

# What is an overhead travelling crane?

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overhead travelling crane

If you' ve ever stepped into a large manufacturing plant, a busy shipping yard, or a heavy-duty warehouse, you' ve probably seen a massive piece of equipment gliding silently above the floor, lifting and moving enormous loads with precision. That workhorse of industrial operations is none other than an **overhead travelling crane**. But what exactly is it, how does it

work, and why is it indispensable in so many industries? Let's dive deep into the world of these overhead giants.

For product details, please refer to: [Overhead Travelling Crane](#)

## Defining the Overhead Travelling Crane

An overhead travelling crane, often simply called an overhead crane or bridge crane, is a type of material handling equipment designed to lift, lower, and transport heavy or bulky loads horizontally within a fixed area. Unlike mobile cranes (such as tower cranes or truck-mounted cranes) that can move from site to site, overhead travelling cranes are permanently installed in a specific location—typically spanning the width of a factory, warehouse, or workshop.

At its core, the crane consists of a bridge (the horizontal beam) that travels along elevated rails running parallel to each other. This bridge supports a hoist—the component that does the actual lifting—which can move back and forth along the length of the bridge. Together, these movements (bridge along the rails and hoist along the bridge) allow the crane to cover a rectangular work area, making it incredibly versatile for indoor operations.

## Key Components of an Overhead Travelling Crane



Overhead Travelling Crane

To understand how an overhead travelling crane functions, it's essential to familiarize yourself with its main parts. Each component plays a critical role in ensuring safe and efficient

load handling:

- **Bridge Girder:** The backbone of the crane, the bridge girder is the horizontal structure that spans the workspace. It's usually made of high-strength steel to support the weight of the hoist and the loads being lifted. Some cranes have single girders (for lighter loads) while others use double girders (for heavier, more demanding applications).
- **End Trucks:** Located at both ends of the bridge girder, end trucks house the wheels that allow the bridge to travel along the runways (the elevated rails). They also contain the motors and gearboxes that power the bridge's movement.
- **Runway Rails:** These are the fixed rails mounted on columns or walls that the end trucks travel along. The runways define the length of the area the crane can cover.
- **Hoist:** The hoist is the lifting mechanism, composed of a motor, a [crane wire rope drum](#) or chain, and a hook. It's attached to a trolley that moves along the bridge girder. The hoist can be electric (the most common type in industrial settings) or manual (for lighter loads or low-frequency use).
- **Trolley:** The trolley carries the hoist and moves horizontally along the bridge girder. It's driven by its own motor, allowing precise positioning of the hoist above the load.
- **Control System:** The crane is operated via a control pendant (a handheld device with buttons), a remote control, or a cab mounted on the bridge. The control system regulates the speed and direction of the bridge, trolley, and hoist movements.

## How Does an Overhead Travelling Crane Work?

The operation of an overhead travelling crane is a coordinated dance between its components, guided by the operator. Here's a step-by-step breakdown of a typical lifting cycle:

1. **Positioning the Bridge:** The operator moves the bridge along the runway rails to align it with the load's location.
2. **Positioning the Trolley:** Next, the operator moves the trolley (and attached hoist) along the bridge girder to position the hook directly above the load.
3. **Lifting the Load:** Using the hoist, the operator lowers the hook, attaches it securely to the load (using slings, chains, or other lifting accessories), and then raises the load to a safe height—clear of any obstacles.
4. **Transporting the Load:** The operator moves the bridge and/or trolley to transport the load to the desired location within the crane's work area.
5. **Lowering the Load:** Once the load is in position, the operator carefully lowers it to the ground or onto a designated surface.
6. **Resetting the Crane:** Finally, the operator moves the hoist, trolley, and bridge back to a neutral position, ready for the next lift.

# Common Applications of Overhead Travelling Cranes

Overhead travelling cranes are the backbone of countless industries, thanks to their ability to handle heavy loads efficiently and safely. Here are some of their most common uses:

- **Manufacturing:** In automotive, aerospace, and heavy machinery plants, cranes lift engine blocks, steel beams, and large components during assembly. They're also used to move raw materials (like metal coils or castings) from storage to production lines.
- **Warehousing and Logistics:** In distribution centers and ports, overhead cranes load and unload containers, stack pallets of goods, and move heavy shipments between storage areas.
- **Construction:** While more common indoors, some large construction sites use overhead cranes in prefabrication yards to lift and position concrete panels, steel trusses, and other building materials.
- **Mining and Metallurgy:** In mines and smelters, cranes handle ore, molten metal, and heavy mining equipment. They're designed to withstand harsh environments, including high temperatures and dusty conditions.
- **Power Generation:** In power plants (both fossil fuel and nuclear), cranes maintain and replace large components like turbines, generators, and boilers—tasks that require extreme precision and lifting capacity.

## Safety First: Tips for Operating Overhead Travelling Cranes

Given their size and lifting capacity, safety is paramount when operating an overhead travelling crane. Here are some essential safety guidelines:

**Never exceed the crane's rated capacity:** Each crane has a maximum weight it can safely lift. Overloading can lead to structural failure, equipment damage, or serious injury.

**Inspect the crane before use:** Check for damaged cables, worn wheels, faulty controls, and loose bolts. Report any issues immediately and do not operate the crane until repairs are made.

**Clear the work area:** Ensure no personnel are standing or working under the load or in the crane's path. Use warning signs or barriers to restrict access.

**Operate smoothly:** Avoid sudden starts, stops, or changes in direction, as this can cause the load to swing dangerously.

**Train operators properly:** Only certified, trained operators should handle overhead cranes. Regular refresher training helps keep skills sharp and ensures compliance with safety regulations.

## Conclusion: The Unsung Hero of Industrial Efficiency

An overhead travelling crane may not be the most glamorous piece of equipment, but it's undoubtedly one of the most important in the industrial world. By enabling the safe and efficient movement of heavy loads, it streamlines production processes, reduces manual labor, and boosts productivity across a wide range of industries.

Whether you're watching a car being assembled on a factory floor or a container being unloaded at a port, chances are an overhead travelling crane is hard at work behind the scenes. Understanding its design, components, and operation helps us appreciate the engineering marvel that keeps our industrial economies moving.

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