

**„Documenting the coating thickness of new and used cars“
Dr.-Ing. G. Gehnen, AUTOMATION Dr. Nix GmbH & Co. KG.
D-50739 Köln, Robert-Perthel-Str. 2 www.q-nix.de**

BLOG 1-3 / 190509 / CCS CarCheck / Dr. G.G.

(Qnix press news-de-AUTdrg-030-v1 / 0109 / CarCheck)

Author: Dr. Ing. Gerrit Gehnen, Technical Manager, AUTOMATION Dr. Nix GmbH & Co. KG, Cologne

BLOG CCS Part 1:

Documenting the coating thickness of new and used cars

***Initial development situation for the new coating thickness measuring system
CarCheck***

During the past months we often heard that the sales of new cars, compared to previous years, are declining, while mileage and service life of such cars continue to improve. This development led to a crisis in automotive production. Especially since, according to surveys by the Federal Statistical Office, more and more customers prefer used cars. These tendencies that can not only be observed domestically but also worldwide. Considering this increase in used cars, their improving service lives and the growing number of owners per car, the question of concealed defects is of increasing importance.

Usually no layman can recognize such concealed damage. Due to the continuing perfection of repair technology, even experts often ask themselves whether or not previous damage is present.

However, due to the constant improvement of quality and longer warranty periods, it is increasingly important, during the mass production of new cars, that the coating of such cars is completed in accordance with given parameters despite increasing productivity.

**„Documenting the coating thickness of new and used cars“
Dr.-Ing. G. Gehnen, AUTOMATION Dr. Nix GmbH & Co. KG.
D-50739 Köln, Robert-Perthel-Str. 2 www.q-nix.de**

For years, determining coating thickness of new or used cars has been a standard process in technology. Nowadays, it is one of the most important tests in the quality management of the automotive industry.

Already during production of a new car the correct thickness of the complete coating system has to be ensured for all given spots on the car to meet all functional and decorative requirements. Any deviating coating thickness will cause problems with corrosion or unwanted discoloration during the service life of a car. Therefore, quality management has to evaluate up to five layers of coating one by one.

The main aspect of evaluating and reviewing used cars, is to reveal concealed defects and previous damages that can nowadays be repainted in a way no longer recognizable by sight alone. Every now and then, this leads to surprises when the door of an allegedly accident-free used car has a different coating thickness than the rest of the car, or when a filling at the fender has been artfully re-painted. The desirability and the value of a used car stand and fall with possible previous damages. The inspection is nowadays usually done by qualified experts evaluating damages and the value of a car on behalf of insurance companies. But also leasing companies and coating shops are interested in the measurement of coating thickness.

The current state of technology allows individual measurements of coating thickness using hand-held gauges and the documentation of measured values summarized in a report. The measurements are usually not written down by hand or processed as a printed list of unstructured data.

Until now a complete documentation providing experts and customers with conclusive information about the state of a coating has been unavailable.

No statistical data could be derived from such unsystematic measurements, nor was it possible to compare this data with comparison vehicles.

Increasing demands on productivity and documentation require new solutions for the systematic execution of coating thickness measurements during the production of new cars and the evaluation of vehicles.

**„Documenting the coating thickness of new and used cars“
Dr.-Ing. G. Gehnen, AUTOMATION Dr. Nix GmbH & Co. KG.
D-50739 Köln, Robert-Perthel-Str. 2 www.q-nix.de**

However, until now no mandatory standard on how to provide such documentation and what elements should be recorded exists. Therefore, each user provides his own logs, making comparison and statistical analysis difficult or even impossible.

BLOG CCS Part 2:

Documenting the coating thickness of new and used cars

Requirements of a modern coating thickness measuring system

Modern measuring systems have to meet various requirements. The most important are: ease-of-use of the whole system and data security of the measurements taken.

Above all, the examination of the complete process is most significant: from planning of the vehicle's inspection and the actual taking of measurements to filing the documentation.

In many cases such a car inspection is planned beforehand at the desk. This means that all data of a car, which is relevant for the inspection is provided and mandatory. However, depending on its use, a surprise inspection must be expected. In such cases the cars to be measured are unknown beforehand. Then it must be possible to collect relevant data during post processing.

The inspection itself should be easy to complete. The operator should be able to complete measuring tasks without difficult calibration. Registration of all check points on the car should be intuitive in order to clearly assign measuring spots to the corresponding parts of the car. The measuring gauge should allow for several cars to be measured in a row without having to transfer any data to a computer in between measurements.

Please send voucher copies to:
Christoph Weise, Dr. Helmut-Junghans-Str. 35, D-78713 Schramberg
weise.marketingberatung@t-online.de

**„Documenting the coating thickness of new and used cars“
Dr.-Ing. G. Gehnen, AUTOMATION Dr. Nix GmbH & Co. KG.
D-50739 Köln, Robert-Perthel-Str. 2 www.q-nix.de**

Laymen and experts alike should understand the documentation. The measurements should be indicated in a way that allows possible "Coating-Problems" to be recognized at a glance. In addition to a list of vehicle data and measurements, the expert's report is always part of the documentation. Nowadays it is appropriate to provide documentation not only on paper but also as an electronic document that can be exported or send, for example via e-mail, and saved.

Since the evaluation of damage often concerns legal disputes - be it an expert's report on the state of a car due to a difference in opinion on the matter, be it that such a report is doubted - the safe handling of data is another requirement of a modern coating thickness measuring system. Data has to be protected against tempering and the document should state who took measurements, who drew what conclusion, and on what measurements the evaluation was based.

As a specialized company, with a long experience in the area of coating thickness measuring technology, AUTOMATION Dr. Nix tackled the subject of practical measuring systems time and again, particularly in regard to the use by experts. The word novel *CarCheck*-System is the first of such systems that offers a systematic solution for the complete inspection process. The *CarCheck* system already received international praise when it was first launched.

The process of a systematic coating thickness measurement using CarCheck

Practical experience shows that on different cars always the same problematic spots have to be measured. Taking many measurements in close proximity to each other is less important for the evaluation of quality than taking measurements on all parts in order to gain as complete an overview as possible.

Usually, taking three measurements on each part is sufficient for evaluation purposes. These three "basic" measurements allow the car to be measured quickly while still providing a complete picture of its state. If a more exact inspection is required,

**„Documenting the coating thickness of new and used cars“
Dr.-Ing. G. Gehnen, AUTOMATION Dr. Nix GmbH & Co. KG.
D-50739 Köln, Robert-Perthel-Str. 2 www.q-nix.de**

subsequent measurements are possible. Experience shows that "intensive" measurements with six measurements per part can reveal further problematic areas.

The measuring spots are arranged alongside a grid. The measuring system should guide the user during measurement from one spot to the next to ensure that all spots have been measured properly. However, measurements should still be convenient and fast.

BLOG CCS Part 3:

Documenting the coating thickness of new and used cars

The innovative CarCheck measuring system

AUTOMATION Dr. Nix considered the requirements of state-of-the-art measuring procedures and developed a completely new measuring and documentation system named **CarCheck**, based on the successful modular gauge system QNix® 8500. This CarCheck system allows systematical individual measurements of single layers in automotive production as well as the evaluation of used cars.

While the QNix® 1500 is considered a standard and is the coating thickness gauge most used by experts in the last two decades, the *CarCheck* system reaches a new level of quality in measurement and documentation.

The *CarCheck* gauge is equipped with a graphic display and intuitive menu navigation, guiding the user through the complete evaluation process.

The use of two combined magnetic measuring methods allows measurements on steel as well as on non-iron metal. The measuring technology used ensures reliable measurements even without time consuming calibration.

**„Documenting the coating thickness of new and used cars“
Dr.-Ing. G. Gehnen, AUTOMATION Dr. Nix GmbH & Co. KG.
D-50739 Köln, Robert-Perthel-Str. 2 www.q-nix.de**

The secure data storage allows several vehicles to be managed with the gauge. The user does not have to re-initialize the device each time he measures a different car. This is an important feature saving time and money for the measuring process.

In addition to the systematically guided measuring process, the *CarCheck* measuring system allows the "traditional" measurement of individual spots.

Documentation with the CarCheck measuring system

The PC software supporting the *CarCheck* gauge helps with all tasks regarding the preparation of inspections, documentation and filing of inspection logs. Communication between gauge and PC is achieved via a secure wireless interface. The distance between the compact USB adaptor and the gauge reaches up to 10 meters. To avoid loss of data, the user can save the measurements in the gauge during transmission until the documentation is completed.

An easy to operate wizard guides any user through the complete measuring process, even if he is not involved in coating thickness inspection on a daily basis. At the same time, a convenient user interface provides access to data analysis features.

The measuring log of the *CarCheck* system includes a diagram of the measured vehicle indicating all coating thickness measurements. This log can be exported as a PDF-file.

Another significant feature for any user is the signature of all measuring data and the corresponding evaluation, indicating the person responsible for data recording and evaluation afterwards.

**„Documenting the coating thickness of new and used cars“
Dr.-Ing. G. Gehnen, AUTOMATION Dr. Nix GmbH & Co. KG.
D-50739 Köln, Robert-Perthel-Str. 2 www.q-nix.de**

The *CarCheck* logs are securely saved in a data base where they can be accessed at any time. For the purpose of external data backup, the logs can be exported from and imported to this data base.

Conclusion

The new *CarCheck* system is a modern measuring system supporting the complete inspection process of a car's coating thickness - from planning to analysis and documentation. The easy operation allows measurements to be taken without prior training even if the user is not involved in these matters on a daily basis.

Due to his practical flexibility the *CarCheck* System from AUTOMATION Dr. Nix - developed and manufactured exclusively in Germany by the company - has been very well received nationally and internationally since its launch in 2008 and localized international versions for most common languages are being implemented.

Author: Dr.-Ing. Gerrit Gehnen
Technical Manager
AUTOMATION Dr. Nix GmbH, Cologne

*For more information visit www.carchecksystem.de
and www.qnix.de → PRESS Downloads*