

**LOCTITE®**  
**BONDERITE®**  
**TECHNOMELT®**  
**TEROSON®**

## Car Body Solutions along the entire Value Chain



Henkel

# Mega Trends and Market Dynamics

Car body manufacturers and OEMs are facing various mega trends and market dynamics:

- > Enhanced vehicle safety
- > Lower CO<sub>2</sub> emission
- > Lower weight/fuel consumption

Henkel enables car body manufacturers and OEMs to meet those mega trends with innovative solutions.

## Our car body manufacturing solutions

### Solutions:

- > NVH isolation
- > Sustainable product concepts and bio-based materials
- > Innovative lightweight solutions by alternative concepts with substrate mixes

### Benefits:

- > Enhanced vehicle safety and comfort
- > Higher public awareness by increased use of sustainable products
- > Downsizing of vehicle weights, reduction of CO<sub>2</sub> emission, lower fuel consumption



## Key Applications and Functions around the Car

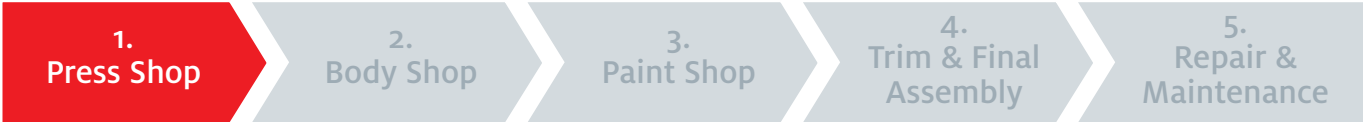




## Industry Requirements and our Solutions

Henkel offers a broad portfolio of sustainable solutions for car body assembly and strongly extends into greener raw material concepts and ultra lightweight/high efficiency systems.

- › Higher public awareness on sustainable solutions for car manufacturing as well as for car maintenance
- › Downsizing of vehicle weights by alternative concepts (substrate mix)
- › Integration of components, downsizing and use of lightweight concepts
- › Value chain with high focus on technology and innovation
- › More process flexibility and efficiency at same or even better quality level
- › Reduction of complexity and cost along the process value chain



### Stamping Lubricants

Stamping and forming operations of ferrous and non ferrous metals.

**Benefits:**

- > Provides superior stamping results
- > Improves stamping tool and die life



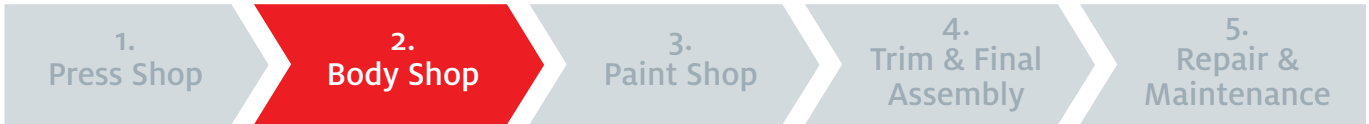
### Cleaning and Corrosion Preventatives

Complementary cleaners from BONDERITE series such as parts cleaners, maintenance cleaners and corrosion preventives.

**Benefits:**

- > Better stability and performance
- > First class Aluminium surface preparation prior to welding or bonding operations
- > Safety-Health-Environmental (SHE) proven materials for enhanced workplaces



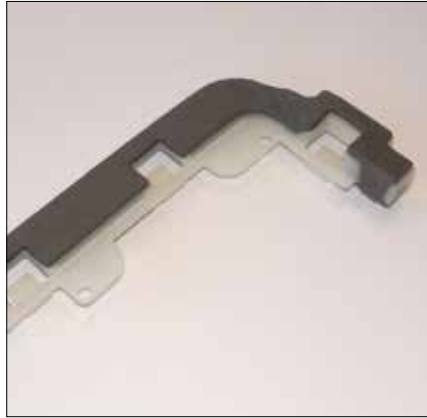


### Structural and Antiflutter Adhesives

Increase of impact resistance and body stiffness. Reduction of panel vibration.

**Benefits:**

- > Sustainable products showing high robustness in processing and application
- > High oil absorbance properties
- > Excellent corrosion protection on all substrates and high durability
- > Minimized readthrough



### Structural Foam Hybrid Parts

Increase of car safety and durability.

**Benefits:**

- > Dry drop-in part
- > High strength, low elongation adhesive foam
- > FE confirmed performance



### Structural Re-inforcement Patches

Panel re-inforcement by tacky adhesive layer

**Benefits:**

- > Spot on re-inforcement
- > Increase bend and dent resistance
- > Minimum weight
- > Low read through



### Acoustic Baffles

Reduction of noise propagation and sealing cavities in body structure.

**Benefits:**

- > Overall noise level reduction inside passenger booth
- > Precise positioning and controlled process
- > Seal against dust and humidity
- > No robot or pump invest



### High Damping Foams

Acoustic improvement with High Damping Foam application on doors and roofs at reduced over all weight.

**Benefits:**

- > Tailor-made sound designs
- > Decrease of weight by replacing heavy melt sheet applications
- > Direct application or pre-applied
- > No read through effects



### Sealing Parts

Seam sealing tapes and patches.

**Benefits:**

- > Precise and fully wash-off resistant sealing and anti-flutter placement
- > High oil absorbing properties
- > Controlled material usage



### Surface Treatment

Technologies for cleaning, corrosion protection and paint adhesion on steel, galvanized steel, aluminum surfaces and mixed substrates.

**Benefits:**

- > High performance in corrosion protection and adhesion
- > Cost-efficiency through stable application process and simplified bath maintenance
- > Innovative solutions that enable the use of light metals and composite materials
- > Reduction of energy and waste water consumption
- > Sustainable formulations and engineering for minimum ecological footprint



### Sealing & Coating

Pumpable seam sealing to prevent joints from water leaks and rust. Pumpable coating to cover underbody panels and provide stone chipping and abrasion resistance.

**Benefits:**

- > Low, ultra low specific gravity
- > Ultra high abrasion resistance at thin layer
- > Tote and road tanker deliveries



### Paint Booth Products & Services

High efficient and sustainable products and services for excellent and stable paint booth processes.

**Benefits:**

- > Technical expertise in paint overspray treatment and paint line maintenance
- > Over all cost reduction through optimized processes



### Sprayable Sound Deadener

Automatised application of liquid applied sound deadener on e-coated car bodies and parts.

**Benefits:**

- > Constant material properties
- > Highly accurate through automated application
- > Significant reduction of shop complexity
- > Allows coating weight reduction up to 25%

1.  
Press Shop2.  
Body Shop3.  
Paint Shop4.  
Trim & Final  
Assembly5.  
Repair &  
Maintenance

## Multi-Substrate Bonding

Bonding of mixed substrates and Surfaces with low surface energy. Structural Bonding of composites.

### Benefits:

- > Bonding without surface pretreatment
- > Fibre re-inforced plastics such as CFRP, GFRP
- > Elastic and structural bonding
- > 1K, 2K, dual cure systems

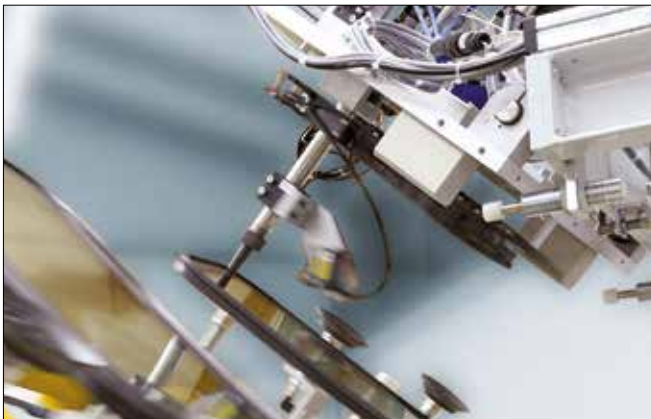


## Module Bonding

Various technologies for elastic and structural bonding of modules.

### Benefits:

- > Structural joints
- > Low specific gravity
- > Fast curing speed
- > 1K, 2K, dual cure systems

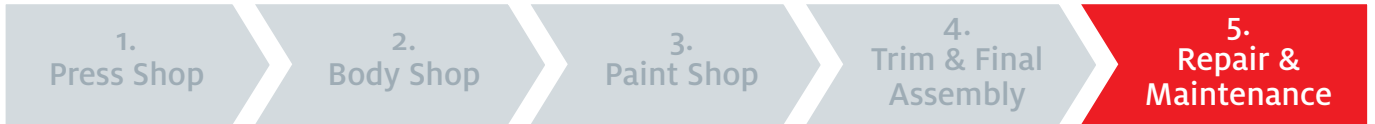


## Glass Bonding

Windshield adhesives from TEROSON range with high performance properties.

### Benefits:

- > High position tack
- > Application at warm and ambient temperatures
- > Low specific Gravity
- > Primerless on glass and paint
- > low and high conductivity
- > 1K, 2K, 1K accelerated systems



### Body Repair Adhesives

Repair as it was new (original texture).

**Benefits:**

- > Crash resistant structural bonding
- > Isocyanate free products
- > Micro emission products for plastic repair



### Direct Glazing

Glass Repair.

**Benefits:**

- > Safe drive away times according to European standards
- > Primer less systems
- > Micro emission DGX



### Underbody Coating

Coating and corrosion protection of the repaired area.

**Benefits:**

- > Perfect recreation of original textures
- > Water based formulas
- > No smell



## Solutions for Body Assembly Market Trends

	1. Press Shop	2. Body Shop	3. Paint Shop	4. Trim & Final Assembly	5. Repair & Maintenance
Coating	×	×	×		×
Sealing		×	×	×	×
Cleaning	×	×	×	×	×
Surface Treatment		×	×		×
Bonding		×		×	×
Acoustic		×	×	×	×
Specialties & Services	×	×	×	×	×



### Cost Reduction

Cost-efficiency through stable application process and simplified bath maintenance in Body shop.



### Sustainability

SHE proven materials for a better working place within Press Shop. Reduction of energy and waste water consumption in Paint Shop.



### Lightweight

Weight reduction by panel stiffening and deleting acoustic pads.



### Process Efficiency

Significant reduction of the Paint Shop complexity thanks to sprayable sound deadener.

## Ecommitment

### Sustainability – The Foundation of Henkel

Commitment to leadership in sustainability is one of our core corporate values. Through our sustainability strategy we contribute both to sustainable development and to our company's economic success.

As sustainability leaders, we aim to pioneer new solutions for sustainable development while continuing to shape our business responsibly and increase our economic success. This ambition encompasses all of our company's activities – along the entire value chain.



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