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.**

Formerly: Industrial Balancing Ltd. (Est. 1967 Calgary, AB) & Fan Doctor Canada Inc. (Est. 1982 Calgary, AB).

**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)

In the final real-time analysis VIBES Corp will deliver more value and peace of mind.

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


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

- WEG Electric Motors.
- COOLBLUE - Inductive Absorbers & Chokes = VFD any motor shaft current bearing damage protection.
- DRIVE SYSTEM PARTS: Bearings, Sheaves, Couplings, Belts, Shafts, Misc.

The machinery under our professional health care programs = VIBES-GUARD PdM Programs (TM) 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 a true 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 Buildings, Industrial Plants & Ports)**

Our service area is mainly BC mainland and the 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
- ski hills
- marine-terminals & ships
- asphalt and cement
- saw mills
- pulp and paper
- research and development
- machining / fabrication
- chemical plants
- restaurants
- skytrain tunnels

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**VIBES Corp accepts: EFT, VISA, Mastercard, Discovery, Debit & SWIFT**
We take due diligence to the highest level on all projects regardless of size or budget.

Do we offer training?

VIBES Corp offers training courses in technologies and quality products that we use, are industry-trusted and relate to improved machinery, engine, electric motors health and performance, energy savings and preventative maintenance. Examples: Vibration Monitoring & Trending

- Laser Shaft Alignment (Ted Pater with 30 years’ experience has joined us as a consultant)
- Fan & Motor Maintenance Training
- Update International (Vibration Analyst Certification ASNT Level 1, 2 & 3) On Site & On line Courses
- Bearing Maintenance & Precision Installation
- VIBES – GUARD PdM Program (™)
- Dynamic Balancing Agricultural Machinery ON-SITE

Learn more

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

- Learn About Vibration, Volume 1 & 2: Basics & Advanced Vibration Analysis
- 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 moisture contamination. Fig 2. The stainless steel guard solved the original problem with no issues for the last 12 years. Fig 3. A new fan was installed due to a complete failure of the original. Fig. 4 Shows a 200HP motor and fan repair/replacement.

Vibes Corp provides professional fan, pump and motor services. We also provide products to protect your machinery and prolong the lifespan of the rotating parts.
WEG Low Voltage Motors
WEG Generators
WEG Large Electric Motors and Machines
CoolBLUE® Inductive Absorbers

Absorb the energy caused by the VFD’s at the source...before getting to the motor.

Rogowski Coil Test Setup.
Recording electrical discharge from three phase VFD

Rogowski Coil Test Setup.
Recording Electrical Discharge Levels from VFD.

Cool Blue Inductive Absorbers
installed at Pump Station
Projects completed at these locations
Projects completed at these locations
Projects completed at these locations

Teck Highland Valley Copper - Processing Plant
800 HP Blower - Logan Lake

Abbotsford Waste Water Treatment Plant

Naval Ship Generator

BC Cancer Health Care Centre
Vancouver

BC Hydro - MICA Power Plant

Vibration Control beyond the normal solutions
Projects completed at these locations

- 400 HP Motor & Compressor Food Processing Plant, Vancouver
- Complete Fan Assembly Replacement
- 900 HP Drill Rig RS Compressor, Vibration Analysis and Resonance Tests
- 900 HP Drill Rig Compressor
- 100 HP Woods Fan
- 60 HP Joy Fan
Projects completed at these locations

Customized motor plates and slide base installation

400 HP RS Compressor

Sea Water Pumps & Motors Retrofit
Fluxdrive Magnetic ASD Conversions on 16 Exhibition Hall Fans
Vancouver Convention Centre West

600HP Compressor System Laser Alignment Job

350 HP Motors & Gearbox

Sky Train Tunnel Fan Vibration & Balance Job.
VIBES Corp®

Vibration Industrial Balancing & Equipment Services, Corporation
720 - 999 W. Broadway, Vancouver, BC V5Z 1K5

www.vibescorp.ca  email: info@vibescorp.ca  Phone: 604 - 619 - 9381 (24/7)

COMMON 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>Unbalanced</td>
<td>1 x RPM</td>
<td>Highest in Radial Direction - Proportional to Unbalanced</td>
<td>Single Mark (Steady)</td>
<td>A common cause of vibration.</td>
</tr>
<tr>
<td>Defective Anti-Friction Bearings</td>
<td>Very High - Often 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 40% +/- 4% of RPM.</td>
</tr>
<tr>
<td>Misalignment of Coupling or Bearings</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>Use phase analysis to determine relative movement of machine or bearings. Use a dial indicator if possible. Often diagnosed as a bent shaft. Can be caused by misalignment of V Belts.</td>
</tr>
<tr>
<td>Sleeve Bearings</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 unbalanced. Shaft and bearings amplitude should be taken. If shaft vibration is larger than the bearing, vibration amplitude indicates clearance.</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. Gear 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 Sometimes 1 x RPM</td>
<td>Proportional to Looseness</td>
<td>1 or 2</td>
<td>Check movement of mounting bolts in relation to the machine base. Difference between base and machine indicates amount of looseness.</td>
</tr>
</tbody>
</table>
| Defective Drive Belts | 1 or 2 x Belt Speed | Erratic | Use strobe to Freeze Belt in OSC mode. | Calculate the belt RPM using: Belt RPM = Pulley Diameter x 3.141 x Pulley RPM / Belt Length
Look for cracks, hard spots, soft spots or lumps. Loose belt. Changes with belt tension. |
| Electrical          | 1 or 2 x Line Frequency (3600 or 7200 CPM for 60Hz Power) May appear 1 x RPM | Usually Low | 1 or 2 Marks sometimes slipping | Looks like mechanical unbalance until power is removed. Then drops dramatically. |
| Oil Whip            | 45 - 55 % | Radial Unsteady | Unstable | Caused by excessive clearance in sleeve bearings or by underloaded bearings. Will change with viscosity of oil. (temperature) |
| Hydraulic-Aerodynamic | No. Blades or Vanes x RPM | Erratic | Unsteady | May excite resonance problems. |
| Beat Frequency      | Near 1 x RPM | Variable at Beat Rate | Rotates at Beat Frequency | Caused by two machines, mounted on same base, running at close to same RPM. |
| Resonance           | Specific Criticals | High | Single Reference Mark | Phase will shift 180°, going through resonance (90° at resonance). Amplitude will peak at resonance. Resonance in frame can be removed by changing rotor operating speed or by changing the stiffness of the structure. |

NOTE: There are several additional detailed articles that identify more complicated vibration sources at the Vibes Corp website titled:
1) LEARN ABOUT VIBRATION VOLUME 1: BASIC UNDERSTANDING OF MACHINERY VIBRATION
2) LEARN ABOUT VIBRATION VOLUME 2: ADVANCED VIBRATION ANALYSIS
3) LEARN ABOUT ELECTRICALLY INDUCED BEARING DAMAGE & SHIFT CURRENTS
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Cover Art Title “Head in the Clouds” by Arnie Nouwens www.thedutchmaster.com

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TM

SERIOUS SERVICE Professional Machinery Health Care

Est. 1967


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