

## Tower Cranes

Tower Crane Rentals and Sales Sacramento - A popular machine within the materials handling family is the crane. These machines may be outfitted with sheaves, a hoist rope, wire ropes or chains. These components enable cranes to lift and lower items vertically as well as transporting items horizontally. Cranes make transporting cumbersome loads including machinery, shipping containers and crates much easier. Freight Transportation Cranes are utilized to move items in terms of making loading and unloading easier and safer. Different models have various lifting capacities. They provide a huge mechanical advantage and enable people to lift thousands of pounds of freight. Cranes are found in many industries and often seen on construction sites. Specified Use Jib cranes can be tiny and are suited for cramped and smaller environments including workshops while giant tower cranes can be employed to construct high-rises. There is the right crane model available for numerous applications. They can help provide access to tight spaces. Floating cranes can be useful for salvaging sunken ships and other marine items. They may also be used on oil rigs.

**Tower Cranes** The type of crane that is fixed on a concrete slab is a tower crane. This model is commonly attached to the sides of structures. It offers precise height and lifting reliability. These cranes are used in residential and commercial construction. The base is mounted to the mast which can create further reach by extension. The mast is connected to the slewing unit of the crane that enables it to rotate. On top of the slewing portion are three parts known as the operator's cab, the shorter counter-jib and the long horizontal jib. The main component responsible for carrying the load is the long horizontal jib. The counter-jib creates the counterweight and it may rely on concrete blocks. The jib houses the crane's load to and from the center. Usually, the operator of the crane resides in a cab situated on top of the tower, attached to the turntable; however, it may be capable of being mounted on the jib. 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 sizeable horizontal arm contains the cargo hook along with its' motor. The operator commonly works together with a rigger to safely hook and unhook loads. Daily safety requires many important hand signals. The rigger dictates the lifting schedule for the crane and is responsible to ensure all loads and subsequent rigging is safe and reliable.

**Truck-Mounted Cranes** Truck-mounted cranes feature two parts known as the carrier and the boom. These two pieces rely on a turntable to attach them and allow the upper portion to swing from side to side. Typically, modern hydraulic truck cranes feature single engines. The engine supplies power to both the undercarriage and the crane. Hydraulics are necessary for delivering power to the upper portion of the crane through the turntable located from the pump attached to the bottom portion. Earlier hydraulic crane trucks commonly 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. There are operators who would rather run the older two-engine models due to the frequent turntable leaks that often occur in some of the newer designs. Cranes often need to travel on roads to different locations, eliminating the need for industrial transportation unless there are size and weight restrictions. Transportation falls under local laws. Generally, bigger cranes have trailers to help the load become distributed over many 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** Outriggers are extended horizontally from the chassis of the crane. These are used vertically to stabilize the machine and keep it level during hoisting and stationary activities. Specific crane truck models can slowly travel with a suspended load. Care is given to ensure the load doesn't swing during travel. The majority of the anti-tipping aspect is related to the stiffness of the chassis suspension. 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 A bridge crane is a type of overhead crane. This concept features a hook-and-line mechanism and a crane with a horizontal beam that is made to run along rails. This type of crane resembles a gantry crane. They are common within factory buildings and attach to rails that run down two walls. Overhead cranes may feature single or double beam construction and may use regular steel or complex box girder beams. Some overhead cranes have the capacity to be operated with a control pendant. Areas that need heavy lifting around ten tons or more can rely on a double girder bridge. The box girder design creates a system featuring higher system integrity with a lower deadweight. Cargo can be lifted with a hoist and the trolley that can travel along the bridge along with the bridge component covered by the crane. The steel industry relies on overhead cranes for much of the manufacturing. Steel is typically handled by an overhead crane until it is transformed into a finished piece and leaves the factory. From raw materials to pouring hot steel and moving finished product, overhead cranes handle steel at every stage. Steel components are loaded by overhead crane and lifted onto trucks. Metal stampers and fabricators rely on this equipment daily as does the automobile industry to handle raw materials. Pulp & Paper Mills Bridge cranes are often relied on for regular pulp mill maintenance including removing equipment such as heavy press rolls. Paper machines rely on bridge cranes during construction to install massive equipment including cast iron paper drying drums and other heavy apparatus. 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. The operator can move around the machine in order to view the load. Hydraulic controls that are mounted on the crane may work with a portable cabled control system and a radio-linked system. Gantry Crane A gantry crane has a hoist in a fixed machinery house or on a trolley that runs horizontally along rails, usually fitted on a single beam or two beams. 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. The gantry cranes are available in numerous sizes. Some models can move extremely heavy loads for industrial and shipyard applications.