Gear Ratio

The gear ratio is the relationship between the numbers of teeth on two gears that are meshed or two sprockets connected with a common roller chain, or the circumferences of two pulleys connected with a drive belt.

The ratio means that the pinion gear must make 1.62 revolutions to turn the idler gear 1 revolution. It also means that for every one revolution of the pinion, the idler gear has made ½.62, or 0.62, revolutions. In practical terms, the idler gear turns more slowly.

Gears are used in tons of mechanical devices. They do several important jobs, but most important, they provide a gear reduction in motorized equipment. This is key because, often, a small motor spinning very fast can provide enough power for a device, but not enough torque. For instance, an electric screwdriver has a very large gear reduction because it needs lots of torque to turn screws, but the motor only produces a small amount of torque at a high speed. With a gear reduction, the output speed can be reduced while the torque is increased.

Another thing gears do is adjust the direction of rotation. For instance, in the differential between the rear wheels of your car, the power is transmitted by a shaft that runs down the center of the car, and the differential has to turn that power 90 degrees to apply it to the wheels.

There are a lot of intricacies in the different types of gears. In this article, we'll learn exactly how the teeth on gears work, and we'll talk about the different type-s of gears you find in all sorts of mechanical gadgets.