Industry

Truck

Driving Technology into the Next Generation

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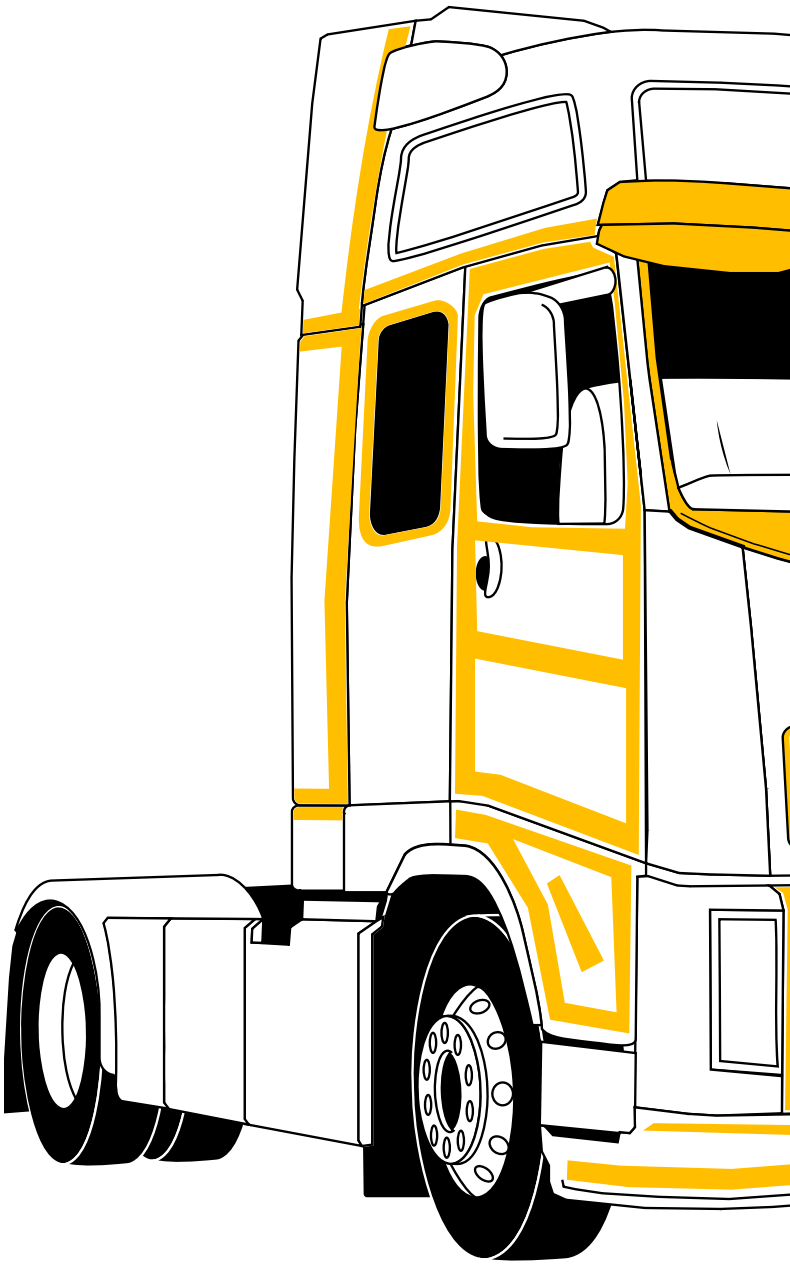
The global truck industry is a dynamic and challenging environment. Truck operators demand ever-lower vehicle operating and repair costs combined with improved reliability and durability. Government legislation is regulating lower vehicle emissions and improved safety. Sika, as supplier and partner to the global truck industry, provides a range of state of the art technology solutions to assist truck manufacturers in meeting these challenges. As a specialty company for chemical products, we concentrate on our core competencies: Bonding, Sealing, Damping and Reinforcing.

As a globally operating company, we are partner to our customers worldwide. Sika is represented with its own subsidiaries in all truck producing countries, thus ensuring first class order handling, delivery, application development, technical and commercial support.



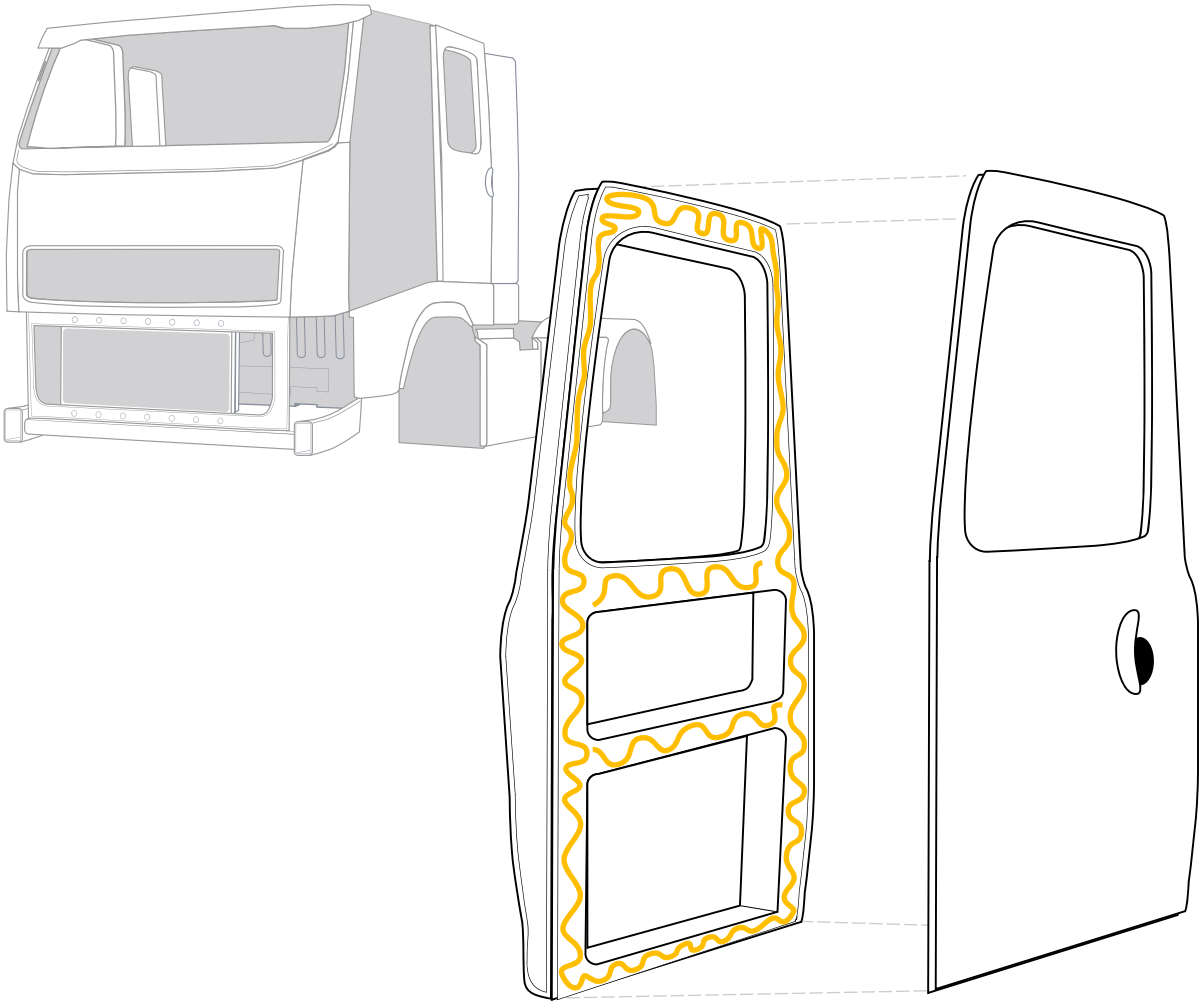
Content

Body Shop

(Body In White Assembly & Door Assembly)

Truck manufacturers use a wide range of materials and processes in the assembly of the ‘body in white’ structure within the body shop.

Sika provides a range of material technologies ideally suited to this challenging environment. SikaPower® structural adhesives are easy to combine with other joining technologies. Flexibility, durability and a reduction in the number of spot welding points are just some of the advantages provided by this sealing and bonding technology. SikaPower® body shop adhesives and sealants are heat curing products based on one- and two-component polyurethane epoxy hybrid technology. SikaPower® products are available with a wide range of mechanical properties to suit the requirements of applications as diverse as anti-flutter, hem flange, stiff structural bonding and crash resistant applications.



Both anti-flutter and hem flange applications of SikaPower®on a door panel

A panel with hem flange application being fitted

Why Use Structural Adhesives?

- Enhances component stiffness to facilitate weight reduction and improvements in fuel economy
- Improves component crash resistance to enable improved vehicle safety
- Minimizes risk of water leakage
- Reduces noise, vibration and harshness
- Enables use of optimum substrate for each application via elimination of the requirements of weld compatibility
- Reduced read through
- Improves durability due to optimized distribution of loads
- Excellent corrosion resistance

Technological Benefits

- Adhesion to oiled metals without pre-treatment or degreasing
- Excellent ageing and long-term durability
- Superb wash out resistance
- Low bake curing to improve object temperature variations
- Solvent and PVC free
- 1 and 2 component systems to suit OEM process requirements
- Fast hold and curing times
- Manual or automatic application options

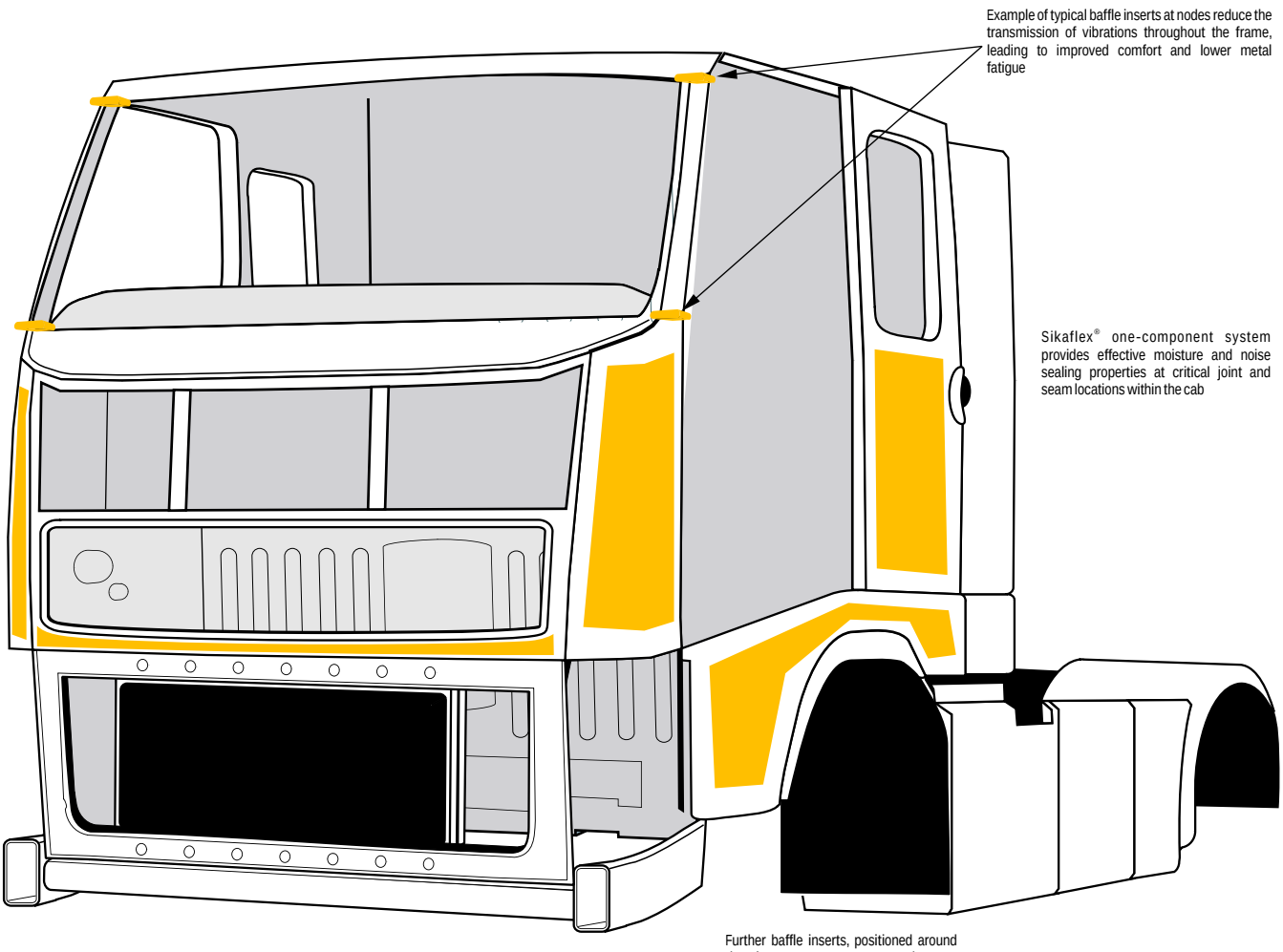
Noise, Vibration & Harshness Systems

Truck operators and government bodies are demanding ever lower standards of interior and exterior vehicle noise. Sika has formulated two high technology solutions to facilitate significant reductions in vehicle noise by absorption of vibration within the vehicle body.

SikaBaffle® is a pre-shaped moulded thermoplastic or extruded rubber based product used to significantly improve acoustic performance. SikaBaffle® is inserted in the vehicle structure during body shop assembly and expands during exposure to the E-Coat/KTL oven.

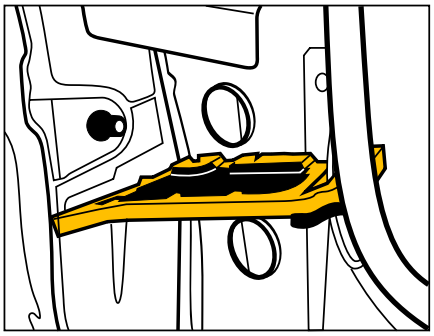
SikaDamp® spray-on technology is a unique, spray applied damping solution designed to minimize interior noise through a flexible one layer application. The spray-on material adheres to the E-coat/KTL coating to ensure maximum corrosion protection. The applied spray-on damper is heat cured and can be used prior to application of under body coating or exposure to paint bake ovens.

Sikaflex® one-component polyurethane and hybrid sealants are typically applied in the trim shop environment and provide an excellent barrier to moisture and external noise ingress from outside the cabin.



Flat nozzle for application of SikaDamp®as a flat strip

SikaDamp® applied in situ to a white body



Detail of the moulded SikaBaffle®

A series of moulded baffles fitted inside the frame

The moulded baffles turn to foam during heat treatment, adhering to the adjacent surfaces, forming an effective vibration absorbent filling

Why Use Noise, Vibration & Harshness Solutions?

- Improved vehicle user comfort
- Enhanced compliance to vehicle noise regulations
- Improved fuel economy through weight reduction

Technological Benefits - SikaBaffle®

- Exceptional reduction of noise and vibration
- Flexible design
- Weight reduction
- Insulation against water, moisture and dust

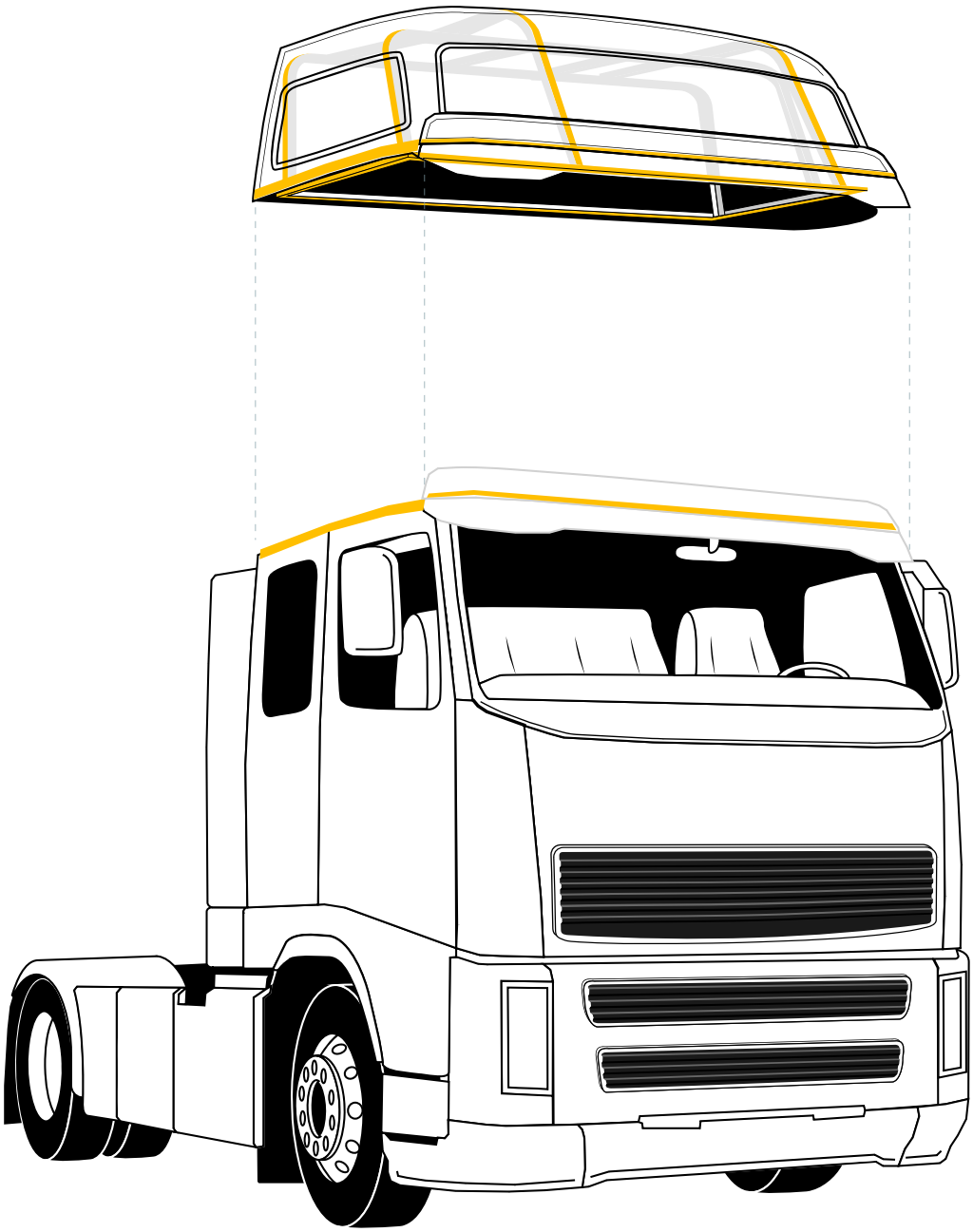
Technological Benefits - SikaDamp®

- Reduction in noise and vibration
- Reduction in vehicle weight
- Clean, accurate and consistent application
- Excellent corrosion protection
- Flexible and adjustable application properties

High Roof

Vehicle operators are demanding increased long range comfort for drivers and users. Improved interior space, lower noise, greater insulation and increased interior stowage space have facilitated development of high roof sleeper cab trucks capable of providing maximum driver comfort for protracted journeys. Sika has formulated a specialist range of adhesive and sealant solutions to meet the stringent requirements for assembly of the high roof to the main vehicle body.

Sikaflex® provides high performance elastic assembly within an easy to use one-component formulation. Sikaflex® can also be combined with Sika's proprietary Booster system to provide rapid full cure for applications requiring fast assembly speeds. SikaForce® two-component polyurethane combines high strength with good flexibility. SikaFast® two-component methyl methacrylate and Acrylic Double Performance (ADP) structural adhesives provide high strength and excellent impact resistance with low surface preparation. All Sika solutions for high roof assembly provide excellent adhesion to painted metals, steel, aluminium and open mould, resin transfer moulded and compression moulded thermoset composites.



A series of high roof units waiting for assembly
The units are prepared with Sika® Primer (the black areas)

A high roof unit being fitted

Why Bond High Roof Applications?

- Excellent moisture and water leakage resistance
- Freedom of design
- Modular assembly
- High stiffness to reduce vibration and to improve roll over strength and crash performance
- Lower weight solution improve on mechanical fasteners and seals
- Easily removed for repair when required

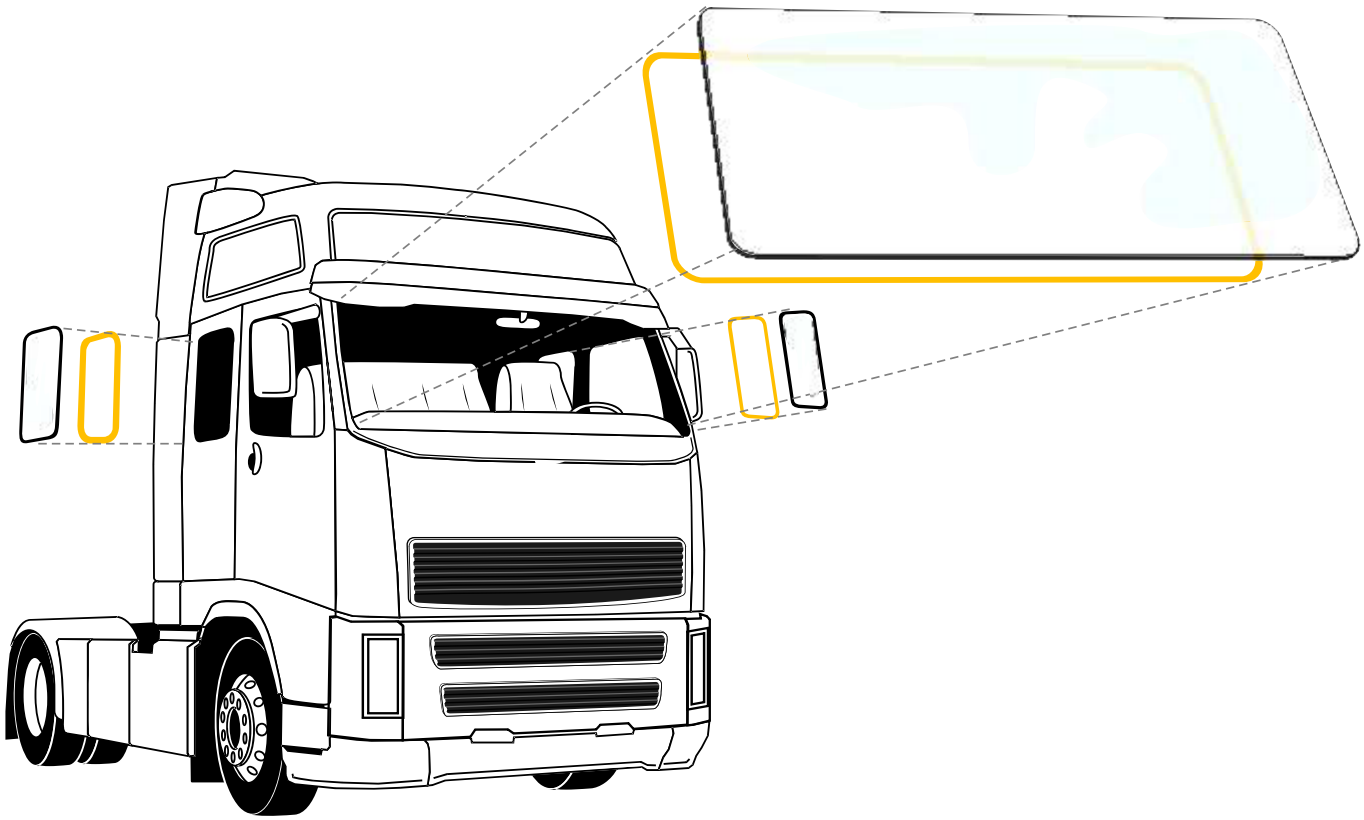
Technological Benefits

- Wide range of mechanical properties to suit individual customer application requirements including resistance against all normal and excessive airflows
- Elastic bonding compensates for variations in manufacturing tolerances
- Broad range of processing speeds from extremely rapid to very slow are available to suit customer manufacturing process requirements
- Excellent compatibility with metal, painted substrates and all types of polyester fibreglass
- Highly resistant to heat and aggressive climatic conditions

Direct Glazing

For over 20 years, Sika has been providing OEM assembly lines with adhesive and sealant solutions for sealing, bonding and direct glazing. Manual and automated pretreatment options, that eliminate the need for black primers, are available to fit the needs of a variety of OEM application processes. These create significant cost savings and generate manufacturing process simplification and result in higher quality products for lower total systems costs.

Sika offers a wide range of adhesive technologies to suit all direct glazing applications. Specific Sikaflex® solutions are available to suit cold, warm and hot application processes. Proprietary Sikaflex® materials are capable of retaining the glass in position following installation, allowing for elimination of secondary clips, fixings and tape. Sikaflex® materials can also provide low electrically conductive properties for elimination of galvanic corrosion and reduction of antenna signal loss. The SikaTack® Booster range provides the ultimate solution for OEMs seeking excellent mechanical properties with the shortest possible full cure time. Unlike traditional two-component systems, this accelerated one-component system has the significant benefit of full material cure, regardless of the presence of the Booster, providing enhanced process quality, consistency and security.



Side windows being fitted manually

Recently fitted windscreen, not only remaining in place, but lending support to the structural integrity

Why Direct Glaze?

- Improved body stiffness for enhanced roll over strength and improved occupant impact protection
- Enhanced aerodynamics compared with gasket glazed systems to improve fuel economy and vehicle emissions
- Higher body stiffness to reduce noise, vibration and harshness within the vehicle body
- Reduced risk of corrosion or standing water when compared with gasket systems
- Compatible with automated or robotic applications

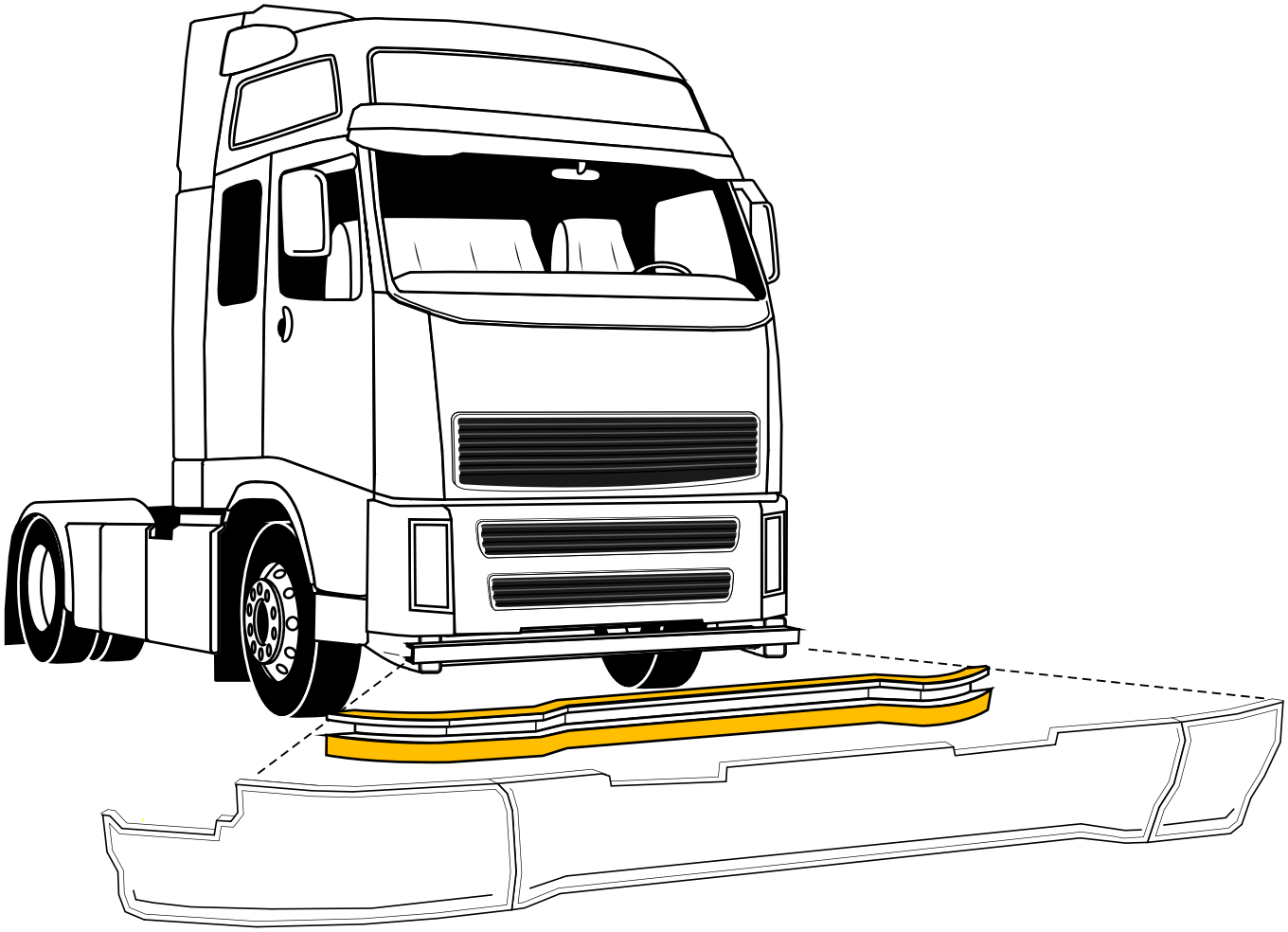
Technological Benefits

- Sika's tried and tested primerless to glass technology
- Primerless to paint
- Accelerated with Sika® Booster for rapid full cure
- Low conductivity
- High initial green strength
- Hot applied systems to eliminate secondary clips, fixings and tape
- Improved quality with minimal pretreatment steps
- Repair (after market) solutions are widely available
- Good aesthetics - no visible fixings

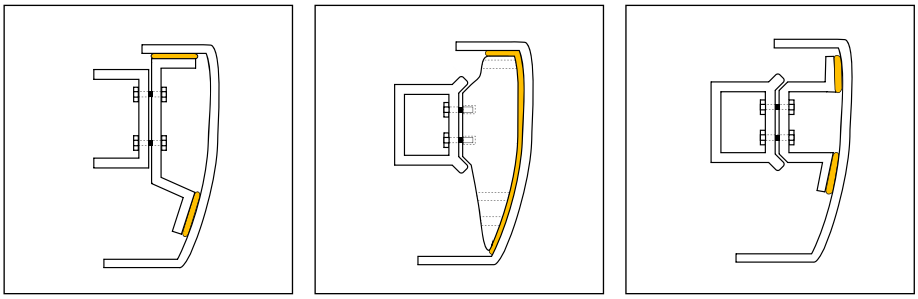
Bumper Modules

Truck end users demand maximum durability from their vehicles. Day-to-day vehicle use in harsh environmental conditions is combined with tough operating conditions involving frequent low speed impacts due to parking, loading and general driving conditions.

Sika has formulated a range of specialist material for assembly of bumper system applications. SikaForce® two-component polyurethane combines high strength with good flexibility. SikaFast® two-component methyl methacrylate structural adhesive provides high strength and excellent impact resistance with low surface preparation. Both solutions provide excellent adhesion to glass fibre reinforced plastics (GRP/FRP), polyester sheet moulding compound (SMC), reinforced reaction injection moulded (RRIM) polyurethane, engineering thermoplastic alloys, coated steel and aluminium.

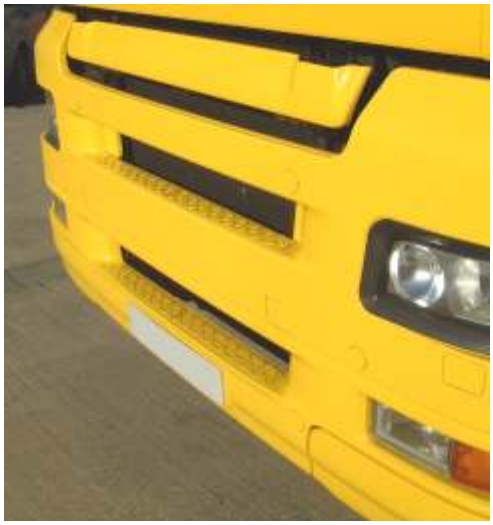


Example bumper fixing variations



Fixing method 1 | Fixing method 2 | Fixing method 3

Bumper variations



Why Use Bonded Bumpers?

- Improved impact resistance compared with vibration welded systems
- Lower weight than mechanically fastened bumpers supports improved fuel consumption
- Impact load distribution evenly throughout the system; elimination of impact stress concentrations to reduce vehicle repair costs and frequency

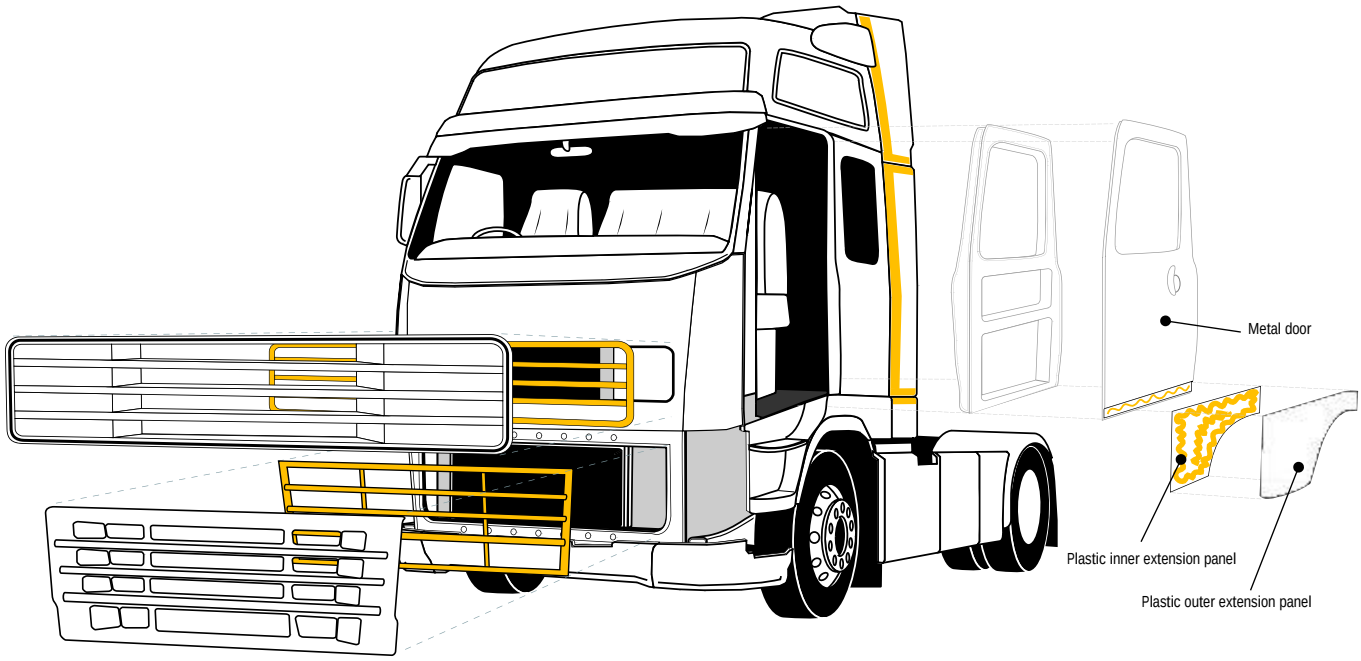
Technological Benefits

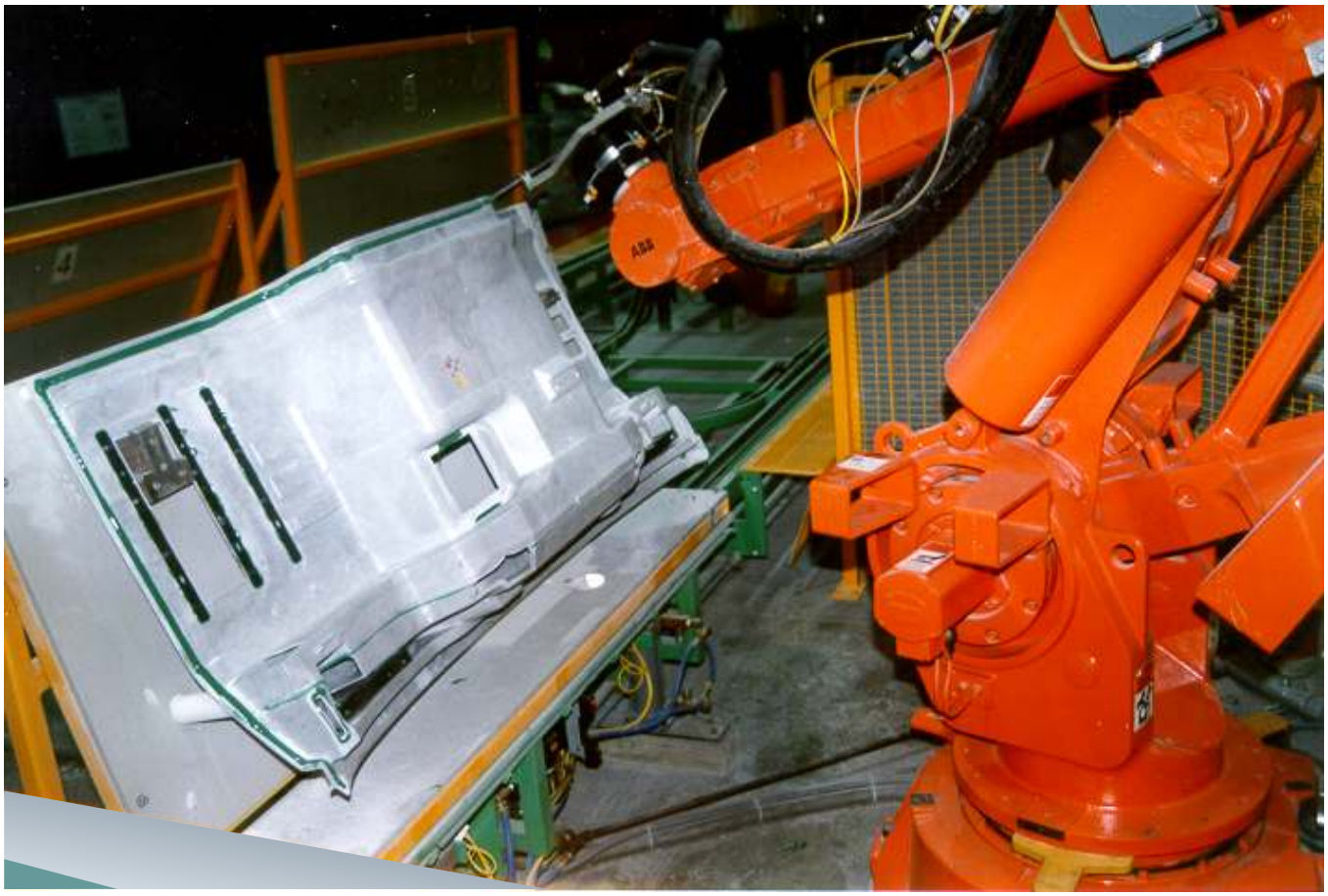
- Compatible with all major substrates used for bumper system applications
- High impact resistance combined with excellent stiffness
- Wide range of cure speeds to suit diverse customer assembly processes
- Excellent flexibility to withstand paint bake cycling and operational high/low temperature differentials in co-efficient of linear thermal expansion (CLTE)

Exterior Plastic Parts

Truck designers and manufacturers are using an increasing level of thermoplastic and thermoset composite materials to construct exterior trim components. Typical applications for such materials include upper and lower grill assemblies, exterior door extensions, spoilers and aerofoils, wiper panels, mirror housings, mud guards, headlamps and side cab trim. Thermoplastic and thermoset composite materials are selected due to their ability to provide benefits in weight reduction, impact resistance, design flexibility, paint elimination and component consolidation.

Sika has a specially formulated range of materials for bonding of exterior parts. Sikaflex® provides high performance elastic assembly within an easy to use one component formulation. Sikaflex® can also be combined with Sika's proprietary Booster system to provide rapid full cure for applications requiring fast assembly speeds. SikaForce® two-component polyurethane combines high strength with good flexibility. SikaFast® two-component methyl methacrylate and Acrylic Double Performance (ADP) structural adhesives provide high strength and excellent impact resistance with low surface preparation. This comprehensive technology range is compatible with all commonly used substrates in the truck market, and can provide a wide range of cure speeds and mechanical properties to suit the needs of all customer applications.





Robotic application of SikaForce® to a firewall

Why Bond Plastic Parts?

- Higher impact resistance than vibration welded and mechanically fastened systems to reduce repair costs and frequency
- Reduced weight to improve fuel consumption
- Lower component cost, due to the ability of adhesives to bond different types of plastics together that would be difficult to assemble via vibration or ultrasonic welding, to reduce cost
- Compensates for differentials in co-efficient of linear thermal expansion (CLTE) in different types of materials (e.g. metals to amorphous thermoplastics)
- Improved aesthetics - no visible fixings

Technological Benefits

- Wide range of mechanical properties to suit individual customer application requirements
- Excellent compatibility with polycarbonate alloys, ABS (Acrylonitrile Butadiene Styrene), styrenic alloys, RRIM (Reinforced Reaction Injection Moulded polyurethane), SMC (Sheet Moulded Compound) and polyester glass fibre
- Broad range of processing speeds to suit customer manufacturing process requirements
- Highly resistant to heat and aggressive climatic conditions

Interior Trim

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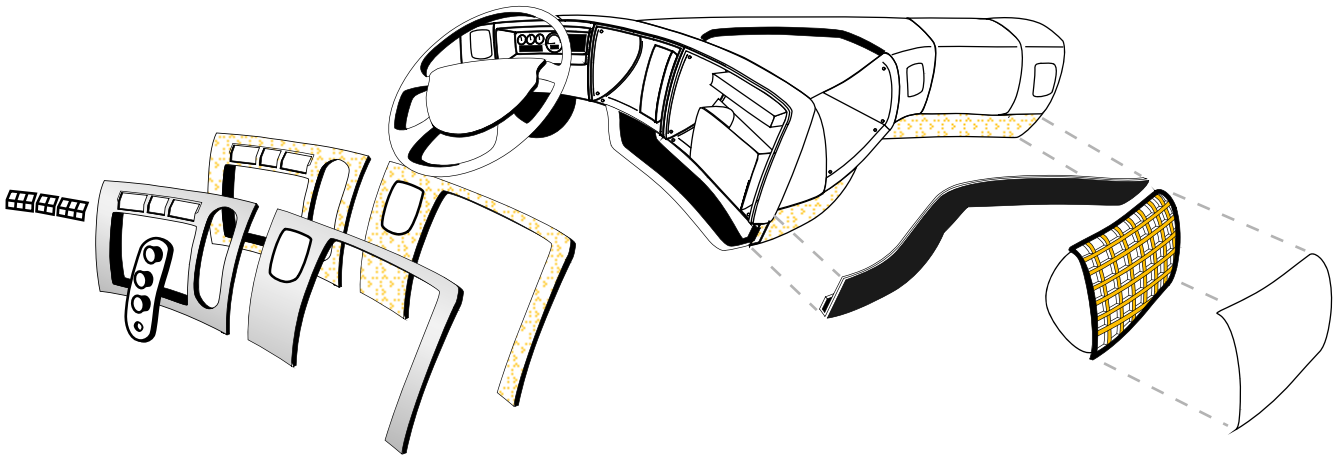
Vehicle owner operators have driven a significant increase in interior comfort and functionality in recent years, requiring the use of an increasingly diverse mix of interior plastics and fabrics. Performance requirements for interior components have increased, with higher operational temperature requirements, improved emissions and environmental performance needs and reduced component cost and cycle time in production. Sika has developed several hot melt, solvent based and water based solutions to create strong adhesion to many substrates. SikaMelt®, SikaTherm® and SikaSense® technologies are used in the lamination and bonding of a variety of interior applications including instrument panels, interior door trim, carpet, pillar trim, head liners, centre consoles, stowage bins and seat assemblies.

SikaMelt® offers customers a range of formulations to meet a variety of substrate and process requirements. SikaMelt® provides good initial green strength without pretreatment, and is ideal for high speed assembly operations. SikaTherm® water based adhesives are high performance single- and dual-component polyurethane dispersion systems suitable for manual or automated application. SikaTherm® formulations are suitable for pressure and vacuum lamination, and are capable of meeting the highest durability and long term ageing standards. SikaSense® is a traditional solvent based adhesive developed for high performance pressure sensitive adhesive dispersions used for tape and sound damping applications.



Sika products achieve a quality finish

Technological Benefits - SikaMelt®

- Low application weights
- Low reactivation temperatures
- High strength
- Good heat resistance
- Low fogging and carbon emission values
- Dry cleaning resistant
- Fast tack development times
- Good adhesion to polypropylene

Why Use Sika Interior Trim Adhesives?

- No visible fixings
- Improved impact resistance and occupant safety
- Broad substrate compatibility allows for use of low cost materials in non visible applications, thereby reducing overall component cost
- Lower wall thickness of parts due to use of load distributing adhesives, generating:
  - lower weight
  - lower cost
  - faster part moulding production cycle
- Reduced interior noise and vibration

Technological Benefits - SikaTherm®

- One and dual sided adhesive application
- Low reactivation temperatures
- High strength
- Good heat resistance
- Low fogging and carbon emission values
- Short flash off times
- Good weather resistance
- Fast tack development times
- Broad substrate compatibility

Technological Benefits - SikaSense®

- Excellent heat and ageing resistance
- Flexible characteristics
- Strong adhesion
- Broad substrate compatibility
- Wide range of open times

Focusing on the Customer

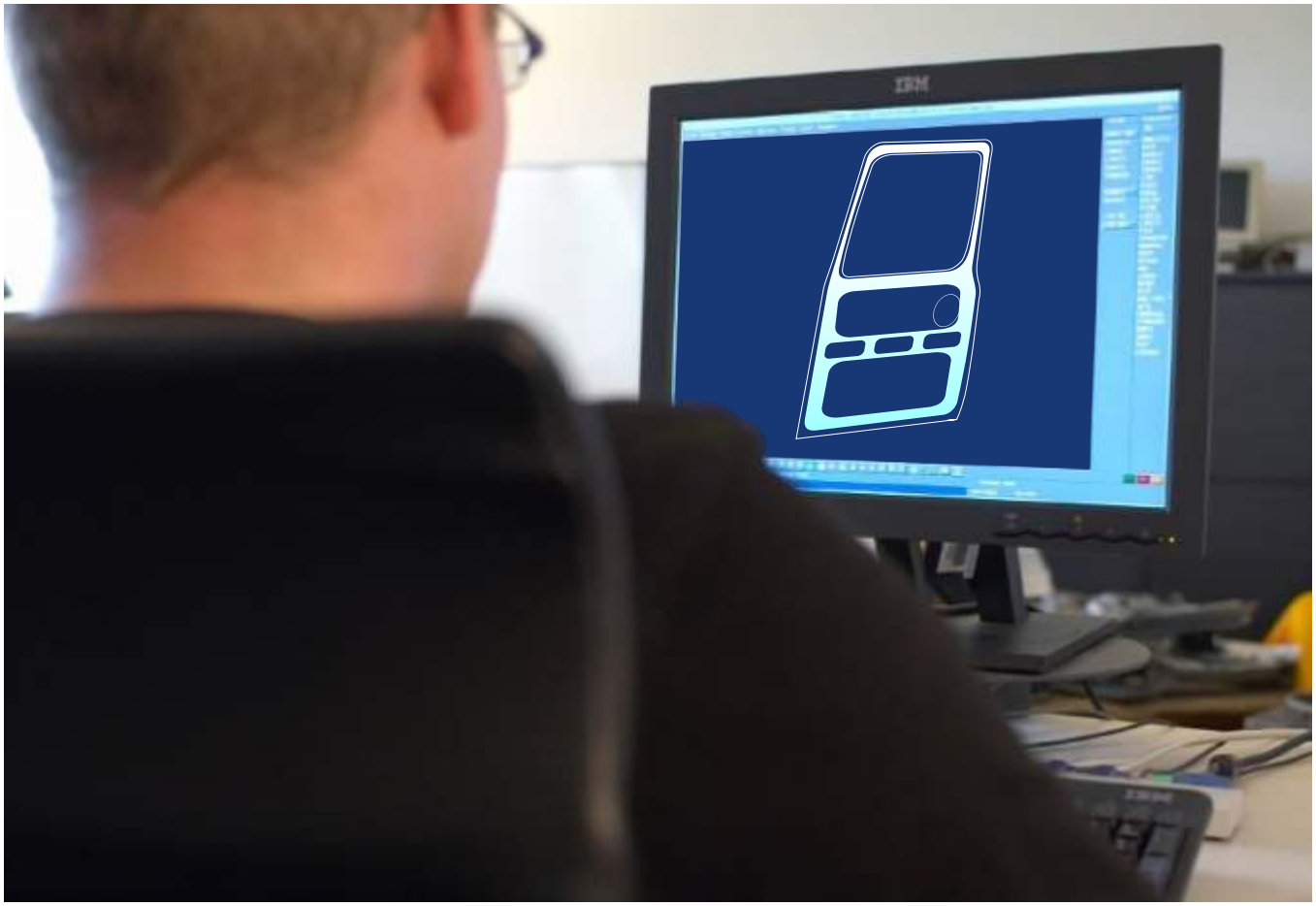
Sika develops bonding, sealing, damping and reinforcing solutions in close co-operation with our OEM and Tier 1 customer's in the truck industry. To Sika, this means not only developing best in class technology solutions to match our customer's technical and commercial requirements, but to also ensure appropriate performance throughout the design, prototyping, validation and full production phases. Specialists in Sika's R&D, Technical Service, Systems Engineering and Application Technology concentrate on devising appropriate client oriented solutions.

Technology Centres

Sika Technology Centres are focused on the development of new materials. This allows Sika to actively promote technology development within the Truck market, and to add value to the activities of our customers.

Technical Service

Sika Technical Service teams are located around the world, and are dedicated to providing best practice selection, validation and application of Sika materials. By being located close to our customers, Sika Technical Service can ensure optimum local language communication and understanding throughout the technical application development process to ensure best possible results for our customers.



System Engineering

Application Technology is a key success factor in the use of adhesives and sealants. Sika's System Engineering Competence Centre focuses on this important task and develops new concepts aimed at holistic solutions for our clients. In this way we partner the development of solutions including pumping and application systems as well as automated robotic equipment specifically designed to meet individual customer needs.

Acoustic Test Centre

In our Acoustic Test Centre we are able to evaluate and optimize the acoustic performance of our products. The ability of this facility to house very large vehicle structures, combined with sophisticated equipment such as a chassis dynamometer, wind testing rig and E Coat/KTL oven, provides our customers with ideal support to achieve dependable and accurate results in vehicle development programmes.

Local Service & Support

With major sales, service and logistics operations around the globe, Sika provides customers with world scale customer service, sales and logistics support via local dedicated teams in local languages.

CAD/CAE Supported Development

Sika concentrates on Computer Aided Design and Engineering of structurally reinforcing process materials. As our customers increasingly utilize static and dynamic simulation tools to design, develop and validate new vehicle structures, Sika has the expertise and competence to support vehicle development programmes in the appropriate software coding utilized by our customers.

Sika
Worldwide

Sika ensures high quality for its products and services. In each production process, for each workplace and for each employee, the guiding aim is to uphold quality at the highest level. Sika is certified according to the international standards ISO 9001, ISO 14001 and QS 9000.

Please note
Some of the processes and techniques portrayed in this brochure are state of the art and are not widely available at the time of publishing.

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.

www.sika.com

Responsible Care

Certified Quality System SQS Reg-Nr. 10553-01 ISO 9001/EN 29001 since 1986

Certified Management System SQS ISO 14001 since 1997

04/2007