

Gear Motor Comes to Upgrade the Automobiles

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California City, Jul 22, 2020 ([IssueWire.com](http://www.IssueWire.com)) - During the last decade, the advancement in production and management systems has revolutionized the [automobile](#) industry. It has witnessed the opening up and growth of several emerging markets. According to the Global Car & Automobile Sales Industry – Market Research Report conducted by IBISWorld, automobile industry revenue has grown at an annualized rate of 2.7% to \$4.0 trillion over the five years to 2019, including revenue growing 2.3% in 2019 alone. It is still expected to experience a boom that is outstripping the strongest period of the industry globally. However, on the way to the development, the automotive industry is now facing new

and pressing challenges owing to globalization, digitalization and increasing competition. The gear motor provided by ZHAOWEI, as a key role in each part, comes to upgrade the automobiles.

An automobile moves because of the torque which the engine transmits to the wheels. Therefore a transmission system is required to transmit torque efficiently and effectively. By changing the transmission ratios, the transmission varies in speed (rpm), torque, and direction and enables the automobile to start with high torque. An automatic transmission is a gearbox with no need for manual switching. It may be used in any automobile part where needs low speed as well as high torque.

How Does ZHAOWEI Empower Each Automobile with Gears?

The function of gearbox types in cars varies. ZHAOWEI proudly provides a complete set of solution services in this field to meet performance requirements in reducing speed, increasing torque and improving transmission, which has been gaining more and more popularity.

- **Electric Vehicle Charging Station**

With the popularization of new energy electric vehicles, charging stations prevails in lots of areas. ZHAOWEI gearbox solution for charging station considers various aspects of safety and reliability. It takes pride in strong compatibility with automobiles by using a [planetary gear](#) structure. Innovative structure and space design improves performance with great torque rigidity, small vibration and strong resistance, as well as reduces total cost. It also has the characteristics of powerful carrying capacity, large starting power and high transmission efficiency, which can better meet the transmission requirements of smart car charging piles.

- **Car Seat Adjustment**

In order to improve driving comfort, there is no need to change the sitting posture. The control key can be used to adjust the seat in 12 directions to achieve step-less adjustment. ZHAOWEI uses a small [permanent magnet DC motor](#) combined with helical gears for car seat transmission. The intelligent multifunctional adjustment (horizontal, height, and angle) of the seat can be flexibly achieved through the control switch on the door armrest.

- **Electric& Power Tailgate**

A tailgate is a door at the back of an automobile and plays an essential role in each automobile. Though it brings much convenience, it still has its drawbacks like lifting difficulty and annoying noise when tailgate opens and closes. To solve such problems, ZHAOWEI enables the future of intelligent control with an innovative automobile gear system for the electric tailgate. The spindle driver consists of a tube and an outer tube. The threaded spindle which moves on the thread and nut that are fixed on the inner side of outer tube is transmitted by the motor of inner tube and the gearbox. The electric pillar uses the motorized spindle which is located in the pillar to open or close the tailgate with the supportive spring. Moreover, ZHAOWEI also dedicates to the power tailgate of push rod type.

- **Electric Power Steering (EPS)**

Electric power steering is common in automobiles, as they take heavy loads. Its main transmission structure is often assembled by the drive motor and gearbox (reducer). The motor used in the EPS system is a DC servo motor. Combined with high-precision gears, this solution is mainly characterized by wide speed range, high torque, smooth adjustment, ease of control, great reliability, and low energy

loss & noise. The gear motors from ZHAOWEI happens to meet these features.

When the driver performs steering on the steering wheel, the torque sensor detects the steering wheel as well as torque and transmits the voltage signal to the electronic control unit (ECU). Then ECU issues related instructions to the motor controller to make it output steering assist torque of a corresponding level and direction, thus generating auxiliary power. When the car is not steering, the ECU stops to issue the instruction to the motor controller and the motor doesn't work, which is smart and efficient.

- **Electric Park Brake(EPB)**

The EPB with micro gearboxes can ensure that the vehicle on some slope stable parking and the system can automatically realize thermal compensation. ZHAOWEI modifies the gear and tooth profile of the Electrical Park Brake, which can ameliorate the effectiveness of the gearbox under high-frequency vibration and accuracy of manufacturing. The control motor of EPB respectively installed on the left and right brake calipers of the rear wheel consist of DC motor and micro gearbox. Gearbox from ZHAOWEI features compact size, high torque and possibility to change the driving direction of DC motor. The gearbox for EPB can still operate efficiently under the condition of high torque and large current.

- **Active Grille Shutter(AGS)**

AGS system helps to optimize aerodynamic performance, reduce air resistance, lessen fuel consumption and accelerate engine warming. However, a micro gearbox for Active Grille Shutter plays an important role in these functions. The system is equipped with a set of electric horizontal blades on the inner side of the grille. The ECU automatically controls the micro motor and then decelerates the gearbox to close and open the intake grille orderly and steadily, which makes the rotation range possible to reach 90°. This has a lot to do with the gearbox whose specifications must meet the different types of active grille shutters. This is also what ZHAOWEI does.

- **Electric Head Restraint**

In the common traffic accidents such as rear-end collision, drivers or passengers are vulnerable to a neck injury. The awareness of the importance of active head restraint gradually raises. The gearbox from ZHAOWEI can improve its effectiveness of active head restraint effectively. The headrest mechanism design includes a control module, a drive motor, and a rod drive mechanism. The control mechanism and the drive motor are connected by signals. The rod drive mechanism includes an upper cross-linked mechanism arranged in parallel, a lower cross-linked mechanism, and a drive screw connected to the motor. The control module adopts a single-chip computer or an on-board computer to control the forward rotation of the motor when dangerous conditions occur. When two nuts move closely to each other, the headrest will be deployed through the rod drive mechanism; when the danger eliminates, two nuts move back, and the headrest will be folded by the mechanism. The gear motor here must meet be low-noise, reliable, responsive, and shock-resistant – ZHAOWEI gear reducer easily masters.

- **Vehicle Electric Sunroof**

Vehicle panoramic sunroof opens the field of vision, increases air circulation and enables photography. ZHAOWEI offers such a gear-driven mechanism to facilitate convenience. The micro motor provides power to the open and close the vehicle electric sunroof through the transmission mechanism and

realizes bidirectional rotation by changing the direction of the current, the opening and closing of the skylight can be realized. The gear transmission mechanism accepts the power of the motor, changes the direction of rotation, and transmits the power to the sliding screw, thus making the electric sunroof open and close. At the same time, the power is transmitted to the cam, making the cam possible touch the limit switch to open and close.

- **Head-up Display**

ZHAOWEI has developed a car gear shift solution for HUD flipping. Its reverse gearbox is connected to the supporting frame structure. The entire HUD screen flipping mechanism driven by the motor rotates around the center of the circle, which further drives the HUD screen to rotate and flip. Intelligent control to display screen flip angle satisfies different users. Therefore, important information can be shown on the head-up display clearly and accurately.

- **Electric Window Regulator**

The electric window generally refers to the glass lifter that can automatically rise or fall even when driving. Compared with the past, it is now more widely used in modern cars. The electric window system mainly jointly combines window regulator, motor, gearbox, relays, switches and ECU to empower the lifting function. Each car window will be controlled by a motor in order to rise or fall. ZHAOWEI also proposed customizable options for customers.

- **Adaptive Front-lighting System**

ZHAOWEI values the safety of driving at night. Stepper motors are important parts in helping the headlights to meet the lighting requirements when driving at night. ZHAOWEI AFS drive solution optimizes the structure and gear precision of the car headlight regulator motor and gearbox, effectively improving the situation that gear transmission angle is unstable in the long run and on the pitted road.

- **Instrument Panel**

Electronic speed odometer has gradually replaced the mechanical speed odometer driven by the soft shaft, owing to plenty of brilliant advantages. But it still has a large room for improvement. ZHAOWEI micro gearbox can better control the instrument, beats of the stepping motor during the use as well as the jitter of the pointer, and reduce the noise during the use of the instrument panel.

Conclusion

There are still many parts of each automobile that need the role of gearbox like damper actuator, car wiper, etc. With the upgrade of 5G commercial and consumer, intelligence has become the trend in different fields. The automobile industry is no exception. Gear motor professionally developed by [ZHAOWEI](#) comes to upgrade the automobiles and those who can take advantage of it are going to seize the opportunities and enjoy a promising prospect.



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