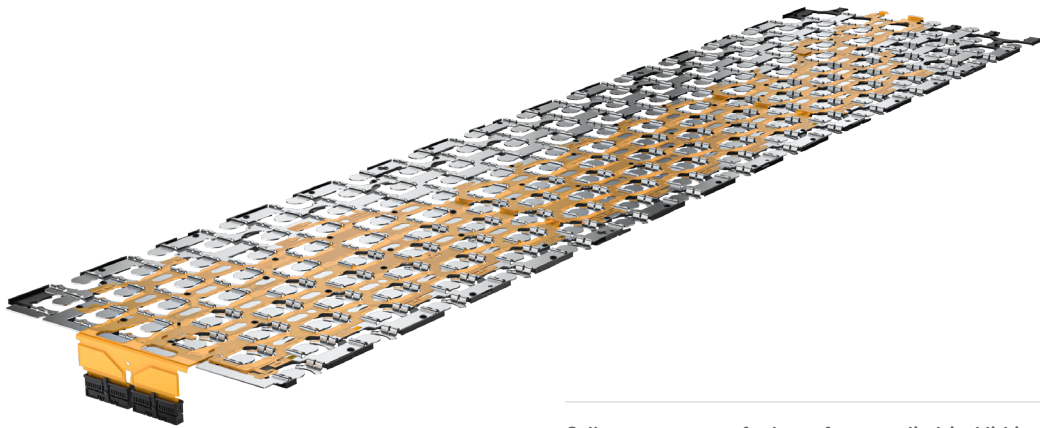


FACT SHEET

# Cell Contact System-CCS

Cell contact systems for lithium-Ion batteries of various configuration levels from ElringKlinger are matched exactly to customer specifications and can be positioned and welded directly onto the cell group. They consist of a plastic support frame that holds the cell connectors and ensures installation in all close-tolerance positions.



Cell contact system for large-format cylindrical lithium-ion cells (46-x) with flexible printed circuit board as signal carrier

The necessary voltage and temperature sensors are already fitted into the systems. In addition, the monitoring electronics (CSC) itself can also be integrated. Both approved and newly developed automotive plug-in systems can be used on a plug-and-play basis at the interfaces. Voltage taps are used to monitor the cells and enable active/passive cell balancing. For thermal monitoring

of the cells, a wide range of temperature sensor shapes with optimal heat transfer can be used on the cell connectors. Our cell contact system are made in fully automated inline production and undergo 100 % end-of-line testing. ElringKlinger cell contact systems are suitable for use in both hybrid and purely electric vehicles and non automotive applications.



## ELRINGKLINGER – YOUR PARTNER FOR E-MOBILITY SOLUTIONS WITH BATTERY TECHNOLOGY

Cell Expertise – Module and System Design – Installation Space Optimization – Simulation and Testing – Certification – Prototyping – Process Engineering – Industrialization – Integrated Solutions and Components – Recycling

# Technology

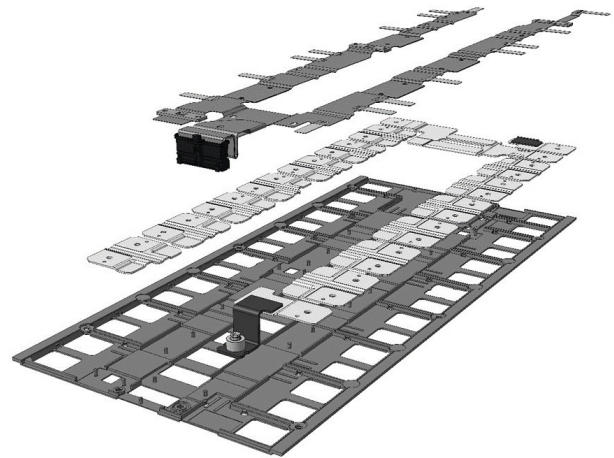
- + Specific designed cell connectors with regard to thermal losses and direct distribution of electricity, to customers' requirements
- + Integrated voltage and temperature measurement
- + Broad knowledge regarding the design of mech. compensating elements in connection with durability, cell swelling/breathing, shock, vibration and thermal expansion
- + Integrated variable fuse at sense path (LV) and/or at cell connectors (HV) adapted to the load cases
- + Innovative flexible PCB design, allows different circuit variants in multi-layer design
- + Highly automated CCS assembly lines
- + CCS solutions scalable in size, from module CCS solutions to large format CCS for cell-to-pack (CTP) and cell-to-chassis (MTC) applications

# Benefits

- + Over a decade, expertise in CCS Series production
- + Large scale mass production global capabilities
- + Specific customer solutions for different kind of cell types, cylindrical, pouch and prismatic cells
- + ElringKlinger own FPC development
- + Strong relationships to major players for FPC Assembly
- + Own parts development, FEM, CFD simulations,...
- + Inhouse prototyping and testing/ validation capabilities

# Parameters

- + Capabilities to design and engineer fully integrated solutions
- + Cell voltage tapping via laser welding or bonded connections
- + Own power tab design
- + Flexible PCB allows low overall height with tolerance compensation shafts (in x and y directions)
- + High CCS part variation possible, with module connector, cover,...



## YOUR CONTACT

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08/23