

GLOBAL REACH BUT LOCAL PARTNERSHIP



START WITH SIKA THROUGH ANY OF THE CONTACT POINTS BELOW:

EUROPE

Sika Automotive AG
Kreuzlingerstrasse 35
CH-8590 Romanshorn
Switzerland
Phone +41 58 436 5801

Sika Automotive GmbH
Reichsbahnstrasse 99
DE-22525 Hamburg
Germany
Phone +49 40 540 02 0

Sika Automotive Belgium S.A.
Avenue Landas 2
Zoning Industriel
BE-1480 Tubize - Saintes
Belgium
Phone +32 2367 2120

USA

Sika Corporation
30800 Stephenson Hwy.
US-Madison Heights, MI 48071
USA
Phone +1 248-577-0020

BRAZIL

Sika Automotive Ltda.
Rua Romão Puiggari 1025
Vila das Mercedes
BR-04164-001 São Paulo
Brazil
Phone +55 11 2877 6500

JAPAN

Hayashi-Sika Automotive Ltd.
1-5-15 Mercan Building
Nishiki
JP-491-0005 Naka Nagoya Aichi
Japan
Phone +86 52 203 8675

Sika Ltd.
2-15-2 Konan
Intercity Tower B 10th Floor
Minato-ku
JP-108-6110 Shinagawa
Japan
Phone +81 3 6433 2314

KOREA

Sika Korea Ltd.
35-8 nonhyeon-dong
Gangnam-gu
KR-135-815 Seoul,
Korea (Republic of)
Phone +82 2 6912 1500

INDIA

Sika India Pvt Ltd. - Automotive
601 A Wing, Infinity Tower
MindSPACE
Off Link Road
Malad (West), Mumbai - 400064
India
Phone: +91 22 4038 4038

CHINA

Sika (China) Ltd.
No. 28 Jing Dong Road
Suzhou Industrial Park
CN-215021 Suzhou
China
Phone +86 512 6273 2888

TURKEY

Sika Yapi Kimyasallari A.S.
Istanbul Deri Organize Sanayi Bölgesi
Alsancak Sokak No:5 J-7 Özel Parsel
TR-34957 Tuzla-Istanbul
Turkey
Phone +90 216 581 0600
Phone: +91 22 4038 4038



BODY SHOP ADHESIVES STRONGER BONDS START WITH SIKA

LIGHTER | STRONGER | SAFER | QUIETER | GREENER

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BUILDING TRUST



BUILDING TRUST





YOU NEED TO FIND WAYS TO MAKE YOUR NEXT VEHICLE LIGHTER, STRONGER, SAFER, QUIETER OR GREENER.

SO WHERE DO YOU START?

Start with a trusted partner that can deliver global innovation on a localized scale, wherever and whenever it's needed. Start with a commitment to continuous improvement, and the knowledge that it takes years to become an overnight success. Start with a collaborative approach that can bring together great minds without knocking heads. Start with pioneering innovation that clears a path for the vehicles of the future.

START WITH SIKA

With a full suite of bonding, damping, sealing and reinforcing solutions, Sika is a key strategic partner for both OEMs and component suppliers. By collaborating on advanced development projects and engaging early in program development, we help customers optimize designs, identify cost savings and reduce complexity.

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STRUCTURAL ADHESIVES

Stronger bonds start with Sika

LIGHTER, STRONGER, SAFER, GREENER

Sustainable vehicle design has become a major influencing factor in car production. Performance, economic, legislative and environmental targets are influencing OEM thinking and driving the need for durable body shop adhesives that can improve stiffness, crash durability and fatigue performance, as well as contribute to weight reduction.

PRODUCTS AND APPLICATIONS

Our body shop adhesives product portfolio covers all bonding requirements for the body shop product line; SikaPower®-480 and SikaPower®-492 are structural adhesives, SikaPower®-487, 497 and 498/3 are crash resistant, SikaPower®-468 G, 492 G and 497 G covers hem-flange requirements, SikaPower® MBX I and MBX II enables mixed material bonding. Start with Sika for an engineered solution.

ANTI-FLUTTER ADHESIVES

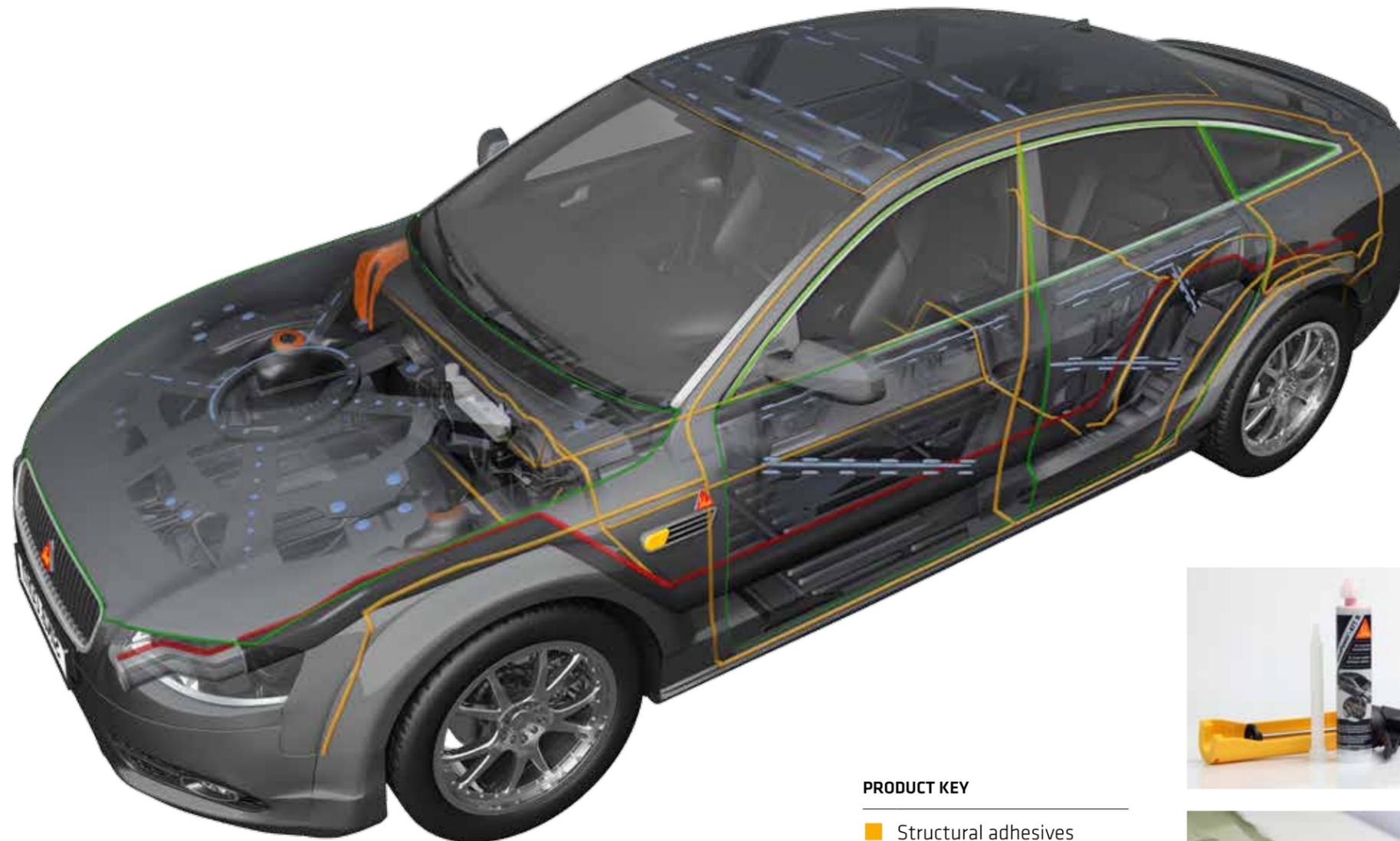
An impressive body of sealing options

PRODUCTS AND APPLICATIONS

SikaSeal® products are typically used for hang-on parts (doors, hoods and tailgates), roof rails and body structure areas. SikaSeal®-700 is non expanding, SikaSeal®-710 LS is medium expanding SikaSeal®-710 SR high sag resistant, SikaSeal®-712 high corrosion resistant, SikaSeal®-720 high mechanics and SikaSeal®-730 UWS is new universal weld sealer. All SikaSeal® materials can be applied as bead, spotted bead or dot, or as a combination of all three applications. At the OEM, or at the Tier, our full line portfolio covers the entire vehicle.

SikaPower® FOR REPAIRS:

As body shop joining has evolved from purely mechanical fastening techniques to hybrid joining including extensive use of adhesives, our versatile, one-component SikaPower® product range has become a go-to solution for new vehicle production. Our technologies also follow the vehicle into service, meeting the same quality expectations including strength, application properties, and corrosion resistance when vehicles enter the repair shop. In fact, our high-performance service product range addresses OEM repair issues like the lack of production equipment, controlled conditions, the absence of cataplasma ovens and heating processes, and specialized equipment, to allow vehicles to return to service "as good as new".



PRODUCT KEY

- Structural adhesives
- Crash resistant adhesives
- Hem-flange adhesives
- Anti-flutter adhesives
- Sealants



BODY SHOP ADHESIVES

Benefits that go beyond the bond with SikaPower®

STRONGER BONDS START WITH SIKA as sustainable vehicle design has become a major influencing factor in car production. Performance, economic, legislative and environmental targets are influencing OEM thinking and driving the need for durable body shop adhesives that can improve stiffness, crash durability and fatigue performance, as well as contribute to vehicle weight reduction strategies, including incorporation of mixed material joining.

Sika provides a broad range of innovative solutions for crash durable, semi-crash, structural, hem-flange, anti-flutter, mastic and sealing applications to match challenging design requirements.

20 MILLION VEHICLES MADE LIGHTER, STRONGER AND SAFER EACH YEAR

Each Year our Body Shop Adhesives help make 20 million Vehicles Lighter, Stronger and Safer, enabling weight reduction without impacting vehicle dynamics and safety, a critical engineering challenge. Crash-durable bonding is now the most important joining process in the body shop, due to the direct influences of the car body structure sections during a crash event, SikaPower® products fulfill or exceed the requirements.

1 Crash beam lab samples
2 Body shop assembly line



CRASH DURABLE BONDING

SikaPower® crash-durable adhesives contribute to a significant increase in energy absorption during crash events, which makes them an ideal solution in comparison to traditional metal joining techniques. Superior impact peel values and reduction of car body intrusion space make SikaPower® products an increasingly effective bonding solution for high-performance vehicles. Lab tests on crash beams confirm intrusion reduction of 20% with the use of SikaPower® crash resistant adhesives. Ref. picture 1 above, left beam traditional joining without SikaPower®.

STRUCTURAL BONDING

Structural bonding with SikaPower® delivers a long list of performance and process benefits, including increased car body stiffness, excellent oil absorption and wash-out resistance, long-term corrosion resistance, a reduction in the number of spot weld points and long shelf life.

HEMFLANGE BONDING

Sika offers a broad range of SikaPower® products for hem flange bonding. Although typically used with hang-on parts, the inclusion of glass beads also makes SikaPower® products suitable for use in body structures. The advantage of the glass beads includes "zero gap" avoidance, which leads to better adhesion, mechanical performance, aging and corrosion properties.

ANTI-FLUTTER MATERIALS

In anti-flutter and spot welding paste sealing applications, SikaSeal® adhesives provide excellent adhesion to standard OEM steel and aluminum substrates, and provide vibration free panel isolation joining, while also protecting durable metals against age-related corrosion from the elements. SikaSeal® adhesives are outstanding in preventing bond-line-read-through (BLRT) and do not reduce the strength of welding spots. They can also be utilized as a spot welds paste adhesive.

LIGHTER WEIGHT

SikaPower® – Car body improvement

WEIGHT REDUCTION

From our first SikaPower® development two decades ago, we now offer a full product range addressing each area of performance expectation for body assembly, including today's and future demands for mixed material bonding.



100 KG

OF POTENTIAL WEIGHT REDUCTION PER CAR (UP TO 10%) CAN BE ACHIEVED WITH SIKA SOLUTIONS

MIXED MATERIAL BONDING EXPERTISE

Sika's unique SikaPower® structural adhesives and our engineering process in understanding Delta Δ/Alpha α (different coefficients of mixed material expansion / contraction), enable mixed material bonding of lighter materials including aluminum and carbon fiber reinforced plastic, with traditional and high-strength steel.

INDUSTRY LEADING APPLICATION EXAMPLES:

- Jaguar Land Rover's all-aluminum Range Rover Sport
- Mercedes' aluminum chassis S Class
- Porsche 911 aluminum steel mixed bonding

SikaPower® BODY SHOP CRASH & STRUCTURAL ADHESIVES

Product	Impact Peel [N/mm]	Adhesion		Glass Transition Temperature	Wash Out Resistant	Lap shear Strength	
		Aluminum	Carbon Fiber			LSS on 0.8 mm MPa	LSS on 1.5 mm MPa
SikaPower®-468 G	10	++	+	105°C	+	15	30
SikaPower®-480	20	++	+	110°C	++	18	30
SikaPower®-492	30	++	+	105°C	++	20	30
SikaPower®-487	30	++	+	105°C	+	20	30
SikaPower®-497	40	++	++	100°C	+	20	30
SikaPower®-498/3	40	++	++	115°C	++	20	30
SikaPower® MBX I	45	++	++	95°C	++	20	28
SikaPower® MBX II	45	++	++	95°C	++	15	28

++ Preferred technology + Possible option

FULL RANGE PORTFOLIO

SikaSeal® – Performance you can't see – Bond-Line-Read-Through prevention

SIKA OFFERS TAILOR MADE SOLUTIONS TO MULTIPLE BODY SHOP BONDING CHALLENGES

You typically cannot win a race with one entrant, nor can you build the body structure of the future with one product that limits design flexibility. Sika's extensive range of products for BiW lends itself to your challenges by offering tailored products to specific challenges faced in design of tomorrow's vehicle. We follow the assembly process to the field, offering repair products as well.

Product	BLRT resistance	Adhesion		Corrosion resistance	Cold pumpable	Sag / wash out	Expansion	
		Steel	Aluminum				Low (0-10%)	Medium (10-70%)
SikaSeal®-700	++	+	+	+	++	+	+	
SikaSeal®-710 LS	++	+	+	+	++	+		+
SikaSeal®-710 SR	+	+	+	+	+	++		+
SikaSeal®-712	++	++	+	++	++	+		+
SikaSeal®-720		+		+		+	+	
NEW SikaSeal®-730 UWS	+	++	++	+	++	+	+	

++ Preferred technology + Possible option

SikaSeal® anti-flutter and mastic adhesives prevent bond-line-read-through BLRT, and allow for the use of thinner metals.

NEW SikaSeal®-730 UWS (UNIVERSAL WELD SEALANT) PROVIDES ONE PRODUCT FOR MULTIPLE SOLUTIONS

SikaSeal®-730 UWS is outstanding in preventing bondline-read-through (BLRT). SikaSeal®-730 UWS is a universal adhesive for anti-flutter and spot weld applications. This product shows excellent adhesion to different aluminum and steel grades.

SikaSeal®-730 UWS is applied in the body shop and expands in the e-coat oven. The product can be used in overhead and regular applications. It is suitable for use as spot welding mastic and anti-flutter adhesive in all areas of the car body, especially on the hang-on parts and in the roof area.

SikaSeal®-730 UWS	
Color	Gray
Specific Gravity [g/cm³]	1.3 +/- 0.1
Viscosity at 20 s ⁻¹ [Pa*s]	280 – 420
Expansion [%]	20
Hardness Type A	30
Lap Shear Strength [MPa]	0.2
E-Modulus [MPa]	0.1
Shelf Life	6 Month

MULTI MATERIAL DESIGN

SikaPower® MBX performance to prevent Delta/Alpha

THE SikaPower® PRODUCT PORTFOLIO includes crash durable, structural and e-coatable adhesives; all formulated to meet or exceed demanding design performance. All SikaPower® adhesives are available with or without glass spheres, to enable the required minimum bond line distance between substrates and to control bondline adhesive thickness. Common substrates in body shop applications for SikaPower® adhesives include all types of steel, aluminum and carbon fiber reinforced plastics (CFRP), and combinations of these substrates, in mixed material joining. Sika also answers the call for adhesives for mixed material joining with SikaPower® MBX; formulated specifically to account for varied requirements of science in thermal expansion and contraction coefficients that must be considered during the design process.

BENEFITS

- Superior performance – hybrid adhesive systems with high-energy absorption
- Excellent aging durability
- Increased car body stiffness – high E-modulus and Tg
- Cost saving and sustainable – reduction of spot welding points
- Excellent wash-out performance
- Superior mixed material bonding



2

NEW TECHNOLOGY: MIXED BONDING EXCELLENCE (MBX)

Mixed material joining of steel – aluminum, steel – carbon fiber or aluminum – carbon fiber is possible with SikaPower® Mixed Bonding Excellence (MBX) bonding, which provides support to resolve Delta-Alpha issues, and at the same time provides galvanic separation that improves protection against corrosion and increases vehicle durability.

APPLICATION

- Crash-relevant body structures
- Mixed material bonding throughout the vehicle
- Hem-flange applications

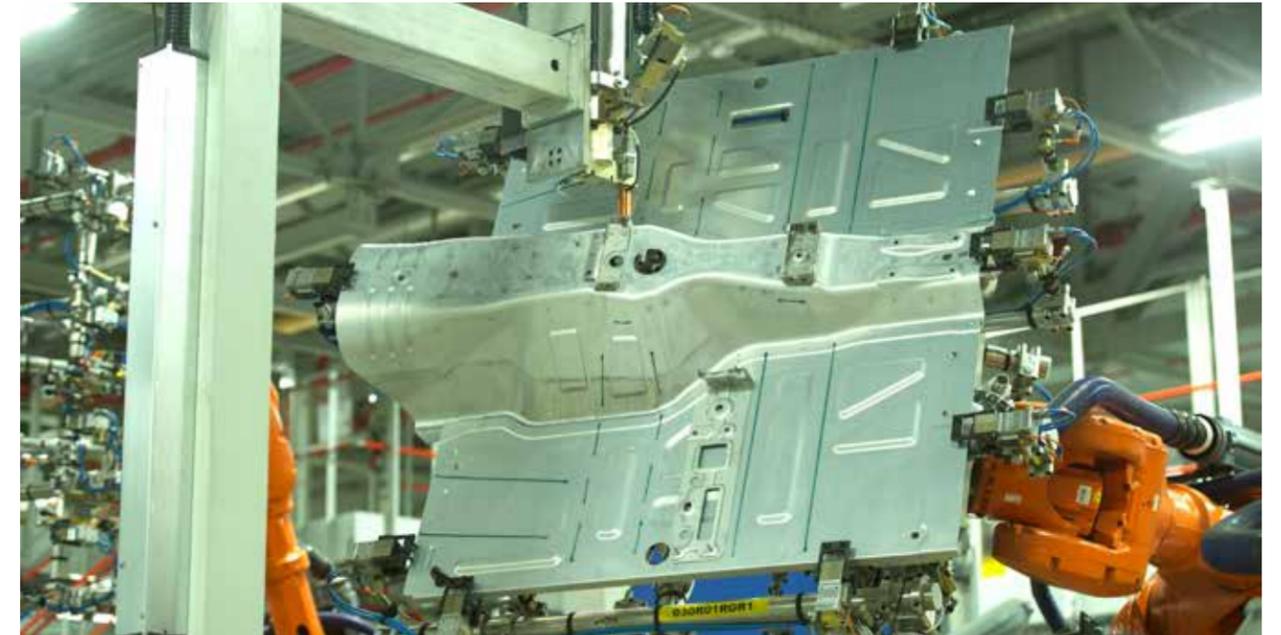


1

1 Mixed material bonding application (steel - carbon fibre)
2 Mixed material bonding application (aluminum - carbon fibre)

STRUCTURAL BONDING APPLICATIONS

Saving potential of 100 kg per vehicle by using SikaPower®



1



2



3

TYPICAL APPLICATIONS FOR THE SikaPower® STRUCTURAL ADHESIVE PORTFOLIO

1 CENTER TUNNEL AND FLOOR PANEL SECTION

Crash resistant adhesive application in the center tunnel floor area.

2 SIDE WALL AREA

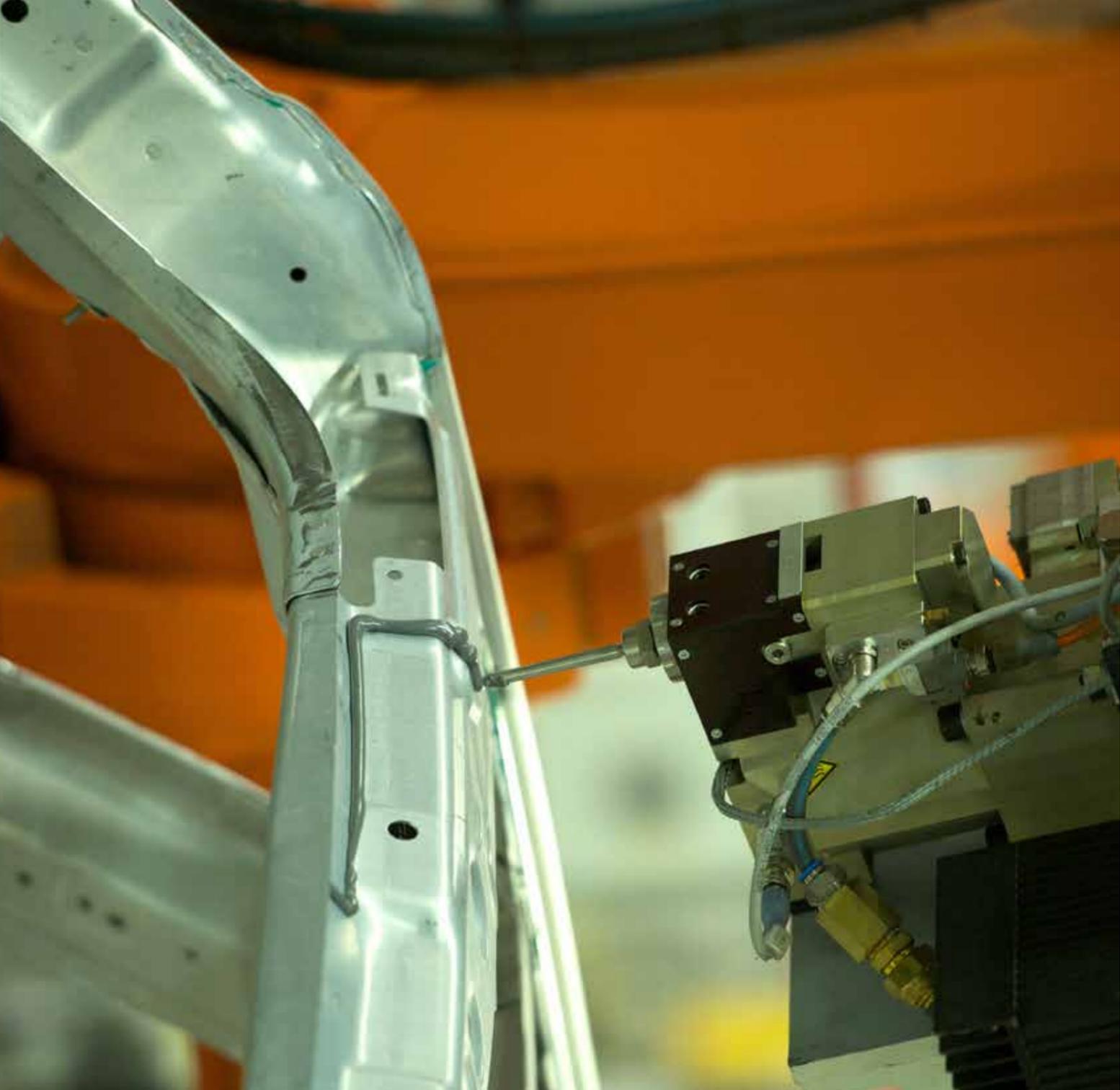
All side wall applications with SikaPower® adhesive.

3 LOWER B-PILLAR

B-pillar, crash relevant part of the vehicle, is bonded with SikaPower®.

SikaPower® – FOR CRASH AND STRUCTURAL REPAIR

Utilizing extensive expertise with both two-component (2C) epoxy adhesives and one-component SikaPower® adhesives, our engineers have developed new generation products that follow vehicles to the field, specifically for repair applications. These OEM-approved adhesives allow repair technicians to return vehicles to OEM standards for continued safety, quality and life cycle performance expectations. Sika repair products can also reduce the steps associated with traditional repair joining processes. For example, spot welding – or riveting can be used with structural repair adhesives, which reduces marking and the need to disassemble the interior and fuel system as standard protocol requires during welding processes.



ANTI-FLUTTER ADHESIVES

A unique single solution to prevent bond-line-read-through

SikaSeal® PRODUCTS CARRY UNIQUE CHARACTERISTICS; their contribution to the prevention of bond-line-read-through. The properties of SikaSeal®, as formulated by our chemists, are based on proprietary building blocks yielding matrix designed materials that compensate for typical read through experienced in joining techniques when using competitor materials. Bond-line-read-through prevention, and the compensation for it, becomes even more important as thinner gauge panels and lighter weight materials are introduced in design – Advantage Sika. Further, Sika advanced understanding of delta-alpha ($\Delta\alpha$) effects – including those of our SikaSeal® products – has contributed over decades to the development of our technologies.

SikaSeal® adhesives are delivered as bulk material and applied by cold or warm pumping equipment. In most cases, the last part of the dispensing system pipes, especially between doser and nozzle, is pre-heated in order to ensure the same application properties over all climate seasons. Applications are preferably done automatically by robot but in some cases manual application is implemented as well.

LIGHTER VEHICLES START WITH SIKA

SikaSeal® adhesives are outstanding in preventing bond-line-read-through (BLRT) and do not reduce the strength of welding spots. In anti-flutter and spot welding paste sealing applications, SikaSeal® adhesives provide excellent adhesion to standard OEM steel and aluminum substrates, as well as protecting the metal against age-related corrosion. They can also be utilized as a spot welding paste.

1 Roof cross member anti-flutter application
2 Finished roof application to the body frame



APPLICATION

- **Doors** Body Structure
- **Hoods** Body Sealing
- **Roof** Inter-welds

BENEFITS

- Prevents bond-line-read-through – unique chemical matrix design
- Enables weight saving – allows for use of thinner metal sheets
- Excellent adhesion on different steel and aluminum grades
- Sustainable – cold pumpability = reduced energy demand

MAIN MATERIAL PROPERTIES

- Low or no volumetric expansion
- Cold pumpable
- High resistance against wash out
- Shelf life is product specific, in general > 6 months

INNOVATION, IT STARTS WITH PASSION

AT SIKA, WE BELIEVE that a truly innovative company is one that starts with a culture within which a passion for innovation and creativity thrive. An innovative company should also take a customer-focused view; one that anticipates customer needs with a thorough understanding of key market trends. Advantage Sika!



LIGHTER

We have a full range of products which enable our customers to make their vehicles lighter. For example, we were the first to engineer body shop adhesives (SikaPower®), which enable mixed-material bonding of lighter materials such as aluminum, carbon fiber reinforced plastic, as well as traditional and high strength steel.



STRONGER AND SAFER

We were the pioneer in vehicle exterior parts bonding with our Sikaflex® + Booster and SikaForce® products, which not only help stiffen the vehicle for better overall dynamics but also improve crash performance and increase vehicle occupant safety.



QUIETER

We provide solutions that make vehicles quieter; SikaBaffle® seals noise pathways, while SikaDamp® reduces the body panel vibration that contributes to audible noise in the vehicle. Both products are engineered for best-in-class weight-to-performance ratio. Used together or separately, our industry leading acoustics solutions improve vehicle occupant comfort.



GREENER

We were the first to establish water-based pre-treatments and polyurethane hotmelts with low monomeric isocyanate content and reactive polyolefin hotmelts free of classification to the interior automotive market – a more environmentally friendly approach that easily outperforms the industry's previous generation of products.



VALUE-ADDED INNOVATION

We continuously develop new, cost-effective solutions, which allow our customers to use less material or reduce complexity in their manufacturing process. SikaPower® structural adhesives, for example, allow the reduction of welds in vehicle body sections, while strengthening overall crash durability.

START WITH SIKA

MORE THAN

50% OF ALL VEHICLES

USE SIKA PRODUCTS AND TECHNOLOGIES

25 MILLION VEHICLES

PRODUCED ANNUALLY WORLDWIDE CONTAIN SIKA LAMINATION ADHESIVES

OUR BODY SHOP ADHESIVES HELP MAKE

20 MILLION

VEHICLES STRONGER AND SAFER EACH YEAR

MORE THAN

20% WEIGHT REDUCTION

IN THE CAR BODY CAN BE ACHIEVED WHEN SIKA PROPRIETARY HIGH-STRENGTH BONDING SOLUTIONS ARE USED IN CONJUNCTION WITH LIGHTWEIGHT MATERIALS AND THINNER MATERIAL CONSTRUCTION

150,000 LITERS

OF VOCs WERE REDUCED THROUGH THE USE OF SIKA'S PRIMERLESS TO GLASS WATER-BASED PRE-TREATMENT SYSTEMS

MORE THAN

65 MILLION

CAR WINDOWS ARE BONDED DURING ASSEMBLY USING Sikaflex®

SIKA HAS MORE THAN

17'000 EMPLOYEES

IN MORE THAN

90 COUNTRIES

400 MILLION

PARTS BASED ON OUR SikaBaffle® AND SikaReinforcer® TECHNOLOGIES ARE SUPPLIED ANNUALLY TO THE GLOBAL AUTOMOTIVE INDUSTRY

MORE THAN

30%

INTERIOR NOISE REDUCTION IN VEHICLES THANKS TO SIKA'S ACOUSTIC SOLUTIONS