PRODUCT DATA

Test for I-deas Fatigue — BZ-6021

Test for I-deas Fatigue software provides test engineers with basic capabilities for estimating fatigue life from experimental data. It supports the graphical display of function data such as spectra, math processing, time history processing and display, histograms, data access and management, and open architecture and interfacing.

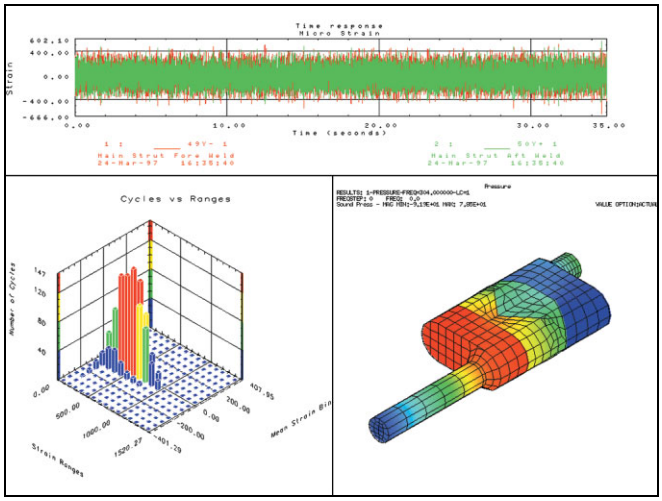
USES

- Fatigue life estimation from test data

Fatigue Analysis

The Fatigue Life task uses the cumulative damage approach to estimate fatigue life from stress or strain time histories. Estimation is accomplished by reducing data to a peak/valley sequence, counting the cycles, and calculating fatigue life.

Peak selection methods include tolerance and racetrack, while cycle counting methods include rainflow and range pair. Life criteria include ASME and Welding Institute. Optionally, Stress Life includes mean effects, strain life, and Smith Topper Watson, which automatically includes mean effects. Equivalent stress methods for estimating mean effects, include Goodman, Soderberg, Gerber, and Morrow methods, which can be used with ASME, Welding Institute, and Stress Life criteria. The notch factor is accomplished using Neuber's rule.



Material properties management includes a standard library, user-defined properties, and S/N curve graphing.

Time History Task

The Time History task provides for the managing and processing of time history records stored on disk. Time history records can be multichannel and unlimited in size, with either even or uneven time point spacing.

Histogram Task

The Histogram task provides for reducing time history data into frequency distributions. The histogram shows the frequency of events in the data according to the predefined categories.

Specifications – Test for I-deas Fatigue BZ-6021

PREREQUISITE
Test for I-deas Core Test BZ-6000

FATIGUE LIFE ESTIMATION METHODS
Peak Selection Methods: Tolerance and racetrack
Cycle Counting Methods: Rainflow and range pair
Life Criteria: ASME, Welding Institute and Stress Life
- Optional with Stress Life: Mean effects, strain life, and Smith Topper Watson, which automatically includes mean effects

Equivalent Stress Methods for Estimating Mean Effects: Goodman, Soderberg, Gerber, and Morrow methods, which can be used with ASME, Welding Institute, and Stress Life criteria
Notch Factor: Via Neuber's rule

Material properties management includes a standard library, user-defined properties, and S/N curve graphing

TIME HISTORY AND DISPLAYS
- Decimation allows the number of time points (n) to be reduced yielding a new time history with a length of 1/n
- Digital filtering includes FIR (finite impulse response), low pass, high pass, band pass, band reject, multiband filtering; sloped passband from integration and differentiation; rectangular, triangular, hamming, general hamming, hanning, Kaiser, Chebyshev mathematical windows, and resampling (interpolation, decimation)
- Strip chart displays support large, multichannel time histories which are divided into user-defined frames and then viewed using a high-speed display on a frame-by-frame basis, or by moving to a specified frame location. Data frame(s) satisfying defined criteria can be automatically searched and displayed; convenient, interactive, cursor-driven editing; synchronised or nonsynchronised multichannel editing operations; and concatenating of separate multichannel files
- Frame statistics assist in automatically locating specific data occurrences in large time history files. The following statistics are calculated per frame per channel: standard statistics: minimum, maximum, range, mean, standard deviation, RMS, area, variation, skewness, Kurtosis, crest factor, extreme deviation, Markov regression coefficient; and optional statistics: median, peaks and level crossing, upper and lower threshold counts, quivalent completely reversed stress
- Time history math operations: A subset of the math operations in Test for I-deas Core Test section, which is appropriate for time history processing, is included for operating directly on large time history files (for example, offsets, scaling of a single record, and addition, subtraction, multiplication, and division of two records)
- Peak valley reduction includes simple tolerance, range pair, and race track

HISTOGRAM PROCESSING
Histogram counting techniques include data, time, peaks in range, level crossing, range amplitude count, rainflow, range pair, race track (ordered overall range) counting, and two-dimensional correlation. Arithmetic operations are available as well as user-definable 2D or 3D colour bar chart displays

Ordering Information

BZ-6021-F	Test for I-deas Fatigue	M1-6021-F	Annual Software Maintenance and Support Agreement	M2-6021-F	Annual Software Maintenance and Upgrade Agreement

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