

## Tower Cranes

Tower Crane Rentals and Sales Manitoba - 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. Heavy crates, shipping containers, machinery and similar items can be efficiently moved thanks to a variety of crane models. 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 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 a crane perfectly suited for a variety of applications. Some cranes can allow 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** This type of crane 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 crane is capable of rotating thanks to the mast that connects to the slewing unit. 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 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 contains the load to and from the crane's 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. There is a radio remote control feature that operators can access 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 feature two parts known as the carrier and the boom. 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. Hydraulics are responsible for providing power to the upper via the turntable from the pump mounted on the lower portion. Earlier hydraulic crane trucks commonly 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. 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. Often an additional truck will follow the crane. The truck has the counterweights that have been disassembled for travel.

**Outriggers & Stability** Outriggers are extended horizontally from the chassis of the crane. The outriggers help to vertically stabilize the machine and keep it level during stationary and hoisting jobs. Specific crane truck models can slowly travel with a suspended load. Extra care is taken to make sure the load does not swing side to side from the travel direction. 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 among the most stable due to the majority of the crane's weight acting 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 apparatus consists of a crane with a horizontal beam and a hook-and-line mechanism that is designed to run along widely spaced 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. A control pendant may be used to operate the crane. A double girder bridge can be used in places that require heavy lifting such as 10 tons or more. The box girder style produces a system with a lower deadweight but offers higher system integrity. 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. 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 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. 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. The gantry cranes are available in numerous sizes. Some models can move extremely heavy loads for industrial and shipyard applications.