Measuring electroplated parts with user-defined inspection plans

Quality control plays an important role in rack plating. Narrow tolerance limits and strong demand for homogeneous coatings require precise measurements of the coating thickness according to clearly defined testing procedures. In addition, the measurement results should provide clues for potential process optimisations and, thereby, cost reductions.

Electroplated coatings must fulfil various criteria: functional coatings, for example, must provide a certain level of corrosion protection – requiring at least a minimum plating thickness – while adhering to defined cost restraints – meaning minimal material consumption. Moreover, the coating should be as homogeneous as possible, not only within a given rack, but also from rack to rack; this is important for both functional and decorative coatings. In addition, coating processes often must be executed within narrow tolerance limits. To check all these criteria systematically, test measurements should always be taken in the same spots, in the same way, regardless of who is currently executing the inspection. Furthermore, a number of workpieces must be tested, and that with as little effort as possible.

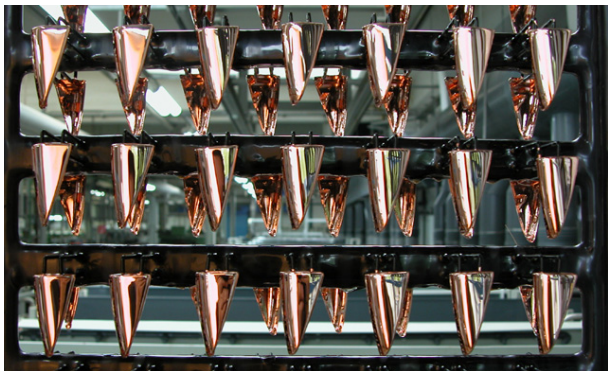

Fig. 1: A rack-plating jig sporting freshly electroplated parts

An effective way of controlling is to use individual inspection plans. For this purpose, FISCHER has developed its FISCHER DataCenter IP (inspection plan) software, which, utilised in combination with the DUALSCOPE® FMP100 coating thickness measurement instrument, allows a user to define inspection plans on the PC and download them onto the FMP100. The inspection plans guide an operator step-by-step, like a navigation system, through complex measurement tasks, providing exact instructions enhanced by images and text. The measurement spots are thus distributed evenly throughout the rack and set so that they capture all the critical areas (like edges). Via the pre-defined inspection plan, all measurement spots can be unambiguously identified. At the same time, a number of customer and process-associated data can be taken and later transferred into a measurement report.

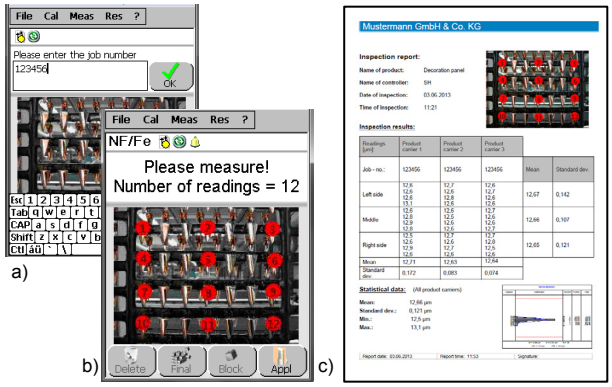

Fig.2: Coating thickness measurement according to pre-defined inspection plans with DUALSCOPE® FMP100 and FISCHER DataCenter IP software. Images a) and b) show screenshots from the instrument, while c) shows a measurement report.

The readings are then downloaded directly to the PC for easy evaluation, archival and printing (with customisable templates). For this purpose a wide variety of analysis and statistic functions, as well as supporting graphical displays, are available.

The FISCHER DataCenter IP software and DUALSCOPE® FMP100 handheld instruments put the powerful tools of strategic quality control directly into inspectors' hands: Step-by-step guidance through the complete measurement cycle not only minimises human error, ensuring reproducible and comparable results on defined measurement spots, but qualifies these instruments for use even by non-technical operators. Structured measurement recording and extensive evaluation options further help to identify potential improvements in production processes. For more information please contact your local FISCHER representative.