AUTOMATION Dr. Nix GmbH & Co. KG.
D-50739 Cologne, Robert-Perthel-Str. 2 www.q-nix.de

<u>World novelty:</u> The innovative menu driven CarCheck Measuring System for systematic checks and documentation of car body coatings optimizes the cost and quality control in the automobile industry.
The new CarCheck System from AUTOMATION Dr. Nix GmbH & Co. KG brings paint coating thickness measurement and control to the next level.

Author: *Thomas Niederkinkhaus / Segment Coordinator for measuring systems in the automobile industry with AUTOMATION Dr. Nix GmbH & Co. KG, Cologne.*

The automobile industry with its immense importance to the German economy is constantly under enormous international pressure regarding cost and quality. Innovations reducing cost and increasing quality are sought after. Nevertheless, coating thickness of paint and corrosion protection in production, service and damage assessment are still mainly determined by means of individual measurements using measuring gauges. However, quite similar to the electronic time clock that has hence replaced the stopwatch for measuring lap times in Formula-1 racing, now a real innovation in coating thickness measurement gives the automobile industry a new perspective:
A world novel menu driven measuring system for checking and documenting paint coating thickness of motor cars: the CarCheck System from AUTOMATION Dr. Nix GmbH & Co. KG, optimizes the management of cost, quality and damage.

Previously, standard individual measurements of paint coating thickness were indispensable to many areas of application.

Today and certainly in future still, standard individual measurements are among the most important tasks of non-destructive coating thickness measurement in the automobile industry.
Individual measurements on various spots of a car body – even if partly measured asymmetrically and without any records allowing statistical analysis – are an important part of quality management. These measurements enable manufacturers to check the various depths of paints on automobiles. Furthermore, they are essential to experts, insurance companies, lessors, car repair shops as well as paint and coating companies when determining and assessing car damage.

For example: For almost two decades, experts and testing institutes preferably used “classic“ paint coating measuring devices, such as the successful QNix® 1500. Such gauges are essential even to leading automobile manufacturers world wide, insurance companies, car dealers and repair shops. The quality of such devices could impress with its robust and practical use for over two decades: providing a high degree of flexibility combined with accuracy, reliability and ease-of-use but without time-consuming calibration. These advantages still meet the requirements for reliable and productive solutions in everyday measuring tasks.
The demand for systematic documentation of measurements could be met early, using individual measuring gauges such as the QNix® 1500**M** from AUTOMATION Dr. Nix, which memory upgrade allowed for the first statistical analysis of paint

coating measurements using PC software. This gauge is used and valued as a solution to numerous measuring tasks even today.

Figure 1: QNix® 1500: The classic among the coating thickness measuring gauges calibrated during manufacture. Its proven technology provides the foundation of the new CarCheck System (see www.qnix.de → PRESSE → Fotos Downloads: figure 1019).

Increasing demands on cost and quality management require new integral measuring systems.

AUTOMATION Dr. Nix, one of the leading specialists in non-destructive coating thickness measuring technology world wide, reacts with new innovative solutions to the challenging markets and requirements of their customers. In addition to continuously improving the range of provided services, innovative gauges and systems are constantly developed in close cooperation with users world wide, offering additional use and value for the cost and quality management of customers. Achieved yet again with the latest development:

The CarCheck Measuring System offers a completely new prospect regarding the management of cost, quality and damage in the automobile industry. Structured design of the measuring task, systematic, verifiable documentation of measurements and analysis of measuring values combined with an intelligent menu navigation offer considerable advantages.
Increasing quality standards of industry, craft and service providers, experts, insurance companies, lessors and car manufacturers resulted in demands for complete, detailed and verifiable documentation of measurements. Acting on this, the new CarCheck Measuring System now allows, for the first time, to fulfill these high and individual demands of users in an impressive manner. Even concerning speed and reliability of measurement recording, processing, and documentation.

Innovation: Easy, fast, reliable menu driven recording, processing and documentation of all paint coating measurements.

With the particular know-how of a specialist for innovative user-oriented solutions, AUTOMATION Dr. Nix developed a milestone in the area of non-destructive paint measuring technology. The world novel CarCheck Measuring System is a menu driven quality system, meeting all requirements regarding recording, analysis and documentation of measurements even in accordance to future rules and regulations of the automobile industry. Based on the proven technology of the QNix® 1500 model, advantages and features related to the user have been improved further. That way, a rugged, easy-to-use and reliable next generation measuring system evolved, offering a large measuring range and an innovative software solution.

The CarCheck System: a paint coating measuring system that sets new standards.

A modern car is fitted with five highly qualitative coatings during the production process. Each of these layers – electrophoretically deposited bond coat, anti-chip layer**,** primer, base coat and clear coat – serve to protect the car body against corrosion and attacking weather, Although with 100µm these layers together are not thicker than a hair. They also provide the foundation of the visual appearance of a car, which is such an important causal part of the purchase decision process. Individual measurements of coating thickness on different parts of the car body during the production process and final inspection ensure the quality of the vehicles surface.

Figure 2: Menu driven paint coating thickness measurement with the world novel CarCheck System. (see www.qnix.de → PRESSE → Fotos Downloads:: figure 1274)

The new CarCheck System from AUTOMATION Dr. Nix for the first time allows the use of a defined network of coordinates to systematically create, record and document – for statistical quality control purposes – measurement spots of a car body in a menu driven environment. An innovation that is not only of considerable use to the automobile production but which also facilitates work in all areas of damage management, service and automobile trade considerably.

Figure 3: Measuring spots of an automobile, which can be automatically detected and systematically documented with the CarCheck System. (see www.qnix.de → PRESSE → Fotos Downloads)

In addition to „normal“ individual measurement the application specific selection between two different measurement programs is now possible during production. After selecting the type of vehicle (e.g.: Cabriolet or Van) at least three measurements on defined spots of the measurement object (fender, hood, side part, etc.) are necessary for “base measurement”. Whereas the “intensive measurement” requires at least six measurements per measurement object, which can be documented. To avoid errors and to facilitate measurements the user is prompted to record the measurements by means of easy but clear instructions appearing on the display. After recording each individual measurement, the menu navigates to the next measuring spot on the “raster of coordinates” until all measurements and results are finally saved and documented completely within the system.
The “network” of saved analyzable data also facilitates the quality management of users concerning reproducibility of his or her measurements that way.

Interference free communication between measuring device and PC is achieved wirelessly via a provided USB-dongle. The measurements are saved in the gauge until the user deletes them using the system software that is part of the scope of supply.
The gauge’s menu is – similar to modern cell phones – designed in such an easy and guiding way that a save and intuitive operation of the measuring system regarding the requirements of today’s generation is guaranteed. Handling of the gauge is

facilitated even more because the included software for administrative and analysis purposes is quite similar to MS-Office applications.

Figure 4: Example: Print out of a documentation of menu driven measurements with the world novel CarCheck System from AUTOMATION Dr. Nix (see www.qnix.de → PRESSE → Fotos Downloads)

Future prospects.

A look into the future of paint coating testing in the automobile industry reminds us that until today there were neither menu driven measuring systems nor systematic documentation available.

Paint coating thickness has previously been determined by individual measurements taken with gauges.
Statistics and documentation often were "handmade" individual solutions of resourceful technicians and engineers.
The world novel CarCheck System from AUTOMATION Dr. Nix allowing systematically navigated process-oriented coating thickness measurement for the first time, provides the foundation of the continuous process control of the future.

An optimum network of measuring spots with exact coating values will have to be defined in laboratories, automobile manufacture and areas of work scheduling when aiming at further reduction of the production cost of reliable quality esurance. Finally, the requirements of the coating quality in the front area of an automobile has to be considerably higher – for instance due to stone-chipping – than in such areas of the vehicle which are already considered protected. The coating thickness values, with which the measuring system has been programmed, are continuously determined and documented anew during final inspection. They can be used as an obligatory guideline for all later services in the automobile industry.
In case of later accidents, the affected part of the car body can be assessed and reproduced reliably by means of this system's defined and documented coating thickness allocation.
Even service processes of the automobile trade as well as paint and coating companies, now have the chance to reduce costs by saving material and time.
For quality management and damage assessment next generation, measuring systems will provide a faultless analysis and documentation that will clear beyond any doubt whether, for example, a "particularly thick" coated part of the automobile results from an improperly repaired accident. Such documentations are especially helpful when dealing with particularly expensive damage and the demonstration of evidence in court. Insurance companies will hardly be able to forego such documentation solutions in future.

The increased demands on quality management will subsequently become noticed in laboratories of paint manufacturers. They will attempt to optimize and to adjust their products, paint quality and coatings to the cost and quality requirements of manufacturers. Therefore, the importance of precise definitions and systematic

documentation of various coating thicknesses of different models will be of increased interest to them as well.

The world novel CarCheck System from AUTOMATION Dr. Nix, Cologne provides the quality management of the automobile industry in all areas with new prospects regarding precision, reproducibility, integration of processes and productivity.
The CarCheck System clearly is a milestone of the developments in the coating thickness measuring technology.

Questions: → Fon +49. 221. 91 74 55 – 24
Author: Thomas Niederkinkhaus / Segment Coordinator of measuring systems in the automobile area with AUTOMATION Dr. Nix GmbH & Co. KG, Cologne.

For further information and pictures visit www.qnix.de / → PRESSE / Fotos Downloads → "CarCheck System"