

Brose innovation in series production: increasing demand for 800-volt climate compressors



The electric climate compressor is manufactured at Brose's locations in Würzburg/Germany (picture) and Taicang/China.

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Long range and fast charging are important selling points for an electric vehicle. This is why car manufacturers are focusing on the climate compressor as the heart of thermal management: Electrically driven, it ensures efficient air conditioning of the interior and cooling of the vehicle battery. The automotive supplier Brose has developed a particularly powerful high-voltage variant that enables fast charging times of less than 30 minutes. The family-owned company was the first supplier to launch this 800-volt climate compressor on the market, initially in China.

In addition to the vehicle drive, the temperature control of the interior and battery consumes the majority of the energy in electric cars. Efficient climate control therefore also has a major impact on range. The core element of Brose's thermal management is the electric climate compressor from 48 to 800 volts operating voltage. In the high-voltage version, it is particularly economical, while the efficient power electronics enable ultra-fast charging of the vehicle battery. "We want to further reduce charging time and are working intensively on high-voltage electronics for 960 volts operating voltage," says Raymond Mutz, Executive

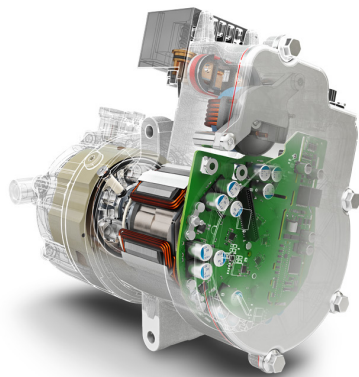
Vice President Drives. Another development focus is the switch to the natural refrigerant CO₂, which is significantly more environmentally friendly than chemical variants.

The electric climate compressor has also proven its worth in vehicles with internal combustion engines or hybrid cars. Here, it also ensures greater efficiency in air conditioning and thus lower fuel consumption. It also enables comfort functions such as stationary air conditioning.

Award for industrialization in China

In 2022, Brose started series production of the state-of-the-art 800-volt compressor at its Taicang plant in China, for which it was awarded the innovation prize by the trade journal "Automobile & Parts". In the meantime, volume production has started for a second Chinese automaker. The 470-volt version for another successful Chinese electric vehicle manufacturer, which also wants to serve the European market, will start this year. Up to 180,000 electric climate compressors will roll off the production line in China each year.

The family-owned company recently received the follow-up order from a German premium manufacturer for the 48-volt variant. Production will take place from 2026 at Brose's Würzburg location, where the electric climate compressor has been developed and already manufactured in the 48- and 470-volt variants since 2020. Every year, Brose equips up to 500,000 vehicles with electric climate compressors.



The operating voltage of 800 volts ensures greater efficiency and thus ultra-fast charging of the vehicle battery.