

Weigh-In-Motion



Vehicle Scales
Software
Service
Solutions

Your Total Solution
for Weigh-In-Motion

METTLER TOLEDO



Value-adding Solutions for Customers Worldwide

METTLER TOLEDO is a global manufacturer and marketer of precision instruments for professional use in laboratory, industrial and food retailing applications. The Company has strong worldwide leadership positions and continues to be the global leader in many key segments we serve. In addition to a broad product offering, we have one of the largest global sales and service organizations among precision instrument companies (approximately 5,300 or more than one-half of our employees provides sales and service in 35 countries). We design our instruments not only to gather valuable data but also to facilitate the processing and transfer of this data into customers' management information systems. We focus on the high value-added segments of our markets by

providing innovative instruments that often integrate various technologies including application-specific solutions for customers.

Here at METTLER TOLEDO, innovation and quality are the pillars upon which we build our solutions for customers. Innovation means traditional research and development, but it goes beyond technology to our way of life—answering your questions before they are asked. Quality means attaining our high standards, so you can meet yours. Our Company's culture center on these two pillars, and we are committed to ensuring this focus translates into real value for our customers.

Industrial Solutions



Our industrial instruments and software combine to meet manufacturing production and quality control needs. We offer weighing sensors, scale terminals and software to control automated manufacturing, and versatile instruments that dispense and formulate, fill and batch, weigh and count. For express carriers, in-motion weighing, dimensioning and identification solutions speed throughput and increase revenue.

Whether at the mine, over the road, or on the rail, commerce depends on METTLER TOLEDO vehicle scales to accurately determine the weights of the commodities and finished goods that are transported every day. METTLER TOLEDO manufactures a wide variety of truck scales designed to meet your specific use and performance requirements.

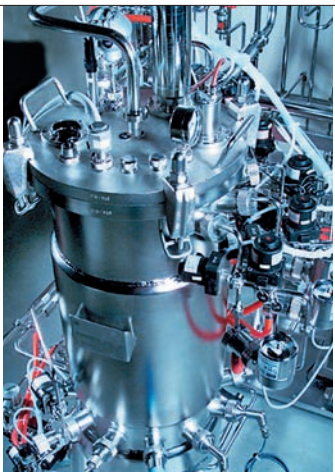


Process Analytics

Product Inspection

Retail Solutions

Laboratory Solutions



Our in-line instruments for measuring critical liquid parameters, such as pH and oxygen levels and water conductivity and resistivity, enable pharmaceutical, biotech and other process companies to continuously ensure product quality and meet regulatory standards.

Integrated packaging lines in food, beverage and pharmaceutical companies use our instruments for dynamic quality and quantity control. We ensure the quality of contents through metal detection and X-ray visioning, and we ensure the integrity of packages through checkweighing and automated combination weighers.

From food retailers' receiving docks to their checkout counters, we enhance efficient handling of fresh goods with weighing, packaging, pricing, wrapping and labeling solutions. Our software solutions enable retailers to optimally manage both fresh and nonperishable goods. Our Internet-enabled scale allows retailers to remotely manage prices, inventory, promotions and more.

Our laboratory instruments are the foundation of research labs all over the world. We are the market leader in balances, the most commonly used instrument in the lab. In addition, scientists turn to our analytical instruments, such as titrators and thermal analysis, when they need details on composition or properties of liquids or substances. Information generated by our instruments can be analyzed and managed in our application-specific software and interfaced with our customers' information systems.

Vehicle Applications

Proven Performance in Any Environment

METTLER TOLEDO protects your business by supplying you with accurate truck and rail scales designed to survive in any work environment. We invest in your future by building the most robust weighbridges and unmatched industry leading electronics designed for long service life.

No matter what your industry, we can provide a solution that gives you the peace of mind that your scale will be working properly for years to come. We understand that having complete control over your operation is crucial to maintain costs and uptime, speed throughput and create a safer environment. We can provide you with this control through the use of our industry leading vehicle scales, instrumentation and software.



Weigh-in-Motion Solutions

From the Worldwide Leaders in Weighing

The METTLER TOLEDO name represents more than 100 years of prestige and quality in the weighing and measurement industry. For vehicle weighing, METTLER TOLEDO has built its reputation on the design and manufacturing of truck scales, WIM scales, load cells, digital indicators, and total integrated solutions.

This unique capability ensures robustness, compatibility, functionality, and quality. As the World's largest manufacturer of weighing systems, METTLER TOLEDO has been offering vehicle weigh-in-motion solutions for over 25 years. Installed across North America and around the world, these systems have proven their operational reliability and accuracy in high-volume applications.



Whether in a fixed weighing facility, in a stand-alone virtual weigh station, or in a data collection installation, these systems combined with comprehensive METTLER TOLEDO project management and after-sales support, offer the reliability, accuracy, cost-effectiveness and ease-of-use for which METTLER TOLEDO weighing solutions have long been known.

METTLER TOLEDO has received two prestigious awards for our WIM systems. In June 2009, Intelligent Transportation System (ITS) presented METTLER TOLEDO in conjunction with the Florida Department of Transportation Office of Motor Carrier Compliance with the "Best New Innovative Products or Services" Award.

This highly competitive program recognizes the organizations whose projects have demonstrated specific and measurable outcomes and exemplified innovation by establishing a "new dimension" or performance. In February 2010, METTLER TOLEDO won the award for "Outstanding Technology Team" sponsored by TechColumbus Innovation Awards. TechColumbus recognizes and honor companies for their outstanding achievements in technology leadership and innovation.

"OUTSTANDING Technology Team"

2010, TechColumbus Innovation Awards

"BEST New Innovative Products or Services Award"

2009, The Best of ITS (Intelligent
Transportation System)

► www.mt.com/wim



Weigh-In-Motion Scale Systems

Keep Trucks Compliant and the Roads Safe

Across North America, Departments of Transportation are faced with unique challenges. One of those challenges is monitoring the weight of trucks travelling on roadways. Overweight trucks pose tremendous road repair costs, which can drain the local budget. Therefore, accurate and efficient truck weighing is not negotiable. The good news is that no challenge is too tough for METTLER TOLEDO's weigh-in-motion technology.

Weight Limits Protect The Road

In 1918, the state of Maine became the first to implement a weight law for trucks that travel the state's highway system.

Shortly thereafter, weight limits for trucks began to emerge around the United States—eventually leading to weight limits being made into law at the national level.

Weight limits were introduced due to the following issues:

- Heavy vehicles cannot stop as quickly, which poses a traffic hazard
- Bridges are designed to carry a certain amount of weight
- Heavy trucks wreak havoc on the roads and increase repair costs

For the trucking company, overweight trucks can lead to fines and extensive delays, and many local governments require overweight trucks to be off-loaded prior to returning to the road. Not only do axle and gross weights need to be compliant, but in the United States, a truck's compliance to the Federal Bridge Formula must be calculated.

In order to monitor the weight of the trucks, weigh stations were built along highways. For decades, static weighing was successfully used to monitor truck weight.

However, as more trucks hit the road, many static weigh stations cannot keep up with the volume. This allows numerous violators to bypass or continue along the highway without being checked for compliancy because weigh stations frequently close due to an excess of trucks. If a weigh station remains open, frequent truck backups are likely, which poses a safety risk to the general public.

Because older static weigh stations can only provide limited data and have no automated features, enforcement is limited and many violators are discovered only through visual identification.

As these problems worsened, Departments of Transportation began looking for a solution.

Fortunately for governing bodies, highways, truck companies and public, METTLER TOLEDO is able to provide a solution.

Innovative Weigh-in-Motion Technology

METTLER TOLEDO has pioneered a sophisticated technology called Weigh-In-Motion (WIM).

This groundbreaking system is a high-tech solution for high-volume, in-motion weighing and provides a more efficient and cost-effective alternative to antiquated static weigh stations.





A WIM system includes two staggered weighing sensors in the roadway. As a vehicle crosses these sensors, at speeds of up to 80 mph, the vehicle's speed, axle configuration and individual wheel, axle and gross weights, are measured, captured and recorded. The data is sent to a local computer or remote system for reporting, further data analysis, and/or integration with information from other peripheral devices.

Across North America, Departments of Transportation are incorporating METTLER TOLEDO's WIM scales into their weigh stations and witnessing firsthand how it transforms their old static weigh stations to modern wonders.

A WIM scale allows for the weighing of vehicles as they travel down the highway. Unlike older static weigh stations, WIM systems are capable of measuring at normal traffic speeds and do not require the trucks to stop, making them much more efficient.

METTLER TOLEDO's WIM scales can be integrated with Vehicle Dimension In Motion (VDIM), license plate readers (LPR), and cameras. This all-inclusive system is still able to check compliance (weight, dimensions, permits) at highway speeds.

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(Innovative Weigh-in-Motion Technology cont'd)

This revolutionary system can collect data such as weights (wheel, axle, axle groups, front and rear bridge, gross), axle spacing (axle-to-axle, bridge, overall front to rear), classification, speed, vehicle dimensions (LxWxH), and an overview image.

If there is a violation of weights, dimension, LPR database search, speed or just a random selection, the vehicle will automatically be directed to a static scale for further investigation and static weighing. Compliant trucks are immediately sent back to the highway with virtually no delay.

During the static weighing process, in-motion data is used to determine front and rear bridge thresholds and identify dimensional violators. If a vehicle does not exceed any static thresholds, the system automatically informs the driver to proceed back onto the highway. If any thresholds are surpassed, it alerts the operator audibly and visually, and allows the operator control of signs to instruct the vehicle positioned on the static scale to park, back up, pull forward or proceed for inspection.

By allowing only vehicles with a high likelihood of violation to be directed to the static scale for further investigation, a WIM weigh station significantly reduces traffic congestion and delays at the weigh station, creating a more efficient regulatory environment for the trucking companies.

Auto calibration of the WIM scale also occurs during the static weighing process. The auto calibration feature is unique and has been patented by METTLER TOLEDO. This auto calibration has eliminated the need to perform costly manual calibrations required by other manufacturers and METTLER TOLEDO's accuracy far exceeds all others including ASTM.

In addition, the WIM system also has the capability of providing planning data per United States Federal Highway Administration standards, information of traffic flow within each facility – including average delay time for vehicles directed to static scales – and daily counts for vehicles entering the facility, and daily counts for vehicles statically weighed.

The WIM system software can interface with Automated License Plate Readers (ALPR) that can sort by License Plate Read (LPR) database search, further benefiting enforcement activities.



Virtual Weigh-in-Motion Another Innovative Solution

Trucking companies try to avoid delays at all costs, especially when their trucks are overloaded. If your highways have accessible routes that allow commercial vehicles to exit and bypass a fixed weigh station, chances are the trucking companies using these routes are damaging your roadways.

METTLER TOLEDO's Virtual Weigh-in-Motion (VWIM) system was designed to help protect the interstate and local infrastructures. Consisting of WIM sensors that are installed in the travel lane along with an overview camera and a roadside cabinet housing a computer, the system checks for gross over weight, axle weights and bridge formulation violation as a vehicle passes over the sensors.

Information recorded by VWIM is bundled together as a vehicle record and can be immediately accessible by law enforcement personnel patrolling in the area via their laptop. The WIM data can also be used by the government for planning and data collection purposes.



Standard Features for Weigh-in-Motion

The METTLER TOLEDO WIM system has the ability to run unattended, without constant user control. Two important features only offered by METTLER TOLEDO that allow the system to operate unattended are Center of Gravity (COG) and Static Scale Auto Release.

The COG feature determines the location of all axles on the static scale and uses the WIM axle spacing so that weights can be checked based on number of axles per scale platform and Federal Bridge limits.

The Static Scale Auto Release feature automatically releases non-violators from the static scale, or alerts (audio and visual) the operator of violation. This allows the operator to focus on other activities, such as vehicle condition, tax registrations, and the driver. These two features along with METTLER TOLEDO's sophisticated options increase the overall efficiency of any weigh station.

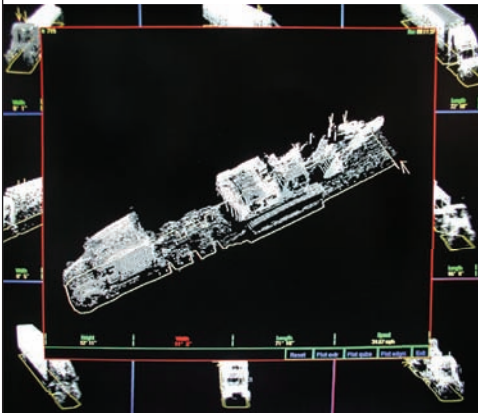


Variable Message Sign (VMS) used to automatically or manually direct driver (i.e. STOP, EXIT, PULL FORWARD, BACK UP, PARK)

Dimensioning In Motion

To enhance the WIM system and to further increase weigh station throughput, METTLER TOLEDO developed vehicle dimensioning in motion (VDIM). VDIM measures (L x W x H) vehicles in motion and integrates with the WIM system so over dimensioned vehicles are identified, sorted to the static scale and permits confirmed.

Permits are easily confirmed as the VDIM graphical user interface informs the operator of the highest, widest, and longest points of vehicle. VDIM becomes an important feature when trying to manage busy facilities by ensuring safety and protecting infrastructure as unchecked over-height vehicles could cause damage. In addition, wide loads not properly identified or routed could cause congestion, and VDIM eliminates manual time consuming checks.



Operator can rotate the scanned VDIM image to view all vehicles angles. Verification is simple as the image details the longest, highest, and widest points.

License Plate Reader Increases Safety

In addition to VDIM, the METTLER TOLEDO WIM system can also interface to Automated License Plate Reader (ALPR) and/or Automated USDOT reader systems; both operate with optical character recognition. The System identifies vehicles by license plate and/or USDOT number. When integrated with databases like CVIEW, this feature provides the WIM system with the ability to identify and sort vehicles based on database criteria.

When the LPR is combined with VDIM, over dimensional permits can be confirmed on the fly. Furthermore, a color daylight/black white at night overview camera can also be integrated with the WIM system to capture overview or side view images of the vehicle for more information.

By adding an LPR to a WIM scale, weigh station staff are able to highlight vehicle violations and process violators immediately. Furthermore, the ability to run license plate readers results in criminal databases assisting local law enforcement in the reduction and prevention of criminal activity.



LPR record showing IR images of plate and OCR text.

Our Services Deliver The METTLER TOLEDO Difference

We have built a reputation for unmatched quality in all service offerings. Our service support program is built on the foundation of responsiveness, convenience, experience and value.

When you need us, we are at your service to help you minimize downtime and lost productivity in your operations. With over 100 years in the weighing and measuring business and service professionals across North America, you are connected to the largest service network in the weighing and measurement industry.

Before your system is delivered, our in-house engineering staff tailors a support program to suit your specific needs. Our engineers work closely with your assigned METTLER TOLEDO project manager to ensure smooth installation and commissioning. Once the system is installed, our engineers, project manager, and service technicians are available to provide user training.

METTLER TOLEDO produces the highest quality weighing and measuring equipment – designed for years of dependable operation. However, to gain maximum benefit from your weighing system, it must be properly installed, calibrated, and maintained. METTLER TOLEDO provides an extensive range of services to help you preserve the value of your investment and meet the demands of your business:

- On-site project management to ensure smooth,
 - timely project launch
 - Expert installation, configuration, and start-up
 - User training for accurate, safe, effective operation
 - Seamless data acquisition and integration
 - Optimized uptime and equipment life
 - Compliance with regulations
 - Cost-effective maintenance
 -



Our job is not complete once the system is successfully installed and operational. A WIM Service Support Agreement is the next step to ensuring your system continues to perform for years to come. Flexible coverage tailored to your specific needs, this agreement includes preventative and corrective maintenance for your entire system (hardware and software) to enhance scale longevity and reduce station down-time.

METTLER TOLEDO Solution Consulting Services can provide you with the information and support that is required to help make smart business decisions – saving valuable time and ensuring that your investment is allocated in a way that can positively impact your region's weigh station operation. Because we constantly work on improving our products with new technology which delivers enhanced capabilities, our services also include upgrade options that will allow you to take advantage of the latest technology for in-motion weighing.

www.mt.com/wim

For more information

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VEH-0710-LIT



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