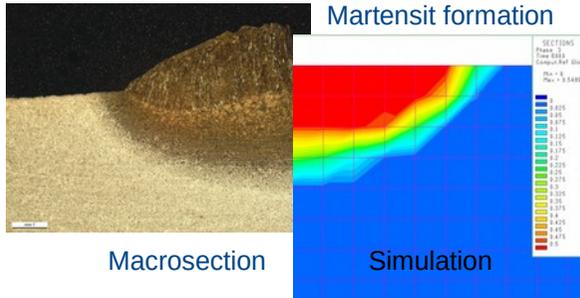
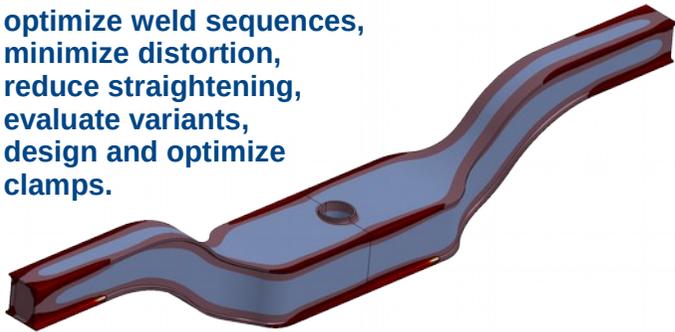


Your Benefit

Numerical simulation provides visualisation of the whole process, knowledge about the material state inside of components and their behaviour during manufacturing and service. Based on this knowledge you can optimize your components and your manufacturing process.



Numerical simulation enables the prediction of distortion. You are able to **optimize weld sequences, minimize distortion, reduce straightening, evaluate variants, design and optimize clamps.**

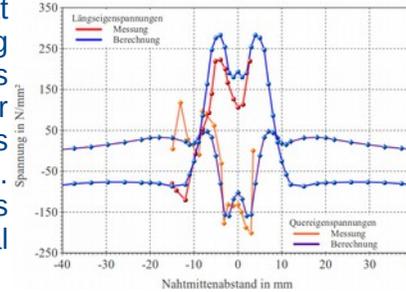


Numerical simulation is a powerful prediction tool with the capability to save many trials in prototyping and reduce the number of wastage.

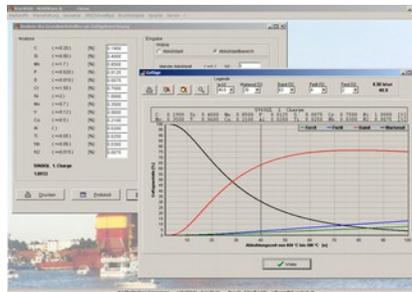
Numerical simulation enables your Company
technological lead
quality assurance
save cost
decreasing time of development

Industrial Use

Validation. During my graduation at University of Karlsruhe and the IIW Round Robin Projekt I could prove that structural welding simulation achieves trusted results for residual stresses and distortions. Thus this method is useful for industrial application.



Additional to a capacious material data base **WeldWare®** offers material data for steels dependent of the chemical analysis of the used materials.



WeldWare® enables you to make a quick estimation for welding parameters, minimum heat input, carbon equivalent or structure composition after welding.

References

Books: http://www.tl-ing.de/en/about_us/book/
 Article: http://www.tl-ing.de/en/about_us/article/
 Conference: http://www.tl-ing.de/en/about_us/conference/

We work together:

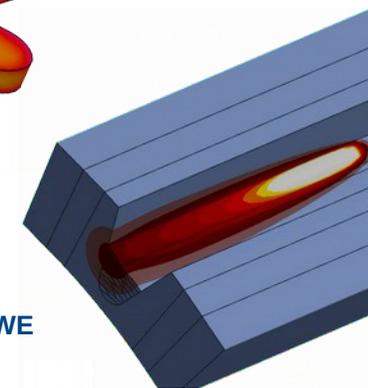
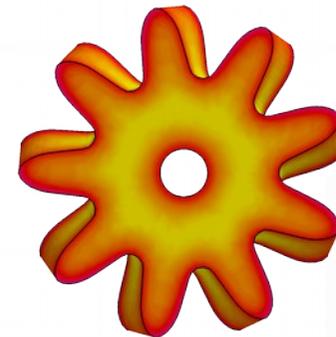


Ingenieurbüro

Tobias Loose



Numerical Simulation for Welded Structures and Heat Treatment



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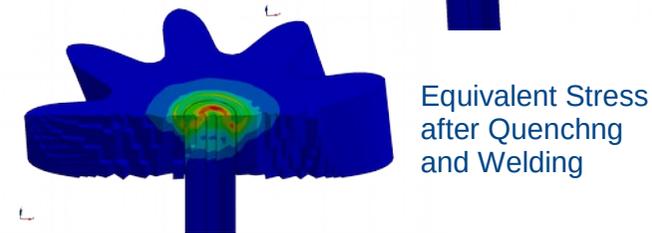
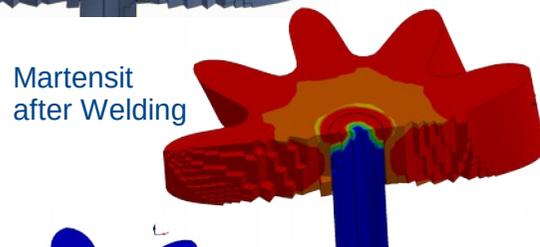
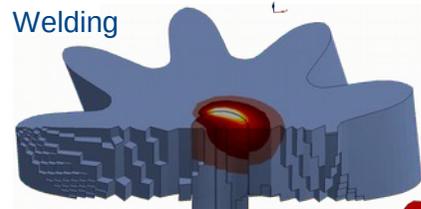
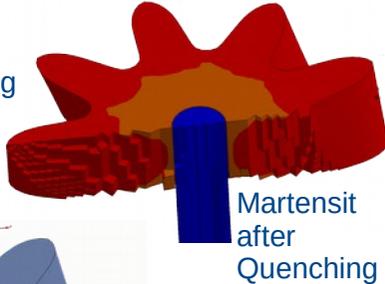
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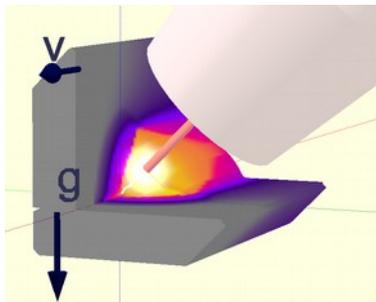
Heat Treatment and Process Chain

We use **DynaWeld** and **LS-DYNA** for our consultings in heat treatment analysis:

- * Heating
- * Quenching
- * Inductive Hardening
- * Case Hardening
- * Tempering

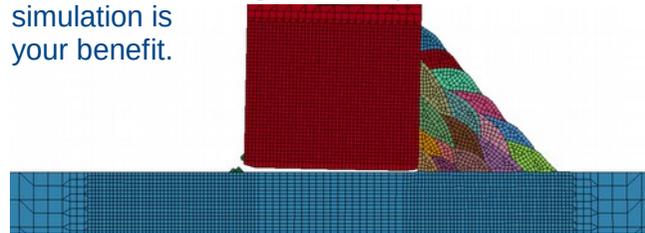


We use **SimWeld** for the estimation of welding parameter, weld pool geometry and the calculation of the equivalent heat source for the welding structure analysis.



Welding

We use **DynaWeld** and **LS-DYNA** for our consultings in welding structure analysis. We provide the knowledge to develop the right simulation model to solve your problem fast and effective. Our long term experience on welding simulation is your benefit.



We can simulate all known welding processes e.g.:

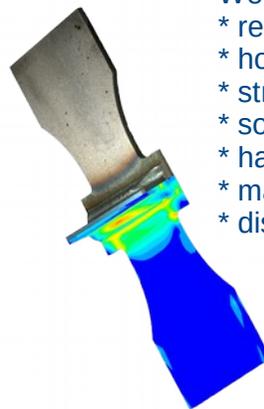
- * arc welding process
- * beam welding process

all weld parameters are taken into account:

- * weld preparation
- * multi layered welds
- * preheating, cooling, clamping and unclamping
- * stress relief annealing and heat treatment

We analyse:

- * residual stresses
- * hotspots with failure risk
- * strength of weld
- * softening by welding
- * hardness and microstructure
- * maximum temperature
- * distortion

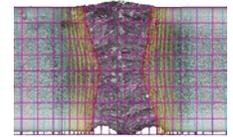


Welding structural analysis helps you to evaluate your optimizations and make your weld save and durable.

Our capability includes to simulate the assembly of structures, take into account predeformations and the process chain forming - stamping - welding - crash - heat treatment.

Our Offers

Consulting

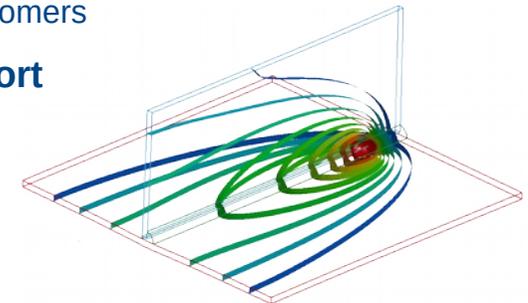


- * Welding engineering
- * Welding simulation
- * Heat treatment simulation
- * Software add ons for customer solutions

Training

- * Training and workshops for welding and heat treatment simulation
- * individual and customized training at our customers

Support



Development and Distribution

DynaWeld
www.dynaweld.eu

Distribution

SimWeld®
www.simweld.eu

for IS+F e.V. Innovations- und Informationszentrum Schweißen und Fügen e.V.

WeldWare®
www.weldware.eu

for SLV Mecklenburg-Vorpommern GmbH