Vibration Site Survey

Vibration and shock data analysis

FABREEKA®
VIBRATION & SHOCK CONTROL

Low frequency vibrations can adversely affect the accuracy, repeatability and throughput quality of your machine tool. A vibration site survey/analysis will determine the levels of vibration existing at your site which is required for proper vibration control recommendations to be made.

Standard Vibration Site Survey

Precision machining, manufacturing and inspection processes often take place simultaneously in disruptive environments. A component of these environments is unwanted and often undetected vibration, which can and will adversely affect the operations of installed equipment.

Quantifying and analyzing the vibration and shock criteria existing at a present or proposed installation site for precision equipment such as a precision machine tool, CMM or other equally sensitive machine is recommended to assure long term accuracy and reliability.

A site vibration survey/analysis report will determine the frequency content of vibration amplitudes which exceed the allowable floor vibration specification for your machine(s).

Most precision machine tool and measuring machine manufacturers have established allowable vibration specifications for their machines. Fabreeka measures vibration at the proposed site(s) of your installation, analyzes the data and presents the results in the specified format. Measurements will be made in three (3) axes simultaneously, using highly sensitive seismometers, which can accurately record amplitudes of vibration at very low frequencies.

Measurement data includes:

- Fast Fourier Transform spectral analysis (band width per manufacturer's specifications)
- Displacement data
- Velocity data
- Acceleration data
- Power Spectral Density (energy content at each frequency within the specified bandwidth)
- In all three primary axes simultaneously
- 1/3 octave bandwidth
- Integrated bandwidth as low as 1/4 Hz
- Coherence
- Transfer function
- Transient analyses

Special Vibration Site Surveys

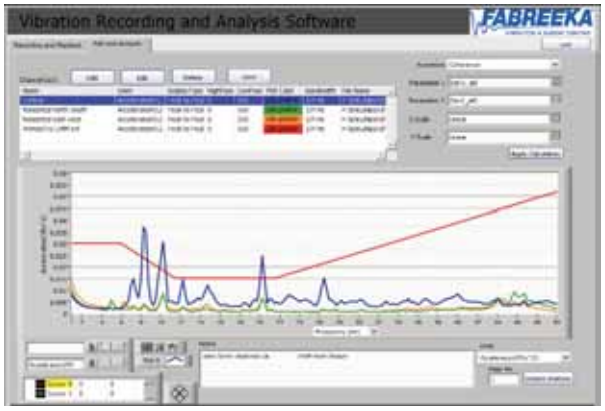
Fabreeka is often requested to perform measurements which require special data analysis, including tip and tilt phenomena, foundation/isolation system natural frequencies, long-duration time studies and other specialized analyses. We welcome, in fact, encourage requests for unique measurement requirements. It is better to be absolutely certain of all possible conditions that could impact a site before equipment is installed.

Service

Analyses include actual test data outlining the frequency and corresponding amplitude of acceleration, velocity and displacements which may cause potential problems. Analysis of data from vibration measurements, enables computer matching of measurement results with Fabreeka's isolation database. Problem situations are identified and the appropriate isolators or systems are selected. We can plot both before and after data vs. criteria.

We have established a structured sensor calibration and equipment upgrade program to ensure state-of-the-art measurement reliability and accuracy.

Fabreeka engineers are deeply committed to advancing our vibration measurement technology with their involvement in Engineering Standards, such as ASME B89.4.17 "Vibration Site Analysis of CMM Sites and IEST-RP-CC024.1 "Measuring and Reporting Vibration in Microelectronics Facilities." In addition, since Fabreeka is an international corporation, we are in a unique position to serve the entire manufacturing, scientific and aerospace communities worldwide.



Comparing site vibration levels to the manufacturer's specifications will determine the isolation efficiency at the frequencies where the measured vibration amplitudes exceed the machine allowable vibration criteria.

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