



**CALKINS TECHNICAL
PRODUCTS, INC.**
Your Reliability Partner

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PREDICTIVE MAINTENANCE SERVICES

ON-GOING PREDICTIVE MAINTENANCE SERVICES (PdM) prevent more costly reactive maintenance and unplanned down time. Instead of "Monday morning-quarterbacking" what went wrong after an equipment failure, Calkins can arm your plant managers with real time data tracking and comprehensive monitoring. A PdM program allows plant managers to schedule downtime, labor and materials based on the projected performance of the equipment.

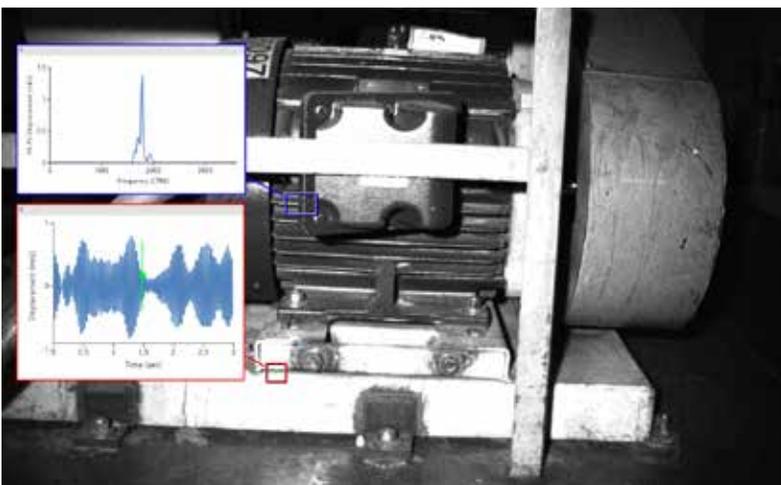
1. VIBRATION ANALYSIS - Provides early problem detection in rotating machinery before a failure in service brings your plant to a halt.

- Gearboxes, fans, shafts, motors, compressors, pumps, mixers, driers, etc.
- Calkins generates a database with your specific high-priority equipment and collect and diagnose the data at intervals (usually monthly) specific to your plant needs.
- Trended over time to determine if a problem has just occurred or is becoming worse.



2. MOTION AMPLIFICATION - Detecting What the Human Eye Can't See.

- Motion Amplification turns each of the millions of pixels from the camera's sensor into vibration measuring points, each capable of a resolution measuring deflection as small as 1/10,000 of an inch.
- Any location of interest in a picture can be turned into a waveform or spectrum, allowing the analyst to quantify and understand the nature of the surface movement.
- Information previously unattainable through conventional means, reveals root cause of the fault, leading to more accurate and timely repairs.
- Motion Amplification provides running shaft inspection and one-step phase analysis

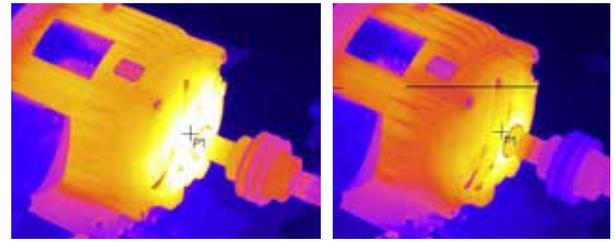


Motion Amplification uses a very high definition video camera to measure and quantify motion, slowing and magnifying an object's movement to reveal structural faults visually, simplifying identification of root causes and weaknesses

3. INFRARED THERMOGRAPHY -

Is your equipment running hot?

- Visually detects infrared radiation (heat) emitted by an object.
- Allows technicians to validate normal operations and locate thermal anomalies that indicate faults, defects or inefficiencies within a system.
- Identifies abnormally warm motors and possible bearing failures; line blockages, tank levels and pipe temperatures.



Before

After

4. ULTRASOUND -

Provides early warning of bearing failure and detects over- and under-lubrication issues.

- Ultrasound can compliment a Vibration Analysis program, especially on slow-moving pieces of equipment.
- Takes your Bearing Lubrication from a time-based process to a condition-based lubrication program.
- Ultrasound can detect leaks in Valves, Steam Traps, Compressed Air/Gas systems and help you recover those losses.
- Ultrasound can detect Corona, Tracking and Arcing.



Why Choose Calkins PdM Services?

- ✓ **Certified Analytics Expertise**
- ✓ **Timely Professional Reporting**
- ✓ **Equipment Data Gathered at Predetermined Intervals**
- ✓ **Continuous Data Collection for Highly Critical Equipment**
- ✓ **Expertise to Predict, Diagnose, Report and Solve Equipment Issues Before They Cause Downtime**
- ✓ **Full Reporting Helps Focus Efforts to Save Time and Money**
- ✓ **Documents and Justifies Corrective Actions**

To schedule Predictive Maintenance Service, contact:

800-900-0679

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