SERIOUS SERVICE®

It is not about our trademarks or meaningless words but only the beginning of the commitment to our clients for the last 50 years in business.

We dedicate our experience and resources so you don’t have to worry about machinery vibrations and get back to what really matters.

“PEACE OF MIND AT WORK, MORE TIME WITH YOUR FAMILY, FRIENDS AND NATURE”

Garrett Sandwell, MET, CVA, ASNT 3
CEO
**Introduction to VIBES Corp.**

**Why work with us? Serving Canadian Industry for over 50 Years.**

VIBES Corp’s reputation was built and established on thousands of promises fulfilled over 50 years in business across Canada. Superior quality service, sales and training courses provided on the intelligent specialist level has been the standard and always will be since our vibration and balancing business was formed in Calgary, AB, in 1982. (Formerly Industrial Balancing Ltd. Est. 1967)

**What do we do? Expert technical services and preventative maintenance programs using advanced instruments and tools to solve various vibration and mechanical related problems permanently!**


**What do we sell, supply, install & service?**

- WEG Electric Motors.
- METALON Hi-Tech Synthetic Grease (EP 1.5 Blue)
- COOLBLUE - Inductive Absorbers & Chokes = VFD any motor shaft current bearing damage protection.
- DRIVE SYSTEM PARTS: Fans, Bearings, Sheaves, Couplings, Belts, Shafts, Misc.

The machinery under our professional health care program = VIBES-GUARD PdM Program (are) treated as if our own. We use proven technologies and methodologies along with our multi-technical and electro-mechanical (VIV, ASD, VPM, CPM, VFD, EIBD, EDM, Shaft Currents, etc.) training, skills, and experiences for total overall analysis and evaluations. When the total analyzed facts about a machine, motor or engine are known we formulate an accurate condition report and recommend the best possible solutions. We work with clients to organize necessary actions in order of urgency or budgets.

**Where do we work? (Commercial, Infrastructure, Industrial Plants & Marine Ports)**

Our service area is mainly BC Lower Mainland and Vancouver Island. As requested we can service other areas in Western Canada.

**Who have we worked with?**

VIBES Corp service capabilities have been used and accepted by high-ranking officials in:

- other service companies
- manufacturing and processing
- engineering firms
- universities
- colleges
- hospitals
- cold storage
- power plants and dams
- sewage and water treatment plants
- government infrastructure facilities
- oil and gas
- biogas energy systems
- transportation and construction
- commercial towers
- agricultural
- mining
- oil fields
- marine-terminals & ships
- asphalt and cement
- saw mills
- pulp and paper
- research and development
- machining / fabrication
- chemical plants
- restaurants
- syltines tunnels
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**Vibration Sources Identification Guide**

<table>
<thead>
<tr>
<th>CAUSE</th>
<th>FREQUENCY</th>
<th>AMPLITUDE</th>
<th>PHASE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unbalance</td>
<td>1 x RPM</td>
<td>Highest in Radial, Proportional to Unbalance</td>
<td>Single Mark (Steady)</td>
<td>A common cause of vibration.</td>
</tr>
<tr>
<td>Defective Anti-Friction Bearings</td>
<td>Very High-Ofen From 10 to 100 x RPM</td>
<td>Use Velocity</td>
<td>Unstable</td>
<td>Velocity readings are highest at defective bearing. As failure approaches, the amplitude of the velocity signal will increase and its frequency will decrease. Cage frequency is approximately 0.6 x RPM x number elements.</td>
</tr>
<tr>
<td>Misalignment of Coupling or Bearing</td>
<td>1, 2 or 3 x RPM</td>
<td>High Axial, Axial 50% or more of Radial</td>
<td>Often 2, Sometimes 1 or 3</td>
<td>May appear to be unbalance. Shaft and bearing amplitude should be taken. If shaft vibration is larger than the bearing, vibration amplitude indicates clearance.</td>
</tr>
<tr>
<td>Sleeve Bearing</td>
<td>1 x RPM</td>
<td>Not Large Use Displacement Mode Up to 6000 CPM</td>
<td>Single Reference Mark</td>
<td>May appear to be unbalance. Shaft and bearing amplitude should be taken.</td>
</tr>
<tr>
<td>Bent Shaft</td>
<td>1 or 2 x RPM</td>
<td>High Axial</td>
<td>1 or 2</td>
<td>Similar to misalignment. Use phase analysis.</td>
</tr>
<tr>
<td>Defective Gears</td>
<td>High No. Teeth x RPM</td>
<td>Radial</td>
<td>Unsteady</td>
<td>Use velocity measurement. Often affected by misalignment. Generally accompanied by side band frequency. Pitting, scuffing and fractures are often caused by torsional vibrations. Frequency sometimes as high as 1 million CPM or more.</td>
</tr>
<tr>
<td>Mechanical Looseness</td>
<td>2 x RPM</td>
<td>Sometimes 1 x RPM</td>
<td>Proportional to Looseness</td>
<td>1 or 2</td>
</tr>
<tr>
<td>Defective Drive Belts</td>
<td>1 or 2 x Belt Speed</td>
<td>Erratic</td>
<td>Use Strobe to Freeze Belt in OISC Mode</td>
<td>Calculate the belt RPM using: Belt RPM = Belt Length / Belt Length + Fuller RPM</td>
</tr>
<tr>
<td>Electrical</td>
<td>1 or 2 x Line Frequency</td>
<td>Usually Low</td>
<td>1 or 2 Marks Sometimes Slipping</td>
<td>Looks like mechanical unbalance until power is removed. Then drops dramatically.</td>
</tr>
<tr>
<td>Oil Whip</td>
<td>45 - 55% RPM</td>
<td>Radial Unsteady</td>
<td>Unstable</td>
<td>Caused by excessive clearance in sleeve bearing or by underloaded bearings. Will change with viscosity of oil (temperature).</td>
</tr>
<tr>
<td>Hydraulic-Aerodynamic</td>
<td>No. Blades or Vanes x RPM</td>
<td>Erratic</td>
<td>Unsteady</td>
<td>May excite resonance problems.</td>
</tr>
<tr>
<td>Beat Frequency</td>
<td>Near 1 x RPM</td>
<td>Variable at Beat Rate</td>
<td>Rotates at Beat Frequency</td>
<td>Caused by two machines, mounted on same base, running at close to same RPM.</td>
</tr>
<tr>
<td>Resonance</td>
<td>Specific Critical Speeds</td>
<td>High</td>
<td>Single Reference Mark</td>
<td>Phase will shift 180° going through resonance (90° at resonance). Amplitude will peak at resonance. Resonance in frame can be reduced by changing motor operating speed or by changing the stiffness of the structure.</td>
</tr>
</tbody>
</table>

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There are several additional articles that identify more complicated vibration sources at [www.vibescorp.com](http://www.vibescorp.com)
We take due diligence to the highest level on all projects regardless of size or budget.

Learn About Articles

You can download educational articles from our home page at www.vibescorp.ca. Here are four recent articles:

- Electrically Induced Bearing Damage, aka Electrical Discharge Machining (EDM), Shaft Currents.
- Failure Prevention of Variable Pitch in Motion Axial Fans.

The photos below show typical projects that we have resolved.

Fig 1. The failure was due to defective bearing.

Solution to Fig. 1 Replaced both Fan Bearings & New Motor Required.

Fig 2. The stainless steel guard helps prevent moisture contamination in cooling tower fan bearings (a very common problem).

Solution to Fig. 2 The Guard has prolonged the Life Span of the Fan Bearings from 3 years to over 14 years.

Fig 3. A new fan was installed due to a complete failure of the original.

Solution to Fig. 3 Installed Brand New Controllable Pitch Fan & Repaired Motor.

Fig 4. Shows a 200HP motor and fan repair/replacement.

Solution to Fig. 4 Replaced the Old Motor based on 20 years of running time and Completed Variable Pitch in Motion Fan Maintenance.
Elimination of Shaft Currents that were causing consistent motor bearing failures at this site.

For more information & quote please visit our website www.vibescorp.ca

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Vibration Industrial Balancing & Equipment Services, Corporation
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Projects completed at these locations

Elimination of Shaft Currents that were causing consistent motor bearing failures at this site.

Elimination of Shaft Currents that were causing consistent motor bearing failures at this site.
Projects completed at these locations

- 100 HP Woods Fan-Variable Pitch in Motion Services
- 60 HP Joy Fan-Controllable Pitch in Motion Services
- 900 HP Drill Rig Compressor
- 60 HP Joy Fan-Controllable Pitch in Motion Services
- Complete Fan Assembly Replacement

Projects completed at these locations

- 100 HP Drill Rig Rig Compressor Vibration Analysis and Alignment
- 900 HP Drill Rig Compressor
- Replaced 20HP Cooling Tower Motor Vibration & Alignment Service Job
- Tug Boat Twin Diesel Engines Vibration Analysis
- Asphalt Kiln Exhaust Fan Balance Job

SERIOUS SERVICE®
Professional Machinery Health Care (Fan Doctor®)

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Balanced Wood Hog Rotor

Waste Water Treatment Plant Squamish, BC
Laser Alignment Job

2 x 125 HP Klin-Exhaust Fan Balancing & Bearing Inspections

Addition for Nutrition 650 HP Hammer Mill Vibration Analysis, Rotor Balancing & Laser Alignment Job

Hospital Lab Hood Fans Vibration Analysis

Geo Thermal Pump Station Replaced Motor Bearings, Laser Aligned & Installed Cool Blue Inductive Absorbers

Projects completed at these locations

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