New Opportunities for Electromobility

A sustainable coating process for plastic metallization is to enable new functions and designs. It shows its potential in an all-electric compact SUV. Here it is used in the form of radar-transparent coatings for driver assistance systems.

The Oerlikon Group has anchored sustainability and environmental protection as essential elements in its corporate strategy. For their implementation, Oerlikon Balzers, as a competence brand, develops coating solutions and systems for its customers that contribute to the careful use of resources and significantly reduce CO_2 emissions. With Inubia, for example, Oerlikon Balzers has developed an integrated automated solution for plastic metallization that allows high-volume mass production in compliance with automotive industry specifications. It is based on the coating specialist's ePD (embedded PVD for design parts) technology, which it says opens up new functions and designs and complies with REACH environmental regulations.

Environmentally friendly – cost-effective – forward-looking

According to its supplier Oerlikon Balzers, ePD is an environmentally friendly and forward-looking coating process that can be used wherever high-quality metal surfaces are required on plastic parts with smart functions. The three-layer structure of UV coatings and an embedded PVD layer is said to be groundbreaking for new design concepts of plastic components for automobiles with all-electric or hybrid-electric drive systems. The combination with other technologies such as laser marking, digital, screen or pad printing is expected to open up further possibilities for designers and engineers.
According to the supplier, the ePD process is environmentally friendly and cost-effective due to its low energy requirements, avoidance of hazardous waste and REACH compliance.

Unlocking potential in automotive engineering

Today, the automotive industry is confronted with global trends such as lightweight construction, intelligent components and a high degree of individualization. The strict laws and regulations governing the automotive manufacturing process save energy and protect the environment. With its ePD technology, Oerlikon Balzers wants to help car manufacturers achieve these demanding goals.
One application example is the BMW iX. Oerlikon Balzers has supplied the BMW Group plant in Landshut (Germany) with coating systems and coating solutions for the metallization of plastic parts. Specifically, an Inubia B15 system is used. In addition, the coating specialist was involved in the development of the component with regard to coating structure and color.

Radar-transparent coatings for driver assistance systems

The radiator grille of the BMW iX is finished with an ePD layer so that a radar

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An employee of the BMW plant in Landshut inspects the coated kidney of the BMW iX.

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The metallizing coating of the kidney of the all-electric vehicle enables the integration of radar sensors to measure the distance to the vehicle in front.

sensor for measuring the distance to the vehicle in front can be placed behind it. The special production technology makes it possible to manufacture capacitive or translucent components whose functionality remains invisible, for example radar-transparent layers for driver assistance systems. This will become even more relevant in the future, as interactive communication between vehicles will play a much greater role in autonomous driving. Because the durable and scratch-resistant coatings can be manufactured to be light-transparent, symbols can also be incorporated into backlit buttons.

Coated mold for the kidney

Products from Oerlikon Balzers are also used in another area during production of the BMW iX: The surface solutions provider coats the mold of the new front kidney, which is manufactured by Summerer Technologies. The coating's extreme hardness is intended to ensure high scratch and wear resistance. The coating specialist also sees the following advantages: Improved mold filling and easy demolding maintain brilliant surface quality. Maintenance costs are thus reduced and, despite the high thermal load, the mold can be cleaned much more abrasively without attacking the surface. The entire production process thus gains high productivity, cost-effectiveness and manufacturing reliability.

For the innovative concept of the kidney for the BMW iX, the BMW Group received the Grand Award at the 20th "SPE Automotive Award" in the exterior plastics production area. //

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