

## Tower Cranes

Tower Crane Rentals and Sales Fairfield - A popular machine within the materials handling family is the crane. Depending on the application, cranes may have wire ropes, sheaves, chains or a hoist rope. These components enable cranes to lift and lower items vertically as well as transporting items horizontally. Shipping containers, giant crates, heavy machinery and other items can be transported efficiently. Freight Transportation Cranes simplify loading and unloading and moving items. The lifting capacity depends on the model. Cranes deliver a major mechanical advantage, allowing people to lift tremendous amounts of freight. Cranes are found in many industries and often seen on construction sites. Specified Use There are different cranes for many applications. Jib cranes can be used for tighter environments including workshops. Extensive tower cranes can be seen in construction. There is a crane perfectly suited for a variety of applications. Tight spaces may be more accessible with the use of cranes. Floating crane models may be employed to salvage sunken marine items including ships or used in oil rigs.

**Tower Cranes** A tower crane is a model that is fixed on a concrete slab to the ground. This unit is often seen mounted to sides of structures to provide superior lifting and height. These cranes are used in residential and commercial construction. The base is mounted to the mast which can create further reach by extension. The crane is capable of rotating thanks to the mast that connects to the slewing unit. Above the slewing component, the operator cab is situated, along with the long horizontal jib and the counter jib. The long horizontal jib is the main crane component responsible for carrying the load. Concrete blocks may be used with the counter-jib to create the counterweight. The jib houses the crane's load to and from the center. Typically, the operator is found inside of a cab located on top of the tower that is attached to the turntable; however, it can be mounted on the jib alternatively. The operator may rely on a radio remote control apparatus from the ground. The crane operator uses electric motors to operate the lifting hook and control wire rope cables within a system of sheaves. The long horizontal arm houses the cargo hook and its' motor. The operator often works with a rigger to coordinate hooking and unhooking loads. Hand signals are an important part of daily safety. The rigger has an important job dictating the crane's lifting schedule. They are responsible for making sure all rigging is reliable and safe.

**Truck-Mounted Cranes** The boom and the carrier are two parts found on truck-mounted cranes. The carrier and the boom have an attached turntable to enable the upper component to swing from side to side. Updated hydraulic truck cranes are typically single-engine units. The engine supplies power to both the undercarriage and the crane. The pump mounted on the lower area of the crane supplies power to the upper part of the crane via hydraulics and a turntable. Back in the day, older models of hydraulic crane trucks often had two engines. The first engine enabled the crane to travel down the road while the second engine controlled the hydraulic pump for the outriggers and jacks. Some operators prefer the older dual-engine models since there are often turntable leaks many newer units. Cranes commonly have to travel via roads to get to different jobs. This can eliminate industrial transportation requirements unless the crane is sizeable with certain weight restrictions. Local laws may be in place regarding transportation. Typically, larger cranes are outfitted with trailers to help distribute the load over numerous axles. There are some crane models that can be taken apart to accommodate particular requirements. A crane will often be followed by another truck containing the counterweights that are disassembled for travel.

**Outriggers & Stability** Stability is achieved by horizontal outriggers extending from the chassis of the crane. Vertical stability is achieved by the outriggers to keep the machine level while completing hoisting and stationary applications. Specific crane truck models can slowly travel with a suspended load. Care is taken to ensure the load doesn't swing sideways from the direction of travel. The stiffness of the chassis suspension delivers most of the anti-tipping aspect. Moving counterweights are included in a variety of models to amplify stabilization further than what the outriggers offer. Suspended loads are some of the most stable with most of the crane's weight functioning like a counterweight. Electronic safeguards are in place to monitor the maximum safe loads for

stationary work and traveling speeds. Overhead and Bridge Cranes An overhead crane is a kind of crane commonly called a bridge crane. This concept features a hook-and-line mechanism and a crane with a horizontal beam that is made to run along rails. These cranes are similar to gantry cranes that are typically found in factory buildings. They attach to rails which run alongside two walls. Cranes can be made with single or double beam construction and may rely on complex box girders or regular steel beams. Certain overhead cranes have the ability to use a control pendant for operation. A double girder bridge can be used in places that require heavy lifting such as 10 tons or more. The box girder design creates a system featuring higher system integrity with a lower deadweight. The hoist can lift the cargo along with the bridge portion covered by the crane and the trolley that can travel along the bridge. The steel industry relies on overhead cranes for much of the manufacturing. Steel is typically handled by an overhead crane until it leaves the factory as a finished piece. An overhead crane handles all kinds of steel including raw materials being pored to transporting finished oils and storing hot steel. Overhead cranes lift steel components onto trucks. Metal fabricators and stampers use this equipment every day including the auto industry to transport raw materials. Pulp & Paper Mills Bridge cranes are commonly used in pulp mill maintenance. They are responsible for removing equipment including heavy press rolls. Bridge cranes are used in the construction of paper machines as they facilitate the installation of giant equipment and apparatus including the cast iron paper drying drums and other massive items. Loader Crane Powered electrically with an articulated arm attached to a truck or trailer, specific for loading and unloading, the loader crane has numerous joints to allow the machine to be folded into a small space between uses. Telescopic sections are common. Certain models are equipped to stow themselves or load themselves without any instruction from the operator To complete viewing access of the load, the operator must move around the vehicle. Current models often feature a portable cabled control system or radio-linked system that works beside hydraulic controls that are mounted on the crane. Gantry Crane A gantry crane features a hoist located on a trolley running horizontally along rails, often fitted on two beams or a single beam or in a fixed machinery house. The crane frame is supported on a gantry system with equalized beams and wheels that run on the gantry rail, usually perpendicular to the trolley travel direction. These cranes come in all sizes, and some can move very heavy loads, particularly the extremely large examples used in shipyards or industrial installations.