Geared DC motors can be defined as an extension of DC motor which already had its Insight details demystified. A geared DC Motor has a gear assembly attached to the motor. The speed of motor is counted in terms of rotations of the shaft per minute and is termed as RPM .The gear assembly helps in increasing the torque and reducing the speed. Using the correct combination of gears in a gear motor, its speed can be reduced to any desirable figure. This concept where gears reduce the speed of the vehicle but increase its torque is known as gear reduction.  This Insight will explore all the minor and major details that make the gear head and hence the working of geared DC motor.

External Structure

At the first sight, the external structure of a DC geared motor looks as a straight expansion over the simple DC ones.



The lateral view of the motor shows the outer protrudes of the gear head. A nut is placed near the shaft which helps in mounting the motor to the other parts of the assembly.

### Features of DC Gear Motors

* Gear materials: Plastic or metal.
* Motor types: Wound-field, permanent-magnet, brushless, intermittent and continuous duty motors.
* Brush-type and brushless motors: The brushed motor gains torque from the power supplied to the motor using stationary magnets, commutation and rotating electrical magnets. Brushless motors use a soft magnetic core in the rotor or a permanent magnet, as well as stationary magnets in the housing.
* Uncommutated motors: Homopolar motors or ball bearing motors.
* Connection types: Shunt, series and compound connections.
* Motor constants: Kv and Km.
* Speed control and reversibility: Smoothly control a speed down to zero without power circuit switching, even after accelerating in the opposite direction.
* Dynamic braking and regenerative braking: Ideal for applications that require quick stops so you don’t need a mechanical brake.
* Magnet types: Rare earth, ceramic or ferrite magnets.
* Winding resistance: Choose a motor that doesn’t adversely affect the Km.
* Gear ratios: Several varieties available, such as 28:1 or 18:1.
* Environment: Motors are available for indoor or outdoor use.
* Torque multiplication: Generate a large force at a low speed.
* Custom-built: You can have a DC gear motor designed and manufactured to suit your size, power, torque and mounting needs.