Adhesive technology for the automotive industry

Adhesive tapes are delivering a range of benefits in automotive applications, for permanent and temporary mounting tasks, offering aesthetic appeal and superior functional performance

Adhesives have become a key technology in the automotive industry, as they continue to replace other fixing methods. In Europe, around 9% of the total adhesive production goes into automobile manufacturing and a car today contains between 12 and 18 kg of adhesive. These adhesives are used under the bonnet, on the body and for the interior and exterior trims of the car, where they offer a number of benefits over traditional joining technologies.

As exterior designs have become more similar from model to model, vehicle interiors have become more important in defining one from the next. Demands for high quality interiors, especially in relation to a vehicle’s acoustic characteristics, aesthetic appeal and functional performance, have become a major differentiator. Adhesive tape technologies, tailored to the needs of the automotive industry, can play a key role in differentiating car models and simplifying assembly operations.

Whether for exterior, interior, permanent or temporary applications, tesa offers adhesive tape technologies tailored to the needs of the automotive industry.

Permanent mounting solutions

For exterior parts mounting applications, double-sided tapes offer outstanding resilience to external factors such as moisture, UV radiation and temperature fluctuations for heated/non-heated mirrors, distance sensors, trims and emblems. Interior permanent mounting includes the mounting of interior vehicle component parts with pressure-sensitive tapes in the passenger compartment. Single and double-sided tapes are used in application areas including overhead systems, seats, dash boards, door modules, and luggage cover systems.

The secure bonding of different materials is also needed in the interior, for example on the headliner, sill trim, mirrors, arm rests, steering wheel, occupant sensor, curtain airbag, seat backrest and cover or on the dashboard.

Single and double sided tapes help automotive designers respond to the latest trends and bring their interior designs to life, providing secure bonding on the diverse substrates often used in interiors, while ensuring noise damping – an essential element in guaranteeing customer satisfaction, product differentiation and elimination of re-working costs.

A prerequisite of driving comfort and a recognised feature of quality is being able to drive without background noises. Here, specially developed adhesive tape products prevent vibrations, squeaking and rattling to deliver high quality standards. As an example, Tesa’s Sliding Tapes 51206, UV resistant 51207 and 51217 offer protection of vulnerable surfaces against part wear, friction and unwanted noises as well as providing abrasion protection of harnesses in high friction areas.

Further, tape products play a major role in application across the entire bodywork of a car. For example, for vehicle identification numbers (VIN), certification, security or warning and instruction information, there are automotive laser engraved tamper evident labels with customer-specific visible and hidden security features which can be integrated to prevent tampering.

The self-adhesive solutions used to seal holes in the car body are more efficient and cost-effective than the plastic plugs which are 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 and high temperature resistance.

Products used to protect and bundle wire harnesses in the engine must be highly resistant to wear, temperature and chemicals. Here Tesa’s extensive range of wire harnessing tapes fulfils this function, offering good flexibility for easy installation, secure bundling and soundproofing features to prevent rattles.

Temporary protection

Interior and exterior vehicle surfaces, including clear coats, plastics and metals, need to be clean and undamaged and require protection during the various stages of production, assembly and transportation. Providing the necessary temporary protection against a variety of environmental influences and keeping interior surfaces spotlessly clean, pressure-sensitive surface protection tapes also enhance process efficiencies, being easy to remove and disposed of in an ecologically-friendly way.

During the assembly process, for example, where exterior surfaces are potentially susceptible to damage, Tesa 51134 – which is suitable for slightly structured surfaces on head and tail lights – can be applied to ensure component protection. The range includes adhesive tapes for interior trims, decorative interior trims, upholstery, door panels, wheel rims and emblems.

Tesa Exterior Surface Protection tapes protect the painted car body, wheel rims, plastic parts, emblems and glass against impacts and outside influences such as dust, gravel, bird droppings or insects during product and also during the journey from the plant to the customer. Temporary product solutions protect delicate surfaces and ensure precise paint jobs, enabling quick and easy application and swift removal without leaving any residue. Design masking tapes create precise paint edges in two-tone designs and paint masking tapes cover surfaces during standard and repair painting.

In the future, adhesive tape technology is expected to take over functions and tasks that go beyond the scope of their traditional role of holding things together.

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