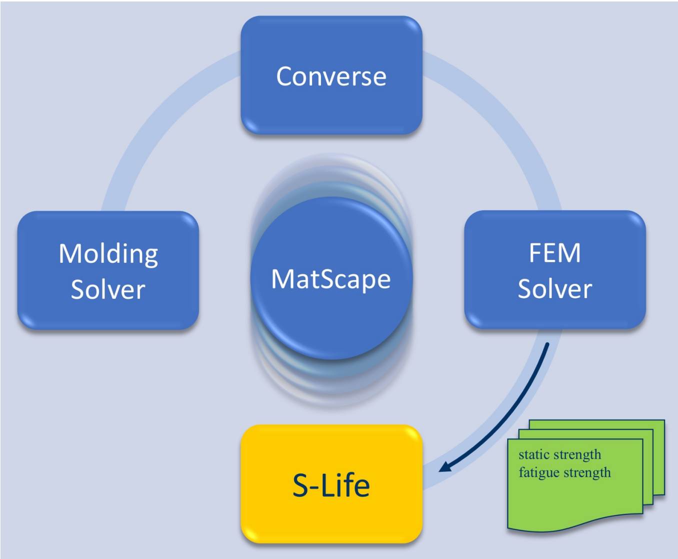
S-Life FKM

Strength Assessment of Metals



What is S-Life FKM?

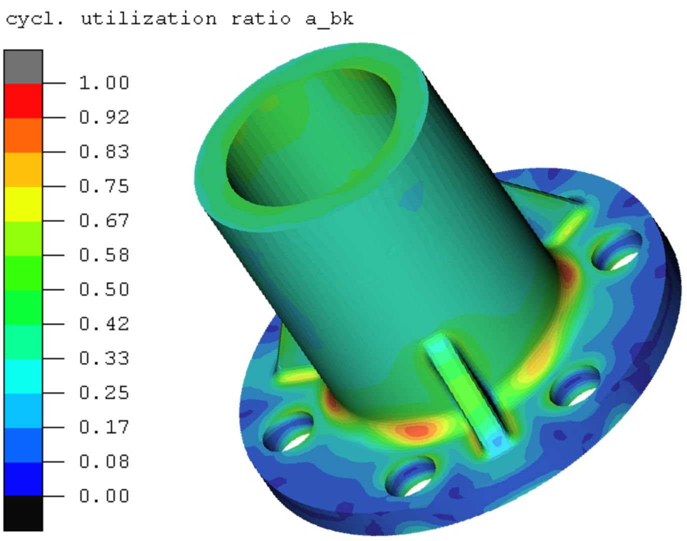
S-Life FKM is the strength assessment software within the PART software suite for steel, cast iron and aluminum materials. Results from a structural simulation are automatically assessed according to the FKM guideline [1]. The software is used as a post-processor.

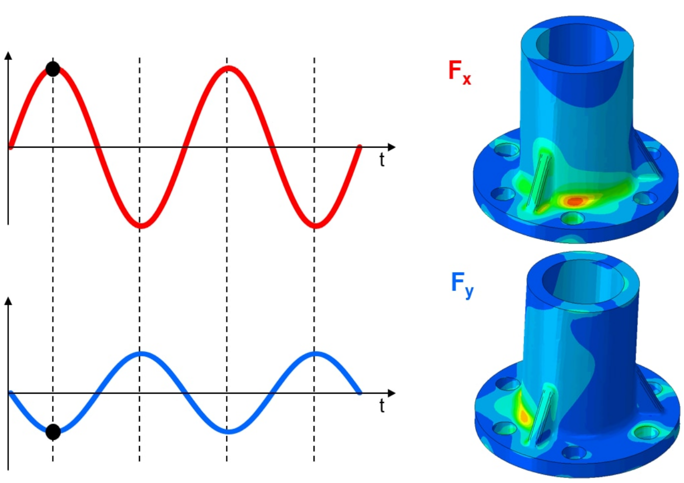
With S-Life FKM, mechanical stresses from FEM simulations are processed in a way so that an evaluation of static strength and fatigue strength is possible. As a result, the static and cyclic utilization ratios of the component are displayed as a contour plot in accordance with the FKM guideline.

[1] N.N: Analytical Strength Assessment of Components in Mechanical Engineering in its 7th revised edition, Forschungskuratorium Maschinenbau, VDMA Verlag, Frankfurt am Main, Germany, 2020.

Some Features & Functionalities

- Static strength assessment and fatigue strength assessment for unwelded metallic components according to the FKM guideline
- Material database with more than 1600 materials (steel, cast iron, aluminum), own materials can be entered
- Load-manager with integrated standard spectra (binomial and exponential), own spectra can be entered
- Critical Plane Approach
- Load-combinator for stress preprocessing (addition, subtraction, multiplication) including determination of critical load combinations for multiple simultaneous loads

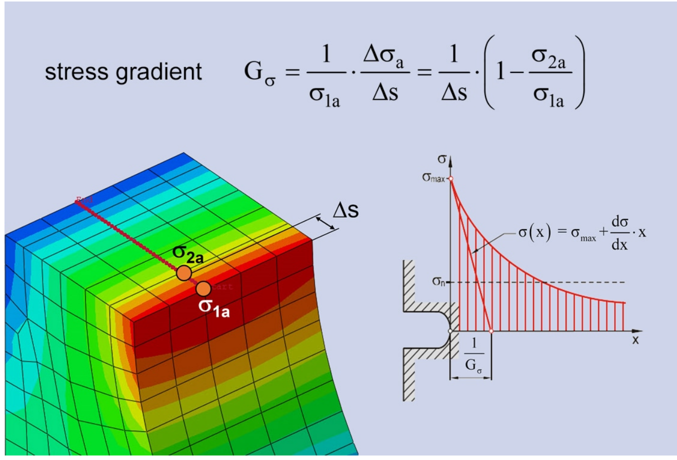


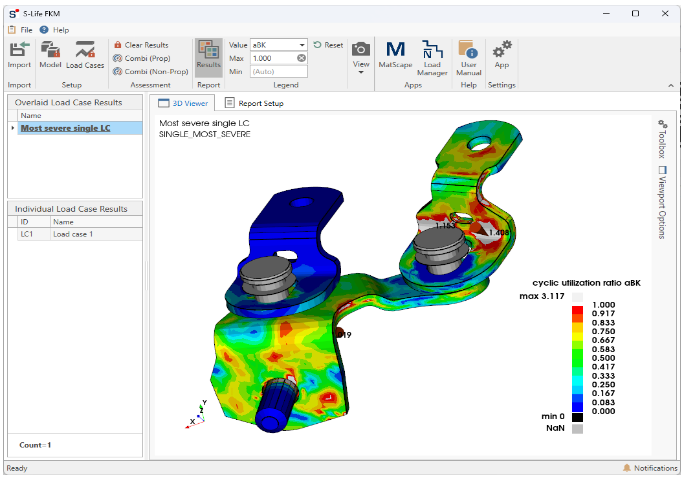


- Handling of non-proportional multi-axial stresses according to the FKM guideline
- Display of static and cyclic load utilization ratios on the component as a 3D contour plot
- Comprehensive reporting of the assessment results per selected node in pdf format
- Interfaces to commercially available structural simulation programs.

S-Life FKM Reduces

- Costs for material testing, since strength properties are already included or determined in accordance with the guideline
- Development time, since the simple automated application eliminates laborious manual assessments
- Errors, since the automated procedure avoids incorrect settings and misinterpretations to the greatest possible extent
- Part and rework costs, as over- or under-dimensioning is avoided through guideline-compliant strength assessment

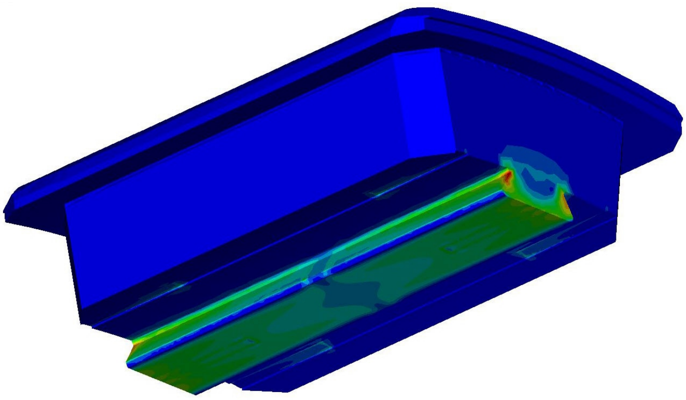




S-Life FKM Increases

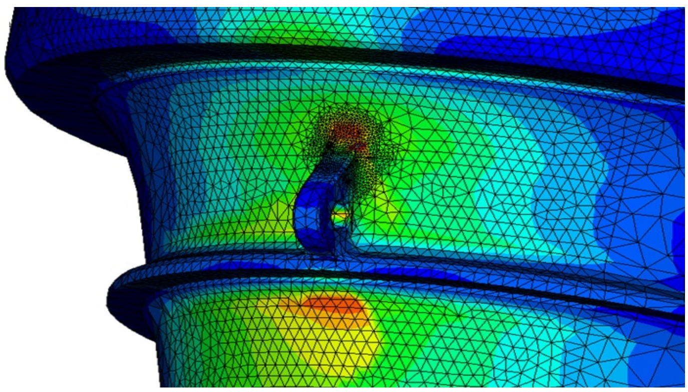
- Reliability of the strength assessment, since standardized procedures are applied in accordance with the state of the art by reflecting the FKM guideline
- Confidence in the strength assessment, since the comprehensive documentation makes the applied procedures understandable and verifiable

S-Life FKM Use Cases



"We use S-Life FKM to evaluate our FE analyses of generator rotors. The intuitive and fast handling reduces considerably our evaluation and documentation effort."

Lukas Speckner
Computational Engineer
Stork Technical Services GmbH, Germany



"Our Mills are dynamically severely loaded. S-Life enables us to conduct a comprehensive strength assessment and component optimization in a simple and fast way. The program also facilitates the documentation of the analysis."

Jörg Bettenworth
Head of Forward Development
Loesche GmbH, Germany