ANYLOAD®

STEEL DECK TRUCK SCALE

ORCA

THE ORCA™ ADVANTAGE

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Uncompromising in Quality & Design

Introduction

A truck scale is a critical control point for revenue, safety, and compliance for many operations. When a scale performs accurately and consistently, it protects margins, supports fair transactions, and builds trust across the supply chain. When it does not, the financial impact can be immediate and costly.

A well-designed truck scale must deliver reliable weighments over decades of heavy use. The true value of a truck scale lies in its ability to maintain structural integrity and measurement accuracy throughout its service life.

Efficiency – Operational efficiency depends on uptime. When a truck scale is unavailable or producing unreliable readings, material flow slows or stops entirely. Trucks queue, labor is wasted, and downstream processes are disrupted. In high-throughput industries such as logistics, agriculture, construction, mining, and manufacturing, even short interruptions can cascade into missed delivery windows and increased operating costs. By minimizing unplanned downtime and preserving accuracy under repetitive loading, a durable scale supports smoother operations and predictable throughput year after year.

Safety & Compliance – The chain of responsibility in transportation means that all parties involved, from the manufacturer to the carrier to the receiver, share accountability for ensuring loads are within legal weight limits. Overloaded or inaccurately weighed trucks can lead to dangerous situations on the road and significant legal and financial repercussions. Investing in a robust, well-engineered truck scale is therefore not only a business decision, but a safety and risk management measure.

Truck Scale Ownership Costs – While the purchase price of a truck scale is often the most visible cost, long-term ownership costs are driven largely by maintenance, serviceability, and component longevity. Extended downtime, repeated service visits, and premature component replacement can quickly outweigh any initial savings at purchase.

Why ANYLOAD Truck Scales

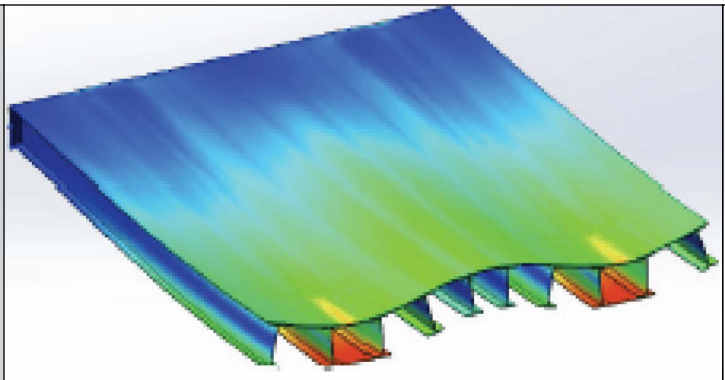
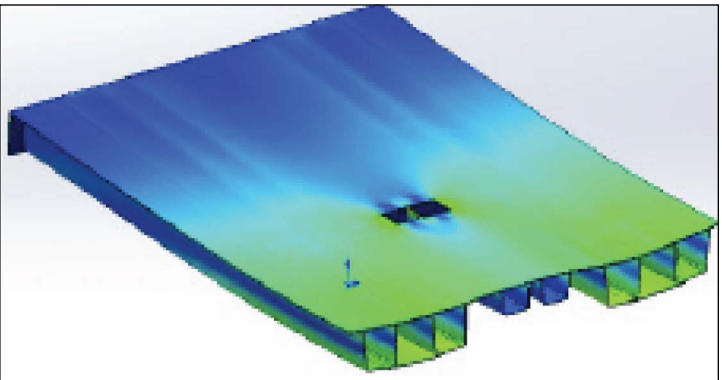
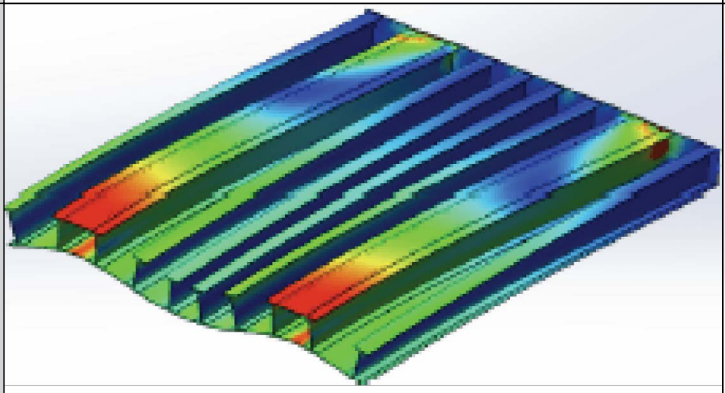
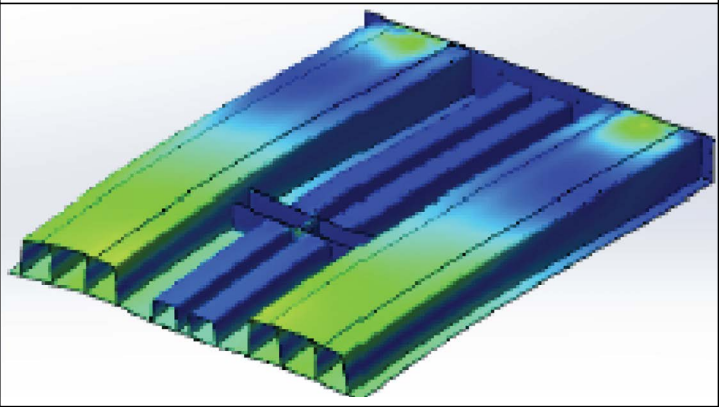
The ORCA™ truck scale is engineered around a simple premise: long-term accuracy and reliability are the result of sound structural design executed with high-quality fabrication. By combining efficient load distribution, user feedback, and controlled manufacturing processes, the ORCA™ is built to withstand heavy, repetitive loading while maintaining accuracy. Its design emphasizes durability and serviceability, which directly influence uptime, safety, and total cost of ownership. For operators who rely on their truck scale as a critical business asset, the ORCA™ delivers a balanced, engineered solution that protects revenue, supports compliance, and keeps operations running with confidence.

Engineered to Outlast

Innovations Proven in FEA Testing

A truck scale's long-term performance is determined first and foremost by its structural behavior under load. It is the underlying load path (how forces are transferred through the weighbridge) that governs fatigue life, accuracy retention, and resistance to permanent deformation. The ORCA™ truck scale was developed with input from users and service providers, and applies Finite Element Analysis (FEA) to evaluate real-world loading scenarios and identify potential stress concentrations before fabrication.

To objectively assess structural performance, ANYLOAD conducted a direct FEA comparison using identical material properties, weld quality, deck thickness, and loading conditions:

	I-Beam Design	ORCA™ U-Channel Design
Top View		
Bottom View		
Results Analysis	There are hotspots in the I-beam design that can be prone to fatigue and permanent deformation whereas the U-channel design is much more uniform. These localized "hotspots" are areas where cyclic loading can initiate fatigue cracking, permanent deformation, or long-term loss of stiffness. Even with bottom plating applied, the I-beam structure relies on a limited number of primary load paths, resulting in uneven stress distribution.	By contrast, the ORCA™ U-channel design exhibits a far more uniform stress profile. Loads applied at the deck surface are distributed laterally and longitudinally across multiple closely spaced vertical webs, significantly reducing peak stress intensity at any single location. The result is a structurally efficient deck that resists bending, twisting, and localized yielding under repeated axle loads.

Structural Advantages

Why Geometry Matters More Than Mass

The ORCA™ truck scale is built around a deep U-channel (orthotropic) deck structure engineered to manage heavy axle loads efficiently while minimizing long-term fatigue. Each design element contributes directly to structural stability, accuracy retention, and service life.

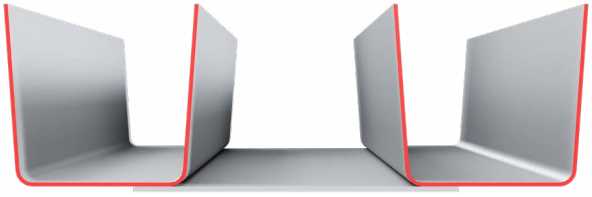
U-Channel Distributes Load Evenly, Reducing deformation.

Load Distribution: Unlike I-beam structures that concentrate loads through vertical webs, the ORCA™ U-channel design distributes forces across multiple closely spaced channels. Wheel loads are transferred laterally and longitudinally through the deck, reducing localized stress concentrations and lowering peak stresses on individual members.

Pre-cambering: Each scale section is pre-cambered during fabrication with CNC hydraulic equipment. This upward curvature counteracts long-term deflection caused by repeated axle loading. By preventing permanent sagging, pre-cambering reduces water and debris pooling on the deck surface and helps preserve long-term weighing accuracy.

Welded Bottom Plating

Bottom Plating: Continuously welded bottom plates span between axle-bearing U-channels along the full length of the scale. This creates a closed structural section that significantly increases bending stiffness and shear resistance while limiting longitudinal and transverse deflection. Designs without bottom plating, particularly traditional I-beam structures, are more prone to long-term sagging and lateral distortion under repeated service.



More Vertical Reinforcements

Dual Axle Coverage: The ORCA™ deck geometry ensures that truck axles are always supported by multiple U-channel flanges. At least two primary load-bearing channels directly buttress each axle, creating redundant load paths and reducing peak stresses at the deck surface. This direct axle support improves stiffness and minimizes localized deflection under heavy loads.

Designed for the Real World

Lions Gate Bridge

Built from Field Experience, Not Theory

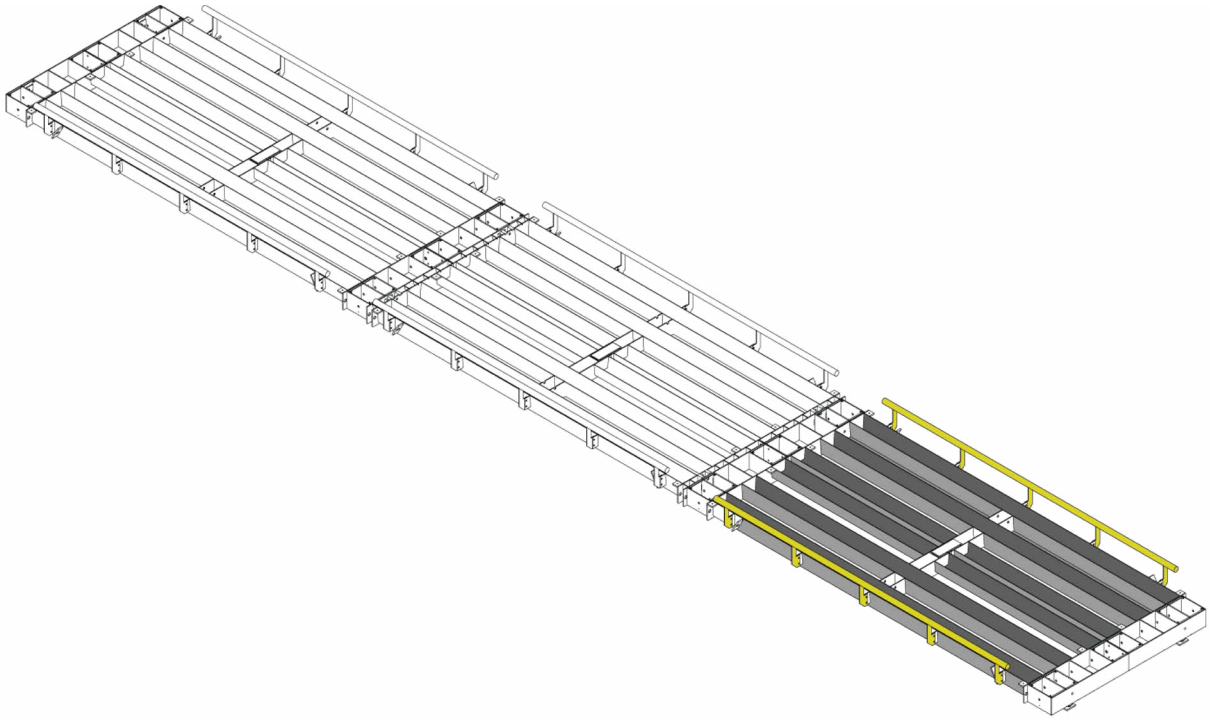
The ORCA™ truck scale is the result of years of direct feedback from scale service providers, installers, and end users working in demanding environments where downtime is costly and access is limited. Rather than designing to theoretical ideals, ANYLOAD prioritized real-world service conditions: uneven foundations, harsh weather, debris, impact loading, and the practical constraints faced during installation and maintenance.

This field-driven approach avoids complex hardware and tight installation tolerances, prioritizing ease of installation, resilience in operation, and straightforward to service. The result is a truck scale that not only performs structurally, but also reduces installation time, minimizes service requirements, and supports long-term reliability.

Proven Principle in Critical Infrastructure

The structural approach behind the ORCA™ truck scale reflects methods used in critical infrastructure where long-term durability and fatigue performance are essential. Many modern steel bridges use orthotropic decks to improve stiffness, reduce fatigue, and maintain structural stability under constant traffic.

The ORCA™ weighbridge applies these same proven principles at a truck scale level. By designing the deck as an integrated structural system rather than a collection of primary beams, the ORCA™ delivers weighing performance consistent with infrastructure-grade engineering practice.



Strength & Interlock Systems

M1 Mounting System

1. Centre-Pivot Suspension Link

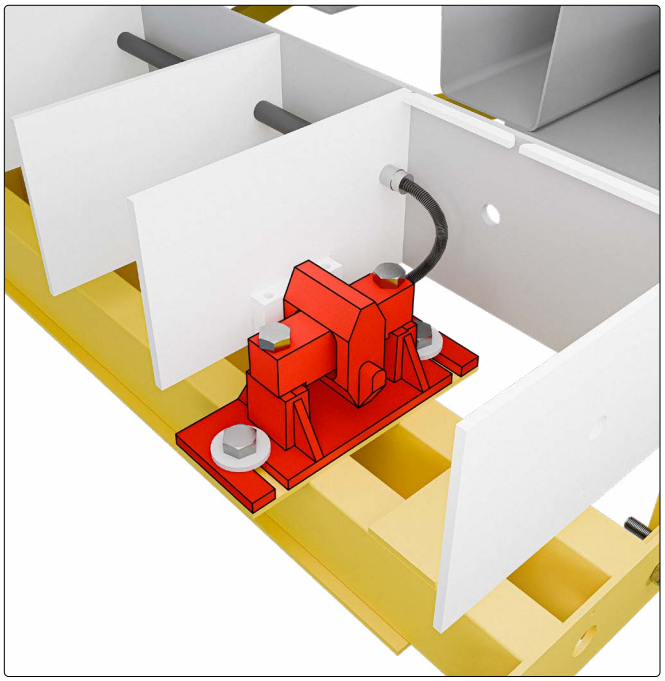
A single centre-pivoted suspension link to maintain true vertical load transfer to the load cell while accommodating natural planar movement of the weighbridge. This ensures stable alignment under braking, acceleration, uneven vehicle positioning, and thermal movement.

2. Elimination of Check Rods and Bumper Bolts

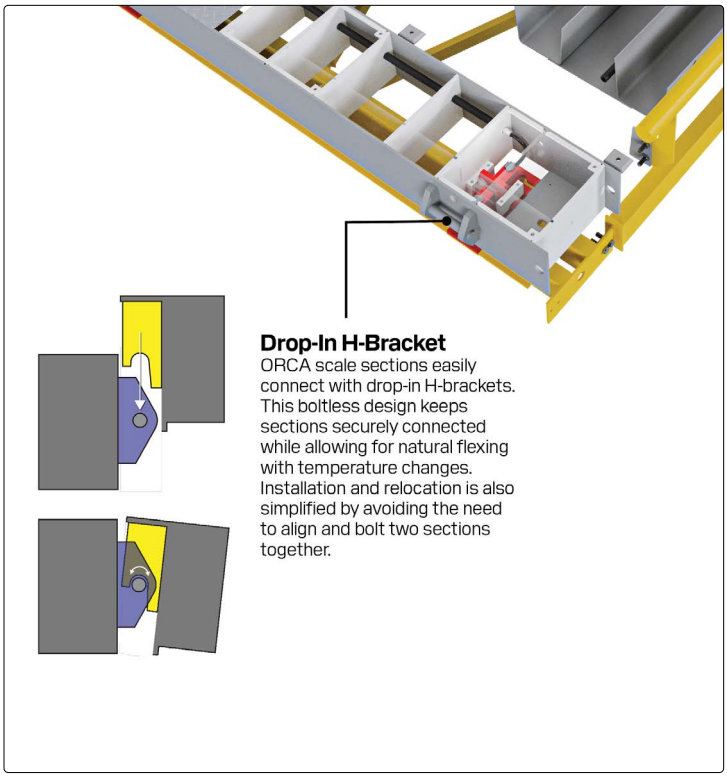
By allowing controlled movement within the suspension geometry itself, the M1 system eliminates the functional need for check rods and bumper bolts. Lateral forces are managed inherently through the mount design rather than external restraint hardware, reducing installation time, adjustment requirements, and long-term failure points.

3. Debris-Free, Service-Friendly

The M1™ mounting architecture features an open, self-clearing load path that does not depend on cups, boots, grease, or sealed cavities. This prevents debris accumulation in load-bearing areas (a common cause of premature wear in rocker column systems).



M1 Load Cell Mount



H-Bracket Section Interlock

1. Bolt-Free, Rapid Installation

The H-Bracket interlock uses a bolt-free, drop-in connection that allows weighbridge sections to be positioned and locked together quickly. Installation crews can set multiple sections in sequence with minimal alignment effort, significantly reducing crane time and on-site labor.

2. High-Tolerance, Self-Aligning Connection

The H-Bracket system accommodates real-world installation tolerances during assembly and foundation placement. By locking sections together vertically rather than relying on shear pins or bolted brackets, the connection maintains alignment while tolerating variations without binding or adjustment.

3. Robust, Service-Friendly Design

The vertically interlocking geometry provides a tight, deformation-resistant connection that limits both lateral and vertical movement under load. Its self-locking design also simplifies disassembly for maintenance or relocation, reducing downtime without compromising structural integrity.

Manufacturing Excellence

The long-term performance of a truck scale depends not only on sound design, but on how consistently that design is executed in production. The ORCA™ truck scale is manufactured using tightly controlled, industrial-scale processes that prioritize dimensional accuracy, weld integrity, and corrosion protection. Automation and repeatability are used wherever possible to reduce variability and ensure every scale performs as intended in the field.

1. Precision Material Processing

All structural components of the ORCA™ truck scale are produced using automated CNC cutting and forming equipment to ensure tight tolerances and repeatable geometry. Laser cutting and CNC plasma cutting are used to process plate material with clean edges and minimal thermal distortion, allowing components to fit together precisely during fabrication.

For forming the deep U-channel structure, ANYLOAD uses CNC hydraulic folding equipment rather than manual or press-brake methods commonly found in scale fabrication. Precise forming is critical to ensuring uniform load paths, proper weld fit-up, and consistent structural performance across every weighbridge module.

By controlling cutting and forming in-house, variability between components is minimized, improving structural consistency and simplifying downstream fabrication.

CNC Laser Cutting & Forming

2. Automated Welding and Structural Sealing

Structural welding is performed using automated and CNC-guided welding systems to ensure consistent weld size, penetration, and placement across all critical joints. Automation reduces dependence on operator variability and allows long, continuous welds to be applied with uniform quality.

All primary seams are continuously welded along their full length, sealing the internal structure of the U-channels. This approach not only maximizes structural continuity and fatigue resistance, but also prevents moisture and air ingress into enclosed sections. By eliminating partially welded seams and crevices, the risk of internal corrosion is significantly reduced compared to intermittently welded structures.

The result is a fully integrated, sealed weighbridge structure designed to maintain strength and dimensional stability under heavy cyclic loading.

Automated Continuous Welding

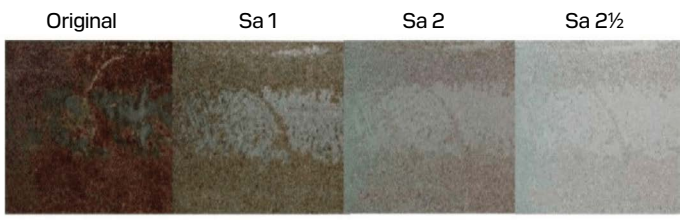
3. Shot Blasting

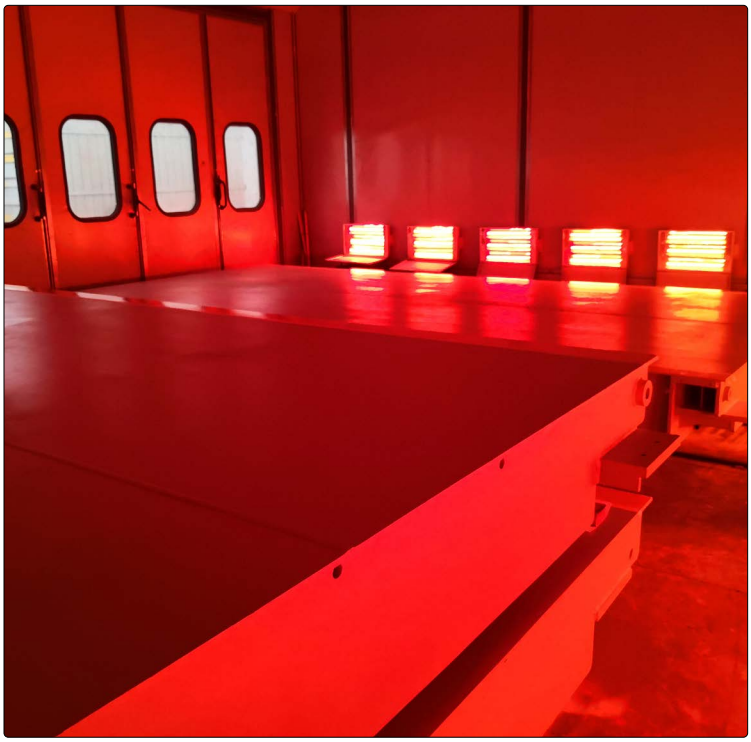
We perform 360° shot blasting on the scale body with a 12-jet automated blasting machine to systematically remove grease, dust, dirt, rust, oxide, coating, and other foreign substances from the metal surface, meeting ISO8501 metal surface cleaning level Sa2.5. This thorough cleaning ensures excellent paint adhesion to the truck scale surface. Shot blasting is a crucial step because, without it, even the best quality paint will not adhere properly to the metal. Contaminants and residues on the surface can cause the paint to peel, blister, or flake off over time, leading to inadequate protection and accelerated corrosion.

Proper surface preparation through shot blasting ensures that the paint bonds effectively with the metal. This process not only cleans the surface but also roughens it slightly, creating an ideal texture for the paint to grip onto. This enhances the longevity and effectiveness of the coating, providing a durable barrier against environmental factors such as moisture, chemicals, and abrasive materials. Ensuring a strong bond between the paint and the metal surface is essential for maintaining the scale's appearance and protecting its structural integrity over the long term.

Additionally, shot blasting reduces the residual stress caused by bending and welding, minimizing deformation and enhancing the overall durability of the truck scale. By relieving these stresses, the scale becomes more stable and less prone to structural deformation.

Automated Multi-Directional Shot-blasting





Temperature-Controlled Curing Chamber

4. Painting and Curing

Our truck scales undergo a dual-coating process with high-performance anti-corrosive resin coatings applied in a dedicated paint spraying booth. This controlled environment, equipped with precise HVAC systems, ensures that the coatings are not compromised by external variables such as temperature fluctuations, humidity, airborne particulates, and other contaminants.

Maintaining a stable micro-climate during the painting and curing stages is crucial, as deviations can adversely affect film formation and inter-coat adhesion. For instance, high humidity can lead to surface condensation, impeding proper adhesion, while airborne dust can embed in the coating matrix, creating discontinuities that compromise corrosion resistance.

The dedicated paint spraying booth and the controlled paint curing process facilitates a consistent and contaminant-free application process. This meticulous approach not only enhances the surface aesthetics but also significantly bolsters the mechanical properties and longevity of our truck scales. The high-quality resin coatings employed form an impermeable barrier against moisture ingress, chemical attack, and oxidative degradation, ensuring superior rust inhibition.

Painting and Drying Process

Serviceability in Mind

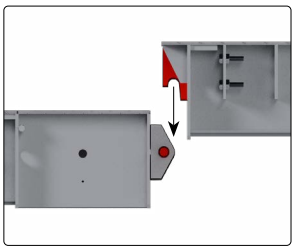
While the ORCA™ truck scale is engineered to minimize failures and maintenance, no industrial asset is completely immune to service requirements over a multi-decade lifespan. When service is required—whether for inspection, cleaning, calibration, or component replacement—the speed, safety, and simplicity of access become critical.

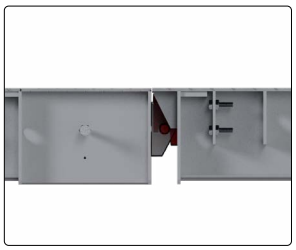
The ORCA™ design places a strong emphasis on serviceability without compromise, ensuring that routine work can be completed quickly, safely, and without unnecessary disruption to operations. Many of the same features that improve reliability also directly reduce service time and complexity.

Built-In Time Savings from the Start

Several core ORCA™ design elements introduced earlier play a direct role in reducing service effort:

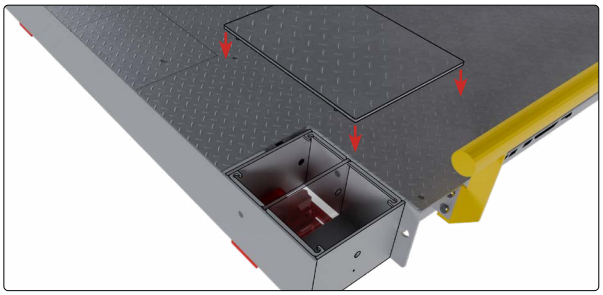
M1 Self-Aligning Mounting System eliminates check rods and bumper bolt dependence, removing common adjustment and failure points that often require periodic service.
H-Bracket drop-in interlocks allow weighbridge sections to be installed, serviced, or repositioned without removing seized fasteners and realigning bolt holes.





Bolt-Free, Interchangeable Covers

Each service pocket is protected by a bolt-free cover plate, allowing quick access without dealing with seized or corroded fasteners. All cover plates are identical and interchangeable. Any cover can be secured to any pocket without concern for matching or alignment.



Top-Access Load Cell Service Pockets

All ORCA™ truck scales feature dedicated load cell service pockets with direct top access. Load cells can be inspected, serviced, or replaced from above the deck without lifting the weighbridge or accessing the underside of the scale.

Multiple Safe Lifting Options

The ORCA™ weighbridge incorporates multiple engineered lifting points to support safe and flexible handling during installation, service, or relocation.

- Heavy-duty guardrails are structurally reinforced and rated to allow lifting of scale sections when required.
- Integrated lifting eyebolts on the deck provide direct vertical lift capability.
- Side-mounted lifting eyes allow controlled lifting and repositioning where overhead access is limited.
- Dedicated jacking locations along the sides of the weighbridge.

These options give service providers flexibility to choose the safest and most practical lifting method based on site conditions and available equipment.

Lower Total Cost of Ownership

A truck scale's true cost is determined over its service life. Structural durability, installation efficiency, service access, and corrosion protection all directly affect downtime and maintenance expense. The ORCA™ truck scale is engineered to minimize these costs by reducing service-prone components, simplifying installation and access, and maintaining long-term structural and measurement stability. The result is fewer service interventions, faster maintenance when required, and predictable performance over decades of operation.

Custom Designs for Unique Applications

The ORCA™ truck scale platform supports custom configurations without compromising structural integrity or serviceability. Scales can be engineered to fit existing pit foundations, space constraints, or non-standard capacities, with options including alternative coatings, galvanized construction, and configurations for corrosive or demanding environments.

All custom ORCA™ scales are developed using the same engineering analysis and controlled manufacturing processes as standard models, ensuring consistent durability, accuracy, and long-term performance across all applications.

Dealer & Factory Support

ORCA™ truck scales are supported by an established network of experienced dealers providing installation, calibration, and service across North America and international markets. This local support is backed by ANYLOAD's vertically integrated manufacturing and engineering organization, with decades of experience designing load cells and weighing systems. Direct factory involvement ensures consistent product quality, accessible technical support, and long-term parts availability throughout the life of the scale.

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