

Don't coil it, pour it

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For the electric car to roll, a lot of large and small components must function in a safe and reliable manner. Parts for wheel hub motors, in particular, need to be constructed in a robust manner. The researchers from Fraunhofer have filed a patent for a new production process for coils for electrical motors.

They are introducing it at the Hannover Messe trade fair from April 4-8, in Hall 2, Booth D22.

Coils are a central functional element of the motor. They are subjected to strong vibrations and changes in temperature. And the components must be as small as possible so that the motor fits into the [wheel](#). "We are now producing coils using casting technology. This makes it possible to produce electrical motors that are not only more compact, but are also higher performing and more cost-efficient," said Felix Horch, project manager at the Fraunhofer Institute for Manufacturing Technology and Applied Materials Research IFAM in Bremen, Germany.

The idea of the scientists from IFAM: The space – the groove – intended for the coils is filled with more copper than is possible with traditional coiling technology. To achieve this, they first pour and insulate flat coils and press them into the form.

Felix Horch describes the advantage of this process: "The more copper we manage to put into the groove, the more specific performance the electrical motor provides. If we increase the filling factor of the coil from currently 60 to more than 90 percent, the degree of efficiency is

increased further. More compact and lighter electric motors can be produced with the [coils](#) that have been cast. Our development helps lower the production costs of electrical vehicles."

Provided by Fraunhofer-Gesellschaft

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