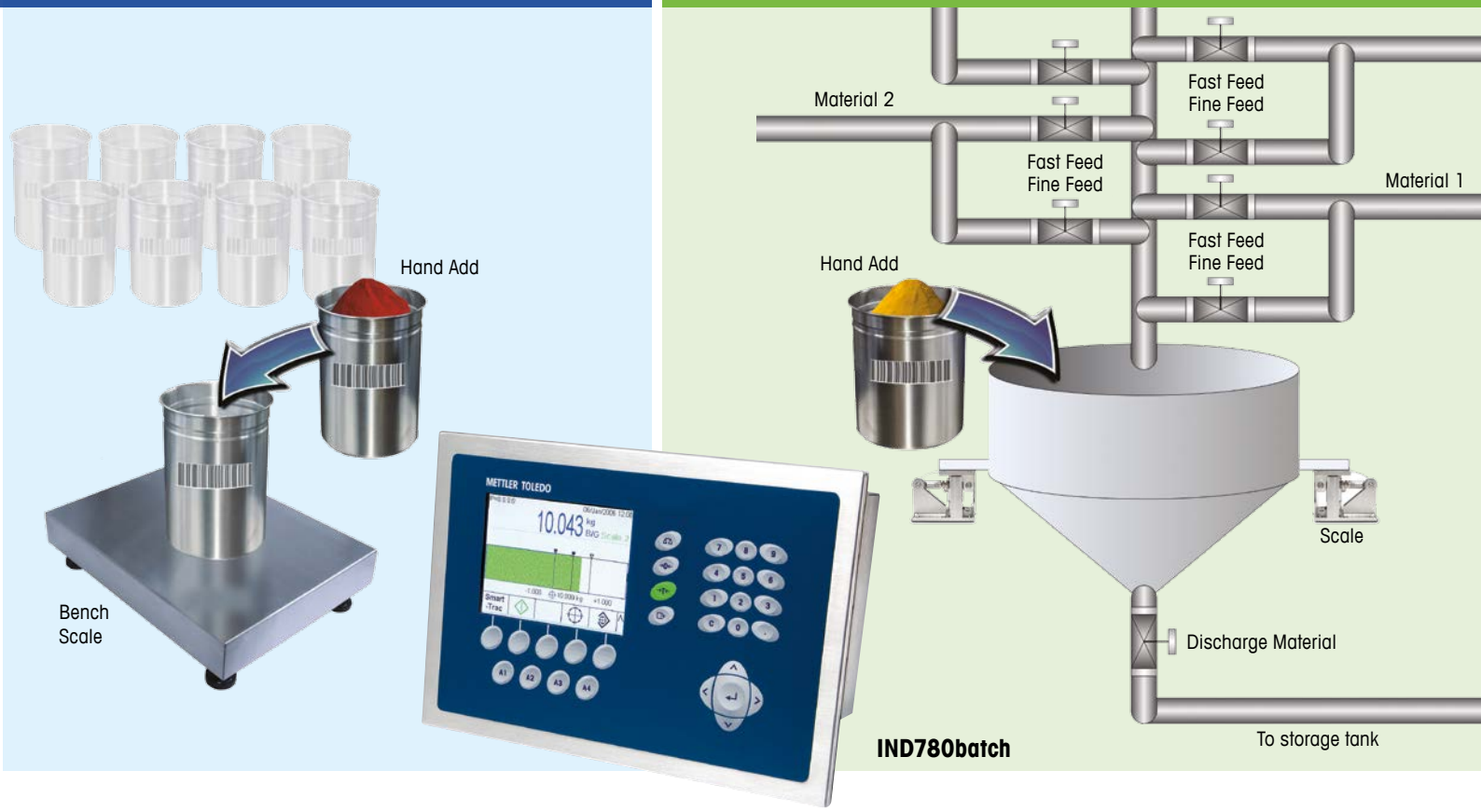
New Industrial Weighing Catalog

Find Your Required Solution with Our Full Product Portfolio

▸ **www.mt.com/ind-catalog-be**



Batching that Growes with Your Business

Better Manual and Automated Control

Deciding whether to switch from manual to automated batching can be complex. Make your decision easier by choosing a batch controller that gives you the flexibility to transition easily as your business matures and grows.

Preparing a batch by hand is labor-intensive. But switching to a completely automated solution depends on numerous factors such as costs or project complexity. IND780batch is a batch controller that provides all the flexibility, power, and reliability in a single terminal to help you with whatever type of batch processing you use.

Error-free manual batching

IND780batch can manage your manual material formulation process by prompting your operator through the recipe and eliminating variables that cause mistakes and re-work. The ability to connect a bar code reader along with track-and-trace features allows the operator to collect batch history information for complete batch documentation.

An automatic batch controller

IND780batch works also as a stand-alone solution that does not require interface to a PLC or DCS while delivering the benefits of a full-featured batch control solution. The terminal can handle up to 28 materials with recipe-specific control including conditional control tasks, recipe rescaling, timing functions, and control of discrete inputs and outputs.

Whether you batch manually or use automation, METTLER TOLEDO's IND780 will improve your process and make it easy to switch when the time is right.

www.mt.com/780batch-be

Seeing the Problem Clearly
Inspection Solutions for Glass Bottles

A single shard of glass in a bottle could have devastating effects – both on the consumer and the reputation of the manufacturer. X-ray inspection systems are vital on production lines using glass to ensure only high-quality, contaminant-free beverages reach the retail supply chain.

The challenge

Glass bottles are among the most challenging packaging formats to inspect. This is primarily because the contaminants are most likely to be glass of the same material and density as the packaging itself. The size and shape of bottles can add to the complexity of inspection, as the base, sidewalls and neck can mask a contaminant, causing inspection blind spots.

A further challenge is unusual shaped bottles that present themselves to the x-ray system in different orientations and have no fixed reference points. This can lead to false rejects as the x-ray images captured are constantly changing.

The only solution

To overcome these challenges, METTLER TOLEDO has developed the X3750 x-ray inspection system to specifically address these issues. X-ray inspection is the only technology capable of detecting glass contaminants within glass bottles.

Overcoming the problem

The X3750 is the most advanced x-ray system on the market for glass-in-glass inspection. It features an angled x-ray beam and innovative detector technology allowing inspection throughout all areas of a bottle by sending x-rays through the base area while simultaneously inspecting through the sides of the bottle.

This provides all-round inspection, as the "crown" or domed base of the bottle appears flat, effectively removing blind spots. The beam passes level with the shoulder of the container (below the threads and cap) and produces a far less complex image, enhancing detection capability. The inspection angle also enables fill-level inspection to take place at high line speeds.

The X3750 uses unique software which removes the conveyor belt from the x-ray image, allowing the use of a highly durable modular plastic conveyor belt, improving inspection performance and production uptime for manufacturers.

High speeds

Depending on the application, the X3750 can accurately inspect up to 1,200 bottles per minute, optimizing process efficiency. A high-speed automated reject-device ensures only contaminated products are removed without slowing production. The machine's data logging and x-ray image library include automatic time and date stamps for rejected products, enabling manufacturers to demonstrate due diligence.

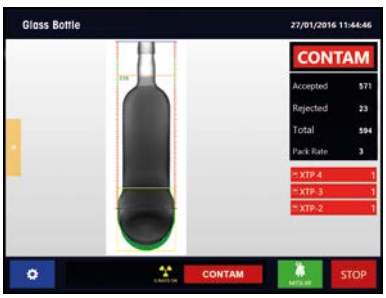
Flexibility & consumer safety

The X3750 x-ray inspection system can be adjusted to suit a wide range of bottle sizes via full-length guide-rail systems. This ensures smooth product handling and repeatable product changeovers which are vital to ensure productivity levels are maximized.

Advanced x-ray inspection technology for glass-in-glass contaminant detection

For manufacturers producing beverages in glass containers, x-ray is a must-have to ensure that contaminants are detected and rejected effectively, safeguarding both the company's brand and the welfare of its consumers.

▸ **www.mt.com/safelinex3750-be**



All areas of the bottle are inspected

Guarantee all-round glass inspection

X-ray technology can provide the solution for detecting glass contaminants in glass containers.

For more in-depth information about how to guarantee all-round glass inspection download our white paper:

▸ **www.mt.com/xray-glassinglass-be**

Less Beer Loss at the Filling Line
and Longer Shelf Life

Dissolved oxygen spoils beer, so levels must be kept minimal right through to bottling. A rapid response dissolved oxygen sensor with a low detection limit reduces beer loss at the filling line and ensures beer shelf life is maximized.

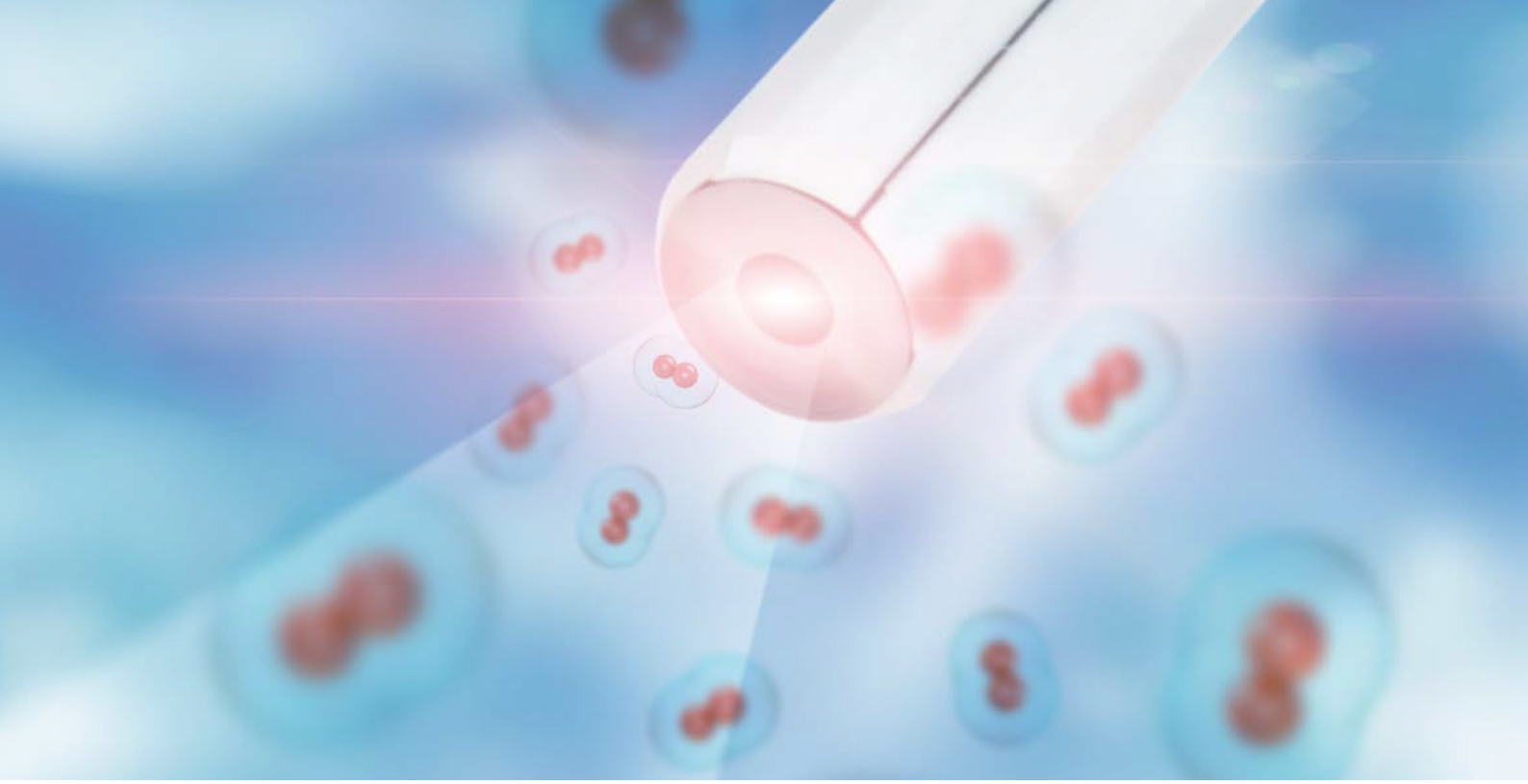
Eliminate polarization of DO sensors

Amperometric DO sensors have served the brewery industry well for many years. However, they are not without their issues: polarization time, maintenance time, measurement drift, and speed of response can all be a concern. That is why optical measuring technology is rapidly becoming the new standard in DO measurement.

Optical technology delivers fast response

Optical sensors have no electrolyte, so polarization is not required. And the absence of electrolyte and internal membrane is why optical sensors have very low maintenance. Compared with amperometric probes, optical sensors have far higher signal stability. They also have an extremely fast response rate: typically 98% of final value in less than 20 seconds. That can result in a significant saving of product at the filling line.

METTLER TOLEDO's InPro 6970i optical dissolved oxygen sensor has been designed specifically for the needs of the brewery industry. It is fully CIP and SIP resistant and highly tolerant of pressure shocks, rapid temperature changes, and



the stop-of-flow effects that can cause amperometric probes to generate false alarms.

The sensor's oxygen-sensing element, the OptoCap™, is the only consumable part. OptoCap replacement can be done in less than a minute and is required approximately only once per year.

As a partnering transmitter, the M400 is a simple to operate, flexible unit. It is a multi-parameter transmitter, so can be used for a wide range of brewery processes.

For cold block applications and filling lines: InPro 6970i

- DO detection **down to 2 ppb** in beer and water
- Fast response time minimizes beer losses
- Sensing element is immune to pressure shocks and extreme CIP cycle conditions
- No polarization time or electrolyte required

Diagnostics that tell you when maintenance will be required

The InPro 6970i optical DO sensor and M400 transmitter feature METTLER TOLEDO's unique Intelligent Sensor Management (ISM®) technology. Among its features, ISM means that sensors contain a set of advanced diagnostic tools. For example, on the InPro 6970i the Dynamic Lifetime Indicator monitors the quality of the OptoCap after each calibration and, together with measurements of the current process conditions, calculates and displays on the M400 the remaining number of days until the OptoCap should be replaced.

Sensors that are stored calibrated, ready to go

All sensor data, including calibration history, are stored in the sensor itself. This means that after performing maintenance and calibration, installation in the process is simple. Thanks to ISM's Plug and Measure feature, upon connecting the sensor to an M400, all relevant data is automatically transferred to the transmitter and an oxygen reading is available immediately. Sensors can even be pre-calibrated and stored ready for use, making sensor replacement even quicker and more convenient.

Sensors designed for brewery industry needs

The combination of optical measurement technology, ISM, and METTLER TOLEDO's years of experience in designing sensors for the brewery industry means that the InPro 6970i is one of the most efficient and reliable oxygen sensors on the market.

Discover more at:

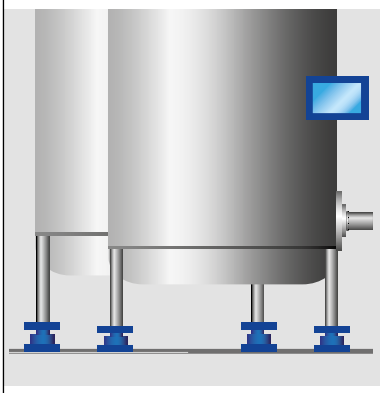
▸ **www.mt.com/InPro6970i-be**

Eliminating Microbes Just Got Easier

Better Design Enables Better Cleaning

Many weigh modules installed in beverage plants and breweries are potential breeding grounds for microbes. Our new weigh module for tank installations is optimized for fast wash-down processes and will reduce contamination risk in your production environment.

Accurate and Hygienic Tank Weighing



Tanks outfitted with hygienically designed weigh modules are an ideal solution when cleanliness is required. When installed in hygienically sensitive environments, weigh modules deliver precise results without coming into direct contact with food – a consistent concern about flowmeters and other sensors.

Effective and Efficient Cleaning

The SWB805 MultiMount™ weigh module follows strict hygienic design requirements. Key features such as mirror-polished stainless steel, self-draining surfaces and a fully sealed load cell make sure that these weigh modules can be cleaned quickly and thoroughly.

A Complete Hygienic Solution

Similar to the MultiMount weigh module, METTLER TOLEDO has designed the AJB941Mx J-junction box according to the latest hygienic design guidelines. It offers hygienic cable glands with tight seals, and both top and bottom surfaces provide self-drainage due to a sloped design.

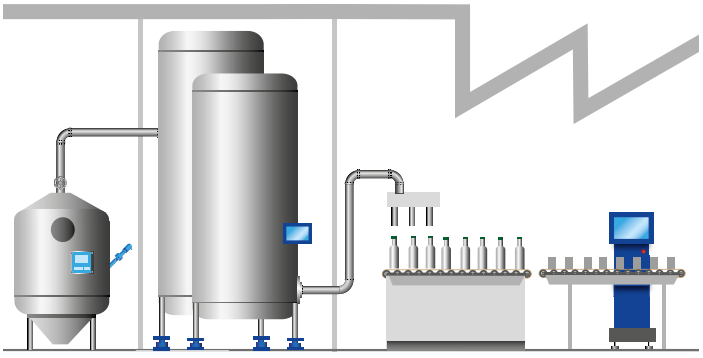
SWB805 MultiMount™
Hygienic Design Weigh Module

- NSF International-certified
- Fulfills EHEDG design requirements
- Self-draining for fast drying
- Mirror-polishing prevents bacteria accumulation
- Stainless steel load cell

Precise Tank Weighing

- 110, 220, 550, 1,100, 2,200, 4,400 kg capacities
- OIML, NTEP, ATEX, FM approved
- Stabilizer option for agitator applications
- Footprint comparable to SWB505 MultiMount™

www.mt.com/ind-swb805-be



Watch the Weigh Module in Action
This 2-minute video shows how our new hygienic design enables thorough wash-down.

www.mt.com/IND-SWB805-Video-be

Take Control of Your Vehicle Scale
Three Options for Greater Productivity

A scale terminal is more than just a weight display. It is the control center for your vehicle scale, and it enables the scale to interact with other equipment. Selecting the right terminal is essential for maximizing the productivity of your weighing operation.

The new IND570 terminal is designed to meet the needs of many weighing applications. When configured for vehicle weighing, the terminal processes inbound/outbound transactions on one scale. Its ability to store 100 vehicle IDs and tare weights helps speed up transactions.

With the addition of the IND570, the METTLER TOLEDO line of vehicle-weighing terminals offers the perfect fit for any application. This product line is not a simple good-better-best range of options. All three terminals are high-performance units that provide fast and easy processing. The difference is their capability levels.

Key capabilities

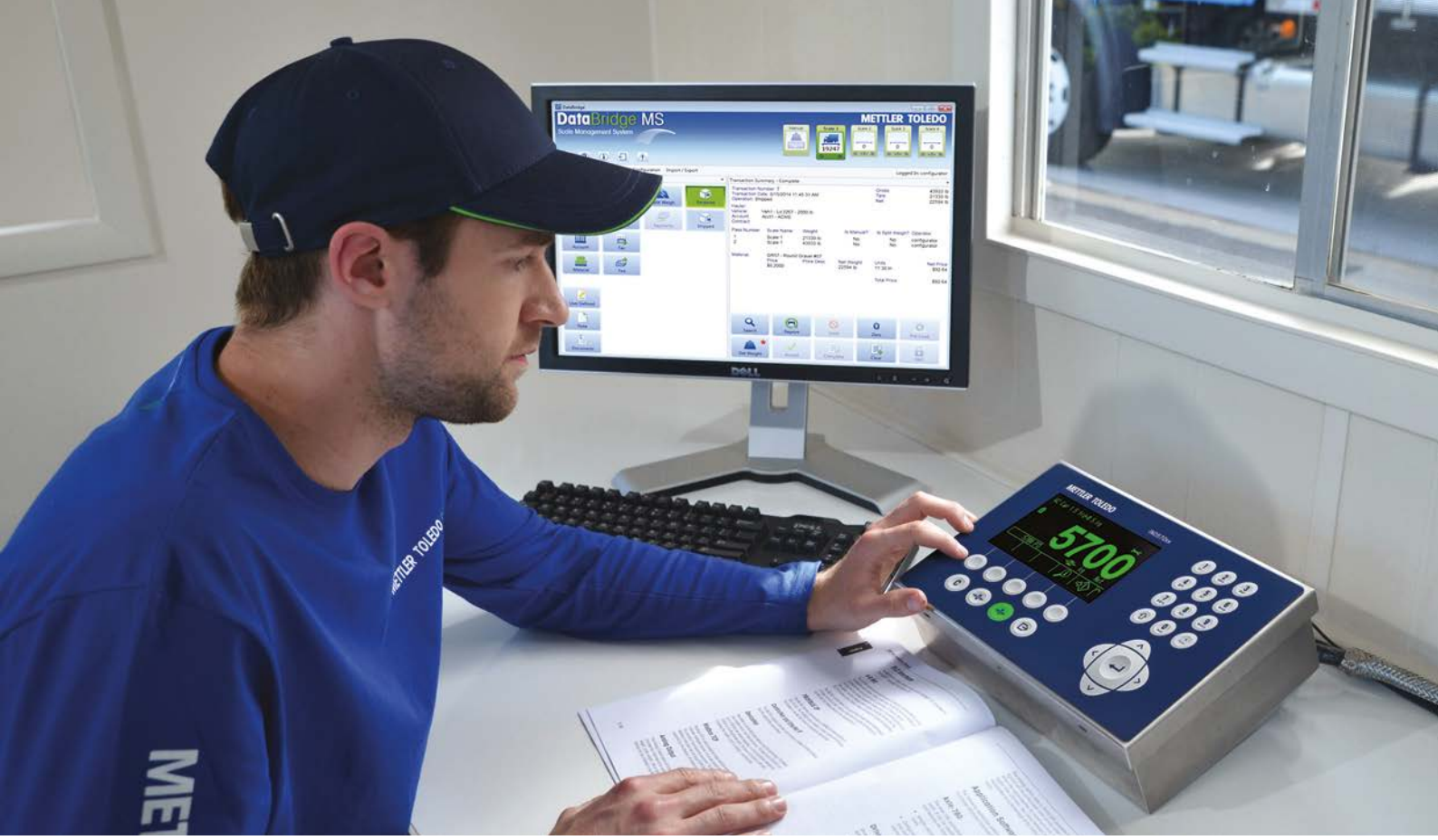
The first thing to consider is the number of scales that will be needed for inbound/outbound weighing. Select a terminal to handle your scales, or add DataBridge™ software to connect multiple scales to a shared database.

Diagnostic capabilities give you a window into a scale's operations. POWERCELL® load cells generate a wealth of data that can be used to verify weighing accuracy and diagnose problems. The terminal provides easy access to this information so that you can take proactive steps to keep a scale operating reliably.

Connectivity options range from basic serial and Ethernet communication to the ability to interact with programmable logic controllers.

www.mt.com/veh-terminals-be

An IND570 terminal can control external devices and share transaction data with a personal computer or network.



Vehicle-Weighing Terminals

By choosing the right METTLER TOLEDO terminal, you get the full capabilities that your application requires at an economical price.

IND245/IND246 Terminal

- Inbound/outbound transactions on one vehicle scale
- Access to basic POWERCELL® diagnostic data
- Basic connectivity options for exchanging data

▸ **www.mt.com/IND246-be**

IND570 Terminal

- Inbound/outbound transactions and filling operations on one vehicle scale
- Access to key POWERCELL® diagnostic data
- Multiple connectivity options, including interfaces with PLCs and other control systems

▸ **www.mt.com/IND570-be**

IND780 Terminal

- Inbound/outbound transactions and filling operations on one or two vehicle scales
- Access to all POWERCELL® diagnostic data
- Widest range of connectivity and control options plus the ability to customize solutions

▸ **www.mt.com/IND780-be**

5 Tips to Avoid Hidden Losses
And Increase Beverage-Industry Productivity

New Industrial Weighing Catalog

www.mt.com/ind-catalog-be
Free Download

Ensure your company is operating at peak performance and hidden losses do not undermine your productivity or profits. Here are 5 tips recently gathered from beverage manufacturers around the world.

1 Minimize Vehicle-Scale Downtime

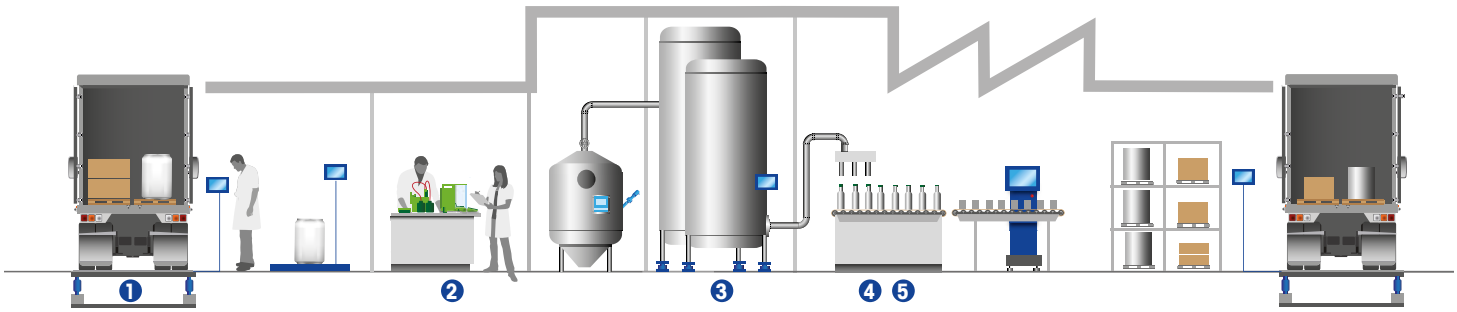
One customer had problems with high maintenance costs and realized savings of nearly $20,000 by upgrading to new digital load cells.

2 Accelerate Quality Analysis

By automating routine testing with an autosampler, beverage manufacturers can save up to ten minutes per sample.

3 Enhance Batching Processes

Inaccurate weighing results causes a US-based brewery to switch to a new batching system. Now she is saving about a ton of materials every two weeks.

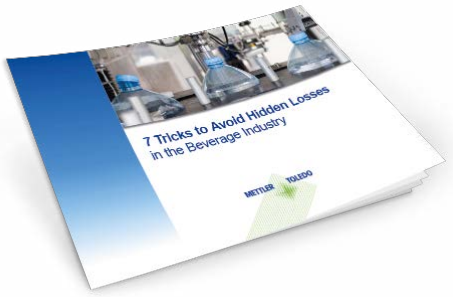


4 Optimize Filling Processes

A Scotch whisky producer has reduced overfilling and saved about 1 ml of whisky per bottle.

5 Observe Process Quality

A brewery in Brazil built in an optical product monitor and is saving now thousands of liters of product per month.



Download our white paper to see solutions:

www.mt.com/ind-wp-hidden-losses-be

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

www.mt.com/ind-food-industry-be

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