

Bently Nevada* Machinery Diagnostic Services: Motion Amplification (MA)

Bently Nevada's product line offers a comprehensive scope of Machinery Diagnostic Services (MDS) through an experienced team of field engineers able to offer unbiased expertise on both rotating and reciprocating machinery as well as fixed assets, regardless of the original equipment manufacturer. We have recently expanded our service capabilities to include Motion Amplification (MA) which helps our engineers further diagnose machinery and structural related vibration issues.



Figure 1: Various camera setups

Benefits and capabilities of MA services

- Provides quick survey of machine case or structural displacement (30 minute camera setup with 3-second survey).
- Immediate animation available upon recording allows more rapid evaluation of vibration conditions.
- Effective in environments or conditions in which direct vibration measurement constitutes a safety hazard.
- Suitable to assess piping and structural vibration within the specified frequency ranges.
- Effective up to 650 Hz (at reduced resolution) but most effective up to 120 Hz which makes vibration assessment on power generation units most conducive.
- New features also allow shaft and coupling inspection capabilities while the shaft is rotating.
- Spectrum, waveform and orbit analysis with export capability.
- Measurement of displacement values.

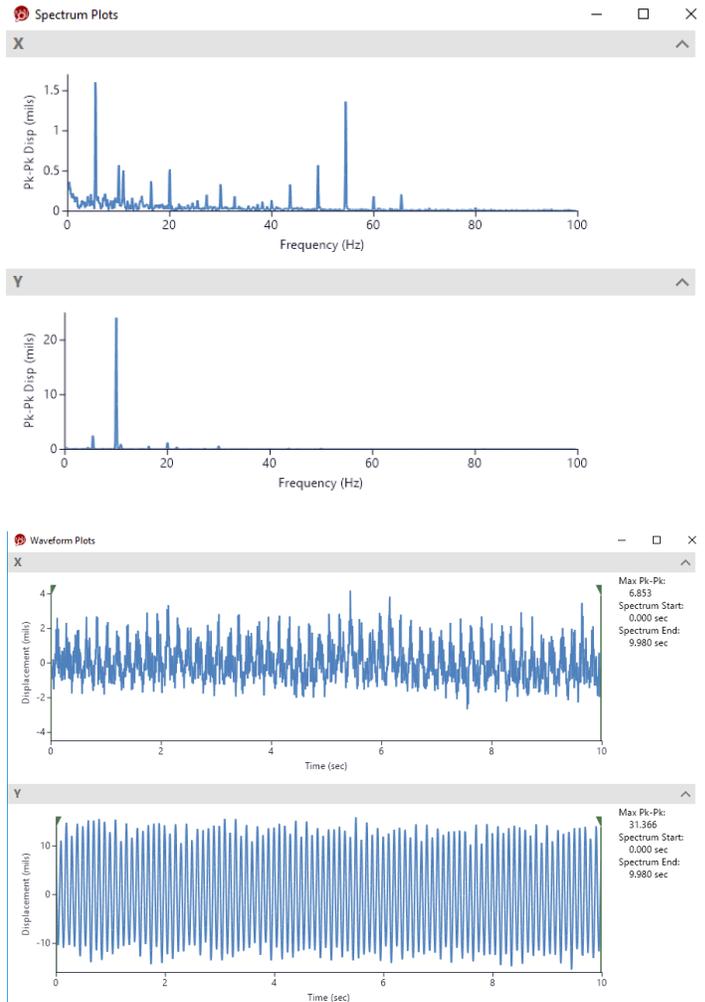
How it works

Motion Amplification (MA) is a relatively new technology that allows the analyst to easily visualize minute amounts of movement that are ordinarily invisible to the naked eye. It uses a high-speed machine grade camera along with a patented processing algorithm to create a meaningful data file that can be analyzed using proprietary software. The software can effectively convert each pixel into a video image that represents vibration and motion and can measure displacement down to 0.1 mil-pp (2.5 μm -pp) at

3.3 feet. With Motion Amplification, data from each pixel in the image can be used as a vibration measurement location, which allows the user to generate a vibration waveform and spectrum for a selected area of interest (seen in right column) or create an overview of the shape of the registered motion using preconfigured filters.



Example of soft foot detected on a reciprocating compressor



About Bently Nevada

For more than 60 years, Bently Nevada has been the technical leader in advanced machinery analytics and diagnostics. Our hardware, software and services provide customers with unmatched solutions for creating a safe, reliable and productive plant environment regardless of industry. Nowhere is that machinery expertise more on display than with our machinery diagnostics service (MDS) team. Our MDS services team is comprised of over 150 globally dispersed technicians who undergo the industry's most rigorous training. With an average of over 9 years of experience working on various machine classes, they can get to machinery malfunction root causes quickly and recommend solutions to get your operations up and running reliably before downtime becomes a big hit to your bottom-line.