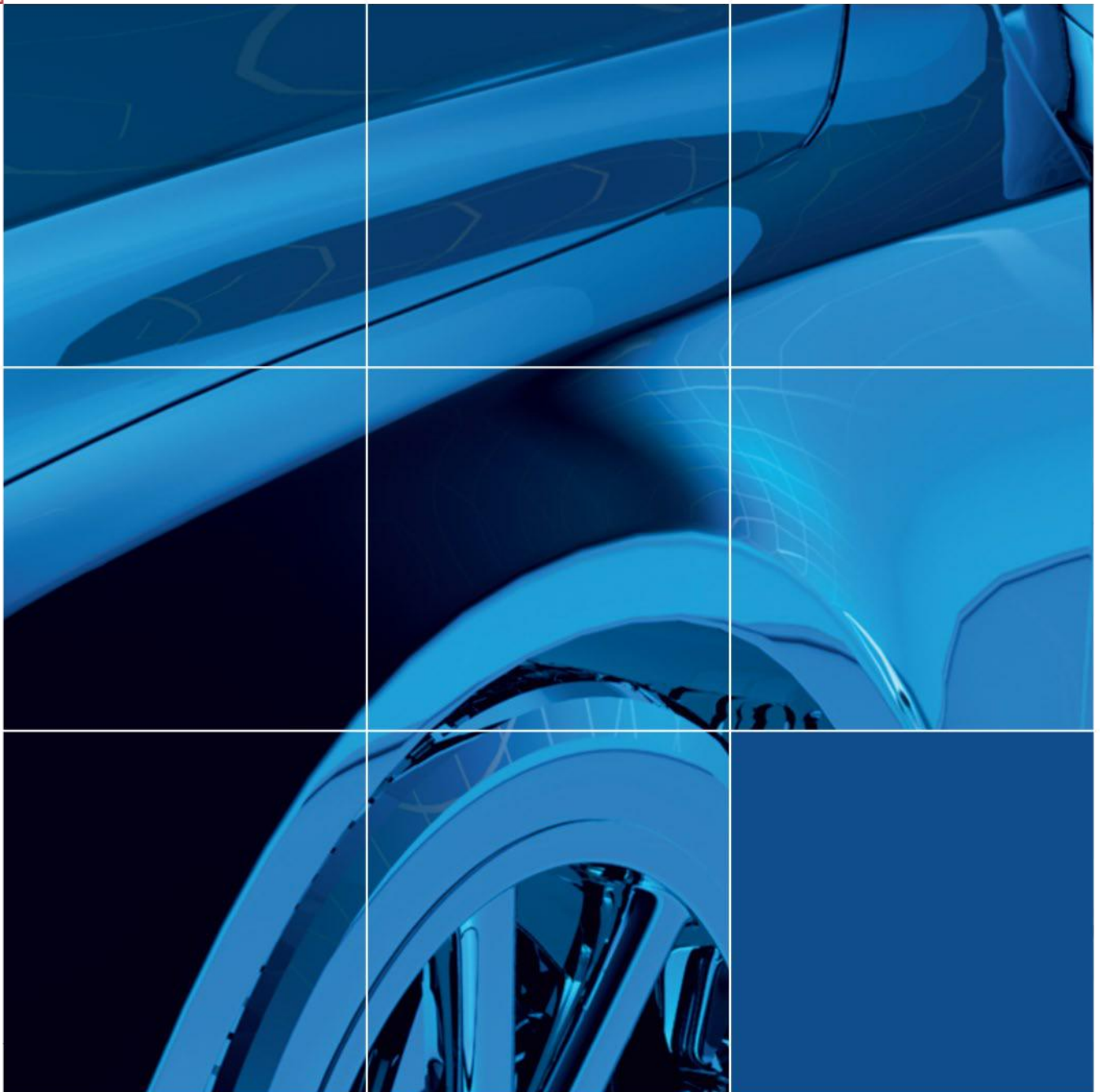


Tradition, passion and conviction: Adhesive tape technologies of the 21st century



Tape technology for the automotive industry
OVERVIEW



Adhesive tape technologies conquer the 21st century.

The spirit of our 75 years of experience is what makes us so certain. And the predictions of some well-known institutions confirm it: Adhesive bonding is one of the 21st century's key technologies, increasingly replacing traditional joining techniques such as welding, soldering or bolting, as it saves time, weight and costs.



Ingenuity is the glue that holds tesa Automotive together.

As early as in the 1930s, the entrepreneur Hugo Kirchberg laid the foundation for a story full of innovation. He had the right instinct, not only by choosing the name "tesa". Feeling confident about the limitless capabilities of adhesive tape technology, in 1936 he wrote to the technical departments of automobile manufacturers to recommend masking tapes for spray painting processes. His idea impressed – and the success story took its course.

Learning by experience –becoming more innovative!

For the past 75 years, tesa Automotive has been a creative pioneer and constant generator of ideas for the automotive and supplier industry. As part of the Beiersdorf group, the company benefits from over 100 years of experience in coating technology and the development of adhesives. The result is a constant stream of technological and service innovations. Already in 1948, the company decided to employ engineers in its sales force to be able to discuss solutions with the customer face-to-face. Even today, the tesa Automotive sales teams impress customers worldwide with their technological and application-specific knowledge.

Consistency and reliability from top to bottom.

tesa, as a company, is consistent in every respect: The specialization in adhesive tapes is strategic and for the long term. An equally clear line is followed in terms of business policy – the consistency of management and thinking is exceptional and is what makes tesa Automotive such a trustworthy business partner.

The background image shows two male technicians in a factory or industrial setting. They are wearing dark blue polo shirts with red accents and blue overalls. They are both wearing safety glasses. They are working on a large, complex industrial machine with various pipes, wires, and components. The machine is primarily blue and silver. The technician on the right is looking at the machine with a focused expression, while the one on the left is looking towards him. The background is filled with industrial equipment, including large vertical pipes and structural elements. The overall lighting is bright and even.

Specialization delivers the critical advantage in the race towards new technologies.

An average of over 70 patented new developments each year and an innovation rate regularly exceeding 50 percent speak for themselves. Time and again tesa has been and is able to set milestones in adhesive tape technology, above all others when it comes to the development of clean, solvent-free manufacturing techniques. In the 1960s, for example, suspended drying technology was developed for the coating of particularly thick adhesive tapes while minimizing residual solvent content. In 1995, production using solvent-free co-extrusion for surface protection films for car paintwork was introduced. In 2002, the researchers at tesa set another standard with the patented manufacturing technique for the solvent-free coating of natural-rubber-based adhesives. The year 2010 marked the birth of the tesa® ACX technology, with the development of an entirely new technology for the solvent-free coating of acrylate foams.

Intelligent Bonding: the tesa® ACX technology.

The unique and future-oriented tesa® ACX technology enables new functional combinations of chemical components and at the same time offers solvent-free coating of high-performance acrylate systems. Research and product development are still in the early stages. The development will open up further possibilities to automobile manufacturers and suppliers in the future. tesa Automotive is prepared to find new ideas for constructive bonding applications collaboratively.





Well thought out from A to Z.

tesa Automotive has always shared ideas closely with its customers and knows their production processes and requirements well.

“Application System Solutions” is a service offered for automotive manufacturers and suppliers and goes far beyond choosing the right adhesive tape.

tesa Automotive Laboratory: testing according to specifications

As a recognized expert in self-adhesive solutions, tesa Automotive is a member of specification groups for test procedures of well-known manufacturers and has developed its own test procedures over the years that make a useful contribution to the specifications. It is always the goal to find the right adhesive tape for a specific application. tesa Automotive has application laboratories on every continent, which are devoted exclusively to this task.

® Automotive Tape Technology

| SERVICE |

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ment Part Mounting
assembling

Interior

- Cable Mounting
- Buzz, Squeak and Rattle (BSR) Prevention

Body

- Security Labeling
- Hole Covering

Temporary applications

- Surface Protection
- Design Masking
- Point Masking

Electrical systems

- Wire Harnessing



tesa Automotive Engineering: developing customized process solutions

tesa Automotive can provide customers with a team of application experts and system engineers to develop customized process solutions worldwide. Customers benefit from measurable advantages in the production process: Quality increases, while process times and costs decrease.

tesa Automotive Part Development: providing prototypes for testing

In the automotive industry, adhesive tapes are not only used in roll form, but also as component parts or die cuts. Prototypes for these parts are produced by means of individual CAD drawings and made available for tests.



Close, closer, tesa Automotive.

Whether in Europe, Asia, North or South America – it is a tradition and part of the philosophy of tesa Automotive to have local presences all over the world and to support customers effectively. The team of local sales engineers, regional application technicians and global key account managers forms a highly efficient service network. Global proximity to the customer with a constantly high level of service is a matter of course for tesa Automotive. They constantly supply new ideas for applications, support the customers with their own ideas and train customer teams locally in the course of product launches for specific applications.



“We don’t send products, we send people.”

This quote from a Chinese colleague explains very simply the attitude of tesa Automotive towards its customers: First, establishing an understanding of the application at the customer – then recommending the product and its application in the process. tesa Automotive is proud to have skilled experts of the automotive industry among its employees. Apart from the product quality, nothing is more important for automotive manufacturers and suppliers than having a knowledgeable local contact person. For that reason, tesa Automotive pays particular attention to the training and qualification of employees. This includes continual advanced training in various areas of work, as well as the international exchange of ideas between experts. The customer can always depend on one thing: a contact person close by.

Exterior

Interior

Body

**Temporary
applications**

**Electrical
systems**



**Millions of vehicles have one thing in common:
products from tesa Automotive.**

In and on almost every car in the world you will find self-adhesive solutions from tesa Automotive. There are up to 50 different adhesive tapes in a single car. Divided into five modules, tesa Automotive offers solutions for automotive manufacturers and their supply chain.



Highly durable bonding solutions for the vehicle exterior.

A wide range of exterior attachment parts require the reliable bonding of their individual components as well as permanent attachment to the vehicle. tesa Automotive's assortment meets the high demands placed on the adhesive tapes used for a large number of application areas.

Attachment Part Mounting

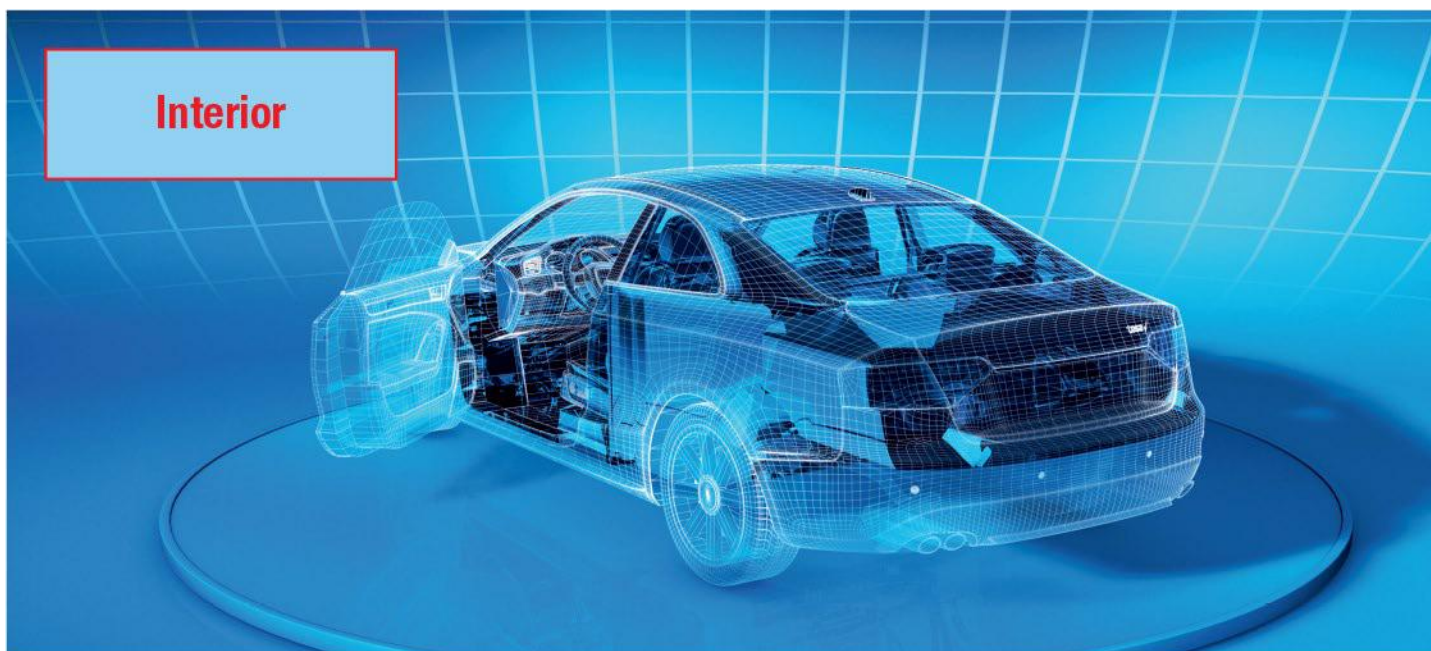
The complete product range for the mounting of exterior attachment parts offers outstanding resilience to external influences such as moisture, UV radiation and temperature fluctuations. The key technology in this area is called tesa® ACX. The adhesive tapes manufactured using this technology offer high bonding power, excellent stress dissipation as well as temperature and weather resistance.

Mirror Assembling

Double-sided products from tesa Automotive are ideal for the various production stages of mirror assembling. For example, heating elements can be securely mounted to the mirror glass on one side and to the base plate on the other.



A variety of attachment parts can be reliably bonded to the vehicle with double-sided adhesive tapes from tesa Automotive. They are also invaluable for mirror assembling applications.



Secure adhesion to a variety of surfaces in the vehicle interior.

The secure bonding of different materials is needed in the interior, for example on the headliner, in the seats, or in the dashboard. A variety of components have to be permanently bonded with single- or double-sided tapes on diverse substrates and noise damping must be ensured.

Cable Mounting

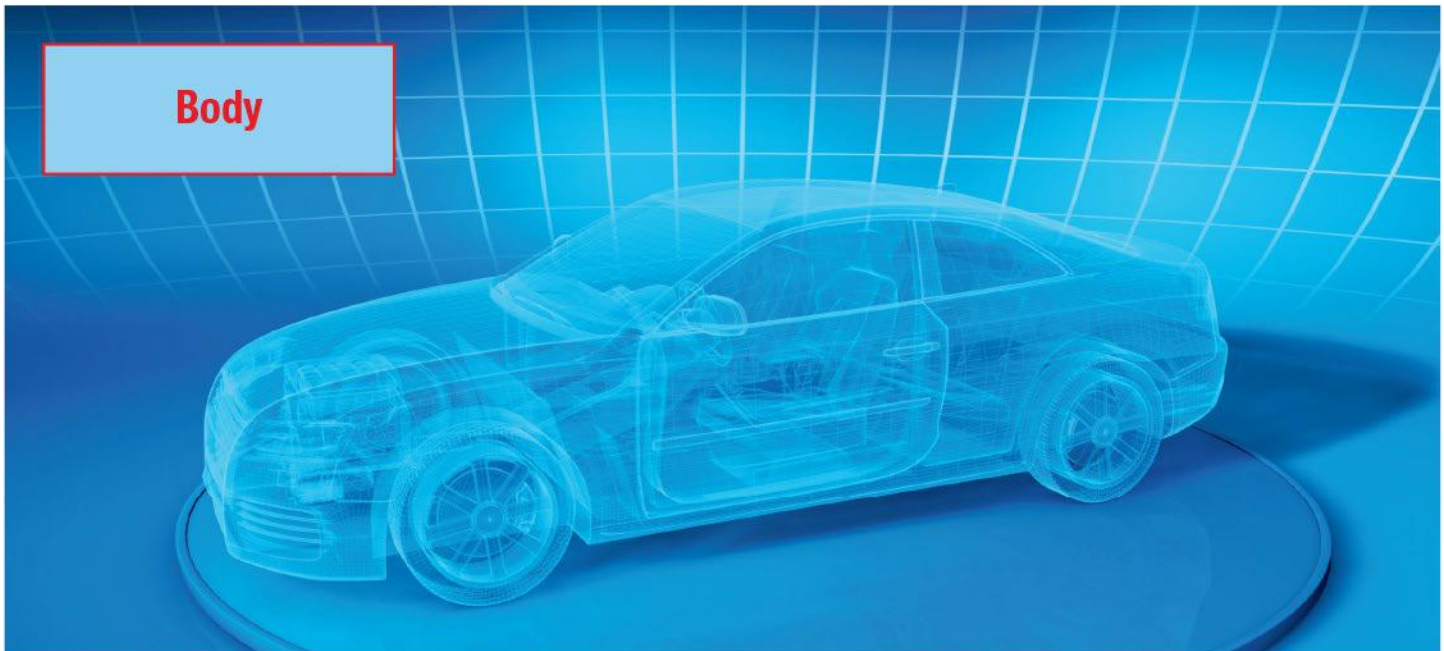
tesa Automotive has developed a complete range for the permanent and reliable mounting of cable harnesses in the vehicle interior. It meets the high demands of the application and takes into account the different processing methods and customer preferences.

Buzz, Squeak and Rattle (BSR) Prevention

A prerequisite of driving comfort and a quality feature for every vehicle is driving without background noises. tesa Automotive offers a range of specially developed products to prevent vibrations, squeaking and rattling to guarantee the highest quality standards.



Secure bonding in the interior, be it for cable mounting or noise prevention, guarantees full customer satisfaction and eliminates reworking costs.



Adhesive tape solutions for permanent applications on the car body.

For applications in the car body area, tesa Automotive offers well thought out solutions for the sealing of holes, labeling, and permanent paint protection.

Security Labeling

tesa® Automotive Laser Labels are ideally suited for security, warning and instruction labels. The technology allows labels to be created at the production line just-in-time and just-in-sequence. Visible and invisible customer-specific safety features can be integrated. tesa® Laser Labels are extremely resistant to thermal, chemical and physical influences, and cannot be removed as they are destroyed upon tampering.

Hole Covering

The self-adhesive solutions from tesa Automotive used to seal holes in the car body are more efficient and cost-effective than the plastic plugs traditionally used. They are suitable for every process stage in vehicle production and offer outstanding puncture resistance, noise damping properties, maximum flexibility for uneven surfaces, excellent PVC and paint compatibility, as well as high temperature resistance.



Applications relating to the car body are reliably and efficiently solved with the ingenious solutions from tesa Automotive.



Solutions for Temporary Applications.

The temporary product solutions by tesa Automotive protect delicate surfaces and guarantee precise paint jobs. They enable quick and easy application and swift removal without leaving any residue.

Surface Protection

During production and transportation, delicate vehicle surfaces can be protected with tesa® Automotive adhesive tapes. Exterior paint, plastic surfaces and wheel rims are protected, as well as interior panels and textiles.

Design Masking

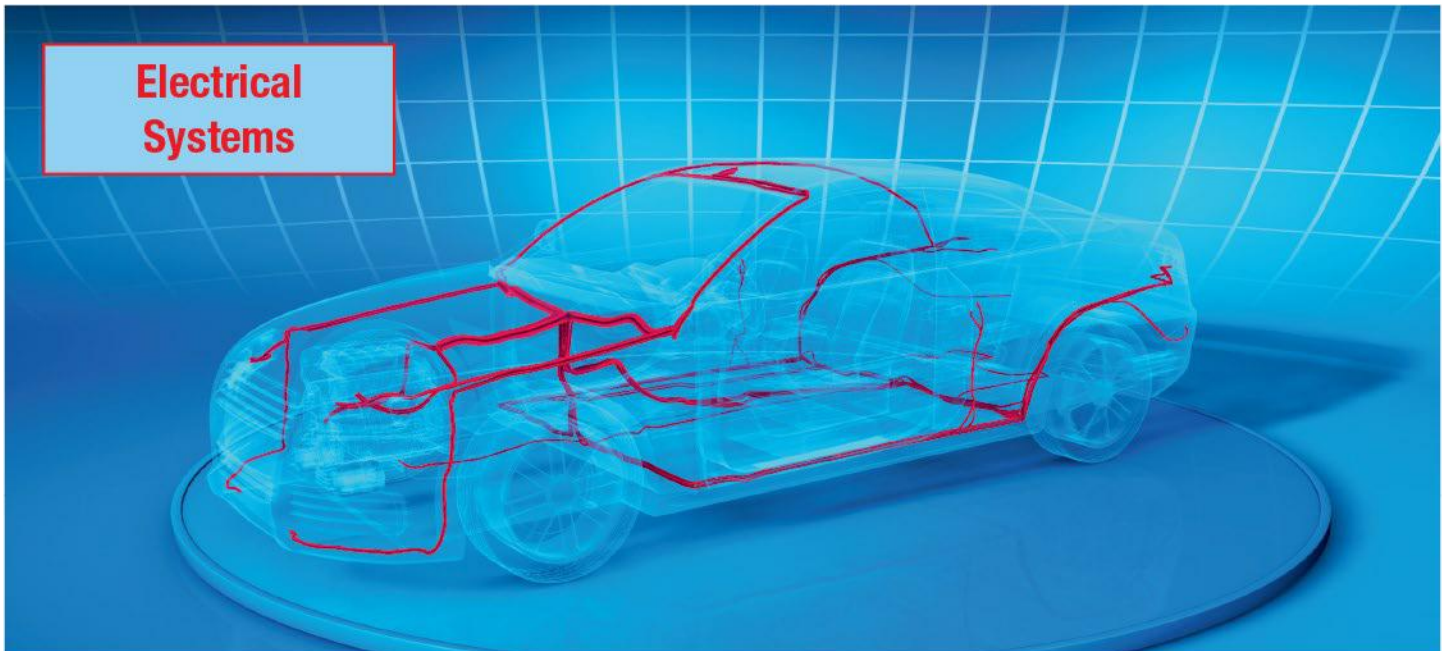
tesa® Automotive Design Masking tapes are ideally suited to create precise paint edges in two-tone designs, for example for bumper or bodywork paint jobs.

Paint Masking

For application during standard and repair painting, tesa Automotive offers suitable masking tape solutions and fulfills the requirements of the process in question.



Well thought out solutions from tesa Automotive for the optimization of protection and painting processes.



Quality and innovations for applications within power supply systems.

Wire Harnessing

Wire harnesses are becoming ever more complex, and confined installation spaces in engine bays and vehicle interiors are a big challenge for wire harness manufacturers.

tesa Automotive offers an extensive range of wire harnessing tapes consisting of woven, non-woven or film backing, equipped with high-quality adhesives. Products for the protection and bundling of wire harnesses in the engine compartment must be highly resistant to wear, temperature and chemicals. Particularly in the vehicle interior, large-diameter wire harnesses can be found. For these harnesses, the main tape requirements include good flexibility for easy installation, secure bundling and sound-proofing features to prevent rattles. The tesa® Automotive Wire Harnessing products fulfill the international OEM specifications for productive materials in the automotive industry. The innovative tesa® Sleeve range offers excellent flexibility for wire harnesses and contributes specifically to the optimization of processes and increased efficiency in the manufacture of them.



As the global market leader tesa Automotive has been taking care of the bundling of between two and five kilometers of wiring built into a car since the end of the 1960s.



The customers say what they want, tesa Automotive takes care of it.

Made-to-measure product configurations

Depending on the requirement, tesa® Automotive adhesive tapes are available as rolls in a wide variety of dimensions, as spools, or as customized high-precision die cuts.

Customized application tools

Furthermore, tesa Automotive designs processing aids integrated into the product, manual or semi-automatic dispensing devices and applicators, and even fully automatic robotic solutions. These solutions all ensure:

- maximum efficiency and high-precision application
- fast, optimized working processes
- high productivity and minimal process costs

When the adhesive tape and process are ideally matched by tesa Automotive, car manufacturers and suppliers benefit from a significant increase in production efficiency. The stated goal: complete solutions from a single source for maximized customer benefit.



Maximum flexibility: customized product configurations and application tools.



“It is not only what we do, but also what we do not do for which we are accountable.” Lao Tze, Chinese philosopher

tesa, as a company, thinks and acts efficiently. Only then can beneficial products and services be supplied to markets worldwide and can tesa increase its value for customers, staff and shareholders alike.

“Yes” to fair trade

tesa Automotive offers high-quality products and services and is happy to face fair competition in the market. It is not in the interests of the company to gain an unfair advantage with the help of illegal practices. tesa completely rejects bribes, unauthorized payments and business gifts from or to customers, governments or local authorities. Customers and competitors can count on that. tesa Automotive endeavors to establish long-term partnerships with its suppliers, who adhere to the same standards in terms of quality and integrity.

Corporate citizenship policy

Both products and the manufacturing processes fulfill the requirements of sustainable development: ecological, economical and social. In order to underline this, tesa supports the principles of the “Global Compact”, a worldwide pact agreed between companies and the UN in order to shape globalization more socially and ecologically.

■ Environmental protection: Fewer solvents, reduced energy consumption and less waste – these are the key goals of the ambitious tesa environmental program, with clearly formulated and globally compulsory guidelines and goals. As part of a sophisticated environmental management system, tesa subjects its processes to a regular review, integrates new insights and actively adapts to important changes. The most recent example of a successful combination of economy and ecology is the

globally unique tesa® ACX production facility for the manufacture of double-sided acrylic adhesive tapes, which went into operation in 2010. The result: 50 per cent less solvent and energy consumption and 2,000 metric tons less in CO₂ emissions every year.

- **Economy:** tesa stands for sustainable and socially responsible economic activity. The company is highly committed to its shareholders, customers, staff and investors.
- **Social responsibility:** tesa supports human rights and acts within the laws, customs and traditions of each country. The company emphatically protects and helps children and particularly promotes their education. tesa explicitly distances itself from child and forced labor in any form.

Working environment

It is the employees who give tesa a face across the globe and make the company what it is. For that reason, it is tesa's aim and desire to create a workplace that attracts and retains talented and motivated people. Because one thing is clear: Only the motivation, competence and effectiveness of employees ensure long-term success.



The acceptance of social responsibility is part of tesa's corporate principles. Environmentally friendly production processes are also at the forefront.

Further information material

This brochure provides an insight into tradition, understanding, and the range of services of tesa Automotive. More information regarding products or applications is available via the tesa Automotive website.

Short animations demonstrate application possibilities of tesa® Automotive products. The corresponding brochures provide detailed product information to automobile manufacturers and suppliers.



The tesa management system is certified according to the standards ISO 9001, ISO/TS 16949 and ISO 14001. All tesa® products delivered to automotive customers are listed in the International Material Data System (IMDS).

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