Formation and finishing of lithium-ion cells
thyssenkrupp System Engineering is an internationally acting affiliate of thyssenkrupp Industrial Solutions, a system partner for all important components of the process chains for car body and powertrain in the automotive industry.

The product range also includes automation solutions for electrical storage and drive systems, solutions for innovative lightweight designs as well as lines and test systems for aviation industry.

thyssenkrupp System Engineering is a strong and reliable partner to its customers, optimizing their value added chain and strengthening their efficiency.
Low-emission electric propulsion systems will characterize and shape the mobility of the future. Currently, electric powertrains and renewable energies are expanding their market shares.

System Engineering is bringing its extensive experience from production lines of the automotive industry to the manufacturing process of modern energy storage and propulsion systems.

Our product range for the electric mobility:
• Li-ion cell assembly lines
• Cell formation and finishing
• Battery module and pack assembly lines
• Electric motor assembly lines
• End of Line test benches
• Service and support worldwide

Our comprehensive range of services includes the technical consulting for our customers in the development of design-to-assembly components, plant and factory planning. Our main scope of supply is the design, manufacturing and commissioning of turnkey assembly lines out of one hand.
Formation plants -
lithium-ion cell formation
and finishing plant

Leading engineering competence

• Factory automation on turnkey basis
• Best fitted equipment from a single source
• Customizable manufacturing execution system (MES) and production recipe management software

Electrical components

• Formation channels with a wide range of functionality
• Customizable function parameters
• Energy recuperation

Based on our experience we have the know-how to design and execute cell formation systems. From laboratory projects (ten of cells per day) to series production facilities (several millions of cells per year), thyssenkrupp System Engineering offers unique, advanced, and cost effective solutions.

Plant safety

• Passive elements for basic safety requirements
• Active elements for process protection
• Thermal event management for the entire plant

Software development

• Workflow production management systems
• Measurement-, data monitoring and evaluation
• Intuitive control front ends for operators

Mechanical components

• Reliable, high current contacting system development
• Cost and energy efficient tempering chambers
• Logistic concepts for flexible material flow

Factory automation

• Plant simulation for logistics and energy consumption optimization
• Efficiency analysis for equipment and operating costs
• Maintenance planning for steady production

Cell formation system ZSW, Ulm
In most cases, our project managers opt for self-developed innovations. This is an advantage not only for a smooth installation of the system, but also for its subsequent operation.

The collaboration with reliable and innovative suppliers enables us to address almost any customer requirement. Furthermore, we are profiting from our experience in the automotive industry, particularly in the fields of charging and testing. The transfer of proven technologies and software to new fields is benefiting our customers. For example, the use of our general-purpose UPS (universal test software) has drastically reduced defects and downtime.

Our cell finishing systems enable our customers to reliably conclude the production process. These systems cover the entire process - from formation of the passivation layer, degasing, aging, through to end-of-line testing of the cell, and classification.

We provide quality-conscious processes by forming, testing and assessing every individual cell. We test, collect, and store the data for each individual cell.

**Also for the serial production**

In most cases, our project managers opt for self-developed innovations. This is an advantage not only for a smooth installation of the system, but also for its subsequent operation. The collaboration with reliable and innovative suppliers, enables us to address almost any customer requirement.

Furthermore, we are profiting from our experience in the automotive industry, particularly in the fields of charging and testing. The transfer of proven technologies and software to new fields is benefiting our customers. For example, the use of our general-purpose UPS (universal test software) has drastically reduced defects and downtime.

"We are proud of being able to offer our customers the entire product portfolio - from cell assembly and full battery system installation through to test."

Dr. Achim Agostini, thyssenkrupp System Engineering
Winner of the Innovation Contest: The ideas of our employees are crucial to the success of thyssenkrupp. The people who develop ideas and translate them into successful products and services are the most important asset. thyssenkrupp System Engineering has developed an innovative manufacturing process with the potential of reducing the cost and increasing the quality of lithium-ion cells and therefore was the winner of the 2014 thyssenkrupp Innovation Contest.

For our customers in the automotive industry, we are the system partner for all key components in the car body and powertrain process chains. We have more than 100 years experience in overcoming technical limitations through innovation. We achieve this with quality, comprehensive engineering skills and a great deal of passion for projects.