

overhead bridge crane

Overhead Bridge Crane: Ultimate Guide to Types, Features & Applications

Original link: <https://www.globalweihua.com/crane-hook/overhead-bridge-crane/>

What is an Overhead Bridge Crane?

An overhead bridge crane is a heavy-duty material handling equipment designed to lift, move, and position large or heavy loads horizontally across a fixed span. Suspended from or mounted on elevated runways (typically along the length of a facility), it consists of a bridge structure that travels along these runways, with a hoist or trolley system that moves perpendicular to the bridge—enabling precise, multi-directional load movement.

Widely used in industrial settings, overhead bridge cranes streamline operations, reduce manual labor, and enhance safety when handling weights from a few tons to hundreds of tons. They are customizable to fit specific workspace dimensions, load requirements, and environmental conditions, making them indispensable in manufacturing, logistics, and heavy industries.

Key Features of Overhead Bridge Cranes

Overhead bridge cranes are engineered for reliability, efficiency, and safety. Here are their core features:

- **High Load Capacity:** Designed to handle loads ranging from 1 ton to over 500 tons, suitable for light to ultra-heavy lifting tasks.
- **Precise Control:** Equipped with advanced hoist and trolley systems (manual, electric, or hydraulic) for smooth, accurate load positioning—critical for delicate operations like machinery assembly.
- **Durable Construction:** Built with high-strength steel girders, reinforced runways, and corrosion-resistant components to withstand harsh environments (e.g., high temperatures, dust, or humidity).
- **Safety Compliance:** Integrated safety features include overload protection, emergency stop buttons, limit switches, and anti-collision systems, meeting global standards (OSHA, ISO, FEM).

- **Space Efficiency:** Operates above ground level, freeing up floor space for other equipment or workflows—ideal for facilities with limited ground area.
- **Customizability:** Available in single or double girder designs, with options for span length, lifting height, power sources (electric, diesel), and automation (for unmanned operations).

Single Girder vs. Double Girder Overhead Bridge Cranes: What’s the Difference?

Choosing between single girder and double girder cranes depends on your load requirements, workspace, and budget. Here’s a breakdown:

Feature	Single Girder Overhead Bridge Crane	Double Girder Overhead Bridge Crane
Structure	One main girder (beam) supporting the hoist/trolley.	Two parallel girders with the hoist/trolley running between them.
Load Capacity	Up to 20 tons (standard); 50 tons (heavy-duty models).	20 tons and above (commonly 50–500+ tons).
Span Length	Ideal for spans up to 30 meters.	Suitable for longer spans (up to 50+ meters).
Lifting Height	Moderate (limited by single girder strength).	Higher lifting heights (extra clearance due to dual girders).
Cost	More affordable (simpler design, lower material use).	Higher initial cost (sturdier build, larger components).
Best For	Light to medium loads; small to medium facilities (e.g., workshops, warehouses).	Heavy loads, large spans, or harsh environments (e.g., steel mills, shipyards).

Technical Specifications of Overhead Bridge Cranes

Below is a general parameter table for common overhead bridge crane models. Custom specifications are available based on your needs:

Model Type	Max Lifting Capacity	Span Length	Lifting Height

Single Girder (Standard)	1–20 tons	5–30 m	3–12 m
Single Girder (Heavy-Duty)	20–50 tons	10–25 m	5–15 m
Double Girder (Standard)	20–100 tons	10–40 m	6–20 m
Double Girder (Ultra-Heavy)	100–500+ tons	15–50+ m	8–30 m

Working Class: Indicates duty cycle (how often the crane operates under load). Higher classes (A7–A8) suit continuous, heavy-use environments.

Industries That Use Overhead Bridge Cranes

Overhead bridge cranes are versatile across sectors requiring heavy material handling. Key applications include:

- **Manufacturing:** Moving raw materials (steel, aluminum) and finished products on assembly lines (automotive, aerospace, machinery).
- **Warehousing & Logistics:** Loading/unloading cargo, stacking pallets, and organizing inventory in distribution centers.
- **Metallurgy:** Handling molten metal, ingots, and rolled steel in foundries and steel mills.
- **Construction:** Lifting building materials (steel beams, concrete panels) in prefabrication yards or on-site.
- **Mining:** Transporting ore, equipment, and components in mines or processing plants.
- **Shipbuilding:** Assembling large ship parts and moving heavy machinery in dry docks.
- **Waste Management:** Handling bulk waste or recycling materials in treatment facilities.

How to Choose the Right Overhead Bridge Crane?

Follow these steps to select the perfect overhead bridge crane for your needs:

1. **Determine Load Requirements:** Calculate the maximum weight you’ ll lift (include margins for future needs) to choose between single (≤ 20 tons) or double (≥ 20 tons) girder models.
2. **Measure Your Workspace:** Check the span (distance between runways) and available headroom (lifting height) to ensure the crane fits.
3. **Assess Working Conditions:** Consider environmental factors—high temperatures, dust, or corrosive substances may require specialized coatings or components.
4. **Evaluate Duty Cycle:** Choose a working class (A3–A8) based on how often the crane will operate (e.g., A7 for 24/7 heavy use).

5. **Set a Budget:** Single girder cranes are more cost-effective for light tasks; double girder cranes are a long-term investment for heavy loads.
6. **Prioritize Safety & Compliance:** Ensure the crane meets local regulations (e.g., OSHA in the U.S., CE in the EU) and includes essential safety features.

Frequently Asked Questions (FAQs)

Q1: How often should an overhead bridge crane be inspected?

A: Daily visual checks (for wear, leaks, or loose parts) and annual professional inspections are mandatory. Heavy-use cranes (A7–A8) may require quarterly inspections.

Q2: Can overhead bridge cranes be automated?

A: Yes. Modern models can integrate with IoT systems for automated load tracking, scheduled movements, and remote operation—ideal for repetitive tasks.

Q3: What's the lifespan of an overhead bridge crane?

A: With proper maintenance, single girder cranes last 15–20 years; double girder cranes can operate for 25–30 years or longer.

Q4: How is an overhead bridge crane installed?

A: Installation involves mounting runways to building columns or support structures, positioning the bridge, and integrating the hoist/trolley. Professional installation is recommended for safety.

Q5: What's the difference between an overhead bridge crane and a gantry crane?

A: Overhead bridge cranes run on elevated runways (attached to a building), while gantry cranes have ground-supported legs—making gantries better for outdoor or open spaces.

Ready to enhance your material handling efficiency? Contact us for a custom overhead bridge crane solution tailored to your industry and workflow.

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