FATIGUE STRENGTH PROOF / FATIGUE LIFE ANALYSIS

Many of **winLIFE's** new customers have ordered a first pilot project. A typical task is worked on together with the new winLIFE user and all steps are explained and documented.

The data will be installed on the customer's workstation and will serve as a template for similar projects in the future. During this joint elaboration of the project, which partly takes place at the customer's premises, the employees get to know each other personally and the basis for a close and uncomplicated cooperation is laid.

EXAMPLES FOR SUCH PROJECTS ARE

- Fatigue life analysis of weld seams in crane vehicles and proposals for improvements
- Fatigue life analysis of chassis of military vehicles and proposals for upgrading the components
- Evaluation of measurements on strain gages to define a representative load spectrum of vehicle components
- Fatigue life analysis of transmission components and determination of damage equivalent distances
- Fatigue life analysis of wind turbine components according to certification guidelines
- Fatigue life of commercial vehicle tyres in case of thermal misuse
- Improvement of constant speed joints by material modification
- Fatigue life analysis of needle bearings while swinging considering the changing hardness in distance from the surface

CONTACT

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Steinbeis

The platform provided by Steinbeis makes us a reliable partner for company startups and projects. We provide support to people and organizations, not only in science and academia, but also in business. Our aim is to leverage the know-how derived from research, development, consulting, and training projects and to transfer this knowledge into application – with a clear focus on entrepreneurial practice. Over 2,000 business enterprises have already been founded on the back of the Steinbeis platform. The outcome? A network spanning about 5,500 experts in approximately 1,100 business enterprises – working on projects with more than 10,000 clients every year. Our network provides professional support to enterprises and employees in acquiring competence, thus securing success in the face of competition.

www.steinbeis.de

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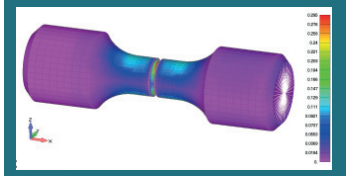
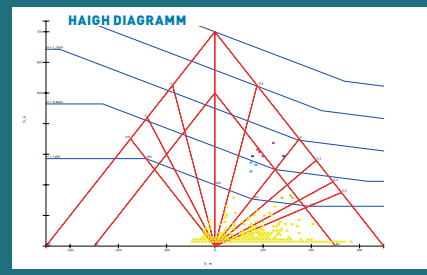
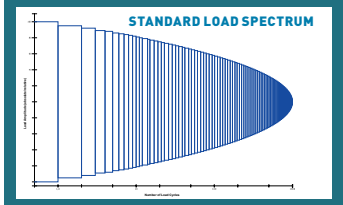
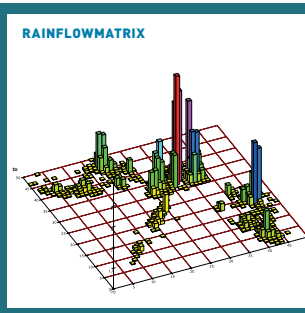
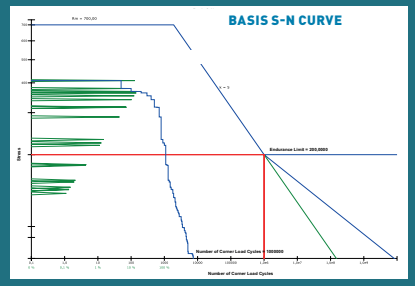


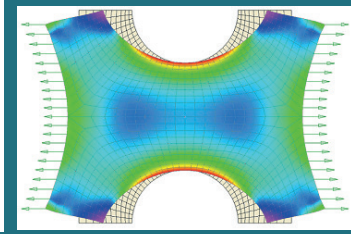


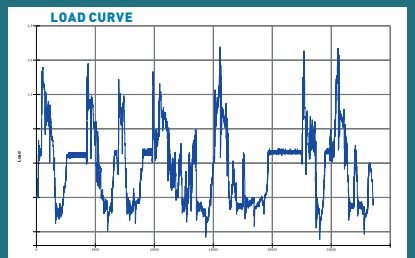


win LIFE









OUR TOOL winLIFE

- **winLIFE** – (Fatigue **L**ife **I**nformation **F**inite **E**lements)
- **winLIFE**, software by engineers for engineers for over 30 years
- **winLIFE** enables the rapid identification of critical points with regard to fatigue strength and supports the optimisation process at a very early stage of development – long before time-consuming and cost-intensive tests are carried out.
- **winLIFE** components
  - welded/non-welded
  - gearwheels/bearings
- **winLIFE** calculation concepts
  - Nominal stress concept
  - Structural stress concept
  - Local Concept
  - FKM/GL
- **winLIFE** Load
  - Measured, synthetic time histories, load spectra, Rainflow and Random
- **winLIFE** S-N Curve
  - Syn. S-N curve generators
  - Material database > 2,000 data sets
  - User/company database
- **winLIFE** licence models
  - Purchase licence single user / network
  - Rental licence
  - University licence
- **winLIFE** FE interfaces
  - ABAQUS, ADAMS, ADINA, Ansys, FEMAP, NX Nastran, OptiStruct, PERMAS, RecurDyn

winLIFE MODULES

The **winLIFE BASIC MODULE** covers the essential basics of fatigue strength calculation. Typically, a winLIFE user starts his work with this. Additional modules cover all other areas of fatigue strength:

FKM QUICKCHECK

Static and fatigue strength proof (endurance limit, fatigue life or fatigue strength proof) according to **FKM** and quick endurance limit proof via permutation of load cases.

winLIFE MULTIAXIAL

Fatigue life analysis for multiaxially dynamically loaded components -> superposition of several unit load cases.

winLIFE MULTIAXIAL MULTICORE

Significant reduction of computing time through parallelisation of the running processes.

winLIFE GEARWEEL&BEARING

Fatigue life analyses for dynamically loaded gearwheels and bearings, nominal stress method.

winLIFE CRACKGROWTH

Crack propagation calculation with the help of nominal stresses.

winLIFE RANDOM FATIGUE

Fatigue life calculation with stochastic excitation (PSD)

winLIFE STATISTIC

Optimisation and Design of Experiments (DoE)

winLIFE VIEWER4WINLIFE

Fast interface-independent 3D pre- and post-processor for visualisation of winLIFE results.

SUPPORT / SOFTWARE DEVELOPMENT

We offer FLEXIBLE SUPPORT for your software projects. Depending on your requirements, we will advise you at your premises as well as at our own premises in Langenau.

Due to the flexible human resources, a pool of employees with exceptionally broad and deep of knowledge and skills is available to handle your tasks. Through continuous further training in current and future market-relevant technology and process topics, our employees are always up to date.

TRAINING

In addition to the winLIFE seminars (max. 12 participants) regarding fatigue life calculation (winLIFE BASIC, winLIFE MULTIAXIAL), which take place 3 times a year in German language, we offer inhouse seminars. Company-specific questions are addressed.

We hold these inhouse seminars at our customers with multiple licenses at regular intervals, so that all new employees receive a quick introduction.

Once a year we offer the seminar in English language. The coordination of dates is done according to arrangement. A minimum of 6 persons is required.