

## Winches

Winches are mechanical devices which can pull up or wind out the tension of a cable, wire rope, rope or a wire cable. These tools, in its most basic form, are constructed of a spool and a hand crank. More complicated winches are seen at the heart of machines such as tow trucks, elevators and steam shovels. At times the spool could be called the winch drum. Complex designs have gear assemblies that can be powered by hydraulic, electric, pneumatic or internal combustion drives. Various winches can comprise a mechanical brake or a solenoid brake or a ratchet and pawl mechanism in order to stop it from unwinding unless the pawl is retracted.

Generally, the rope is stored on the winch. There is similar machine referred to as a capstan that does not store the rope. In sailing, when a line is trimmed on a sailboat, the crew member operates the handle of the winch utilizing one hand while tailing the other to be able to maintain tension on the turns. Several winches have a stripper or cleat to maintain tension. These designs are known as "self-tailing" winches.

Frequently, winches are utilized offstage as part of the mechanism in order to transfer staging in large theatrical productions. Lots of times the winches are actually embedded in the stage floor and used to move huge set pieces on and off stage.

Lately, winches have been made in specific designs for water and snow sports. This new generation of winches is designed in order to pull riders swiftly across a body of water or of snow. This can stimulate a riding experience that is typically supplied by a wave runner, boat or a snow mobile.