

## Winches

Winches are mechanical tools that are able to pull up or wind out the tension of a cable, wire rope, rope or a wire cable. These tools, in its most simple form, are constructed of a spool and a hand crank. More complex winches are seen at the heart of machinery such as tow trucks, elevators and steam shovels. Every now and then the spool could be known as the winch drum. Complex designs have gear assemblies which could be powered by electric, pneumatic, internal or hydraulic combustion drives. Several winches may comprise a solenoid brake or a mechanical brake or a pawl and ratchet device in order to prevent it from unwinding unless the pawl is retracted.

Generally, the rope or cable is stored on the winch, nevertheless the capspan, a similar machinery, does not store the rope. In sailing, when a line is trimmed on a sailboat, the crew member works the handle of the winch using one hand while tailing the other so as to maintain tension on the turns. Various winches have a stripper or cleat so as to maintain tension. These designs are called "self-tailing" winches.

Often, winches are utilized backstage as part of the mechanism in order to transfer scenery in large theatrical shows. Many times the winches are really embedded in the stage floor and used in order to transfer huge set pieces off and on stage.

The new generation of winches have been made for snow and water sports enabling the riders to be pulled rapidly across a body of snow or of water. This could stimulate a riding experience that is normally supplied by a boat, snow mobile or a wave runner.