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**Weighing in the Chemical  
& Pharmaceutical Industry**

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Hazardous Area Approved

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cGMP Compliant

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Accurate Batches

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Qualified Equipment

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Fast & Precise Material Transfer

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In Charge of Measurement  
Uncertainty

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Increased Uptime

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Sanitary Compliant

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Globally Serviced

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**Synthesize your vision –  
we help you manufacture it**

**METTLER TOLEDO**



# Productivity, Quality, Compliance, Safety... Only buzz words?

No! In everyday business, these are key factors that define your success in the market. A success to which your suppliers can contribute a lot – but only if they fully understand what your needs and worries are.

At METTLER TOLEDO, we help assure, that your product quality equals or exceeds your specifications, that your processes and procedures are compliant with various regulations such as ISO or cGMP, that your production environment is safe and meets hazardous area regulations like ATEX, NEC, CSA, etc., and that your productivity increases thanks to optimized information flow resulting from intelligent weighing systems with 100% uptime.

Other companies simply sell scales – METTLER TOLEDO delivers weighing systems that integrate Productivity, Quality, Compliance and Safety into complete solutions.

## Quality



„I have to produce more, better and faster with less people. Now, this becomes even more difficult and painful when bad batches generate additional time consuming activities in reworking, reprocessing and documentation.“

**Plant Manager**



## Productivity



„We have to keep production running by reducing downtime and production loss. I need equipment that has good connectivity, is reliable, and comes with full qualification service from our supplier.“

**Plant Engineer**





„I have to ensure that our company runs only successful audits and avoids damaging regulatory warning letters, customer complaints, or not to mention product recalls.“

**Quality & Compliance Manager**

## Compliance



„Price and quality competition between our sites is tough. The decision whether to spend more money on safety and quality issues versus cutting costs sometimes keeps me from sleeping.“

**Site Manager**

## Safety



„Breakdowns, uncontrolled reactions, slow batch cycles and bad production efficiency are my main concerns.“

**Plant Operator**





# Productivity



**Plant Engineer**

„Because we have various different PLC and DCS in our MPU, connecting sensors and instruments can sometimes be a difficult task. With METTLER TOLEDO as our preferred supplier it is easy to make weighing measurements available all throughout the plant.“

## Full Connectivity & Optimized Information Flow

Our sensors and instruments are professional communicators. METTLER TOLEDO supplies you with various data communication interfaces, that allow you to communicate with your PLCs, MES or ERP systems. Make use of:

- Analog (0-10VDC, 4-20mA)
- Serial (RS232/422/485/CL)
- Fiber Optic Data Transmission
- Fieldbusses like Profibus® DP, Modbus+, Allen-Bradley RIO, ControlNet & DeviceNet
- Ethernet TCP/IP & Ethernet/IP

## Optimize your Batch with Blending and Filling Control Operations

For manufacturing facilities that use batch, blending or filling control systems, Q.i can add to your success. Q.i is an innovative Material Feed Measurement & Cut-Off Control System of METTLER TOLEDO. Comprised of hardware, advanced process control technology, internet-enabled software, and collaborative services, Q.i:

- Increases material transfer speed and control
- Reduces manufacturing waste
- Improves manufacturing capacity and quality
- Measures and sustains performance and improvement
- Reduces engineering costs
- Features embedded web server, local & remote setup
- Predictive/preventive diagnostics
- Data gathering for statistical and operational information



**Site Manager**

„Historically we had to make a trade-off between speed and accuracy – now with the Q.i system of METTLER TOLEDO we have increased both at the same time! We succeeded in reducing the batch cycle time to 50% while saving 10% of our material costs.“

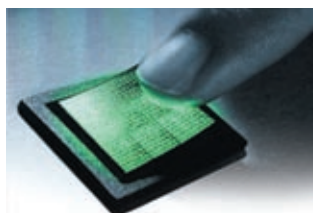


**Plant Operator**

„Since we installed TraxEMT we had no more downtime due to load cell failures. The ability of the instrument to tell me exactly when it needs attention makes me feel completely at ease.“

## Up to 100% Uptime with TraxEMT™ Predictive Maintenance

- Performs fault recognition and recovery of defective load cell and replaces it with a virtual equivalent
- Schedules and tracks its own maintenance & calibration
- Predicts failures and alerts of potential failures via e-mail
- Built-in diagnostics monitors and logs zero & span, alarms, errors, scale impacts & overloads





### Q.i. Predictive Adaptive Control

The PAC (Predictive Adaptive Control) algorithms build a real-time mathematical model of the material transfer process for each material. The algorithms then automatically learn and compensate (auto-tune) for process variations in each active material transfer. There they constantly update and predict the exact adjustment required to yield the most precise material cutoff for every material transfer for its connected measurement devices (scales and/or flow meters).

[www.manufacturingwithqi.com](http://www.manufacturingwithqi.com)

OverDrive™ vehicle scale management system efficiently tracks all inbound and outbound shipments in attended or unattended operation.

- Truck and rail scales up to 400t
- ATEX, NEC, and CSA compliance
- Low profile surface or pit mounting
- Instant cell failure notification
- Risk free digital design
- 5 Year warranty



### Easily Transfer and Collect Scale Data

MTConnections™ Complete is your complete solution for connectivity from METTLER TOLEDO weighing equipment to your PC. This versatile software is flexible enough to be used for applications as simple as gathering net weight data or as complex as aiding process control with METTLER TOLEDO terminals.

MTConnections™ provides drop-in software components compatible with Microsoft Excel, Access, Visual Basic, etc. Users can produce reports, charts and graphs, build databases, and more with the help of MTConnections™ Complete. Gather weight data for statistical control, record transactions, monitor the health of your scale and much more from any PC.



### Quality Manager

„Transferring sensor data directly to our statistical process control system allows us to print quality reports error free, unbiased, and GDP compliant.“



### Plant Manager

“We fill all of our tankers with flow meters. We installed a METTLER TOLEDO truck scale and can now accurately invoice for the exact amount we shipped. This saves us thousands of lost litres.“



### Cost recovery by vehicle weighing

Many METTLER TOLEDO customers realize immediate and significant revenue savings either by weighing vehicles initially loaded by volume or mass flow or by filling/discharging on a METTLER TOLEDO weighbridge. POWERCELL™ load cells insure that your business runs without interruptive service calls and lost production.



# Quality



**Plant Manager**

„METTLER TOLEDO offers the most accurate and precise scales on the market. Their great repeatability, linearity and corner load stability ensure a measurement that is always within our specified tolerances.“

## Highest Yield & Purity – Highest Accuracy where it Counts

In addition to the broad range of strain gage-based weighing products, METTLER TOLEDO offers the highest accuracy industrial weighing platform line available in the market.

The METTLER TOLEDO High-Precision line ranges from 15kg up to 6000kg and offers an approved certifiable resolution of up to 32000e. The high-performance digital measuring cell using the principle of electromagnetic force compensation, also sets new unmatched standards for linearity, repeatability and corner load stability. The High-Precision line is available in a wide variety of sizes and construction types, matching your requirements on ruggedness, easy-cleanability or hazardous area specifications.

## For reactions and filling processes where precision means quality



## Save Costs in your Filling and Packaging Processes

METTLER TOLEDO provides a comprehensive range of Quality Control products, which enable you to monitor and analyze the results of your production process. The SQC products range from embedded Compact solutions up to Networked systems with distributed test sites and centralized database.



Get your processes under control and complement them with standardized reporting functions for quality data from scales and balances, CheckWeighers, metal detectors and your own data acquisition equipment:

- Statistical control of filling and packaging process
- Graphical representation of process stability and quality data
- Considerable savings in production cost through filling optimization
- Savings with automated report generation
- Improved reporting for supervisors
- Legal compliance, ready for 21 CFR Part 11



**Quality Manager**

„Before we installed FreeWeigh.Net we lost 1g „only“ on every bottle of lubricants filled. In the sum, however, that totaled to 137000\$ per year. FreeWeigh.Net helped us save that money and in addition also helped us increase our throughput.“



**Plant Operator**

„FormWeigh offers me a failproof recipe control and documentation and it even tells me how to handle each reagent individually. And best of all, I do not have to enter the data into SAP anymore – FormWeigh does this for me automatically.“

**Optimal Formulation Control**

FormWeigh.Net from METTLER TOLEDO combines powerful formulation software with reliable weighing technology, making it a byword for optimal process control. Not only does it help you meet your regulatory requirements, but also saves you costs by eliminating wrong recipes and batch reworks. Furthermore, it efficiently assists operators in their daily work.



FormWeigh.Net is proof that positive work can be done both fast and reliably! From a simple stand-alone weighing station to a customized ERP-integrated complete solution, FormWeigh.Net offers:

- Flexible and easy production control
- Documentation of all recipe-relevant processes
- Optimal support for reproducible quality
- Recording and verification of batch information
- Greatest possible process security
- Ready for 21 CFR Part 11



**TraxDSP™ – Supreme Noise and Vibration Rejection**

Embedded in our weighing indicators, TraxDSP™ is synonym for super-fast, multi-stage digital filtering that can be configured to provide maximum of process integration – where speed and accuracy counts.

TraxDSP™ updates weight signals at a rate > 300Hz and allows filtering of data through multi-stage digital filters to remove noise. For example, adjust the low-pass filter to match your cutoff corner frequency, set a notch filter to eliminate any noise in a predefined bandwidth, and set a stability filter for settled weight data. Thanks to this true digital signal processing, you will measure all-time reliable and accurate weights:

- While you're mixing, agitating or simply during your process where dynamic and accurate weighing is a must
- In spite of nearby machinery, which generates noise and vibrations
- In unstable environments



**Plant Engineer**

„Of course, we have a lot of vibrations and noise in our plant – but TraxDSP handles that easily. With these sophisticated filtering techniques that process equipment from METTLER TOLEDO offer, I get a stable reading and measurement as if I worked in a fully isolated noise-free clean room.“



# Compliance



**Plant Engineer**

„I only tell METTLER TOLEDO what I need and they provide all the rest: The right equipment for the right application, competent installation, and prove that the scale works exactly as we need it. And then they make sure it stays that way.“

Their EQ documents are well structured and easy to work with. And the best is, they ensure me trouble-free audits.“

## Equipment Qualification: Trust your Measurements

In addition to being compliant with federal regulations, equipment qualification (EQ) defines, proves, and ensures accuracy, reliability, and consistency of your processes. Of course, everybody can install a scale and start measuring – but is the reading you get really the value you trust ?

METTLER TOLEDO offers you the most reliable, cost-effective and proficient qualification services available. It is not only easier than doing it yourself or bringing in a third party, it is also tailored to the User Requirement Specifications (URS) that YOU need, for the applications YOU perform, in the areas YOU run. This includes lower regulated industries as well, where we offer you a cost-effective installation and operation qualification service.

Save costs and trust your measurements: We are the weighing experts and our EQ documents are solely developed to make your life easier.



## MinWeigh

Working under a quality system, such as ISO, GMP, or GLP, requires you to know the accuracy of your measurements as well as their uncertainties. When weighing is quality relevant you define acceptance criteria you stick to. But how do you make sure that your measurements are always within these acceptance limits?

The relative measurement uncertainty increases exponentially with decreasing weight values. As a consequence, a lower weight limits exists for every weighing instrument, below which its measurement uncertainty becomes larger than the acceptance criteria of your weighing process.



METTLER TOLEDO MinWeigh® guarantees you weighments within your acceptance limits all the time. The quality principle of MinWeigh® includes:

- Determination of measurement uncertainty of the scale under your real environment conditions
- Calculation of MinWeigh in relation to your acceptance limits & documentation by MinWeigh certificates
- Actual monitoring of weighments and warning if weight is below MinWeigh (optional functionality)



**Plant Manager**

„Since we determined the measurement uncertainty and identified MinWeigh on all scales in our plant, we never had a OOS-batch anymore because of mis-weighments.“

Before that, more than once I observed operators weighing 1.0kg of catalyst on the 3000kg scale, because it felt more comfortable for them than using a smaller scale. However, the measurement error in those processes was huge.

Now with MinWeigh I have a scientific way to explain accuracy to the operators. Furthermore, the scales even warn the operators in case a weighing is below MinWeigh.

The implementation of MinWeigh was a tremendous step forward in our quality system.“

# ServiceXXL®

## Tailored Services

### ServiceXXL

METTLER TOLEDO offers a world-wide integrated service concept, from maintenance and support, to calibration, measurement uncertainty & MinWeigh determination, and qualification, up to validation support. Our ServiceXXL solutions provide cost effective services to ensure optimized equipment uptime, traceability of results, and full regulatory compliance.

### 21 CFR Part 11 – Everything from Audit Trail to E-signature

For getting paperless in production and for documenting and archiving batch records electronically, compliance to FDA's 21 CFR Part 11 is a must. The in-process control solution



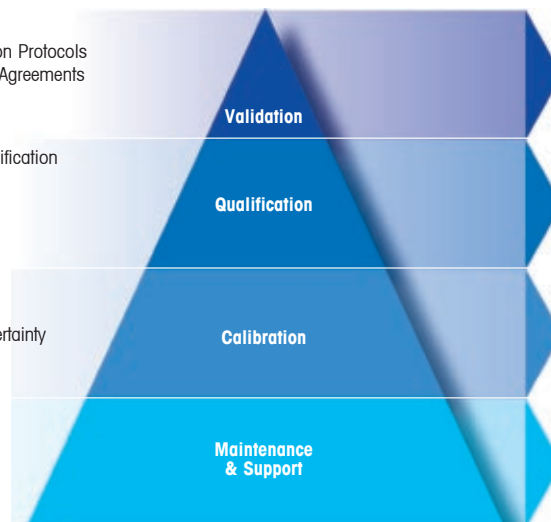
FreeWeigh.Net and the dispensing solution FormWeigh.Net offer the functions required for achiev-

ing compliance, such as:

- Audit trail – traceability of all changes
- Electronic Signature
- Advanced password management
- Secure system access

### ServiceXXL Solution

- Expert validation support
- Manufacturer developed Validation Protocols
- Software Update & Maintenance Agreements
- Industry specific Equipment Qualification Packages
- Equipment re-qualification
- Factory trained and authorized technicians
- Calibration Report ISO 17025
- Calibration Certificate ISO 9000
- Certification of measurement uncertainty and MinWeigh
- Service Agreements
- Installation & Repair
- Customer Training & Seminars
- Application & Technical Support
- Service Center



### Customer Value

- Validated Methods ensure 21 CFRPart 11 Conformity
- Monitored user management
- Safe data management
- Conformity with industry specific standards
- Avoidance of FDA warning letters and fines
- Limited start up costs
- Accuracy, reliability and traceability of measuring results
- Known measurement uncertainty
- Calculated minimum weight and activated MinWeigh warning function
- Control of unexpected expenses
- Optimized up-time & productivity
- Documented proof of user training
- Avoidance of contamination
- Service access from remote areas



# Safety



**Plant Operator**

„Having the same operating philosophy and touch & feel of the scales regardless of being in zone 1, zone 2 or the safe area, greatly facilitates our daily operation procedures.“

## No Risk – Full Safety

Explosive areas need special consideration, but performance should not be compromised. That’s why METTLER TOLEDO has built the most extensive range of hazardous area (Ex) products available, ranging from milligrams up to 2000 tons. Many of our products are globally certified for explosive environments ranging from Zone 1 or Class I-III, Div 1 up to Zone 22 / Div 2. The right certifications plus the right weighing equipment help assure that regulatory requirements such as NEC, CSA and ATEX are always met.



Below are three examples chosen from our portfolio of hazardous area weighing solutions – more can be found in our special brochure: “Hazardous Area Focus – Where Safety comes first”



## ID7sx. Intelligence and Precision, intrinsically safe

- For manual, semi-automatic or fully automatic filling
- 8 x discrete inputs, 8 x discrete outputs, 4 independent, freely definable setpoints
- Connect a wide variety of digital and analog bench, pallet, low profile and easy to clean floor scales
- Alibi memory module for storage of up to 890000 data sets for full traceability
- RS 232/CL in the hazardous area
- via CL, RS232, Ethernet, or Profibus DP in the safe area to your PLC, DCS, PC or ERP system
- Connect up to 3 high precision scales – digital and analog platforms from 3kg to 6000kg with approved resolutions up to 32000e and max resolution of 320000d
- IP65/66 protection grade, rugged keypad, big backlit LCD display
- ATEX Zone 1/21 approval, FM & CSA Class I-III, Division 1



**Plant Engineer**

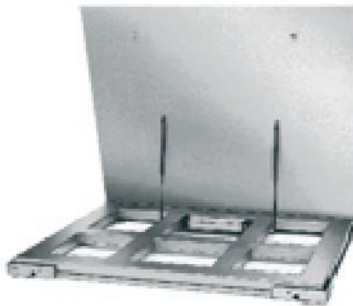
„METTLER TOLEDO has the widest selection of weighing equipment for hazardous areas in the market. Their range of certified equipment combined with their expertise in hazardous areas help us fulfill the new ATEX 137 requirements easily.“





### Ringmount Weigh Modules – where Accuracy and Sanitation are Vital

- All stainless steel construction
- Smooth design void of exposed threads, limited holes and cavities
- Ultra-low profile, 58.4 mm (2.3 in) up to 5000 kg
- Accuracy: 3000d and 6000d OIML version and 5000d NTEP version (depending upon capacity)
- Capacity range: 250 kg – 5000 kg
- ATEX Zone1/21 approval, FM & CSA Class I-III, Division 1



### Stainless Steel Floor Scales

- Floor, pit or pallet scales
- Easy to lift and easy to clean all stainless steel construction
- Ultra-low profile, from 35 mm
- Accuracy: 3000e and 6000e OIML version and 5000d NTEP version (depending upon capacity)
- Capacity range: 300 kg-6000 kg
- ATEX Zone1/21 approval, FM & CSA Class I-III, Division 1
- Products are: Vertex, D-Line, PTA459, PUA579, PFA579

### Sanitary Compliance at Ease

METTLER TOLEDO supplies weighing equipment such as floor scales, indicators, bench and portable scales designed specifically for maintaining sanitation in harsh and/or washdown areas:

- Easy cleanability due to lifting device & avoidance of dead spots
- GMP certified scales using best practice GMP pharma cleaning procedures
- Glass-bead surface preparation provides a finish that resists scratching and chemical staining
- Up to IP69K enclosure protection
- Full stainless steel construction
- Customer specific scales on demand
- Scales have been manufactured according to the recognised EHEDG guidelines



### Quality Manager

„We never have a chemical or microbiological cross-contamination, because the cleaning of our installed weighing equipment is efficient, easy and hassle-free.“

Why ? No dead spots, no particles, smooth surfaces, and the scales withstands heaviest washdown and steam jet cleaning.“



# METTLER TOLEDO Business Excellence



**Process Analytics.** We're a leading supplier of analytical measurement solutions for the control of liquid production processes. The business unit INGOLD specializes in the parameters pH, DO, conductivity, turbidity and CO<sub>2</sub>, providing high quality products including sensors, housings, transmitters, cleaning systems, and services. THORNTON, on the other hand, offers measuring solutions for conductivity/resistivity, TOC and other parameters, focusing for example on ultrapure water processes of the pharmaceutical industry.



**Lab Equipment.** Pace setting inventions such as the first electronic analytical balance, the fully automatic adjustment feature proFACT, the revolutionary level control, the world's first balance with touch-screen user interface and software for quality management requirements and internet communication all have but one objective: to provide you with amazing solutions for your workplace that constantly improve your work processes. For weighings to the nearest 0.0000001g and a resolution up to 50 Million points.



**Checkweighing.** GARVENS is one of the world's leading manufacturers of dynamic checkweighers. Checkweighers are fast and precise automatic weighers integrated in your production lines that are used for quality control and for monitoring & controlling filling processes. GARVENS checkweighers can achieve a throughput of up to 400 weighings per minute, with high accuracy and without product flow interruption.



**Metal Detection.** SAFELINE is the world leader in industrial metal detection. Whether your problem is increasing quality control and reducing customer complaints or solving a costly machinery breakdown – Whether your concern is demonstrating, due diligence, conforming to ISO9000 requirements, or satisfying the increasingly quality conscious demands of your customers – Safeline has the metal detection solution for every industrial application.



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Subject to technical changes.  
© Mettler-Toledo GmbH 05/05  
Printed in Switzerland  
MTSI44099532

This brochure has been printed on environmentally-friendly paper.