

FOR IMMEDIATE RELEASE

Nidec Corporation
Tokyo Stock Exchange code: 6594

Contact:
Masahiro Nagayasu
General Manager
Investor Relations
+81-75-935-6140
ir@nidec.com

Released on December 27, 2022, in Kyoto, Japan

Nidec Develops Technology to Achieve the World's Highest Space Factor for Round Winding Wires

Nidec Corporation (TSE: 6594) (OTC US: NJDCY) (“Nidec” or the “Company”) announced today that it has achieved the world’s highest-level space factor for round winding wires used for its traction motors, and has launched the mass production of motors by using the technology.



Nidec's latest stator



E-Axle Gen.2

Weight saving is one of the critical elements in improving the EVs’ electricity efficiency. In producing motors, it is an important mission to improve their efficiency and output to make them smaller and lighter, and making such motors essentially requires improving their coil space factors*1. Nidec’s second-generation E-Axle model (“E-Axle Gen. 2”), which has an optimized slot shape and uses newly developed, unique coil insertion equipment, has successfully improved the coil space factor by 6% compared with its predecessor, E-Axle Gen. 1. In addition, the E-Axle Gen. 2 model, with enhanced output characteristics, has a motor section 10% smaller than the previous model.

A common way to improve the space factor is to use the hairpin method, which employs rectangular wires that can fit into a square slot more easily than round ones, though, on the other hand, this method requires a complex production process and a massive amount of capital investment. To counter this issue, Nidec, aiming to produce high-performance and yet low-price E-Axle units (the concept behind the development of E-Axle Gen. 2), continued to use inexpensive round winding wires, while developing a new wire-winding technology to reduce the loading application rate during coil insertion by 80% compared with the conventional technology. Thus, the Company successfully lessened the damage to the coil during its insertion process, achieving both high performance and low cost.

As the world’s leading comprehensive motor manufacturer, Nidec stays committed to fully utilizing its technologies to develop light, thin, short, and small, high-efficiency, and controllable products, and to proposing, at an overwhelming speed, revolutionary solutions that contribute to the evolution of automobiles.

*1. Coil space factor: The rate of copper wires to a stator’s space (slot) to accommodate a coil. As part of a motor’s feature, its output increases, as does the number of copper wires inside its stator. However, to make the motor compact, a coil must be placed efficiently, without creating an empty space.