

Adhesive tape solutions for automotive interior applications

Low-emission bonding solutions for improved cabin air quality



Solvent-free adhesive tapes for vehicle interiors

High-tech product portfolio for low-emission bonding

Lohmann's DuploCOLL® LE (LE = low emission) range has been developed for bonding applications in vehicle interiors. The decisive factors for all interior applications are odor pollution and emission values. All tapes in the DuploCOLL® LE portfolio meet the high requirements of the automotive industry regarding low VOC, low fogging and low odor values. The solvent-free tapes comply with the strict specifications of OEMs as well as defined limits of substances according to VDA 278 and thus contribute to improved air quality.

As a flexible alternative to screws and clips Lohmann's low-emission tapes adapt perfectly to a wide variation of designs and decorative materials to achieve reliable fixation. They offer high initial tack as well as excellent adhesion on a wide range of substrates such as individual design plastic parts, wood decors or innovative material surfaces. Furthermore, heating systems in seats, armrests and steering wheels

as well as surface heating for door panels or dashboards in electric vehicles are bonded reliably. In addition, Lohmann adhesive tapes provide supplementary features, e.g. compensating tolerances, air-tight sealing or damping. Thus, the tape significantly reduces vibrations and makes interiors quieter. What's more, Lohmann's product portfolio of electrically and thermally conductive bonding solutions opens new possibilities for automotive engineers and designers.

With each new adhesive solution, we have the whole process in mind. In close cooperation with OEMs and tiers, Lohmann is the development partner for individual bonding solutions up to serial production. We offer many years of experience in specification work and are certified according to IATF 16949. Lohmann's global network of international experts and project teams support customers locally and focus on one single goal: to find the perfect adhesive solution for your application.



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



From the initial idea to the final implementation into the process – from prototyping to series production – Lohmann produces customer-specific adhesive tapes and processes them into die-cuts. The whole product portfolio of adhesive tape solutions is available in rolls, spools, die-cuts or sheets. Each product optionally comes with various damping materials to realize soft touch finishes for comfortable haptics.

In order to meet the high requirements Lohmann tests according to standards of the automotive industry, such as the VDA, which are carried out in modern high-tech laboratories and also comply with individual OEM specifications. What's more, to make application processes even more efficient, Lohmann also offers process aids such as mounting films or handling aids.

We offer the entire value chain of production and processing of double-sided adhesive tapes



R & D of adhesive

We tailor the properties of our adhesives to the requirements of the respective application. For example, we can adjust the adhesive strength by adding additives or meet requirements such as flame retardancy, light protection or plasticizer resistance.



Die-cutting

With computerized die-cutting machines that are used to create high-quality, dimensionally accurate products, we respond to the increasing demands of the market.



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.



Testing

With elaborate inspection and testing procedures in our laboratories, we ensure that our products meet the quality requirements.



Converting

We convert coated materials into rolls, spools and sheets in many dimensions according to customer requirements.



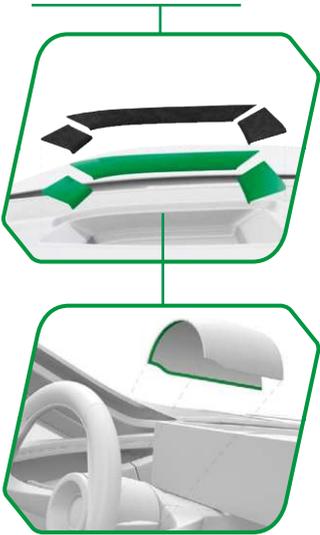
Assembly support

Application technology specialists support our customers in integrating our adhesive systems into the production process.

Interior Applications

Portfolio Selection

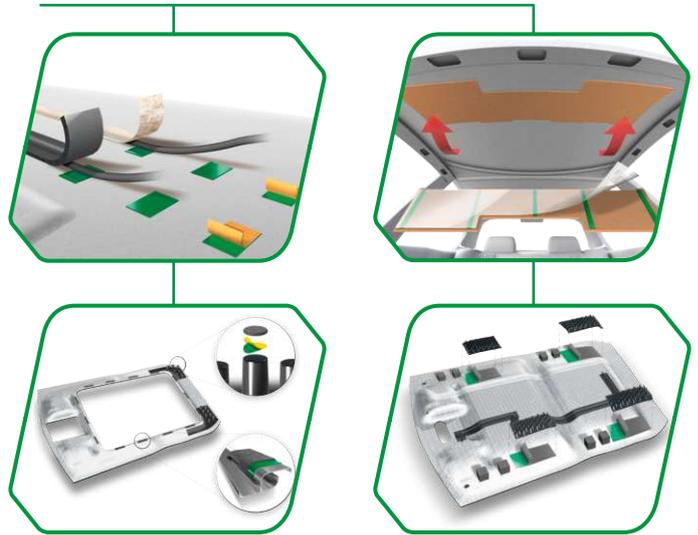
Cockpit



Mirrors



Headliner / Roof



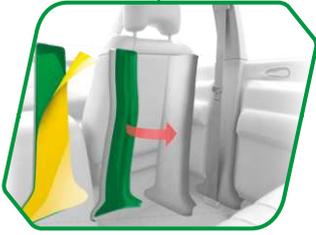
Decorative Elements



Antennas



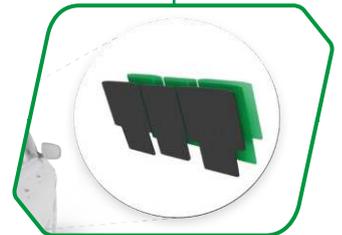
Pillar Cladding



Doors



Seats



High-tech adhesive solutions with multiple benefits

Cockpit

Head-Up Display

To avoid optical disturbances caused by light reflections of head-up displays in the windshield, Lohmann adhesive tapes reliably bond flocked felts and alternative materials in the trough on the dashboard. Thus, a smooth function of the device as well as a high comfort for passengers can be achieved.

Your benefits

- Essential to a smooth function of head-up displays
- Contribute to a high-end cockpit design
- Excellent adhesion on demanding surfaces including components with low surface energy

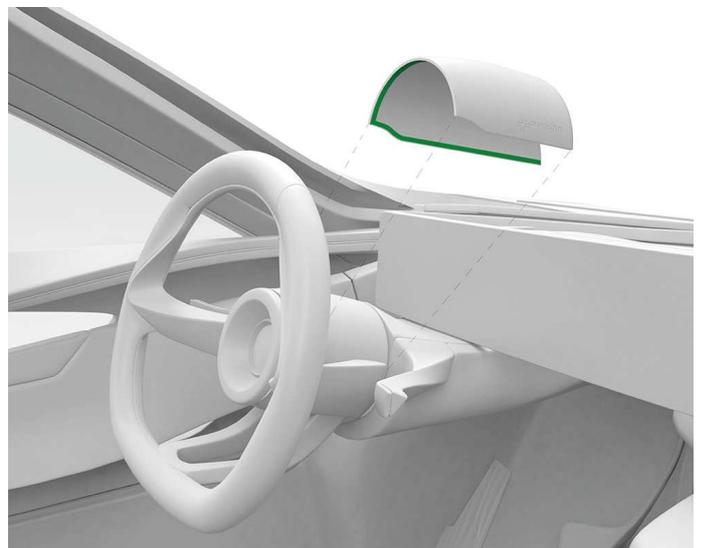


Sliding Film

The stepless adjustment of the steering wheel position means high stress on the components and materials. Reliable fixation of the self-adhesive sliding film to the steering column helps to prevent material abrasion and additionally reduces noise.

Your benefits

- Strong adhesion even under frequent physical strain
- Invisible application
- Excellent noise dampening properties



Mirrors

Interior Mirrors

For reliable and safe bonding of rear view and makeup mirrors in the vehicle interior the adhesive tape portfolio of the DuploCOLL® LE range is the perfect choice. Even difficult to bond surfaces for example with low surface energy are no challenge for the low-emission products. The flexible PE-foam tape compensates uneven surfaces of the substrate partners and additionally avoids optical interference with the mirror backside.

Your benefits

- Fulfilling OEM cabin air standard requirements due to low-emission and low-odor adhesives
- Solvent-free tapes meet requirements according to VDA 278
- Excellent adhesion on challenging surfaces
- Shatter protection due to full-surface bonding
- Tape available on rolls, spools or as customizable die-cuts

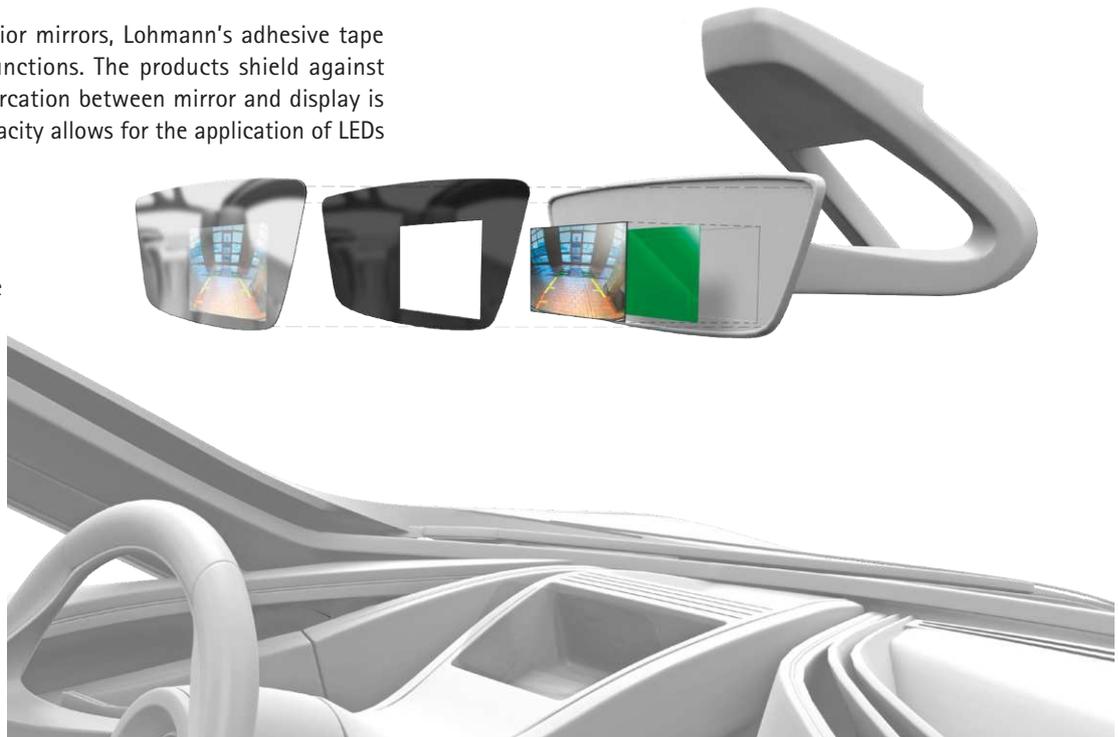


Light Shielding

For bonding displays in interior mirrors, Lohmann's adhesive tape portfolio offers additional functions. The products shield against light rays, thus a clean demarcation between mirror and display is achieved. Furthermore, the opacity allows for the application of LEDs in the mirror.

Your benefits

- Fixation and shielding with just one adhesive tape
- Light opacity



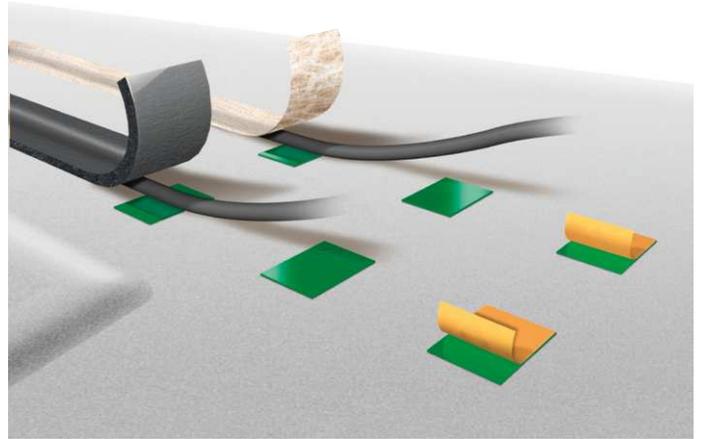
Headliner / Roof

Cable Fastening

With Lohmann's foam and non-woven adhesive tapes, cables are reliably fastened to the headliner. The product portfolio answers to the high bonding demands of challenging surfaces and offers effective abrasion protection of round and flat cables. The flexibility of the tapes enables an easy covering process of the wiring harness on the headliner especially in curves.

Your benefits

- Effective noise reduction and rattle protection
- Faster production process compared to hotmelt systems (no curing-time)
- No risk of injuries for workers during the assembly process compared to hotmelt systems
- Automatic tape dispenser available on request



NVH Felts

For comfort-enhancing noise reduction in the vehicle interior, Lohmann offers various self-adhesive felts for headliners as well as materials such as non-wovens, foams and films. All of these products feature low-emission properties. Especially for electrical automobiles, being generally quieter than conventional vehicles, reliable bonding of NVH (noise, vibration, harshness) felts is a critical property fulfilled by Lohmann tapes.

Your benefits

- Suitable for many different surfaces
- Excellent noise reduction and rattle protection
- Easy and time-saving application
- Fulfilling OEM cabin air standard requirements due to low-emission and low-odor adhesives
- Solvent-free tapes meet requirements according to VDA 278
- Tape available on rolls, spools, sheets or as customizable die-cuts



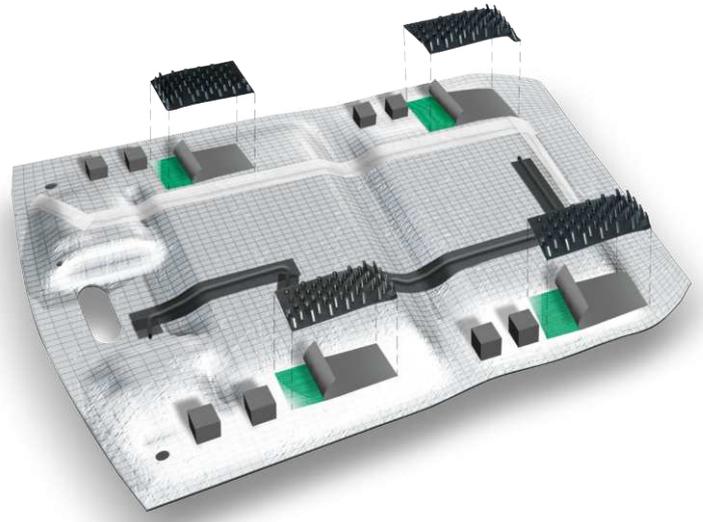
Headliner / Roof

Crash Pads

Especially for customers in the US market, crash pads are reliably fixed on the headliner with Lohmann's adhesive tape portfolio. The tapes are made for bonding common headliner materials as well as crash pads made of various materials such as metal, plastics or recycle foams.

Your benefits

- Excellent adhesion on challenging surfaces
- Reliable bond thanks to high adhesive tack
- Time-saving and clean process compared to liquid solutions
- Tape available on rolls or as customizable die-cuts
- Extended liner possible for better processability

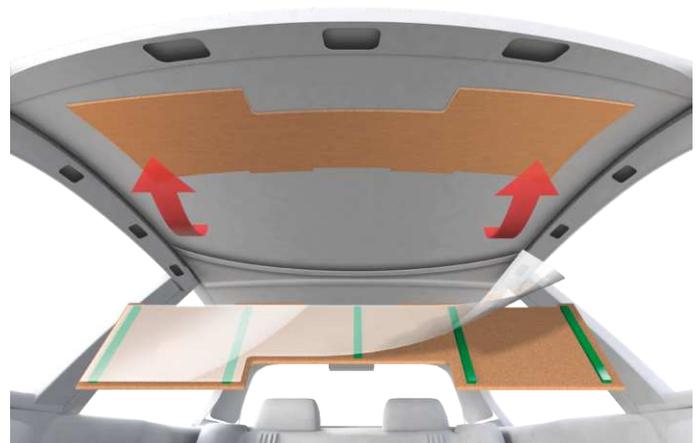


DVD Pads

For bonding roof panel reinforcement pads on headliners, Lohmann's adhesive tape portfolio is the weight-optimized, energy-saving solution that helps to maintain the body stiffness and increases the load capacity. All products are available as "ready to use" format for bonding sandwich constructions.

Your benefits

- Excellent adhesion on challenging surfaces
- Fast and exact positioning
- Easy application of the installation in the vehicle thanks so "ready to use" format, as only one liner has to be removed
- Clean application and no curing-times compared to liquid solutions



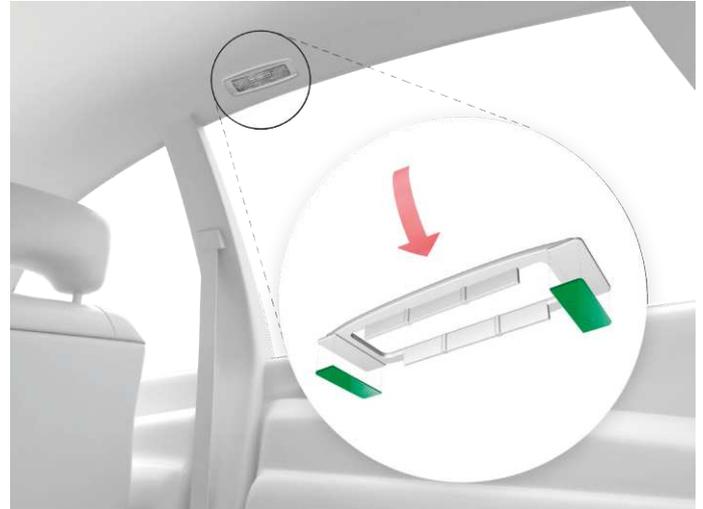
Decorative Elements

Courtesy Light Frames

The adhesive tapes from the DuploCOLL® LE range are tailored to individual courtesy light frame designs to be bonded seamlessly into the headliner. Lohmann's adhesive tape portfolio reduces cycle times in the production process when compared to the additional curing time for liquid adhesives and offers the exact size and adhesion properties for the individual application.

Your benefits

- High initial adhesion (tack) on demanding surfaces
- Flexible PE-foam carrier compensates for different component tolerances
- Efficient mounting and shorter cycle-times in serial production
- Clean bonding without adhesive dripping compared to liquid solutions
- Tape available on rolls, spools or as customizable die-cuts



Badges

Lohmann's customizable adhesive PE-foam tape solutions offer a seamless integration of badges into the design of the vehicle interior. As high-precision and easily processable die-cuts they mount letterings, model names and emblems in any desired format on various materials, such as plastics. The thin foam tapes compensate for uneven surfaces as well as vibrations.

Your benefits

- Efficient frameless mounting and shorter cycle-times in serial production
- Clean bonding without adhesive dripping compared to liquid solutions
- Tape available on rolls, spools or as customizable die-cuts



Antenna Amplifier

The low-odor adhesive tapes of the DuploCOLL® LE range allow for a seamless fixation of antennas and amplifiers on many different surfaces. Thus, components are virtually invisible for the passengers and contribute to a pleasing design in the vehicle interior.

Your benefits

- Fulfilling OEM cabin air standard requirements due to low-emission and low-odor adhesives
- Solvent-free tapes meet requirements according to VDA 278
- Excellent adhesion on challenging surfaces
- Tape available on rolls, spools or as customizable die-cuts



Pillar Cladding

Lohmann adhesive tapes are used for a reliable and visually pleasing bonding of pillar claddings. With the low emission adhesive portfolio of the DuploCOLL® LE range, automated manufacturing processes can be realized and thanks to filmic liners, thermoforming is also possible – saving further production steps.

Your benefits

- Enables thermoforming
- Efficient mounting and shorter cycle-times in serial production due to individual process integration



Doors

Decorative Elements & Light Stripes

Lohmann's low VOC DuploCOLL® LE range supports appealing designs by reliably bonding decorative elements, such as carbon-fiber or wood decors, as well as ambient lighting in the vehicle interior. For that, noise-dampening, clean processability and excellent die-cutting properties are essential.

Your benefits

- Wide range of design options for the interior
- Fulfilling OEM cabin air standard requirements due to low-emission and low-odor adhesives
- Solvent-free tapes meet requirements according to VDA 278
- Excellent die-cutting properties allow for individual designs
- Various carrier materials available
- Tape available on rolls, spools or as customizable die-cuts

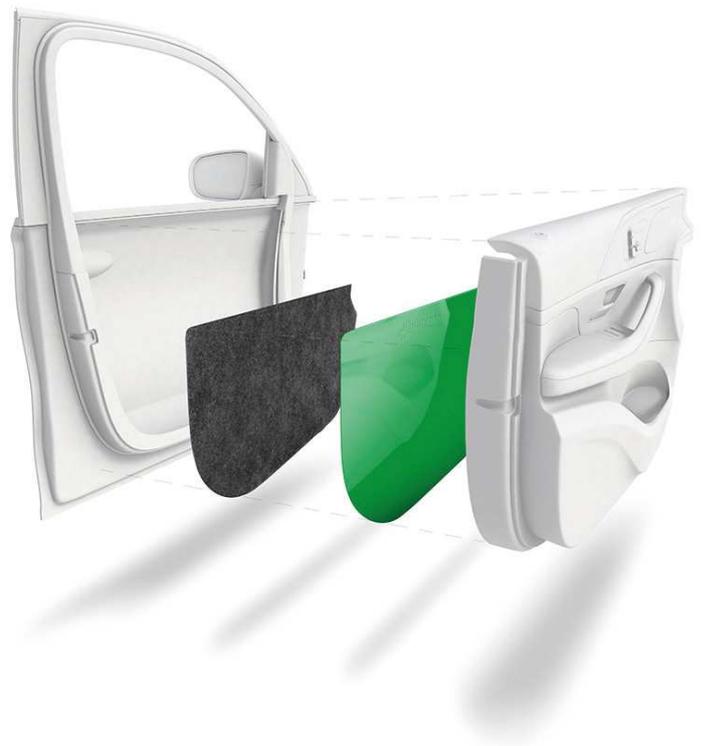


NVH Felts

The Lohmann tape portfolio allows fixation of NVH (noise, vibration, harshness) felts to various vehicle parts such as door coverings. Noise-absorbing materials play a major role in vehicle construction especially for electric cars which are significantly quieter than conventional cars. The noise-reducing tapes are available in customized dimensions and thus offer individual design possibilities. Thanks to low-odor, low VOC and low-fogging adhesives, even large-area applications do not affect the cabin air quality.

Your benefits

- Excellent adhesion on demanding surfaces and various geometries
- Effective noise-reduction and damping properties
- Fulfilling OEM cabin air standard requirements due to low-emission and low-odor adhesives
- Solvent-free tapes meet requirements according to VDA 278
- Tape available on rolls, spools or as customizable die-cuts



Seats

Heating Elements

Scrim and transfer adhesive tapes of the Lohmann DuploCOLL® LE range are the optimal choice for bonding surface heating systems for e-mobility as well as heating elements in seats or steering wheels. The low-odor and low VOC product portfolio can be used for various applications and different materials. Lohmann also offers stripe coating solutions to enable seat ventilation as well as tape lamination to individual materials.

Your benefits

- High initial adhesion (tack) for optimized processing
- Excellent adhesion on challenging surfaces
- Low-emission and low-odor even at elevated temperatures
- Solvent-free tapes meet requirements according to VDA 278



Leather Reinforcement

The flexible and warp-resistant adhesive tapes of the DuploCOLL® LRT (LRT = leather reinforcement tape) range realize a high-end finishing of leather seats in the automotive interior. Leather covers, stitching holes and seams are stabilized, while the seating foam is hidden. The product portfolio is available in black and white, tailored to individual design requirements.

Your benefits

- Flexible und dimensionally stable adhesive tapes
- High adhesion to leather surfaces
- Portfolio with different adhesive performances adapted to materials to be bonded
- Products available in black or white



Back Seat Covers

The DuploCOLL® LE range is the optimal choice for bonding various demanding surfaces in the vehicle interior, such as back seat covers or needlefelt to demanding multidimensional shapes like edge folds. Thanks to low-emission adhesives, even large-area applications do not affect the cabin air quality.

Your benefits

- High initial adhesion (tack) for optimized processing
- Fulfilling OEM cabin air standard requirements due to low-emission and low-odor adhesives
- Solvent-free tapes meet requirements according to VDA 278
- Good adhesion to various materials



Low-emission adhesive tapes for vehicle interiors



The DuploCOLL® LE (LE = low emission) range consists of a broad portfolio of transfer, paper, scrim, film and PE-foam tapes in different thicknesses that allow various applications in the vehicle interior. For reinforcing and stabilizing flexible materials, the portfolio offers tapes with a scrim carrier. The DuploCOLL® LE adhesive in combination with the flexible and elastic PE-foam carrier enables the adjustment of component tolerances and offers good processability due to its dimensionally stable construction.

The double-sided adhesive tapes feature a high initial tack as well as outstanding adhesion on a variety of substrates including low-energy

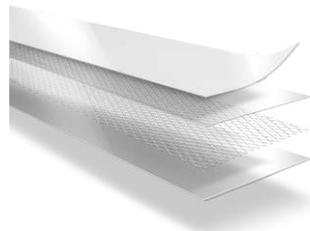
surfaces. Furthermore, they offer an excellent temperature resistance, are 100% solvent-free and available as rolls, spools or die-cuts in every requested format.

All tapes in the DuploCOLL® LE portfolio meet the high requirements of the OEMs regarding low odor and fogging as well as low VOC values and comply to all defined limits of substances according to VDA 278.

With our sustainable TwinMelt® technology they are produced in a solvent-free coating process with reduced energy consumption and thus reduced carbon footprint. Furthermore, all tapes in the portfolio are equipped with a recyclable liner.



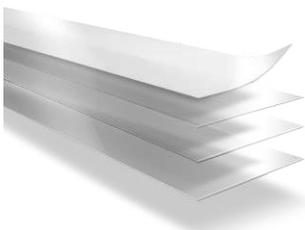
Transfer tape



Scrim carrier



Paper carrier



Film carrier



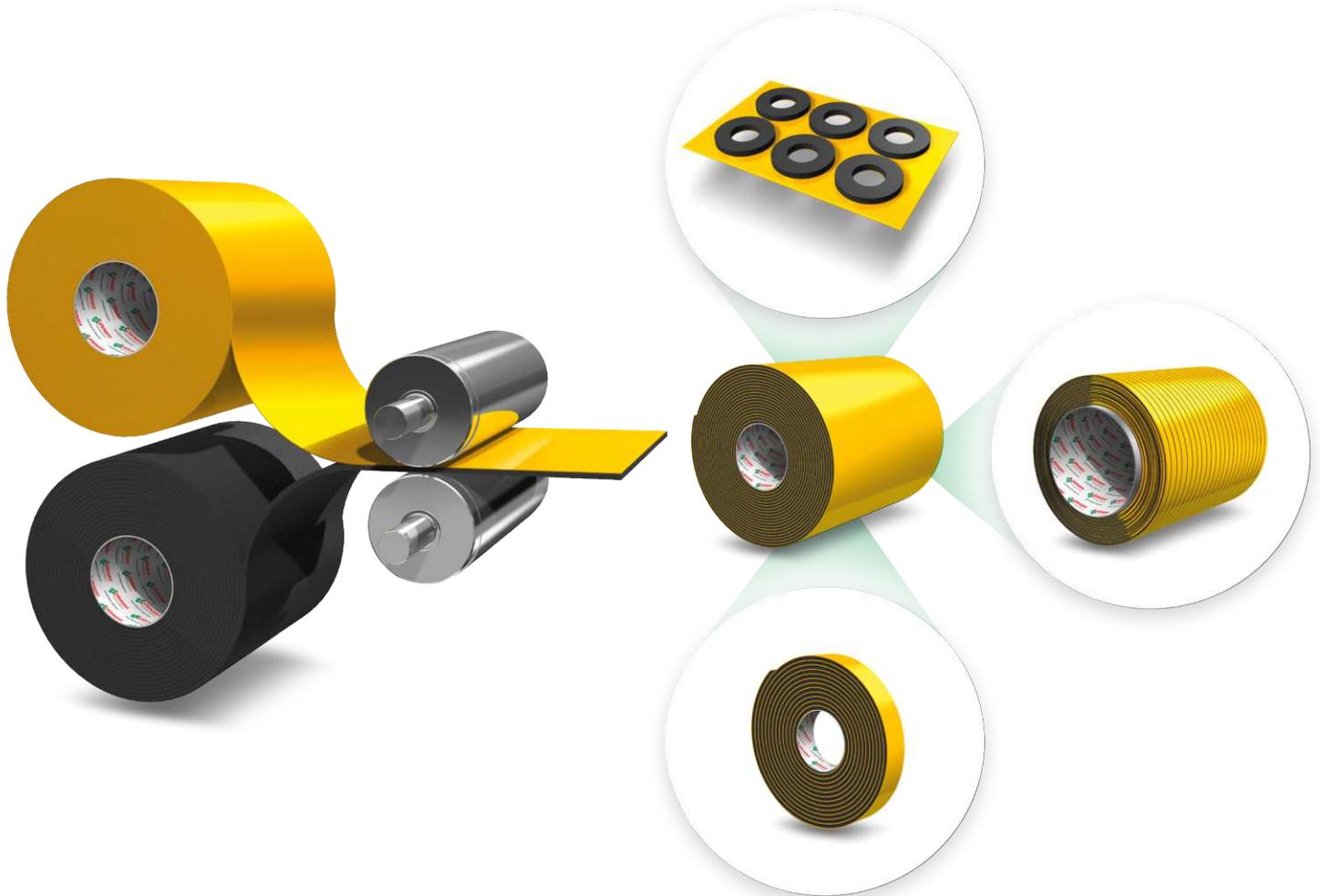
PE-foam carrier black



PE-foam carrier white

DuploCOLL® LE tapes are available with 6 carrier materials as well as two liner variations and in different thicknesses.

Lamination toolbox of damping materials



The laminated products are available as rolls, spools, sheets or customized die-cuts in every requested format.

All adhesive tapes of the DuploCOLL® LE portfolio can be laminated with a wide selection of damping materials, i.a. textiles or foams as well as customer individual materials. Thus, NVH materials, such as anti-creak films and felts, damping foams or spacer fabrics can be bonded reliably. These single-sided adhesive damping materials are

ideal for noise reduction and sealing of all kinds of décor parts or for the fastening of cables on the headliner. Laminated to the double-sided adhesive tapes of the DuploCOLL® LE range they offer high adhesive strength on many plastic surfaces. Thanks to their dimensionally stable construction they offer very good processability.

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 the automotive industry?

Please visit our website or get in contact with us:

www.lohmann-tapes.com

transportation@lohmann-tapes.com

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