Pharmaceutical Preparations

Industrial weighing and measuring

6

News

Optimizing capsule counting accuracy

METTLER TOLEDO was approached by a leading gelatin capsule manufacturer to optimize their capsule counting system.

In addition to their expertise in hard gelatin capsules, our customer offers a new range of soft gel capsules available in a wide variety of shapes, sizes and colors, suitable for oral, topical or ophthalmic administration.

Manufacturing such products requires cutting-edge production facilities. Hence our customer's engineering department called upon METTLER TOLEDO to design a pilot capsule bag filling solution.

METTLER TOLEDO has already supplied this production site with several weighing solutions. As seen in the picture opposite the site has weigh booths containing weigh scales connected to an IND690 terminal. These are for the weighing of active ingredients and excipients in the formulation of the capsules. Each booth contains three different sized scales to allow for the dispensing of small, medium or large volumes. Each IND690 terminal is in turn connected to a bar code reader to ensure the correct ingredients are used and a label maker to print labels for the finished weighed material.

Innovation at the heart of the manufacturing process

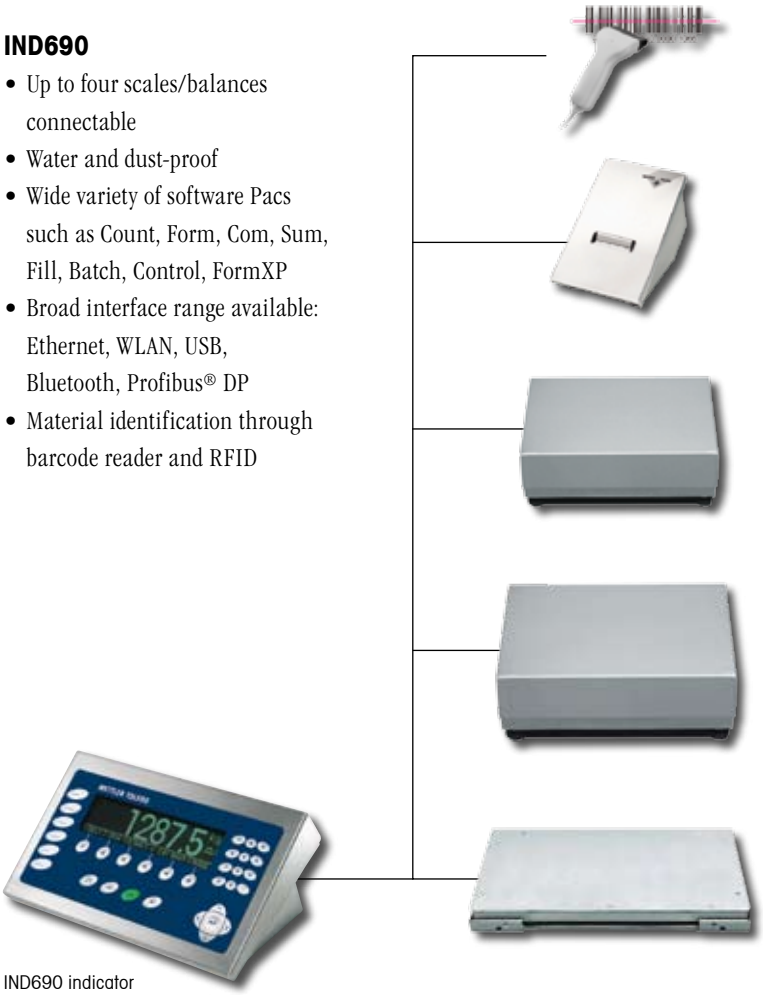
The subsequent collaborative development of an innovative weighing solution brought about a significant improvement in weighing precision. METTLER TOLEDO's expertise in the pharmaceutical, cosmetic and food additives industries – the markets served by our customer, was a key factor in our success.

METTLER TOLEDO

Total formulation control

IND690

- Up to four scales/balances connectable
- Water and dust-proof
- Wide variety of software Pacs such as Count, Form, Com, Sum, Fill, Batch, Control, FormXP
- Broad interface range available: Ethernet, WLAN, USB, Bluetooth, Profibus® DP
- Material identification through barcode reader and RFID



IND690 indicator

Barcode reader

GA46 printer

K-Line precision bench scale: KA15s
- Stainless steel platform, IP67
- Capacity to 15 kg
- Readability 0.1g
- Typical minimum weight: 10 g (for 1% tolerance)

K-Line precision bench scale: KB60s
- Stainless steel platform, IP67
- Capacity to 60 kg
- Readability 1g
- Typical minimum weight: 80 g (for 1% tolerance)

DN floor scale: DNO 600sk
- Stainless Steel Platform, IP68
- Capacity to 600kg
- Resolution of 2x3000e multi-range
- Readability 100 g / 200 g

The capsule bag filling system

Publisher
Mettler-Toledo AG
Industrial
Heuwinkelstrasse
CH-8606 Nänikon
Switzerland

Production
MarCom Industrial
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Switzerland

Quick and reliable capsule counting

For this new capsule bag filling project METTLER TOLEDO proposed a WM weighing module installed directly under the hopper receiving the capsules. Designed for repetitive industrial operations requiring maximum precision, WM weighing modules are ideal for this type of application.

Sampling is carried out on 100 or 200 capsules to obtain a reference weight. The target weight and permissible deviation data are then entered into the PLC. This then closes the hopper when the target number of capsules to be bagged is reached.

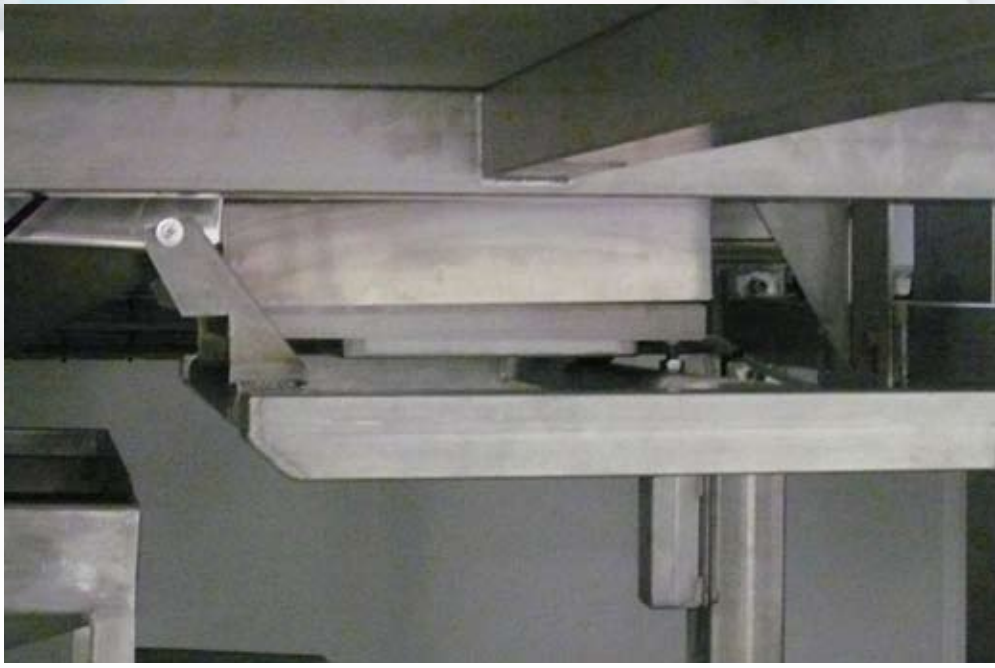
METTLER TOLEDO's WM system delivers 100% satisfaction in terms of capsule counting precision. By billing customers based on the number of capsules supplied, our customer has been able to optimize their revenue.

In the longer term, the installation of several production lines integrating this counting system is planned. An automatic bagging system will be added to complete the solution and further improve productivity.

Networking METTLER TOLEDO weighing modules and weighing platforms via Profibus®

WM weighing modules

- Capacity: from 120g/0.1mg up to 6kg/10mg
- Internal calibration device
- ATEX: Zone 1 or 2
- FM: class I, Division 1
- Wash down option IP66
- Very compact
- Up to 38 updates per second
- Stainless steel housing 1.4404 (316L) with smooth surface
- Direct connection to control systems: RS232 / RS422
- With optional accessory module:
  – DeviceNet
  – Profibus® DP
  – Ethernet
  – SIWAREX FTA



The weigh module is located under the filling hopper

CarePac: professional weight set to ensure balance accuracy

Routine balance testing is the most economical way to ensure accurate results every time. CarePacs are designed to respond to ever increasing time pressures by offering fast and convenient balance testing.

Hans Joerg Burkhard, Weight Business Manager at METTLER TOLEDO

We asked Hans Joerg Burkhard, Weight Business Manager at METTLER TOLEDO, to tell us more about the importance of routine testing and to explain the advantages of the recently introduced CarePacs.

■ Hans Joerg, could you please give our readers some insight into routine testing and its importance in ensuring accurate weighing results?

Balances play a key role at the very beginning of daily laboratory analytical testing. The accuracy and reliability of weighing results with even the smallest quantities have a direct impact on final test results. To ensure that weighing results are within process tolerances, the balance needs to be regularly tested with externally calibrated weights. This is often a challenge as time constraints and limited resources do not allow for in-depth balance testing. In this respect, CarePacs are greatly beneficial as correct weighing results and adherence to process tolerances can be achieved through regular routine testing with certified weights.

■ How do you perform a typical routine test and how often does it need to be done?

Routine testing is performed using calibrated and certified weights to ensure compliance with national or international standards. Typically, tests are executed from the upper to lower weighing range, i.e. at or close to maximum load and at approximately 5% of the weighing range. Testing frequency is dependent on many factors such as process tolerances, associated process risks and laboratory practices.

■ How do CarePacs support routine tests performed by customers?

The new approach with CarePacs is that they only contain two calibrated and certified test weights, which is in sharp contrast to the traditional approach where customers were forced to buy an entire weight set with up to 20 weights. Test weights in CarePacs are recommended by METTLER TOLEDO and nominal values and weight classes are adapted to the technical characteristics of each specific balance model. The initial cost of CarePacs is a fraction of that compared to conventional weight sets. Another great advantage of CarePacs is that re-calibration costs are very low as only two weights need to be calibrated. Ergonomic tweezers and weight forks, clean room approved gloves and a cleaning cloth for correct weight handling come as standard with each CarePac. Manufacture

Hans Joerg Burkhard is Weight Business Manager at METTLER TOLEDO headquarters in Switzerland. During the design and construction phase of CarePacs, he worked in close cooperation with customers from various industries.

recommended SOPs (Standard Operating Procedures) provide clear guidance and ensure consistent processes of routine balance tests.

■ Hans Joerg, thank you for sharing this information with us

If you have questions about METTLER TOLEDO's CarePacs contact Hans Joerg Burkhard at:

▸ **hans.joerg.burkhard@mt.com**
▸ **www.mt.com/carepac**

Three sizes of CarePacs allow routine testing of balances up to 8 kg weighing capacity.

Professional accessories such as ergonomic tweezers and weight forks, clean-room approved gloves and cleaning cloths match highest requirements of all industries.

Guiding the way
to effective metal detection

In today's increasingly competitive pharmaceutical marketplace, new legislation and increased industry regulation have accelerated the demand for effective metal detection programmes.

Installing Metal Detectors is not enough

In most modern manufacturing plants, the mere installation of metal detectors will not guarantee that metal-free product is produced. For that to be achieved, the detectors must form part of an overall metal detection strategy. It is essential that all manufacturers endeavour to implement procedures which provide the peace of mind that all possible steps are being taken to minimise instances of contamination.

The definitive guide

To assist in developing such a strategy, METTLER TOLEDO Safeline has published a 64-page comprehensive metal detection manual. Developed for the pharmaceutical industry, this definitive guide is essential reading for those involved in understanding and implementing metal detection technology – key for effective brand protection, proving due diligence and showing compliance with regulation and legislation.

Significantly updated

Entitled "Reduction of Metal Contamination – Building an Effective Programme", this guide replaces the original Safeline Guide to Reducing Metal Contamination. It has now been significantly updated, presenting the most up to date thinking and practices. The guide details the critical aspects for the creation, implementation and maintenance of an effective metal detection programme, in a clearly written format, supported by useful diagrams, charts and illustrations.

In producing this guide, METTLER TOLEDO Safeline aims to ensure that manufacturers have access to all of the necessary information to set up such a programme.

Request your personal copy today

The guide has been made available free of charge to all manufacturers. To request your free personal copy, go to

▶ **www.mt.com/mdguide**
▶ **md.guide@mt.com**

Fast check of ampoule filling

Solvay Pharmaceuticals GmbH equipped their packing line for ampoules with a Garvens checkweigher. This examines precisely and very fast the weights of the packed products. „Off weight" packs are rejected immediately, so that an extremely high quality level is ensured in the production.

In pharmaceutical industries, accuracy and reliability are the most important factors in all departments. In the works of Solvay Pharmaceuticals GmbH, Neustadt (Germany), the Garvens S2 checkweigher adds substantially to those measures ensuring that this high demand for quality will be met. For example in the production of ampoules containing infusion solution: the ampoules are filled and enter the packaging line. There they are labelled first and then packed in folded boxes. Next, the checkweigher measures the weight of the individual products with an accuracy of ±150 mg. In this way it can be determined whether the ampoules were filled with the correct quantity of infusion solution and whether the consumer information is in the package.

In order not to let an unsatisfactory pack get distributed, the off-weight products are immediately rejected, by an air jet, into a receptacle (catch bin). When desired, the overweight and underweight products can be rejected separately by use of an additional air jet. All packs with a correct weight are passed on to the bundle packer which packs them in cardboard boxes.

Beside the unequalled precision METTLER TOLEDO Garvens checkweighers offer numerous other advantages:

- user-friendly „touch-screen" weighing
- easy article change-over
- uncomplicated adaptation of the weighframe height to the adjacent packaging machines and conveyors
- reversible feed direction allows for the flexible adjustment of the checkweigher, should there ever be structural changes in the production line
- variable conveyor speed
- network integration is possible

Solvay is satisfied with the Garvens solutions

The company Solvay has been trusting in Garvens quality for 15 years already. The electrical engineer, Manfred Baum, is responsible for the packing machinery: „We are very pleased with both the products and the services we get from Garvens." Apart from the S2 for ampoule weighing there are two more Garvens checkweighers in use at Solvay.

Garvens stands for quality and expertise

The many years of expertise at Garvens guarantees high accuracy even for very different applications. Even those products that are difficult to handle, such as the ampoules of Solvay, do not represent a problem: the ‚noise' exerted on the measurement signal by the lightly sloshing liquid inside the glass tubes, leaves the final weighing result uninfluenced. The proven, sophisticated Garvens software filter technology compensates for such oscillations.

Why not increase the quality of your products in compliance with the Pharmacopoeia regulations? With much flexibility we make the checkweigher integrate easily into your existing packing lines. A multitude of optional software and hardware modules allows for customised designs or even compact system solutions.


Courtesy Solvay

The packing line at Solvay, with a labelling machine, the Garvens checkweigher of the ‚S series' and a bundle packer (from left to right)


Courtesy Solvay

The ampoule packs come from the boxing machine and subsequently run over the Garvens checkweigher for measuring the weight of every pack

Applied Biosystems
control the flow of goods

METTLER TOLEDO assists in performing a 100 % check on all goods dispatched from the distribution centre. This way both the supplier and transport operator are ensured correct parcel data for seamless transport and correct invoicing.

Operating worldwide, Applied Biosystems, a division of the Applera Corporation, supplies equipment to life science organizations involved in molecular and protein research. The European distribution centre of Applied Biosystems located in Nieuwerkerk a/d IJssel, in the Netherlands, serves a large portion of the European market.

Constant flow of goods

Daily, hundreds of orders of varying dimensions and weights are picked and checked at various packaging stations and prepared for dispatch. Standard parcel dimensions and weights, and a labour-intensive method of data exchange with their transport operators was being used.

Jan Willem Bos, Process Development Specialist, recounts: "This method of operation was rather time-consuming and error-sensitive. Discrepancies between basic data provided by us and the values measured by the transport operator only generated extra correspondence and corrections."

Because of this, the routing through the distribution centre was changed, which at the same time was the right time to tackle the data collection process. As part of that, the distribution centre decided to purchase a METTLER TOLEDO CS5120 MeasuringArm™ consisting of a volume scanner, a 150 kg scale and a bar code scanner. Bos explains: "The operator lets a parcel roll off the conveyor onto the scale. The weighing platform has also been fitted with a roller conveyor and is located underneath the volume scanner. The only thing the operator needs to do is scan the bar code. After that, the system automatically determines the volume and weight."

Key Benefits

- Elimination of errors associated with manual measuring
- Collection of accurate and reliable package measurements in less time
- Reduces the need for manual entry of bar code data
- Requires little operator training

Courtesy Applied Biosystems

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For more information

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