

Press Release

Electric battery box with water-tight and anti-rattle gasket in TPE

Waldkraiburg, October 2018

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Sustainable and Silent

THERMOLAST® K helps Askoll innovate the e-mobility of power-assisted bikes and electro-scooters

Italy's leading manufacturer of electric two-wheelers has specified the use of THERMOLAST® K for two precision gasketing applications on the new battery boxes of a growing range of power-assisted bikes and electro-scooters. Askoll, based in Dueville (Vicenza, Italy) is using the thermoplastic elastomer material from KRAIBURG TPE for an anti-rattle overmolding of the battery connector and for water-tight sealing of the battery box. Key requirements to be met included reliable direct adhesion to glass-filled PBT on small contact surfaces.

E-mobility on two wheels is on the rise particularly in urban areas where commuters often spend more time stuck in rush-hour traffic and hunting for parking space than actually driving. At the same time, towns and cities worldwide are seeking effective solutions for minimizing the smog and noise produced by motorized vehicles, while consumers need fresh new approaches to help them save on fuel and maintenance costs. For all of these reasons, electric bicycles and scooters are fast becoming a logical choice for more convenient and sustainable mobility especially wherever people need to cover shorter distances, such as on everyday trips between home and work.

Electric vehicles, in turn, need innovative materials that will support their pleasantly silent travel by eliminating undesired ambient noises and – in the case of external components such as battery boxes on two-wheelers – ensure a weatherable and water-tight enclosure. This is opening attractive new application opportunities for thermoplastic elastomers (TPE).

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“For the anti-rattle cover of the battery connector and the sealing of the redesigned battery box on our bikes and scooters, we were looking for a material that would provide the right balance of gasketing, mechanical and molding performance,” explains Paolo Trabuio, Project Manager Scooter, for Askoll. “KRAIBURG TPE went a long way in supporting our efforts from concept to market, with qualified assistance in material selection, design optimization, adhesion testing and molding trials.”

Both TPE applications are injection molded in a two-component process, which required excellent direct adhesion to the glass-filled polybutylene terephthalate (PBT) resin used for the battery box. In addition, the chosen THERMOLAST® K compound also had to offer good flowability to ensure a precise, tight and faultless fit of the gasket on the narrow contact surface of the lower box component. In addition, the compound lends the critical long-life mechanical properties required to withstand the shocks and vibration of the box when driving, as well as the wear and tear during frequent removal for charging the maintenance-free battery on the electric grid at home or at work.

Askoll's portfolio of electric two-wheelers comprises several electric scooters and a range of power-assisted bicycles custom-designed for comfortable urban travel and touring, including a stylish folding bike. Latest additions include a smaller bike version for youngsters and a special Urban Sports model to be introduced later this year. On the bikes, the battery box is conveniently mounted to the front section of the head tube. On the scooter, it is located in the compartment under the seat. A molded-in handle facilitates removal, transportation and reinstallation.

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Thanks to the manufacturer's vertical integration and years of experience in electric motors, the drive units of the Askoll electric two-wheelers form a perfect match of brushless motors and battery packs with capacities tailored to various different driving performances and ranges up to 80 km (50 miles) and more. A trip computer constantly monitors the battery status, provides up to four power levels, and automatically switches to ECO mode when the charge drops below 15 percent.

"We have put a lot of development work in our TPE technology for sustainable and noise reducing applications in e-mobility since identifying the potential and need for innovative new solutions in this fast emerging market segment," says Dirk Butschkau, Product Marketing Manager EMEA at KRAIBURG TPE. "The battery box on Askoll's electric bikes and scooters demonstrates the advantages our materials can deliver in terms of efficient molding, function and form."

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The battery of Askoll's power-assisted bicycles is mounted in a front compartment for convenient removal and recharge. Gaskets molded in THERMOLAST® K from KRAIBURG TPE provide a water-tight enclosure and anti-rattle performance in use. (Photo: © 2018 Askoll EVA)

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About Askoll Group

Askoll, with headquarters in Dueville (Vicenza, Italy), is a leading manufacturer of highly energy-efficient electric motors for household appliances, aquariums and ponds. Founded in 1987, the Group comprises 11 companies operating in Italy, Slovakia, Romania, Brazil, Mexico and China, and has registered more than 800 patents relating to its electric motors. In 2015, Askoll entered the sustainable mobility market and has since emerged as Italy's number one manufacturer and distributor of electric scooters and power-assisted electro-bikes. With 2,000 employees worldwide, Askoll Group reported a global turnover of approx. 300 million euros in 2015. Visit www.askollelectric.com for further information.

About KRAIBURG TPE

KRAIBURG TPE (www.kraiburg-tpe.com) is a global manufacturer of thermoplastic elastomers. From its beginning in 2001 as a subsidiary of the historical KRAIBURG Group founded in 1947, KRAIBURG TPE has pioneered in TPE compounds, today being the competence leader in this industry. With production sites in Germany, the U.S., and Malaysia, the company offers a broad range of compounds for applications in the automotive, industrial, consumer, and strictly regulated medical sectors. The established THERMOLAST®, COPEC®, HIPEX®, and For Tec E® product lines are processed by injection molding or extrusion and provide numerous processing and product design advantages to manufacturers. KRAIBURG TPE features innovative capabilities as well as true global customer orientation, customized product solutions and reliable service. The company is certified to ISO 50001 at its headquarters in Germany and holds ISO 9001 and ISO 14001 certifications at all global sites. In 2017, KRAIBURG TPE, with 620 employees worldwide, generated sales of 178 million euros.

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