

Tower Cranes

Tower Crane Rentals and Sales Richmond - 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. Shipping containers, giant crates, heavy machinery and other items can be transported efficiently. Freight Transportation Cranes simplify loading and unloading and moving items. Their lifting capacity varies depending on the model. 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 are numerous cranes suited for many different jobs. 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 The type of crane that is fixed on a concrete slab is a tower crane. This unit is often seen mounted to sides of structures to provide superior lifting and height. Popular for building tall commercial buildings and residential structures, the base is mounted to the mast to create even further reach once extended. The mast is connected to the slewing unit of the crane that enables it to rotate. The long horizontal jib, the shorter counter-jib and the operator's cab are all found above the slewing portion. The long horizontal jib is the main crane component responsible for carrying the load. 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. Normally the crane operator stays inside of a cab found on top of the tower attached to the turntable; although, it may be mounted on the jib instead. Operators can use a radio remote control unit from the ground. The operator relies on electric motors to control wire rope cables in a system of sheaves and control the lifting hook. The long horizontal arm houses the cargo hook and its' motor. Often, the operator works alongside a rigger to accurately coordinate unhooking and hooking loads. Hand signals are a huge safety component used daily. The rigger determines the crane's lifting schedule and is responsible to make sure everything load and rigging wise is reliable and safe. Truck-Mounted Cranes The boom and the carrier are two parts found on truck-mounted cranes. These two items have a turntable to attach them, allowing the higher portion the ability to swing from side-to-side. Typically, modern hydraulic truck cranes feature single engines. The same engine is responsible for providing power to the crane and the undercarriage. Hydraulics are responsible for providing power to the upper via the turntable from the pump mounted on the lower portion. 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. Transportation falls under local laws. Generally, bigger cranes have trailers to help the load become distributed over many axles. Some models can be disassembled to meet specific requirements. A crane will often be followed by another truck containing the counterweights that are disassembled for travel. Outriggers & Stability Outriggers horizontally extend from the cranes' chassis to provide stability. These are used vertically to stabilize the machine and keep it level during hoisting and stationary activities. Some truck crane units can travel at slow speeds even while carrying 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. Counterweights can be moved and adjusted on certain models to enhance stabilization even more than what the outriggers deliver. Some of the most stable loads are suspended loads since the weight of the crane serves as 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 often referred to

as a bridge crane. This apparatus consists of a crane with a horizontal beam and a hook-and-line mechanism that is designed to run along widely spaced rails. This type of crane resembles a gantry crane. They are common within factory buildings and attach to rails that run down two walls. Cranes can be made with single or double beam construction and may rely on complex box girders or regular steel beams. A control pendant may be used to operate the crane. 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 is familiar with overhead cranes throughout the manufacturing process. An overhead crane typically handles steel until it exits the factory as a completed item. All steel is handled by an overhead crane from raw materials being poured to storing hot steel for cooling and transporting finished coils. 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 Pulp mill maintenance commonly relies on bridge cranes. They are responsible for removing items 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. Telescoping sections are popular. There are models that have the ability to stow or load themselves without any operator instruction. 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 There is a hoist on the gantry crane found in a fixed machinery house or a horizontal trolley that runs along rails often fitted between two beams or a single beam. The crane frame is supported via beams and wheels on a gantry system and runs on the gantry rail which is generally perpendicular to the trolley direction of travel. These cranes are available in many sizes and capable of moving heavy and cumbersome loads for industrial applications and in shipyards.