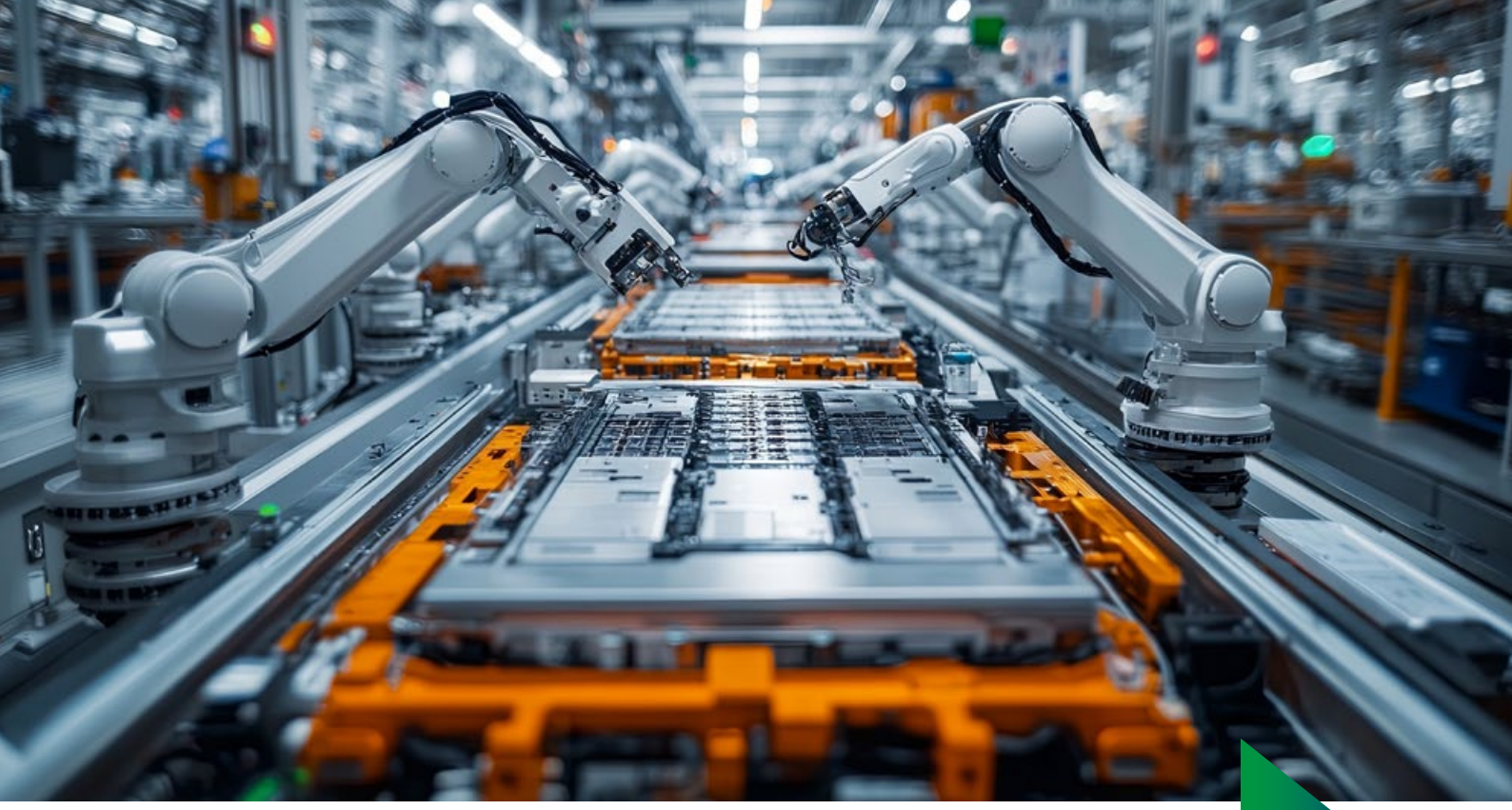


Smart Bonding Solutions for EV Battery Manufacturing



Multifunctional Adhesive Tapes for EV Batteries

For decades, Lohmann has been a development partner for the automotive industry, collaborating directly with OEMs and Tier 1 and Tier 2 suppliers on bonding solutions that perform reliably in series production. In EV battery manufacturing, this accumulated expertise enables us to address the full range of assembly challenges – from cell fixation and thermal management to electrical safety.

Our multifunctional tape portfolio is built around the functional requirements of the modern lithium-ion battery: thermally conductive tapes for efficient heat dissipation from cells to the cooling system, electrically insulating PET-based laminates for high-voltage protection and busbar insulation, and electrically conductive tapes for EMI shielding and grounding. Foam solutions in PE, PU, EPDM and acrylic foam address sealing, cushioning, NVH damping and thermal runaway protection. Where structural integrity is required, our UV-LUX technology provides high-strength structural bonding.

With 27 sites in 20 countries and locally active engineering teams, Lohmann combines global manufacturing capability with on-site application support – supplying the automotive industry from independent, regional supply chains, certified to IATF 16949.

Sustainability is a long-standing commitment at Lohmann. More than 30 years ago, we developed the first adhesive solutions for photovoltaic modules. Durable, high-performance bonded joints are the foundation of longer-lasting, more economical systems – in renewable energy applications as much as in today's EV battery technology.

Find out more about our portfolio:

Battery

From Concept to Serial Production



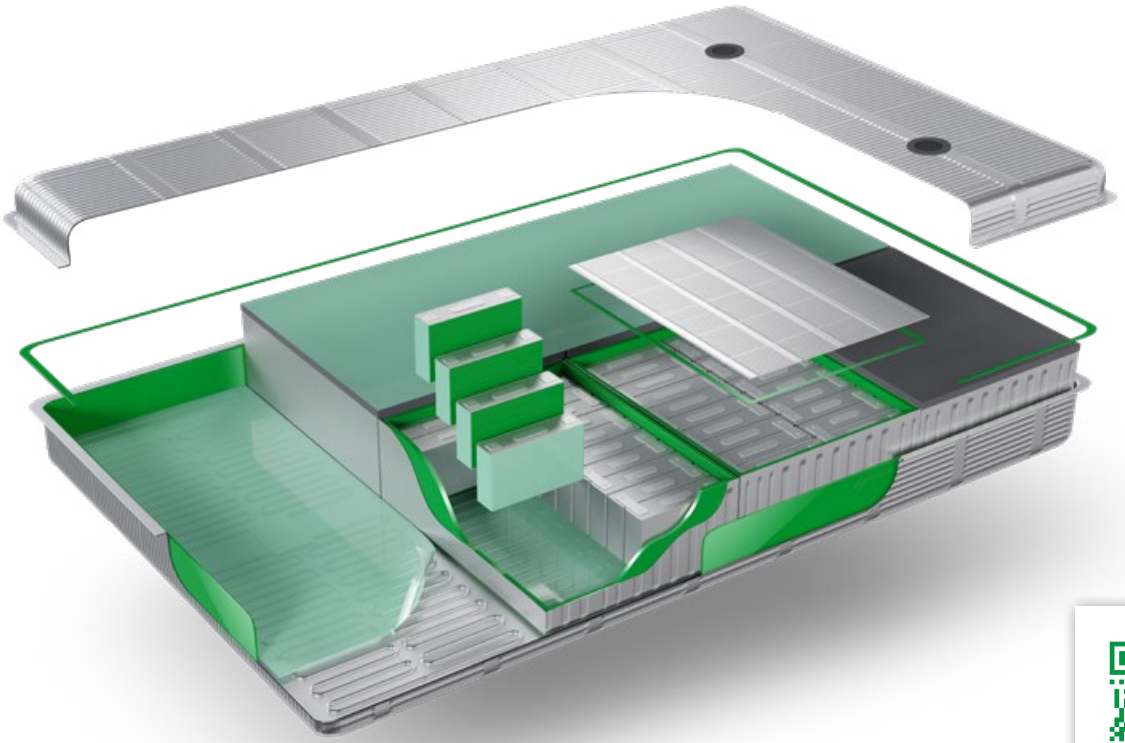
Bringing a bonding solution from concept to series production requires more than a broad product portfolio. It requires deep application expertise at every stage – and the manufacturing depth to back it up.

At Lohmann, the complete value chain for adhesive tape solutions is managed in-house: from adhesive R&D and coating, through converting and precision die-cutting, to in-house testing and direct support for process integration at the customer's manufacturing site.

This independence from intercontinental supply chains means shorter development cycles, consistent quality, and direct coordination between the teams that design, produce and validate each solution.

Our adhesive specialists work directly with the customer's engineering and R&D teams to understand the specific requirements of the application - translating them into a customized bonding solution that is engineered for the process from day one, not adapted to it afterwards. Whether the starting point is a defined specification or an open application challenge, Lohmann accompanies the project from the first technical discussion through prototyping to validated series production.

Multifunctional Adhesive Tapes for Electrical and Thermal Management



Battery Applications

Electrical Management

Electrical Insulation

An excellent alternative to powder coating for electrical insulation is PET tape. Equipped with a pressure-sensitive adhesive, single or double-sided tapes provide reliable protection against short-circuits with their good dielectric strength and high CTI values, which can be a root cause of thermal runaway of battery cells. Customized die-cuts for cell wrapping or the electrical insulation of side panels of battery modules and packs offer easy application during serial production, supporting low scrap rates and high throughput. The PET tapes are available in different colours for reliable optical recognition and can be printed on or carry laser codes to follow the regulation of the battery passport.

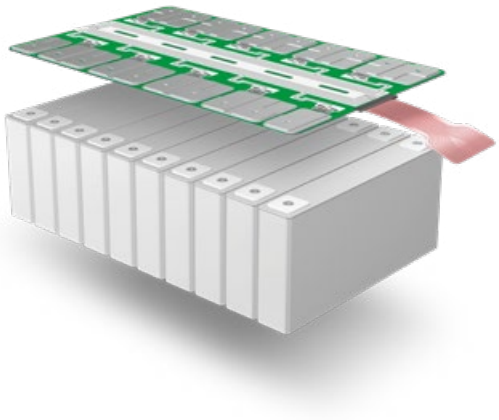
Your benefits:

- Optimal electrical and thermal insulation
- Effective protection against dielectric breakdown
- Tapes available in various colors for reliable detection by vision systems



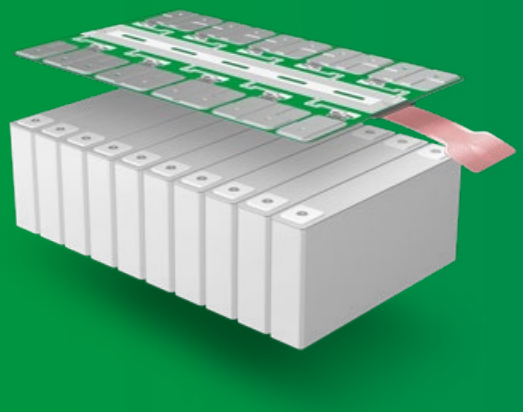
Electrical Insulation of Busbars

The low voltage connections responsible for signal transfer and State of Health indicators to the BMS should be reliably protected against malfunction. One measure is electrical insulation to prevent short circuits. For printed connections, PET tapes offer additional mechanical protection. The trend to save space and make batteries smaller and lighter is supported by customized die-cuts of electrical insulation tapes, which offer equal thickness over larger areas and customized shapes for each individual connector design. Where needed, this insulation tape can be combined with a foam for cushioning and protection at highly stressed areas.



Your benefits:

- Improved electrical insulation of the connection to the battery management system
- Effective protection against dielectric breakdown



Busbar Protection

Lohmann provides single-sided adhesive PET or PI films for the electrical insulation of busbars, protecting adjacent battery components from sparkover. These self-adhesive films can be laminated with cushioning foams in various thicknesses to enhance mechanical protection and compensate tolerances. If flame-retardant insulation is required, additional lamination with technical paper or other flame barrier materials is available. Lohmann therefore offers individualized laminates that ensure reliable battery performance over the entire lifetime.

Your benefits:

- Cushioning foams for mechanical protection of the electrical connection
- Flame-retardant tapes fulfill requirements of UL 94

EMI Shielding and Grounding

Electrically conductive foams offer a smart solution for grounding without using springs or wires. The single-sided foam helps to enable safe grounding over lifetime by bridging gaps caused by part tolerances and thus offers reliable protection of sensitive battery components. At the same time the pressure-sensitive adhesive tape also fulfills a shielding function and helps to prevent malfunction or failure of the battery system.

Your benefits:

- Isotropic and anisotropic electrically conductive portfolio of foam, fabric and transfer tapes
- Excellent shielding properties against electromagnetic waves according to ASTM D 4935

Thermal Management

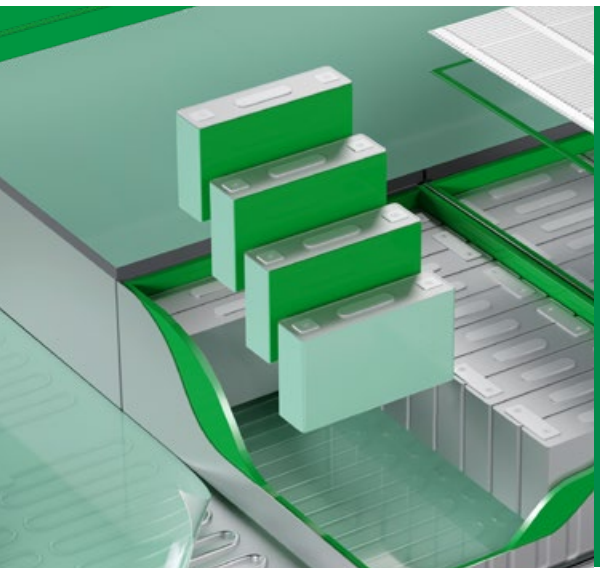
Cooling / Heating

Lohmann's pressure-sensitive adhesive tapes allow an efficient and reliable connection to the cooling or heating element and provide a thermal conductivity of up to 2 W/mK. Tapes from our TC portfolio support heat management inside the EV battery and help keep lithium-ion cells in their comfort zone between 15 and 35 °C, enabling the longest possible lifetime of the cells. The double-sided tapes are free of solvents, halogens and silicones and provide effective protection of electrical components as no silicone oil can migrate. All tapes in the portfolio are available on rolls or as customized high-precision die-cuts.



Your benefits:

- Thermal conductivity up to 2 W/mK
- Homogeneous heat transfer
- Flame retardancy according to UL 94-V0
- Protection against corrosion and abrasive dust
- Electrical insulation



Flame-Retardant Insulation

Lohmann pressure-sensitive tapes can be laminated to various materials, such as aramid paper or inorganic materials like mica, to realize self-adhesive flame-retardant insulation of the battery housing. These insulation constructions support heat and particle protection during cell venting events. All products can be adapted to individual requirements to support passenger safety in the vehicle.

Your benefits:

- Heat-resistant acrylic adhesives
- Thermal insulation
- Flame-retardant tapes fulfill requirements of UL 94

Flame Barrier Material

During a thermal event inside the battery, flame barrier materials limit thermal propagation and support protection of surrounding cells. Lohmann offers flame-retardant tape laminations with low thermal conductivity designed for use as flame barriers between cells. The laminated materials are compressible and accommodate the breathing behaviour of the cells during charging and discharging as well as swelling over the cell lifetime. Lohmann develops customized laminate solutions combining different materials to match the requirements of various cell chemistries and battery pack designs.



Your benefits:

- Very low thermal conductivity
- Compressible for effective compensation of cell expansion
- Flame-retardant tapes fulfill requirements according to UL 94
- Heat resistant up to several hundred degrees

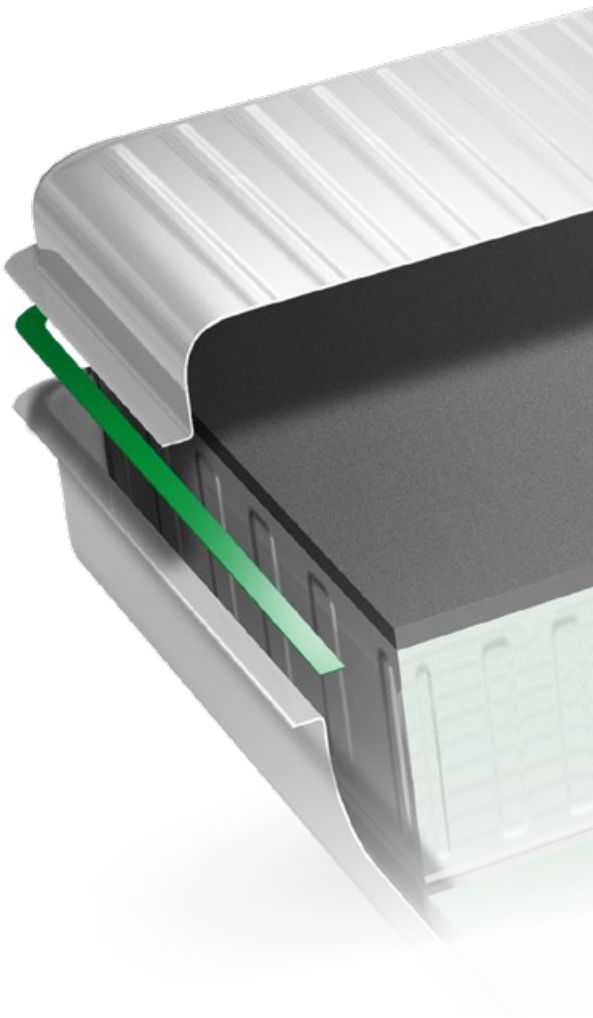
Damp & Seal

Gasket

Lohmann's closed-cell PE, PU, and EPDM foam tapes seal against dust and humidity. They protect the battery housing and support long-term reliability. The tapes also improve tamper resistance of the battery case. In addition, the self-adhesive foam tapes act as NVH materials. They absorb vibrations and help reduce noise.

Your benefits:

- Absorption of vibrations and protection of sensitive components
- Effective noise-reduction and damping properties
- Reliable protection from unwanted interruption – no opening without destruction of the foam





Compression Pads and Spacer

The requirements for spacers between cells depend on quite a few factors. They must compensate for the breathing and swelling of the cells over their lifetime and provide a certain backpressure to enable the cell to operate at its best. The properties an intercell material must fulfill depend on the cell geometry, cell chemistry, and the module or pack design. There is a broad variety of materials which can be used alone or in combination to achieve: compressibility, thermal insulation to prevent thermal propagation, and flame barrier to prevent thermal propagation in case of cell venting.

Your benefits:

- Reliable backpressure for optimal performance of the cells
- Compensation of expansion of cell during use
- Effective cell cushioning due to full-surface bonding of the foam tape
- Long-term heat resistance
- Electrical insulation properties for protection against dielectric breakdown or flashovers

The perfect bonding solution?
The one tailored to your application.
We support you **from the idea** to its integration **into your process.**

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