

Tower Cranes

Tower Crane Rentals and Sales Iowa - 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 products allow cranes to hoist materials vertically and transport them 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. Cranes offer a great job site support and the mechanical advantage of an extended lifting capacity. Cranes are popular in a variety of industries and found in many locations. 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 the right crane model available for numerous applications. Tight spaces may be more accessible with the use of cranes. Floating cranes can be utilized for maritime applications such as salvaging sunken items or on oil rigs. Tower Cranes This type of crane is fixed on a concrete slab to the ground. It is often seen attached to sides of structures as it provides excellent lifting and height capacity. 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. The long horizontal jib, the shorter counter-jib and the operator's cab are all found above the slewing portion. 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. Operators can use a radio remote control unit 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. 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 Truck mounted cranes consist of two parts including the boom and the carrier. These two pieces rely on a turntable to attach them and allow the upper portion to swing from side to side. Modern hydraulic truck cranes are generally single-engine machines. 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. Back in the day, older models of hydraulic crane trucks often had two engines. One engine controlled the hydraulic pump for the outriggers and the jacks while the other engine was responsible for the crane's travel. Some operators prefer the older dual-engine models since there are often turntable leaks many newer units. You may have witnessed cranes traveling on roads to travel from site to site. This can eliminate the need for industrial transportation requirements unless the crane is of sizeable weight with size restrictions. Local transportation laws are in place. Larger machines may have trailers to distribute the load over a variety of axles. Certain cranes can be taken apart to meet certain 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. Some of the most stable loads are suspended loads since the weight of the crane serves as a counterweight. There are electronic safeguards in place to regulate the maximum safe loads for traveling

speeds and stationary work. **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 a gantry crane and are often found in long factory buildings and attach to rails that run down two long walls. Double beam or single beam construction model crane designs are available for overhead cranes, which may rely on complex box girder beam or regular steel beams. Certain overhead cranes have the ability to use a control pendant for operation. Locations requiring heavy lifting from ten tons and higher may use 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. 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** Bridge cranes are commonly used in pulp mill maintenance. They are responsible for removing equipment including heavy press rolls. Bridge cranes utilized in paper machine construction help to install large apparatus' and equipment including huge components such as cast-iron paper drying drums and similar 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. These telescoping abilities are useful. Some models can even load or stow themselves on their own without any operator intervention. To complete viewing access of the load, the operator must move around the vehicle. Hydraulic controls that are mounted on the crane may work with a portable cabled control system and a radio-linked system. **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 on a gantry system with equalized beams and wheels that run on the gantry rail, usually perpendicular to the trolley travel direction. These cranes are available in many sizes and capable of moving heavy and cumbersome loads for industrial applications and in shipyards.