

Tower Cranes

Tower Crane Rentals and Sales Indiana - Cranes are a globally recognized form of industrial equipment that is commonly used in the materials handling industry. 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 can lift difficult loads to make unloading and loading safer and more efficient. Different models have various lifting capacities. Cranes offer a great job site support and the mechanical advantage of an extended lifting capacity. Cranes are commonly found on construction sites and a variety of industries. 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 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. 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. Above the slewing component, the operator cab is situated, along with the long horizontal jib and the counter jib. The majority of the load is carried via the long horizontal jib. The counterweight is created by the counter-jib that may utilize concrete blocks. The jib handles the load to and from the center of the crane. 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. Electric motors are used to operate the lifting hook and control wire rope cables located within a sheaves system. The cargo hook, along with its motor is found in the long horizontal arm. The operator often works with a rigger to coordinate hooking and unhooking loads. Hand signals are a huge safety component used daily. 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. Updated hydraulic truck cranes are typically single-engine units. 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. Original, older hydraulic crane truck models commonly featured dual engines. One engine controlled the hydraulic pump for the outriggers and the jacks while the other engine was responsible for the crane's travel. 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. Typically, another truck with the disassembled counterweights will follow the crane. Outriggers & Stability Outriggers are extended horizontally 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. Most of the anti-tipping capability is related to how stiff the chassis suspension is. Many models include moving counterweights to be adjusted to enhance stabilization farther than what the outriggers provide. 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. This type of crane resembles a gantry crane. They are common within factory buildings and attach to rails that run down two 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. A control pendant may be used to operate the crane. 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. 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 manufacturing process of the steel industry utilizes cranes frequently. Steel is typically handled by an overhead crane until it leaves the factory as a finished piece. From raw materials to pouring hot steel and moving finished product, overhead cranes handle steel at every stage. Steel items are moved onto trucks via overhead cranes. Metal fabricators and stampers and the automobile industry rely on these machines. 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 Electrically powered with an articulated arm attached to a trailer or a truck and specified for unloading and loading, the loader crane consists of many jointed components that enable 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 needs to move around the vehicle for viewing access to 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 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 come in all sizes, and some can move very heavy loads, particularly the extremely large examples used in shipyards or industrial installations.