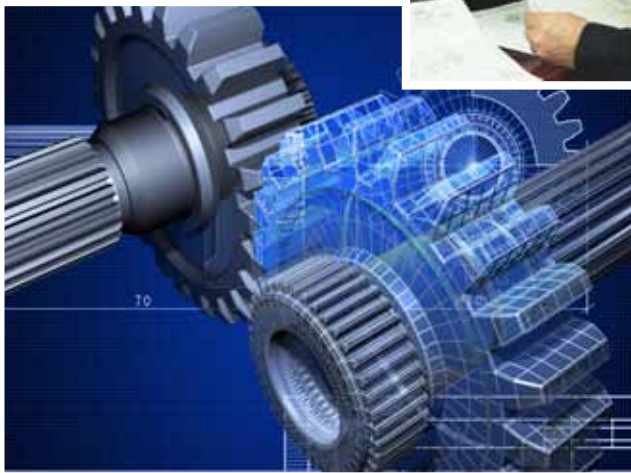
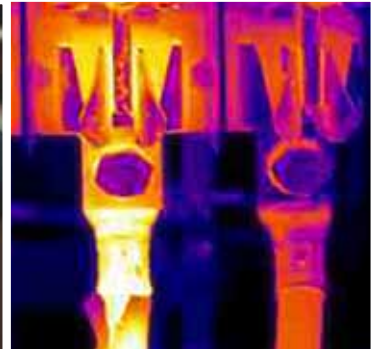


# **pdm** SPECIALISTS<sup>LLC</sup>

**PREDICT ❖ PREVENT ❖ MAINTAIN**



# PREVENTIVE MAINTENANCE

## VIBRATION ANALYSIS

Vibration analysis includes the on-site monitoring of mechanical and structural systems, followed by analysis of the data collected. PDM Specialists accomplishes this using state-of-the-art acquisition equipment.

A correct diagnosis goes beyond basic data collection and analysis. Multiple factors must be taken into consideration. A strong familiarity with your machinery is necessary. At PDM Specialists, we address a machine's condition in its entirety, determining the correct approach to predict and prevent mechanical failure.



## ON-LINE & CONTINUOUS MONITORING SYSTEM ENGINEERING

On-Line Monitoring provides your facility with regular readings typically taken at twelve-hour intervals. Continuous Monitoring goes a step further, allowing real-time transmission of a machine's condition.

Our engineers and technicians will work with you to determine the need for either of these services. This decision is based on equipment criticality, the potential for production loss in case of failure, and budget. Our solutions range in price and system detail.

## ROUTE-BASED MONITORING

The easiest and most cost-efficient program to implement, Route-Based Vibration Monitoring is a popular choice for many facilities. This service covers your most critical machines for periodic monitoring. A condition analysis report is provided after each survey.



## ADDITIONAL VIBRATION TESTING

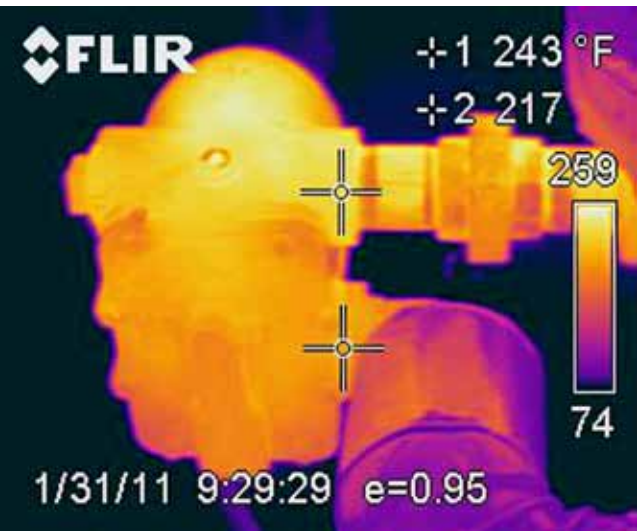
Orbit Analysis

Structural and Resonance Testing

Baseline Analysis and Acceptance Testing

(Vibration, Sound and Infrared Thermography)

Our technicians will work with you to develop a program that fits your needs and budget. We are committed to making sure we do all we can to reduce equipment failures and determine root causes of those failures.



# INFRARED THERMOGRAPHY

*Safety, Energy Loss & Equipment Reliability*

## ARC FLASH BLAST & SHORT CIRCUIT STUDIES

Precautions against Arc Flash Blast (AFB) and shock hazard are crucial for safety.

PdM Specialists completes several steps to bring your facility to NFPA 70E compliance. A comprehensive on-site survey includes one-line diagrams, calculations, and labeling. If part of your facility's survey is completed, we can fulfill individual requirements.

AFB labels specify the proper PPE to use when opening any panel or performing live work.

<b>⚠ WARNING</b>	
<b>Arc Flash &amp; Shock Hazard Appropriate PPE Required</b>	
<b>FLASH PROTECTION</b> Flash Hazard Category: <b>3</b> Min. Arc Rating: <b>8.0</b> PPE: (1) Cotton Linen (2) Snap Closure "D" Size Safety Vest (3) Arc-Rated Long-Sleeved Shirt, Long Pants, Pants & Hoop (4) Arc-Rated "D" Label Arc Flash Goggles, Face & Neck (5) Hard Hat & Hearing Protection (6) Safety Glasses or Goggles (7) Arc-Rated Leather Gloves or Insulating Gloves, with Liners (8) Leather Shoes	<b>SHOCK PROTECTION</b> 250 VAC Shock Hazard Warning <b>REMOVE COVER OR CONTACT DE ENERGIZED</b> Flash Protection Boundary: <b>02'</b> Limited Approach Boundary: <b>04'</b> Restricted Approach Boundary: <b>05'</b> Prohibited Approach Boundary: <b>1'</b> PPE: (1) CAT 100 Gloves
Equipment ID: Bx132	8000-0 pdm.com <b>RFI</b>

## ELECTRICAL DISTRIBUTION

Electrical Infrared Thermography (IR) is the most cost effective way to ensure electrical equipment reliability. How often this service is performed depends on the environmental characteristics and projected impact of downtime in your facility.

PdM Specialists can inspect all electrical connections from the motor up to the substation.

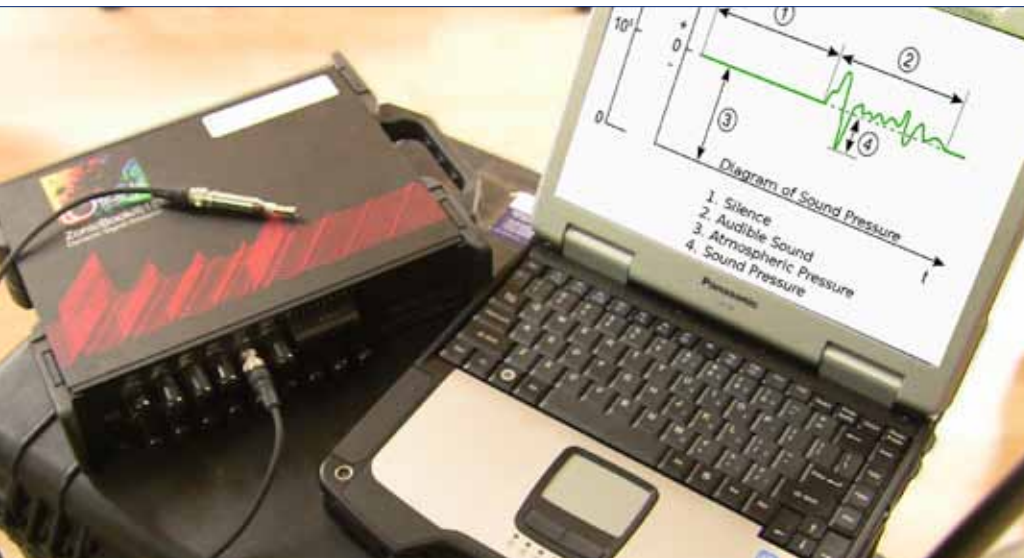
## MECHANICAL INFRARED TESTING

Excessive bearing heat can be caused by resistance in windings, improper lubrication, or the final stages of bearing failure. IR is an inexpensive way to monitor bearing condition on a large number of machines.

High temperatures can be determined in a matter of seconds, allowing us to monitor numerous machines quickly.

# SOUND & ULTRASONIC ANALYSIS

*Environmental  
Human Body  
Energy Savings*



## SOUND PRESSURE

The environmental impact of sound can range from displeasing to damaging. Determining potential impact is accomplished with sound frequency and pressure analysis. PdM Specialists measures magnitude to establish the need for reduction and/or frequency to ascertain the source.

If magnitude of sound is your primary concern, simple data logging of the sound at various locations and times will suffice. However, if source investigation is required, multi-channel acquisition can be performed.

## ULTRASONIC LEAK DETECTION

Managing energy waste is essential for cost efficiency and reduction of adverse environmental impact. We use ultrasonic equipment to pinpoint locations where gas or air may be escaping. Other uses for ultrasonic include proper steam trap operation and vessel leaks.

More information is available on our website:

[www.pdmspecialists.com](http://www.pdmspecialists.com)  
1-866-281-2659



## CORRECTIVE MAINTENANCE

PdM Specialists' all-inclusive services ensure that you only have one service call to make, saving you time and money.

First, we perform vibration analysis to determine a machine's overall condition. If an out-of-balance condition is discovered, the rotor will be balanced. If misalignment exists, we complete a laser alignment.

Following any of our services, a second vibration analysis is performed. This allows any remaining vibration-related issues to be addressed. It also provides quality baseline data.

## LASER ALIGNMENT

PdM Specialists combines experience with knowledge to perform alignments on pumps, gearboxes, high speed compressors, off-set shafts, and more.

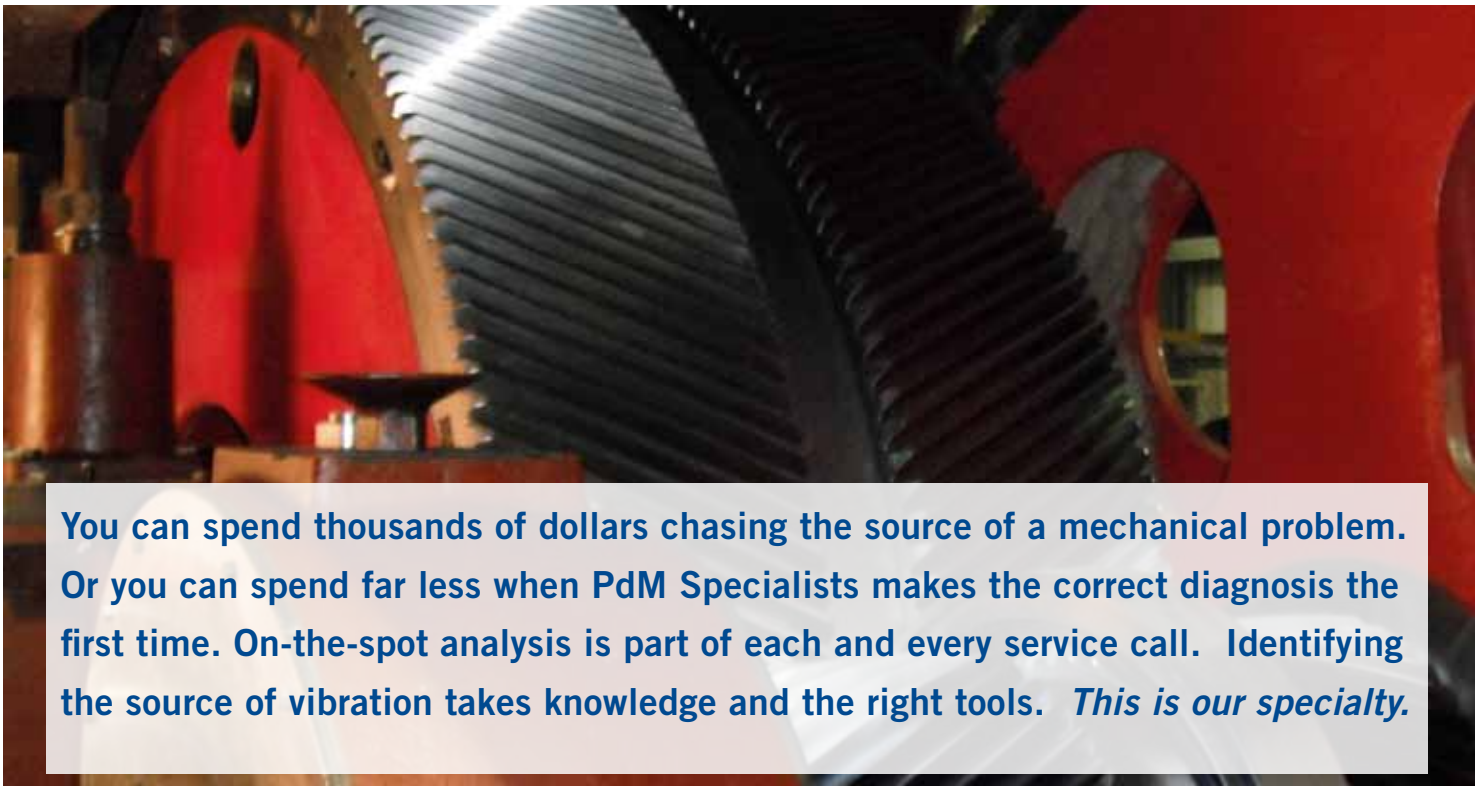
We efficiently align your machines and immediately follow up with vibration testing—all at a competitive price.

When a misaligned condition exists we correct it on the spot.

## DYNAMIC BALANCING

Determining whether a rotating mass is out of balance can be simple.

However, vibration that “feels” like unbalance may have another cause. Our expertise determines that cause.



You can spend thousands of dollars chasing the source of a mechanical problem. Or you can spend far less when PdM Specialists makes the correct diagnosis the first time. On-the-spot analysis is part of each and every service call. Identifying the source of vibration takes knowledge and the right tools. *This is our specialty.*

# ENGINEERING & SERVICE CAPABILITIES

## CONDITION MONITORING SOLUTIONS

### VIBRATION ANALYSIS

- On-Line and Continuous Monitoring
- Route-Based, On-Site Data Collection and Analysis
- Baseline and Acceptance Testing

### INFRARED THERMOGRAPHY

- Electrical and Mechanical
- Steam Trap Function

### ARC FLASH BLAST AND SHORT CIRCUIT STUDIES

### ULTRASONIC AND SOUND PRESSURE TESTING

- dB, All Weightings, Octave Band, Frequency Analysis
- Ultrasonic Testing
- Air/Gas Leaks
- Stream Trap
- Vessel Testing

### BASELINE AND ACCEPTANCE TESTING

## TURN-KEY MACHINERY MONITORING PRODUCTS

### AUTOMATED MONITORING EQUIPMENT SYSTEMS HARDWARE

- Accelerometers, Tachometers, Oil Sensors, Temperature Sensors, etc.

### ROUTE-BASED DATA COLLECTORS

## ENGINEERING AND VIBRATION REDUCTION SERVICES

### DYNAMIC BALANCING

- In-Field Balancing Services

### LASER SHAFT ALIGNMENT

- Horizontal, Vertical, Train Alignments

### STRUCTURAL ANALYSIS

- Operating Deflection Shape
- Modal
- Isolation Design and Placement

## TRAINING

### VIBRATION ANALYSIS

- On-site
- Via Remote Connection

### TRAINING CD INCLUDED FOR ANY TURN-KEY MONITORING SOLUTION



15810 SE 114th Ave  
Clackamas, OR 97015

## CONTACT

info@pdmspecialists.com

Phone 503-922-2681  
Toll Free 866-281-2659

## VISIT

www.pdmspecialists.com

