
CLOSED-LOOP AM-PROCESS AT THE GROUP GMBH

PART IDENTIFICATION, RECONSTRUCTION, PROCESS- SIMULATION, PRINTING, USE OF COMPONENT

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The air scraper unit of the CONTIROD plants is used to dry the produced wire in the copper plants of the SMS Group GmbH. It has been identified as a possible assembly for additive manufacturing optimization.

In their redesign, several individual parts were combined in a monolithic design. This increased assembly safety and reduced assembly time. Furthermore, the flow channels were optimized. The result is less noise from the overall assembly and improved cooling. The latter, in combination with the material change carried out, contributes to a higher wear resistance and thus to an increased service life of the entire system.

The manufacturing process of the air scraper unit was simulated with Simufact.Additive 4.0. The calculated absolute shifts from the simulation were used for the previous correction of the initial geometry. The goal is to improve the shape deviation to the CAD model. Subsequently, the redesign of the air scraper unit was printed in customized and original geometry on the in-house system of the SMS Group GmbH. The two printed versions were measured with a 3D scanner and the results compared.

The air scraper unit is currently being tested in productive continuous operation. The results of this test so far are very satisfactory.

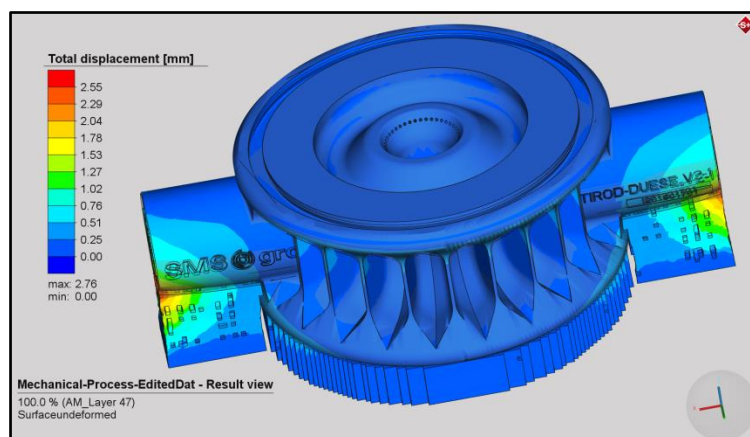


FIGURE 1: TOTAL DISPLACEMENT AS RESULT OF THE FE-SIMULATION