

Project Note

# FEM simulation: component subject to thermal loading

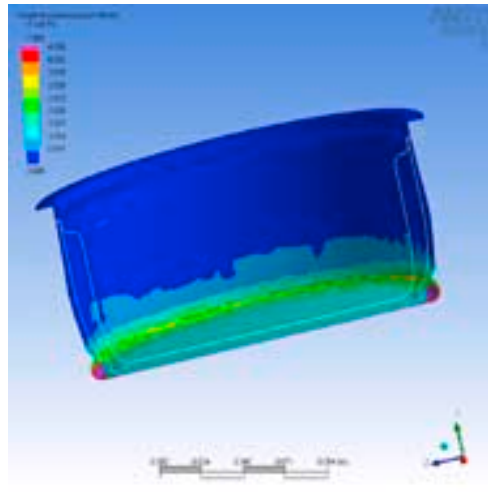
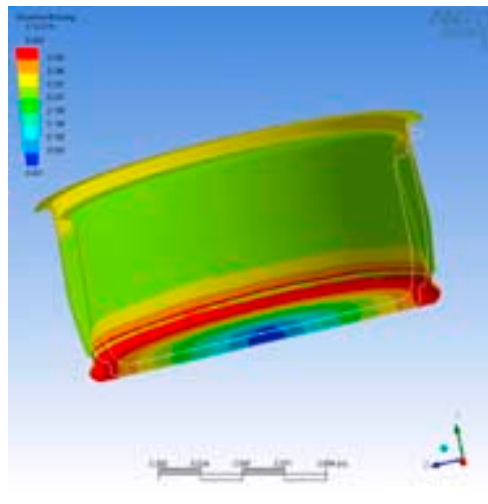
Zühlke used a FEM simulation tool to test CAD models of a design variation for behaviour at high temperatures and for strength at varying temperatures. The customer did not need any infrastructure of its own for this project.

## Task

Kuhn Rikon developed new design variations for an existing product and wanted them to be tested for strength at various temperatures. How did the various design variations respond to high temperatures and what were possible weaknesses in the design? Zühlke was to use simulation to provide the customer with a better understanding of these issues.

## Implementation

The customer's CAD model was scanned into the FEM simulation tool without any losses via an interface. Minor geometric adaptations were able to be entered directly in the integrated environment to simplify simulation. The simulation at various temperatures clearly indicated the areas of the design subject to the greatest stress. For visualisation and quantitative assessment, the team reviewed the thermally induced shift and the resulting stress (Von Mises), along with temperature distribution. The results confirmed the reliability of the design variations.



## Technical Data

FEM:  
ANSYS Workbench

CAD-System:  
ProEngineer/Wildfire

## Customer benefits

- Zühlke's use of simulation expertise saved Kuhn Rikon the cost and effort of setting up a separate infrastructure for the project.
- The design was assessed quickly and at a reasonable cost with simulation early on in the process.
- Zühlke submitted initial suggestions for improvement drawing specifically on its in-house design and material experts.

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