

Case Study:

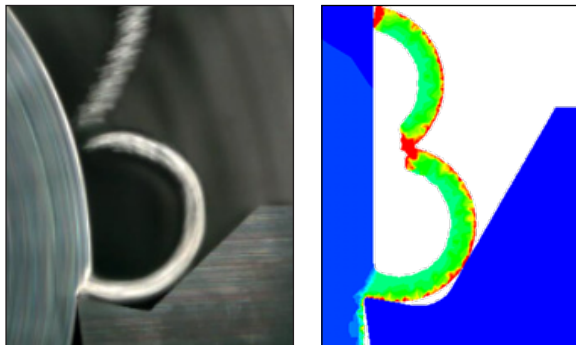
Rheinische Fachhochschule Cologne, Institute of Manufacturing and Tooling Technology
"Simulation Assisted Design & Dimensioning of
Chip Breaking Geometries on Profile Tools"

Rheinische Fachhochschule Köln (RFH) is working on a project with an industrial partner, Schwanog Siegfried Güntert GmbH, to design and develop custom profile tools with chip breakers. The project involves evaluating different types of chip breakers using both AdvantEdge 2D and AdvantEdge 3D. Parameters such as temperature, stress, strain, and more, were compared to the chip's simulation output for different types of chip breaker designs to make educated decisions at every step.

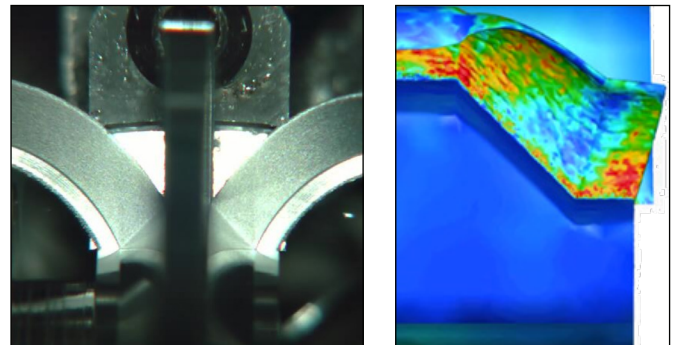
Objective: Transfer of chip breaker geometries to profile tools

Challenges: Profile grooving of ductile materials.

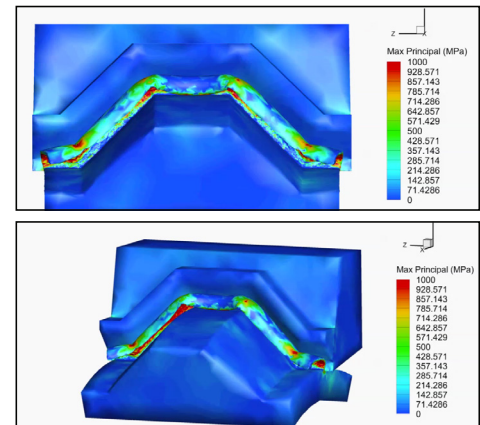
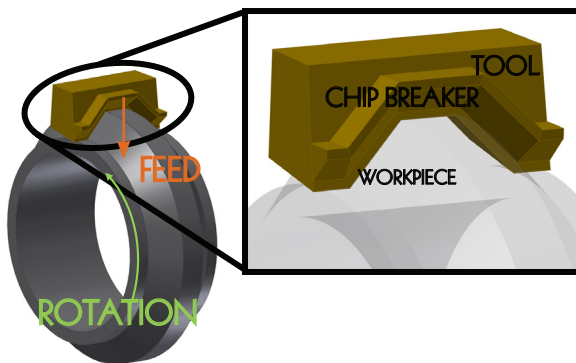
DESIGN OF CHIP BREAKER GEOMETRY IN GROOVING PROCESSES



ANALYSIS OF THE CHIP FLOW AND CHIP BREAKING ON PROFILES



AdvantEdge 2D was used to verify the chip breaking process for each design of chip breaker. The force and stress output on the tool is also studied for selecting the best chip breaker design.



AdvantEdge 3D was used to import a STEP file of a tool to simulate the combined effect due to chip breakers. The chip breaking effect is estimated using the maximum principal stress output from simulation contours. This process is repeated for new designs of chip breakers or tool geometry and is compared against the experimental tests to verify the effects captured by AdvantEdge 3D.