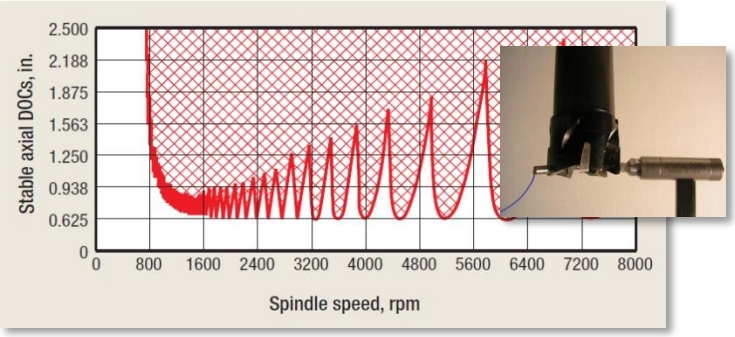
BlueSwarf
THE PERFECT CHIP

METALMAX™

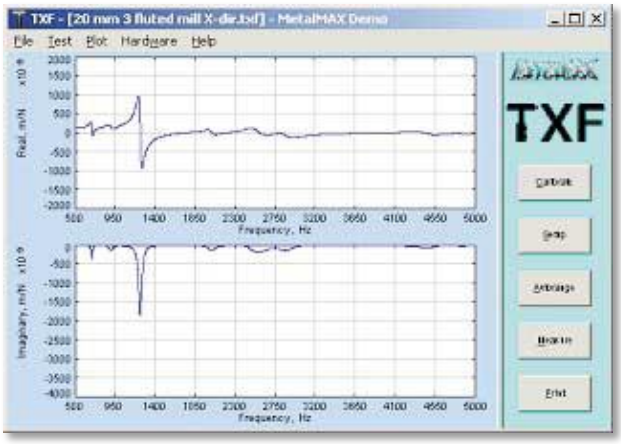
The Complete Package for Machine-Tool Dynamic Characterization



MetalMAX™ includes all the necessary hardware and software for performing what is known as "modal" testing (Frequency Analysis) and data acquisition. It processes very quickly and easily this information into useful cutting parameters (DOC's, Speeds, and Feed Rates). MetalMAX™ contains dynamic measurement and simulation software for dynamic cutting performance prediction (e.g. chatter limits). High-performance data acquisition systems verify predictions and fine tune chatter free spindle speeds. Specifically, MetalMAX™ includes TXF™, PCScope™, MilSim™ and the Harmonizer®. These software applications are specifically tailored to measurement of machine tools.

SOFTWARE:

TXF™ is a very easy to use frequency analysis package that immediately and accurately computes cutting parameters specific to the input material and machining conditions. It computes dynamic data (frequency, stiffness, damping) to make scientific and quantitative comparison of tool stack-ups. Output from TXF is shown at the top of the next page: On the left is a FRF (frequency response function); on the right is a stability-chart that provides stable depths-of-cut and chatter frequencies for all spindle speeds. Machinists or NC-Programmers can use the output to select nonchatter conditions for any cutting configuration (width or depth of cut, direction, cutting power, metal removal rate).



MilSim™ is a milling simulation program that utilizes the output of TXF to make detailed and accurate predictions of stable depths-of-cut. It additionally predicts cutting force levels, cutter displacements and dynamic cutting accuracy. The package provides the next level of predictability and analysis for use by NC programmers and manufacturing Engineers. Full dynamic vibratory behavior is predicted including resonant conditions. Chip loads (feed rates) can be optimized based on cutting forces and displacements.

Harmonizer® is a validation and fine tuning tool. TXF™ and MilSim™ predict the best operating conditions for the cutting tool, fixture and machine. HARMONIZER® The user operates within these parameters using the Harmonizer® to confirm that no chatter is present and if present the Harmonizer® can additionally suggest further rpm changes to eliminate chatter. By itself, Harmonizer® can be used by leadmen to make fast chatter free tool setups. Refer to the Harmonizer® literature for more information.

PCScope™ is an extremely easy to use data collection package with frequency analysis capabilities. Up to four-signals can be collected at once. The package provides additional monitoring capabilities of any machining measurement, from a microphone to accelerometer or any gauge having up to a +/- 10-volt output signal. Additional features include windowing, harmonic tracking and parsing and storage of samples.

Other MetalMAX™ options not included in the base package are the following:

SPA™ is the spindle analysis package utilizes Finite Element Analysis. It is extremely easy to use and quickly evaluates spindle designs and predicts performance of modeled tool, holder and spindle stack-ups.

Aircraft-Coupon using MetalMAX™ system to optimize end-milling cutter performance (4-flute, 3/4" dia., 4" length, carbide). Machined from 4"x6"x4" solid aluminum block in 24 minutes using a single tool. 0.020" thick walls and floor with near RMS 32 surface finish.and floor with near RMS 32 surface finish.

Important Features:

- ELIMINATES CHATTER!
- 30% minimum improvement in machining productivity.
- Cost effective: Savings from one production run can cover investment.
- Eliminates finger pointing, objectively determines the weak link (tool, holder, spindle, fixture, etc.).
- Utilizes leading edge techniques, software and hardware.
- Scientifically predicts best spindle speeds, depths of cut and feed rates.
- Lowest cost, most complete system available.
- Recognized worldwide by universities and major machine shops.

For More Information

Learn more about BlueSwarf® and the MetalMAX™ system at www.blueswarf.com

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