

Ton-Tel Single-Axle Weighbridge

Designed for High Traffic Flows



Introduction

The Ton-Tel Single-Axle weighbridge is an accurate weighing system which will weigh any type of vehicle regardless of its length or the number of axles it has. As a vehicle moves across the platform at slow speed an electronic control computes and logs the weight of every axle.

The heavy duty construction has been built to work in harsh conditions and is particularly suited to installations where high volumes of traffic are being weighed.

Griffith Elder pioneered the use of strain-gauge load cells for dynamic weighing of trucks and designed the first Weigh-In-Motion single axle weighbridge using strain-gauge load cells in 1982. This was the first time that strain-gauge load cells had been used for measurement of weight in a dynamic weighbridge and the accuracy proved so good that it has become the standard for low speed single axle weighbridges.

Weighbridge Platform Design

The steel construction of the weighbridge platform uses very stiff steel joists so that minimal deflection of the plate takes place when the wheels roll over it. Four 12 tonne capacity load cells, designed specifically to suit the platform, accurately sense the weight as each axle crosses over the weighbridge.

Close Coupled Axles

The platform has been specifically designed to take all combinations of axles. Single axles, tandem and tri-axle combinations are easily weighed because the electronics can capture the weights of every axle individually.

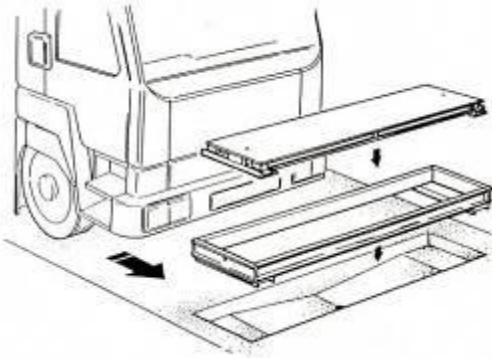
The platform is big enough to take even the largest single axle, but small enough to return to zero between axles even when they are close together.

Close coupled axles with spring or air suspension are no problem to the weighbridge which will take individual axles of up to 30 tonnes each.



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Dynamic Weighing

In-motion (dynamic) weighing is an established feature of axle weighing and was originally developed by Griffith Elder in the early 1980s. It is the basis of the Ton-Tel system and today with modern state of the art electronic circuits it provides the highest accuracy for weighing individual axles.

As a vehicle drives over the weighbridge in low gear the axles are automatically recorded on the move. The electronics calculates the actual weight of each axle as it passes over the platform and immediately displays the weight.

Automatic operation of the weighbridge ensures that each axle is caught and the gross weight is computed. A unique electronic zeroing system makes it unnecessary for operator intervention and zero adjustment between weighings is not required.

Large Display

The weight of the axles can be shown on a large external display with 120 mm high red digits making the information visible to the driver immediately. At the end of the weighing the display will show the gross weight of the vehicle. The large display is fully waterproof and is suitable for all weather conditions. The display shows zero when the platform is idle and shows a row of dashes when an overspeed is detected.

Traffic Light

A green traffic light shows that the platform is at zero and indicates to the driver that the weighbridge is ready to drive over. If an overspeed is detected the light immediately turns to red and stays red until that axle has left the weighbridge. When the traffic light is used in conjunction with the Ton-Tel Software the function can be changed for vehicle control and extra traffic lights can be fitted for Law Enforcement control of traffic.

Single-Axle Weighbridge *Easy to Install, Easy to Maintain*



Installation

Griffith Elder recognise that the site of a single axle weighbridge is of prime consideration and so we offer an advisory service for location, backed up by easy to follow instructions and technical assistance.

Weighing axles a) the weighing platform must be recessed into the ground at a prepared site and b) the approach and exit to the weighing platform need to be level to the full length of the longest vehicle to be weighed. Accuracy will be compromised if the approach and exit roadways are not completely level within normal concreting tolerances. Use of our pit frame simplifies the construction and ensures that the weighbridge is located correctly.

The Griffith Elder guide for installation is a comprehensive manual which describes in detail the whole civil works operation. Our civil engineering team are able to give advice and we can also provide a complete turn-key package, undertaking all aspects of the installation and commissioning.

Maintenance

Where the Ton-Tel single axle weighbridge is to be used for law enforcement purposes Griffith Elder personnel can train your staff in calibration, regular check-up procedures and maintenance schedules. We provide on-going support so that the equipment will give many years of trouble free service.

The Griffith Elder Ton-Tel is designed with cost of maintenance in mind and has a record of very low total cost of ownership. Load Cells have a very long life and extra warranty of up to 7 years is available for them, at a small extra cost. All products are committed to an extensive field assessment programme after development, both at pre-production and final production level which enables us to maintain our reputation of supplying equipment which will have a long and trouble free life.



Ton-Tel Weigh-In-Motion Dynamic Axle Weighbridge *Long Lasting Construction*



Construction

The strength of the Ton-Tel single axle weighbridge is the single piece welded platform. High quality steel beams form the superstructure and the platform deck is 10 millimetres flat plate to ensure optimum rigidity. The heavy duty construction and simplicity of design make the Ton-Tel Single Axle Weighbridge into a system which will last for many years.



Load Cells

The four sensors which actually detect the weight on the platform are hermetically sealed welded stainless steel load cells that have been designed by and are manufactured by Griffith Elder. The robust design gives high reliability, low maintenance and long service life, whilst still providing very high accuracy for the weighing function. The load cells are registered with a Certificate of Conformity **OIML R60** approved.



Electronic Control

An electronic controller takes the signals from the load cells and turns them into weights. This is done right there in the platform so that there is no distortion of the result because of long cable runs. The signal which is sent to the computer or terminal is digital and so is immune to interference of the type typically found in less advanced products.



Computing the Weight

A single low voltage cable comes from the platform to a terminal, which indicates the weights and stores them as a truck traverses the weighbridge. This system allows the weighing of many vehicles quickly and easily.

Traffic lights, large display and other ancillaries like vehicle transponders and traffic control barriers are controlled from a computer so that the weighing function is separate from the display and reporting functions.

Some installations use cameras to automatically capture the licence plate number, hence reducing operator error in recording the vehicle information.

The Griffith Elder range of Ton-Tel Software controls the weighing operations and vehicle movements while providing the data in a format and method that is required.

See additional brochures for full details on the Ton-Tel Software products.

Automatic Barriers



Two barriers are positioned before and after the weighbridge to give a driver a strong signal that they must stop and wait to be admitted. They are automatically controlled by the software. The entrance barrier is used in conjunction with a traffic light to stop the vehicle before the weighbridge. This ensures that the driver puts the truck into a low gear before driving over the weighbridge.

Automatic Licence plate recognition



For the ultimate in automatic operation, a camera can be strategically placed to capture licence plates. This ensures that every vehicle entering the weighbridge will be logged in the computer database. The camera software communicates with the weighbridge software so that vehicle identification is coupled with the weights on the ticket.

Up to two licence plate cameras can be used, so that the front number plate and the trailer number plate can both be put onto the weighbridge ticket. The second camera is used where some of the trucks have a separate registration to that of the trailer.

Vehicle Detection Sensors

Radar sensors are placed strategically to detect presence of truck within weighbridge compound. These are used as an integral part of the system letting the software know when to allow vehicles to move.

Tube sensors can be put each side of the weighbridge to detect a wheel missing the platform, so that the ticket gets cancelled and the vehicle must weigh again.



Picture Camera

A separate camera can also be positioned to take a photograph of the vehicle as it crosses the weighbridge platform. This is useful as a visual aid in identification of a vehicle. Some installations take the picture from the front, others from the side. Positioning of the picture camera is a matter of choice to get the best view. The photo will be put on the ticket and stored with it in the database.

Kiosk

A weighbridge kiosk can be provided to house the electronic indicator and Computer equipment. Usually this will have appropriate windows so that an operator can see the whole weighbridge from the kiosk and it is normally positioned 22 metres ahead of the scale so that the trucks weigh before stopping to get a ticket.





Specifications

Maximum axle weight	30 tonnes.
Maximum gross weight	200 tonnes.
Static accuracy	+/- 20 kg.
Dynamic accuracy	+/- 50 kg per axle or +/- 1% whichever is the lesser.
Indicator resolution	1 to 20 kg.
Zero Tracking	selectable from 5 kg to 50 kg
Speed of operation	up to 15 km/hr (max) recommended 3 to 5 km/hr.
Power requirements	110/220 v ac; 50/60 hz.
Platform dimensions	3.5 Wide x 0.85 Long x 0.2 Deep
Platform type	welded construction, mild steel epoxy coated. 10mm Thk Plate
Load cells	12 tonne capacity each, stainless steel, Sealed to IP68.
Electronics	Microprocessor weighing control sealed to IP68. Installed above ground level
Approach and exit roadways	20 metres (min).
Operating temperature range	-20°C to +60°C

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