Barry Callebaut Weighs with Fast and Precise Measuring Technology

Barry Callebaut is the world’s leading manufacturer of high-quality cocoa, chocolate and confectionery products. In the factory in Lebbeke-Wieze (Belgium) the transfer of raw materials is controlled by METTLER TOLEDO weigh modules, platforms and indicators.

The plant in Lebbeke-Wieze produces an annual output of more than 250,000 tonnes. At the very beginning of the chocolate manufacturing procedure, during cocoa processing, production is focused on mixing, batching and filling operations with a high throughput and high degree of automation. At this stage METTLER TOLEDO is a reliable partner for fast and accurate measurements.

**Raw material batching and chocolate mass tempering**

Batching the exact amount of raw materials is a key factor when producing high-quality chocolate. Upon recommendation from METTLER TOLEDO Belgium, Barry Callebaut chose FlexMount® weigh modules and PTPN process terminals to weigh batching and tempering tanks as well as mixing stations. The solution assures fast and precise weighing of critical components plus easy data integration, which are both vital for an efficient production process.

**Easy data integration**

Weighing results are transmitted from PTPN process terminals with Profibus® DP directly into Barry Callebaut’s automation system. The PTPN terminals ensure trouble-free connectivity with 20 updates per second.

**Barry Callebaut’s benefits**

Due to the simple but very effective mounting accessories and the plug and play connection, the METTLER TOLEDO weigh modules and terminals were easy to install. In contrary to other level sensors, load cells are not affected by dust,
foam and solids which do not distribute evenly in tanks. This ensures accurate and repeatable measurement of mass without direct media contact.

Bart Goetmaeckers, Engineering Manager, explains why he has chosen METTLER TOLEDO weighing equipment: “Due to the installed solution, we have achieved a faster batching process and increased precision and consistency in material transfer. The high quality of the weigh modules results in minimal maintenance costs and maximum uptime, thus improving our productivity.”

Key customer benefits:

PTPN Process terminal
- Standardization through the whole factory
- Easy-to-integrate
- Fast, reliable weight measurement and data transfer to automation system
- Easy integration with Proflibus® DP
- Faster batching process through supreme TraxDSP™ noise and vibration filtering

FlexMount® Weigh module
- Reliable and proven measuring technique
- Easy-to-integrate
- Easy to service
- Rugged and full stainless steel construction

The floating, semi-floating or fixed top plate design provides system checking while allowing the structure to expand and contract.

The hermetically sealed load cell offers excellent performance and durability.

The stainless steel load pin makes point contact with the load cell for optimum accuracy.

The anti-lift/jacking bolt prevents vessels from tipping over, and provides a convenient method of lifting empty vessels for maintenance and service activities.
Bart Goetmaeckers concludes: “We are very satisfied with the quality of the equipment and the service capabilities of METTLER TOLEDO. They support us with their expertise in weighing technology and tailored service, helping us to ensure high uptime, quality and compliance.”

Controlling filling or package weights pays off in two ways. First there is full compliance with national and international net content legislation regarding under filling and secondly it assures minimum giveaway. At the molding station for 5kg chocolate bars, the chocolate cream filling station and the pellet packaging line, METTLER TOLEDO weighing solutions control the filling level and contribute to cost reductions.

Over 80 Tank Scales Reliably Running Day in Day out

**Fast facts FlexMount® weigh module:**
Hermetically sealed stainless steel IP68 load cell – the right choice for hygienic sensitive areas
- Capacity range 110kg – 20.4t
- Top plate rigidly located for easy installation
- Uplift protection
- Large range of thermal expansion/contraction possible
- Painted or stainless steel mounting hardware
- Global approvals standard on every load cell

25kg chocolate pellets bags: 100% net content control by dynamic METTLER TOLEDO Garvens checkweigher
Enhance Traceability of Raw Materials Used During Recipe Weighing

Do you want to minimize handling errors due to manual computation of recipes? Do you want to increase productivity and improve traceability with an intelligent and PC based recipe weighing system?

Then FormXP formulation software hits the spot! FormXP makes your formulation process easier, fail-proof and efficient. Select one of the available filling sequences, easily create, manage and exchange recipe and raw material data, and track material usage with the embedded inventory control tool.

Select your filling sequence
- Vertical filling: All components of a recipe are filled in one container.
- Horizontal filling: Each component of a recipe is filled in a separate container.
- Batch filling: Each component of a recipe is filled in a separate container. The compound is filled as often as assigned in the number of batches. If the compound is batched, the next compound follows.

If a component has been overfilled a rescaling function is used which corrects other corresponding components.

Manage all recipe relevant information with unique ID#
- Raw materials database
- Recipe database
- Handling and instruction database
- User ID

From recording raw materials to processing recipes – FormXP guides the user easily and clearly. Due to numerous interconnected databases, the display can also show information such as work instructions, quantities and tolerances while the recipe is being weighed.

Select your filling sequence
- Vertical filling: All components of a recipe are filled in one container.
- Horizontal filling: Each component of a recipe is filled in a separate container.
- Batch filling: Each component of a recipe is filled in a separate container. The compound is filled as often as assigned in the number of batches. If the compound is batched, the next compound follows.

Edit recipe data
FormXP includes FormToolXP, a special PC software which enables you to edit message, component and recipe data. A mouseclick on your PC gives you direct access to the IND690 or to a host system.
**FormXP** is a software pack that runs on any IND690 weighing indicator. The additional FormToolXP PC software allows you to handle smoothly any task from your PC.

**Document and trace back**

FormXP prints reports with customer-specific data — providing the manufacturer with seamless documentation of what recipe was weighed when, where, how and with which raw materials.

**Key customer benefits**

- Enhanced traceability of recipes by assigning lot and raw materials numbers
- Accurate and reproducible recipes
- Minimal waste material due to bad batches
- Easier handling and reduced paperwork results in higher productivity
- Increased safety by capturing component data via a barcode scanner, displaying messages while formulating and ensuring a fail-proof working sequence
- Higher efficiency by reporting the stock of raw material and using the rescaling function when overfilling components
- Quicker adaption to changing production requirements by using the PC-software FormToolXP

**IND690FormXP weighing indicator**

**FormToolXP PC Software**

**Barcode scanner**

**Label printer**

**Up to 4 bench or floor scales connectable**
Keeping Control Over Production Costs
Despite Rising Raw Material Prices

As a result of open globalized markets, food manufacturers have to operate under constant price and cost pressures. They are forced to offer high-quality products at competitive prices in order to survive in the face of critical consumers and aggressive competition. This is made all the more difficult by the upwards trend in raw material prices, which poses a serious threat to the profit margin. A comprehensive METTLER TOLEDO quality and production control system, which is fully integrated in the production process, helps to monitor and optimize these costs without having to compromise on product quality.

Increasing raw material costs
A glance at the current trends in raw material prices and statements from market experts paint a clear picture. Prices are unstable and future price developments are unpredictable.

While the price trends for coffee and sugar are currently on the downturn, further increases can be expected in the near future for other raw materials. For example, the price of cocoa is currently soaring, as are the prices of rapeseed, soya, and wheat. The increased use of corn and soya as raw materials for environmentally friendly motor fuels means that these cereals will continue to become more expensive in the future.

With a few exceptions, it can be assumed that manufacturers will have to contend with higher costs when purchasing raw materials for food production.

Avoiding material wastage
One strategy that offers promising and worthwhile results in the short to medium term is the use of suitable tools to precisely monitor the use of raw materials, and to maintain control over their use to optimize consumption without having to compromise on product quality.

METTLER TOLEDO offers sophisticated systems in the areas of both formulation and filling process control, which enables to optimize the utilization of raw materials and end products through increased accuracy in all process steps.

Efficient formulation
FormWeigh.Net® is a flexible and networked formulation solution that controls and monitors the formulation process, enabling maximum precision and flexibility in the use of the available raw materials. This therefore guarantees transparent management of the available materials, clear traceability, and consistent product quality. The consumer can rest assured that the product he is buying does not contain any hidden surprises, while the producer can be sure that not a single drop is unnecessarily wasted during the manufacturing process.

Key customer benefits of FormWeigh.Net®:
• Right mixture reliably documented
• Graphical support to avoid incorrect mixtures
• Prevention of material wastage
• Acquisition and verification of batch information
• Clear, concise representation of the weighing process
• Maximum process reliability
• Seamless traceability
• ERP integration
• Fast ROI (<12 months)
Reduction of overfill costs

Accuracy and the minimization of variation are also of paramount importance in the area of filling and packaging. Raw materials must be used as economically as possible while remaining within legal limits. METTLER TOLEDO SQC (Statistical Quality Control) systems act as extremely valuable information sources since they can provide information at any time about the current fill quantity based on the evaluation of sample data from the production line, and therefore help to optimize the fill quantity while avoiding underfilling.

The METTLER TOLEDO SQC product range includes compact standalone scale-based solutions as well as the networked and flexibly extendable FreeWeigh.Net® software system. FreeWeigh.Net® offers, in addition to filling process control, a variety of further options for quality control such as documenting sensory tests and/or integrating measuring devices like check-weighers, moisture analyzers and metal detectors.

Process control and optimization in the area of formulation and filling process control help food manufacturers to optimize costs and hence to remain competitive and profitable, despite uncontrollable factors such as the price of raw materials.

METTLER TOLEDO offers appropriate process control solutions that can be easily expanded to suit businesses of all sizes. The investment is easily justified by improved process control, and pays for itself within a matter of months due to the savings that can be achieved.

- www.mt.com/formweighnet
- www.mt.com/freeweighnet
A Wide Range of Solutions
to Improve Processes

1. Safeline® metal detectors
2. FP900 Thermo system (melting point, ...)
3. BBA449 over/under check scale with colored backlight
4. Halogen moisture analyzer

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Learn more about all of our solutions for the chocolate and confectionery industry on our website. You can find information on a wide range of topics to improve your processes, including case studies, application stories, return-on-investment calculators, plus all the product information you need to make an informed decision.

1. Process Weighing
2. IND690FormXP Recipe Weighing Solution
3. Statistical Quality Control/Statistical Process Control
4. Weighing Components Catalog
5. Industrial Weighing Catalog

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