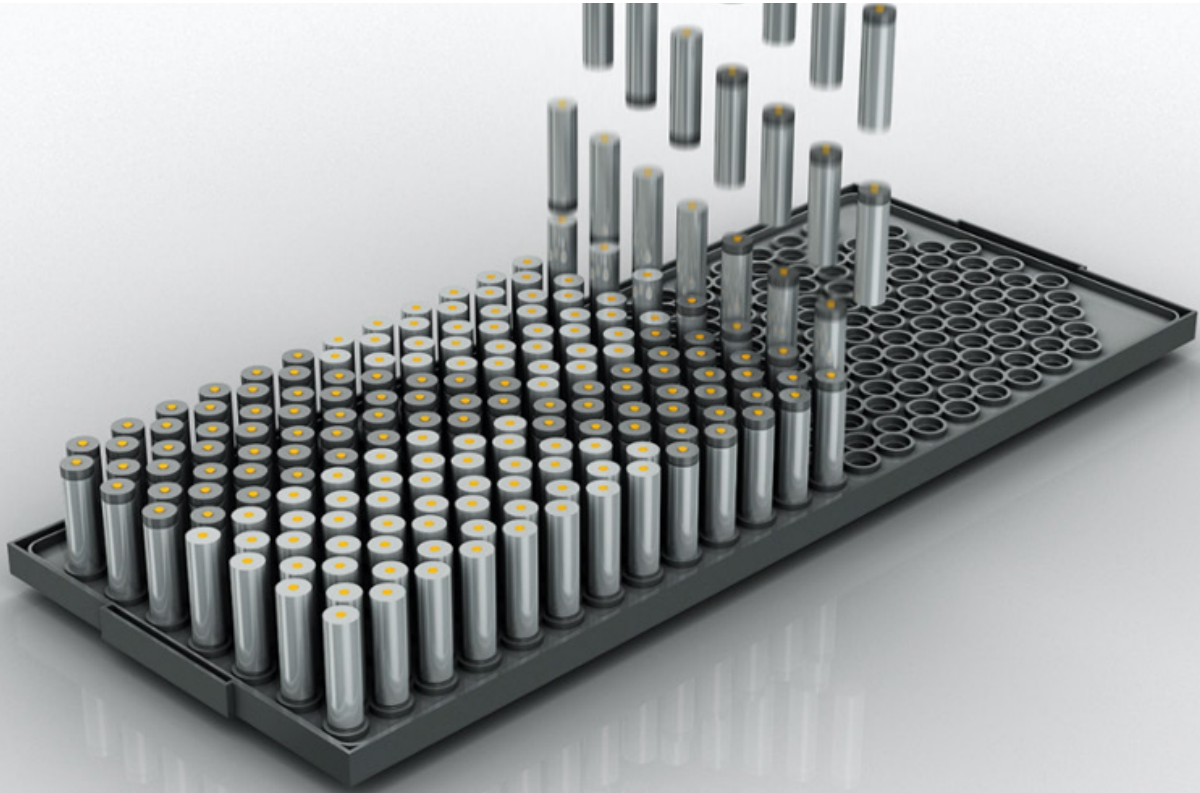


EV battery manufacturing

Efficiently manufacture high quality, cost-effective cells



The heart of any electric vehicle is the battery. Batteries are the single most expensive part of an EV, accounting for about 30% of the total cost to consumers and require a minimum eight-year warranty.

As battery properties also have safety implications for the vehicle, all batteries must be rigorously tested for safety and quality, as well as reliability and performance. Maintaining quality throughout the production process is the primary goal of Hexagon's solutions.

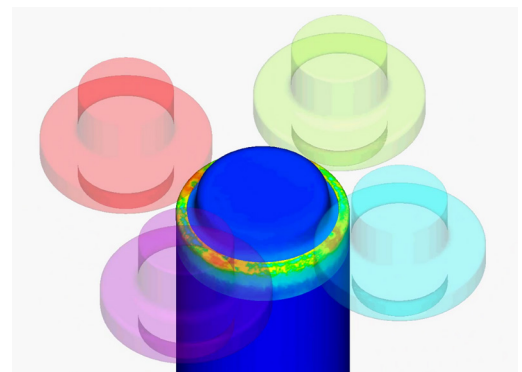
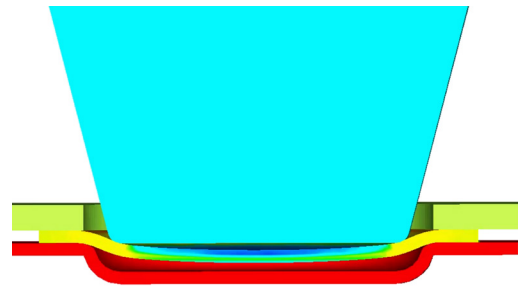
| Visit [mscsoftware.com/industry/eMobility](https://www.mscsoftware.com/industry/eMobility)

EV battery manufacturing

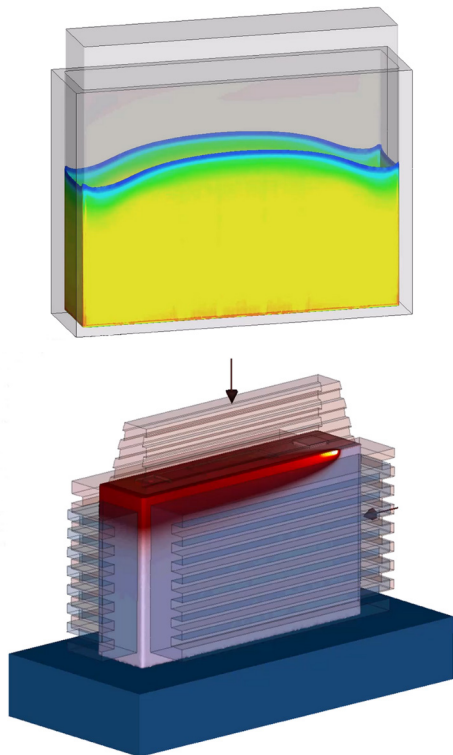
The housing of the battery cells must protect the jelly roll from puncturing or impingement that could cause a fire. At the same time, the housing has to allow expansion of the jelly roll during the charging and discharging phase, and allow sufficient thermal management.

EV engineers aspire to make these housings as light as possible. That's where manufacturing simulation can help; by predicting residual stresses, deformations and actual thickness it allows engineers to push the boundaries of what is possible.

Manufacturing process simulation, material costing, and manufacturing feasibility risk assessment for battery housings can be optimised and validated with Hexagon's FormingSuite and Simufact Forming technology. With Hexagon tools, batteries can be made lighter and to the required quality every time.



Cylindrical battery case manufacturing



Prismatic battery case manufacturing

Another challenge in manufacturing battery housings with the thinnest materials is closing the lid. No matter whether it's a rolled cap or a welded plate, joining to parts is always the most critical phase. Effectively simulating this phase is the only way to ensure that distortions are minimised, operating temperature ranges are not exceeded and sealing is guaranteed.

Simufact Welding and Simufact Joining enable the adaption of different joining technologies that influence the central characteristics of the battery pack in terms of battery performance, capacity and lifetime. Simulations are also the best way to fine-tune the joining process and maximise throughput while guaranteeing quality.

| Learn more [mscsoftware.com/industry/eMobility](https://www.mscsoftware.com/industry/eMobility)