

L&L Products



Making
commercial vehicles

*lighter, stronger,
quieter*

Enabling lighter, stronger, quieter & safer commercial vehicles

L&L Products is able to meet the needs of the commercial vehicles market on a global basis. We supply optimized solutions for light and heavy trucks, buses and coaches, construction and agricultural vehicles, truck trailers, recreational vehicles and caravans, special purpose vehicles and rail transportation.

We have commercial vehicle specialists based in all key vehicle design and production locations. They are able to provide expertise, support and customized technology to satisfy the diverse requirements of the industry.

Our commercial vehicle technologies include innovative acoustic enhancements, anti-corrosion sealing, damping systems and structural reinforcement solutions to reduce weight and improve crash performance. We also offer novel structural adhesive systems for durable body assembly.

All our solutions are customized to meet the exact requirements of our customers wherever they are located and whatever the type of commercial vehicle. We don't subscribe to the mantra that 'one size fits all'. Our systems are compatible with all types of vehicle construction processes - from high temperature body in white bake processes through to room temperature vehicle assembly.

Continuous investment in Research & Development reinforces our position as a technology focused company. Our ability to combine advanced material science, innovative engineering design, numerical analysis, computer-aided engineering and new processing methodologies makes us unique among our competitors. Among the many innovations we have developed in recent years are high expanding heat activated sealing and acoustic materials, dry-to-the touch Composite Body Solutions (CBS) reinforcements, heat-activated sealants applied by Extrude-in-Place (XiP) technology and primerless, room temperature cure adhesives and sealants.



L&L Seal heat-expandable, baffle systems reduce cavity borne noise within the vehicle structure. They are available in a range of forms, expansion rates and cure temperatures to suit build rates, design and geometry requirements and curing processes.



L&L DECI-TEX systems provide CV OEM's with significant enhancements in acoustic and thermal insulation within the vehicle interior, cabin system and the engine bay via lower weight systems with significant benefits in sustainability and cost.



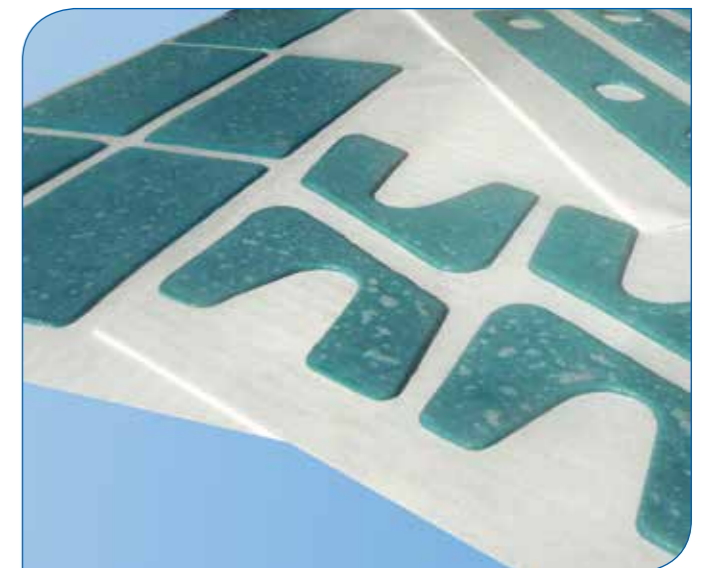
L&L Bond and L&L Seal A Series structural adhesives and sealants enable robust room temperature vehicle assembly while providing simplified processing, enhanced adhesion, better worker safety and optimized cycle time for Commercial Vehicle customers.



L&L Bond and L&L Seal XiP systems are heat expandable adhesive and sealing systems for a range of anti-flutter, sealing, anti corrosion and bonding applications. As they are dry to touch materials, 'adhesive wash out' problems are eliminated.



L&L Reinforce heat cured CBS systems are specifically engineered for each CV application. CBS can improve body stiffness, enhance crash performance and reduce weight by down-gauging body steel and eliminating heavy steel reinforcements.



L&L Bond heat cured structural tapes provide a unique combination of high strength, excellent ductility and adhesion to common metals and composites. They are available with low to high expansion rates and in a wide range of shapes and sizes.

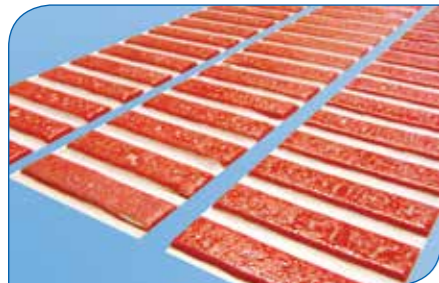
Customized solutions for commercial vehicles



L&L Seal applied with XiP



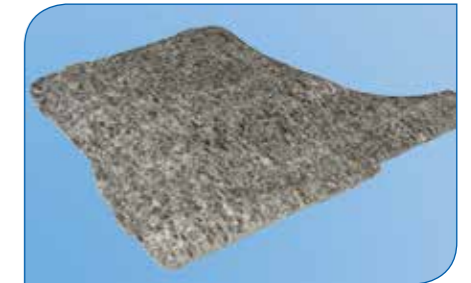
L&L Seal heat expanded baffle system



L&L Bond heat cured structural tape



L&L Bond room temperature cure adhesive



DECI-TEX M series floor decoupler



L&L CBS door pillar reinforcement

L&L Bond Structural Adhesives

L&L's structural adhesives replace more traditional joining techniques across a range of substrates - steel, aluminum, composites, thermoplastics etc. - to improve structural integrity and corrosion performance. They can be readily used in areas that are difficult to access using riveting, mechanical fasteners and welding. L&L Bond systems are available in tape, film and paste forms to better fit customer-specific manufacturing processes. They can also be applied using L&L's extrude-in-place (XiP) technology. Both expanding and non-expanding variants are available. Our adhesive technologies also offer class leading tensile properties, accelerated cycle times and eliminate complex surface pre-treatment. They are available in both heat cured and room temperature cured formulations (A-K Series) to meet a very wide range of assembly processes.

L&L Seal Cavity / Acoustic Sealing

L&L's cavity sealing and acoustic technologies minimize noise entering and exiting a vehicle interior by managing noise propagation while at the same time providing significant added benefits such as the reduction of metal body corrosion. As our solutions are customized to meet the specific needs of an OEM, we can produce seal solutions in tape, paste, die cut, clip, metal and injected carrier formats. We also offer our unique Extrude-in-Place (XiP) technology. As our technology range is much broader than other suppliers, we are able to offer materials with an extremely wide range of expansion characteristics. We are also compatible with the most demanding low to high bake body shop processes. In addition, novel L&L Seal A-J Series room temperature cured sealing systems are available to enable robust, primerless vehicle body sealing at ambient temperatures.

L&L DECI-TEX Engineered Sound Absorption

L&L's DECI-TEX fiber-based, acoustic technology systems are flat cut or molded acoustic / thermal insulation materials. Each bespoke solution is precisely tuned and engineered for customer-specific applications. DECI-TEX systems deliver high acoustic and thermal performance while being lighter, more environment-friendly and lower in cost than the competition. DECI-TEX solutions also offer high compression resilience, repel moisture and do not absorb water. The current DECI-TEX range includes: V series - vertically lapped, lofted sound absorption materials; M series - molded vertically lapped lofted sound absorption materials; T series - thermoformable acoustic sheet materials. Floor decouplers, noise shields and interior trim solutions are just some of the many commercial vehicle applications where DECI-TEX technology can offer superior performance.

L&L Reinforce Structural Reinforcements

L&L Reinforce technologies enhance the performance of a vehicle's body structure and thereby enable commercial vehicle producers to comply with increasingly stringent safety, emissions and NVH requirements. Weight is reduced while the durability, stiffness, impact resistance and safety of the vehicle are maintained or improved. L&L Reinforce solutions also allow steel to be down-gauged without reducing structural integrity. L&L Reinforce systems are available in many configurations: injection molded parts, metal carriers, simple flat shimmed parts, etc. L&L Reinforce systems can also combine metal and composite substrates to enable lightweight hybrid body systems. Also available are L&L Reinforce Panel Stiffener patches that can be applied by hand in specific areas. Each solution is customized to meet specific application requirements.

With you throughout the journey - from design to production & beyond

We partner with our customers throughout the development journey in order to provide fully optimized, customer-specific solutions. At L&L we place particularly strong emphasis on developing products that can be seamlessly introduced into a customer's existing manufacturing processes.

With our highly specialized design engineers, chemists, production engineers and fabrication personnel, we are able to deliver cost-effective, high quality solutions.

We start the process by clearly understanding what the customer is seeking - whether it is reducing weight, enhancing structural performance, improving safety, better noise insulation, reducing corrosion or, as is often the case, a specific combination of these parameters. Also, as we are aware of the diverse production processes used across the CV industry, we work with our customers to fully appreciate any specific production requirements - faster cycle times, simpler processing, enhanced worker safety etc.

Armed with this knowledge our multi-disciplined team will be able to develop the most appropriate and practical solution that will fully meet any certification requirements. We support multiple CAD and CAE platforms to ensure that we speak the same 'language' as our customers. This ensures that our simulations and designs can be easily plugged into the macro vehicle simulations run by our customers and that simulation accuracy and correlation is retained at all times.

At L&L a truly successful solution is one that not only meets the original performance and cost parameters but is also capable of being smoothly introduced into an existing production scenario.

Our ability to produce innovative solutions is clearly demonstrated by the fact that in the last 15 years we have been awarded over 200 patents related to material formulations, engineering designs and manufacturing processes.



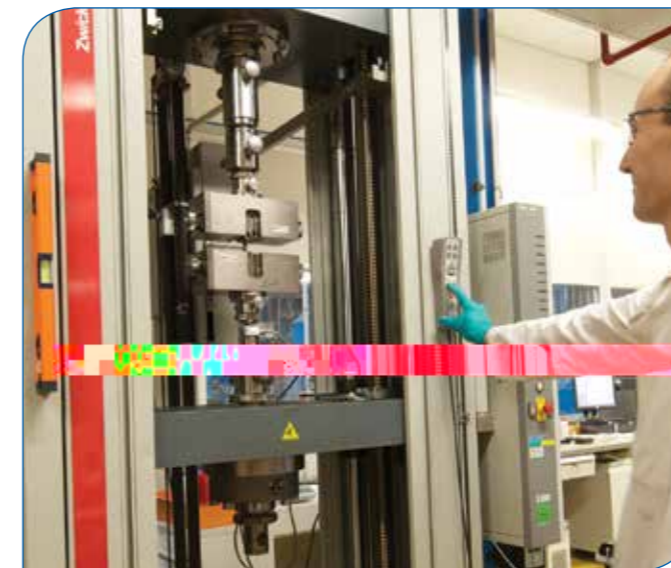
We operate extensive R&D laboratories on four continents



L&L production facilities in the USA, France, Czech Republic, Turkey, India, China, Australia and Brazil



Extensive use is made of finite element modelling



A wide array of test equipment is used to validate designs



Robotic application of XiP Extrude-in-Place sealants and adhesives

L&L Products

Applied Engineering & Materials Science

L&L Products is a technology driven business to business company that has operated for more than half a century on the basis of building long term relationships with its customers and supply partners.

We have unique expertise in static sealing, acoustic insulation, vibration reduction, structural reinforcement, corrosion management and thermal insulation for aerospace, automotive, commercial vehicle and industrial applications.

Our current portfolio of products for commercial vehicles is aimed at reducing vibration, improving acoustic performance and providing local reinforcement. The solutions we offer are exactly tailored to meet the vehicle design, regulatory approval and manufacturing needs of commercial vehicle customers

We are ideally placed to provide customer specific solutions. To this end, we have a continuous program of heavy investment in R&D facilities that span material science, computer aided design, finite element analysis, prototyping, testing, process technology and manufacturing.

With 14 strategically-located operating subsidiaries and production facilities in the USA, Brazil, Europe, Turkey, India, China and Australia, we are extremely well positioned to provide 'local' support to our global customer base. L&L plants comply with TS16949, ISO 9001 and ISO 14001 quality and sustainability standards.

