

## Winches

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

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

Normally, winches are used backstage as part of the mechanism in order to arrange scenery in big theatrical productions. Many times the winches are actually embedded in the stage floor and utilized so as to transfer large set pieces off and on stage.

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