

Winterthur, October 14, 2021

Electromagnetic shielding: optimum battery protection in electric vehicles

The electrification of mobility is progressing steadily. Recognizing the resulting increased demand from automotive manufacturers for products related to the vehicle battery, Autoneum has expanded its expertise in aluminum sheet forming to include battery electromagnetic shields (EMS). The stamped aluminum components prevent electromagnetic interference (EMI) inside electric vehicles and, thanks to their design and simple manufacturing process, provide a robust and cost-effective shielding solution for composite battery lids.

The performance of vehicles today depends on a growing number of electronic systems and devices. While the increasingly complex technical equipment enhances both driving comfort and vehicle safety, it is also susceptible to electromagnetic disturbance. To prevent electromagnetic radiation from affecting the functionality of the car's electronic circuits and battery, or causing damage to its safety-critical control systems or its occupants' health, electronic components must be protected accordingly. The need for effective electromagnetic shielding is especially prevalent in electric vehicles, where e-motor and battery present additional sources of EMI. In order to minimize the associated risks, Autoneum has developed EMS made from embossed aluminum sheets.

Autoneum's latest product specifically targeted at electric vehicles draws on the Company's decades of experience in the design, development and production of aluminum heatshields. However, instead of providing protection against the heat arising from the powertrain and exhaust system, EMS are placed on top of the battery lid to shield the vehicle battery and other electronic devices from EMI. Thanks to the excellent conductive properties of aluminum as well as the particular design of the components, Autoneum's EMS improve the function of the battery housing as a highly effective protective shield against EMI. With a shielding effectiveness of more than 70 dB, they not only offer greater electromagnetic protection than alternative methods such as the use of additional fillers or the spraying of metal coatings on the battery lid, they are also considerably easier to manufacture.

As a high-quality, robust and cost-effective complement for composite battery lids, aluminum EMS prevent EMI inside the vehicle and thus provide a valuable extension of Autoneum's textile-based product portfolio for electric cars, which already includes components such as the Ultra-Silent-based front trunks and under battery shields as well as e-motor encapsulations made of Hybrid-Acoustics PET. Autoneum's aluminum EMS are currently available in Europe, North America and Asia.

Photos:

Images can be downloaded at www.autoneum.com/images/electromagnetic-shielding.

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About Autoneum

Autoneum is globally leading in acoustic and thermal management for vehicles. The Company develops and produces multifunctional, lightweight components and systems for interior floor and engine bay as well as the underbody. Customers include almost all automobile manufacturers in Europe, North & South America, Asia and Africa. Autoneum operates 53 production facilities and employs around 12 800 people in 24 countries. The Company with its headquarters in Winterthur, Switzerland, is listed on the SIX Swiss Exchange (ticker symbol AUTN).

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