



Weighing





Weighbridge Type Specification.



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locally delivered.**

Type	Advantages	Disadvantages	Photo
<p>1. Centurion Steel Deck Above Ground</p>	<ul style="list-style-type: none"> • Less/no civil works costs • Less expensive weighbridge option • Least site preparation required • Can be decommissioned and moved to different sites (portable) • Quicker to install 	<ul style="list-style-type: none"> • Requires the largest site area 	
<p>2. Centurion Steel Deck, Inground Pit Installation</p>	<ul style="list-style-type: none"> • Uses the least site space of all weighbridge options. • Best for sites which share traffic/weighing areas. • Best for sites with limited space. • Quicker to install 	<ul style="list-style-type: none"> • Extensive civils/excavation required. • Requires a drainage system. • Loadcell servicing can only be done by specially trained personnel due to confined space regulations. This will incur a higher hourly cost. 	
<p>3. Titan Concrete Infill Weighbridge, Above Ground Installation.</p>	<ul style="list-style-type: none"> • Generally lower costing than a full pit installation. • Greater longevity than a steel deck weighbridge by around 5-7 years. • Concrete has a better load distribution due to heavier base. • Better traction in wet/icy conditions. 	<ul style="list-style-type: none"> • May require more civil works than some of the other weighbridge options. • Uses more site space than an inground option. 	
<p>4. Titan Concrete Infill Weighbridge, full pit installation</p>	<ul style="list-style-type: none"> • Requires the least site area • Most compact design • Ideal for sites with limited space • Ideal for sites with shared weighing and traffic areas. • Greater longevity than a steel deck weighbridge by around 5-7 years. • Better traction in wet/icy conditions. 	<ul style="list-style-type: none"> • Cannot be moved without more civil works at the new site. • Most expensive option due to the excavation work necessary. • The most planning required before construction. • Requires in-built construction. • More expensive to service due to needing trained personnel. 	

TYPE 1: Centurion Steel Deck Weighbridge Above Ground Installation



Type 1: Centurion Above-Ground Weighbridge

Benefits

- The steel subframe is strong and rigid to create a suitable foundation for a long lasting weighbridge.
- The modular weighbridge pieces are then bolted together and placed into the subframe.
- Supplied with heavy duty steel ramps and flat and level approaches to meet trade measurement requirements.
- Available in painted grey or full hot dip galvanized finish.
- Weighbridge lengths from 4 meters to 60 meters +, 20t to 150t capacities.
- Multi-Deck configuration.
- Can be moved (portability).

Construction Process

- Construction of a Centurion Weighbridge is generally more straight-forward than a Titan Weighbridge. This is because the Centurion weighbridge requires less to no civil works or excavation prior to installation.
- If the ground is entirely level, the Centurion weighbridge can often be bolted directly to the surface.
- However in cases of when the Centurion Weighbridge will be a fully pit or semi-pit installation, these excavations will need to be included in the planning.

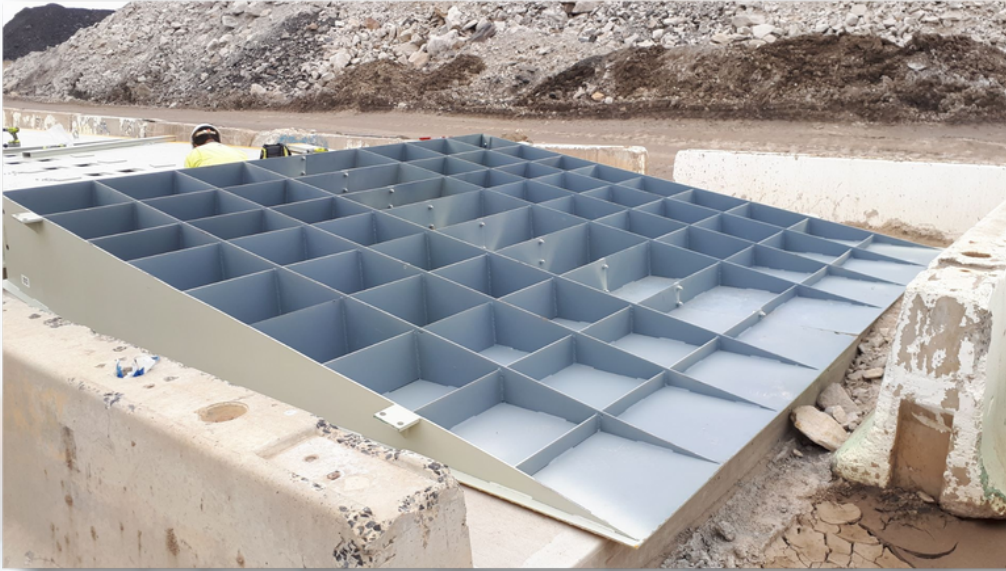
TYPE 1: Centurion Steel Deck Weighbridge Above Ground Installation



Installation & Other Planning Considerations

- Construction of a Centurion Weighbridge is generally more straight-forward than a Titan Weighbridge. This is because the Centurion weighbridge requires less to no civil works or excavation prior to installation.
- Above-Ground Weighbridges will take up the most surface area compared to other types of weighbridges.
- This is because each ramp will need to be a minimum of 5m long (assuming that the approach ramps are at a 1:10 incline).
- Civil works costs will be significantly less.
- Assuming the ground is completely level, then civil works may not be required at all, and the weighbridge may simply be bolted to the ground.
- In the planning phase, ramps and 0.75cm clear spaces along both sides of the weighbridge deck must be included.
- The ground beneath the spaces must be treated to prevent foliage growth within the clear-space.

TYPE 1: Centurion Steel Deck Weighbridge Above Ground Installation



Type 2 - Centurion Above Ground Installation

- When combined with the sub-frame, the Above-Ground Centurion requires minimal to no civil works, as the sub-frame can bolt directly to the flat and level concrete surface. As the Centurion is deemed a portable weighbridge, concrete is not required for the full length of the deck and/or ramps, which will save a significant amount of money on civil works.
- Overall length of an above-ground Centurion weighbridge (Type 1) will be decided upon the deck length that is required. For example, if you require an 18m deck or more then the level approach boxes as per NMI law, is required to be 1m long.
- If a weighbridge deck less than 18m deck is required, then the level approach boxes as per NMI law, is required to be 3M long.
- Weighbridge ramps are typically 5M long, but can be made up to lengths of up to 10M or longer to accommodate larger vehicles e.g. road trains.
- Taking the points above into consideration, it is easy to see how a Centurion Above-Ground weighbridge will take up more site space than an alternative in ground or pit weighbridge.

TYPE 2: Centurion Steel Deck Weighbridge Pit Installation



Benefits

- The Centurion Weighbridge with pit installation provides a flush weighing surface flush with the ground level.
- An inground pit installation will use less site space, allows for shared weighing and transit areas.
- The access hole covers are robust and constructed in a way to withstand the vehicle loadings when traffic is moving adjacently across.
- The structure of the Centurion Weighbridge means that installation is faster than that of a Titan concrete weighbridge, as there is no concrete curing time necessary.



Construction Process

- The construction process of a pit weighbridge is more expensive and longer than an above ground due to the excavation works required.
- The first step of this installation process is the civil works/excavation of the site.

TYPE 2: Centurion Steel Deck Weighbridge Pit Installation



Installation & Other Planning Considerations

- When planning a pit installation, load cell access must be considered in the foundation design. Holes in the deck or the side of the deck must be included.
- A drainage pipe or sump also must be included in the design.
- Ongoing service of the weighbridge is to be considered when planning an inground weighbridge. As the pit is defined as an enclosed space, personnel cannot enter the pit without specialized training. This can significantly increase service costs and also a consideration when planning to install a pit weighbridge.



TYPE 3: Titan Concrete Deck Weighbridge Above Ground + Semi Pit Installation



Benefits

- The Titan's steel and high density concrete infill structure are designed to withstand very high concentrated loads.
- The Titan meets with the latest Australian design, manufacturing and NMI Approvals and directives.
- Each modular deck uses only 4 or 6 loadcells, reducing both electronic liability and out of warranty maintenance costs.
- The Titan design also lends itself to retrofit applications, allowing installations to be carried out quickly with the minimum of disruption to day-to-day operational activities.
- For certain competitor specific retrofit applications, the load cell assemblies can be mounted on the inside of the longitudinal beams.

Construction Process

- Civil works excavation must be performed first for an above ground Titan weighbridge install.
- After this, the next step is the construction of the concrete foundation slab.
- The steel weighing platform is constructed on the foundation slab and then jacked into position.
- Concrete infill is then poured into the deck,
- Concrete curing time is an important part of the process, with around 3-4 weeks curing time necessary.



Type 3 - Titan Above ground Weighbridge

TYPE 3: Titan Concrete Deck Weighbridge Above Ground Installation + Semi Pit Installation



Installation & Other Planning Considerations

The construction process for a Titan Weighbridge typically involves a greater level of civil works and excavation. The Titan Weighbridge construction is significantly longer than a Centurion Weighbridge would take due to the concrete curing process which can take up to two weeks.

The Titan Weighbridge can weigh in at as much as four times heavier than steel ones. This makes them much more difficult and costly to relocate, whether it's to a new location within your site, for future resale or for end-of-life removal.

Concrete weighbridges have a great longevity, provided the concrete is prepared correctly (vibrated and cured and the steel reinforcement is correctly position).

An above ground Titan Weighbridge must provide the following:

- Minimum of 150mm clearance under the lowest active part of the weighing platforms.
- A concrete base between the loadcell supports that is at least 75mm thick, with effective drainage to keep from water, mud, and debris accumulating.
- The Titan must have sufficient clearance from the external edges of the platform for servicing, maintenance and drainage.

TYPE 4: Titan Concrete Deck Weighbridge In Ground Pit Installation



Type 5 - Titan Semi Pit Weighbridge



Type 6 - Titan Full Pit Weighbridge

Benefits

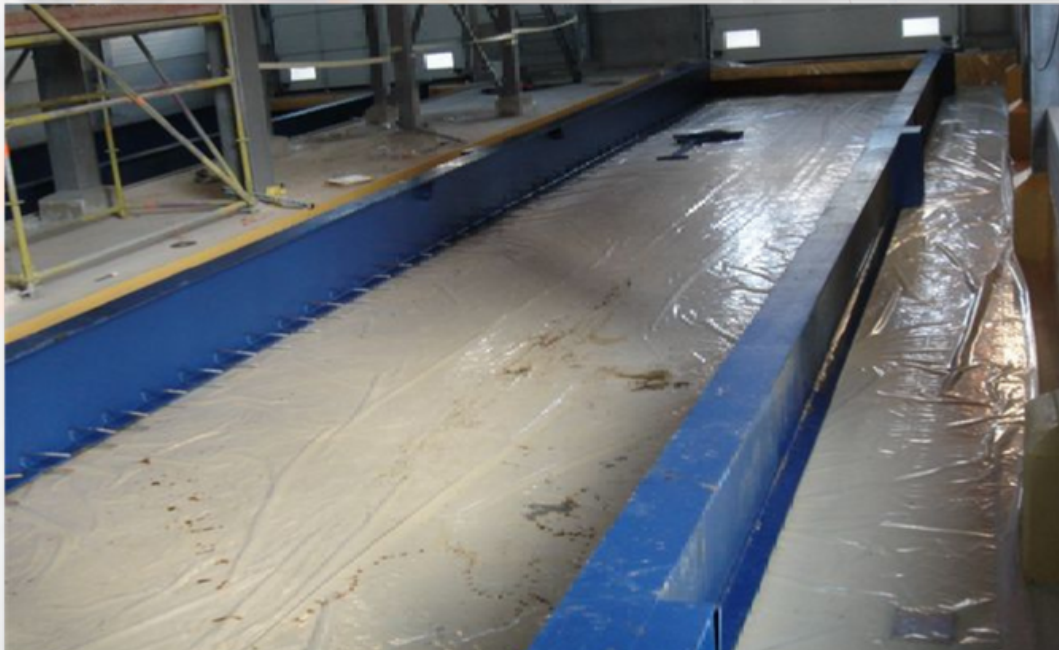
The construction process for a Titan Weighbridge typically involves a greater level of civil works and excavation. The Titan Weighbridge construction is significantly longer than a Centurion Weighbridge would take due to the concrete curing process which can take up to two weeks.

- Concrete truck scales can weigh in at as much as four times heavier than steel ones. This makes them much more difficult and costly to relocate, whether it's to a new location within your site, for future resale or for end-of-life removal.

For NMI Trade approved weighbridges the minimum level approach required for compliance is:

- 1m for all weighbridges with a deck length of 18m or more
- 3m for all weighbridges with a deck length less than 18m
- Above ground weighbridge ramps are typically 5m in length , however this can vary to accommodate site constraints and vehicle configurations that will use the facility.

TYPE 4: Titan Concrete Deck Weighbridge In Ground Pit Installation



Installation & Other Planning Considerations

- Fully inground weighbridges are flush with the ground and provide a level weighing surface, and take up the less site space.
- However, the civil costs associated are much more than an above ground weighbridge.
- Easy access to the load cells must be considered in the planning of an inground weighbridge. Access holes must be included in the deck or to the side of the deck, as part of the foundation design.
- Another factor to consider when planning is drainage. A sump or a drainage pump must be included in the design in the most appropriate position for the site.
- Another factor to consider when commissioning a weighbridge is health and safety regulations. As the pit of this type of weighbridge is regarded as an enclosed space, servicing personnel cannot enter the weighbridge to service it without the proper training and equipment. This does increase the cost of servicing somewhat.

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Overview

The CPD-M model load cells (with digital technology) and CPR-M model load cells (with analogue technology) are entirely designed and manufactured at Coop Bilanciali's Campogalliano plant, and are fundamental components for ensuring a high degree of reliability for the entire weighing system.

Lightning Protection

Lightning protection is one aspect that requires a great deal of attention. In order to guarantee effective protection, Coop Bilanciali has included 3 different solutions:

- A disc made from special insulating material, which, being positioned on the cell's lower support, interrupts the electrical continuity between the bridge's upper structure and its support bases
- An extra-thick copper braid bypass
- Electronic circuit board integrated into the cell, equipped with components for limiting the overvoltages generated by lightning strikes



RODENTS



EXTREME
TEMPERATURES



DEBRIS



LIGHTNING



RADIO-FREQUENCY
DISTURBANCES



WEAR AND
BREAKAGE

Self-Stabilizing System

- Prevents the cell from turning and the cable from twisting

Robust (1 mm thick) 45° Cone Shaped Protection

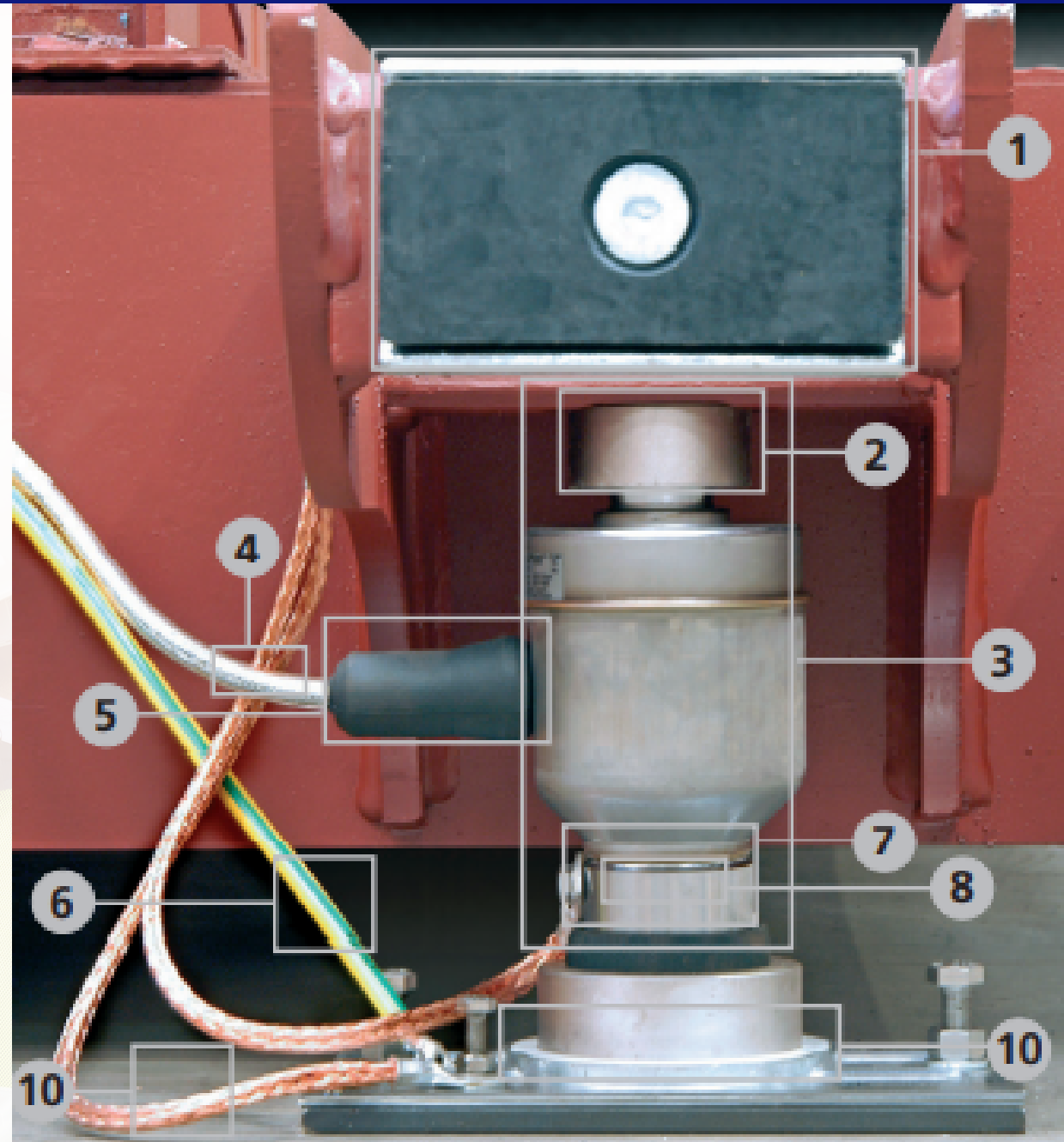
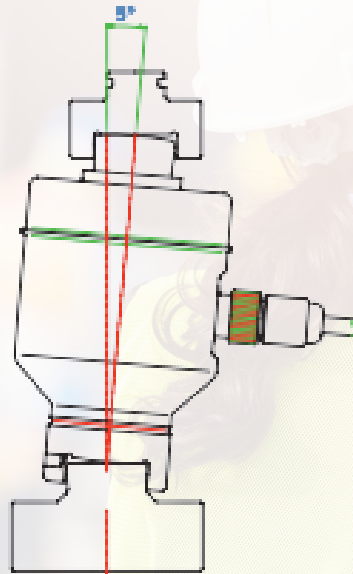
- The special design of the robust external casing, thanks to the oscillations resulting from normal use, pushing any debris that could be deposited away from the loadcell and reducing instances that could thus jeopardise the system's proper functionality.

View of load cell application on a weighbridge

1. Shockproof pad
2. Upper Support
3. Loadcell
4. Shielded Anti-Rodent Cable
5. Supplementary connector protection sheath
6. Weighbridge Grounding Cables Kit
7. Anti-rotation device
8. Plastic Lightning Protection Disc
9. Single Cell Grounding Connector

Slope of up to 5° (15 mm from the vertical position)

- Prevents problems from arising due to the thermal expansion or elastic deformation of the weighbridge and the possible settling of the masonry work.
- Also allows for a high degree of accuracy to be maintained, even for installations with weighbridges of considerable length.





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