



certificates : ISO 9001, ISO/TS 16949, and ISO 14001

# ADHESIVE SOLUTIONS IN THE AUTOMOTIVE INDUSTRY

Engineering Tapes for OEMs and OESs Worldwide

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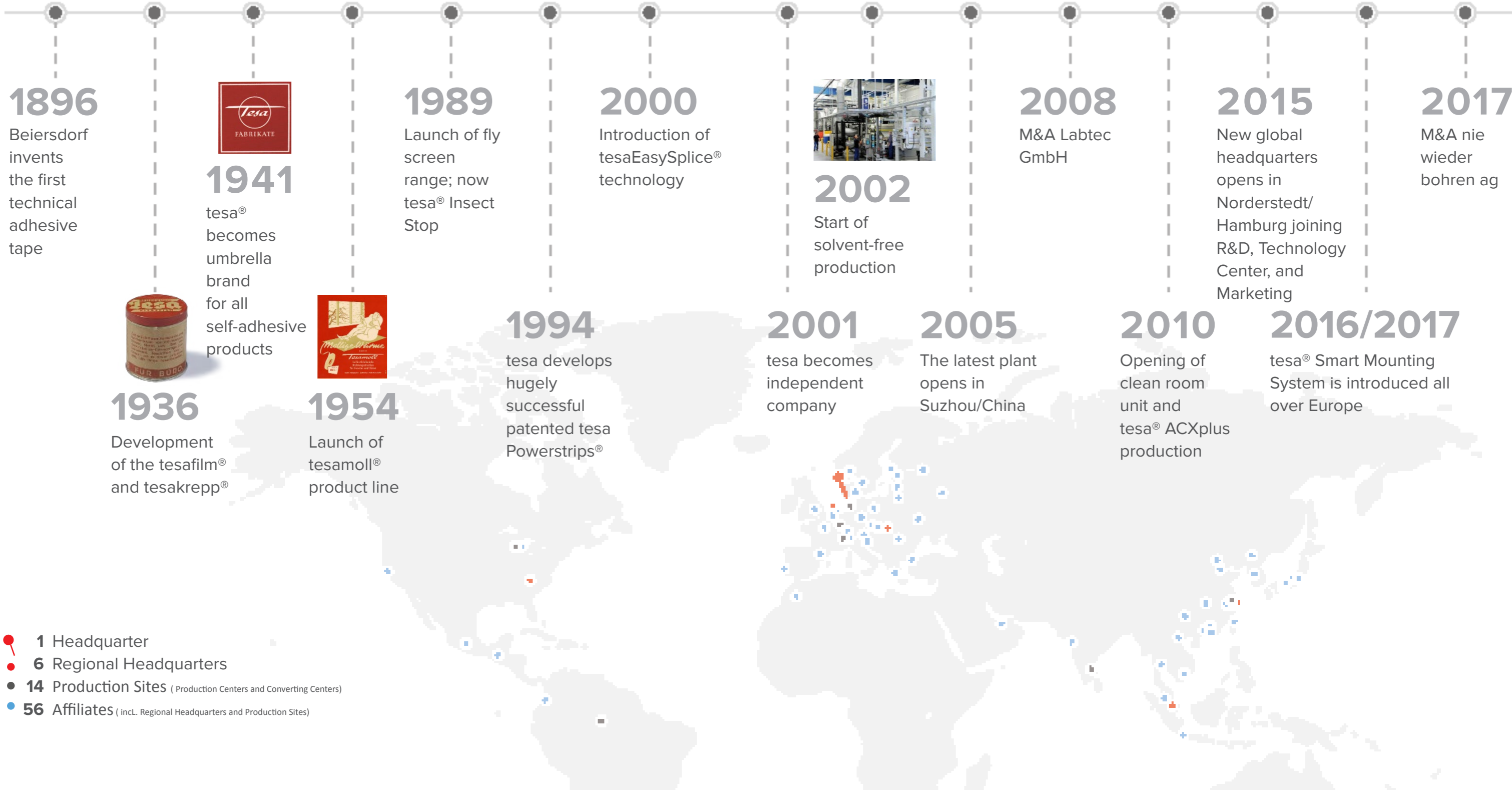
[tesa.com](http://tesa.com)

# tesa GRAPH

Over 100 years of Experience and Expertise

More than  
**125 years of experience**  
in coating technology and development of adhesive masses

About  
**100 new solutions developed each year,**  
many of them patent pending



**1896**

Beiersdorf invents the first technical adhesive tape



**1941**

tesa® becomes umbrella brand for all self-adhesive products



**1936**

Development of the tesafilm® and tesakrepp®



**1954**

Launch of tesamoll® product line

**1989**

Launch of fly screen range; now tesa® Insect Stop

**1994**

tesa develops hugely successful patented tesa Powerstrips®

**2000**

Introduction of tesaEasySplice® technology

**2001**

tesa becomes independent company



**2002**

Start of solvent-free production

**2005**

The latest plant opens in Suzhou/China

**2008**

M&A Labtec GmbH

**2010**

Opening of clean room unit and tesa® ACXplus production

**2015**

New global headquarters opens in Norderstedt/Hamburg joining R&D, Technology Center, and Marketing

**2016/2017**

tesa® Smart Mounting System is introduced all over Europe

**2017**

M&A nie wieder bohren ag

- 1 Headquarter
- 6 Regional Headquarters
- 14 Production Sites ( Production Centers and Converting Centers)
- 56 Affiliates ( incl. Regional Headquarters and Production Sites)

# tesa SOUTHEAST ASIA

**tesa Southeast Asia (SEA) is a Part of tesa Asia Pacific Organization.**

Headquartered in Singapore, tesa SEA is active in all Southeast Asia countries with strong focus and presence in Singapore, Malaysia, Thailand, Indonesia, Vietnam and Philippines markets.

Our highly qualified sales and technical personnel deliver solution to Electronics, Home Appliances, Office Automation, Print and Paper, Automotive, Specific Industry and Distribution. We leverage on our global expertise and presence in these industries to satisfy the needs of our customers in Southeast Asia.

With excellent quality adhesive tape solutions produced by our production plants in Germany, Italy, USA and China, We are able to continuously meet the ever increasing technical needs and demands of our customers in Southeast Asia.



tesa Plant in Suzhou



tesa Plant in Concagno



tesa Headquarter in Hamburg



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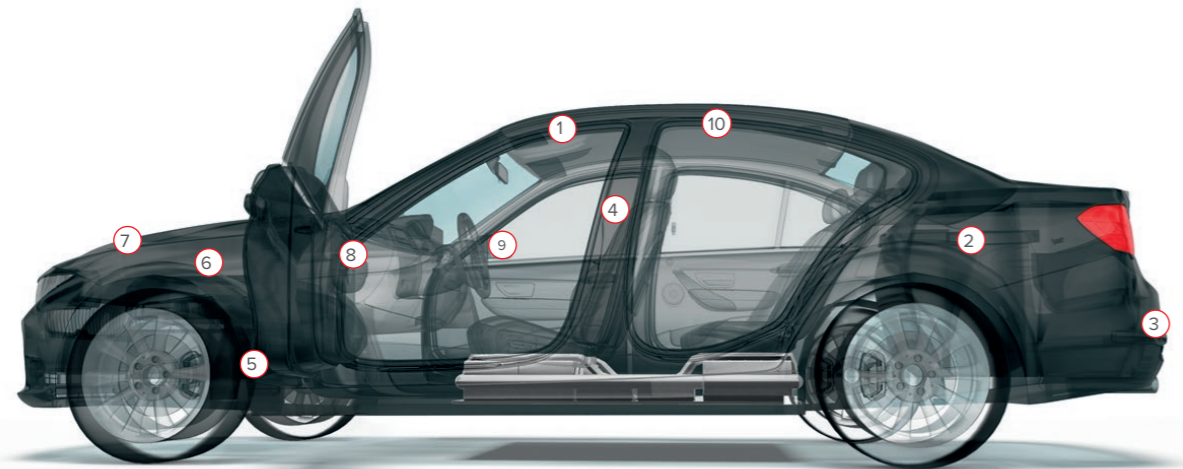
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# OUR LONG - TERM EXPERIENCE IN AUTOMOTIVE APPLICATIONS

Our qualified experience comes with a deep understanding of applications, product values, and service. We run dedicated application solution centers, in which we conduct all critical tests for our tape solutions in your defined application. With our state-of-the-art equipment, we assure you that we follow all necessary test methods to find the best possible solution.



## 1 Masking

A wide range of masking solutions for car body and bumper masking applications to create an accurate and unique look as well as meet all paint and design requirements.



## 6 Wire harnessing

Flexible adhesive tapes for the reliable and efficient bundling of wires in the engine and passenger compartments, also protect against noise, abrasion, and environmental conditions.



## 2 Security labeling

Laser labels combine our deep knowledge in laser marking technologies with expertise in self-adhesive films. Our products come with customer-specific visible or hidden features.



## 7 Surface protection

Superior car protection films that protect brilliant surfaces against dirt and damage during world-wide vehicle transportations. Our tapes are resistant to climatic changes and keep freshly painted clear coats clean.



## 3 Attachment part mounting

tesa® ACX<sup>plus</sup> acrylic foam tapes securely bond exterior components to the car body and, at the same time, provide reliable sealing and vibration damping.



## 8 Interior mounting

Tape solutions suitable for low VOC bonding and lamination as well as prevention of vibration, squeaking, and rattling.



## 4 Hole covering

A variety of sealing solutions for excellent corrosion protection. Our tapes are suitable for the most demanding of applications and can be even more effective than regular plugs.



## 9 Mirror assembling

We have a large assortment of tapes that are suitable for the different steps of mirror assembly: mounting, splintering protection, and surface protection.



## 5 Permanent paint protection

Highly UV-resistant, thin, and nearly invisible paint protection films that protect the vehicle's finish from stone-chip damage and scratches.



## 10 Cable mounting

Our environmentally friendly tapes bond cable harnesses reliably and minimize VOC emissions in vehicle cabins.

## CONTENTS

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# MASKING

The visual appeal of today's paint designs is an essential buying criteria for car drivers. Our comprehensive masking assortment supports OEMs to create an accurate and unique look, while ensuring easy and lean paint shop processes. Take a look at our solutions for precise and perfect paint finishes:

- Fineline tapes
- Roll masker
- Overmasking tapes
- Flange masking
- Paper masking
- Customized dispenser solutions

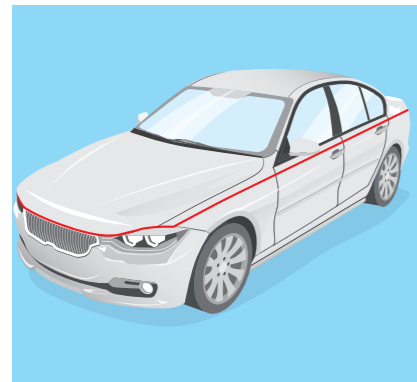


## Flange Masking Product Range

	tesa® 7140 PVO	tesa® 7140 PV3
<b>Technical data</b>		
Key characteristics	Conformable flange masking tape	Highly tear-resistant flange masking tape
Temperature resistance PP-EPDM [°C/1h]	170	170
Backing/color	PVC film/ yellow	PVC film/ yellow
Adhesive	Natural rubber	Natural rubber
Thickness of tape [µm]	168	181
Adhesion to steel [N/cm]	4	4
Tensile strength [N/cm]	73	100
Elongation at break [%]	130	130
Application examples	Flange masking on curved shapes	Flange masking for straight lines

## Fineline Product Range

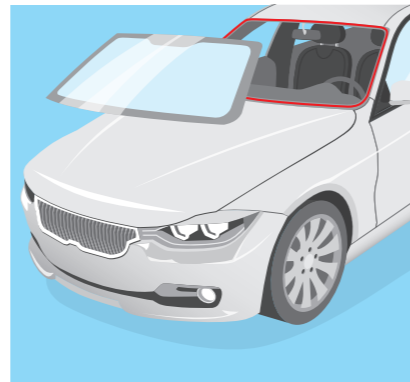
	tesa® 4185	tesa® 50777	tesa® 4174	tesa® 51108	tesa® 4244 PVO	tesa® 4244 PV2	tesa® 4215	tesa® 7133
<b>Technical data</b>								
Key characteristics	Thin, conformable, and yet highly temperature-resistant fineline tape	Highly temperature-resistant fineline tape with an acrylic adhesive	Universal and conformable fineline tape	Thin fineline tape with PET backing	Conformable fineline tape	Conformable fineline tape with strong adhesion	Conformable PVC-free fineline tape	Thin fineline tape with PP backing
Temperature resistance PP-EPDM [°C/1h]	160	160	150	150	140	140	120	120
Backing/color	PVC film/blue	PVC film/blue	PVC film/gray	PET film/gray	PVC film/ yellow	PVC film/ yellow	PE film/green	PP film/blue
Adhesive	Natural rubber	Acrylic	Natural rubber	Natural rubber	Natural rubber	Natural rubber	Natural rubber	Natural rubber
Thickness of tape [µm]	94	132	110	54	110	110	130	80
Adhesion to steel [N/cm]	3.3	2	3.4	3.3	3.7	4.2	2.5	2
Tensile strength [N/cm]	36	30	25	47	27	31	19	133
Elongation at break [%]	270	240	200	120	237	252	350	30
Application examples	Masking for visible paint lines during two-tone car body painting	Two-tone car body masking and flange masking	Two-tone car body and bumper masking	Masking of long straight and fine lines	Masking of curves up to 140°C	Masking of 3D shapes	Masking in narrow curves up to 120°C	Straight line masking up to 120°C



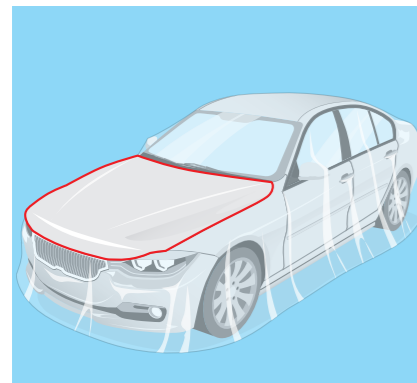
Two-tone fineline masking



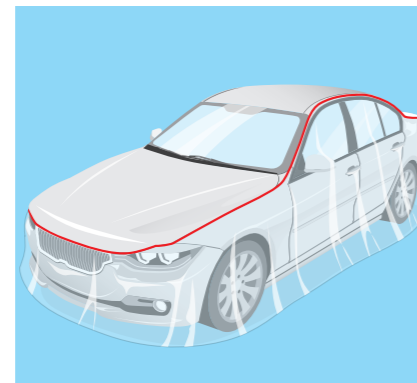
Bumper masking



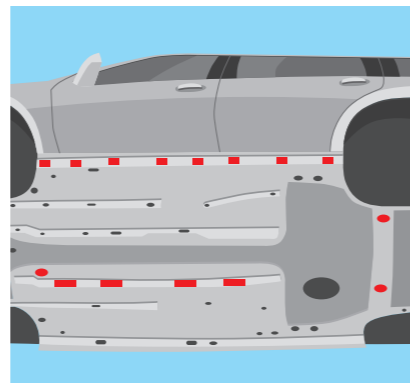
Flange masking



Repair masking



High-temperature car body masking



Temporary sealing

## Dispenser for Masking Application



## Paper Masking Product Range

	tesa® 4318	tesa® 4330	tesa® 4341	tesa® 4309	tesa® 4316	tesa® 4317	tesa® 4322
<b>Technical data</b>							
Key characteristics	Slightly creped masking tape with a high temperature resistance	Conformable and wet-grinding masking tape	Masking tape with excellent adhesion and tearing resistance	Masking tape with high adhesion and tearing resistance	Thin and conformable masking tape	Thin and conformable masking tape	Highly conformable masking tape
Temperature resistance PP-EPDM [°C/1h]	160	140	140	120	100	80	60
Backing/color	Slightly creped paper/ brown	Slightly creped paper/ cream	Slightly creped paper/ brown	Slightly creped paper/ brown	Slightly creped paper/ cream	Slightly creped paper/ cream	Highly creped paper/ yellow
Adhesive	Natural rubber	Natural rubber	Natural rubber	Natural rubber	Natural rubber	Natural rubber	Natural rubber
Thickness of tape [µm]	170	175	190	170	140	140	380
Adhesion to steel [N/cm]	4	4.8	4.7	3.5	3.4	3.3	5
Tensile strength [N/cm]	47	42	53	47	38	38	28
Elongation at break [%]	12	12	13	12	10	10	58
Application examples	High temperature masking up to 160°C	Masking in curves up to 140°C	Masking up to 140°C where a high tear resistance is required	Masking up to 120°C	Masking up to 100°C	Masking in curves up to 80°C	Masking in narrow curves up to 60°C

# SECURITY LABELING



## Product and Security Features

### Product Features



**High-speed laser engraving and cutting** of the desired format in one step ensures maximum production efficiency and a high degree of flexibility in terms of content and dimensions



**High contrast and resolution** ensures that the label is correctly and easily read



**Laser label set:** all labels for one specific car on one sheet ensures that no label is forgotten



**Resistance against thermal, chemical, and physical influences** to survive the entire vehicle lifetime



**Controlled production** and distribution channel for a maximum level of security

### Security Features



**Tamper evidence:** label is destroyed upon tampering; manipulation leaves visible traces; no label transfer possible



**Customized logo design:** material is available with customer-specific logo design with visible and hidden security features



**Customized micro scripting:** hidden customer-specific micro scripting maximizes security



**UV footprint:** proof of label removal by permanent marking of substrates

## Automotive Laser Labels for Warning and Instruction as Well as Security Applications

Depending on the type of application, our laser labels are available in different grades, either for standard warning and instruction content or for demanding security information. Our laser labels combine a high-performance adhesive with a data carrier that is destroyed upon tampering. They comply with the legal (NHTSA, EU, GB) and manufacturer-specific regulations of the automotive industry.

### Laser Label Product Range

	tesa® 6957	tesa® 6940	tesa® 6947	tesa® 6930	tesa® 6937	tesa® 6931	tesa® 6910	tesa® 6926
Technical data								
Category	Rapid	Rapid	Rapid	Standard	Standard	Basic (color change)	Basic (color change)	Glass marking
Max. marking speed [mm/s]	4,000	4,000	4,000	1,000	1,000	1,000	1,000	500
Laser hardware	Nd:YAG CO <sub>2</sub>	Nd:YAG CO <sub>2</sub>	Nd:YAG CO <sub>2</sub>	Nd:YAG CO <sub>2</sub>	Nd:YAG CO <sub>2</sub>	Nd:YAG	Nd:YAG	Yb:YAG
Available colors top layer	Black glossy	Black glossy	Black glossy, black matte	Black glossy, black matte, silver glossy, silver matte	Black glossy, black matte, silver glossy	Transparent white	Transparent white	Black
Backing	Double-layered acrylic	Double-layered acrylic	Double-layered acrylic	Double-layered acrylic	Double-layered acrylic	Acrylic	Polyolefin	Laser-sensitive composites
Tamper evidence	•	•	•	•	•	•		
Customized logo and micro scripting	•		•		•			
UV footprint (on request)	•	•	•	•	•			
High heat resistance	•							
High-speed marking	•	•	•					
Different thicknesses		•	•	•	•			

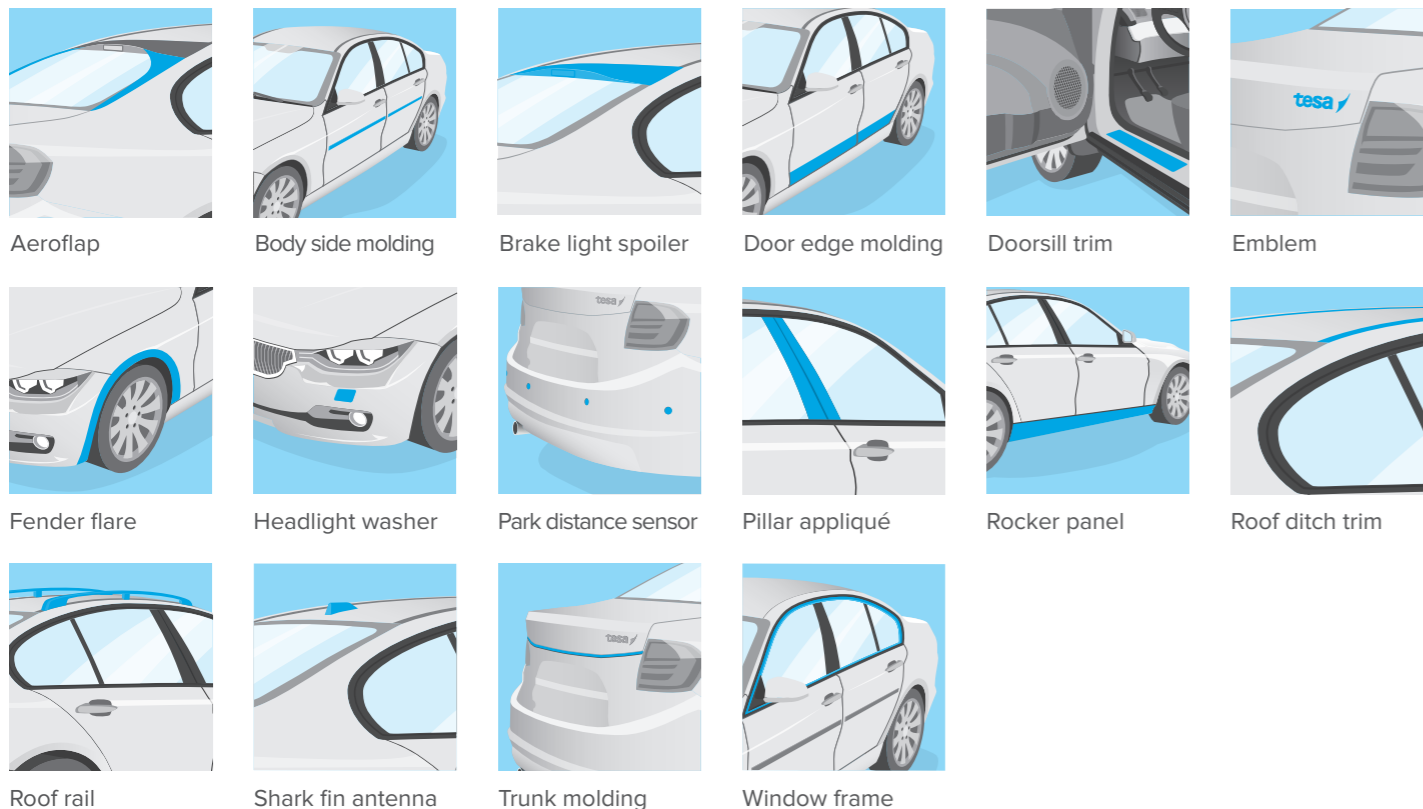
tesa® products prove their impressive quality day in, day out in demanding conditions and are regularly subjected to strict controls. All technical information and data above mentioned are provided to the best of our knowledge on the basis of our practical experience. They shall be considered as average values and are not appropriate for a specification. Therefore tesa SE can make no warranties, express or implied, including, but not limited to any implied warranty of merchantability or fitness for a particular purpose. The user is responsible for determining whether the tesa® product is fit for a particular purpose and suitable for the user's method of application. If you are in any doubt, our technical support staff will be glad to support you.

# ATTACHMENT PART MOUNTING

## Attachment Part Mounting with tesa® ACX<sup>plus</sup> for the Automotive Industry

Constructive bonding of attachment parts to car bodies can be very challenging as traditional mechanical fasteners like rivets, welds, and screws may not be suitable for dissimilar materials such as glass, metal, and plastics. Adhesive tapes permanently and gently join materials without causing damage.

tesa® ACX<sup>plus</sup> is a new category of double-sided tapes for constructive bonding and is our highest performing product line. tesa® ACX<sup>plus</sup> was especially developed for applications in the automotive industry to securely bond exterior attachment parts to the car body.



Aeroflap    Body side molding    Brake light spoiler    Door edge molding    Doorsill trim    Emblem

Fender flare    Headlight washer    Park distance sensor    Pillar appliqué    Rocker panel    Roof ditch trim

Roof rail    Shark fin antenna    Trunk molding    Window frame

## Features and Benefits of Using tesa® ACX<sup>plus</sup>



## Attachment Part Mounting Product Range

	Thickness of tape [µm]	Adhesive	Color	Backing	90° peel adhesion					Cold shock performance		Dynamic shear resistance	
					Steel	ABS	PP/EPDM primed with tesa® 60153	Clear coat*	Clear coat* after 40°C	Clear coat*	Clear coat*	Steel after climatic cycle 9 days [N/cm <sup>2</sup> ]	Steel after 90°C aging 500h [N/cm <sup>2</sup> ]
					RT 3 days [N/cm]	RT 3 days [N/cm]	RT 3 days [N/cm]	RT 3 days [N/cm]	100% r.h. 7 days [N/cm]	-30°C RT 24h [N/cm <sup>2</sup> ]			
tesa® 7805	500	Modified acrylic	Deep black	Acrylic foam	21	18	60	25	32	Excellent	90	92	155
tesa® 7808	800	Modified acrylic	Deep black	Acrylic foam	26	22	80	27	33	Excellent	83	91	170
tesa® 7811	1100	Modified acrylic	Deep black	Acrylic foam	32	24	90	30	36	Excellent	80	77	160
tesa® 7812	1200	Modified acrylic	Deep black	Acrylic foam	32	24	90	30	36	Excellent	80	77	150
tesa® 7815	1500	Modified acrylic	Deep black	Acrylic foam	35	28	100	31	37	Excellent	78	70	145
tesa® 77108	800	Modified acrylic	Black	Soft acrylic foam	27	25	72	23	37	Very good	97	207	282
tesa® 77112	1200	Modified acrylic	Black	Soft acrylic foam	28	26	73	25	46	Very good	70	192	262
tesa® 77115	1500	Modified acrylic	Black	Soft acrylic foam	34	30	70	28	48	Very good	78	189	259

\* tesa standard clear coat

## We Offer an Entire Assortment :

tesa® ACX<sup>plus</sup> helps customers to optimize self-adhesive bonding and application processes. We offer worldwide support including laboratory testing and expert advice regarding application and dispensing tools.



## Adhesion Promoters

	Surface	Drying	UV traceability	Application time	Toluene content
tesa® 60151	Glass	Min. 30 sec. **	No	5 min	None
tesa® 60152	PU, PVC	Min. 2 min. **	Yes	Several days ***	None
tesa® 60153	PP/EPM	Min. 30 sec. **	Yes	Several days ***	None

\*\* Solvent has to be flashed off  
\*\*\* Surface has to stay free of dust

## Tabbing Tapes

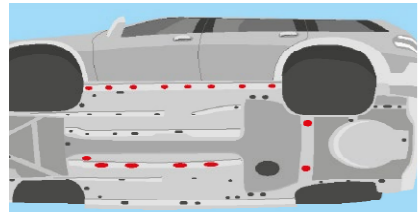
	For product	Thickness [µm]	Adhesive	Backing	Tensile strength [N/cm]	Elongation at break [%]
Adhesive tabbing tapes						
tesa® 54999	78XX PV29	150	Silicone	PET	> 100	> 75
tesa® 54988	771XX PV28	200	Synthetic rubber	PET	> 100	> 75
Heat tabbing film						
tesa® 50999	PV28 and PV29	150	LDPE	PET	40	> 75

# HOLE COVERING



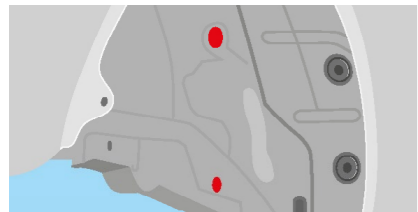
## Save your Thumbs

We have developed a variety of alternatives to rubber or plastic plugs to fit any application. Let's demonstrate how our hole covering products can provide solutions to your most demanding applications, even where regular plugs might not be effective. Here are some examples:



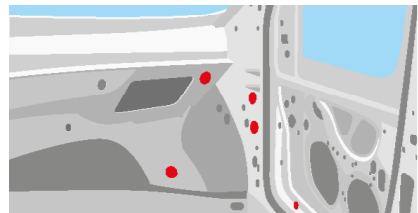
### Process advantages through die-cuts

tesa® 54338 and tesa® 54339 are well suited to applications featuring larger openings and holes, especially where puncture resistance is required. Their rigid nature makes them easy to handle and their transparency allows operators to do visual checks even after the hole has been closed.



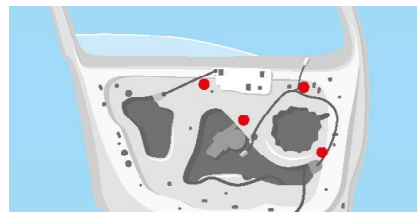
### Easy application

tesa® 54657 can easily conform to complex surfaces or difficult-to-reach application areas where plugs are just not effective. Our cloth tapes are equipped with rubber-based adhesives which have a very high-strength bond to a variety of substrates.



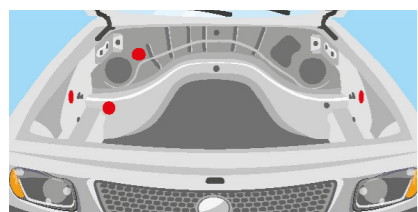
### Acoustic insulation

Primary applications for tesa® 54715 include hole cover applications that require excellent noise damping as well as sealing against humidity. The excellent acoustic-damping performance achieved is comparable with a closed metal car body. An added benefit is the ability to be applied both pre-and post-paint cycle.



### Air-tight and noise sealing

tesa® 54337 is a good sound damper in addition to having the ability to seal off holes from water and dust. Therefore, it is often used in hole covering applications that require flexibility and insulative properties.



### Various solutions for exterior and interior

For a lightweight alternative to rubber and plastic hole plugs, tesa® 54336 is your solution. tesa® 54336 is ideal for use on holes where excellent sealing properties in combination with good temperature resistance are application requirements.

## Our Hole Covering Product Range

	tesa® 54702 PV0	tesa® 54705 PV2	tesa® 54705 PV6	tesa® 54705 PV7	tesa® 54337 PV1	tesa® 54336	tesa® 54338	tesa® 54339	tesa® 54657	tesa® 54651
Thickness of tape [µm]	910	1400	1200	1200	450	450	95	260	290	310
Backing	Mineral-filled PO	Mineral-filled PO	PET/Mineral-filled PO	Mineral-filled PO	PVC	PET	PET	PET	Cotton cloth	Rayon cloth
Adhesive	Modified acrylic	Modified acrylic	Modified acrylic	Modified acrylic	Modified acrylic	Modified acrylic	Modified acrylic	Modified acrylic	Thermosetting rubber	Natural rubber
Color	Anthracite	Anthracite	Anthracite	Anthracite	Black	Black	Transparent	Transparent	Grey	Black
Adhesion to steel [N/cm]	6	6	6	6	8	19	4	7	6	4
Puncture resistance [N]	170	180	570	110	470	440	730	730	350	300
Temperature resistance [30 min/°C]	80	80	160	80	110	190	160	180	180	130
UBC/Paint compatibility			Yes			Yes	Yes	Yes	Yes	Yes
Corrosion protection (water & dust sealing)	•••	•••	•••	•••	••••	••••	••••	••••	••	•
Acoustic damping	•••	•••	•••	•••	••	••	•	•	•	•
Conform to complex surfaces	•	•	•	•	••	•••	••	•	••••	••••

•••• Excellent ••• Very good •• Good • Appropriate

## Dispenser/Offering



### Hand Dispenser

The specially designed applicators are an ergonomic process aid for fast and convenient application on flat areas. The device is comparably small so that the workers can carry it in their pockets.



### Target printing

Target printing ensures a secure and precise assembly of the die-cut. One die-cut dimension can be used for different hole diameters as the target printing shows the recommended hole size.



### Automatic Dispenser

A full range of customized dispensers help to make the assembly process as easy as possible. The parts can be picked up easily piece by piece and the time spent removing the die-cuts from the liner can be reduced.



### Family sheet

A family sheet combines different die-cut dimensions and shapes from one material in one sheet. It speeds up the visual quality check to ensure that all holes are closed.



# SURFACE PROTECTION

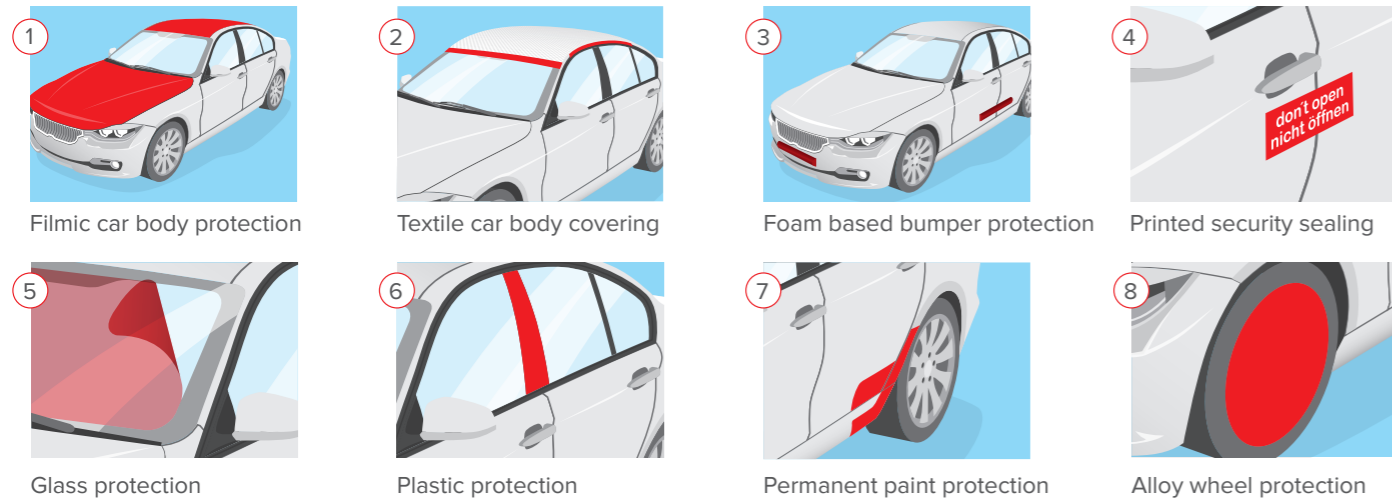
## First Customer Impressions Matter

The clear coats and plastic or metal parts of brand new cars are only perceived as high quality if they are clean and not damaged. Our surface protection range provides self-adhesive tape solutions for safe global vehicle transportation. Regardless of road, rail or sea-we preserve your value!



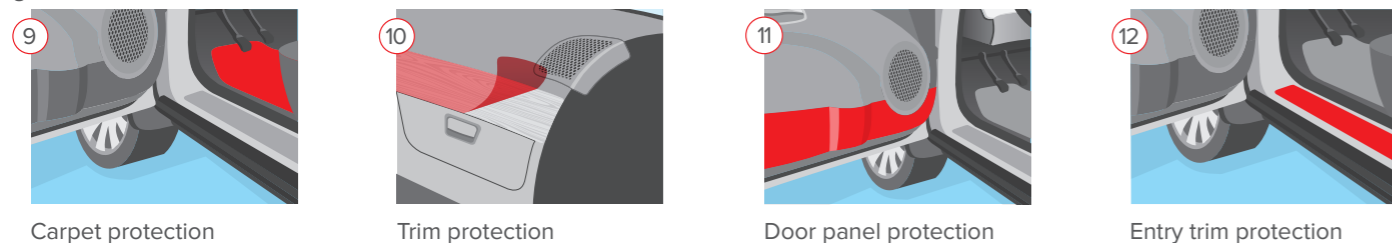
## Exterior Surface Protection

In a globalized world, protection films, pads, and car covers reduce the risk of damage in OEM logistics processes. These superior protection tapes result in less damage and meet the high expectations of car dealers around the globe. Our application solutions provide resistance against climatic influences and keep freshly painted clear coats clean.



## Interior Surface Protection

Automotive plant operations require safe assembly line processes. Interior surface protection tapes prevent scratches on sensitive substrates. Our tape solutions resist mechanical impacts on different surface energy profiles and geometries.



## Exterior Surface Protection

	Bodyguard		Hood fixation			Edge securing	Wheelguard	Bumperfilm	Assembly-guard	Glassguard
	tesa® 50530	tesa® 50535	tesa® 50410	tesa® 50450	tesa® 50460	tesa® 50533	tesa® 50551	tesa® 50560	tesa® 50540	tesa® 50550
Technical data										
Key characteristics	Premium grade for freshly painted surfaces for long-term outdoor exposure	Economy grade for freshly painted surfaces for long-term outdoor exposure	Single-sided tape for mounting textile-based car covers to glass windshields	Single-sided tape for mounting textile-based car covers to various clear coats	Double-sided tape for mounting textile-based car covers to various clear coats	High-adhesion edge-securing tape for freshly painted surfaces	Transparent wheel rim protection for long-term outdoor exposure	Economy grade for painted and unpainted plastic components for long-term outdoor exposure	Impact-resistant tape for freshly painted surfaces during assembly process (indoor)	Designed to protect sensitive surfaces such as glass
Backing	PE/PP	PE/PP	PP/PET	PP	PP	PE/PP	PE	PE/PP	PE/PP	PP
Color	White	White	Transparent	White	White	White	Transparent	White	Blue translucent	Transparent
Adhesive	EVA	EVA	Acrylic	PIB	PIB/hot-melt adhesive	Tackified EVA	Acrylic	Synthetic rubber	EVA	EVA
Thickness of tape [µm]	79	60	140	110	205	96	70	52	4200	72
Adhesion to steel [N/cm]	0.9	0.6	2.8	5.1	5.1/9.1	3.0	1.2	2.0	0.5	0.15
Outdoor resistance	12 months	12 months	12 months	12 months	12 months	9 months	8 months	12 months	Not applicable	9 months

## Interior Surface Protection Product Range

	tesa® 4848 PV1	tesa® 51132	tesa® 51134	tesa® 51136 PV0	tesa® 51136 PV2	tesa® 7133	tesa® 4289
Technical data							
Backing	PE	PE	PE	PE	PE	PP	MOPP
Color	Transparent	Transparent	Transparent	Green translucent	Green translucent	Blue	Yellow
Adhesive	Acrylic	Acrylic	Acrylic	Acrylic	Acrylic	Natural rubber	Natural rubber
Thickness of tape [µm]	48	85	84	105	110	80	150
Adhesion to steel [N/cm]	0.8	2.8	2.4	2.4	2.6	2.0	5.5
Rating material compatibility							
Painted surfaces	●	●	●	●	●	●●	●
Eloxal	●●●	○	○	○	○	●●	●
Glass	●●	○	●	○	○	●●●	●
High-surface-energy plastic parts	Glossy	●	○	●	●	●●	●
	Rough	●●	●●	●●	●●	●●	●●
Low-surface-energy plastic parts	Glossy	●●	●●	●●	●●	●●	●●
	Rough	●	●●●	●	●	●●	●●
Textile	●	●●	●	●	●	●●	●●

●●● Excellent ●● Good ● Appropriate ○ Not appropriate



Great tools for automatization and manual application

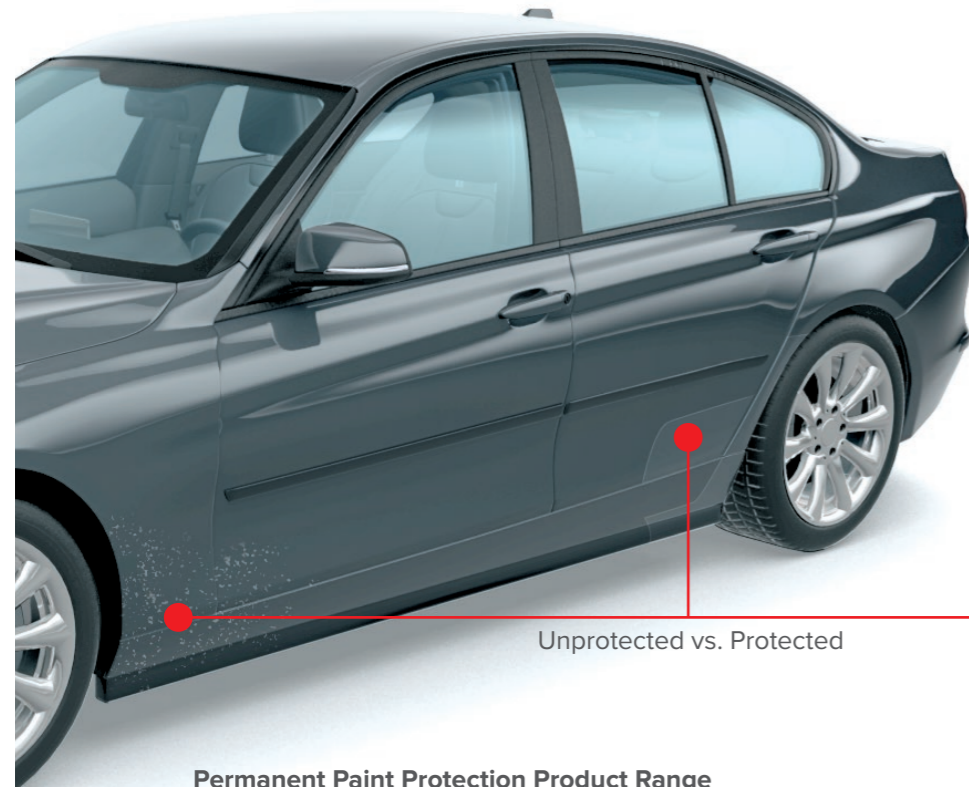
Even small adjustments in production can have a great impact on quality. Automatic unwinding dispensers, cardy cuts, and squeegees are part of our complementary product range and help line workers to enjoy workability-for or better quality in operations.

# PERMANENT PAINT PROTECTION

When It Comes to Protecting the Vehicle's Paint You'll be Glad tesa Does the Job

Depending on the car design, there are certain areas that are highly vulnerable to mechanical damage (paint chips), scratches, staining, and more. A well-protected paint does not only provide visual advantages, it provides your customers clear added value for their vehicle. An intact surface is protected against. This leads to a significant reduction in repair and maintenance costs.

There is a simple, highly effective way for you to keep your customer's new vehicle in as good a condition as possible, Our paint protection film is the best way to preserve the showroom-quality finish on your vehicle as it significantly reduces paint chips and more.

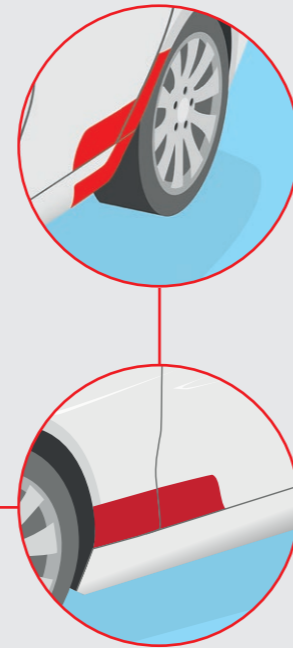


Unprotected vs. Protected

## Permanent Paint Protection Product Range

	tesa® 54994 PV0	tesa® 54994 PV3	tesa® 54995 PV0	tesa® 54995 PV4
Backing	Aliphatic PUR	Aliphatic PUR	Aliphatic PUR	Aliphatic PUR
Top coat*			•	•
Color	Highly transparent	Highly transparent	Highly transparent	Highly transparent
Adhesive	Acrylic	Acrylic	Acrylic	Acrylic
Thickness of tape [µm]	260	360	280	335
Adhesion to steel [N/cm]	8.7	8.9	15	15
Temperature resistance [°C]	90	90	90	90

\*Provides paint-like gloss finish and reduces staining, mold, and bacteria growth.



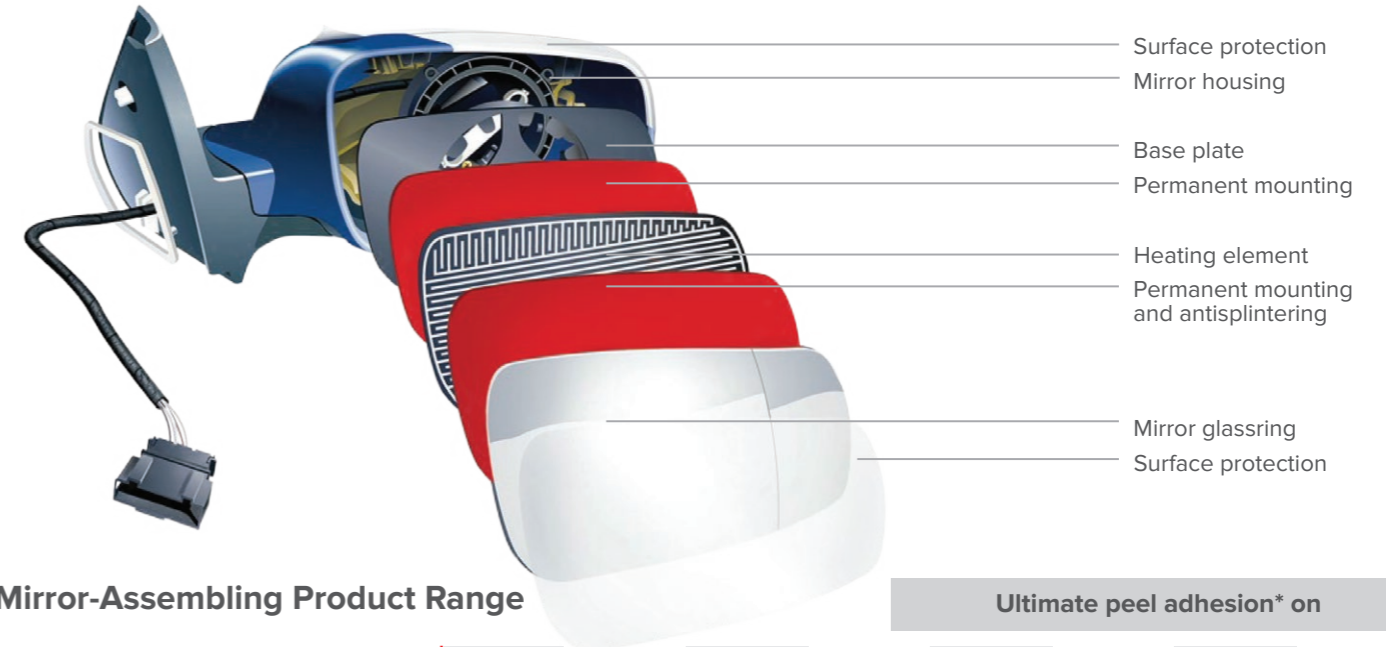
Anywhere you want to protect the vehicle's finish from paint chips, scratches, and other damaging elements without detracting from the vehicles appearance.

- Wheel arch and fender
- Door edge
- Rocker panel
- Rear bumper
- Painted plastic parts

# MIRROR ASSEMBLING

Our Professional Tape Solutions for Safe Driving

Our success of automotive mirror assembling goes back traditional clipping attachment method with double-sided tapes. Compared with clipping, tape solution offer a lot of advantages, such as weight reduction, secured component mounting, splintering protection, more design flexibility, and gap filling.

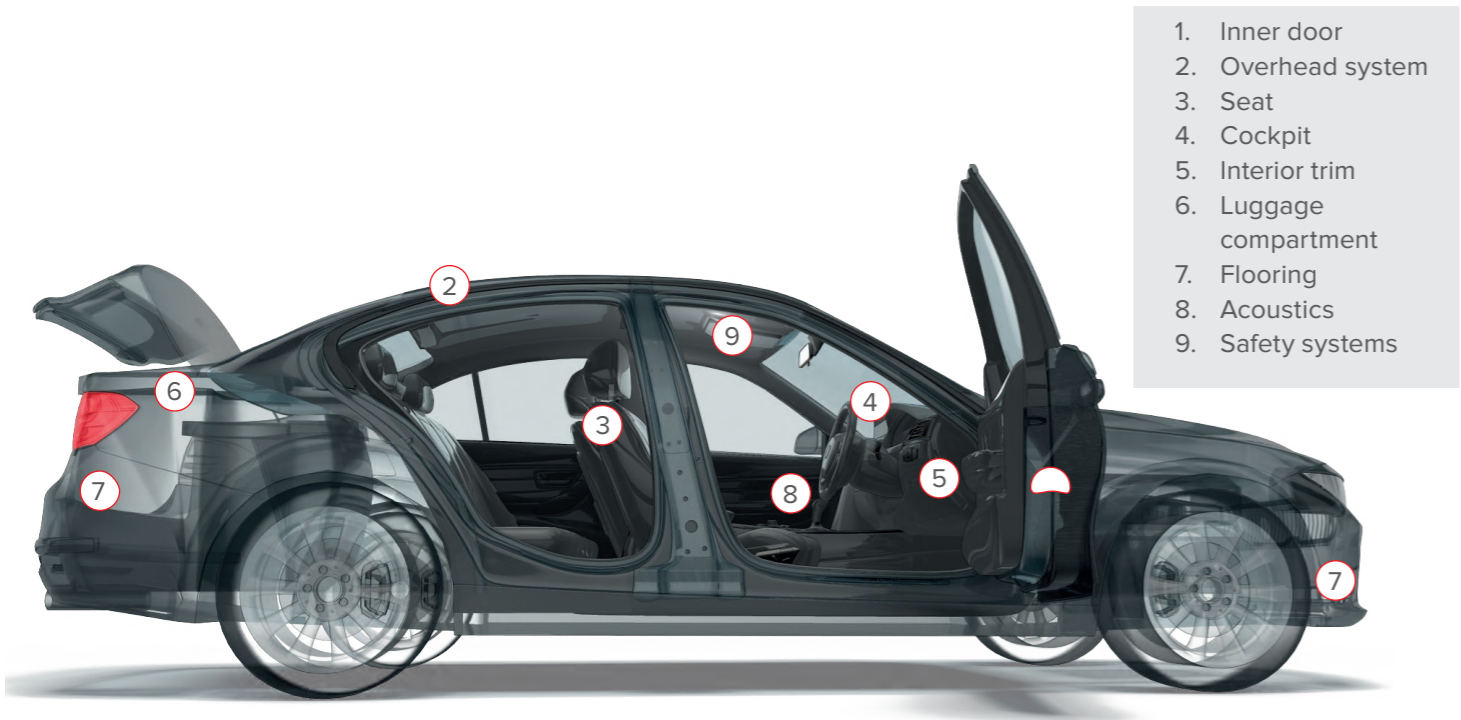


## Mirror-Assembling Product Range

		Adhesive	Backing	Color	Thickness of tape [µm]	Ultimate peel adhesion* on			
						Steel [N/cm]	ABS [N/cm]	PC [N/cm]	PET [N/cm]
Mounting and splintering protection tapes									
Foam tapes	tesa® 62904	Tackified acrylic	PE foam	Black	400	21.0**	21.0**	21.0**	21.0**
	tesa® 66108	Tackified acrylic	PE foam	Black	800	10.0**	10.0**	10.0**	10.0**
	tesa® 62510	Tackified acrylic	PE foam	Black White	1000	13.5**	13.5**	13.5**	13.5**
Filmic tapes	tesa® ACX <sup>plus</sup> 7815	Modified acrylic	Foamed acrylic	Black	1500	40.0	32.0	40.0	14.0
	tesa® 51980	Tackified acrylic	Foamed PET	Black	80	9.7	8.0	9.4	7.7
	tesa® 51965	Tackified acrylic	Foamed PET	Black	205	14.0	11.9	13.4	11.9
Optically clear adhesive	tesa® 64993	Tackified acrylic	PP	White	240	13.0	12.0	13.0	10.0
	tesa® 69607	Pure acrylic	None	Transparent	175	N/a	N/a	18.4	10.9
	tesa® 69402	Pure acrylic	None	Transparent	50	N/a	N/a	7.2	5.3
Splintering protection tapes									
	tesa® 4432	Natural rubber	Paper	Beige	330	8.0	No relevant for the application		
Temporary protection tapes									
	tesa® 50560	Synthetic rubber	PE/PP	White	52	No relevant for the application			
	tesa® 50550	EVA	PP	Crystal clear	72	No relevant for the application			

\* peel angle 90° foam tape/ 180° all other tapes \*\* foam splitting

# INTERIOR MOUNTING



1. Inner door
2. Overhead system
3. Seat
4. Cockpit
5. Interior trim
6. Luggage compartment
7. Flooring
8. Acoustics
9. Safety systems

## Automotive Interior Competence

As a leading global supplier of adhesive solutions, we are a reliable partner in the automotive interior market and have a comprehensive understanding of indoor mounting applications.

This is essential when working with mounting applications on innovative low surface energy (LSE) and recycled material, and for compliance with low-VOC standards set by governments.

Our assortment is ideal for laminating parts with difficult wet-out areas. The tapes also secure substrates around edges and reduce the risk of repulsion, especially after attachment if there is a permanent low load.

Light, rigid, and rough parts can be attached immediately and securely in both vertical and horizontal positions when applied with our tapes.

### Your needs match...

Application requirements		Our offer	
Materials	Surfaces	Tape characteristics	Tape benefits
<ul style="list-style-type: none"> <li>• Plastics</li> <li>• Composites</li> <li>• Metals</li> <li>• Natural fabrics</li> <li>• Artificial fabrics</li> <li>• Knitted fabrics</li> <li>• Recycled materials</li> </ul>	<ul style="list-style-type: none"> <li>• LSE or polar</li> <li>• Smooth or rough</li> <li>• Even or uneven</li> <li>• Coated or colored</li> </ul>	<ul style="list-style-type: none"> <li>• Adhesive formulation</li> <li>• Backing system</li> <li>• Tape thickness</li> </ul>	<ul style="list-style-type: none"> <li>• Low VOC</li> <li>• Conformability</li> <li>• Convertibility</li> <li>• Reworkability</li> <li>• Anti-repulsion</li> <li>• Temperature resistance</li> </ul>

Product	Category	Thickness	Adhesive	Immediate adhesion to rough surfaces	PA polar plastics (ABS)	PA non-polar plastics (PP)
66022	ULTRA LOW VOC	220	Acrylic dispersion	....	....	....
66013	ULTRA LOW VOC	130	Acrylic dispersion	....	....	...
66007	ULTRA LOW VOC	75	Acrylic dispersion	....	....	..
75013	LOW VOC	130	Tackified acrylic	....	....	..
75007	LOW VOC	75	Tackified acrylic	....	...	.
52110	ULTRA LOW VOC	100	Tackified acrylic	...	...	..
52105	ULTRA LOW VOC	50	Tackified acrylic	...	...	.
4985		50	Tackified acrylic	...	..	.
4914	LOW VOC	250	Tackified acrylic	...	..	..
4962	LOW VOC	160	Tackified acrylic	...	....	...
51571		160	Synthetic rubber	...	....	....
52215	ULTRA LOW VOC	150	Tackified acrylic	...	...	..
68646		140	Tackified acrylic	...	...	..
4987		125	Tackified acrylic	..	...	..
68625		120	Tackified acrylic	...	...	..
4959	LOW VOC	100	Tackified acrylic	..	..	..
4943 (EUR/US) 68614 (CN)		100	Tackified acrylic	..	..	..
52210	ULTRA LOW VOC	100	Tackified acrylic	...	...	..
4970	LOW VOC	225	Tackified acrylic	...	....	...
51970	LOW VOC	220	Tackified acrylic	...	....	...
4965	LOW VOC	205	Tackified acrylic	..	...	...
51966	LOW VOC	200	Tackified acrylic	...	...	...
4967	LOW VOC	160	Tackified acrylic	..	...	..
4928		125	Tackified acrylic	...	...	..
4954		430	Natural rubber	....	..	..
4964		390	Natural rubber	....	..	...
4934		200	Synthetic rubber	....	...	....
62508		800	Tackified acrylic	..	...	.
62906		600	Tackified acrylic	..	..	..

tesa® products prove their impressive quality day in, day out in demanding conditions and are regularly subjected to strict controls. All technical information and data above mentioned are provided to the best of our knowledge on the basis of our practical experience. They shall be considered as average values and are not appropriate for a specification. Therefore tesa SE can make no warranties, express or implied, including, but not limited to any implied warranty of merchantability or fitness for a particular purpose. The user is responsible for determining whether the tesa® product is fit for a particular purpose and suitable for the user's method of application. If you are in any doubt, our technical support staff will be glad to support you.

# CABLE MOUNTING

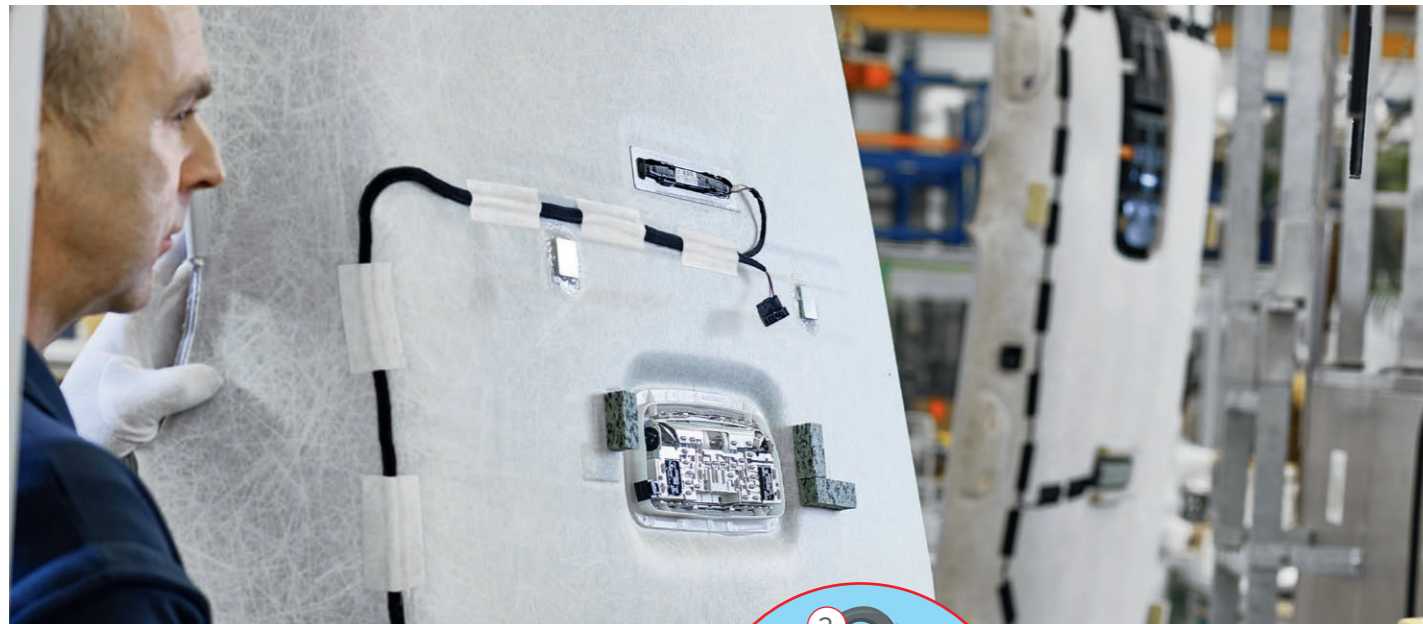
## Purpose and Benefits of Our Cable Mounting Solutions

For greater driver convenience, more electronic devices are integrated into the vehicle environment. This leads to more and thicker cable harnesses in the car in several components.

Based on our vast experience, we provide for fast, secure, and the long-lasting mounting of cables with a specially developed assortment of low-VOC tape for better air quality inside vehicles.

Cable mounting is an elaborate undertaking. Different types of cable harnesses need to bond to various substrates, from headliner material to plastic parts and the car body.

Our comprehensive tape assortment offers high peel and shear resistance in combination with a high initial tack. This ensures a reliable bond of the cable harness from the very beginning.



- 1 Very strong and reliable mounting, e.g. on headliners-both when strips are applied across or along the cable harness.
- 2 Even heavy connectors are kept right in place under harsh application conditions.

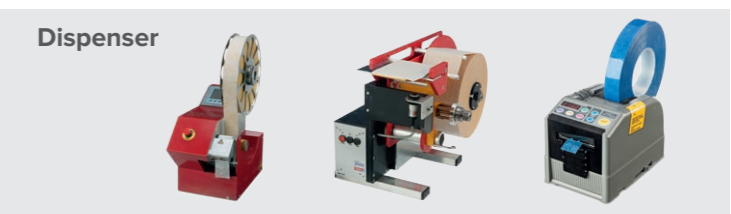
## Cable Mounting Product Range

Our product assortment is designed to perform on several components and various surfaces. Further benefits of cable mounting system solutions include:

- Permanent bond during vertical storage and transportation
- High peel adhesion, shear resistance, and initial tack
- Fast mounting processes
- No maintenance or investment costs
- Low adverse health effects
- Low VOC for better air quality inside vehicles
- Weight reduction as compared to other bonding technologies
- Noise-damping properties

	Single-sided			
	tesa® 50118 PV0	tesa® 50118 PV1	tesa® 50118 PV2	tesa® 50204
Thickness μm	570	540	540	180
Backing	White fleece	White/black fleece	White fleece	Blue filmic
Adhesive	Water-based acrylic	Water-based acrylic	Tackified acrylic	Tackified acrylic
Temperature resistance [°C]	160	160	200	200
Conformability	..	....	....	..
Vibration and acoustic damping	...	...	...	.
Initial peel (material performance)	Headliner PET fleece or crepe paper			
	...	....	....	....
Static peel (transport simulation)	Difficult headliner (PET/PP fleece)**			
	..	...	....	...
U-static shear (cable repulsion)	Headliner PET fleece or crepe paper			
	...	....	....	....
	Difficult headliner (PET/PP fleece)**			
	..	...	....	...

	Double-sided
tesa® 4914	LOW VOC
Thickness [μm]	200
Backing	Non-woven
Adhesive	Tackified acrylic



The low-VOC data is obtained by a certified third party laboratory and should be considered representative. Please refer to the OEM's individual target values.



According to the VDA278 analysis, our cable mounting tapes do not contain any single substances restricted by the GB regulation (China), the indoor concentration guideline by JAMA (Japanese Automobile Manufacturers Association), or the Japanese Ministry of Health, Labor, and Welfare (MHLW).



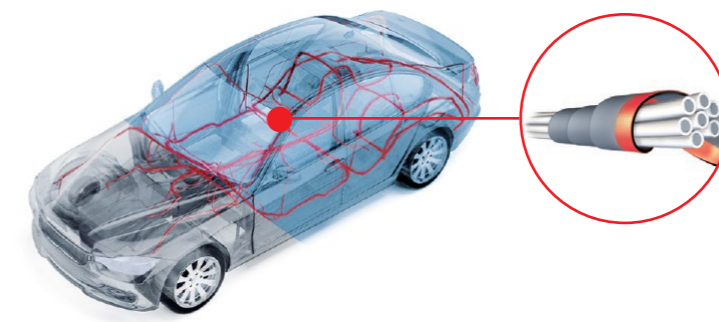
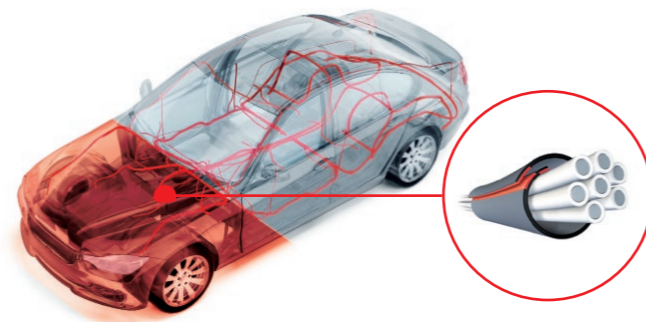
For optimal consideration of low total VOC load, we provide an exclusive product range. Our ultra-low VOC portfolio shows, in addition, excellence in total VOC concentration.

\*\* tesa definition: peel adhesion after 20 minutes < 2.1 N/cm and very low "static peel resistance"

- Adequate
- Good
- Very good
- Excellent

# WIRE HARNESSING

We offer an extensive range of wire harnessing tape solutions made of **cloth, fleece, and filmic** backings combined with high-quality adhesives. Harness coverings need to securely bundle harnesses and withstand demanding temperatures and environmental conditions. Products for the engine compartment have to be highly resistant to abrasion, while in the passenger compartment, tapes are applied to reduce noises. All tesa Sleeve® solutions ensure **maximum harness flexibility** and allow for **easy and efficient installation** in the car body.



## Engine Compartment Product Range

		Product	Backing	Temperature resistance [°C/3,000 h]	Noise damping	Abrasion resistance 5 mm/10 mm mandrel	Total thickness [µm]
<b>Abrasion protection</b>							
Medium	Enhanced flexibility	tesa Sleeve® 51036 PV9*	PET cloth	150	A	B/C	220
		tesa Sleeve® 51026 PV9	PET cloth	150	A	B/C	220
High		tesa triple A® 51036*	PET cloth	150	A	D/D	260
		tesa® 51026	PET cloth	150	A	D/D	260
		tesa® 51006	PET cloth	150	A	B/C	
	Enhanced flexibility	tesa Supersleeve® 51036 PV7	PET cloth	150	B	D/E	485
		tesa Supersleeve® 51036 PV6*	PET cloth	150	B	D/E	530
		tesa Supersleeve® 51026 PV6	PET cloth	150	B	D/E	530
		tesa® Spiralsleeve 51026 PV5	PET cloth	150	B	D/E	530
<b>Noise damping</b>							
Medium		tesa® 51628	PET fleece	125	C	A/B	270
<b>Basic bundling</b>							
Low tensile strength		tesa® 62309	Halogen-free PE film	125	A	A/A	95
High tensile strength		tesa® 51025 PV10	PET cloth	125	A	A/B	160
<b>Heat reflection</b>							
High		tesa® 68000 PV1	Aluminium-laminated glass cloth	150 (232°C/168 h)	B	A/A	210
	Enhanced flexibility	tesa® 68000 PV17	Aluminium-laminated glass cloth	150 (232°C/168 h)	C	A/A	450

\* available in black or orange

## LV312 Classification

Noise damping	Class	A	B	C	D	E
	Requirement dB (A)		0 to ≤2	>2 to ≤5	>5 to ≤10	>10 to ≤15

Abrasion resistance	Class	A	B	C	D	E
	Resistance	no	little	medium	high	very high
	Number of strokes	<100	100-499	500-999	1000-4999	≥5000

## Passenger Compartment Product Range

		Product	Backing	Temperature resistance [°C/3,000 h]	Noise damping	Abrasion resistance 5 mm/10 mm mandrel	Total thickness [µm]
<b>Noise damping</b>							
Medium		tesa® 51608/51609**	PET fleece	105	C	A/B	280
		tesa® 51618/51619**	PET fleece	105	C	A/B	250
		tesa® 51628	PET fleece	125	C	A/B	270
	Enhanced flexibility	tesa Sleeve® 51608 PV9	PET fleece	105	C	A/A	210
		tesa Sleeve® 51608 PV8	PET fleece	105	C	A/A	210
High		tesa® 51616	PET fleece	105	D	C/D	650
		tesa® 51606	PET fleece	105	D	D/D	800
		tesa® 51626	PA velour	105	E	D/E	1,000
	Enhanced flexibility	tesa Supersleeve® 51608 PV6	PET fleece	105	D	B/B	560
		tesa® Spiralsleeve 51618 PV5	PET fleece	105	D	B/B	580
<b>Abrasion protection</b>							
Medium	Enhanced flexibility	tesa Sleeve® 51036 PV9*	PET cloth	150	A	B/C	220
		tesa Sleeve® 51026 PV9	PET cloth	150	A	B/C	220
High		tesa triple A® 51036*	PET cloth	150	A	D/D	260
		tesa® 51026	PET cloth	150	A	D/D	260
		tesa® 51032	PET cloth	105	A	B/D	260
	Enhanced flexibility	tesa Supersleeve® 51036 PV7	PET cloth	150	B	D/E	485
		tesa Supersleeve® 51036 PV6*	PET cloth	150	B	D/E	530
		tesa Supersleeve® 51026 PV6	PET cloth	150	B	D/E	530
		tesa® Spiralsleeve 51026 PV5	PET cloth	150	B	D/E	530
<b>Basic bundling</b>							
Low tensile strength		tesa® 4182 PV2	PVC film	105	A	A/A	104
		tesa® 4173 PV2	PVC film	105	A	A/A	126
		tesa® 62309	Halogen-free PE film	125	A	A/A	95
High tensile strength		tesa® 51025 PV10	PET cloth	125	A	A/B	160

\* available in black or orange  
\*\* for automated applicators

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# tesa AUTOMOTIVE

Your Partner for the Automotive Industry

