Rethinking vibration monitoring strategies

INFRASTRUCTURES FOR FUTURE MONITORING AND DATA ACQUISITION



istec

VibSys®

New strategies

Vibration monitoring is essential for ensuring the reliability and performance of rotating equipment. As both a key indicator and one of the earliest signs of changing machine conditions, effective vibration monitoring enables predictive maintenance and operational control.

Modern vibration monitoring must keep pace with developments in technology, regulation, and operations. This creates a growing gap between system requirements and the expertise needed to manage them. Istec addresses this gap by developing monitoring solutions that are simple to apply, intuitive to use, and scalable across different environments.

Concept change 05
Rethinking how and where vibration monitoring fits into your machinery

Market vision 06
Trends shaping the future of condition monitoring

A new era: VibSys® 08
How VibSys® changes vibration monitoring strategies

Istec cloud 10
AI supported analysis suite

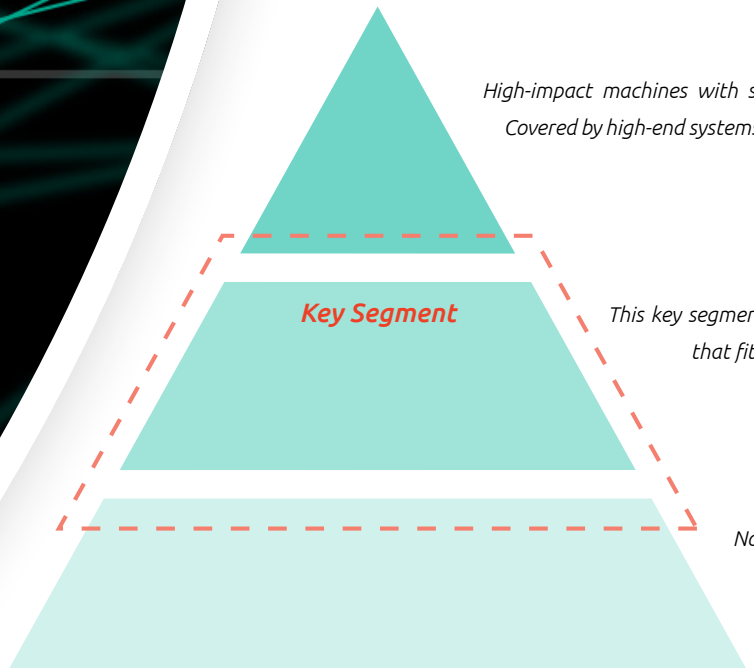
Building knowledge, not just systems 12
Bridging the knowledge gap with hands on support

VibSys® case study 14
Vibration Monitoring on BoP Asset

Concept change

Many teams still rely on manual checks and sporadic measurements. Monitoring technology is available, it often requires deep system knowledge, high investment, or full ecosystem adoption. This keeps reliable insights out of reach for many machines.

Across industries, engineers face similar questions. How do we shift from reactive to predictive maintenance without adding complexity? How can we get better data and reliable monitoring insights? That shift is happening now, driven by the need for practical, accessible, and scalable solutions.



High segment

High-impact machines with strict safety and availability demands. Covered by high-end systems and managed by specialized engineers.

Mid segment

This key segment requires flexible, scalable monitoring that fits limited budgets and generalist teams.

Low segment

Non-critical, low-value assets with no formal monitoring requirement Traditional systems areoften too costly or complex for this layer

Figure 1. Market segmentation in vibration monitoring

Market vision

Four powerful trends are reshaping the future of condition monitoring.

1. Machines are increasingly connected
Many machines are part of integrated systems that generate a continuous stream of data. This opens the door to remote diagnostics and real-time monitoring, but only if the data can be captured and interpreted efficiently.

2. Reliability is more critical than ever
Unplanned downtime is no longer acceptable. High availability and process stability are business-critical. Monitoring must support early intervention before failures occur.

3. The knowledge gap is growing
Engineering teams are shrinking, while the systems they manage are becoming more complex. This creates a mismatch between what is technically possible and what is practically manageable. Tools must close this gap, not widen it.

4. The value of good data is clearer than before
Raw data alone is not enough. What matters is accuracy, consistency, and usability. Engineers need actionable information, not vague signals or noisy trends.

The majority of machinery exists in a data blind spot. They are too critical for simple tools yet too small for heavy infrastructure. They need systems that are flexible, compact, and built around the user, not the other way around.

Tools that fit

The next generation of monitoring systems is not about offering more features, but about delivering better insights.

*"We don't know **the technology of the future,** but we want to make sure **we facilitate it** and not stand in its way."*

Wouter Verschuren, CEO

A new era: VibSys®

Effective maintenance depends on data that is accurate, accessible, and actionable. Yet many systems are either too complex or too limited for broad deployment. What's needed is a solution that delivers clear insight, fits existing setups, and scales without added complexity.

A smarter way to monitor.

VibSys® is Istec's next-generation vibration monitoring system. It merges compact hardware, smart edge processing, and secure cloud connectivity. Designed for real world environments, it installs close to the machine and supports a wide range of sensor types and signal inputs.

Key technical features:

- Four high resolution vibration inputs, two speed inputs, and two analog inputs
- Compatible with IEPE accelerometers and IEPE velocity sensors
- 2 Digital outputs and 4 analog (4-20mA) outputs
- Secure data transfer to cloud or local platforms
- Open API and Modbus TCP interface for full integration
- DIN rail mounting and durable wired setup

Reliable insights start with reliable input

VibSys® is built around signal integrity. The system features four fully differential analog inputs with high resolution and an extremely low noise floor. These inputs are designed for acceleration and velocity sensors and support direct vibration monitoring. By combining hardware-level signal isolation with low-noise design, VibSys® ensures clean, accurate data acquisition at the source. This enables reliable vibration diagnostics without requiring corrections or interpretation afterwards.

→

Engineered for industrial impact

VibSys® works with standard sensors and integrates easily with existing PLC or DCS systems. Its programmable API gives users full control over data access, making it easy to integrate with third party dashboards or analysis tools. This flexibility avoids vendor lock-in and supports a wide range of monitoring strategies.

Real user benefits:

- Reduced reliance on manual measurement
- Early fault detection and smarter maintenance planning
- Low footprint, both technically and financially
- Easy deployment in standalone and fleet wide applications

Whether upgrading a single machine or rolling out across multiple assets, VibSys® delivers clarity and control without adding complexity.



Istec cloud,

AI supported analysis suite

The optional Istec cloud and AI suite provide engineers with dashboards, diagnostics tools, and secure access to all collected data. Through this cloud environment, users gain full visibility into asset health, from a single machine to a global fleet.

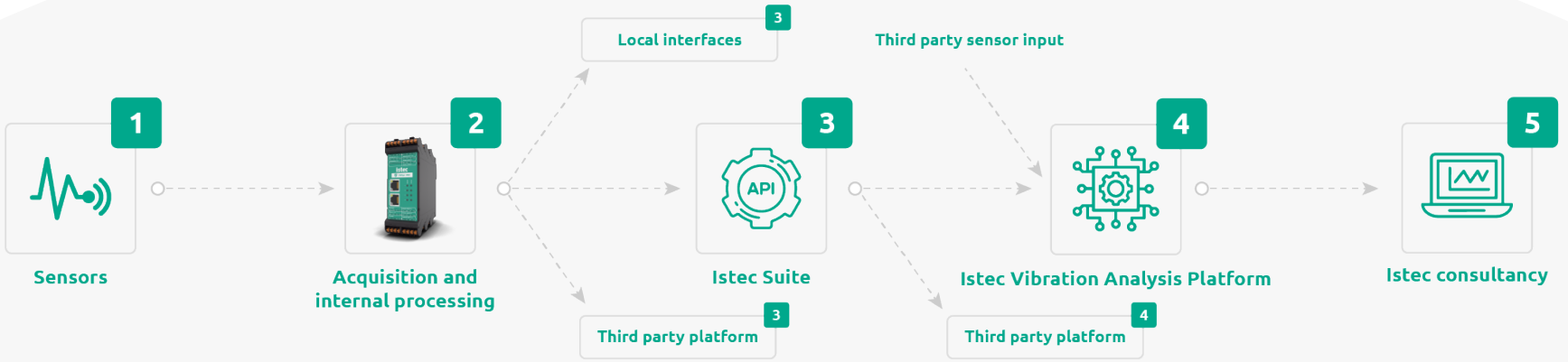
Sensor data from VibSys® can be transferred either in extracted format or at full resolution to the cloud, where advanced analysis, AI driven alerts, and historical comparisons support faster decisions. Engineers can act before failures occur, reduce unplanned downtime, and optimise maintenance strategies.

The platform also accepts input from third party sensors. This means existing sensor infrastructure does not need to be replaced. All data, regardless of origin, is visualised and processed in one clear interface.

Integration without limits:

- HTTPS and MQTTS for secure cloud communication
- Open API for external platforms
- Encrypted data handling and secure by design architecture

"Leveraging cloud connectivity and an open infrastructure for unparalleled machine insights across any rotating asset."



Building knowledge,
not just systems

Advanced tools require confident users. Many organizations face a user gap, a disconnect between what the technology offers and the expertise needed to use it effectively. Istec addresses this gap by providing not just technology, but also the training and support to make it truly effective.

Istec Academy

Istec offers access to the software through a fully interactive demo environment as part of the Istec Academy. Engineers train in real-world scenarios and develop diagnostic skills in a safe and practical learning space.

We provide certified ISO 18436-2 CAT 1+ vibration training to ensure users understand both the system and the fundamentals of vibration monitoring. Building on the success of training over 10,000 engineers worldwide, the Academy is expanding with advanced modules, new training levels, and specialist topics to meet growing industry demands.

Scan the QR code and start learning today!

MEMBERS.ISTEC.COM/



Vibration monitoring on BoP machinery with VibSys®

In waste-to-energy (WTE) plants, pumps, fans, and compressors support key processes but are dispersed and operate under varying conditions. Monitoring them is often seen as too complex or costly, leading to reactive maintenance and higher risk.

The challenge

WTE plants often face three key challenges. First, they operate a wide range of support equipment under varying loads and environmental conditions. Second, the number of required measurement points is high. Third, current approaches often struggle to scale in a cost effective and low effort way, especially without increasing pressure on engineering teams. Traditional systems tend to be too bulky or too expensive to install broadly. As a result, some machinery remains under-monitored, relying on infrequent manual checks or trend data that is too generic to guide precise actions.

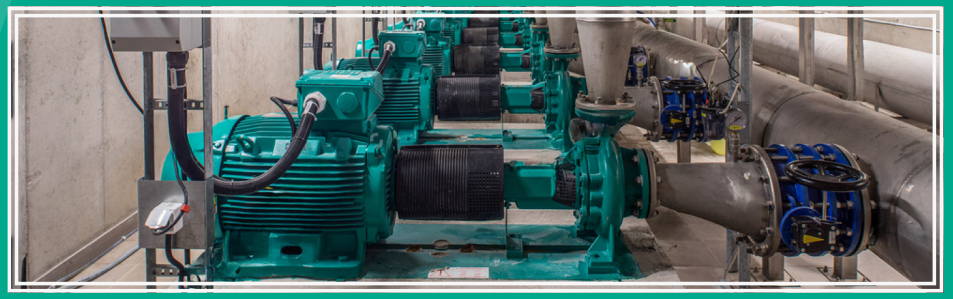


The solution: VibSys®

For these environments, a system like VibSys® presents a promising alternative. Its compact DIN rail design allows installation close to the asset, reducing cabling and easing deployment. The modular structure fits both small and large setups, and it accepts standard vibration sensor inputs, including legacy equipment. By processing data locally, VibSys® can trigger immediate alerts based on rule logic, while full signal data is sent securely to the cloud for trend monitoring and diagnostics. The combination of edge and cloud intelligence offers deeper insights without requiring complex infrastructures.

Key advantages:

- Installation close to the asset with no rack room required
- Compatible with legacy sensor infrastructures
- Durable hard wired setup with minimal maintenance
- AI enhanced insights and rule based alerting
- Easy integration into control systems and data platforms



Impact: reliable insight where it matters most

With VibSys®, facilities can shift from reactive repairs to proactive condition monitoring, even on machinery that were previously only monitored occasionally. This enables early detection of mechanical wear, reduces downtime, and supports smarter maintenance planning. By using a system tailored to the operational demands of support equipment, plants can improve efficiency and reliability, without the complexity of traditional solutions.

Offices

Headquarters
Meer en Duin 8
2163 HA, Lisse
Netherlands

mail@istec.com

For a complete overview of our locations, visit:
www.istec.com/contact/

Website
www.istec.com

Istec distributors

Find your local Istec distributor worldwide:
www.istec.com/distributors/



Free copy of the bookazine Vibration
The bookazine vibration contains interesting and informative articles about vibration measurements on rotating machinery.

Request your copy now:
www.istec.com/bookazine

istec