

Individual testing reports of coating thickness measurements in car expert opinions

Measuring coating thickness efficiently using images for documentation

Cologne, Germany, September 2011: The German company Automation Dr. Nix presents their new coating thickness testing and documentation system CarCheck System PLUS. The system includes a handy gauge for vehicle measurement and user friendly PC software. The PC software enables car experts to configure the gauge according to their needs and to archive all data. Thanks to the car images with incorporated coating thickness values, testing reports created with this system are especially meaningful.

The importance of coating thickness measurement for the appraisal of cars

Trust is good, control is better – This old saying applies in many circumstances. An industrial sector where it should definitely be heeded is the used car trade. Many cars change their owners several times and have been repaired in a more or less professional manner. And, when selling the car the seller himself may not be aware of all the damages or – on purpose or not – may forget to tell the buyer about them.

Just one or two decades ago, a car was considered old if its driving performance exceeded 100,000 kilometers. Beyond 150,000 kilometers it was usual in Germany to determine the residual value of a car by multiplying the remaining months until the next general inspection by 100 German mark. Today, cars are much more reliable and a driving performance of 300,000 kilometers with the first engine is no longer something to write home about. Cars with a driving performance of 100,000 kilometers and proper equipment still have a certain value even if they are five or six years old and a new owner may enjoy such a car for many years to come. This is especially the case since galvanized high quality steels or stainless light metal alloys and a perfected quality management of car manufacturers can make sure that rust does not play a role in the life of a modern car.

An accident that has not been repaired professionally may, however, lead to unwanted consequential costs and will reduce the value of a used car significantly. A badly repaired car body is vulnerable to corrosion – no question about it. But, extensive car body repairs may indicate a large accident that affected other parts of the car as well. Thus the state of the car body and the painting reveal a lot about the value of a car. Therefore, assessment of car body and painting must never be omitted when assessing a car.

Coating thickness measurement is an important tool to determine the state of the painting and the car body underneath it. The principle is easy: The gauge determines the distance between the measuring head and the next metal layer. This distance ideally corresponds to the exact thickness of the paint coating. Coatings of new cars usually have a thickness between 100 μm and 150 μm . We measured significantly thinner layers on older cars. The top coating layer is affected by environmental influences and becomes thinner – this not only happens when driving off-road but also during normal use of the car. If the coating is too thin, corrosion may appear soon. However, coating thickness values beyond 200 μm should also be regarded with some skepticism: here the coating has been repainted. Thicker layers indicate filling between paint and metal. It is quite legitimate to repair smaller body damage by filling. However, a thick layer of filling measured over a large area may indicate unprofessional repair work. Here, changing the part of the car body, tin floatation of the damaged area or at least careful removing of any dents prior to further repair work would have been adequate.

Coating thickness measurement using the CarCheck System PLUS gauge

The CarCheck PLUS gauge is suitable for coating thickness measurement on magnetizable steels (Fe measuring mode) and non-magnetizable light metals (NFe measuring mode). Different measuring methods apply for two different types of metal. Therefore, the gauge can indicate which type of metal has been measured and will change the measuring mode accordingly if required. Thus areas that have been floated with non-magnetizable tin on steel sheet can be detected clearly. On such tinned areas, the CarCheck PLUS gauge detects the thickness to the tin layer in NFe mode. In other circumstances, however, this measuring mode provides no results on magnetizable steel.

In both measuring modes (Fe and NFe), the gauge can measure a thickness of up to 5 mm. This allows CarCheck System PLUS to distinguish between standard painting, repairs of smaller paint damage and thick layers of filling. The gauge offers a high resolution and a good reproducibility of individual measurements. Therefore, local changes of thickness within a layer of filling can be detected. A plain visible surface indicates dents in the sheet near the surface. Here, larger dents may have been removed prior to filling and painting the damage.

The gauge is provided with an internal memory for all measurements allowing the user to allocate measurements to a job – that is a car – and a testing area, for example fender or engine hood in the gauge directly after measurement. Users can also freely select the number of measurements for each job and testing area. If something conspicuous is detected, further measurement spots are easily added, on one hand to ensure that the measurement has been taken correctly, on the other hand to determine the size of the conspicuous area. New and additional testing areas can also be created in the gauge directly. This is a benefit not only to vintage car experts but to everyone who has a lot to do with special car construction types. Chromed headlights, kick strips, and rollover bars can be added to the measuring program if required.

The gauge is small and light. No time consuming calibration with reference foil is required to ensure accurate measurement. It is sufficient to determine the zero point of the gauge prior to measuring. Press a button then place the gauge onto the 5 x 5 cm sized zero point reference plates and the device is ready for measurement. Thus the gauge is the perfect constant companion and can easily be used even if no coating thickness measurements had been planned during a service operation.

The CarCheck PLUS PC application

Using the CarCheck PLUS configuration and documentation software testing jobs are easily and quickly created and transmitted to the gauge via radio. Customizable testing areas are available in addition to predefined standard testing areas. The order in which testing areas are displayed in the gauge corresponds to the order in which they have been selected in the PC software. Thus any expert can depict his round around the car by the testing order used.

It is possible to copy created testing jobs several times to test different cars using the same scheme. If the measurements are then automatically copied onto the schematics of the car image according to a predetermined grid, precise and cost saving testing reports are efficiently created in a spell.

However, individual testing reports are also possible using the PDF-, Word, and Excel file format. For instance, a car dealer of high quality used cars may offer his customers to take measurements on the car in the presence of said customer. The car dealer can then place the measurements onto the image of the customer's "dream car" and add the customer's name in the testing report using the PC. Thus the customer receives an customized high quality testing report of his car and was part of its creation. Car dealers who work in such a transparent manner can improve their image in the premium car sector by actively advertising their open ways of quality control.

Standardized quality

Individual testing reports showing the car and the measurements taken on corresponding measuring spots are transparent and credible since they are comprehensible at any time. Thus such reports have a certain impact regarding insurance companies and judicial authorities. This is confirmed by the German Institut für Sachverständigenwesen e.V. (Institute of Expert Assessment, www.ifsforum.de) in their "Leitsätze für Gutachten und andere Sachverständigenleistungen" (Guidelines for Expert Reports and other Expert's Services). Here experts are advised to determine previous damages and the quality of repairs on the whole car when assessing accidental damage and to document everything they find with photos. With its documentation supported by photos and data, CarCheck System PLUS is the ideal tool for this task.

Specialized yet flexible

CarCheck System PLUS was developed in close cooperation with car experts throughout the industry and was tailored to their needs. Reactions on the market are accordingly: „This is exactly what we need, no wishes remain unanswered“, says Gird Vogel, managing partner of the German car expert agency Lutz GmbH. He continues: „I invited the people of Automation Dr. Nix to our meetings because my colleagues need to know CarCheck System PLUS.“ Mr. Vogel knows the needs of experts perfectly well. He is committed to the German ARGES-GmbH, der Arbeitsgemeinschaft Kraftfahrzeug-Sachverständiger (Working Partnership of Car Experts) and constantly exchanges ideas with people within the whole sector. However, as tailor-made as CarCheck System PLUS is – it is just as flexible, too. Thanks to the freely selectable names of jobs and testing areas, the system can easily be used for other testing tasks even outside the car sector.

About Automation Dr. Nix

As a leading company of non destructive coating thickness measurement in Germany, Automation Dr. Nix GmbH & Co. KG (www.automation.com) has been in the family for 3 generations. With launch of the Quanix 1500 about 20 years ago, Automation Dr. Nix set a standard in the assessment of coating thickness. With their CarCheck System PLUS Automation Dr. Nix continue their commitment to the car sector with a new tailor-made solution.

In addition to specialized coating thickness gauge and measuring systems for certain areas, Automation Dr. Nix also offers gauges for general use in various levels of performance. The products are distributed globally with the help of regional partners.

About the author

Dr.-Ing. Erik Marquardt is technical manager at Automation Dr. Nix GmbH.

Image titles



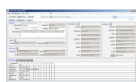
IndividualReport.bmp

Fig. 1: Highly individual testing reports are just as possible as standard ones



Handgerät.jpg

Fig. 2: The CarCheck System PLUS gauge



EasyUse.bmp

Fig. 3: The PC configuration application is clear and intuitive



GoodBad.bmp



GoodBadDetail.bmp

Fig. 4: Conspicuous measurements can be marked in color in the report



OtherUses.bmp

Fig. 5: The system can easily be used for testing tasks outside the car sector.



Languages.bmp

Fig. 6: The PC application can be switched to 140 different languages while running. Thus a German speaking expert can create a report for example in the Turkish language.



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Fig. 7: The author