

What are the parts of an overhead crane?

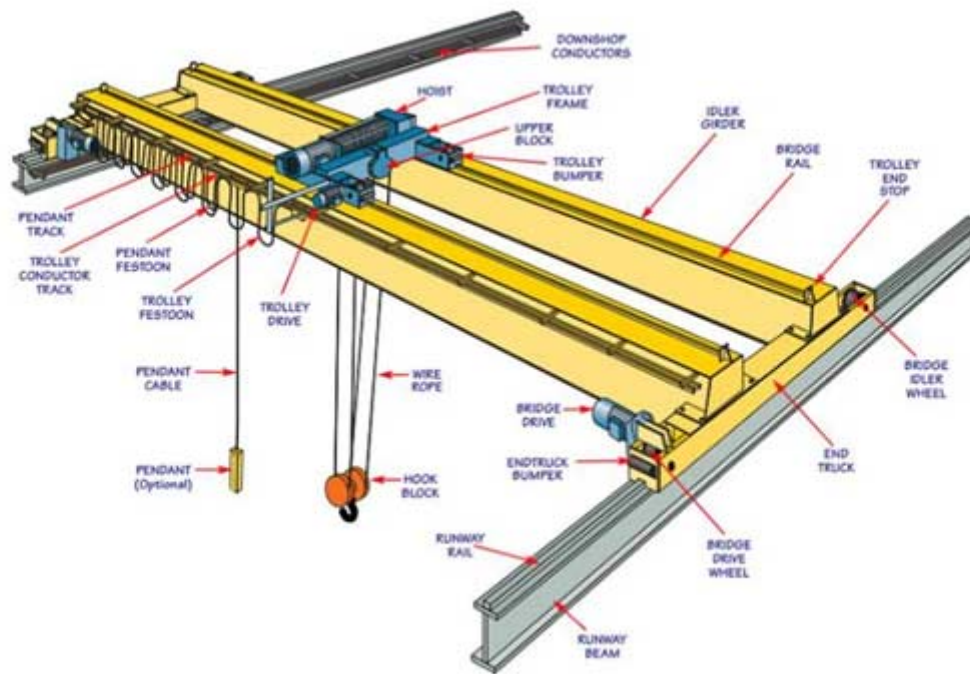
Original link: <https://www.globalweihua.com/blog/what-are-the-parts-of-an-overhead-crane/>



overhead crane

Overhead cranes (also called bridge cranes) are indispensable in manufacturing plants, warehouses, construction sites, and ports, enabling safe and efficient lifting of heavy loads. To understand how these machines operate, it's crucial to familiarize yourself with their core **overhead crane parts**—each component plays a vital role in ensuring stability, precision, and safety. In this guide, we'll break down the key parts of an overhead crane, their functions, and highlight trusted manufacturers like WEIHUA Group that deliver high-quality solutions for global industries.

Key Overhead Crane Parts & Their Functions



overhead crane parts

Every overhead crane is composed of interconnected parts, designed to work in harmony for lifting, moving, and positioning loads. Below is a detailed breakdown of the essential **overhead crane parts**:

Bridge Girder (Main Beam)

The bridge girder is the horizontal backbone of the overhead crane, spanning the width of the workspace (e.g., between two runways). It supports the trolley, hoist, and the load itself. Key features:

- **Materials:** Typically made of high-strength steel (e.g., Q355B) for durability and load-bearing capacity.
- **Types:** Single girder (for lighter loads, 1–20 tons) or double girder (for heavier loads, 5–500 tons) designs.
- **Function:** Distributes the load evenly across the crane's structure, ensuring stability during movement.

End Trucks (End Carriages)

Located at both ends of the bridge girder, end trucks are the “wheels” that allow the crane to travel along the runway rails. Critical components:

- **Wheels:** Made of forged steel or polyurethane (for low-noise operations) to withstand heavy loads and frequent use.
- **Gearboxes & Motors:** Drive the end trucks, enabling smooth horizontal movement (longitudinal travel) of the crane.

- Brakes: Ensure the crane stops securely, preventing unintended movement.

Trolley

The trolley is a movable unit mounted on the bridge girder, allowing lateral (side-to-side) movement. It houses the hoist and is responsible for precise positioning of the load. Key details:

- Travel Mechanism: Equipped with motors, gears, and wheels for smooth movement along the bridge's rail.
- Load Capacity: Matches the crane's overall capacity, with options for manual (light loads) or electric (heavy loads) operation.
- Anti-Sway Features: Advanced trolleys include anti-sway technology to minimize load swing, improving efficiency and safety.

Hoist – The Lifting Core

The hoist is the heart of the overhead crane, responsible for raising and lowering the load. It's mounted on the trolley and consists of:

- Drum: Wraps the steel cable or chain to lift the load.
- Motor: Powers the drum's rotation (electric motors are standard for industrial use; hydraulic motors for extreme heavy loads).
- Gearbox: Reduces motor speed to generate lifting torque.
- Hooks: High-strength alloy steel hooks (with safety latches) to secure loads.
- Brake System: Failsafe brakes to hold the load in place if power is lost.

Runway Rails & Supports

Runway rails are the tracks along which the end trucks travel, typically mounted on columns or overhead beams. Key aspects:

- Rails: Made of high-carbon steel for wear resistance; precision-aligned to ensure smooth crane movement.
- Supports: Columns (concrete or steel) or ceiling-mounted brackets that anchor the rails to the building structure.
- Alignment: Critical for preventing crane jamming or uneven wear on end truck wheels.

Control System

The control system allows operators to manage the crane's movements (lifting, lowering, trolley travel, bridge travel). Common types:

- Pendant Controls: Handheld devices with buttons/levers for manual operation (ideal for close-range tasks).

- **Radio Remote Controls:** Wireless devices that let operators control the crane from a safe distance (improves visibility).
- **PLC & Automation:** Advanced systems for programmable movements (e.g., repetitive tasks in manufacturing lines).

Safety Devices

Overhead cranes are equipped with multiple safety features to protect operators, loads, and the machine itself:

- **Load Limiters:** Prevent overloading by cutting power if the load exceeds the crane's capacity.
- **Anti-Collision Systems:** Detect other cranes or obstacles on the same runway, triggering alarms or automatic stops.
- **Emergency Stop Buttons:** Instantly shut down all crane operations in case of danger.
- **Limit Switches:** Prevent the hoist or trolley from moving beyond safe travel limits.

Choosing a Reliable Overhead Crane Manufacturer

When investing in an overhead crane, selecting a trusted manufacturer is just as important as understanding its parts. A reputable manufacturer ensures high-quality components, durable construction, and compliance with global safety standards (e.g., ISO, CE, ANSI). Here's what to look for:

Key Qualities of Top Manufacturers

1. **Expertise & Experience:** Manufacturers with decades of industry experience (e.g., WEIHUA Group, founded in 1988) have refined their designs and production processes to meet diverse customer needs.
2. **Customization Capabilities:** The ability to tailor cranes to specific applications (e.g., high-temperature environments, heavy-duty lifting) ensures optimal performance.
3. **Quality Control:** Strict testing of components (e.g., load capacity, brake efficiency) guarantees reliability and safety.
4. **Global Support:** Comprehensive after-sales service, including installation, maintenance, and spare parts supply, minimizes downtime.

Spotlight on WEIHUA Group – A Leading Overhead Crane Manufacturer

WEIHUA Group is a global leader in the design, production, and supply of overhead cranes, gantry cranes, and crane accessories. With over 35 years of experience, WEIHUA has earned a reputation for excellence in:

- **High-Quality Components:** All overhead crane parts (e.g., bridge girders, hoists, control systems) are manufactured using premium materials and advanced technology, ensuring durability and long service life.
- **Global Compliance:** WEIHUA cranes meet international standards (ISO 9001, CE, ANSI/ASME) and are exported to over 100 countries, including the U.S., Mexico, Brazil, and European nations.
- **Custom Solutions:** WEIHUA offers tailored cranes for industries like automotive, steel, logistics, and construction, with load capacities ranging from 0.5 tons to 1,200 tons.
- **After-Sales Support:** A global network of service centers provides installation, training, maintenance, and spare parts, ensuring customers get the most out of their investment.

FAQ About Overhead Crane Parts & Manufacturers

Q1: What are the most critical overhead crane parts for safety?

A1: The most critical parts include the hoist (lifting core), brakes (prevents load drops), load limiters (avoids overloading), and emergency stop systems. Regular inspection of these parts is essential for safe operation.

Q2: How often should overhead crane parts be maintained?

A2: Routine maintenance (e.g., lubrication of moving parts, inspection of cables/chains) should be performed monthly. Annual comprehensive inspections by qualified technicians are required to comply with safety regulations.

Q3: Can I replace overhead crane parts with third-party components?

A3: While third-party parts may be cheaper, using genuine parts from the original manufacturer (e.g., WEIHUA) ensures compatibility, safety, and warranty coverage. Non-genuine parts may compromise crane performance and void warranties.

Q4: What is the typical lifespan of overhead crane parts?

A4: The lifespan varies by component and usage: hoists and motors last 10–15 years, while cables/chains may need replacement every 3–5 years (depending on load frequency). Regular maintenance extends the lifespan of all parts.

Q5: How do I choose the right overhead crane parts for my application?

A5: Consider factors like load capacity, lifting height, travel distance, environment (e.g., temperature, humidity), and safety requirements. Consult with a manufacturer like WEIHUA for expert guidance on component selection.

Conclusion

Understanding the **overhead crane parts** and their functions is key to selecting the right crane for your needs and ensuring safe, efficient operation. Each component—from the bridge girder to the control system—plays a critical role in the crane's performance, so investing in high-quality parts from a trusted manufacturer is essential.

WEIHUA Group stands out as a reliable partner for overhead cranes, offering top-tier components, custom solutions, and global support. Whether you need a standard overhead crane or a specialized system, WEIHUA's expertise and commitment to quality make it a top choice for businesses worldwide.

If you're ready to invest in an overhead crane or need replacement parts, contact a reputable manufacturer to discuss your requirements and ensure you get a solution that meets your needs and exceeds safety standards.

（注：文档部分内容可能由 AI 生成）