



Smart Bonding Solutions for Secure Documents

Structural bonding technology for manufacturers of cards & passports

High-tech adhesive tape solutions for smart cards and passport manufacturing

Reliable and tamper-proof thermoset adhesives

Security printers and smart card manufacturers have to increase safety measures constantly in order to safeguard sensitive information incorporated in their products. In order to protect passports, ID cards or smart cards against counterfeiting, tampering and unauthorized access state of the art high-tech materials need to be employed.

One essential component in the manufacturing process of these documents are adhesives and adhesive tapes used to bond various layers together, such as the cover page, inlay in passports and chips in smart cards. These tapes must meet strict requirements for durability, adhesion, and resistance to tampering. This is where Lohmann comes in, as a leading provider of secure high-tech adhesive solutions and customized services for security printing and smart card manufacturing industries.

Our innovative solutions help to combat counterfeiting and increase efficiency during the lamination process while realizing new security features. Furthermore, our DuploTEC® SBF adhesives offer an excellent adhesion to recycled materials such as Ocean Plastic, PLA and PVC thus enabling our customers to reduce the environmental footprint of their products.

Our key driver for success is "doing more while using less." We provide

solutions that enable our clients to achieve their objectives while optimizing resource usage. At the same time, the manufacturing process becomes leaner by means of increased energy efficiency and reduced cycle-times. And Lohmann's bonding solutions do more than just bond: not only do they offer the possibility of pre-application at lower temperatures, they also come with a high flexibility after curing and do not embrittle. Due to their thermosetting properties, they feature outstanding mechanical durability.

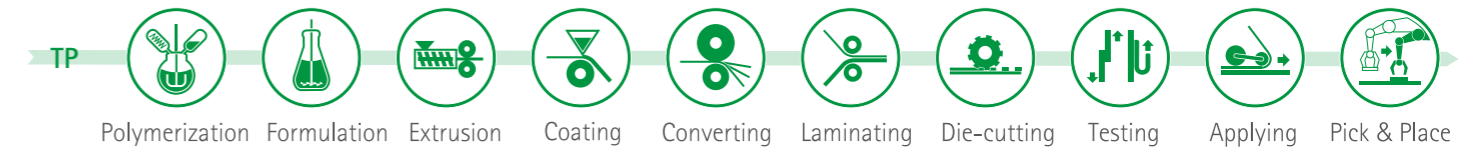
With each smart bonding solution, we have the whole process in mind. Lohmann's global network of international experts and project teams offer both technical and commercial support to customers locally and focus on one single goal: to find the perfect bonding solution for your application.











With Lohmann's innovative DuploTEC® SBF EC (Electrically Conductive) new anisotropic conductive film, you get an extension to our existing state-of-the-art portfolio: with thermoset adhesives that can be equipped with security features within. The tapes are available in a wide range of adhesive thicknesses, in black, translucent, UV-dull and many more colorings. According to the employed process they are available as rolls, sheets or as customized die-cuts.



Your reliable partner – from high-tech tapes to process integration

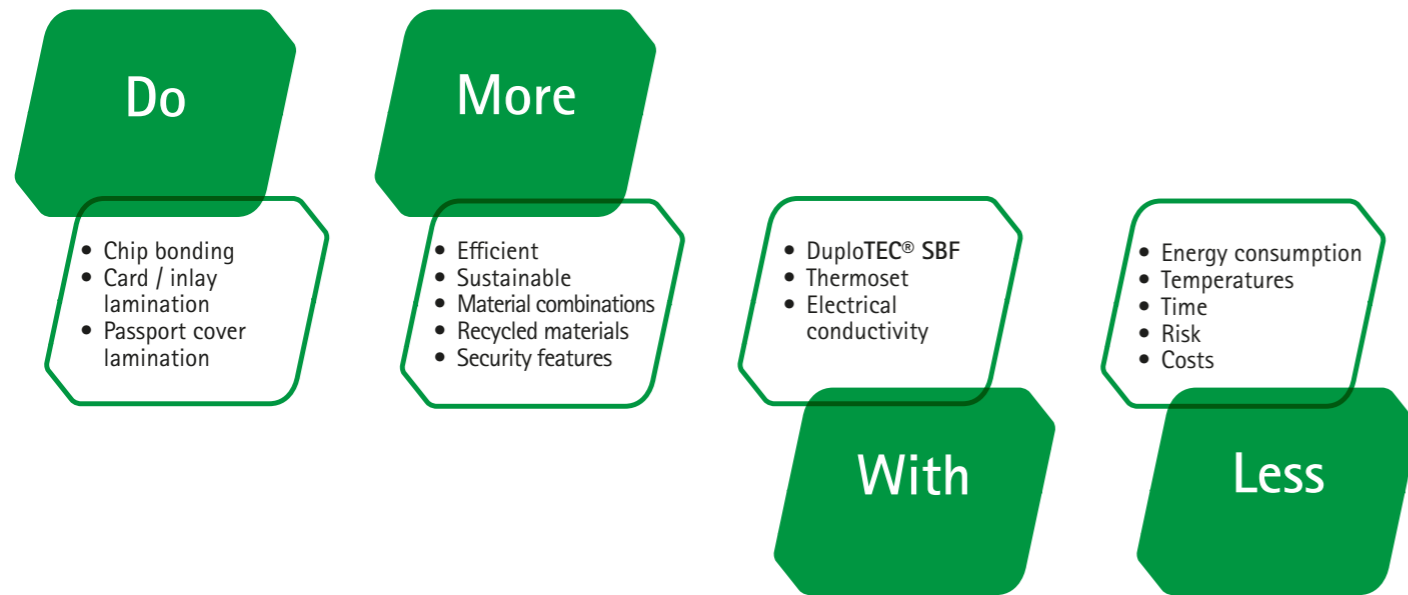
We offer the entire value chain of production and processing of smart bonding solutions



 Polymerization	The polymerization of adhesives is the starting point of our value chain. In state-of-the-art facilities, we produce homopolymers from different components, that are combined together in the next step: formulation.	 Laminating	We laminate a variety of materials, creating individual product designs for specific applications.
 Formulation	We tailor the properties of our adhesives to the requirements of the respective application. By adding additives we adjust the adhesive strength or meet requirements such as flame retardancy, light protection or plasticizer resistance.	 Die-cutting	With precise die-cutting machines that are used to create high-quality, dimensionally accurate products, we meet demands of the market.
 Extrusion	We extrude our materials, such as nonwovens and elastomers, to provide products with unique elasticity.	 Testing	With elaborate inspection and testing procedures in our laboratories, we ensure that our products meet and maintain the quality requirements.
 Coating	Acrylics and rubber-based adhesives are coated onto web materials on solvent, dispersion and hotmelt systems. Reactively crosslinking adhesive systems additionally offer our customers increased mechanical or physical strength in their application.	 Applying	We support our customers with application tools and also help with the detail engineering: from manual, semi or fully-automatic application aids and cutting equipment.
 Converting	We convert coated materials into rolls, spools and sheets in many dimensions according to customer requirements.	 Pick & Place	Application technology specialists support our customers in integrating our adhesive systems into the production process.

Co-creating the most elegant bonding solution for secure documents

We help manufacturers of cards & passports to "do more with less". We do this by partnering with our customers in order to create mutually beneficial bonding solutions.

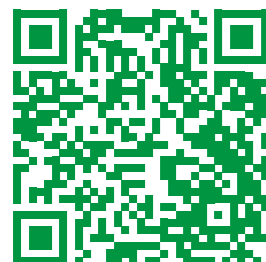


Responsible Solutions in Every Bond

Doing more with less is also reflected in our global sustainability strategy. As pioneers of adhesive bonding technology, we have been creating sustainable connections for over 170 years. In all industries, as a driver for future technologies, together with our development partners. Our goal is to become ever more sustainable with our passion for smart adhesive solutions.

Our focus along this path is on reducing emissions, the use of renewable energies, biobased and ethically sound raw materials, circular economy, optimized recycling concepts, waste avoidance, more sustainable packaging and targeted investments in technical innovations.

Learn more in our sustainability report:



Reliable bonding on eco-friendly card materials

Chip/Sensor bonding for smart cards

Lohmann offers innovative adhesive tapes that provide a secure and reliable connection between chip modules and antennas while reducing the environmental impact.

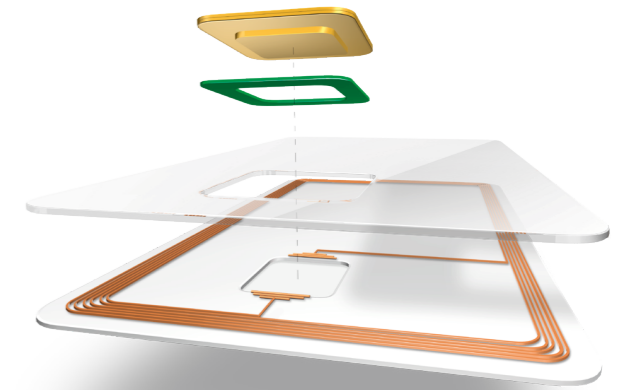
We help card manufacturers improve their production process while reducing supplier dependency and increasing output. With DuploTEC® SBF, we offer a solvent-free thermoset transfer film that is easy to use and can be electrically conductive in the z-direction. This film can be used on in-use equipment, making it an efficient and cost-effective solution for any card manufacturer. With DuploTEC® SBF, card manufacturers can reduce their environmental footprint while still creating high-quality smart cards.



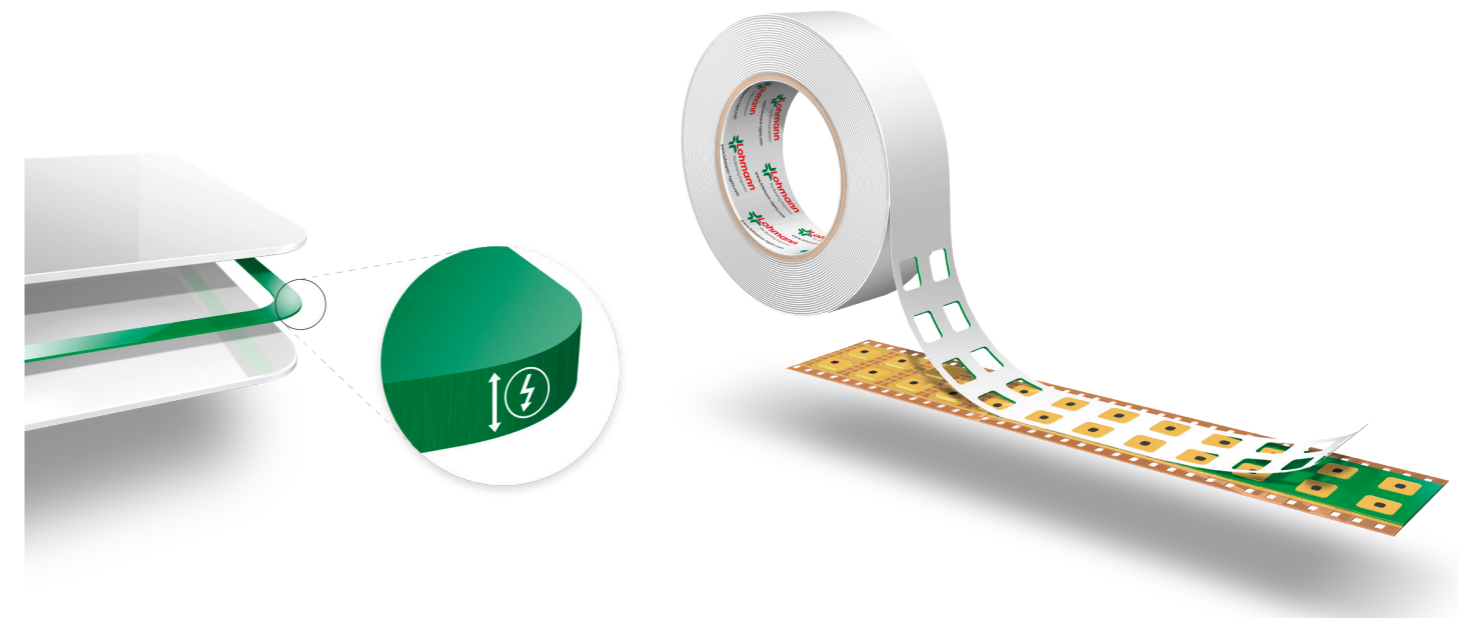
At Lohmann, we understand the importance of reducing environmental impact, and that's why we especially developed our products to be used with alternative card materials such as Parley Ocean Plastic®, PLA, PC, rPVC etc..

Your benefits

- Low activation temperatures
- High flexibility after curing
- High and reliable conductivity in the z-direction
- Solvent-free
- Bio-based
- Very good performance on halogen-free materials (such as Parley Ocean Plastic®, rPETG and PLA) or rPVC



Product	Thickness	Main Features
DuploTEC® 12410 SBF	40 µm	Non-conductive
DuploTEC® 12420 SBF EC	65 µm	Anisotropic, electrically conductive



Cover page and inlay bonding

Lohmann helps passport manufacturers create secure connections between passport cover, inlay as well as inner pages and realize new material combinations. The efficiency is increased during the cover page lamination process, without the typical disadvantages of liquid bonding (no aspiration, no need for cleaning).

What's more, thanks to the extremely low activation temperature (> 70 °C), the material is protected and energy is saved.

Thanks to its special adhesive design the adhesive strength is immediately available and the material can be directly processed.

With our adhesive tapes, we offer the most flexible, thermoset adhesive that supports high-speed, roll-to-roll processes. With that, our customers achieve their production goals while maintaining the highest standards of security and quality.

All products can be provided directly on e.g. cover or inlay materials.

Your benefits

- Easy to use
- Roll-to-roll ready
- Suitable for new material combinations, e.g. PVC, PC, PPG TESLIN®, Neobond®, PETG, and paper
- High flexibility after curing
- Outstanding durability



Product	Thickness*	Activation Temperature
DuploTEC® 12460 SBF	15 µm	> 70 °C
DuploTEC® 12462 SBF	40 µm	> 70 °C
DuploTEC® 680 SBF	12 µm	> 95 °C
DuploTEC® 681 SBF	35 µm	> 95 °C

*Other thicknesses on request

Innovative and customized solutions

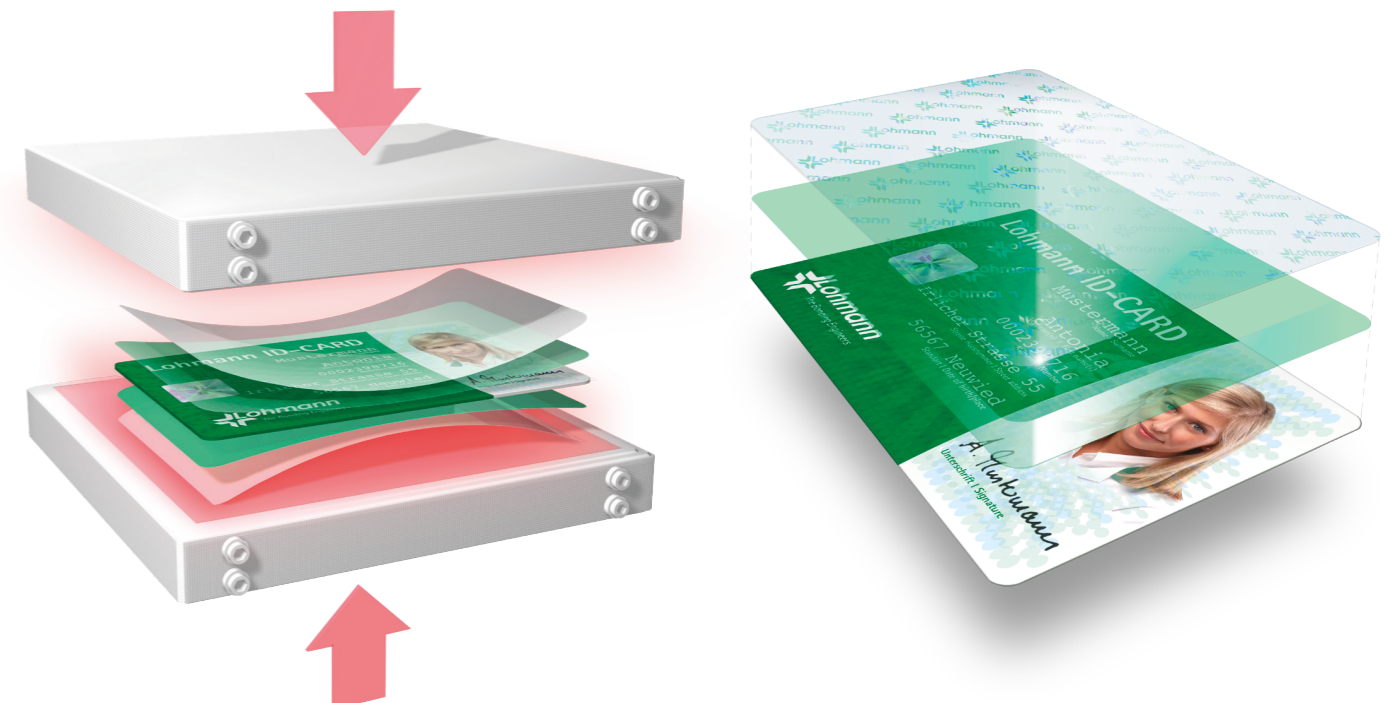
Our bonding solutions are as individual as your requirements. Let's co-create the perfect fit for your application – tailored to the type of secure document and its country of origin.

We offer solutions for overlay coatings, spine tapes, hinge support, individual die-cuts for films and adhesives, security features within the adhesives and much more. We are able to directly equip customer-specific substrates with adhesive and convert the product in the next step. Take your ideas and application challenges to us and let's find a solution together!

Our passion for smart bonding solutions enables you to go beyond – get in touch with us to find out more!

- Thickness Range — 5 µ - 300 µ
- Adhesive Type — Thermoset
- Pre-lamination — 55 °C
- Activation — 70-180 °C
- Colors* — Translucent, UV-dull, black
- Formats — Rolls, sheets, die-cuts
- Suitable Materials* — PC, synthetic materials, inlay materials, PLA, PVC, cover materials, paper
- Additional Information — Coating possible on the materials mentioned above

*Other colors, designs and materials on request



The best bonding solution is the one that meets the precise needs of your application. And how do we find it? By advising and supporting you from the initial idea right through to its intergration in your process. Our philosophy in three words: **smart bonding approach.**

Interested in finding out more on bonding solutions for smart cards & security applications?

Please visit our website or get in contact with us:

www.lohmann-tapes.com

sbf@lohmann-tapes.com

Stay „Bonded"! Subscribe to the Lohmann newsletter now and get the latest adhesive technology news about products and applications for your industry. Don't miss out on our live webinars - be the first to get informed about new events!

