

Aggregates

Industrial weighing and measurement

2 News

Weighing Solutions for Asphalt and Cement

As competition grows in the asphalt and cement markets, producers are looking for better ways to make their operations more productive and efficient.

Much of the crushed stone, sand, and gravel that is mined from quarries is sold directly for construction use. But those materials are also key ingredients in the production of hot-mix asphalt, cement, and ready-mix concrete.

Asphalt and cement production facilities deal with many of the same environmental conditions as quarries:

- Scales are subjected to heavy loads and constant use.
- Equipment is affected by dust and other materials.
- Facilities are often located in extreme climates.

Selecting the right weighing equipment can increase productivity and efficiency. Productivity depends on the ability of your scales to operate reliably in harsh conditions with a minimum of downtime. You can increase productivity by combining reliable scales with vehicle scale software and unattended weighing terminals.

You can increase efficiency by weighing quickly and accurately. Correct weights can help you avoid losing money by undercharging for material and can keep your customers satisfied that they are receiving their money's worth. Accurate weighing can also eliminate fines for overloaded trucks.



METTLER TOLEDO

Truck Scales Meet Needs of Growing Asphalt Plants

When Reliable Contracting updated its asphalt plant in Glen Burnie, Maryland, the company needed a truck scale that could handle the traffic for the new, larger operation.

Reliable Contracting has been providing asphalt, aggregates, and contracting services to residential, commercial, and government projects for 77 years. Its Glen Burnie and Crofton sites produce about 1 million tons of asphalt, aggregates, and recycled aggregates per year. What started as a two-person operation with one truck now has 525 employees, 65 trucks, and continues to grow.

Because of that growth, Reliable's Asphalt Division replaced the existing one-silo batch plant at the Glen Burnie, Maryland, site with a new three-silo drum plant. The new three-silo configuration and Maryland state requirements made it necessary to install a new longer and wider truck scale.

METTLER TOLEDO® first supplied Reliable with scales and service more

than 15 years ago. According to Plant Manager George White, "The product is top of the line. And you can't beat the service, which is critical for our business. We can call any time and METTLER TOLEDO is right there."

White also commented on the installation of a new scale at the Crofton site in 2004: "When the plant was shut down for three days over the holidays, METTLER TOLEDO came in, installed the new steel-deck scale, and everything was up and running upon restart with no disruption of service to our customers."

For the Glen Burnie site, Reliable chose a model 7562 TRUCKMATE® steel-deck scale that measures 70 feet x 11 feet. "We shopped around for the new scale," says White, "but no one could match METTLER TOLEDO's product and service."



The truck scale and automatic filling system have helped increase plant throughput.

The foundations and scale were installed first, and then the steel supports and silos were constructed above the scale. A JAGXTREME® scale terminal was also chosen to ensure accurate and precise weight data feeds to the plant's automatic fill and cutoff system. White says he has already seen an improvement in plant throughput.



The new three-silo asphalt plant required a longer truck scale.

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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.

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



Cement Grinding Plant Aims to Increase Efficiency

METTLER TOLEDO is working with Cementval to help its cement grinding plant receive raw materials and ship the finished product as quickly as possible with an objective of zero errors.

Cementval is located in Sagunto Port (Valencia, Spain) and specializes in grinding and distributing cement. Its primary customers are concrete plants that supply construction sites and distribution warehouses. The company uses advanced techniques for unloading raw materials, producing cement, and transporting the finished product. All equipment is controlled by computer systems to guarantee traceability and optimum performance.

Cementval first receives the clinker and other raw materials used to make cement. It then grinds the mixture with the necessary additives to obtain a high-quality product. The cement is stored in silos from which it

is dispatched, either in bulk by tanker trucks or in sacks on pallets with protective plastic.

At present, Cementval ships about 4,000 metric tons per day, an amount that requires 240 to 250 trucks. The facility uses eight truck scales, four scales to weigh inbound raw materials and empty tanker trucks and four scales to control loading beneath the silos using a tailor-made computer system. All the scales are equipped with unattended terminals, which make it easy to identify what tasks need to be performed (receiving, shipping, loading, etc.).

Each truck is equipped with a proximity card that identifies the truck and its load. When the truck driver displays the card at the unattended terminal for shipping or receiving, the weighing process can be completed without the driver leaving the truck. That makes the process both fast and automatic, which is essential when large numbers of trucks must be weighed quickly and accurate data must be recorded. In repetitive processes, such as unloading clinker, there is no need for an operator to get involved in the weighing process.

Terminals underneath the silos serve two functions. First, they tell the sys-

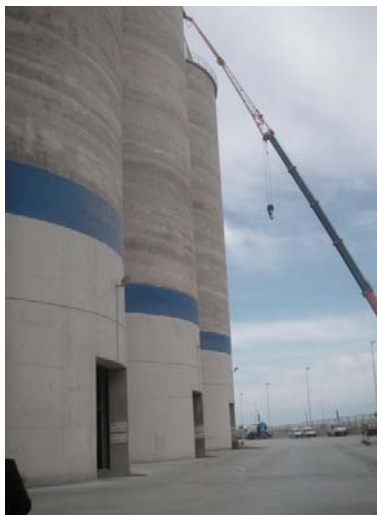
tem the nominal amount to be loaded, eliminating any adjustments due to lack of material or excess material in the tanker. Second, they ensure that the product being loaded matches the material and loading silo information



Cementval's shipping operation weighs about 250 trucks per day.

tem that is recorded on the card. That prevents another product from a different silo being loaded by mistake.

The information that is generated is sent to a central computer system by file exchange, making it available virtually in real time. METTLER TOLEDO software supports this process by helping to control and automate the loading processes and adapting the different computer programs so they operate correctly.



The plant's silos use a computer system to load trucks quickly and accurately.



Cementval also has a chemistry and physics laboratory, which enables it to carry out the most rigorous quality controls in order to comply with current regulations. As part of its quality-control program, the laboratory uses a METTLER TOLEDO halogen moisture analyzer and METTLER TOLEDO WILDCAT® scales. The program provides the assurance necessary for manufacturing homogenous products of consistent quality, values which are essential for structural concrete, prestressed concrete, and other building products.



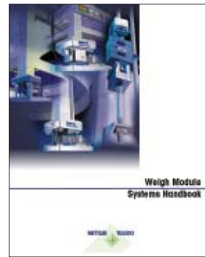
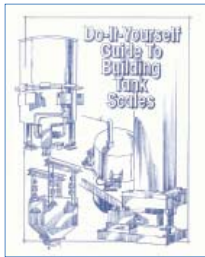
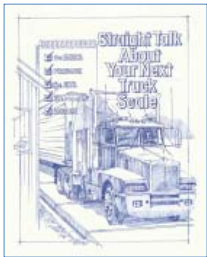
HG63 Halogen Moisture Analyzer



WILDCAT Bench Scale

Free Buyer's Guides

Our buyer's guides are good starting points for anyone planning to buy a scale. "Straight Talk About Your Next Truck Scale" and the "Do-It-Yourself Guide to Building Tank Scales" provide step-by-step guides to selecting and installing a truck scale or tank scale. The "Weigh Module Systems Handbook" provides engineering data and design guidelines. To request a copy, contact your local METTLER TOLEDO representative.



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