

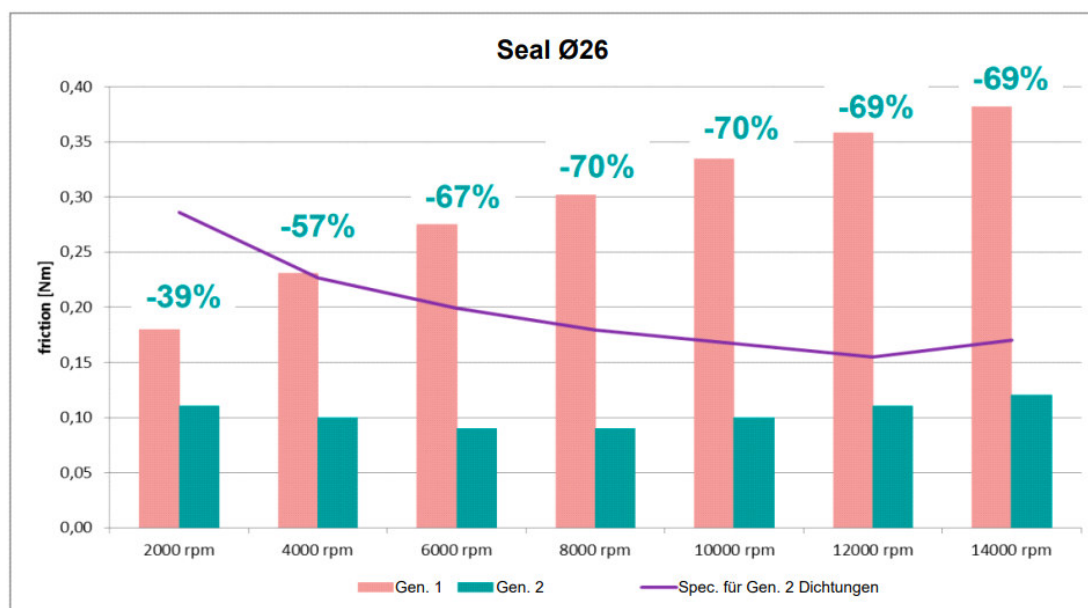
August 2022 – New generation of rotor inner cooling seal

As a pioneer of technical sealing solutions for direct internal cooling of electrical drive machines, KACO is introducing the next generation of structured mechanical seals with significant friction reduction.

Following the successful market launch of the first generation of mechanical seals for internal rotor cooling, KACO has significantly improved these systems by consistently optimizing the microstructures in terms of occurring power losses.

The evaluation of real customer driving profiles and the associated interactions in the cooling system were translated into a new type of seal design through the use of state-of-the-art CFD simulations. Thus, the microstructuring, the functional core element of these seals, was fundamentally redeveloped.

The result shows potential savings in power losses of 50-70% compared to the current state of the art in series production. The figure shows real measured values of power losses versus speed based on a reference dimension for the first and second generation design. The significant savings in power losses at the sealing system create a new attractiveness of direct internal rotor cooling in terms of range optimization of the vehicle.



File1: Measured values of the power losses.

"True to the motto 'stagnation is regression', we have made it our goal to prove that the previous level of occurring power losses of the first generation of mechanical seals for internal rotor cooling can be reduced to a dramatically lower level. By consistently balancing simulation and testing, we have succeeded after less than a year in reducing friction losses to almost a third and at the same time, depending on the seal size, in reducing the technical leakage occurring in some test cycles to a level that can no longer be measured. As a seal supplier, we are thus laying the foundation for even more widespread use of internally cooled motors in highly efficient electric drives in the future," explains Vice President Research & Development Andreas Genesisius.

PRESS RELEASE

KACO GmbH + Co KG, a subsidiary of the Zhongding Group, is one of the world's leading developers and manufacturers of high-precision, application-oriented sealing solutions for the automotive and engineering industries. The company, which is based in Germany, is characterized by the highest sealing quality and innovative strength and stands for recognized development and manufacturing expertise. KACO has six plants in Germany, Austria, Hungary, China and the USA and delivers its products all over the world. As a close partner of the automotive industry and its suppliers, the company has been keeping pace with the high demands and technical changes in the industry for decades.

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