More revenues for DHL with accurate measuring

System phase-out without production loss at CIMEX

Optimum filling solution at Rohm & Haas for water soluble acrylic polymers
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Increased revenues with accurate measuring
Worldwide partnership between DHL and METTLER TOLEDO

DHL and METTLER TOLEDO have worked closely together around the globe to give the optimal revenue recovery system that meets the local DHL requirements. Implementing data capture solutions at DHL hubs worldwide for accurate dimensions, weight and identification of all goods handled, have allowed DHL to increase their revenues.

Some 500,000 employees in more than 220 countries worldwide, work to achieve Deutsche Post World Net’s objective of being the global number one in logistics. Over the years Deutsche Post World Net has expanded through several acquisitions such as Airborne, Exel, Danzas, Global Mail, Postbank and more. In 2002 leading global air express service provider, DHL was incorporated into the group, which now consists of three corporate divisions and brands; mail by Deutsche Post World Net, express/logistics by DHL and financial services by Postbank. The revenues generated by the group in 2005 are 52 Billion Euros. With such an objective in mind, DHL is a company with high standards of performance which also sets high criteria for their suppliers.

Early users of dimensioning
DHL considered dimensioning equipment in their operations from the late 80’s. At that time DHL was mainly an international express company handling important documents and packages. Planes were the major means of transportation and costs were mainly on size, rather than weight of the packages. DHL was already charging their customers on dimensions, but they needed a good method to control the charges and do more exact accounting.

METTLER TOLEDO Cargoscan was one of the first companies offering commercial dimensioning equipment and had been in discussion with DHL for many years when, in the early 90’s, they began developing the CS5120 static dimensioning and weighing system together. The Cargoscan- ner allowed DHL to roll out and install CS5120’s across the globe with minimal modifications to DHL’s operations.

When DHL became part of the Deutsche Post World Net, the quality and handling routines of DHL were spread throughout the network. However, when the number of items handled increased, dynamic systems were required. DHL selected METTLER TOLEDO’s CS9000 dynamic weighing, dimensioning and identification system to handle the extra volumes.

Favourable pay back time
The implementation of revenue recovery with Cargoscanners showed to be an effective tool to secure the revenues and a just price structure for customers. “The systems DHL has purchased over the years have had a pay back within two years. An example of a very favourable pay back is with a site in the UK that paid for its system within six weeks” says Andy Myatt, Director of Engineering and Infrastructure for Europe.

The company has also seen other benefits of the equipment. The quality of the database is near 100% as the system requires that all data on a shipment is registered. In addition, the standardisation on the CS5120 solution has led to a similar layout of almost all of DHL depots worldwide and a standard of goods handling quality. Finally, the system easily helps DHL quantify its productivity, by counting the items handled. This in turn has led to improvement in operations to get the most out of the equipment supplied.
Meeting local and global DHL requirements

To ensure maximum uptime for the equipment, hundreds of units of sophisticated data capture solutions have been installed, maintained and serviced in central western countries, making sure that units in desolate tracts are always running. This has required a continuous dialogue between DHL and METTLER TOLEDO at all levels of the organisation from the headquarters in Brussels and Bonn to every country depots and terminals.

METTLER TOLEDO provides a wide range of Cargoscanners for DHL, some used on a global basis, some only in specific regions. The operational processes define the type of systems preferred for cases when the operator is to sort, enter object information or create a label, static data capture solutions with a scale, dimensioning unit, handheld barcode reader and data concentrator are chosen.

When it comes to processes without manual intervention, DHL generally prefers systems that are able to manage higher throughput and operate in fully automatic mode. These types of systems capture the necessary information while the parcels are moving through the system. If the systems are integrated into fully automatic sorters, only one operation mode is required. For small sorters, which need high flexibility METTLER TOLEDO provides additional features and operation modes, including simple sorting functionality.

Due to Cargoscanners being approved according to legal for trade requirements, DHL and their customers can trust the results. Regarding future investments, it is important for DHL to have a partner who is fully committed to provide appropriate solutions on a long-term basis. Andy Myatt emphasises that METTLER TOLEDO is a global company with global support and good products at a competitive price. “DHL Express looks forward to continuing our partnership in the future” he affirms.

www.dhl.com
Validated system phase-out without production loss

Two validated weighing stations, integrated with the new formulation software FormWeigh.Net from METTLER TOLEDO, helps pharmaceutical manufacturer CIMEX AG, Liesberg, achieve 100% traceability and high precision.

CIMEX AG has long-standing expertise in the manufacture and packaging of generics. In addition to offering toll manufacturing services, it is also a producer specialised in selected manufacturing technologies for medicines with controlled release of active ingredients, and in dividable sustained release tablets. Its own products are mainly used to help fight high blood pressure, prostatitis and Parkinson’s disease. CIMEX AG’s customers are generic drug distributors, some of whom are themselves producers. Dr. Thomas Uhlmann, Head of Production and Technology explains: “Because of our global buyers, it is important that our suppliers offer not just a good solution but good service, honesty, reliability and competitive prices to be a competent partner for us.” METTLER TOLEDO met all of these requirements.

Integration of existing equipment
Day after day, all the chemical components of a given formulation are weighed at the two central weighing stations, which are protected by special cabinets. In the Swiss production facilities of the renowned and successful generics manufacturer CIMEX AG, this is nothing new. “For us, it’s important to be able to ensure traceability in accordance with 21 CFR Part 11,” says Mohamed Ibrahim, Manufacturing Head of the non-penicillin unit. “With the new system from METTLER TOLEDO, this is now 100% guaranteed. That’s why we chose the FormWeigh.Net application software. Another key requirement was the ability to integrate our existing equipment into the new system. For us, it was also important not to suffer production losses for the sake of a system change. METTLER TOLEDO flawlessly organised that aspect of the project, as well.”

Standard software that comes with countless useful functions
The project began with a process analysis to evaluate CIMEX’s requirements in detail. Close cooperation and several on-site discussions resulted in a comprehensive specifications document that contained all needs and requirements, this would serve as the basis for realisation of the project. The task of the interdisciplinary team from METTLER TOLEDO was to fulfill all the requirements of the analysis with a test system. The primary goal was to create a system that was as close as possible to the system they had been using, to introduce new functions and to make the changeover as seamless as possible for the operators. After a short introductory training session, Mohamed Ibrahim could confirm that “With FormWeigh.Net, the components can be easily weighed on the clearly designed operator interface.” It often takes time to get used to new equipment, operators know this better than anyone. “The feedback from our weighers is altogether quite positive,” said Mohamed Ibrahim after the changeover. The training and Factory Acceptance Test (FAT) were also done on the test system.

Reduction in the cost of validation
Regulations regarding the use of computer systems in the pharmaceutical industry required the FormWeight.Net formulation system to be validated according to GMP (Good Manufacturing Practice). Despite its own experience with valida-
tion processes, CIMEX AG decided to enlist the help of METTLER TOLEDO’s validation services. “The standard FormWeigh.Net validation manuals have given us enormous help in minimising our validation expenses. Experience with past validations was brought into the project in the form of validation protocols,” says Norbert Waldy, Qualification Manager. METTLER TOLEDO’s years of experience in the field of instrument qualification and computerised system validation was also highly valued.

Changeover without production loss

The changeover and validation were carried out completely in two steps to ensure that production would not be interrupted. A second server was procured and operating the new and old databases on the two separate servers at the same time allowed a cabinet to be installed on the new system while the other weighing station worked productively with the existing system. According to Norbert Waldy, “The step-by-step conversion paid off by preventing us from having a production loss.”

Additional advantages of the FormWeigh.Net system

An optical filling guide simplifies the manual dosing of the material for the operators at the balances. If necessary, hazard warning symbols or advisories for handling the materials can be displayed. Processing can continue only if the right quantity of the right material is weighed. The system immediately reports any deviations! After a component is weighed correctly, FormWeigh.Net sends a print job to the label printer, which prints a weighing label. When the job is completely finished, the system automatically prints the weighing report, thereby supplying precise process documentation. The header of this documentation contains order information, and all components are listed below with the actual weight and ID of the operator that completed the action. Tiered access protection aligned to competencies ensures that only authorised personnel see and modify the sensitive data. The new “FormWeigh.Net” software completely supports the use of the touchscreen functions of the ID30.

As its next step, CIMEX AG is planning to upgrade the FormWeigh.Net system in the penicillin unit with a new weighing station based on the IP67-protected ID30 industrial PC.

www.cimex.ch
Pharma automation: Weighing with laboratory precision

Over the last few years there has been constant development in the technology for automation of pharmaceutical production processes. The essential criteria for pharmaceutical producers are factors of speed, availability, safety and compatibility with the overall system.

Weighing technology plays an increasingly important role in application areas such as pharmaceutical production. The main reason is that quantifying amounts of substances in microliters or milligrams, at a justifiable expense and with high safety standards, is possible only with gravimetrics. Weighing technology offers the advantage of a uniform measuring technology that is easily controlled through standards such as test weights, and also meets high standards of certification.

The Groninger company in Crailsheim, a leading system supplier of filling and packaging machines for the pharmaceutical industry, relies on weighing sensors from METTLER TOLEDO that are designed for automation. Working in partnership with globally operating suppliers and using fast, precise and rugged weighing sensors with flexible connection options, is crucial.

For a weighing sensor in pharma automation, “fast” means that up to 4,000 bottles, ampoules or syringes are tared and weighed per hour for control or for dispensing. The weighing or taring time of less than a half second requires very fast and highly optimised processing of the measuring data, as well as a sensor mechanically designed for fast weighing. In addition to the measuring data, it is also vital that the records contain error detection and information on measuring quality. Knowledge from customer applications and tests, as well as special customer are fed back to development and are used to optimise hardware and firmware design. In the end, it’s not the manufacturer of the sensor but the compatibility with the application that determines the specifications and, therefore, market success.

Precision on a laboratory level
“Precise” means producing exact and reproducible weighing results despite high weighing speeds. The pharmaceutical industry handles extremely small amounts of highly active preparations. Resolutions of one-tenth milligram, which were once reserved for laboratory balances in a controlled environment, are becoming standard in automated production. In addition to high operating speeds, the weighing sensor must overcome the complex disturbances caused by oscillations in the engine drives, laminar flow and pressure differences. To achieve laboratory precision under these kinds of conditions, the weighing sensor needs special filter, damping and handling algorithms.

Because precision in the operation of a weighing sensor is only traceable in individual use, the specialists from METTLER TOLEDO are on-site at Groninger to optimise and collect application data when a new type of system is being tested.

A weighing sensor for pharma automation must be rugged in a number of ways, from installation, through transport, drive oscillation, contamination with aggressive substances, and overload, to cleaning and disinfection. What system suppliers like Groninger require is implemented by the technical professionals in sensor development into effective constructions that allow excellent weighing quality and handling. Options from the Modulo WM weighing modules include an industrial-strength stainless-steel housing (1.4404), mechanical overload protection, washdown option up to protection class IP66, overpressure and Exversions, as well as individual weighing pans and adaptations.
**Unlimited connectivity**

The option of direct connection of actors and sensors to SPS controls via standardised interfaces is of fundamental importance in pharma automation. Modulo sensors have parallel RS232 and RS422 interfaces, which are of enormous value in commissioning and optimisation. METTLER TOLEDO factors the trend toward field buses and Ethernet with optional profibus, DeviceNet and Ethernet modules. The ability to connect Modulo sensors directly to SIWAREX FTA weighing technology allows Modulo to be merged with the SPS. Only with this high connectivity flexibility system suppliers able to fill individual orders worldwide with controls stipulated by different manufacturers like Siemens and Rockwell.

**Think globally…**

If a pharmaceutical production system is sold to a globally operating end customer, the primary focus of that end customer is often standardising the production technology to a host of different sites. Site-dependent manufacturers are accepted reluctantly when it comes to quality-related components. The preferred vendors for sensors and actors are companies that can offer certified products for different locations according to local requirements, together with the necessary advice and on-site service. This is why Modulo WM and WMII weighing sensors are certified to a wide variety of national specifications. METTLER TOLEDO service and support is at your disposal worldwide.

> www.groninger.de

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**Modulo WM**

- 120g/0.1mg up to 6kg/0.01g
- 15kg/0.1g up to 3000kg/50g

**Modulo WMII-Ex**

- Three product lines – one philosophy
- Measuring principle: Electromagnetic force compensation
- Stabilization time < 0.5 sec
- 38 updates per second
- Overload protection
- Robust stainless steel housing
- IP protection up to IP66(WM), IP66/67(WMH)
- Max. resolution up to 1.2 Mio. points
Recipe for success: Reliable formula weighing system validated and SAP integrated

When manufacturing medication, data integrity and accuracy are critical for quality. With a combination of SAP and METTLER TOLEDO’s FormWeigh, Schering-Plough K.K. has succeeded in continuously satisfying its Japanese customers.

Schering-Plough is a global science-based health care company with leading prescription, consumer and animal health products. Schering-Plough recently completed a project to expand its production plant in Shiga, Japan, which supplies Schering-Plough products in Japan. The company has also completed renovation of existing manufacturing buildings.

The pharmaceutical manufacturer Schering-Plough K.K. was committed to expanding their production capacity and at the same time to implementing SAP 4.6C. “We were looking for a new weighing system with a SAP interface to fulfill the GMP and 21 CFR Part 11 requirements,” said Mr. William Gill, IT Director, Schering-Plough. The purpose of the system is to dispense raw materials for a specific production order or a secure and fully traceable manner. After releasing a production order in SAP the formula would be submitted electronically to the five central weighing stations.

Secure production process with no compromise on efficiency

Schering-Plough requested an easy and failsafe software which would guide the operator through the dispensing process, beginning with the verification of the correct raw material via barcode scanning both the material and the lot number attached to the container. Furthermore, the quality status and expiry date of the dispensed material would be verified by the system in order to secure the correct product quality.

Accelerating the work process

Transferring the amount of the material weighed to SAP in order to adjust the stock level after each weighing allowed the operators to save time since there was no need for them to execute manual transactions in order to adjust the stock level. The system executes this function automatically in the background.

In 2003, the project team at Schering-Plough selected METTLER TOLEDO’s solution offering since it was already successfully running in their plant in Spain. Furthermore, METTLER TOLEDO offered a certified interface to integrate the formulation software FormWeigh to the PP-PI module of SAP. As a weighing terminal METTLER TOLEDO offered an IP67 dust and waterproof industrial PC, the ID30, which connects up to three scales for seamless weighing from 0.0001mg to 500kg.

Essential functions for the pharmaceutical industry

One of the more important functions of FormWeigh for pharmaceutical production processes, is the ability to adjust the target weighing quantity according to the potency of the ingredient. The potency value is submitted from the SAP warehouse management functionality to FormWeigh.Net for an automated, error free calculation, another task that the operators are relieved from by the system.

Flexibility through rapid customising

“Even with the new system, we wanted to implement the same weighing procedure that we had before”, says Mr. Morino, Sterile Manufacturing Production Manager of SPKK. “Thanks to the flexibility of FormWeigh, our special procedure was successfully implemented as a customised function.” A process analysis was performed at the beginning of the project; this was used as the base for the functional requirement specifications. “Solid specifications are the key for a successful project implementation and an important factor for minimising the business risks for both parties,” said a project member.

Passing the FAT (Factory Acceptance Test), as a pilot installation for testing the SAP interface in an office environment, was an important project task and was confirmed by the SAT (Site Acceptance Test) as the project milestone.
Intensive user testing over a one month period guaranteed smooth, efficient system validation and “going live” without deviations or surprises. This period was assigned to user training, SOP drafting and finalising, as well as approving the validation documentation without disturbing ongoing production.

**Seamless System Validation**

According to a Schering-Plough project team member, one of METTLER TOLEDO’s biggest strengths was that the validation process was fast, efficient and non-disruptive. It is an absolute requirement that all systems marketed to the pharmaceutical industry undergo a strict validation process. Under normal circumstances, the validation process is time-consuming and requires close supervision by experts. Because METTLER TOLEDO supplied the protocols for the equipment and software acquired by Schering-Plough, the time required was significantly reduced compared to being developed from scratch. Also, METTLER TOLEDO has comprehensive validation manuals for its products that further accelerate the validation process. Validation Manual 1 provided supplier audit information of METTLER TOLEDO for DQ, while Validation Manual 2 provided the validation protocol for IQ and OQ. These validation protocols were made according to the GAMP4 guidelines, and translated into Japanese for further ease of use.

Schering-Plough project members were also impressed by the efficiency and ability of the METTLER TOLEDO Applied Software and Consulting (MTASC) group, who helped guide the team safety through all the validation process whilst providing consulting support. Overall, Schering-Plough project members were satisfied with the products and services rendered, agreeing unanimously that the entire validation process was seamless, efficient and timesaving.

**Calibration:**

The most basic of concepts, and yet the least flexible… until now

Accurate weighing has been a fundamental basis for trading, bartering and payment for goods or services. Consistent weighing also forms the basis for assuring the correct formulation of compounds used in the food we eat, inks and dyes used to print cookbooks we read, and making wines and spirits we drink, to the pharmaceuticals used to treat the upset stomachs or headaches we suffer from the next morning. Proper, precise, and consistent calibration of a scale forms the basis of all accurate weighing. The use of known masses (test weights) in the calibration process has been used to establish performance of a scale since the first balances were checked or regulated by government officials. Regular checking of scales helps to assure that consistent performance is maintained over long periods of time.

Sometimes, the installation dynamics or mechanical integrity of the scale design is not as robust as desired. As weight is added to a vessel or container, the supporting structure may bend or flex, resulting in the non-linear performance of the scale. In order to offset these mechanical characteristics, intermediate points (between zero and the capacity of the scale) can be used to linearise the performance. This process is known as linearity adjustment. These two techniques and calibration processes are commonly available with electronic weighing terminals, but have also often been the only ways to calibrate a scale.
METTLER TOLEDO’s IND560 introduces a variety of new ways to calibrate and check the scale’s performance, allowing you to align the most appropriate technique (or process) with your real requirements.

**Step Calibration** automates a field technique used when the capacity of a scale is much larger than the available test mass. The substitution method of calibration uses a known test mass to calibrate a small portion of the scale’s weighing capacity. After calibration of this portion is established, the test load is removed, and a substitute material is placed inside the vessel or hopper to a point near the calibrated load. The test mass is then added to this value, and a new calibration point is established. The process is repeated until the last calibration point is near the scale’s capacity. This process required that the scale technicians to manually calculate each successive calibration value and enter the appropriate figures into the terminal, making it prone to entry or computational error. The Step Calibration process automates the procedure, guiding the technician through each step and eliminating the need to do the math or enter values.

**CalFree™** is a combination of a field calibration technique and factory controlled quality assurance process. During the production of a load cell, the actual gain of the cell is measured and recorded. In addition, each terminal’s analogue measurement section is calibrated to produce an identical output for a given input. The combination of these two processes allows an installer to compute the theoretical calibration of a given scale. This technique is not as accurate as using test weights, since it does not take into account the actual mechanical characteristics of the installed scale. However, many system integrators and installation technicians only need an approximation of calibration to prove the operational integrity of the overall system. In addition, factory calibrated analogue sections also allow you to replace boards and be assured that the calibration of the replacement is identical to that of the board being replaced.

**Cal Test and Calibration Maintenance** are two patent pending techniques that help you assure the calibration of your scale is within tolerance over long periods of time. Cal Test is a sequence of up to 25 steps where an operator is directed to place test weights in specific locations. The weight produced at each step is compared against the test mass used and found to be within or outside of a given tolerance. Calibration Maintenance is used to initiate the Cal Test at specific intervals, either based on time or the number of weighments. If the Cal Test fails, a message can be generated and logged, the scale can be turned off or no action taken. Using these two processes can help you ensure compliance with validation requirements dictated by your quality system.

**Step Calibration** and **CalFree™** are two new, innovative techniques that help you align the appropriate calibration technique with your real requirements, balancing accuracy with time, cost and practicality. Cal Test and Calibration Maintenance can perform a vital role in assuring your weighing accuracy is maintained and that compliance with your internal quality requirements is achieved.

[www.mt.com](http://www.mt.com)
Rohm and Haas is one of the world’s leading producers of specialty materials. In France, four of the company’s production sites are based, as well as its European industrial applications and R&D laboratories and its European regional headquarters. The group employs 1,200 people and recorded sales of 520 million euros in 2004.

The production facility at Villers Saint Paul, set up in 1990 as a joint venture between Rohm and Haas and Elf Atochem, employs around fifty people. The company specialises in the production of water-soluble acrylic polymers for the detergents, textiles, water treatment markets, oil and ceramics industries, as well as for material dispersion.

The development of their packaging activity for two of the group’s product ranges destined for the cosmetics market - liquids designed to adjust viscosity, and bleaching agents for shampoos and creams - led the factory to invest in a new filling station. Use of the existing METTLER TOLEDO racking station was ruled out, as it was already used at full capacity, and the risk of contamination between packed products was too high.

So Rohm and Haas’s technical team drew up a specification to find the optimum solution for their new filling station. The primary operating constraints included the capability to pack highly foaming liquid products in IBCs or thirty gallon barrels, the occasional handling of five gallon jerry cans, productivity levels of thirty metric tonnes per hour and to achieve all this using easily-operable equipment. Thanks to its specialist “filling” technical sales team, METTLER TOLEDO knew exactly how to meet Rohm and Haas’s requirements. Their solution was a five barrel filling system on a USP 1000-91P pallet, controlled by an ID7 weighing terminal. To avoid any contamination between the two product ranges at the filling station, and to facilitate cleaning, the equipment was supplied with two feed pipes. “We were particularly satisfied with the overall level of service provided by METTLER TOLEDO”, explained Mr Bourbonneux, Production Manager. “The equipment was delivered right on time” added Mr Bellenger, Maintenance Manager. In fact, the lead time was the primary supplier selection criteria. The new filling station had to be operational within just eight weeks! METTLER TOLEDO’s technical department were able to set the equipment up in just a few days. In fact, it took less than a week from the time the equipment was delivered to its first use by Rohm and Haas operatives.

After several weeks in operation, the METTLER TOLEDO filling system has provided 100% satisfaction. The products for packing arrive at the feeder tank where they are pumped directly into the filling system. The operator places the five prepared barrels onto the pallet on the weighing platform, fills them, then repositions the pallet. No individual handling of barrels is required, thus making the station particularly ergonomic.

Ever focused on their customer’s needs, the METTLER TOLEDO “filling” experts are now reflecting on how they can optimise the fill speed in order to minimise foaming. More fruitful exchanges between Rohm and Haas and their supplier are expected in the near future…

> www.rohmhaas.com
Improved performance for car care manufacturer

For almost 40 years Comma Oil and Chemicals Ltd has been manufacturing quality automotive lubricants and car care products. From its humble family-run beginnings, it has developed into a major player in the motor oil and car care industry. Designed with the automotive enthusiast in mind, its products have proven themselves at the highest level of British Motorsport.

Comma wanted a 100% check on finished products and the S3 checkweigher was suggested as ideal. The new equipment is used for checking a large range of products. The oil is poured into containers and then weighed before palletising and warehousing. The checkweighers confirm the weight of the bottles of automotive oil (ranging from 400ml to 5 litres).

The Garvens S3 checkweigher is available in full stainless steel IP65 wash down specification and, coupled with Garvens unique quick release belt grips, ensures compliance with HACCP. There is minimal operator effort in performing belt changes or obtaining access for wash down and cleaning and the base plates, rollers, bearings and conveyors are also constructed in stainless steel ensuring outstanding reliability and service life even in the most hostile environments. The S3 checkweigher is suitable for weighing products up to 6000g and is available in four basic units that can be individually tailored to meet specific requirements.

Today the company has a turnover of $75million and employs 240 people. The main plant in Gravesend, Kent (they also have a site in Weert, Holland) manufactures products for the UK and Europe, the Middle and Far East, Australasia and Africa.

The UK site faced a number of issues with its quality control and quality assurance procedures - in particular overfilling. Previously the company performed offline checks using METTLER TOLEDO’s SQC14 (Statistical Quality Control) and SQC16 standalone systems. Employees had to manually remove the automotive oil bottles from the production line and weigh them on a static weigh station. This proved time consuming and inaccuracies could not be detected quickly - potentially allowing overweight products to be distributed.

Comma Oil chose METTLER TOLEDO for a number of reasons as David Seex, Chief Executive, explains: “after viewing various equipment options available we chose METTLER TOLEDO based on the equipment presentation, usability, price and experience of the company as a supplier.” Over the years Comma has installed various METTLER TOLEDO products including Zone 1 scales, non-zoned floor scales, a weighbridge and filling systems as well as the three new S3 Garvens checkweighers. It also provides the site with service support. A successful relationship has been developed between the two companies and although other manufacturers were approached METTLER TOLEDO was the preferred supplier.

The units are very user friendly and the average weight software and fill head test, purchased as options, provide a completely integrated system - meeting the company’s requirements. Also the simplicity of the installation was a major advantage - “the checkweighers were installed over a weekend, commissioned on the Monday and immediately put to use minimising downtime and disruption” explains METTLER TOLEDO Account Manager, Ashley Gilbey.
The equipment has improved product control - saving giveaway and time - David explains. “The equipment eliminates a majority of the manual handling involved in checkweighing activities, provides an accurate idea of product giveaway, reduces product giveaway (the control is located at the source) and eliminates potential for substandard runs. In addition the technicians’ role has become increasingly proactive and it has provided us with an excellent ‘selling’ tool for customers.” David concludes “the equipment has helped us to understand and even improve our processes.”

In addition to the various equipment installed on site, Comma has also invested in TotalCare 21. This package provides a complete range of after sales service agreement options designed to complement existing quality systems. Tracey Johnson, Marketing and Customer Development - Service explains “The platinum contract is a fully inclusive agreement offering predictable service costs throughout the equipments’ life. Labour and travel costs are included in the annual fee, together with spare parts’ costs on current products; routine service and calibration visits are scheduled throughout the year.” Comma Oil’s platinum agreement covers a wide range of equipment including terminals, baseworks and indicators as well as other manufacturers’ equipment. “The silver service contract is a cost-effective agreement and provides one scheduled routine maintenance and calibration visit per year, as well as a discount on labour rates in the event of equipment failure. The company’s silver agreement covers a range of balances and other manufacturers’ equipment” concludes Tracey.

www.commaoil.com
High-performance production with efficient filling process control

Over 150 years of chocolate art
Founded in 1852, the Maestrani company has devoted itself completely to enjoyment. Maestrani produces a vast array of different types of chocolate, including the brands Minor and Munz, as well as innovative customer products, such as organic Fair Trade chocolates and Kosher chocolates. In 2005, Maestrani received the Demeter approval trademark for products of biodynamic agriculture. As a result of customer requirements for confectionery production, quality, innovation and a reliable production process have increasingly become vital factors. Ladina Badrutt, Head of Quality Management and Research & Development: “The variety of confectionery products is growing constantly. Factors such as speed and a flexible, efficient production process are key to our ability to satisfy the varying needs of our customers.”

Success factors for an efficient production process
In a radically changing market environment, controlling the relevant machine parameters for a range that, depending on the product, demands a change in production or a special production process is challenging. Success under these conditions not only requires experienced employees but the right technical equipment. With the net weight control system from METTLER TOLEDO Maestrani succeeded to gain transparency over the filling and portioning lines.

First class net weight and filling process control
Maestrani decided to implement three weighing stations, including of one precision balance connected via Ethernet to a central PC in the quality laboratory. Individual chocolate bars, pralines or entire molds filled with chocolate are weighed at the weighing stations. The weighing results allow line managers to intervene in the machine parameters directly on site, and avoid possible over or underfilling.

All the weight data is imported into the central PC, where it is statistically evaluated, and documentation and reports are prepared based on the specific requirements of the Maestrani company.

Key benefits for Maestrani
Filling process control increased production reliability and quality. The permanent filling level information, clean documentation and statistical evaluations support the planning and preparation of the reports required by the quality management process. Ladina Badrutt: “Thanks to the seamless control with METTLER TOLEDO’s Freeweigh System, we’ve never had a problem meeting legal requirements in filling process control. Reduction of overfilling also made a big improvement to profitability.”

www.maestrani.ch
If you weigh 100% of your products you get 100% reliability

Even a few years ago weighing of the bags of products was done at random. One of the packing machine operators duties was to weigh manually ten subsequent packages from the production line. It had to be done between ten and twenty times an hour. That kind of work organisation obligated the workers to keep moving from place to place and decreased their efficiency in a significant way.

Kujawskie Zakłady Koncentratów Spożywczych (Food Concentrates Plant of Kujawy) in Wloclawek, Poland - is already a historical name - but personnel and production profile remain the same. For a short time the factory was a workers’ company producing an inherited range of goods under the brand name Delecta. In 1996 the factory was bought by a Norwegian company Rieber Foods, which left Delecta brand for the Polish market.

Four years ago METTLER TOLEDO representatives came to this puddings, jel- lies, cakes and sauces factory, and offered to increase efficiency in production lines. As a trial, they installed two checkweighers, which met the technical requirements of the production process perfectly. Both the size and the speed of the bags conveyor were ideally fitted to the corresponding parameters of the packing machines.

The automatic weighing of 100% of the products increased the efficiency of work significantly and the workers of Delecta liked the new solutions so much, that today there are already 17 METTLER TOLEDO Garvens checkweighers in production lines there. The most important advantages of the scales for Delecta workers are: ease of use with clear touch screen, adjustable screen to an angle which is easiest to read, and ease of changing and cleaning the belt of the conveyor, which makes it compliant with hygienic requirements of HACCP.

The checkweighers - according to current regulations - are programmed to "pass" only bags with nominal or higher weight. The underweight bags are automatically ejected from the production line. Technologists try to avoid such situations, because it is not possible to regain 100% of the product and in addition the bag itself is lost.

All the checkweighers are linked to net weight software collecting and processing data from all measurements, according to the requirements of the legal regulation of e-symbol. This method of collecting data significantly simplifies the process of supervision, control of production and helps during audits and controls. Controls of this kind are performed not only in the warehouse and production lines, but also in wholesale companies and retail shops. The process of storing Delecta products does not change parameters declared by the producer, including their weight. That is why 100% reliability of the weight of the manufactured product is so important.

The equipment offered and installed meets the user requirements, fulfils high quality standards and is also compliant with Polish regulations, particularly the Measure Law and the Act of Packed Goods. The professional service - installation and activation of the equipment, training and service prepared to fulfill the user’s high requirements - completes the successful cooperation.

For METTLER TOLEDO the user’s satisfaction will allow them to continue the cooperation with Rieber Foods.

www.rieberson.com
Increased invoice values through correct backcharging

DFDS Transport Ltd, part of the DSV Group, is a global leader in road, air and sea freight solutions and provides its customers with flexible and cost effective transit solutions for individual consignments.

DFDS Transport has been part of the DSV Group - Denmark’s largest and leading supplier of transport and logistics and environmental services - since 2001 and has developed into a business with a turnover of over 4 billion Euros employing in excess of 10,000 people. The site in Purfleet, Essex required equipment to accurately and reliably capture weight and dimension data of palletised products and wanted to replace its manual measuring methods (tape measure and clipboard) with an automatic system. In addition the company needed to upgrade its IT system to uplift data capture to amend invoicing information.

After meeting with METTLER TOLEDO to discuss the latest technology available as well as participating in extensive trials and equipment evaluation, DFDS Transport decided on the new Palletchecker as it met the specified mechanical, electrical, operational and data transfer criteria. The new unit has been installed in the warehouse where pallets are removed from incoming vehicles and labelled then transferred to the Palletchecker. The pallet is then moved to the infeed conveyor where the barcode label is scanned before weight and dimension data is captured. Finally the pallet is taken from the outfeed conveyor to the destination docking station for forwarding.

The Palletchecker is the first approved weighing, dimensioning and identification system designed to meet the required Trading Standards weight and volume approvals. It provides pallet weight, volume and barcode data at a glance and with pallet feeding and off load from three directions it increases pallet flow in the warehouse - vastly improving processes. The system saves data on to an integral hard disk - eliminating the risk of lost data - and provides a continuous parcel log of the last nine items.

The new equipment has provided DFDS Transport with reliable, accurate and dependable weight, dimension and identification data of all its palletised goods. This data has allowed the company to improve its invoicing processes, increase revenue and recover lost revenue from inaccurate customer weight data. It has also increased invoice values through correctly backcharging other DFDS Transport partnership companies around Europe. The revenue issue aside this solution naturally also enhances security on the roads as it ensures that accurate weight information follows the shipments loaded onto trucks.

This is the first UK installation of a pallet system for automated data capture of weight, dimension and pallet identity and is the first product to embrace current data capture technology for DFDS Transport in UK.

wwwdfdstransport.com

It is a common mistake to wait until something breaks down before you fix it, and this is often the situation in industry. Time and perceived expense are the most common factors, but in the long run it can save time and costs to prevent rather than cure. Maintenance managers have to juggle resources to deal with emergency repairs and find it difficult to implement a preventative maintenance (PM) programme. However, if an effective PM programme is implemented emergencies will be limited.

Many companies perceive a PM programme to be sold from the top down, and often management impose a cost/benefit analysis. However, the benefits of implementing a system are clear - not only the physical costs of equipment repair but also the costs involved in production downtime and bad batch production. If broken equipment, such as a load cell, is detected and production is shut down expenses will arise. Detailed investigations are necessary to check the quality of all former batches produced and several questions need to be answered:

• When did the breakdown occur?
• What are the effects on product quality?
• How many batches were affected?
• And why?

And for those conforming to GMP a deviation/investigation report is required and the batches produced will not be released.

On the positive side - the breakdown has been detected but it could become even more costly. If the equipment breakdown has not been detected incomplete reactions or impurities may cause bad yield and poor quality and the batch will not be released. If the breakdown goes as far as the product to be sold by weight, manufacturers could lose money by supplying too much or if the weight is less than it should be liable action can be taken against the manufacturer resulting in loss of image and reputation. The example below is based on the rework/disposal of a 500kg batch of API product because of weighing errors:
Predictive/Preventative Maintenance

The costs vary from product to product and the quantities produced but it is clear that the cost of preventing such errors will be a small proportion compared with dealing with an emergency breakdown. Predictive maintenance is the comparison of measured physical parameters against known engineering limits for the purpose of detecting, analysing and correcting problems before failures occur. It is necessary to measure a physical parameter such as pressure, resistance, vibration, voltage or temperature in order to adopt a predictive approach to detect problems through routine monitoring.

Re-work of batch
Material costs 33,000 approx
Cleaning of vessel 26,500 approx
Total Cost 59,500 approx
(Without any opportunity costs e.g. for breakdown, etc.)

Dispose of batch
Material costs 993,000 approx
Cleaning of vessel 26,500 approx
Disposal of waste 13,000 approx
Total Cost 1,032,500 approx

Planning of maintenance and calibration
It is important when implementing preventative procedures to plan your maintenance based on a defined time period and number of weighings. Operators should be aware of these procedures and equipment is now available that can notify operators of actions including calibration checks through email alert, indicator display, alert to mobile phone or even disablement of the scale. And events such as calibration, alarms, errors etc for quick diagnostics and recovery should be logged. This is easy and accurate with weighing terminals that automate these processes. Internal calibration management defines the calibration procedure, controls equipment calibration and monitors and reports to the operator when equipment fails.

Condition monitoring
Condition monitoring depends on the equipment in question - from measuring voltage, current and strain through to drift, overloads, impacts and errors for weighing equipment. Again it is important that the weighing equipment can detect these changes in condition and alert the operator through his chosen method. Every item in the production process plays a vital part and at any point failure of equipment will result in financial losses. New developments in intelligent weighing terminals play a vital part in predictive maintenance programmes. The JagXtreme terminal from METTLER TOLEDO has many of the features mentioned, but also offers predictive failure management. While it is important operators are alerted to breakdowns, the management of failure can save a company - financially and reputation.

The example below shows the right equipment can recognise fault but also recover from loss of batch production.

- Reviews monitor logs to identify load cell failures or out-of-tolerance operation
- Engages Run Flat
- Estimation algorithm to accommodate load cell failure or out-of-tolerance condition
- Operator notification of equipment maintenance (Indicator display, mail alert on PC, alert on mobile phone, scale disabled)

Where is the centre of gravity?
The Centre of Gravity (CoG) has to be measured after installation to enable the JagXtreme to determine the symmetry:
- RAAD Box converts analog load cell signals into digital signals
- JagXtreme receives weight values from individual load cells through a RAAD Box and determines CoG

In case of a failed load cell, JagXtreme alerts either by:
- Alerting on the display
- Disabling the scale and alert
- Emailing the alert message

Don’t stop your processes - use Run Flat Estimation:
- JagXtreme ignores the faulty load cell and recalculates its value dependent on the CoG.
- A damaged load cell is virtually replaced by the remaining load cells
- Started batch can be finished
- Alert message tells maintenance to call METTLER TOLEDO’s service department to replace the faulty load cell
- Installation can be used until the service technician is on site to repair it
- No down time!

With predictive maintenance
- Schedule and track equipments own maintenance
- Predicts failures before they occur
- Performs fault recognition and recovery - Run Flat Estimation and Symmetry Check
- Alert individuals of potential failures or maintenance needs by email

Advantages for the manufacturer
- Prevents losing money through bad mixture with heavily expensive ingredients
- Don’t need to re-work or dispose of a bad batch as special waste
- Keep production upright and reduce downtime almost to zero maintenance hours
- Prevents charging too much or too less

www.mt.com
Government agencies make heavy demands, which also apply to balances
In many processes, manufacturing and developing food without using balances has become inconceivable. Balances can be found in the laboratory, the production plant and in logistics. For most applications, they must be certified to be recognised by the control authorities. Their results are integrated into a vast array of processes - nowadays often online, directly into the host systems.

There are scores of regulations to be followed in the production and marketing of foods. New laws, such as EU Directive 178/2002 on food safety, demand that all companies in the food industry design transparent production and distribution channels for their products.

Filling process control system made to measure
No matter how the products are packaged, their weight must be precisely determined and recorded. Products are subject to worldwide guidelines that, for the protection of the consumer, define how they are to be declared and which tolerances are allowed. In this connection, overfilling might be seen as one solution to the problem of underfilling. It would be absurd from a business standpoint, however: Even with "eco-
nomical” products, the value of the additional quantity would add up quickly. This is why quality conscious producers use control systems that allow them to be informed about the filling process and intervene to make corrections, if necessary.

Today, networked computer systems with a central database are used for statistical quality control (SQC). Where a simpler and more economical solution is desired, such as in smaller filling operations, the compact systems from METTLER TOLEDO offer suitable capabilities. With large databases and a full range of functions, they quickly pay for themselves. The entire “SQC Intelligence” and statistical data are in the balance, and the recording and evaluating of the quality data is quite easy. This prevents the need for extensive training for employees.

The required minimum weight and the economically sound maximum quantity are stored in the system, so the easy-to-handle random sampling control can now be carried out at the weighing station. Depending on the version used, the results can go directly into the host system of quality control or printed reports can be requested manually. In each case, required machine settings can be immediately recognised and implemented, in order to continue filling within defined tolerances.

In addition to the certification of the balances, on-site calibration ensures higher security for measuring results. For any system there are numerous factors that influence measurement uncertainty. Knowledge of these factors provides valuable information on the quality and reliability of the results. Environmental conditions such as temperature fluctuations or whether the devices are used on the ground floor or the fourth floor affect their precision.

Standards for the entire supply chain – from producer to retailer

These particular conditions must be met before large chains make a producer their supplier. For example, the origin of the goods must be provable up to the raw materials suppliers, and the measuring results should be traceable and protected from manipulation. They require that the operational processes be certified according to a standard accepted by the GFSI (Global Food Safety Initiative). Audits require that manufacturers have quality control systems. These audits check the traceability chain, production and batch traceability, HACCP plans, as well as the reliability, precision and traceability of the measuring equipment. Companies that use balances and measuring devices by METTLER TOLEDO in their operation can face this procedure without worry.

People in charge of quality management in the food industry rely on competent partners who guarantee reliable customer service. Lost time due to non-functioning measuring devices cannot be allowed to happen. To ensure the maximum operating time for the equipment, METTLER TOLEDO offers its customers a network of specialists and service technicians. For globally operating companies, this team also crosses national boundaries to ensure professional service that safeguards the quality of the devices. The employees are highly trained and know the food industry guidelines. On-site technicians carefully service the balances and are there immediately if repairs are needed.

Summary

Companies that know and implement these requirements strengthen the trust of their trading partners and that of consumers. Well-functioning quality control systems can improve food safety and protect consumers. Working with certified partners not only builds trust but improves cost-efficiency in the entire supply chain.

www.mt.com
The flight hours completed and the route network of the airlines are only two of many factors that determine the capacity utilisation of an aircraft maintenance operation. Thanks to its commitment to uncompromising safety and quality, SR Technics, which was once the maintenance company for Swissair, was able to remain a successful company even after the long-established Swiss airline went bankrupt. Under new ownership, the company extended its operations over the English Channel in 2004, with 4,700 employees performing maintenance services for approximately 750 airplanes, 300 engines and 78,000 components in 2005 alone.

Every weighing change recorded
Because safety is a prime necessity in passenger aviation, there are strict regulations on airworthiness, among them those of the Swiss Federal Office of Civil Aviation (BAZL). There are also the manufacturer’s recommendations regarding the frequency and scope of maintenance. In addition to small “checks,” a plane like an Airbus A330 undergoes a “heavy maintenance visit” every 30,000 flight hours or after five to six years, during which the plane spends about four weeks in the hangar. Thomas Züst, Workload and Capacity Planning, explains: “The plane is partially disassembled: The cladding is removed, the bottoms come out... Most of the time, the plane is re-weighed after heavy maintenance, but also after an entertainment electronics system or an auxiliary tank is installed.”

Special solution in close cooperation with the customer
For weighing, SR Technics uses 18 special weighing platforms for a maximum load of 30 metric tonnes each. When procurement of spare parts became difficult after the original supplier went out of business, the production engineering department, which is responsible for providing tools, turned to METTLER TOLEDO. Hanspeter Wehrli: “For organisational and financial reasons, we wanted to retain the special aluminum frame, but install state-of-the-art electronics and weighing cells. Because we were already connected with METTLER TOLEDO Switzerland through a

Safe and Sound,
Thanks to the Weighing of Aircraft

With over 70 years’ experience, SR Technics Switzerland, headquartered in the Zurich-Kloten Airport, is the most important mainstay of the SR Technics Group, the worldwide leading independent supplier of services for aircraft, component and engine maintenance. SR Technics relies on weighing platforms equipped by METTLER TOLEDO with the latest technology for weighing the jumbo jets of its international airline customers.
long-standing partnership, we took this assignment to their engineering department. The cooperation was outstanding.”

To keep the operation going, the platforms were retrofitted in several phases. New double ended beam load cells and a completely new electronics system - based on standard components of the METTLER TOLEDO 4-series - were installed in the one-meter square frame. To simplify weighing, only the On/Off, zero-setting and taring functions are available to hangar personnel. Five-kilogram display increments are displayed at an internal resolution of one kilogramme. Newly installed storage batteries guarantee eight-hour operation independent of the network.

To monitor measurement accuracy, the platforms are calibrated once each year by the calibration laboratory of SR Technics using a press system with software specially developed by METTLER TOLEDO. The system itself is regularly inspected by the Swiss Federal Office for Metrology and Accreditation.

Hanspeter Wehrli is satisfied all round: “The retrofitted weighing platforms have proven highly successful in the maintenance of our Airbus and McDonnell-Douglas jetliners.” A total of ten platforms are used for one Airbus A330 - one under each wheel. The hangar mechanics position the platforms and test their functionality using a cornerload test before each measurement. All platforms underneath a wheel system are then connected with each other. The airplane is pulled over a ramp onto the platforms. The individual weight values and the total weight are determined and traceably documented each time as part of the quality management system.

The data is then stored in the airplane’s onboard computer, which determines the center of gravity and the starting weight - a maximum of 230 metric tonnes for the A330 - through the balances built into the wheel systems or based on manual entries by the pilots each time before the plane starts. So that air passengers and crew can enjoy their flight in comfort and safety.

www.srtechnics.com
People can disagree over the taste and quality of ready meals, but not when it comes to the products of one of Germany’s leading producers. To ensure the highest quality at all times, important product characteristics are continuously evaluated and monitored in the production process. The goal of the manufacturers was to combine test planning and quality documentation in one system, SAP’s Quality Management module. Since the recording of measurement data and control are not two of SAP’s strong points, the company acquired the ideal complement to the QM functionality of the SAP system with FreeWeigh.Net, an in-process control system from METTLER TOLEDO, and its fully developed measuring instrument control.

Paperless in-process control reduces work steps
Thanks to the data interface between the FreeWeigh.Net in-process control system and SAP, quality recording is completely paperless. When a process order is released in SAP, the various test plans for the product to be produced are automatically sent to the in-process control system. In the past, quality testing formulae would have to be printed and delivered to the production employees. Now the need for manually writing down the values from the measuring devices and making statistical calculations with a pocket calculator has been completely replaced by the newly launched system from METTLER TOLEDO. As paper is not highly regarded in food production anyway, the elimination of printed forms is a welcome improvement in the entire working process.

Statistical process control made easy
Three test stations are located in Production Unit 1, where the meat components are portioned, cooked and shock frozen. The production employee at the FreeWeigh.Net test station opens the test plan sent by SAP, and is immediately informed how often a sample must be recorded - for example, every twenty minutes. The weight value of the raw, cooked and frozen meatballs is accepted by the IND429 balance directly.

It was especially important to the project manager that the balance be easy to clean. This is why the new IP69K protected METTLER TOLEDO IND429 terminal with chromium steel housing was chosen. The FreeWeigh.Net test station software presents the employees at the portioning plant a clear mean curve of the weight values for the frozen product recorded in the freezer. The operator can intervene before the trend curve of the “frozen” weight drops too low and violates the Finished Packaging Ordinance.

Reduce raw material loss through overfilling
If the meat components are portioned significantly above the declared weight, raw
material is literally given away to consumers. It’s necessary to optimise this in a closed-loop system. In the event of excessive overfilling, the system automatically sends an alert in the form of an adjustment message. The operator can then adjust the portioning machine to minimise overfilling costs. In the background, FreeWeigh.Net calculates the optimal setting of the line based on statistical algorithms. The setting algorithm is derived from the distance between the mean value of the recorded weight values and the nominal value, as well as the mean variation of the process expressed in the standard deviation. Production employees no longer need to calculate statistical data by hand, as the FreeWeigh.Net SPC software handles it all.

**Evaluating smell, taste, colour**

In addition to weight values, the core temperature and the equalising temperature of the frozen meat components, the operator also evaluates product characteristics such as smell, taste and colour with a grade of 1-6, and enters it in the system. For breaded meat, the percentage of breadcrumb crust in relation to the meat is also determined.

**Laws completely under control**

The complete meals are produced in production unit 3. On each line, dynamic control balances (checkweighers) by METTLER TOLEDO Garvens check the completeness of the menus against the total weight, and ensure for the manufacturers that the declared filling quantity always complies with the Finished Packaging Ordinance. Metal detector systems are an essential component in ensuring product safety and the implementation of HACCP (Hazard Analysis and Critical Control Point) concepts. In these matters, too, German manufacturers of ready meals have relied on the products and advice of METTLER TOLEDO for years.

**SAP measures temperature and weight – with FreeWeigh.Net**

Using two different systems to manage the test plans for microbiological tests in the quality laboratory and the test plans for quality control on the production line was not what the project team had in mind. Why manage test plans in two or more different systems when both can be managed in one application? The objective was a centralised, multi-process test planning system within SAP’s Quality Management module, and this was implemented with the project team from METTLER TOLEDO.

This solution greatly simplifies and standardises quality control tasks, and markedly improves the transparency of the entire production process. The system was made possible through a bidirectional data interface between the application software FreeWeigh.Net and SAP’s QM module. Complete test plans are sent from SAP to FreeWeigh.Net via standard QM-IDI interface. The test plan can contain both qualitative and quantitative test characteristics. These are directly allocated to the test stations that have the required measuring instruments. When the production order closes, a summary of the results of the quality test is sent back to SAP.

As a result, the median value, the mean variation of the measurement values, the minimum and maximum values, the number of recorded measurement values, and the number of tolerance violators for all quality-relevant product characteristics are available in SAP and can be accessed at any time for additional evaluations.

METTLER TOLEDO’s FreeWeigh.Net system software, the METTLER TOLEDO measuring instruments, and SAP are clearly the ideal combination for recording, evaluating and managing measurement data and efficient quality processes. Together, they form a uniform system in which each component brings its strengths fully into play.
A look back to the future
Low-profile scales meet customer needs with maximum flexibility

A floor scale with low overall height and without pit mounting for easy loading and unloading was a hot topic as early as 20 years ago, and is even more important today. The advantage of a traversable scale lies in its top-of-floor installation, which makes an expensive pit model with its potential sources of contamination unnecessary. In the chemical, pharmaceutical and food industries - the main fields of application for low-profile scales - extremely high demands are made on the products.

The low-profile scales developed twenty years ago, which were based on electromagnetic force compensation and controlled by a lever system, could not be driven on. New ideas and technologies were demanded, because industry was waiting for a traversable scale that could be optimally integrated into the weighing system of production plants. This leap was made with the help of DMS technology. Four measuring cells and a direct force transmission offered new opportunities: a rugged traversable scale with an overall height of only 35mm. Advancement of this technology currently allows resolutions in ranges that used to be reserved for force compensation.

METTLER TOLEDO offers DMS low-profile scales with a standard resolution of 1x3000 calibration divisions. Optionally, the scales can be expanded to 2x3000e multi-interval, 3x3000e multi-interval, and even 1x6000e single-range. This option ensures the most precise measuring data over the entire weight scale.

For the manufacture of products in clean rooms or in areas with strict hygienic requirements, the material of the scale base plays a decisive role. The painted surface of the first low-profile scale in 1985 turned out to be unsuitable for these conditions. Mechanical influences can loosen paint particles, which can contaminate the products being weighed. If the protective layer is damaged, the material at this location tends to corrode more easily.

Hygienically sensitive areas call for ease of cleaning and handling, since dirt particles and bacterial infestations can have a direct effect on the chemical products or food. In these areas, manufacturers are subject to guidelines such as the GMP (Good Manufacturing Practice) of the chemicals and pharmaceuticals industry, and the engineering guidelines for hygienic design by the EHEDG Group in the food industry. The new METTLER TOLEDO product generation meets all of these standards: It’s made of rust- and acid-proof stainless steel with a buffed surface that can be further refined. Matching accessories such as plug-in approach ramps and a lift system - for optimal cleaning - round out the range.

METTLER TOLEDO’s new generation of low-profile scales is a multi-talented offering for use in a broad range of industries. These scales can also be used in wet or even hazardous areas. Options such as dimensions, material, resolution, surface quality, analogue/digital interface and connection cables of various lengths make the PUA57 low-profile scales with DMS technology one of the leading products in the area of weighing technology.

METTLER TOLEDO sees itself as a partner in more than just matters of hardware and weighing technology. Increasingly, the emphasis is on connectivity, or the integration of the measuring results into the host system. Our weighing terminals currently have numerous expansion capabilities, but a team of IT specialists, the engineering solution team of METTLER TOLEDO, takes connectivity a step farther. Working with users, the team develops individual solutions for the transfer of weighing data to internal company systems like SAP and others.

www.mt.com