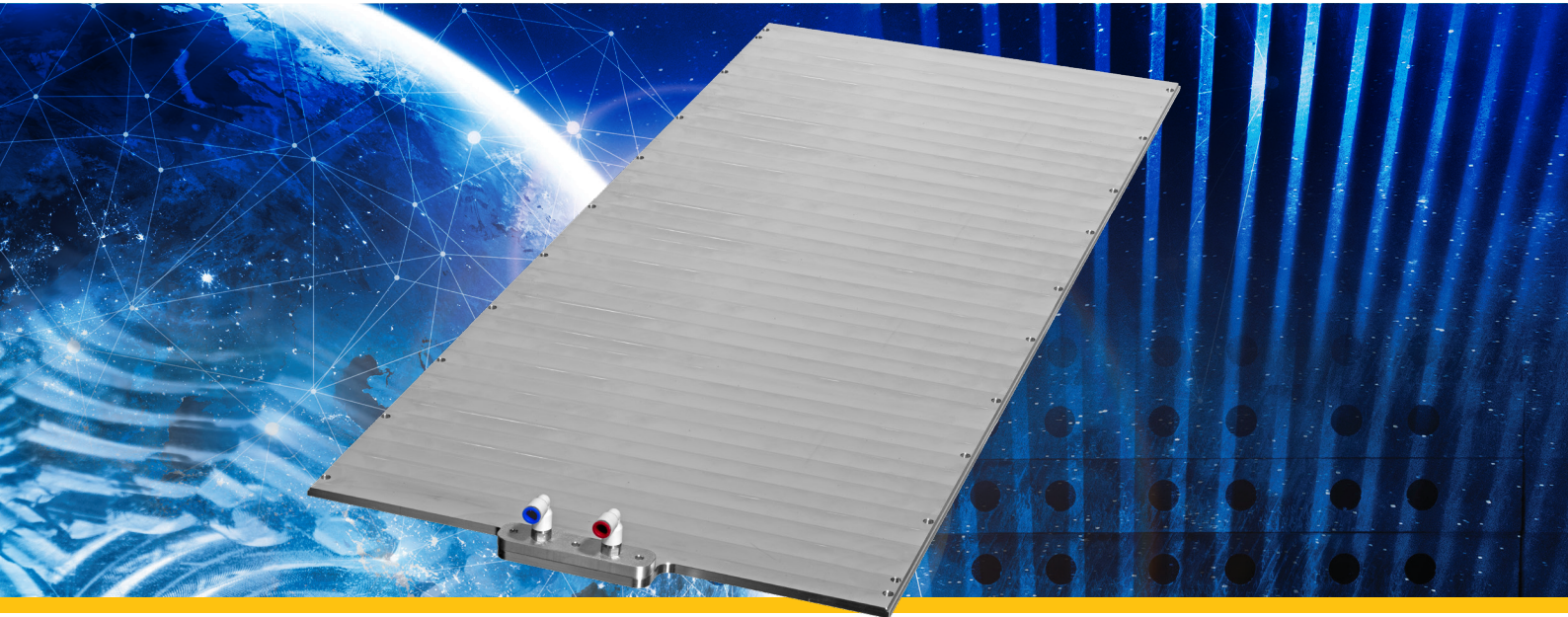


# Superior Cooling for Battery Applications



Vacuum-brazed cold plates are designed for the cooling of high-capacity battery cells like LTO, NMC and LFP cells. These cooling solutions are engineered and manufactured for industrial energy storage and mobility applications such as traction systems, buses and construction machinery equipment.

## Advantages:

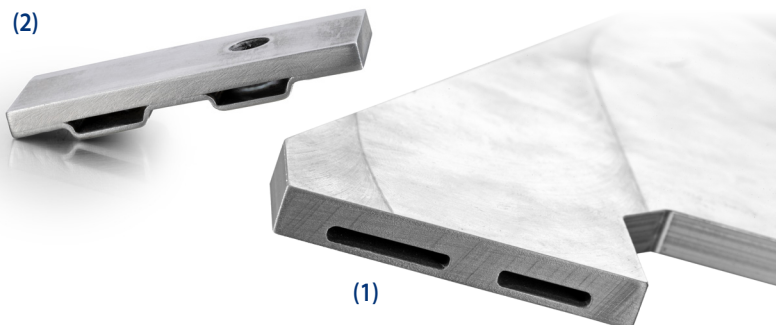
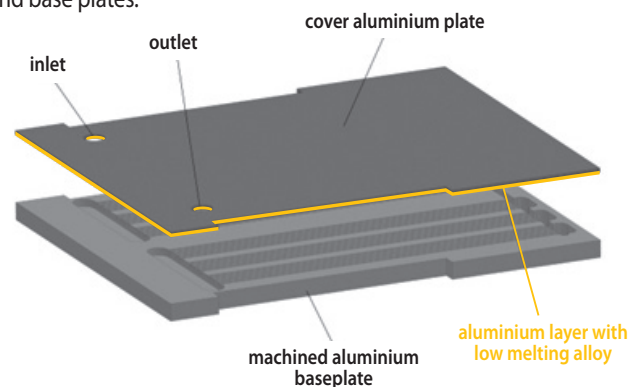
- CFD-optimized cooling path ensures maximum cell temperature uniformity and reduces hotspot temperatures.
- Cold plate serves as a structural lightweight component with high mechanical load capacity, eliminating the need for a support structure (aluminium hardening process possible).
- Highest corrosion-resistance due to an acid and flux-free manufacturing process.
- Low cold plate distortion minimises mechanical stress on battery cells and busbars.
- CO<sub>2</sub>-reduced production process with a very high proportion of recycled aluminium.
- Compatible with all types of connectors.

## Manufacturing Processes:

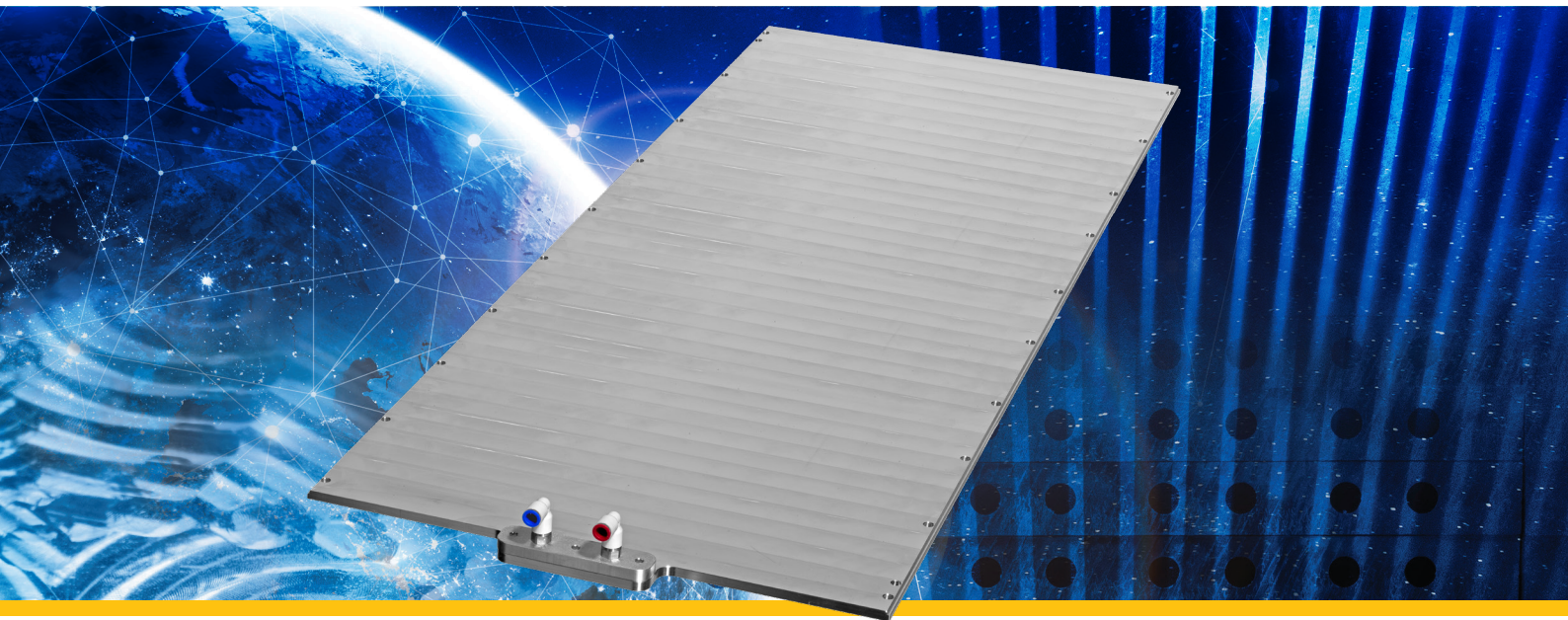
- Vacuum-brazing process for maximum reliability, durability, and service life.
- Fully machined version with vacuum-brazed design for low to medium quantities:
  - Reduced time-to-market
  - Low tooling costs
- Deep-drawn version with vacuum-brazed design for high quantities:
  - Reduced production costs
  - Lower weight due to reduced material content

## Process description:

A cover plate is placed on top of a base plate, which can be either a machined part (1) or a deep-drawn part (2). The assembly is then heated in a vacuum brazing furnace to a temperature in the range of 580-600 °C. This process melts the thin layer of aluminium alloy on the cover plate and creates a brazed joint between the cover plate and the base plate. This brazing technology results in an extremely reliable and secure connection between the cover and base plates.

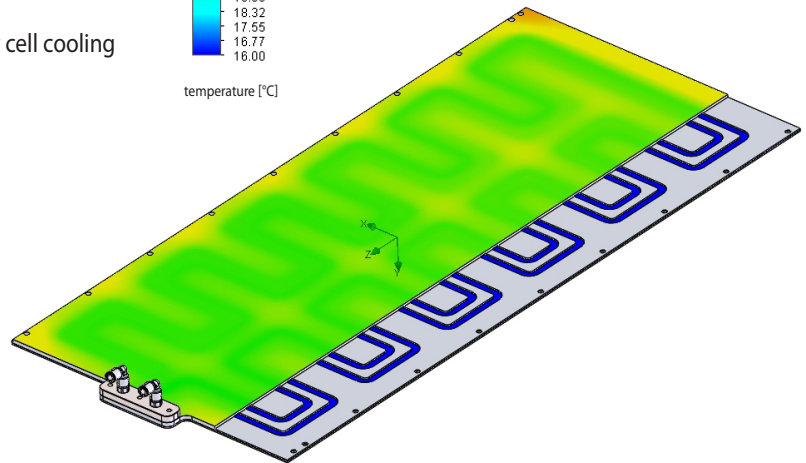
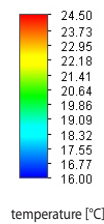


# Superior Cooling for Battery Applications



## Design Properties:

- Maximum Dimension: 800 mm x 2600 mm
- Thickness:  $\geq 5$  mm
- Various surface coatings available
- Machined contact surface for optimised battery cell cooling
- CFD simulation for optimal thermal design



## Use Cases (Applications):



TRAIN AND TRAMS



AGRICULTURAL VEHICLES



TRUCKS AND BUSES



ENERGY STORAGE SYSTEM

