

June 2020 – Keep tight with the sealing expert KACO!

Electric mobility in the form of electrification and hybridization is experiencing a massive surge in implementation due to ever stricter CO2 regulations and as a consequence of the diesel affair. For an internationally positioned supplier such as KACO, it is very clear that technological developments in the powertrain no longer have to come exclusively from the engineering and automotive country of Germany, but rather from the regions of Asia and the USA, with start-ups, some of which are worth billions, which help to boost dynamics and competition. The global OEMs are in the process of transformation, which is leading to a noticeable reduction in demand for purely conventional drives. The global increase in NEVs (new energy vehicles) is also being stimulated by promotions and subsidy programs worldwide, as shown by the latest decisions of the German government in the currently launched economic stimulus package to overcome the consequences of the Covid-19 pandemic. The technological variance of powertrain architectures has increased enormously in recent years, particularly in the case of hybridization, and is now beginning to consolidate into new types of product modules.

With regard to the KACO product portfolio, this currently means that new products are being created in addition to the conventional product range. For current vehicle architectures, the range includes breather caps and systems, battery quick vents, radial shaft seals and systems (conventional and high speed), gear selector and shift pistons for double clutches, rod seals, lip seals and mechanical seals for water circuits (water pump, internal rotor cooling, control valves) as well as magnetic encoders (encoder wheels) and grounding rings. If one considers the complete electrification of the passenger car in the medium to long term, i.e. vehicles powered purely by battery electricity, some products from KACO's current portfolio will lose their necessity in the next few years. However, the NEV architecture also opens new areas of application and thus new product opportunities for the sealing expert. "The potential is in the automotive sector, but also in all conceivable areas of application in which our technological expertise in the field of sealing systems and our understanding of the system level form the basis," says Vice President Engineering, Andreas Genesisius, optimistically. "Already today we are acting at the pulse of time and have various innovative products and solutions for electric drive technology in our portfolio, such as the shaft grounding rings for electric drive machines to protect the bearings, uni- and bidirectional high speed oil seals for reduction gears, rotor cooling systems for direct heat dissipation from the e-machine or various ventilation components for battery systems, gears and other functional units. However, our magnetic encoders based on ferritic-filled elastomers and new types of sensor technologies can also perform a wide range of tasks in the vehicles of the future. We combine all these competencies into integrated subsystems and ready-to-install modules," he continues.



Shaft grounding rings for electric engines to protect the bearings: The shaft grounding ring developed by KACO meets the high requirements of manufacturers of electric engines. Companies can thus minimize bearing damage and prevent noise by diverting harmful shaft voltages and bearing currents to electrical ground. This is made possible by a highly conductive PTFE disc with a special coating. The shaft grounding ring can be used not only in the electric motors of the automotive industry, but also in a wide range of other industrial applications for electric drives.

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High-speed oil seals for reducer gears: In the age of eMobility, three factors will change essentially from the point of view of a manufacturer of dynamic seals: higher circumferential speeds, more highly-additive low-viscosity oils and the change in direction of rotation at the gearbox input. With the high speed oil seals for reducer gearboxes, you are offered a solution that not only convinces with its bi-directional sealing effect, but also with very low friction losses and a long service life.

Rotor cooling systems for direct heat dissipation from the e-engine: The mechanical seals developed for internal rotor cooling are axially acting systems for high circumferential speeds as well as pressurization and designed for small installation spaces. The solutions for electric drives are robust, durable and effective. This is ensured by proven, specially developed and optimized materials such as silicon carbide, high-performance elastomers and stainless steel.

Quick deflation systems for battery modules in BEVs and hybrids: Should an unintentional malfunction occur in the traction battery of electric or hybridized vehicles, rapid emergency venting must be ensured to reduce the pressure in the affected battery segment. For this purpose, KACO offers a product range that is optimized for integration space. KACO Quick Deflation is designed in such a way that an additional pressure compensation element can be integrated. In this way, regular pressure equalization during battery operation and the possibility of emergency venting can be ensured in one component.

Magnetic encoders: The magnetic signal encoders for the automotive industry and mechanical engineering for rotating and linear applications help to detect rotational speed, velocity, torque, force, angle or position and use the information to control shafts in motors, gears, steering systems, ABS and linear systems.

Static seals from Solyem SA: Static sealing systems for mechanical and electrical auxiliary units have also been expanding the product range of the sealing expert for some time now. Innovative LEM seals for better EMC protection make their contribution to the electrification of drive trains in the area of static seals, for example.

Development partner at system level: Despite the technological change and the globally differentiated market situation, the company looks positively into the future. KACO already offers customer-specific and solution-oriented products for tomorrow's mobility and is working hard to continue to establish itself as a development partner at system level. Other future products still in development are a completely new speed & position sensor system and a high-speed clutch, which KACO has developed in cooperation with the Karlsruhe IPEK, Mubea and Miba. The Highspeed Clutch is a new type of powershift clutch concept that can be used for the high speed range (up to 30,000 rpm).

First Choice in Sealing Solutions

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.