APPLICATION NOTE

# Correcting Rotational Unbalance with the VibXpert 3

PRÜFTECHNIK

Rotating assets like motors, pumps, and generators are at the heart of most industrial operations. When these assets fail, they can derail production cycles and force entire operations to shut down. On the other hand, properly maintaining these assets will extend their lifespan, keeping them productive for years and preventing unplanned downtime and unnecessary maintenance costs. One of the best ways to keep rotating machinery running in optimal condition is by promptly identifying, diagnosing, and correcting rotational unbalance. When maintenance teams can quickly and accurately diagnose unbalance, repairs are more straightforward, and costs remain low.

Recent technological advancements have made it easier than ever to identify and correct unbalance early—before the problem requires costly and complicated repairs. While historically, it was difficult to capture accurate measurements in the field, modern technology allows maintenance personnel to precisely identify sources of unbalance and make repairs without dismantling and relocating the asset to a shop.

**The VibXpert 3 Balancer is one of the fastest, most accurate tools on the market for diagnosing and correcting unbalance problems.** The tool has the added benefit of being extremely user-friendly. In fact, the VibXpert 3 Balancer is so intuitive to use that it can act as an educational tool, helping employees learn as they work with it. Used right, the VibXpert 3 Balancer helps teams keep their equipment up and running for longer and protects them from the problems associated with unbalanced assets.

## What is Unbalance Such a Problem?

Unbalance (also known as imbalance) is one of the leading causes of failure in rotating assets. The issue is dangerous precisely because it can be hard to identify. At the onset, machine unbalance is subtle. But left uncorrected, it will cause damage to the machine and its components. At its worst, unbalance can also pose a danger to the environment and to workers in the area.

Even a seemingly minor unbalance increases asset vibration levels. As vibration levels increase, they cause excess friction and heat, ultimately leading to premature wear and tear on bearings, shafts, belts, and other machine components. Unbalance can also damage the machine's foundation.

As unbalance grows more severe, an asset's components need to be replaced more often, driving up repair and spare parts costs. An unbalanced machine will also consume more energy and run less efficiently—further increasing costs and slowing down production.

Ultimately, left unchecked for too long, machine unbalance can lead to failure that brings an entire operation to a standstill, draining resources and damaging customer relations. Unbalance can even become a real and present danger. For example, an unbalanced asset can overheat to the point of causing a fire. The noise and unpredictable motion caused by high vibration levels can also be dangerous to workers and to the environment.

### Other Considerations When Fixing Rotational Unbalance:

In recent years, maintenance teams have faced new and intense pressures, impacting virtually every aspect of work. Most operations today make use of a wider variety of complex assets compared to years past.

At the same time, maintenance teams are operating with a shrinking workforce, and the skills gap is widening. While the most experienced employees are reaching retirement age, newer employees often lack the skills and training to identify and resolve problems like unbalance with traditional tools.

Maintenance managers must find smart ways to use their limited resources to keep assets up and running smoothly, while in many cases supervising multiple worksites.

## What Does This Mean For Unbalance?

The realities of today's workforce mean that many employees do not have the experience or training to identify and correct rotational unbalance issues. They need modern, sophisticated tools that can guide them through the process of measuring, diagnosing, and correcting unbalance. These tools can be a powerful tool for on-the-job training, empowering employees to learn as they work.

Today's maintenance teams also need tools that work quickly and efficiently. As machines grow ever more complex, isolating and diagnosing defects also becomes more difficult. An efficient balancing tool should be able to take measurements quickly from multiple points. It should also be able to store the measurements and make them readily available for analysis.

Given the time constraints most maintenance teams face today, modern tools also need to work in the field. That means that tools need to be sturdy, durable, and easy to handle even in challenging environments. All of this may sound like a tall order, but it is within reach.

The VibXpert 3 delivers all of these capabilities and more.

## Introducing the VibXpert 3 Balancer

The VibXpert 3 is a next-generation precision balancing tool designed to meet the needs of today's workforce. It takes fast, accurate measurements from up to six points at once, resulting in 360-degree insights into machine health. The tool is highly intuitive to use, even for workers who don't have a strong technical background. The VibXpert 3 is rugged and durable, which makes it ideal for use in the field. At the same time, its capabilities exceed those of a traditional field balancer.

The VibXpert 3 solves all of the common issues associated with unbalance:


**The VibXpert 3 can pinpoint the exact location of unbalance and can ensure that unbalance issues have been resolved.**

The VibXpert 3 has six synchronous channels so that it can take multi-channel vibration measurements with ease. Older balancing tools require users to set up a vibration sensor, take and record a measurement, and then move the balancer to the next point on the machine for another measurement. The process was laborious and prone to error.

VibXpert 3's multi-channel functionality works much more quickly than legacy balancers. Setup takes just minutes, and the measurements are virtually instant. The machine also measures vibration levels in multiple formats, so that users can collect spectrum data as well as overall vibration levels.

The result is a tool that can quickly and accurately pinpoint the source of the unbalance so that maintenance technicians can get to work and make repairs right away.

**The VibXpert 3 can be used in the field, even in harsh environments.**

The VibXpert 3 is rugged and built to withstand the toughest environments. It can even be dropped without damage. It is resistant to water and dust ingress and maintains its high performance even in extreme temperatures. The tool's touchscreen is also scratch-proof.

Most importantly, the VibXpert 3 works quickly and accurately, so that workers can get in and get out quickly. Teams can get the same level of accuracy they could from a specialized shop – but they will save on time and resources.

**The VibXpert 3 is intuitive and easy to use, even for expertise-constrained teams.**

The VibXpert 3 has an interactive touchscreen display that gives users complete visibility into the data the tool is capturing. The touchscreen functionality resembles a mobile app, making it a natural fit for the new generation of workers. Users can simply swipe and tap to navigate through fields or pinch to zoom in. The menus are clear and easy to understand. In addition, all of the relevant vibration data is displayed in one place, for easy access.

The interactive display also guides users through the process of measuring and correcting rotational unbalance step-by-step. It helps users pinpoint the exact source of unbalance and correct the issue. And, because taking multi-point measurements is so fast and simple, operators can easily re-check to ensure that they have fully corrected the original problem.

## The Takeaway

The engineers at Fluke Reliability designed the VibXpert 3 to be faster, more precise, and more intuitive than any other balancing tool. The VibXpert 3 doesn't just spot problems – it helps to correct them. '

Because of the tool's six synchronous channels, it can pick up on even subtle changes in vibration patterns, both on the asset and the component parts. The VibXpert 3 is a tool that makes it easy to be meticulous.

The result? An easy fix to correcting rotational unbalance, ultimately leading to greater uptime, increased productivity, and reduced maintenance costs.

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