PROGRAM

INFORMATION

Program (9:00 am to 1:00 pm)

- Welcome
- Introduction to Jurojin
- Statistical Reliability Engineering
- Usage of Prior Knowledge
- Constant Amplitude SN-Curves – Efficient Wöhler Models
- Durability Validation for Variable Loads
- System Reliability
- Analysis of Maintenance and Warranty Data
- Conformity of Production

Speakers

- Hannes Christiansen, Fraunhofer ITWM
- Dr. Klaus Dreßler, Fraunhofer ITWM
- Dr. Sascha Feth, Fraunhofer ITWM
- Dr. Jochen Fiedler, Fraunhofer ITWM
- Dr. Michael Speckert, Fraunhofer ITWM

Please register for this webinar under
www.itwm.fraunhofer.de/jurojin-technology-day

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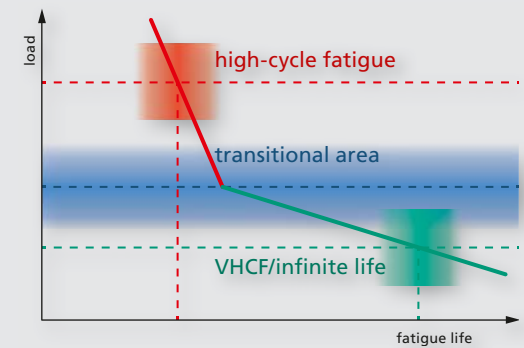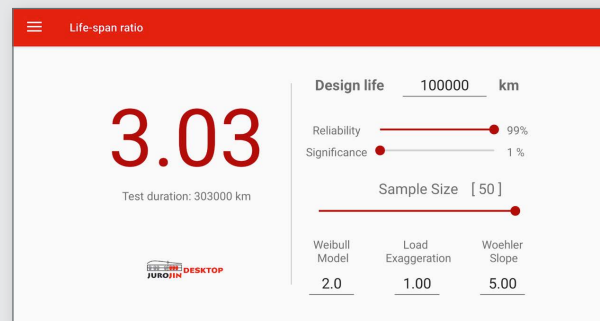E-mail: mdf.seminare@itwm.fraunhofer.de

WEBINAR
JUROJIN TECHNOLOGY DAY – STATISTICS FOR FATIGUE TESTING AND RELIABILITY ANALYSIS

Monday, February 1, 2021, 9:00 am to 1:00 pm

Additional date: Monday, February 15, 2021, 2:00 pm to 6:00 pm

JUROJIN

JUROJIN TECHNOLOGY DAY – STATISTICS FOR FATIGUE TESTING AND RELIABILITY ANALYSIS

Life-span ratio

3.03

Test duration: 303000 km

Design life   100000   km

Reliability   99%
Significance   1 %

Sample Size [50]

Weibull Model	Load Exaggeration	Woehler Slope
2.0	1.00	5.00

JUROJIN DESKTOP

high-cycle fatigue

transitional area

VHCF/infinite life

load

fatigue life

Introduction to Jurojin

Components that are exposed to mechanical loads need to be designed for real customer usage. Variability of loads and of production quality represent major challenges. Jurojin provides best availably statistical methods for durability engineers to tackle those challenges. The software provides accurate evaluations for engineers – using sophisticated statistics without requiring the user to have advanced statistics skills.

At our technology day we demonstrate typical application examples and their efficient solution in Jurojin.

Statistical Reliability Engineering

Fatigue tests are time-consuming and expensive. How do you prove high reliability based on few end even censored tests?

Usage of Prior Knowledge

Mostly, reliability engineering starts from scratch – over and over again. At the same time, there is a lot of unstructured knowledge about previous component releases – somehow similar in general, but different in detail. How can this knowledge be used in a statistically sound manner for a more efficient component release testing?

Constant Amplitude SN-Curves – Efficient Wöhler Models

There is a huge zoo of methods to fit SN-curves to data. Almost none of them can deal with all situations, were a simple model does not describe the situation well enough. See how the ITWM model with model complexity choice can efficiently fit combined models to almost any data situation.

Durability Validation for Variable Loads

Components are often tested against a fixed load scenario, but need to survive under variable customer loading. How do you prove high reliability against such highly variable loads?

System Reliability

Complex mechatronic systems consist of dozens of components with different failure modes. Naive multiplication of the individual reliabilities will lead to a numerical zero for the total system. How to address this problem and also assign confidence levels?

Analysis of Maintenance and Warranty Data

Shortly after market launch, you might encounter early unexpected failure. Trying to forecast few failures after short time periods to the products design life is like dividing zero by zero. How do you get to reliable forecasts in such situations?

Conformity of Production

In monitoring production to ensure quality, control variance and detect drifts, typically one only looks at the current drawn data set. How can you benefit from the knowledge aggregated in all these tests? Is there a chance of reducing the sample size over time?