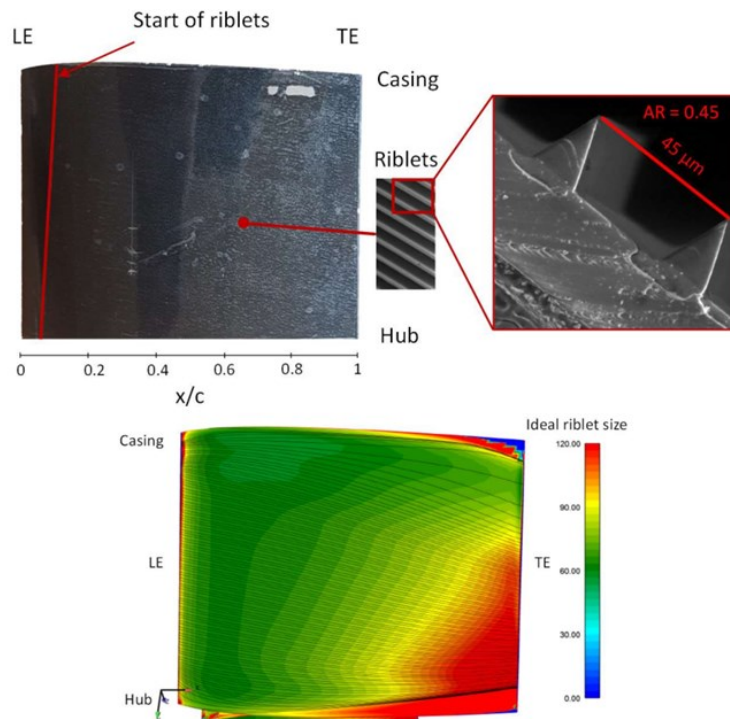


Master thesis

Study on the Abrasion Resistance of Riblets Coating for Low Pressure Turbine Exit Guide Vanes

Riblets consist of tiny grooved surfaces which reduce the drag in the turbulent boundary layer of up to 8% when applied on turbomachinery components, for instance on the exit guide vanes (EGV). Surface modifications such as riblets are one of the most promising technology to achieve benefits in terms of efficiency and reduction of CO₂ and noise emission.

Due to the rough environment where the nanostructures have to be applied in turbomachinery applications, a study on the surface material, application technology and geometrical characteristics has to be conducted to assess their durability and effectiveness in harsh conditions.



This master thesis will focus on the experimental determination of the durability of the riblets applied on the surface of the exit guide vanes. The student will therefore develop a simple testing facility for the evaluation of the erosion resistance of the riblets. The test-rig should use compressed air and abrasive particles in order to allow the testing of different flow velocities and different impinging angles. The data collected during this thesis be used to evaluate the performance of the riblets in harsh environments, similar to the operating conditions in real aircraft engines.

Beginning: September - October 2020
Duration: 5-6 Months
Requirements: Knowledge of the basics of turbomachinery
Language: Deutsch, English
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