# Digitalisation and coating of free-form surfaces
for the near-net-shape deformation of components

The most common field of application for this system is the repair of high-quality components. Because of wear or partial damage, the existing CAD-data are not consistent anymore with the real component. For software-based planning of a coating process the real shape is required and therefore the component is digitalised. A laser-line sensor is directed along the object surface by a kinematics to get its real shape. For an optimal performance this digitalisation process is fully integrated in the software.
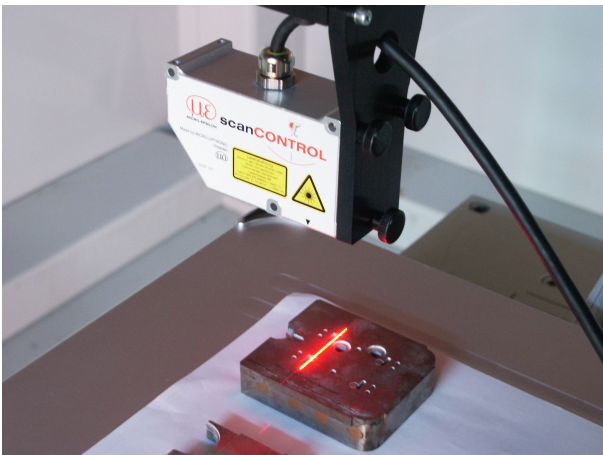

Potentials of the integrated digitalisation:

- Measurement area definition by the user through a camera image of the work table
- Predefined measurement areas for complex components
- Fully automated measurement, data-fusion and -smoothing
- Surface digitalisation with a precision of up to 1/10mm

After the digitalisation process a impervious model of the component exists and is visualised by the software. The usage of the STL data-format enables all common CAD-tools to import these data.

For the determination of the variance between the real component and the nominal reference model a CAD-data-file can be imported.

- Impervious polygon net for an accurate automated process planning
- Import of CAD-data-files enables the realisation of a variance analysis and a generation of the variance volume
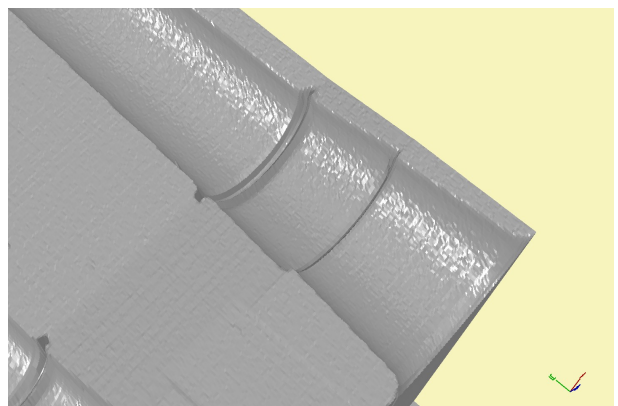
As soon as the digitalisation data are available in the system, a coating process can be planned by the user just within a few steps. The icon-based operation of the software is very intuitive. In addition to a manual planning of the coating process an automated planning process, based on the variance volume, is possible. For complex geometries or large batch sizes the automated planning process is to prefer.
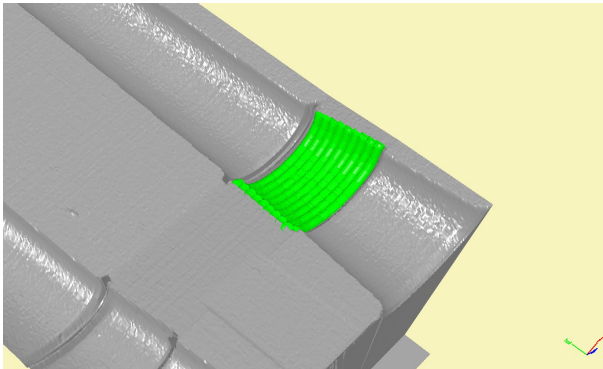

- Surface coating by the definition of an encasing polygon
- Different strategies for the layer configuration (crosswise, parallel shifted, surface meander)
- Automated process planning from variance analysis, filling of variance volumes

After the planning of the coating process, machine code is generated from the planned coating lanes. This generation is done by considering tolerance limits, collision avoidance and the specific machine dynamics. There is no post processing or adjustment needed and the code can directly send from the software to the machine by a single mouse click.

Machine code generation and simulation:

- Machine dynamics are considered
- Collision avoidance
- Utilisation of possible process tolerances
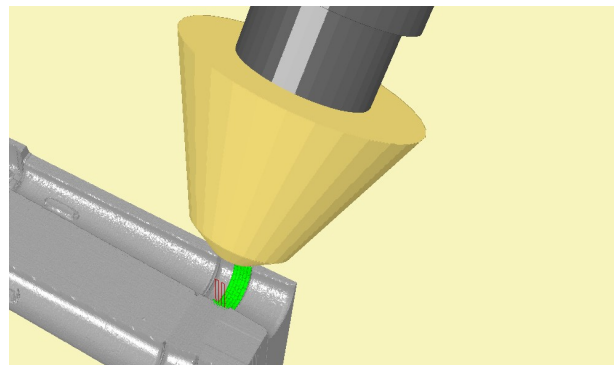
Accordingly the customer requirements we a combining the presented methods in a custom software package. We want that you are able to work efficient and fast with a solid tool which is optimal adapted to you needs.

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