

Hybrix™

Using an advanced material as Hybrix™ leads to endless opportunities when designing lightweight constructions, Hybrix™ is 50% lighter than equal solids with the same rigidity and stiffness. The sandwich material is a very thin (0.5 - 3.5 mm) metal micro-sandwich that is strong, formable and light weight with a total weight between 1.0 - 8.5 kg/m² (depending on the configuration).

The unique micro-sandwich design also provides good insulation and dampening properties. Being able to use everything from stainless steel to copper to aluminum makes Hybrix™ a very formable material, unlike conventional lightweight sandwich materials.

Hybrix™ makes Battery Pack Container Lighter with better Thermal Insulation

The rapid growing automotive industry within Electric Vehicles (EV) sector, constantly pushes design engineering to outer edges of the design boundaries. A general explanation for this matter is the stringent requirements from authorities and consumers regarding the environmental impact of vehicles such as vehicle curb weight, fuel consumption, and recycling requirement, and many other constraints. In fact, the product designer, for the next generation of vehicles with the Battery Pack Container (BPC), facing many issues that stem originally from insufficient material selection in order to achieve an adequate weight reduction, decrease noise pollution and improve driving range with a distinct eco-friendly footprint (fuel consumption). One way to accomplish the set goal for producing the lighter metal components, e.g. BPC, is to use advanced and innovative materials which slightly differs from the traditional automotive sheet metal.

For almost 10 years ago, Lamera realized the market needs and had introduced the multi-layer materials under a common brand name Hybrix™. The material is hollow and contains air and millions of microscopic fibers that bind the surfaces together.

Lamera AB in cooperation with the Chalmers University of Technology and ECar Sweden AB has introduced a unique solution for the material selection of a BPC product with 17.5 kg total weight as a reference product, using aluminum with steel lathes. Due to excellent Hybrix™ formability properties as a sandwich material, the BPC has been redesigned and manufactured by existing forming processes. The benefits of using Hybrix™ for the particular application is not only a weight reduction of around 60% but also its unique micro-sandwich structure which has a sufficient insulating property.

This thermal insulation will facilitate a micro-climate within the BPC that can extend the lifetime of the batteries. Using Hybrix™ in new constructions will revolutionize how we think about light weight design.



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