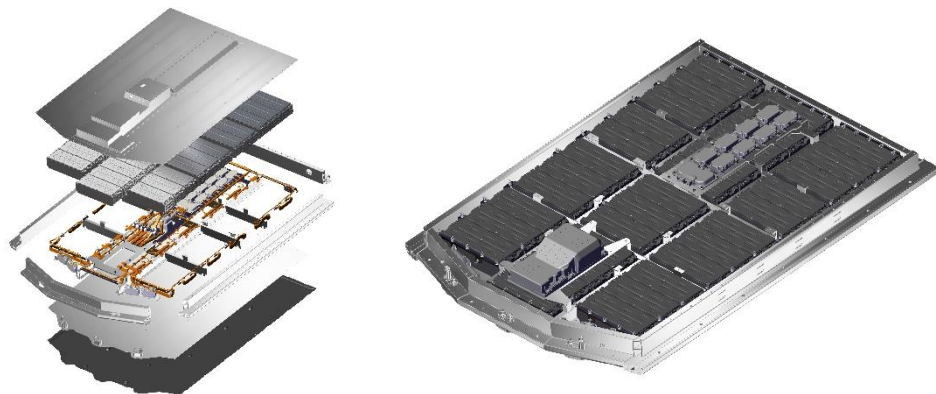


### BENTELER MODULAR BATTERY PACK: MORE THAN JUST AN ASSEMBLY OF BATTERY MODULES



BENTELER is one of the market-leading suppliers of battery trays. Combined with our competence in cooling systems, we have designed a full modular battery pack ready for integration into the vehicle body. This includes the aluminum tray, cooling, battery modules, fittings and the high-voltage wiring and connections.

The tray is an aluminum extrusion frame design, which combines the competence of 10 years of battery tray series manufacturing at BENTELER. The outer frame is the main structure of the pack and supports the whole vehicle in terms of security and crash behavior. Additionally, an inner reinforcement frame protects the modules and absorbs crash loads. The base plate of the battery pack is located below the tray. It consists of three cooling plates welded together. These are manufactured by roll-bonding or, optionally, by soldering. The cooling plates are part of a water/glycol low temperature circuit, which is cooled by a chiller or, alternatively, electrically heated by a high voltage heater. The battery cooling system is designed for DC quick charging of 150kW.

The battery pack modules are a standardized format. Together with our battery partners, we guarantee the availability of high-quality battery modules and the battery management system. The wiring and fittings are developed by BENTELER and optimized to reduce cost and weight. The whole pack undergoes a high number of validation and certification tests. In this way, we ensure that all requirements, whether customer or legislative, are fulfilled. The result of the combination of all these technologies is our packaged optimized modular battery pack with a high energy density.

### INNOVATIVE NEW BATTERY TRAY DESIGN

The battery tray is an underestimated system. It not only provides good packaging for the battery modules; it also fulfils high requirements of permeability and impact as part of the vehicle crash management. Our new tray design as part of the battery pack offers customers a wide range of benefits:

- Lightweight: weight-optimized tray with high-tenacity aluminum alloy
- Remarkably flat design, feasible for VDA 590er modules
- Integrated crash system
- Integrated pole test cover plate
- Easy integration for gas evacuation through side profiles



Dear All,

*Today, many manufacturers invest heavily in the development of battery packs tailored to a specific vehicle design. Although battery modules are moving towards standardization, there are nevertheless numerous battery pack solutions for every application. Given the engineering effort and investment necessary, a modular battery pack that's easily integrated into an individual vehicle concept is an enabler for cost competitiveness. That's why BENTELER has developed a pre-integrated, pre-validated solution based on the BEDS platform. First prototypes on the street confirm the performance of our battery pack.*

Regards,  
Marco Kollmeier

For further background about our e-mobility solutions please visit our website: [www.benteler-automotive.com/e-mobility](http://www.benteler-automotive.com/e-mobility)

### Questions? Please contact:



**Marco Kollmeier**  
Vice President  
Marco.Kollmeier@benteler.com



**Julia Hansen**  
Business Development  
Julia.Hansen@benteler.com

Impressum:  
BENTELER International AG  
Schillerstraße 25-27  
5020 Salzburg, Austria