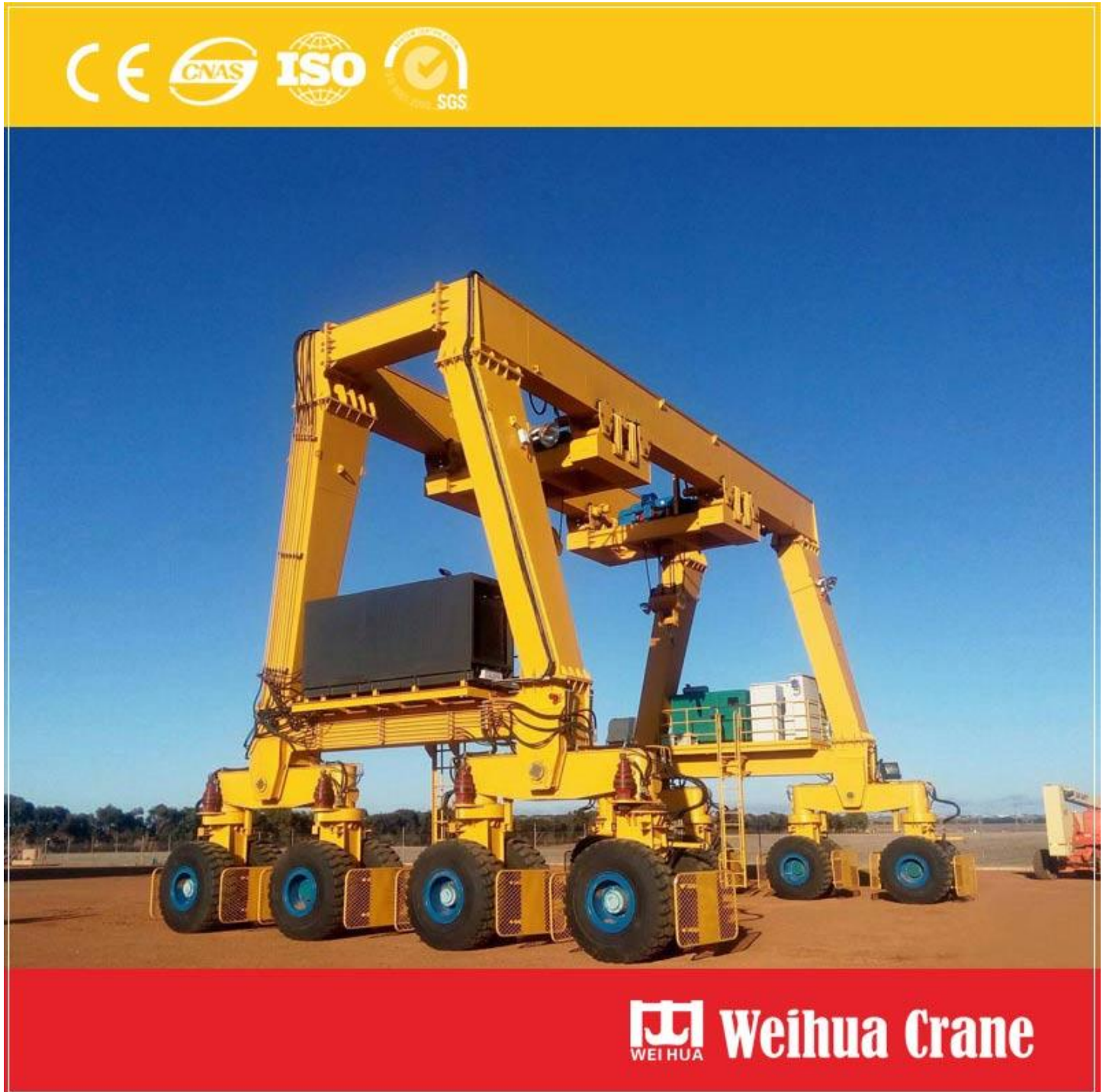


What is a rubber tyred gantry crane?

Original link: <https://www.globalweihua.com/crane-hook/what-is-a-rubber-tyred-gantry-crane/>



rubber tyred gantry crane

If you've ever visited a container terminal or watched footage of busy ports, you've likely seen large, imposing machines gliding across the yard, lifting and stacking shipping containers with precision. One of the most essential pieces of equipment in these logistics hubs is the rubber tyred gantry crane, commonly known as an RTG crane. But what exactly is it, and why is

it so crucial to modern port operations? Let's dive in and explore everything you need to know about this workhorse of the shipping industry.

For more information on rubber tire gantry cranes, please click: [Rubber Tyred Gantry \(RTG\) Cranes](#)

The Basics: Defining an RTG Crane

A rubber tyred gantry crane is a mobile lifting device designed specifically for handling and stacking intermodal containers in ports, container yards, and other logistics facilities. Unlike its counterpart, the [rail-mounted gantry \(RMG\) crane](#), which runs on fixed rails, the RTG is equipped with large rubber tires—hence its name—that allow it to move freely across the yard. This mobility is one of its defining features, making it a flexible solution for container storage and retrieval.

RTG cranes typically stand tall, with a gantry (a bridge-like structure) supported by four legs, each fitted with tires. The crane's lifting mechanism, including a hoist and spreader, is mounted on a trolley that travels along the length of the gantry beam. This setup enables the RTG to lift containers from the ground, trucks, or other transport vehicles and stack them in neat rows and columns, maximizing the use of available yard space.



Key Components of an RTG Crane

To understand how an RTG crane works, it's helpful to break down its main components:

- **Gantry Beam:** The horizontal beam that spans the width of the crane, providing the structure for the trolley to move along. It's engineered to support the weight of the lifting mechanism and the containers being handled.
- **Legs:** Four vertical legs that support the gantry beam and connect it to the tires. The legs are designed to be sturdy enough to bear the crane's total weight, including the load, while also allowing for stability during movement.

- **Rubber Tires:** Large, heavy-duty tires that enable the crane to move. These tires are often filled with foam or pressurized air to handle the immense weight and provide traction on various yard surfaces, from asphalt to concrete.
- **Hoist and Spreader:** The hoist is the lifting mechanism that raises and lowers the load, powered by electric motors or diesel engines. The spreader is attached to the hoist and is designed to grip containers securely by their corner castings, ensuring safe lifting and stacking.
- **Trolley:** The part of the crane that moves along the gantry beam, carrying the hoist and spreader. It allows the crane to position the spreader precisely over containers, whether they're on the ground or already stacked.
- **Control Cabin:** The operator's station, usually located on one of the legs or on the gantry beam. It's equipped with controls for moving the crane, operating the hoist, and adjusting the spreader, as well as safety features and monitoring systems.

How Does an RTG Crane Work?

The operation of an RTG crane is a coordinated process that combines mobility and precision. Here's a step-by-step breakdown of its typical workflow:

1. **Positioning:** The operator drives the RTG crane to the location of the container using the rubber tires. The crane's mobility allows it to reach any area of the yard, even if the containers are spread out.
2. **Lifting:** Once in position, the operator lowers the spreader from the hoist and aligns it with the container's corner castings. The spreader clamps onto the container, and the hoist lifts it off the ground, truck, or stack.
3. **Moving the Load:** The trolley travels along the gantry beam to move the container horizontally to the desired stacking location. The crane may also move forward or backward slightly to fine-tune the position.
4. **Stacking:** The operator lowers the container onto the target stack, ensuring it's properly aligned with the containers below. RTG cranes can typically stack containers 4-6 high and span 6-8 container rows, depending on their design.
5. **Repeat:** The process is repeated for each container, with the crane moving between pick-up and drop-off points as needed.

The Advantages of RTG Cranes

RTG cranes have become a staple in container yards for several key reasons, including:

- **Mobility and Flexibility:** Unlike RMG cranes, which are limited to rail tracks, RTGs can move anywhere in the yard. This makes them ideal for yards with changing layouts or where containers need to be accessed from multiple locations.
- **Space Efficiency:** By stacking containers vertically, RTG cranes help maximize the use of yard space. This is critical in busy ports where land is at a premium.
- **Easy Installation:** Since they don't require fixed rails, RTG cranes can be deployed quickly in new yards or existing facilities without major infrastructure changes.
- **Versatility:** They can handle a wide range of container sizes, from 20-foot to 40-foot (and even 45-foot) containers, making them adaptable to different shipping needs.
- **Cost-Effectiveness:** While the initial investment may be higher than some smaller lifting equipment, RTGs offer long-term cost savings due to their efficiency and low maintenance requirements (especially modern electric models).

Applications Beyond Ports

While RTG cranes are most commonly associated with ports and container terminals, their utility extends beyond these settings. They're also used in:

- **Inland Container Depots (ICDs):** Facilities located away from ports that handle container storage and transshipment between trucks and trains.
- **Industrial Facilities:** Factories and warehouses that receive or ship large quantities of goods in containers, using RTGs to manage on-site storage.
- **Military Bases:** For handling and storing military equipment and supplies transported in containers.

The Future of RTG Cranes

Like many pieces of industrial equipment, RTG cranes are evolving to meet the demands of a more sustainable and efficient logistics industry. Modern RTG models are increasingly electric-powered, replacing traditional diesel engines to reduce emissions and noise pollution. Some terminals are even adopting automated RTG (ARTG) cranes, which can operate without human intervention, further improving efficiency and safety.

These advancements are helping ports and logistics facilities become more environmentally friendly and productive, ensuring that RTG cranes will remain a vital part of the global supply chain for years to come.

Wrapping Up

In summary, a rubber tyred gantry crane is a mobile, versatile lifting device that plays a critical role in container handling and storage. Its ability to move freely across yards, stack containers

efficiently, and adapt to different needs makes it an indispensable tool in ports and logistics hubs worldwide. As technology continues to advance, we can expect RTG cranes to become even more efficient, sustainable, and integral to the smooth operation of the global shipping industry.

(注：文档部分内容可能由 AI 生成)