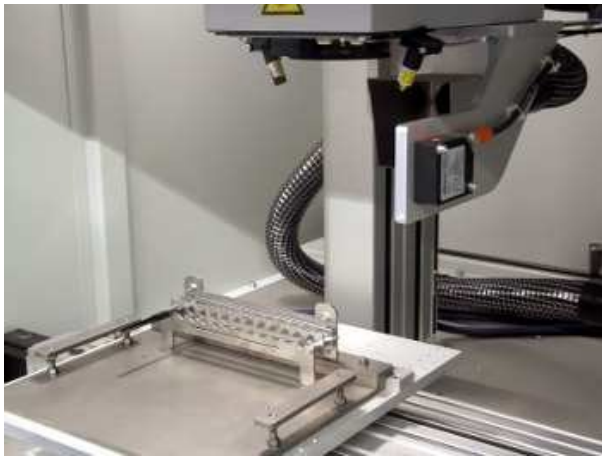


EITEC GmbH & Co. KG - Laser Tool Coding System for the individual and permanent identification

„No room for failures at all“



About 700 000 cutting tools per year are passing the coating processes

In fact, three seconds can completely change the hard daily routine for contract surface coating services. That's the time you need to mark tools out of steel or carbide with a Data Matrix Code. The effects are obvious: Tools are processed and then assigned back to their commission number in an economic, fast and particularly error-free manner. And this thanks to a laser tool coding system that had been developed in cooperation work. And the best of all: The system shows its strengths best in many other applications.

„We mainly focus the PVD technology“, Peter Eickhoff explains, Managing Director at EITEC GmbH & Co. KG that specialized in the metallic hard coating. The company is located in Bochum and has been offering the PVD job coating in accordance to the ARC method since 1991. Five coating plants and 30 employees allow serving primarily regional markets. Currently, the company offers all kinds of standard as well as some special surface coatings. „All these are hard nitrite coatings being applied on cutting, punch and forming tools as well as component parts“, tells the Managing Director. However, in the area of surface coating the focus is directed on cutting tools.

About 700.000 cutting tools are passing our coating processes at 250 working days / year. „The recent years however, time and competitive pressure drastically increased. The times in which the tools are processed at the plant become shorter and shorter. Two to three days, on average,“ Mr. Eickhoff points out. That's why there is a need to closely coordinate internal workflow. And, there are a lot of competitors exerting high cost pressure. To ensure the company's profitability the company started years ago to take a close look at internal workflow.

Looking for the right partner

There is one basic issue in the field of contract surface coating that applies to all providers. How to assign the individual tools as error-free as possible back to their order, tools that in general differ only slightly after having been processed? "Some thousand parts during a working day that need to be commissioned correspondingly" Michael Hüser, Sales Manager at EITEC, clearly points out the task. In fact, incorrect assignments lead to unsatisfied customers and increasing costs.

"A lot of companies are in a position to mark. However, such complex needs separate the wheat from the chaff."

Michael Hüser, Sales Manager EITEC GmbH & Co. KG

Already in 2003, the Sales Manager thought about a possibility of clearly identifying the tools by means of a Code. However, there are some basic conditions that have to be met. So, the tools are marked on curved surfaces. And, tools out of hard metal in the field of precision metal cutting have to be marked without contrasts. Finally, the tools' rotation characteristics must not be affected in a negative way. "A lot of companies are in a position to mark. However, such complex needs separate the wheat from the chaff", recalls Michael Hüser. „And it has taken several years to find the right solution, respectively the right partner. Today, we are able to offer a functional system to the market that additionally proves its efficiency on site, day after day."

Since 2007 EITEC is collaborating with cab Produkttechnik GmbH & KG, Karlsruhe. Both providers have combined and integrated their particular knowledge in a marking system and are offering today the TOOLMARK 100, a Laser Tool Coding System enabling to permanently and clearly mark tools out of steel with a Data Matrix Code from a shaft diameter of 4 mm on. The system has been implemented and sold commonly and already applies in other companies with great success.



The Laser Tool Coding System enables to easily and perfectly assign the tools back to their commission number after the coating process



Clear and permanent marking with Data-Matrix Code

Testing all Processes

Processes are more or less the same for all contract surface coating service companies. The tools arrive, are recorded and divided into different coating charges. Then, they are passing various ultra-sonic cleaning processes in caustic baths which they are leaving absolutely chemically clean. This is followed by the actual coating procedure that takes between four and six hours depending on the tools' size and quantity. Different testing procedures and the tools' assignment back in the outgoing goods department finalize the process. As part of rationalization all these processes required to be reviewed critically.

At the beginning, focus was put on data recording. „We painstakingly measured all kinds of work regarding their particular flow“, Michael Hüser reports. These include, among others: How long does it take to record the tools in the incoming goods department? How much time is necessary to coat the individual charges? How long do the employees need to assign the individual tools back?

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EITEC GmbH & Co. KG

The tools are measured in size and length by means of a sliding calliper followed by a description of what kind of tool it basically is as well as the quantity of blades. This is added by particularities such as cooling channels. „These activities not only take a lot of time, but also have some bugs“, tells Peter Eickhoff. „We are mainly operating within tolerances of a tenth of millimetre,“ Michael Hüser adds. „So, we were looking for a system able to clearly mark the tools already in the inbound goods and thus enabling to assign them to the appropriate commissioning number in a fast and error-free manner in the outbound goods. The important thing is that the marking must be durable and needs to withstand the whole working processes. Electric engravers or something like that do not work in the long run.“

Modified Laser and Reading Technology

The laser marking technology is used for markings without contrast. cab is developing and manufacturing devices and systems for product labeling and product marking such as label printers, labeling systems and laser marking systems. The EITEC plant uses fiber laser systems with excellent marking quality and resolution. It must be ensured that the tools' characteristics are not changed when coding. cab additionally supplies the standard safety housing and software as a basis for the complete system.

„From the beginning we focused on problem solving by collecting the experiences of EITEC and the requirements of the user and to integrate everything in one system that enables to code round shafts“, Jens Heidel, working for cab as Sales Manager North for laser marking systems, explains. So, what we needed was not only the laser, but particularly the reading technology and that is what we have got. „It is only by reading the data reliably back that the system is able to fully exploit its potential for rationalisation“, Michael Hüser considers. One main role plays the right camera technology that has been provided by EITEC together with the design of the complete system. „All this reflects our know-how. The tools become

unique and are quickly assigned to their commission number“, the EITEC Sales Manager reports.



The Laser Tool Coding System enables to mark tools out of steel or hard metal with a Data Matrix Code in a few seconds



Coating the tools generally takes four to six hours. Then, the parts are passing various testing processes and are finally assigned back

Operation

The Laser Tool Coding System marks on specific tool pallets provided by the surface coating company. It is also possible to code single parts without special devices. The system has a built in auxiliary laser measurement system detecting position and correct distance to the component. A pallet generator is integrated for the collection of data. This helps to quickly and easily feed new tool holders. The system gets its data for the tool coding via text interface. This data text file can be generated and provided by an external IT network. Thus, ECC-200 codes can be marked fully automatically on tools to secure traceability.

Data Matrix Code means a two-dimensional code sized to 3.2 x 6.4 mm with a high memory capacity. On an equally large area the Data-Matrix-Code's storage capacity is 100 times higher than a one-dimensional barcode as data is encoded in a matrix in horizontal and vertical direction. The laser-marked code is read back by the help of a hand scanner in the outgoing goods or at any other operation point. „This code does not contain any company-internal information, but only a serial number that can be linked with a data record containing all relevant information in the data base,“, Jens Heidel points out. „No risk of confusion at all.“

"Due to the ongoing pressure of prices and competition there is no other way than to implement the Laser Tool Coding System as rationalisation measure."

Peter Eickhoff, Managing Director
EITEC GmbH & Co. KG

Benefit for Sharpening Services



Jens Heidel (cab Produkttechnik GmbH & Co. KG), Michael Hüser (EITEC GmbH & Co. KG)

The Laser Tool Coding System is not only used for applications in tool coating, but also in the tool manufacturing, tool trading, sharpening services, tool management or the general tool labelling in serial production. „All these companies have been able to optimize their ERP system for the long run“, Michael Hüser says. „The laser-marked ECC 200 Code allows to be further used from any other company with an appropriate scanner. “

Whether it is a marking primarily as code, text or graphics, the software TOOLSTAR enables to mark the tools easily and with intuitive handling either one by one or in series. Via middleware it is possible to adapt TOOLSTAR to almost all databases, PP and ERP systems, and this with a minimum of programming. By using the shift key in the software it is possible to manually handle the system for the i.e. contract and serial marking. It is also planned to provide a lower-cost solution, a so-called Small-Management-Tool in the near future that enables the customer to organize his production via databases or tables like Access or Excel, and this without the need of an ERP system having to communicate with the system. „Due to the ongoing pressure of prices and competition there is no way to implement the Laser Tool Coding System as rationalisation measure,“ Peter Eickhoff concludes.

Jens Heidel, Sales Manager North Germany, Laser Marking Systems, cab Produkttechnik GmbH & Co KG, Karlsruhe/Germany

- Any questions? Contact us.
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