ELECTRONICS FEATURE

Grower OhmLock® for battery pack applications

In applications such as Electric Vehicle (EV) battery packs, a bolted joint is a critical aspect of the application which must perform reliably throughout the vehicle's entire service life. Subjected to vibration, thermal cycling and harsh environments, these joints must preserve clamp load and ensure stable conductivity. With Grower OhmLock®, Growermetal SpA brings a reliable fastening solution for battery pack applications.

As assembly lines move faster and platforms become more electrified, fastening technology is being asked to do more with less. Battery powered installation tools are now widely adopted across manufacturing because they offer flexibility and consistent output without the constraints of pneumatic lines. However, in high value applications such as EV battery packs, the installation moment is only the beginning of the story. The real challenge starts once the vehicle is on the road where vibration, thermal cycles, humidity and aggressive underbody environments will test every bolted joint.

In this context, the industry's attention is focusing on ensuring a reliable interface between components. For EV battery systems, that interface must also support electrical performance. Low resistance and stable conductivity are not ideal attributes as they are part of the safety and efficiency equation. This is where specialised contact washers, engineered for both mechanical integrity and electrical continuity, become increasingly relevant.

Within this broader framework of innovation, Grower OhmLock® stands out as a highly targeted solution designed for a specific and fast evolving need by ensuring a stable, conductive and corrosion resistant bolted joint in EV battery pack applications.

Grower OhmLock® is a conical washer developed by Growermetal's R&D team for battery pack assemblies. Its dual sided geometry is designed to manage the interface on both sides of the washer, the upper surface features knurling, while the underside includes sharp protrusions. This combination is engineered to maintain low electrical resistance and high conductivity between the washer bearing surface and the bolt underhead, while supporting secure assembly in demanding conditions.

From a mechanical perspective, the conical geometry contributes to joint stability, helping the connection resist loosening induced by vibration and stress, which are typical challenges for underbody applications. From an electrical point of view, the objective is equally clear – to ensure a smooth and uninterrupted power flow by maintaining low electrical resistance and high conductivity at the critical contact interfaces.

At the same time, the geometry is designed to secure the components without damaging paint coatings, while minimising the risk of external corrosion. The result is a solution that helps prevent failures or malfunctions and reduces the risk of energy dispersion, supporting long-term reliability in electrified mobility applications.

In EV battery packs, the bolted joint must deliver both mechanical stability and electrical performance over time. Grower OhmLock® supports this requirement by stabilising the underhead contact interface, helping maintain low contact resistance while reducing the risk factors that typically compromise conductive joints in service, such as loosening caused by vibration, temperature cycling and environmental exposure.

> "Grower OhmLock® ensures a stable, conductive and corrosion resistant bolted joint in EV battery pack applications."

These characteristics have been assessed through simulations and quality testing in-house. For eMobility manufacturers, this translates into a fastening interface engineered for long-term consistency, supporting safer and more reliable battery pack assemblies where clamp load and current flow must remain stable throughout the vehicle lifecycle.

Over the last year, Growermetal has further strengthened its R&D and innovation ecosystem through new facilities within the Growermetal Innovation Center (GIC). The expansion reflects a clear direction – accelerate product development through research and performance validation.

Alongside these investments, Growermetal has continued to push the development of its branded product line, with a strong focus on aerospace and automotive applications, while also investing in new technologies such as Artificial Intelligence, in order to support product development and manufacturing processes. +

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