

Transmissions

A transmission or gearbox uses gear ratios to provide speed and torque conversions from one rotating power source to another. "Transmission" means the entire drive train which includes, gearbox, clutch, differential, final drive shafts and prop shaft. Transmissions are most commonly used in vehicles. The transmission alters the output of the internal combustion engine in order to drive the wheels. These engines have to work at a high rate of rotational speed, something that is not right for starting, slower travel or stopping. The transmission increases torque in the process of decreasing the higher engine speed to the slower wheel speed. Transmissions are even utilized on fixed machines, pedal bikes and anywhere rotational torque and rotational speed need change.

Single ratio transmissions exist, and they function by changing the speed and torque of motor output. Lots of transmissions comprise several gear ratios and could switch between them as their speed changes. This gear switching can be done manually or automatically. Reverse and forward, or directional control, could be provided too.

The transmission in motor vehicles would usually attach to the engines crankshaft. The output travels through the driveshaft to one or more differentials in effect driving the wheels. A differential's most important purpose is to alter the rotational direction, although, it could also supply gear reduction too.

Hybrid configurations, torque converters and power transformation are various alternative instruments used for torque and speed change. Typical gear/belt transmissions are not the only device available.

The simplest of transmissions are simply referred to as gearboxes and they supply gear reductions in conjunction with right angle change in the direction of the shaft. At times these simple gearboxes are utilized on PTO machines or powered agricultural equipment. The axial PTO shaft is at odds with the usual need for the powered shaft. This particular shaft is either horizontal or vertically extending from one side of the implement to another, that depends on the piece of equipment. Silage choppers and snow blowers are examples of much more complex machines which have drives providing output in several directions.

The type of gearbox in a wind turbine is a lot more complicated and bigger as opposed to the PTO gearboxes found in farm machines. These gearboxes change the slow, high torque rotation of the turbine into the faster rotation of the electrical generator. Weighing up to quite a lot of tons, and based upon the size of the turbine, these gearboxes usually have 3 stages in order to achieve an overall gear ratio from 40:1 to over 100:1. So as to remain compact and to be able to distribute the massive amount of torque of the turbine over more teeth of the low-speed shaft, the initial stage of the gearbox is normally a planetary gear. Endurance of these gearboxes has been a problem for some time.