

Solid Waste

Industrial weighing and measurement



2 News

Trouble-free Weighing for Years to Come

Scales are the entry points to most solid waste facilities. Because we realize how important scales are to your operation, we do everything we can to keep traffic moving over them.

We start by building quality products. Our innovative designs, thorough testing, and advanced manufacturing processes deliver products that you can rely on. METTLER TOLEDO scales are built to stand up to the real-world demands of heavy-capacity weighing.

We also offer complete weighing solutions that enable your scales to do more. Those solutions include Over-Drive™ data management software, unattended driver terminals, and peripheral equipment such as traffic lights, loops, and barriers. Whether your facility requires simple inbound/

outbound weighing or complex data management, we can supply everything needed to make your operation simpler and faster.

To ensure that your scale continues to weigh accurately, we offer service programs that include everything from preventive maintenance to emergency repairs. We can tailor a service program to meet the specific needs of your facility. Our quality products, weighing solutions, and dependable service add up to trouble-free weighing for years to come.



METTLER TOLEDO

Vehicle Scales Designed for Reliable Operation

With thousands of vehicle scale installations, METTLER TOLEDO has demonstrated a commitment to quality that you can count on.

Whether materials are transported by truck or rail, accurate weighing is important to the success of your facility. It helps prevent lost income due to incorrect weights and fines for overloading. But reliability is equally important. A vehicle scale should be reliable enough to keep operating over a long service life with minimal downtime and maintenance costs.

To evaluate a vehicle scale's reliability, look closely at two components: weighbridges and load cells.

Weighbridges

METTLER TOLEDO offers a selection of weighbridge designs for applications ranging from general commercial use to the heaviest industrial weighing. Each truck scale design is tested thoroughly to ensure that it can handle the real-world demands of heavy-capacity weighing. We place an actual scale module on our "module masher" accelerated-life-cycle test

stand and apply the equivalent of 20 years of truck traffic at the rated capacity. That testing enables us to deliver scales with proven performance and durability.

We supply a variety of vehicle scales to meet special requirements:

- Steel and concrete decks
- Above-ground and pit scales
- Multiple-platform scales
- Portable truck scales

Load Cells

Our POWERCELL® MTX® load cells are precision instruments that are durable enough to meet the demands of heavy-capacity weighing in all environments. The electronic components are housed in a hermetically sealed, stainless steel canister that protects against moisture and corrosion. An integral rocker column automatically aligns the load cell for the best weighing accuracy.

With more than 500,000 in service worldwide, our POWERCELL load cells deliver the ultimate in vehicle scale reliability:

- Designed to operate in all climates
- Self-diagnostic – instant error notification
- Virtually eliminates unplanned service costs



POWERCELL MTX Load Cell

METTLER TOLEDO has the products and the know-how to supply a complete weighing solution that meets your needs. Our quality products ensure that you get the most for your investment.



Our weighbridges are designed to handle the real-world demands of heavy-capacity weighing.

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Weighing Vehicles without a Scale Operator

Truck drivers can complete their own weighing transactions in seconds with an unattended scale terminal. Equipping a scale with one of these terminals makes it possible to weigh trucks at any time without having a scale operator on duty.

The terminals are ideal for scales in remote locations, scales that operate 24/7, and facilities with multiple scales. They can be set up to work in conjunction with traffic lights, gates, and other peripheral equipment to manage traffic flow.

Increased Efficiency

Unattended weighing can make an operation more efficient:

- It eliminates the need for a scale house and operator.
- It weighs trucks quickly to keep traffic moving.
- It allows efficient 24/7 operation.
- It lets drivers get tickets without leaving their trucks.
- It can control gates to restrict access to a facility.

Rugged Design

METTLER TOLEDO unattended scale terminals have rugged stainless steel enclosures that are designed for use in the harshest environments. They provide protection against rain, snow, dust, and tampering. An optional heater can be installed to keep printers and other internal components working in freezing temperatures. An optional fan provides active cooling in hot environments.

Completing a weighing transaction can be as easy as using a magnetic or proximity card to identify a truck. You can program scale software to link the card to all the information that is needed for a transaction. In other cases, you might want to require drivers to enter additional information.

Software Options

The software used to run the terminal can be customized to meet your facility's needs. For basic applications, terminals can be preloaded with VSU inbound/outbound vehicle weighing software. For more advanced applications, we offer OverDrive™ vehicle scale software. This fully configurable software provides complete control of weighing operations with extensive data management capabilities.

If you require a system that is flexible enough to handle both attended and unattended weighing, we can connect a terminal to a JAGXTREME® operator interface. That makes it possible to process transactions from a scale house or at the terminal, depending on the volume of traffic or the time of day.



Unattended driver terminals keep traffic moving over scales by allowing drivers to process their own transactions in seconds.

Communication

Unattended scale terminals can be equipped with a variety of systems for entering data and communicating:

- Card or badge reader
- QWERTY keyboard
- Voice intercom
- Ticket printer
- SmartPass® truck tag ID system
- Wireless communication with nearby building



Reliable Weighing Systems for Solid Waste Facilities

METTLER TOLEDO scales and service ensure efficient operation for Republic Services waste facilities in the Las Vegas area.

The Republic Services Apex Landfill handles a mountain of waste. This 2,200-acre facility has been serving Clark County, Nevada, since 1992. As the Las Vegas area has grown, the facility has seen a significant increase in the amount of waste it receives.

Each day, 500-600 trucks deliver 15,000-17,000 tons of waste to the facility. There is also an on-site aggregates company that processes crushed stone as it is excavated to create new cells for the landfill. That brings in another 500-600 trucks per day to carry the construction material to market. All told, there are as many as 2,400 weighments per day.

METTLER TOLEDO has handled Republic's weighing needs every step of the way. The landfill started with two steel-deck truck scales. As the operation grew, it added four more scales,

including two new concrete-deck scales, each measuring 110 feet by 11 feet. To provide accurate weight data via Ethernet to its data management systems, Republic upgraded all scales with JAGXTREME terminals.

Adding the new scales has made the operation more efficient by reducing the tare-in and weigh-out times. Republic is very happy with METTLER TOLEDO. According to Marvin Botwinik, the facility's controller, "They have a great product and exceptional service."

METTLER TOLEDO has also supplied truck scales for Republic's Cheyenne and Henderson Transfer Stations in the Las Vegas area. Cheyenne Transfer Station, managed by Joe Knoblock (general manager) and Armando Teijeiro (facility manager), has been in operation since 1982. It handles 6,000

tons per day, requiring 350 trucks to make two trips each day. Henderson Transfer Station, managed by Calvin Francis (general manager) and Mike Chandler (facility manager), has been in operation since 2000 with 100 trucks passing through twice per day.



The scales at the Apex Landfill handle inbound and outbound weighing for as many as 1,200 trucks per day.

Both facilities use steel-deck truck scales to weigh inbound traffic. Outbound traffic passes through tunnels to receive waste for shipment to other facilities. Each "tunnel scale" consists of two separate modules, which are spaced for the front and rear truck axles.

Republic's satisfaction has led to a comprehensive service agreement with METTLER TOLEDO for handling service and maintenance at all Republic facilities in the Las Vegas area.



The Henderson Transfer Station uses model 7562 truck scales for inbound weighing.

Vehicle Scale Testing Provides Proven Performance

Are you confident that your new truck scale will last for its expected service life? At METTLER TOLEDO, we use the most extensive testing program in the industry to give you that confidence.

We start testing our truck scale modules during the design stage, using computer calculations and finite element analysis to evaluate the designs. But we do more than just theoretical calculation. Our engineering and manufacturing facility in Columbus, Ohio, uses a custom-designed test stand that we call the module masher to verify that our scales meet the real-world demands of vehicle weighing.

Module Masher

The module masher is an accelerated-life-cycle test stand for truck scale modules. It can simulate 20 years of weighing within a few months, providing reliable test data quickly. The module masher has four hydraulically operated feet, which apply forces

up to 120,000 pounds. Attached to the bottom of each foot are two rubber pads spaced 8 inches apart.

For a typical test, the feet are positioned to simulate the load applied by a dual tandem axle (two truck axles spaced 4 feet apart). To reproduce the conditions of an actual installation, the module is supported only at the four points where it would normally rest on load cells. The module masher's feet are then set to apply a force equal to the scale's dual-tandem-axle rating.

Test Procedures

Stage one is stress testing. We attach strain gages to the module at key locations on the deck, end plates, and underside. Then with the load applied to the module, we take readings from each strain gage. Loads can be applied in different locations to verify that the stress levels are acceptable across the entire module.

Stage two simulates the amount of traffic that would pass over a scale during its expected service life. This requires applying a load repeatedly to the same location on the module. The feet press down on the module and then are raised, simulating a loaded truck driving onto the scale to be weighed and then driving off the



The module masher tests truck scale modules by simulating 20 years of traffic within 2 months.

scale. The module masher can complete one load/unload cycle in 3 seconds. The stress is the same whether the load is applied for several seconds or several minutes. With the module masher running constantly, a test of 1.5 million cycles can be completed in 52 days. That means that the module can be subjected to the equivalent of 20 years of truck traffic within 2 months.



The module masher simulates how a load is applied by a truck's dual tandem axle.

By testing every design with the module masher, we can verify that each truck scale we make is durable enough to stand up to the real-world demands of vehicle weighing for a service life of 15 to 20 years.



Each foot is equipped with two rubber pads spaced like a pair of tires.

Floor Scales

Built to Last

Not all solid waste is handled by the truckload. For smaller amounts of material, a floor scale is often the best weighing solution.

METTLER TOLEDO floor scales combine exceptional accuracy with the durability to stand up to heavy use in demanding environments. We supply scales with standard capacities of 500 to 20,000 pounds and heavy-duty scales that weigh up to 60,000 pounds.



VERTEX Floor Scale

Our VERTEX® floor scales are an excellent choice for most industrial weighing applications. The scale components are made to last, with critical tolerances built in at the factory. Because the components do not become loose or out of specification, the scale maintains its weighing accuracy even after years of use. The scales feature a self-aligning, rocker-pin suspension that transfers the load from the scale platform to a single point on each load cell. This type of suspension provides accurate weighing and is more durable than suspensions that use threaded feet to support the load cells.

The scales are versatile enough to be installed on top of the floor or in a pit. Top-of-floor installations can be equipped with ramps to make them easily accessible from any side. Floor scales can be equipped with an optional wheel kit or forklift-channel frame to make it easy to move them to different locations.



We design our floor scales to handle concentrated loads from forklift traffic.

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