

Tower crane



Tower crane atop [Mont Blanc](#)

Tower cranes are a modern form of balance crane that consist of the same basic parts. Fixed to the ground on a concrete slab (and sometimes attached to the sides of structures as well), tower cranes often give the best combination of height and lifting capacity and are used in the construction of tall buildings. The base is then attached to the mast which gives the crane its height. Further the mast is attached to the slewing unit (gear and motor) that allows the crane to rotate. On top of the slewing unit there are three main parts which are: the long horizontal jib (working arm), shorter counter-jib, and the operators cab.



Tower crane cabin

The long horizontal jib is the part of the crane that carries the load. The counter-jib carries a counterweight, usually of concrete blocks, while the jib suspends the load to and from the center of the crane. The crane operator either sits in a cab at the top of the tower or controls the crane by radio remote control from the ground. In the first case the operator's cab is most usually located at the top of the tower attached to the turntable, but can be mounted on the jib, or partway down the tower. The lifting hook is operated by the crane operator using electric motors to manipulate wire rope cables through a system of sheaves. The hook is located on the long horizontal arm to lift the load which also contains its motor.



A tower crane rotates on its axis before lowering the lifting hook.

In order to hook and unhook the loads, the operator usually works in conjunction with a signaller (known as a 'dogger', 'rigger' or 'swamper'). They are most often in radio contact, and always use hand signals. The rigger or dogger directs the schedule of lifts for the crane, and is responsible for the safety of the rigging and loads.

A tower crane is usually assembled by a telescopic jib (mobile) crane of greater reach and in the case of tower cranes that have risen while constructing very tall skyscrapers, a smaller crane (or derrick) will often be lifted to the roof of the completed tower to dismantle the tower crane afterwards, which may be more difficult than the installation. ^[35]

[http://en.wikipedia.org/wiki/Crane_\(machine\)#Tower_crane](http://en.wikipedia.org/wiki/Crane_(machine)#Tower_crane)