CADFEM®

Simulation is more than Software®

Verifiably strong

FKM inside ANSYS

CADFEM ANSYS Extension for Strength Assessment according to FKM Guideline with material database

Strongly integrated into ANSYS

The FKM guideline was developed by the Advisory Board for Engineering and Research for various applications in mechanicalengineering and other sectors. FKM inside ANSYS allows the local strength assessment defined by this widespread computational algorithm to be supported within ANSYS Workbench, including in the form of parameter studies with change of material or surface treatment. As a complement, FKM inside ANSYS contains the WIAM material database for quick generation of material cards inside ANSYS Workbench.

Convincing tools

- WB/FKM – global, directive-compliant strength assessment of non-welded solid bodies according to FKM
- WB/FKM-Weld – Strength assessment of seam welds in shell and solid structures according to FKM
- WB/WIAM fatigue RIFEST – Strength assessment at test points for welded and non-welded components according to FKM
- WB/WIAM Engineering Data – material database for metallic materials

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WB/FKM

Global, directive-compliant strength assessment, integrated into ANSYS Workbench, of non-welded solid bodies according to FKM

A frequent challenge in FEM is the evaluation of stress results, in particular with cyclic stresses. The FKM guideline "Analytical Strength Assessment of Components" describes a static strength assessment as well as a fatigue strength assessment. WB/FKM facilitates the evaluation of an FEM analysis by carrying out a global strength assessment according to the FKM guideline for the analytical models.

This has the following advantages over a manual assessment, for example:

- The complete integration in ANSYS Workbench enables fast and simple definition of the assessment parameters.
- The global test permits a fast and safe location of critically stressed points.
- The visualization of the degree of utilization facilitates advanced interpretation of the results.

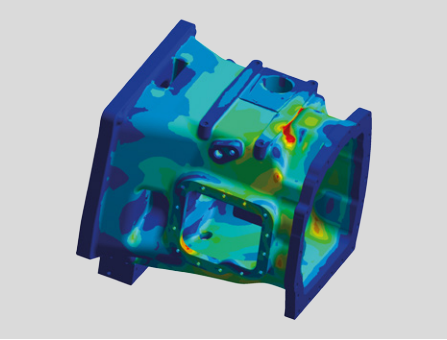
WB/FKM-Weld

Directive-compliant strength assessment , integrated into ANSYS Workbench, of weld seams on shell and solid structures according to FKM

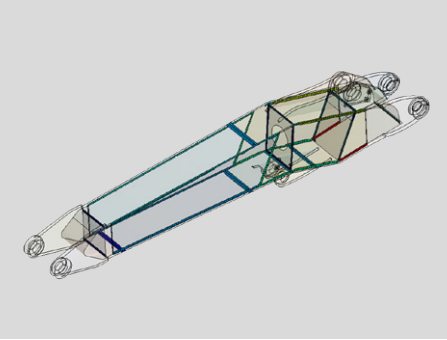
Analogous to the WB/FKM module, WB/FKM-Weld also facilitates the evaluation of stress results for cyclic stresses based on the FKM guideline "Analytical Strength Assessment of Components" through a static assessment and a fatigue assessment.

WB/FKM-Weld covers the strength assessment of welded shell and solid structures and also offers the following advantages:

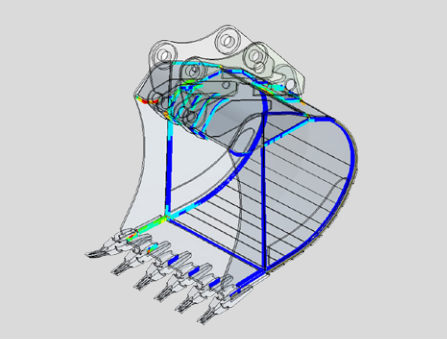
- The complete integration in ANSYS Workbench enables fast and simple definition of the assessment parameters.
- User support during a search for and definition of weld seams.
- Presentation of results facilitated with visualization of the degree of utilization.
- Strength assessment of seam welds on solid structures in ANSYS Workbench with WB/FKM-Weld



Integrated through WB/FKM into ANSYS Workbench: the strength assessment is compliant to FKM guideline



Strength assessment of seam welds on shell structures in ANSYS Workbench with WB/FKM-Weld



Strength assessment of seam welds on solid structures in ANSYS Workbench with WB/FKM-Weld

FKM inside ANSYS

CADFEM ANSYS Extension for Strength Assessment according to FKM Guideline with material database

WB/WIAM fatigue RIFEST

Fatigue Analysis integrated into ANSYS Workbench at assessment points for welded and non-welded components according to FKM

Integrated into ANSYS Workbench, the WB/WIAM fatigue RIFEST module supports the use of various Fatigue Assessments during component stress analyses. Among them are strength and fatigue limit tests according to the FKM guideline and the simulation of assessment points for welded and non-welded components. The module offers the degree of utilization quick, uncomplicated, parameter studies – such as variation of material selection, seam welding notch selection, or surface treatment – accelerating the verification process.

The most important functions of the module are:

- Fatigue Assessment with constant amplitude or with variable amplitude, including the required static Fatigue Analysis
- Fatigue Analysis for individual assessment points on the basis of existing local elastic stresses (such as those available from FEM simulations or strain gauge measurements)
- extensive database of welded and non-welded machinery components: Rolled steel, iron casting material, aluminum material (including material properties)
- normal and high temperatures

WB/WIAM Engineering Data

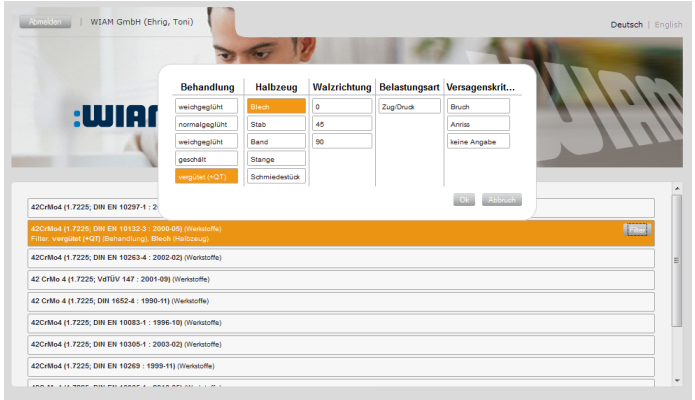
WIAM metallic material database integrated into ANSYS Workbench

The convenient WB/WIAM Engineering Data material database is based on the WIAM METALLINFO data pool and thus contains an extensive, up-to-date range of materials in one location. The material data includes norm history and international recoding.

The database is notable for the following:

- direct data import into ANSYS Workbench
- German and European standardization
- TÜV material performance sheets
- Steel and iron list and material data sheets, including those from manufacturers
- FKM guideline
- Ring trials and trial series at recognized universities
- Technical literature
- with sources comprehensively and precisely cited

WB/WIAM fatigue RIFEST: The user receives a comprehensive report concerning all relevant parameters.



WB/WIAM Engineering Data material database: simple access to the latest material data

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Technical information

System requirements: ANSYS Workbench, Version 19.1 or later

www.cadfem.de/extensions

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