

Media Information

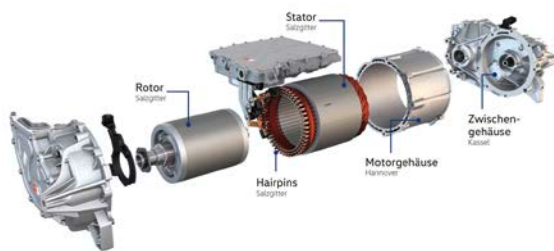
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In brief:

More than 200 horses in a sports bag – the electric drive in the Volkswagen ID.3

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- Volkswagen Group Components supplies the electric drive for the new ID.3¹
 - Essential parts are produced at the component sites
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Wolfsburg – The ID.3 heralds the beginning of a new era of electric mobility for Volkswagen. The electric drive, which is based on the modular electric drive matrix (MEB), is produced by Volkswagen Group Components. It's not only less complex than a conventional petrol or diesel engine, but also compact enough to fit in a sports bag. But how does the electric drive, produced at the component site in Kassel, actually work?



The APP 310 electric drive



Compact enough to fit in a sports bag – the electric drive for Volkswagen's ID.3

Components of an electric drive

Inside every electric motor is a stationary stator with a rotor spinning inside it. The stator is made of copper wire coils. When an electric current flows through these coils, a rotating magnetic field is created in the stator which causes the rotor to spin. The rotational movement is based on a simple physical principle: opposite poles in a magnet attract each other, whereas like poles repel. Furthermore, there are two types of electric drive: permanent magnet brushless machines and asynchronous machines. The permanent magnet brushless machine features a strong permanent magnet rotor, which rotates in sync with the magnetic field of the stator. In asynchronous machines, however, the rotor uses the electric current to generate its own magnetic field and, as a result, the rotation of the rotor lags behind the stator's magnetic field rotation.



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Hairpin technology and consistent lightweight construction

Volkswagen's new ID.3 is fitted with an APP 310 electric drive. This drive is a permanent magnet brushless machine. The designation "APP" derives from the arrangement of the drive and the gearbox in parallel with the axle, whilst the numerical sequence that follows derives from the maximum torque of 310 Nm. The main components for this drive are produced using a combination of specialisation and Group manufacturing at various Volkswagen Group Components production sites.

The rotor and stator are produced at the component plant in Salzgitter. New hairpin technology has enabled the use of an innovative production process for the assembly of the stator, whereby the spaces within the laminated core of the stator are optimally filled with flat preformed copper coils. This increases the torque density and the efficiency of the electric drive in comparison to that of a drive with wound copper wire coils. Maximum torque is achieved even at a low engine speed, which means that a 1-speed gearbox is sufficient for the entire rotational speed range. Both the electric drive and the 1-speed gearbox are produced at the component plant in Kassel. The whole drive unit, together with the 1-speed gearbox, is compact enough to fit in a sports bag. The drive weighs only around 90 kg and can generate a peak output of up to 150 kW (204 PS) in the ID.3.

Electric drives from Kassel for markets in Europe and North America

In the future, the electric drives for MEB vehicles for Europe and North America will be produced in Kassel. Production of up to 500,000 units per year has been planned. Kassel also works closely with the Chinese plant in Tianjin, where the electric drive is produced in parallel for the Chinese market. Together, the two plants will produce up to 1.4 million electric drives each year from 2023 onwards. This means that Volkswagen Group Components will be one of the largest global manufacturers of electric vehicle drives in the future.

¹⁾ ID.3: *The vehicle is not yet available for sale.*

This is Volkswagen Group Components.

As an independent corporate business unit under the umbrella of Volkswagen AG, Volkswagen Group Components is responsible for the development and production of strategic components for the Group's vehicle-producing brands. 80,000 employees work in over 60 plants at 47 production sites worldwide in five business areas – Engine and Foundry, Gearbox and Electric Drive, Chassis, Seats and Electric Mobility. They develop and manufacture vehicle components, shape future topics such as charging infrastructure and battery recycling – and thus make a decisive contribution to the value of the Volkswagen Group, its brands and products. Thomas Schmall is Chairman of the Board of Management of Group Components.

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