

MASTER THESIS

Title/Topic:

Influence of local heat treatments on the formability and on the mechanical properties of AHSS grades

Abstract:

Advanced high-strength steels (AHSS) are typically used as structural components in modern light-weight car design. These steels exhibit high strengths, but their formability and deformability are limited to a certain extent. In order to improve their formability, local heat treatment of the blanks (e.g. by laser or induction heating) in conventional cold forming processes is going to be investigated in this thesis. The suitability of this approach should then also be tested for in-die cutting of the blanks.



Work packages:

- Detailed literature research on AHSS and UHSS grades
- Development of an experimental testing procedure, including workpiece geometry and heat treatment process (e.g. induction or laser)
- Heat treating and forming experiments in the workshop
- Microstructure investigations
- Evaluation and description of the obtained results
- Writing of the master thesis

Requirements:

Motivation and personal interest on the described topic
Highly self-initiated way of working
About 80% of the master studies should be completed

Duration: 6 months

Start: now

Work place: T&F, Inffeldgasse 11/I

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