



Save Money with Measurement

“Measuring costs money.” This is the view of most Mould and Tool Makers. Now there is a new solution for this problem which offers a substantial improvement of the overall manufacturing process - from the very first stage. In addition, the customer receives a confirmation of the correct quality of the end product.

Mould and Tool Makers knows the problem well: It is rare that components produced by new tooling are perfectly correct to drawing although the tooling was made exactly according to its drawing requirements. Loss and delay are therefore the norm. F. & G. Hachtel GmbH & Co. KG is a medium-sized injection moulding company from Aalen with its own tool and die making operations and Managing Director Steffen Hachtel and his team are faced almost daily with this challenge.

Optimizing Processes

Mr. Hachtel has implemented the solution from WENZEL Knotenpunkt to resolve his problems of losses and delays in its tooling operations. The actual geometrical data of the produced components are generated by a computer tomography (CT). After measuring the ‘CT voxel data’ is processed using the PointMaster software from WENZEL. The component data is analyzed and compared with the nominal CAD data. At a single glance, the shape variations can be seen due to a topographical deviation map. In contrast to the traditional measurement protocols all deviations measured are shown in colour and the functional relationships can be described, analyzed and evaluated.

A cost-effective tool correction can be performed quickly. It’s not enough to consider only the differences among functional aspects of the components; the tool maker has to find the optimal method for tool adjustment. “The PointMaster software is very flexible and allows our tool designers a variety of corrective options to simulate the mould. They can select the quickest and cheapest option for the tool,” explains Steffen Hachtel. But that’s not all. If the strategy of the tool offset is set, then PointMaster enables the determination of a geometry correction providing a high probability of achieving the correct shape of the component after the manufacturing process according to the drawings. The number of traditional tool correction iterations is drastically reduced.

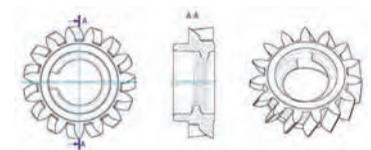
“Since we commenced to qualify our plastic parts and tools in this way we have saved on each new tool by at least 1-2 correction loops and the costs for complex traditional measurement reports,” raves Steffen Hachtel. “And the software can do even more.”

“PointMaster is the only software package worldwide, which can visualize and process standard geometry, free form surfaces, milling programs, voxel data, point clouds, poly meshes, polygonal curves and higher-order curves,” explains Ralf Jaumann, Managing Director of the WENZEL Knotenpunkt GmbH.

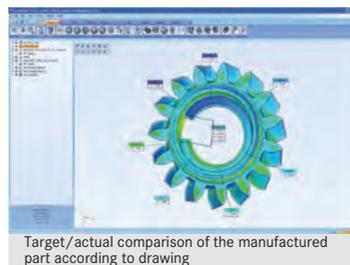
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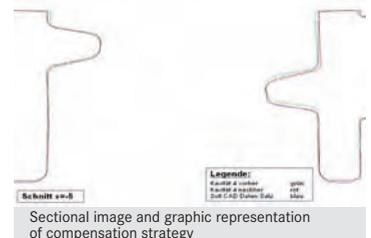
Assembled module



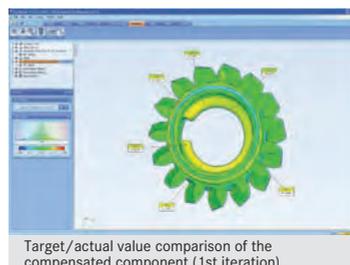
Problem definition: Create an injection mold for a gear with internal thread



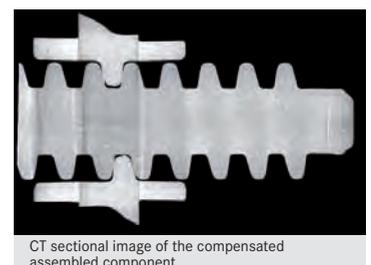
Target/actual comparison of the manufactured part according to drawing



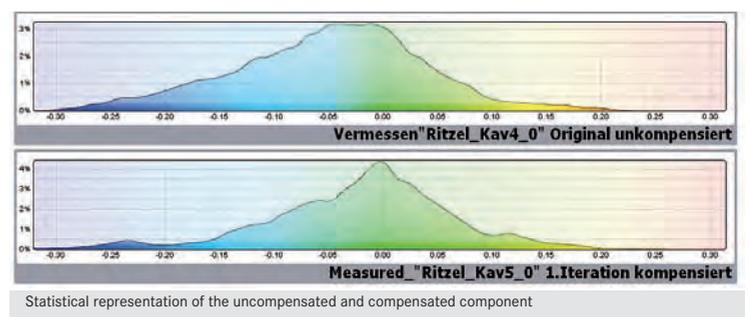
Sectional image and graphic representation of compensation strategy



Target/actual value comparison of the compensated component (1st iteration)



CT sectional image of the compensated assembled component



Statistical representation of the uncompensated and compensated component